DISTRICT URBANISATION REPORT
KANNUR

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

I take this opportunity to appreciate the officials of the Kannur District Office of the Department, headed by Sri. K.M Gopakumar 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 Sri. G. Mohanan, Senior Town Planner for their efforts in vetting and finalising the District Urbanisation Report for Kannur.

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 Kannur will further extend the District Urbanisation Report into Integrated District Development Plan for the district.

Certainly, the District Urbanisation Report for Kannur will provide a framework for development as well as future planning of the district.

Thiruvananthapuram

11- 02-2011

**Eapen Varughese**

Chief Town Planner

ACKNOWLEDGEMENTS

The District Urbanisation Report, Kannur is a brief report showing the Urbanisation trend and pattern of Development of District in present as well as in the future contexts. A committed effort was made to analyse the present trend of urbanisation of the District using different growth parameters, infrastructure and facilities. Future growth pattern is derived from the study along with a future connectivity pattern. The spatial structure arrived from this study provides the over all frame work for future planning and development of the district by the way of determining the functions and hierarchy of settlements. Known principles of town and country planning and economic growth of a region is liberally utilised to make this a fruitful effort.

The District planning unit, Kannur of the Department of Town and Country Planning is deeply thankful to various departments who helped to prepare this report by giving necessary information, data and records. We are thankful to our Chief Town Planner Sri. Eapen Varughese for leading us in the proper way in fulfilling this study. I am wholeheartedly acknowledging the valuable support given by the State Project Cell and Sri. G Mohanan, Senior Town Planner Circle -I at Office of the Chief Town Planner Thiruvananthapuram, of Department of Town and Country Planning in materialising this report. Sri. Jacob Easow, Senior Town Planner, Smt. P.R.Usha Kumari, Town Planner, Sri.K. Baiju, Deputy Town Planner and other staff of the State Project Cell exerted efforts continuously to finish this report timely.

The efforts of Planning team of this office led by Sri. Ranjith.K.V, the Deputy Town Planner is specially commendable. All other staff of this office also actively took part in the effort of presenting a clear picture of urbanisation in the District through this study.

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Place: Kannur
Date : 9.02.2011

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Chapter-1
PROFILE OF THE DISTRICT

1.1 INTRODUCTION

Urbanisation is the process of conversion of territories from rural to urban or is defined as the process by which the concentration of population in urban settlement increases. This is mainly because of three reasons 1.Natural Growth 2. Net immigration 3. Changes in the urban area jurisdiction. Urbanisation is a prime indicator of national development. The level of urbanization is considered as an important indicator of the Economic and Social progress of a country. The wealth of a country is mostly generated by its urban areas, and it provides job for the lion share of the people of the region. Most of the industrial activities and other economic activities are concentrated in urban areas. As per the census of India one of the criteria for defining an area as a urban is 75% of male working population shall be engaged in non-agricultural activities and it implies the domination of secondary and tertiary sector activities in urban areas. This also implies economic development clubbed with socio-cultural developments. Urban development is the physical aspect of urbanisation. These two activities should go hand in a democratic setup to ensure good living conditions to its people. Economic developments mainly through secondary or tertiary activities will evolve an option from two choices. Whether the area should be production oriented or service oriented. This necessitates a study of the pattern and trend of urbanization in Kerala over the past few decades and to foresee the trend of urbanization in the coming decades. The processes of urbanization can be assessed in relation to urban population content.

The 2001 census gives a varied picture of urbanization in Kerala during the last decade with the number of urban settlements decreasing from 197 to 159 and that of urban agglomerations increasing from 16 to 17. It is true that the geographical area of a few urban settlements have increased by including the neighbouring panchayats. Also in Kerala's context the result of migration is not substantial. Since the whole area keeps a trend of rural urban continuum, agglomeration in a nodal point is rare. But daily commutation is more from the regions to the urban centre.

The growth of urban population of the Kannur district as well as urban area is increasing. This is contrary to the general trend of rural areas of coastal belt gradually urbanized. This necessitated a study on the urbanization pattern of the District. Planners have to study the process of urbanization of an area because this is one of the main criteria considered to be in the planning process.

1.2 ADMINISTRATIVE DIVISIONS

Kannur district which was constituted in the year 1957 consequent to the formation of Kerala state was part of the madras presidency during British Rule. In 1980 North Wayanad Taluk was separated from Kannur to form Wayanad District. In the year 1984, Kasaragod District comprising Kasaragod and hosdurg Taluks were carved out from Kannur District .

The Present Kannur District has three taluks; Taliparamba, Kannur and Thalassery with Kannur

Thalassery, Thalipparamba Towns respectively as headquarters of the taluks. Kannur the smallest taluk with Kannur town as Head quarter is located on western side, Thlassery on Southern and Thalipparamba on Northern side. There are 125 Revenue villages in the District, 34 nos.in Kannur,48nos.in Thalassery and 43 nos.in Thalipparamba taluks. The location of taluks of the district are as shown in the figure 1.1. The villages coming under each taluk are given in Annexe 1. The names of the taluk are shown in the table 1.1.

The District has 11 block panhcayat, six municipalities and one Cantonment. The name of the blocks, block head quarters shown in table 1.2. The Location of Development Blocks are as shown in fig 1.2

These 11 block Panchayats of the District are divided in to 81 Grama Panchayats, the list of which is given in Annexe 2. The Municipalities of Kannur district are Kannur, Thalassery, Payyannur, Kuthuparamba, Taliparamba and Mattannur.Apart from this the only cantonment in Kerala, Kannur Cantonment also situated here. The Grama Panchayats and Municipalities shown in the fig 1.3

1.3 AREA AND POPULATION

With a total Geographical area of 2970 sq. Kms., Kannur district accounts for 7.64 % of area of Kerala state. It is ranked as the 6th district according to the area. With a total population of over 24 lakhs (as per 2001 Census),it accounts for 7.56 % of total population of the state. Population density of Kannur district is 811 -persons/sq. km, which is just below the state average (819 persons/sq. km) and is ranked 9th in the state as per 2001 census. The detailed list of local governments in Kannur district & its geographical areas are shown in Annexe. 2.
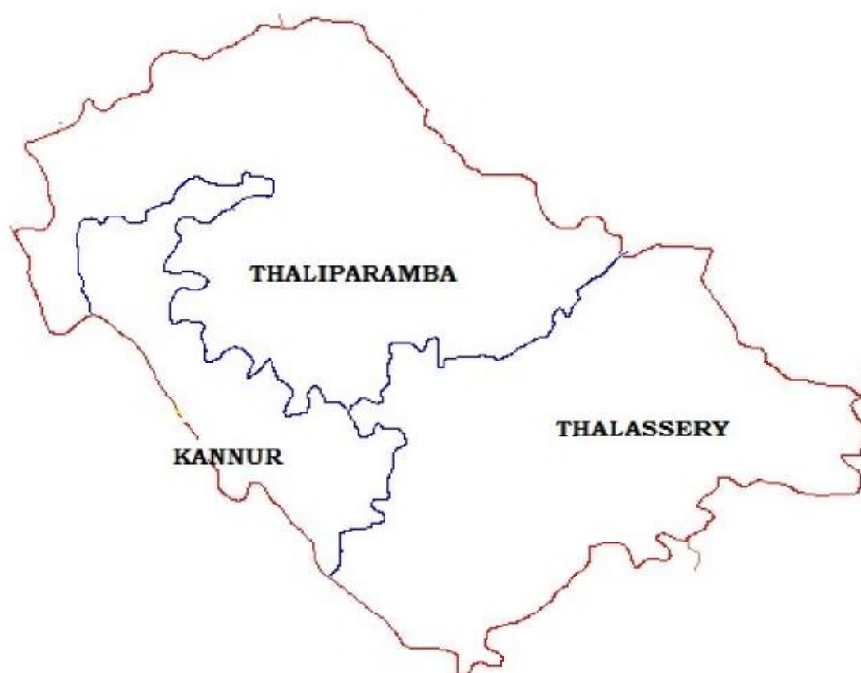
Fig 1.1 Taluks - Kannur District

Table 1.1 Taluks with Head Quarters and Number of Villages

Sl.No.	Name of Taluk	Head Quarter	No. of villages
1	Taliparamba	Taliparamba	43
2	Kannur	Kannur	34
3	Thalassery	Thalassery	48

Table 1.2 Block Panchayats and their Head Quarters

Sl.No	Name of block panchayat	Block Head Quarters	Location of Head Quarters of Block Panchayat
1	Payyannur	Payyannur	Payyannur Municipality
2	Taliparamba	Taliparamba	Taliparamba Municipality
3	Irikkur	Irikkur	Irikkur G Pt
4	Kannur	Pallikkunnu	Puzhathi G Pt
5	Edakkad	Chala	Chembilod
6	Thalassery	Kundurmala	Eranjoli G Pt
7	Kuthuparamba	Kuthuparamba	Kuthuparamba Municipality
8	Iritty	Iritty	Keezhur-Chavassery G Pt
9	Peravoor	Peravoor	Peravoor
10	Panoor	Panoor	Panoor G Pt
11	Kalliassery	Kalliassery	Kalliassery G Pt
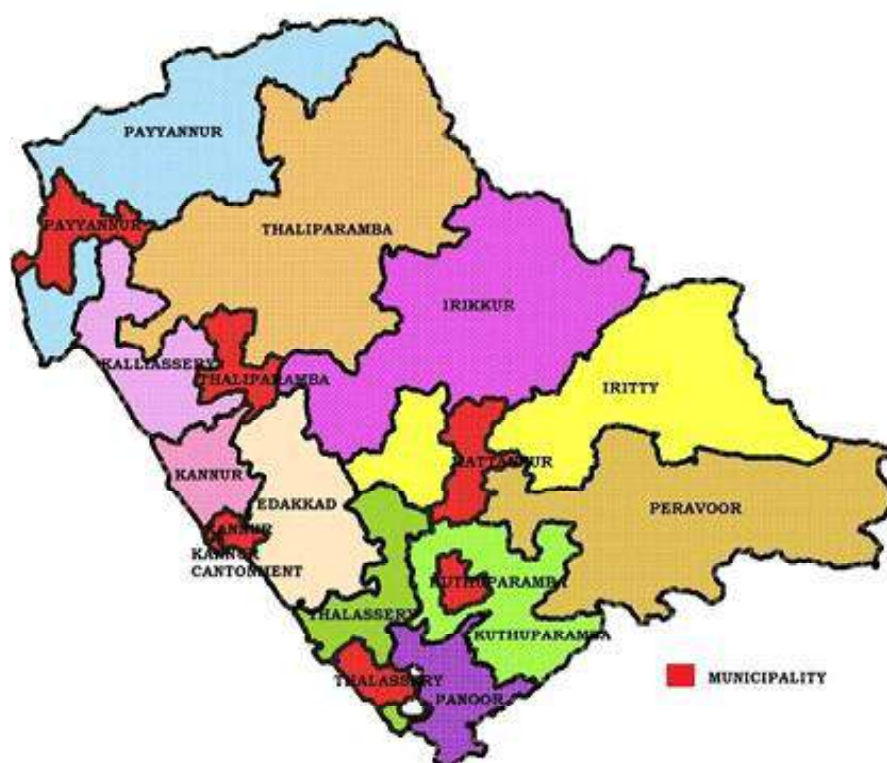
Fig 1.2 Block Panchayats and Municipalities– Kannur Dstrict

1.4 PHYSIOGRAPHY

Physiographically, the district has three divisions including coastal plain, mid land and high lands. Majority of the population of Kannur district lives in the coastal and midland region of the district. Kannur Taluk lies completely in the midland and coastal plain region. Whereas Taliparamba and Thalassery taluks lie in highland, midland and coastal plain regions.

The district level analysis of topography and

relief reveals that over 27 % of the district lies in the coastal plain and 41.25 % of the total district lies in the mid lands.   Over 31 % of the district falls under high land.

Thickly populated areas and LSGs on western side and along the Arabian sea constitutes the coastal plane. The major urban centres of the District, Kannur and Thalassery lies in this region.

The major agricultural centers and growth centers in the middle of the district constitutes the Midland region. About 41.25% of total land area of the district is in the midland region. The second and third order towns suchas, Payyannur, Thalipparamba,   Kuthuparamba and Mattannur Municipalities lie in this region.

The eastern and south eastern part of the District, mainly the part of western ghat in Kannur district and the higher areas of the state forms this region. Eastern parts of Payyannur, and Taliparamba blocks Majority of the Irikkur, Iritty, and Peravur blocks largely constitutes the highland category. Forest lands and plantation comprises majority of land forms in this area. Density of population is very low in the highlands.

Fig 1.3 LSGs of Kannur District

Fig 1.4 .Physiographical divisions of the district

1.5 PHYSICAL FEATURES

a) NATURAL SUB-DIVISIONS :

The Kannur district may be categorized as one of the most representative district of the State as it possesses most of the natural features that the State has. For instance, physiographically, the district has three divisions including coastal plain, mid land and high lands. Besides, other natural assets in the region has dense forest, reserve forest and six rivers (Peumba, Kuppam, Valapattanam, Kannaam puzha, Anjarakandi, and EranjoliRiver).

b) CLIMATE :

The district has a tropical humid climate with an oppressive summer and plentiful rainfall. The hot season March to May is followed by South West Monsoon from June to September. October and November form the post monsoon or retreating monsoon season. The period from October to December is the North West monsoon, with the rains associated with it easing by about the end of December.

c) MOUNTAINS :

The Western Ghats which separate the district from the Karnataka consists of several ridges and hill plateaus which diminish in altitude towards the mid land. The chief hill-ranges in this district are Kottiyur hills, Eruvessi hills, Purali hills, Vaithal hills and several small hills spreads in Mattanur Municipality and the north east grama Panchayats of the District. The altiThe altitudes of peaks in these hills vary from 800ms. to 1600ms.

(d) RIVERS :

The Bavali river which is a tributary of Valapattanam river, the Kuppam river, Anjarakandi river, and Eranjoli river are the four important rivers in this The Bavali River begins from the Kottiyur hills and flowing through the taluks of Thalassery joins Kuttupuzha river and Chengalayi river forms major water body Valapattanam river and finaly flowing

through Kannur Taluk.It also affords facilities for irrigation (Pazhassi irrigation) and water supply projects. The Kuppam river flows through the taluks of Taliparamba, and Kannur. It drains into the Valapattanam river near Azhikkal harbour. Its length is 83 kms. of which 32 kms.is navigable. The Anjarakandy River (length 63 kms.) rises in the hills near Kannavam forest and flowing through Thalassery Taluk and drains into the sea at Koduvalli.

Agricultural field-Midland

Mountain ranges-Highland

Coastal area
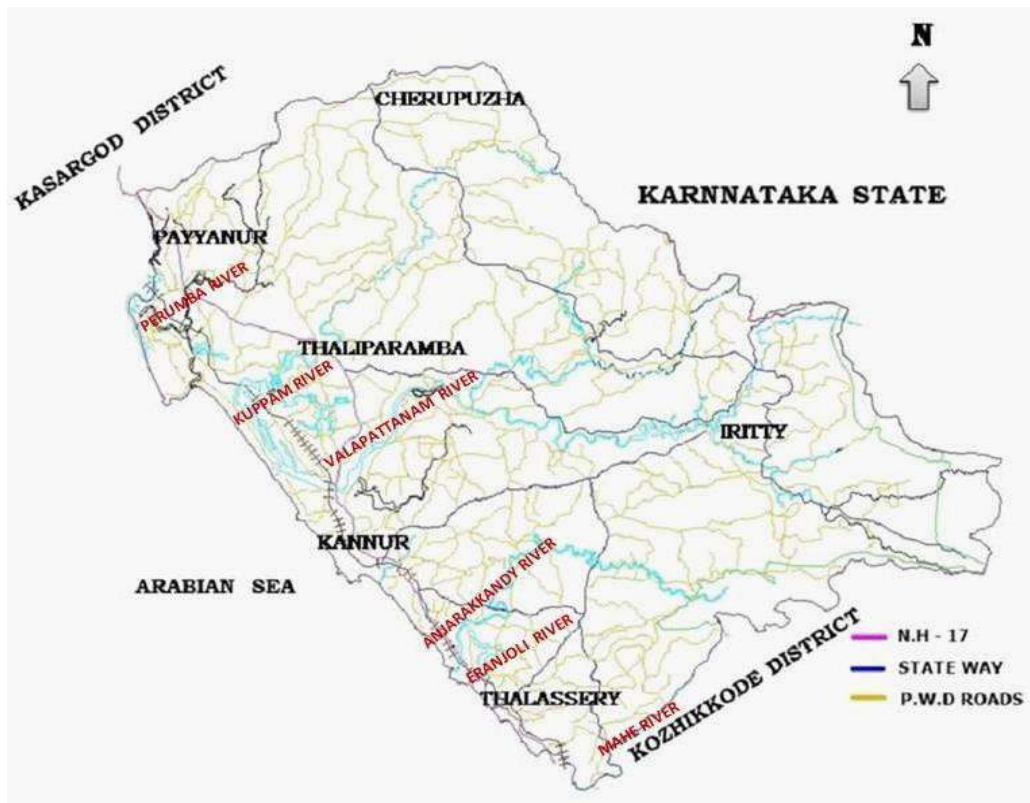
Fig 1.5.Spatial Distribution of the water bodies of Kannur District

Pazhassi Reservoirs

a) LAKES & BACK WATERS

The coastal area of the District is fringed with back waters, that lies asides Anjarakandy river, Eranjoli river, and Kuppam river and are used for navigation and aqua culture.

Vadakkumbad backwater

1.6 SOCIO - ECONOMIC ASPECTS

In the case of socio-economic aspects the following parameters are analyzed.

- ❑ Literacy rate (1991 and 2001);

- ❑ Share of Work force (1991 and 2001);

❑ Net State Domestic Product (1998);and

❑ Per capita Income (1998).

a) LIITERACY RATE :

As per 2001 census, Kerala is the most literate state in India having literacy rate of 90.92%. Inter-district analysis within Kerala reveals that the highest literacy is recorded in Kottayam district (95.9%) and the lowest is in Palakkad district (84.3%). The literacy rate of Kannur is **92.59%**, which is above state average. It occupies 6th position among the districts of Kerala state.

b) SHARE OF WORKERS:

The work participation ratio (WPR) in Kerala has increased from 34.75% to 35.93% from 1991 to 2001. WFPR of Kannur district is 31.74%, which is below the state average and the district ranked 6th in the state.

c) NET STATE DOMESTIC PRODUCT (NSDP) :

The district wise distribution of NSDP as factor cost shows that the Ernakulam district continues to have highest income at Rs. 23325 crore in 2007-08. While lowest net domestic product was recorded in Wayanad district (Rs. 3634 crore). The NSDP of Kannur district was Rs. 11909 crore, (7.33 % of total NSDP of State) in 2007-08 and is ranked 8 th in the state.

The sectoral contribution to the Net State Domestic Product (NSDP) for Kannur District and the State during the years 1980-81, 1990-91 and 2007-08 are given in table 1.3.

The areas contributing to Primary sector are Agriculture, Fishing, Forestry & logging and Mining & Quarrying. The contribution to the Secondary sector are from manufacturing, construction, electricity, gas & water supply; whereas as for Tertiary sector the contributions are from Transport, Trade & Communication, Banking & Insurance, Public Administration and Finance & Real Estate. While the contribution of per capita income from primary sector

for the State has decreased from 39.2 percent to 15 percent. At the same time the contribution from primary sector of Kannur shows a decrease from 49 percent to 20 percent.

While considering the different agricultural produces from Kannur district, the district ranks first in the production of Cashew nuts, arrack nuts and pepper. The traditional industries of the district are textiles, beedi and coir. Handloom textile industry is the most important and the largest in the district. The handloom industry, which was once the monopoly of private enterprises, has since been organized on co-operative lines. Since the district has adequate infrastructure facilities like road, rail, inland water transport, good soil, rich forests, enormous fishing potentials, minerals etc., there is ample scope for the development for industries.

Generally, construction activity is one of the major economic activities in the secondary sector. Though the single most impact of gulf remittances to the State is found in the construction sector through out the State, this construction boom has not contributed in any significant way to the economy. The reason being, the conventional construction practices and technology in building of houses are heavily biased to the use of materials mainly having their source outside the state. Because of these reasons, the contribution of secondary sector to the income of the district had a slow increase from 19 percent in the year 1980-81 to 31 percent in 2007-08.

As regards the tertiary sector, there is an increase in its contribution to the economy of the district from 32 percent in the year 1980-81 to 49 percent in the year 2007-08. During this entire period, the growth was uniform and increasing. In the recent years, tourism and fishing industries were given more importance in the district, which will ensure the further upward growth in trade & commerce, services and tourism. Thus, though there was variation in the sectoral contribution by these sectors at the district level with

Table 1.3 Sector wise Net State Domestic Product, comparison - Kannur District & Kerala state.

| Sectors | Per Capita Income (percent to total) | | | | | |
| | Kerala | | | Kannur District | | |
	1980-81	1990-91	2007-08	1980-81	1990-91	2007-08
Primary	39	36	15	49	42	20
Secondary	24	24	27	19	21	31
Tertiary	37	40	58	32	37	49

Source : Economic Review

respect to the State figures the sector wise per capita income of the district is quite comparable to the State figures.

When the per capita budget outlay is low, the per capita assistance distributed by all financial institutions like IDBI, ICICI, LIC, UTI, GIC etc is also low, i.e., Rs. 50 while the figure at the national level is Rs.306. Considering the above facts, any attempts for improvement of the economy of the district should be towards sustaining and moderately boosting the present state of economy with uniform concentration on all the sectors sectors rather than concentrating in one single element for boosting the economy.

d) PER CAPITA INCOME (PCI) :

The per capita gross state domestic product at constant (1999-2000) prices during 2007-08 is Rs.37530 compared to Rs. 34261 during 2006-07. The growth rate in per capita GSDP is estimated at 9.5 percent during 2007-08. The per capita state income (32961) is higher than the per capita national income of Rs.24321.

The per capita income of the State is increasing at an average rate of 10 percent, the State was lagging behind the national per capita during 90's were changed. For the year 2007-08 the per capita income of Kerala and India at current prices was Rs.48203 and Rs.33299 respectively. The per capita income of Kannur District is (Rs.33087)marginally more than the State figure (Rs.32961). Among the fourteen districts of the State, Kannur district ranks sixth in the per capita income. The contribution of Kannur district to the State income is only7.3 percent.

1.7 INFERENCE

The physiography of the district deserve special mention as it has all the three divisions, namely high land in the eastern part, middle land in the central area and the low land on the western side adjacent to the Lakshadweep sea. About 15.41% of the geographical area of the district is forest, which mainly located on the eastern part of the district.

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Chapter- 2
HISTORY AND REGIONAL LINKAGES

2.1 HISTORICAL BACKGROUND

Kannur is a land with a resonant past. Myths and legends abound. The ships of Solomon, they say: anchored along our coasts to collect timber for building the 'Temple of the Lord'. Kannur finds mention as "NAURA "in the 'Periplus of the Erithrean Sea' a Greek work of great antiquity. Tucked far away from the madding crowd, lies Kannur; the most enchanting district of Northern Kerala. The scene is breath taking. The Lakshadweep Sea washes the sands of sugary beaches laced with rows of green coconut palms. Long rivers break into silvery spray and merge into the blue green waters of the sea. Obviously Kerala is the most beautiful of all Indian states and Kannur definitely shows Kerala at its best.

The political history of the Kannur is closely knit with that of the entire Malabar. It is said that Cheraman Perumal, the last of the Perumals, relinquished his throne after a glorious rule and retired to Mecca after embracing Islam. The vacuum created by the sudden departure of an illustrious monarch caused his kingdom to be split up into numerous units; each governed by feudal chieftains. Of these feudal Lords, the Kolathiri and the Samoothiri (Zamorins) held their sway in the northern and southern regions of Malabar respectively. Kannur used to be the capital of the Kolathiri Raja, the chief rival of the Zamorin limits, is famous as the abode of Kolathiri Rajas. The Kolathiri was sometimes styled as the "Lord of Horses" in view of the flourishing trade in horses, which prevailed in the twelfth & thirteenth centuries between Arabia & Persian Gulf and the Kolathiri Kingdom.

The end of the 15th century witnessed the arrival of European tradesmen on the Indian sub-continent. The Portuguese, who were the first to come and the last to leave India after 450 years of colonial domination, established their earliest settlement at Kannur. Vasco-de-Gama touched here in 1498 AD, when it was a large town of thatched houses inside a bay. Pedro Alvarez Cabral founded a factory in 1501 at Kannur. In 1505 Don Francisco-de-Almeyode built the fort St. Angelo with the permission of Kolathiri. In 16th century Portuguese, Dutches, English and French people landed at Kannur. In February 1766 Hyderali invaded and subdued Kolathunadu, subsequently during his invasion, Tippu Sultan subdued Malabar and Kannur being then in Malabar came under Mysore Regime. During the middle of the 17th Century the fort and the factory were captured by the Dutch in 1772, who later sold it to the Ali Raja. The town survived two successive invasions by Tippu Sultan- the "Tiger of Mysore", in the 18th Century. Kannur remained as one of the Military headquarters of the British till 1887 AD.

Thalassery, the headquarters of the Thalassery Taluk, is an important town in Kannur District. It is situated about 23 Km. south of Kannur. Historically it is an important place. "Let us be sole masters of pepper trade"was the motto of the East India Company and they established their first regular settlement in the Malabar Coast at Thalassery in 1683 AD. The famous

scholar, Dr.Herman Gundert established a church on Nittur hill at Thalassery in 1839. The Anglican Church was built beneath the walls of the Fort by the funds left by the master attendant Mr. Edward Brennen. The Odathil Palli, Thiruvangad Temple and Sri. Jaganath temples are the other major religious centers in this town.

Thaliparamba, the headquarters of the Taliparamba taluk and a marketing center of hill produces is situated about 23 Kms. north of Kannur. The famous Raja Rajesweri Temple, Thrichambaram sreekrishna temple are the famous religious places here.

Valapattanam, known also as Baliapatam and Azhikkal, is located about 10 Km. North of Kannur on the south bank of the Valapattanam river. A part from its historical importance, it is notable that it has the second largest plywood factory in Asia.

Kuthuparamba Municipal town is situated about 24 Km. Southeast of Kannur. The famous dynasty of KeralaVarma Pazhassiraja was situated near to this place. This town act as major hill trades centre and the major connecting centre to Manathawadi in Wayanad district.

Ezhimala of Ramanthali village, Taliparamba

Taluk, the conspicuous landmark of mariners, is situated on the shores of the Arabian Sea. Gasper Correa saysthat Vasco-de-Gama's pilots had fore told that the first land to be seen would be a great mountain, which is on the coast of India in the Kingdom of Kannur, which the people of the country in their language call the mountain Delielly. They call it mount Dely, because in this mountain there are so many rats. Marco polo's "Kingdom of Eli" and Ibn Batuta's "Hill" are identical places. This place is now known for Naval Academy, Ezhimala.

Kannur district came into existence as an administrative unit on first January 1957, when the erstwhile Malabar district and Kasaragod taluk of Madras State were reconstituted into three revenue districts, viz; Kannur, Kozhikode and Palakkad. At the time of its formation, the district consisted of seven taluks, viz, Kasaragod, Hosdurg, Thaliparamba, Kannur, Thalassery, North Wayanad and South Wayanad. Subsequently, the South Wayanad taluk was included in Kozhikode district with effect from 15th March 1957. Later, on first November 1980, Wayanad district was formed carving out South Wayanad and North Wayanad taluks. Two northern most taluks of Kannur district, viz; Kasaragod and Hosdurg were separated on 24th May 1984 for the formation of Kasaragod district.
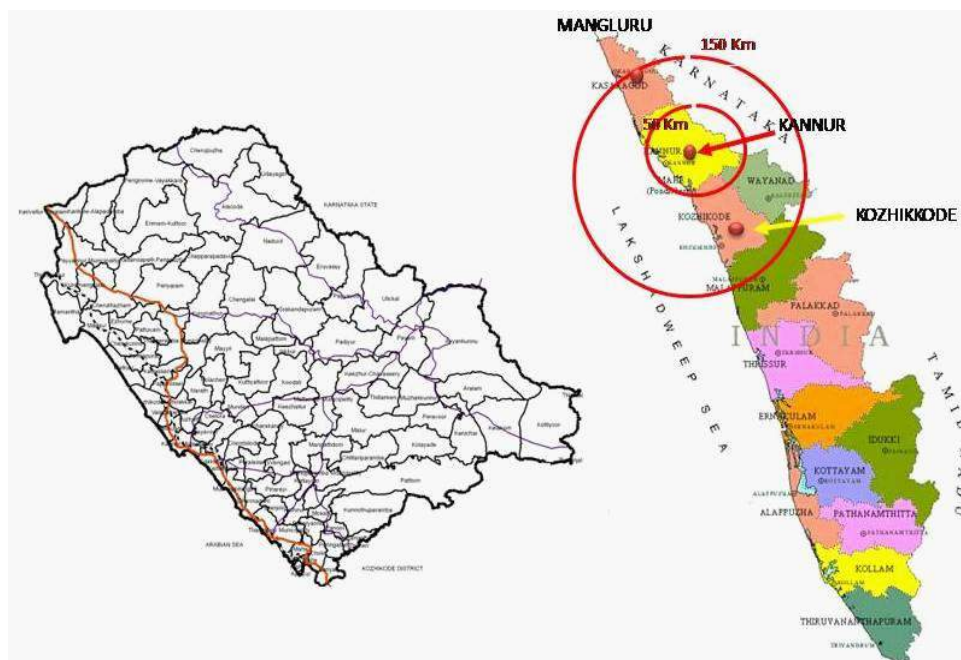
Fig 2.1 Regional setting of Kannur District

2.2 REGIONAL LINKAGES

Kannur is situated on the northern Part of Kerala between 11°40' and 12°48' north latitude and 75°10' and 75° 57' east longitude. It is located as penultimate District from the north and 13th District from the south. Kannur District is bounded by Kasaragod district on the north, Western Ghats bordering Coorge District of Karnataka on the east, Kozhikode and Wayanad Districts and Mahe Municipallity of Pondichery State on South, and Lakshadweep Sea on west.

It is located at a distance of 91 Kms. North of Kozhikkode, the capital of erstwhile British Malabar district and 140 Kms. south to Mangaluru, the Major port City of Karnataka state. Kannur is connected to Kozhikkode and Manglore by both Road and Rail. The Kannur district is about 500kms. North of Thiruvananthapuram, the capital of Kerala, and about 300kms. North of Kochi, the business and industrial capital of Kerala.

CONNECTIVITY

The district has comparatively good connectivity with National Highway (NH-17) of about 90-km length , and three State Highways SH-30 (Thalassery -Mysore), SH- 36 (Taliparamba – Iritty) and SH-38 (Thazhe Chovva – Kuttyaadi) serving all the mid land and high land areas of Kannur district and the broad gauge double line railway route (Kozhikkode – Mangaluru) passing north-south along the western coast. The proposed Hill highway; linking Cherupuzha at north end and Adakkathod at south end of the district pass through western ghat of Kannur district and connects Alakkode, Payyavur, Ulikkal, Iritty and Peravur towns of the district.

Kannur district has a well knit PWD road network to all places particularly to the hilly areas both in Kerala and Karnataka, which helped to develop a trade link with these areas. But the narrow roads are not in proportion to hold the heavy traffic now a days.

Broadly, the transport network in the district comprise the major corridors running north - south through the district, with road and railway routes running parallel to each other for a stretch from southern boundary up to Valapatanam bridge at north. While the railway line keeps through coastal area; the NH crosses high lands connecting Taliparamba and Payyannur Municipalities. The other corridors run through center of the district and connect Thalassery to Coorge and act as a main inter-state traffic movement corridors for the district.

Kannur and Thalassery are the first order commercial nodes of Kannur District whereas Payyannur, Taliparamba, Iritty, and Sreekantapuram are the second order commercial centres of the District. All these towns are situated at an average distance of 20Kms. apart along coastal areas and in mid land.

2.3 INFERENCE

Kannur District is connected to other parts of the State and the Country through railways and road transport. The road network of Kannur District connects almost all villages, towns and LSG's of District. The width of the roads are becoming insufficient to cater to the booming vehicle population now a days in almost all the major roads of the District especially the Urban roads. This is mainly due to the lack of proper plans with future perspectives both in regional and local level. The quality of roads are below satisfactory not only due to the terrain but the climate condition prevails here. This can be improved with location specific design, timely maintenance, and adoption of modern methods of road construction.

In the case of Railways also the situation is somewhat satisfactory but with potential of Development. The waterways was never the major mode of transport of the district, and are now used for private fishing activity and ferry services only. These can also be developed to reduce the ever increasing traffic load on roads. The new airport proposed near the Mattannur Town will attend the transport need of tens of thousands of NRK's from North Malabar.

< CONTENTS >　　　　CHAPTER 3 >>

Chapter- 3
POPULATION

3.1 POPULATION SIZE

Population of Kannur district as per 2001 census is 2408956, which accounts for 7.56% of the total population of the State and is nominally less than what was in 1991 census (7.7%). Kannur district ranks 8th among all districts of Kerala state as per both 1991 and 2001 census.

Comparing the district wise population size Malappuram district is the most populated district in Kerala and Wayanad district is least populated.

Comparing the population of districts in North Kerala, Kannur district comes in third position behind Malappuram and Kozhikode. Kannur with a population density of 811 persons per sq.km ranks nine in the State, which is almost equal to the State average of 819. Among taluks of Kannur district, the population density per sq.km is highest in Kannur taluk (1627) followed by Thalassery taluk (741).

Table 3.1 Comparison of Population of Kannur with Other Districts.

Sl.	District	Population	
No		1991	2001
1	Malappuram	3096330	3625471
2	Ernakulam	2817236	3105798
3	Kozhikode	2619941	2879131
4	Palakkad	2382235	2617482
5	Thiruvananthapuram	2946650	3234356
6	Thrissur	2737311	2974232
7	Kollam	2407566	2585208
8	**Kannur**	**2251727**	**2408956**
9	Wayanad	672128	780619
10	Kasargod	1071508	1204078
11	Kottayam	1828271	1953646
12	Alappuzha	2001217	2109160
13	Idukki	1078066	1129221
14	Pathanamthitta	1188332	1234016
	Kerala	**29098518**	**31841374**

Source : Census 2001

On comparing with the state, it is revealed that the male population Kannur District is 7.45 per cent of The Male population of the state whereas female population is 7.67 per cent. Among the urbanpopulation of the state, 14.67 per cent of urban population comes in Kannur district, which is maximum among urban population of districts in Kerala.

Table 3.2 Population Comparison of District with State (2001 Census)

Particulars	Kerala	Kannur	% of State population
	State	District	
Total Population	31841374	2408956	7.56
Males	15468614	1152817	7.45
Females	16372760	1256139	7.67
Urban Population	8266925	1212898	14.67
Males	4017332	574273	14.29
Females	4249593	638625	15.02
Rural Population	23574449	1196058	5.07
Males	11451282	578544	5.05
Females	12123167	617514	5.09
Total No. of Households	6726356	457368	6.79

Source : Census 2001
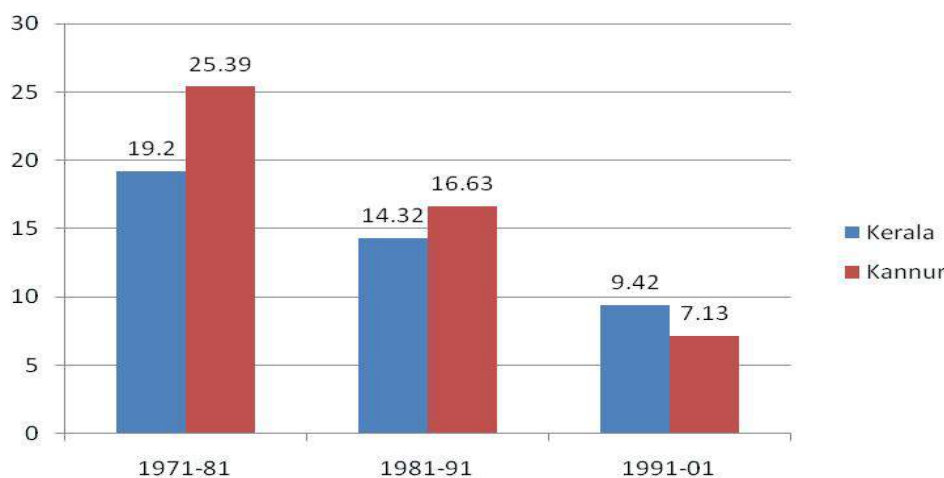
Fig 3.1 Growth Rate of Population in Kerala State and Kannur District

Table 3.3 Growth Rate of Populatin over other Districts

Name of district	Population				% Growth rate (1971-81)	% Growth rate (1981-91)	% Growth rate (1991-01)
	1971	1981	1991	2001			
Kannur	1552809	1930722	2244685	2412365	25.39	16.63	7.13
Kozhikode	1821734	2245265	2619941	2879131	23.25	16.69	9.89
Malappuram	1856362	2402701	3096330	3625471	29.43	28.87	17.09

Source : 1971, 1981, 1991, 2001 Census
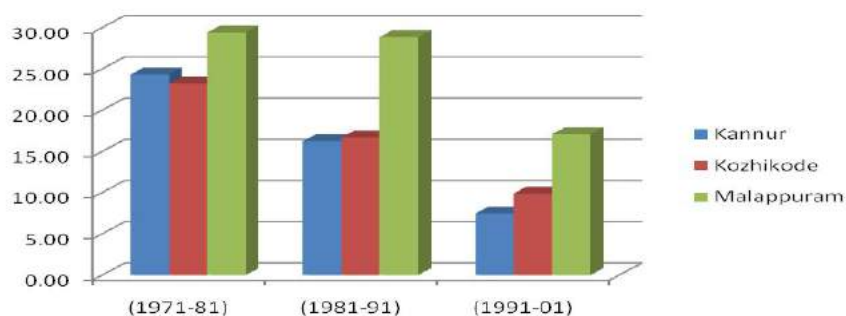
Fig 3.2 Growth Rate of Population Over Other Districts

3.2 GROWTH OF POPULATION

The growth of population of the district during 1981-91 was 16.63per cent and that of 1991-2001 was 7.13per cent, where as the figures of state during corresponding period were 14.32 & 9.42 respectively.

During the period 1981-1991, the population growth rate of the district was (5th position) above the State average. The growth rate of the district and as well the State had a decrease when compared to the 1971-81 period. The respective figures are 25.39 and 19.2 percent. Population growth rate during 1991-2001 of the district is less than that of state average.This shows the decrease in growth rate of population in Kannur.

Comparing the growth rate of population with the nearby districts Kozhikode and Malappuram, the rate of decrease is more in Kannur district where as the rate of decrease is less in Malappuram. The table 3.3 and figure 3.2 shows the details.

New districts of Wayanad and Kasargod are formed carving out Kasargod, Hosdurg and north Wayanad Taluks from the erstwhile Kannur district during 1981-91 and hence the reduction in population. The population furnished includes Kasargod and Wayanad till 1981.

While considering the taluk wise population growth rate in Kannur district, Taliparamba taluk show the growth rate of population more than the district average in 1991-2001 where as in other two taluks Kannur and Thalasserri shows less growth rate than the district average. But in 1981-1991 growth rate of population in both Thalasserri and Taliparamba were above district average growth rate of 16.26, where only in Kannur taluk showed less growth rate than district average.

Table 3.4 Growth of population over decades in Kannur district

Census Year	Population	% of Decennial Variation
1901	7,60,903	
1911	8,12,728	6.81
1921	8,35,611	2.81
1931	9,64,758	15.46
1941	10,85,623	12.53
1951	13,15,501	21.17
1961	16,90,094	28.48
1971	22,35,829	32.29
1981	28,03,467	25.39
1991	22,51,727	16.63
2001	24,12,365	7.13

Source: 2001 Census

3.3 POPULATION DENSITY

Population Density of Kannur as per 2001 census is 811 persons per sq.km. This is nominally less than the state average of 819 persons per sq. km. It stands 2nd in population density on comparing with surrounding districts and 8th in the state. In districts of north Kerala Kozhikode having a density above 1200 and the Wayanad comes last with density less than 500 per sq.km.

The density of population of the district has increased from 650.5 persons per sqkm in 1981 to 759.2 in 1991 and further to 811 in 2001. The smallest Taluk, Kannur has the highest density with 1165 persons per Sq. km in 1971, 1413.5 in 1981, 1627.4 in 1991 and 1737 in 2001. Other two taluks have density less than the district average and less than half compared to Kannur Taluk.

The smallest Taluk, Kannur has the highest density with 1165 persons per Sq. km in 1971, 1413.5 in 1981, 1627.4 in 1991 and 1737 in 2001. Other two taluk have density less than the district average and less than half compared to Kannur taluk.

As per the analysis the concentration of the density of population is more in coastal areas and decreasing towards east. It is prominent to see the area along the NH and State Highway is denser than other areas. Also it is seen that more than 1500 population density is in 419.42 sq.km areas in west and in the range 750-1500 in 631.33 sq.km of midland and less than 750 in 1901.73sq.km in highland areas.

DENSITY OF NEAR BY DISTRICTS AND STATE-COMPARISON
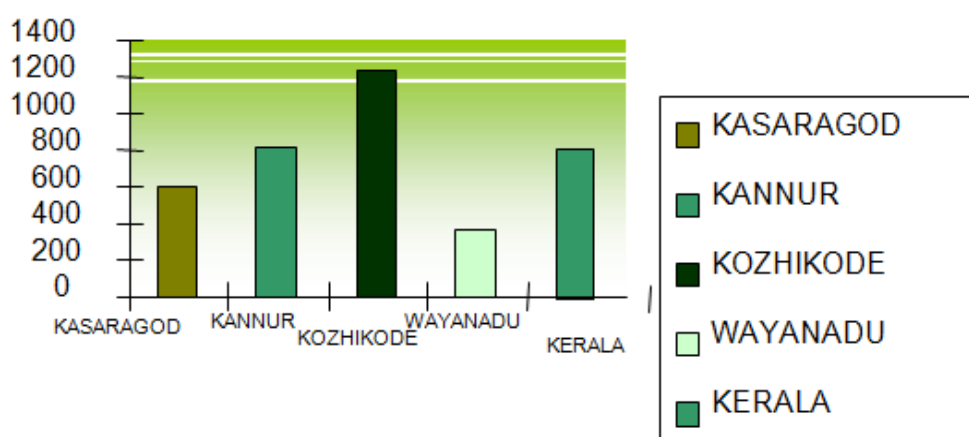
Fig 3-3 Density of Population of Districts in North Kerala

Table 3.5 Taluk wise growth of population - Kannur district

Name of Taluk	Population			% Growth rate (1981-91)	% Growth rate (1991-01)	Area in Sq. km.
	1981	1991	2001			
Taliparamba	566341	668046	731283	17.96	9.47	1330.6
Kannur	608955	701074	748410	15.12	6.75	430.8
Thalassery	755426	882607	932672	16.84	5.67	1206.6
Kannur Dist	1930722	2244685	2412365	16.26	7.47	2968

Source: 2001 Census

Table 3.6 Population Details of Taluks of Kannur District

Name of Taluk	Population			% Distribution of Population	Area in Sq.km	Density 2001
	1981	1991	2001			
Taliparamba	566341	668046	731283	29.39	1330.6	550
Kannur	608955	701074	748410	31.54	430.8	1737
Thalassery	755426	882607	932672	39.07	1206.6	773
Kannur Dist	1930722	2244685	2412365	100	2968	813

Source: Census 2001
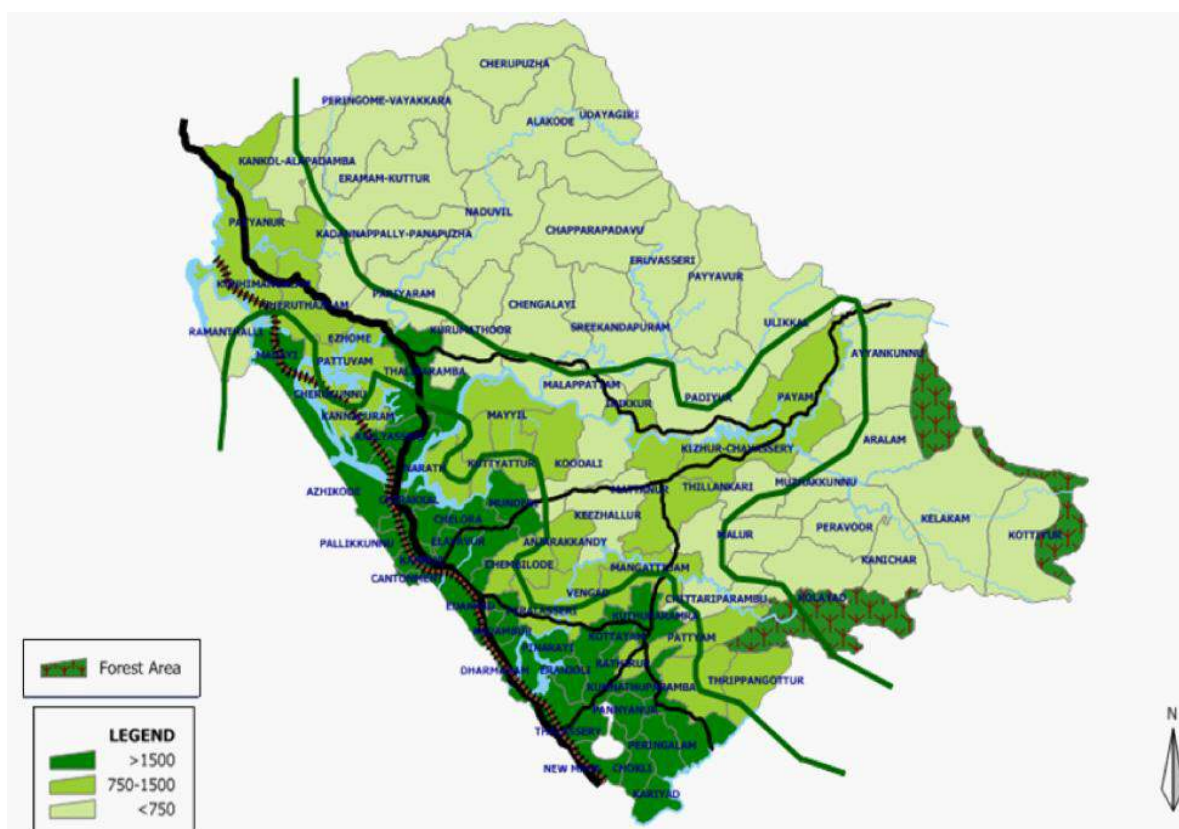
Fig 3-4 Distribution of density of population

3.4 SEX RATIO

The sex ratio of Kannur district as per 2001 shows 1090 females per thousand male population, and is higher than the state average of 1058.

While comparing the sex ratio it can be seen that the ratio increases steadily from 1971 to 2001. On comparing the data of urban and rural areas the rate of increase in urban area is more than that in rural areas.

The fluctuation is mainly due to more employment for males, less mortality of males, more outgoing of males for employment etc.

The taluk wise sex ratios for the census years 1981, 1991 and 2001 are furnished in table 3-8 .

From the table 3.8 , it could be seen that males outnumbered females in Kannur and Thalassery Taluks during 1981. But the rate of increase in sex ratio is more in these taluks during subsequent decades.

Table 3.7 Sex Ratio of Population in Kannur District

Census year	Number of Females Per 1000 Males		
	Total	Rural	Urban
1901	1060	1062	1035
1911	1071	1074	1036
1921	1099	1100	1086
1931	1085	1087	1063
1941	1088	1094	1011
1951	1065	1066	1053
1961	1041	1048	1010
1971	1022	1024	1008
1981	1034	1033	1037
1991	1049	1027	1070
2001	1090	1068	1113

Source: Census 2001

Table 3.8 Taluk wise Sex Ratio – Kannur District

Name of Dist./Taluk	No. of Females per 1000 males								
	1981			1991			2001		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Kannur Dist.	1032	1040	1038	1049	1027	1070	1090	1068	1113
Taliparamba	1016	983	1002	1019	1013	1045	1055	1048	1059
Kannur	960	936	975	1060	1076	1057	1108	1148	1100
Thalassery	947	951	936	1062	1031	1095	1104	1071	1137

Source: Census 2001

3.5 POPULATION CONCENTRATION PATTERN

The population of the district as per the 2001 census shows it is concentrated mainly on the western part of the district that is in the coastal areas. In taluk wise even though Kannur thaluk is the smallest(14.5% in area) but having the share of 31.54percent population, where as in Taliparamba taluk having an area of 44.8percent of geographical area contain only 29.39 percent of population.

The population concentration pattern of the district reveals that one third population (33%)living in an area of 9.73% of total land area of the district.

Similarly the half of the total population (50%) of the district resides in 18.12 % of the area where as two third population resides in 32.67 percent of total district area. The Fig 3-5 shows the concentration pattern as above.

Table 3.9 Distribution of Population –Taluk wise

Name of Taluk	Population 2001	% Distribution of Population	Area in Sq.km	% of Area
Taliparamba	731283	29.39	1330.6	44.8
Kannur	748410	31.54	430.8	14.5
Thalassery	932672	39.07	1206.6	40.7
Kannur Dist	2412365	100	2968	100

Source: Census 2001
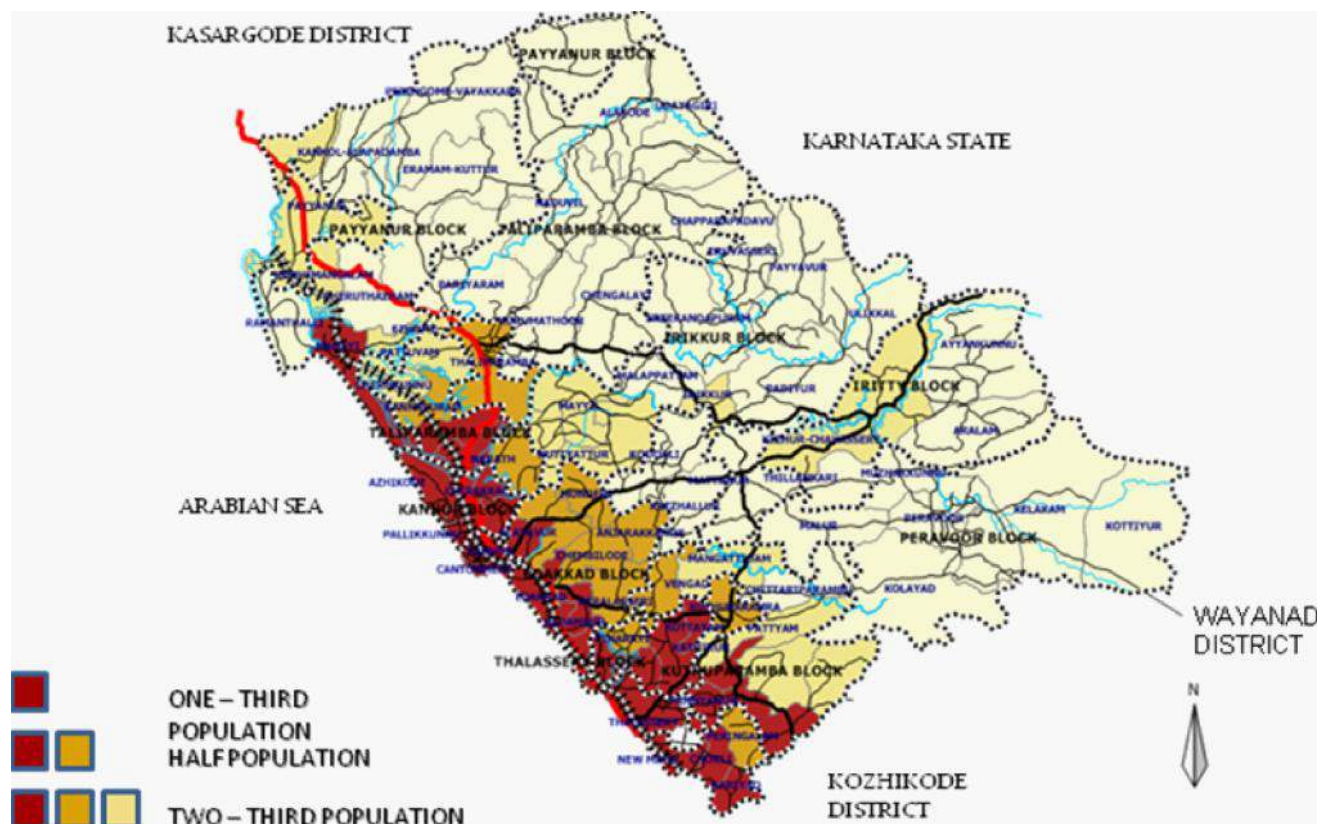
Fig: 3.5 Population concentration map-Kannur District

3.6 MIGRATION DETAILS

The migration should study both in migration and out migration. The in migration starts very early in Kannur from neighbouring states Karnataka and Tamilnadu as well as from southern districts within Kerala.

The proximity to the Kodagu and South canara Districts of Karanataka also worked as catalyst to the migration of people of linguistic minority. In recent past the migrants from southern districts mainly from Kottayam and Pathanamthitta migrated to Kannur in plenty. They settled in eastern areas mainly where the waste cultivable land available in plenty. They settled in those areas and started cash crops in waste land which help to improve the economy as well as development of those areas. The other main in migrants were mainly workers from Tamilnadu. In migration in this district continuing still as construction labours from Bihar, Bengal and Orissa etc. are now a days a common phenomena. A large portion of workforce in the towns of the District especially in the areas of construction, hotel industry etc are from other states.

Out migration is also clearly visible in Kannur District. Out migration to other states like Maharashtra, Karnataka and Tamilnadu started early in pre independence period .There are Thousands of people from the district settled in Kodagu District of Karnataka who are descendants of people from District gone there in search of livelihood. Many more are settled in important metros such as Delhi. Bombay and Chennai etc. But the Outmigration in search of job and business is mainly to the Gulf States. From 1971 ,after finding the petroleum reserve in Gulf countries the rate of out migration increased drastically. Comparing to the statics of out migration of the whole state, the district next in importance with respect to emigration from the state has been Kannur in north Kerala, with 254,000 emigrants. The share of Kannur had doubled over the 9-year period. In 1998 only 6.5 percent of Kerala

emigrants had originated from Kannur, but by 2007 its share increased to 13.8 percent. Overall, there has been a steady shift northwards with regard to the centre of emigration in the state. The total numbers of emigrants from a district depend on its total population also. Control for this difference is ensured, by calculating the number of emigrants per household. In 2007, the average number of emigrants per 100 households has been 24.5 at the state level. But the corresponding average has been as high as 49.8 in Malappuram and 48.8 in Kannur districts.

3.7 POPULATION PROJECTION

The Population parameter serves as the base in all the development endeavours. One of the objectives of all sorts of planning is providing maximum good for the maximum number of people. Estimate of future population is therefore required for planners to analyze the magnified image of the consequences and current trends and differentials. Population growth of an area depends on number of births, number of deaths, number of in migrants and out migrants over a time period taken for the population projection. If one can predict the exact future values of all these factors, population projection of that area can be done very accurately.

Population projection is usually done by understanding the pattern of population growth in the past and assuming continuation of the same pattern of growth in the future, the present population is projected to the desired future period.

Different methods are there for projecting the population.

1. Arithmetic increase method

2. Geometric increase method

3. Incremental increase method

4. Changing rate of increase method (Decrease rate of method)

5. Graphical method

6. Logistical curve method

7. Apportionment method

In the arithmetic increase method, population is assumed to be increasing at a constant rate. The average increase in population found out from the previous decades population data is added to the present population to obtain the population in the succeeding decade.

In the Geometrical increase method average of the percentage increase in population over each decade is found out and the present total population is multiplied by this average percentage increase in population to find out the added population over the present population in a decade.

Incremental increase method is a combination of the above two and gives the advantage of both the methods. In this method the average increase of population per decade and the net incremental increase of the population per decade is found out. The net incremental increase in population is added to the average increase of population to get the corrected average increase of population and this figure is added to the present population figures to get the future population figures.

In the changing rate of increase method the percentage increase in population over each decade and the average of the increase or decrease of net percentage increase in population are found out. The average of the increase or decrease in net percentage increase in population is added (or subtracted) to the present decades percentage increase of population to get the corrected increase of percentage of population and with this the future population figures can be found out.

In the graphical method cities having conditions and characteristics similar to the city where future population is to be estimated are selected. It is then assumed that the city under consideration will develop as the selected similar cities have developed in the past.

This method has a logical back ground, and if statistics of development of similar cities are available, quite precise and reliable results can be obtained.

Logistical curve method assumes that the population of a limited space follows the growth curve characteristics of living things provided birth, death and migration within the limited space do not produce extra ordinary changes. The curve is S shaped. P.F Verhulst has put forward a mathematical solution to the curve.

The population P at any time t from origin (t=0) with Po is the original population.

$$P = Ps / (1+ m. loge 1 (nt))$$

Where Ps = Saturation Population, m,n =a constant
Ps = 2 PoP1P2 – P12 (P0+P1)/(P0 P2 – P12)

In the apportionment method, census population record is expressed as the percentage of the population of the whole country. The ratio of the town population under consideration to the National Population is calculated for the last three or four decades. A graph is plotted between these ratios and the time .The extension of the graph will give the ratio corresponding to the future years for which forecasting of the population are to be done. The following table analyses the suitability of each of the above methods.

From the above table one can see that the most suitable methods of population projection for Kannur are decreasing rate method, Logistical Curve method and apportionment method.

POPULATION PROJECTION OF KANNUR DISTRICT
DECREASING RATE METHOD :

The population growth rate of 2011 & 2021 are calculated assuming that the same percentage of decrease in population growth prevails as that of 2001 for the succeeding two decades. Based on the population growth rate calculated, the population of the District is projected ofr projected for 2011 and 2021 and the same is shown in table 3-11.

APPORTIONMENT METHOD :

In the apportionment method the ratio of the District population to the State population has been found out and the same is projected to the next two decades assuming the change in the ratio during 2001 - 2011 and 2011-2021 are same as that during 2001. In order to find out the projected population in 2011 and 2021, the projected population of the State during the same years are needed. The projected population of the District based on the apportionment method is shown in table 3-12

As per the logistical curve method the population increase is in moderate than using the other two methods, which is shown in the graph (fig 3.6)

The projected total population by the three methods differs slightly. The average of these is taken as the population figures of Kannur District. This is shown in table 3-13.

So it can be concluded that the total population of Kannur District will be 2462879 and 2525247for 2011 and 2021 respectively.
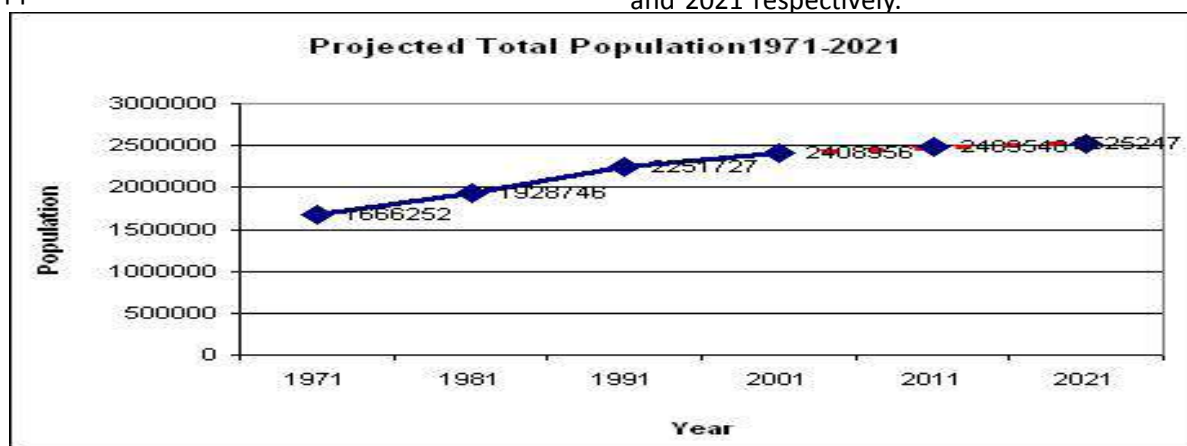
Fig 3-6 Population projection in logistic curve method

Table 3.10 Method of Population Projection

Sl. no.	Method of population projection	Suitability
1	Arithmetic Increase method	Suitable where increase in population is uniform and where population growth is nearing saturation level.
2	Geometrical Increase method	Suitable where percentage increase in population is uniform and in old cities
3	Incremental increase method	This is modification of the above two methods and gives correct result where these two methods are suitable
4	Changing rate of increase method	Most suitable when the rate of increase in population goes on reducing
5	Graphical Methods	Suitable when population data and details of development pertaining to similar cities are available
6	Logistical curve method	Suitable for any area where extra ordinary changes in death rate, birth rate and migration are not expected
7	Apportionment method	Suitable for any area where extra ordinary changes in death rate, birth rate and migration are not expected

Table 3.11 Projected District Population – Decreasing rate method

Year	Total population	Population Growth rate	% Decrease in Population Growth rate
1971	1666252		
1981	1928746	15.75	
1991	2251727	16.75	6.3
2001	2408956	6.98	-58.3
2011	2479095	2.91	-58.3
2021	2509193	1.21	-58.3

Table 3.12 Projected District Population – Apportionment method

Year	Total population		Ratio of District population to Sate Population	Change in increment ratio
	Kerala	Kannur Dist		
	x	y	y/x	
1971	21347375	1666252	0.07805	
1981	25453680	1928746	0.07577	-0.00228
1991	29098518	2251727	0.07738	0.00161
2001	31841374	2408956	0.07565	-0.00173
2011	33817196	2462879	0.07283	-0.00283
2021	35198589	2524257	0.07171	-0.00111

Table 3.13 Final Projected Population figures of the District

Year	Total population as per decrease rate method	Total population as per apportionment method	Total population as per logistical curve method	Average population figures
2011	2479095	2462879	2409540	2462879
2021	2509193	2524257	2525247	2525247

3.8 INFERENCE

It is estimated that the total population of the district increases by about 0.6 lakh by 2011 and from there it increases by another 0.5 lakh population in the succeeding 10 years (by 2021) with a growth rate of 3 during 2001-2011 &1.62 during 2011-2021. The growth rate of Population is decreasing at a faster rate and the % share of population of Kannur district to the state population is also decreasing. Sex ratio shows a decreasing trend from 1921 to 1971 and shows increasing trend afterwards.It is worthwhile to note that the major economic base of the district is the income through work force migrated to Gulf countries.

Chapter- 4

OCCUPATIONAL STRUCTURE

In this chapter the existing economic base of the District based on the occupational structure as per census 2001 is studied. The change that has happened in the economic base of the district over a period of time is also probed into.

4.1 WORK FORCE OF THE DISTRICT

As per census 2001, the work participation rate of Kannur District is 24.46%. Out of the total population of 24.08 lakhs, 5.89 lakhs populations are workers. The total workers are further divided in to main and marginal workers. Main workers constitute 20.68 % of the total population and marginal workers constitute 3.78 % of the total population. This is shown in fig 4.1 and 4.2

The change in the number of total workers, marginal workers and main workers over a period of time are shown in the fig 4.3 and table 4.1. The graph shows that, though the total workers are gradually increasing over last three decades (from 1981 to 2001), the number of main workers shows decreasing trend in between 1991 and 2001 indicating a dim picture about the current economic base of the District.

Even though the number of the total workers of the district show increase in figures during 1991-2001, the growth rate of the workers during this period (growth rate is 6.7%) is below the growth rate of the total population (Growth rate of total population is 7.38%) of the same period. This indicates that the opportunity of working is not increasing in proportion to the growth of population. This may be due to the shrinking economic base of the district.
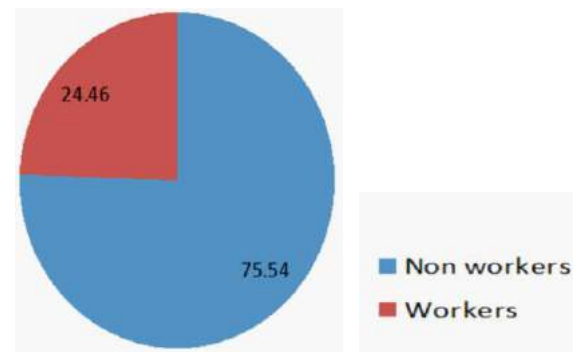
Fig 4.1: Work participation rate
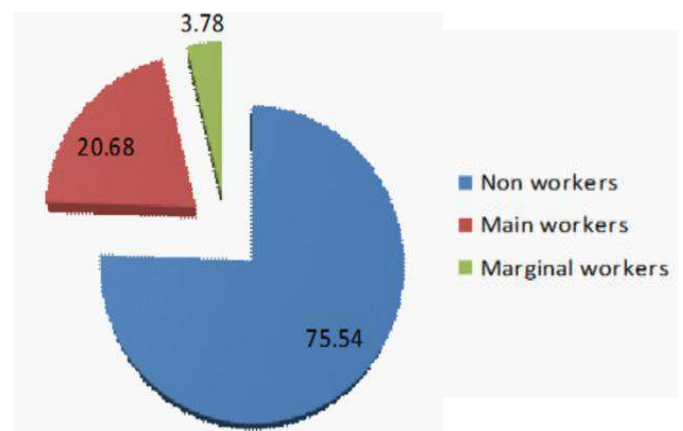
Fig 4.2 : Main workers, marginal workers and non workers

4.2 OCCUPATIONAL STRUCTURE

As per the census 2001, the main workers are classified in to four categories viz. cultivators, agricultural labourers, household industrial workers and other workers. The other workers category also includes the primary sector workers like fishermen, workers engaged in mining and plantation workers.

The cultivators and agricultural labourers constitute only 8.2 % of the total main workers where

share of the main workers (88.5%) belongs to the other workers category (See fig 4.4). As mentioned earlier other workers category will include some of the primary workers like fishermen, workers engaged in mining and plantation workers. Assume that 12 % of the total workers belong to this primary worker category. Even then one can say that, 66 % of the total workers engage in tertiary activity.

These findings pose a contrast against the national figures where more than 60% of the total workers engage in primary activity. This is a clear indication of the declining trend of the primary sector in the Kannur District.
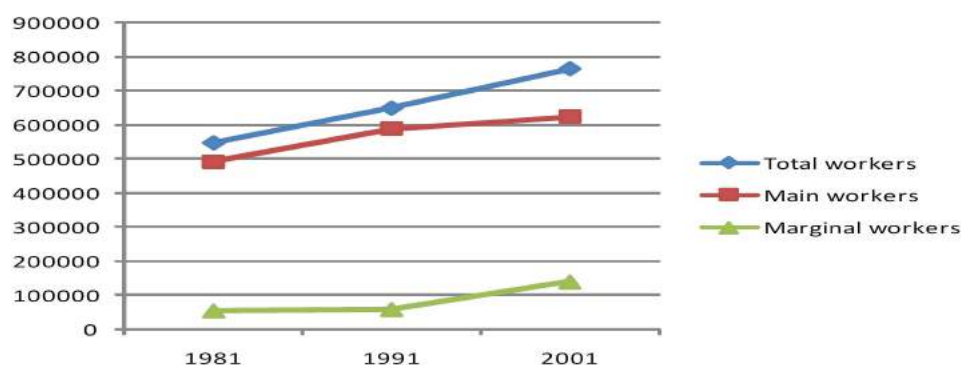
Fig 4.3: Growth Rate of Main and Marginal Workers in Kannur District
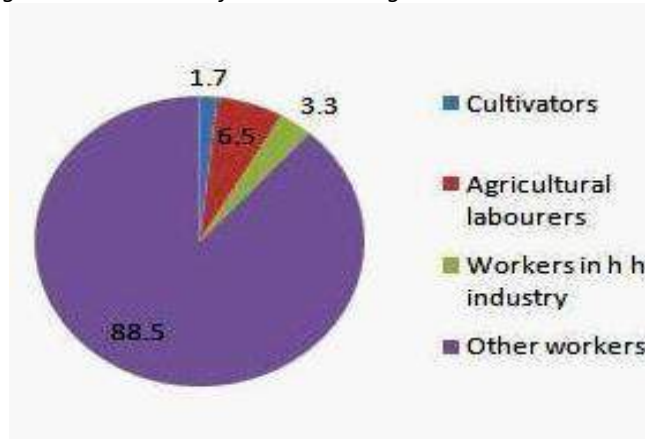
Fig 4.4: Classification of the Main workers

Table 4.1 Growth Rate of Main and Marginal Workers in Kannur District

Year	1981	1991	2001
Total workers	549273	650056	764619
Main workers	493742	590387	624394
Marginal workers	55351	59669	140225

Source : Census 2001

Table 4.2 Workers Classifications- District

Cultivators	Ag. labourers	HH industrial workers	Other workers
42,102	73083	15855	524049

Source : Census 2001

4.3 OCCUPATIONAL STRUCTURE - VARIATION IN URBAN AND RURAL AREAS

(Occupational structure - Estimation of nine fold classification of 2001)

The table number 4.3 shows the four-fold category of workers in the urban and rural area of the District. The same values are depicted in pie in fig. 4.5

The above chart shows that the cultivators and agricultural labourers share are 3% and 21% in urban area and rural area respectively. The household industrial workers share is the same at 2% in both urban and rural areas. This indicates that as far as the workers classification is considered, all most all the workers (95%) in urban area depends on the tertiary sector for their lively hood. Household industrial sector share in both urban and rural area is a very low of 2% of the total main workers.

The nine fold classification of workers (shown in figure 4.6) in the district shows that the maximum (20%) workers in trade and commerse as well as in other services. Another 19 percent in manufacturing, processing services other than house hold industries. Cultivators are only 5% and agriculture labours are 8% only. 14% in live stock, forestry, fishing and plantation. The details of 9 fold classification of workers shown in annexe 4 .

Cashew plantations
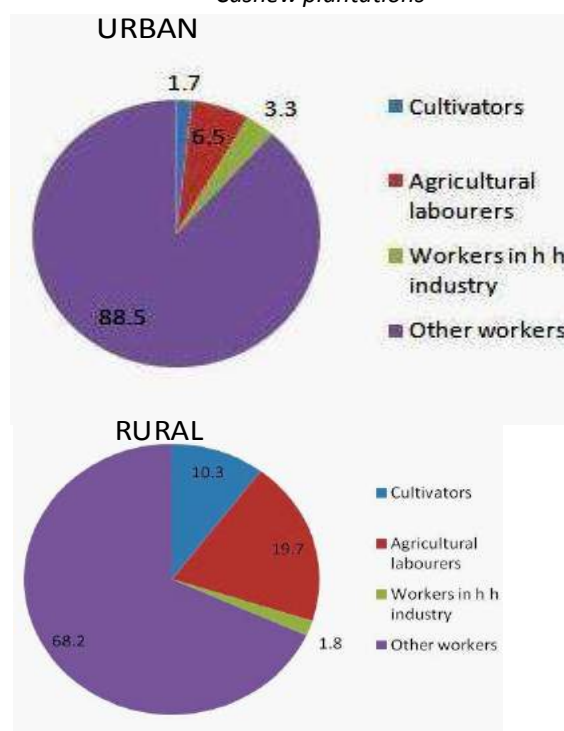
Fig 4.5: Classification of the Main workers - Urban & Rural area

Table 4.3 Workers Classifications- Urban and Rural area

	Cultivators	Agricultural labourers	HH industrial workers	Other workers
Urban	680	2449	2468	113192
Rural	41426	70634	13387	410857

Source: Census 2001

4.4 SPATIAL DISTRIBUTION OF THE MAJOR CLASSES OF WORKERS

The detailed analysis of concentration pattern of workers is detailed in annexe 4a.

The cultivators and agricultural laboures are mainly concentrated in northen and eastern part of the district. The concentration index of cultivators are more than 3 in Ulikkal, Ayyankunnu,Payyavur, Aralam,Payam, Kanichar , Kelakam and Kottiyur panchayat , while agriculture laboures are concentrated in Kankole – Alapadamba, Ayyankunnu, Keezhur-Chavasserri, Koodali,Payam, Thillankeri, Kolayad Malur, Kottiyur, Peravoor, Muzhakkunnu and Mattannur panchayat. Detail shown in the Figure 4.7 and 4.8.

Live stock ,fishing and Plantation workers are concentrated in eastern areas of highland and in coastal areas. Concentrated mainly in Cherupuzha, Peringome-Vayakkara, Alakkode, Ramanthali, Mattool, Chapparapadavu, Naduvil,Udayagiri, Payyavur and Eruvessi Panchayats.

Mining and quarrying are mainly concentrated in midland areas, as shown in Figure 4.10 .

Concentrated in Cheruthazham, Ramanthali, Kurumathur, Narath, Pariyaram, Kuttiyattur, Malappattam,Mayyil, Keezhallur and Koodalipanchayat In Manufacturing, Processing and servicing in certain House hold industrial workers are mainly concentrated and are located in coastal plains and midland area. The major concentration is in Kunhimangalam, Mattool,Pattuvam,Narath, Kadambur, Peringalam and Mokeri panchayat and in Payyannur municipality.

Manufacturing and processing and servicing of other than house hold industries shows that they are concentrated in coastal areas, mainly in urban settlements and in midlands along state highway.

Trade and commerce also concentrated in coastal areas, where urban LSGs are mostly located. The details are as shown in fig. 4.13.

Transport, storage and communication and other services also located in urban areas and concentrated in western part and southern part of the district.

Figure 4.14 & 4.15 shows the spatial distribution in different LSGs.
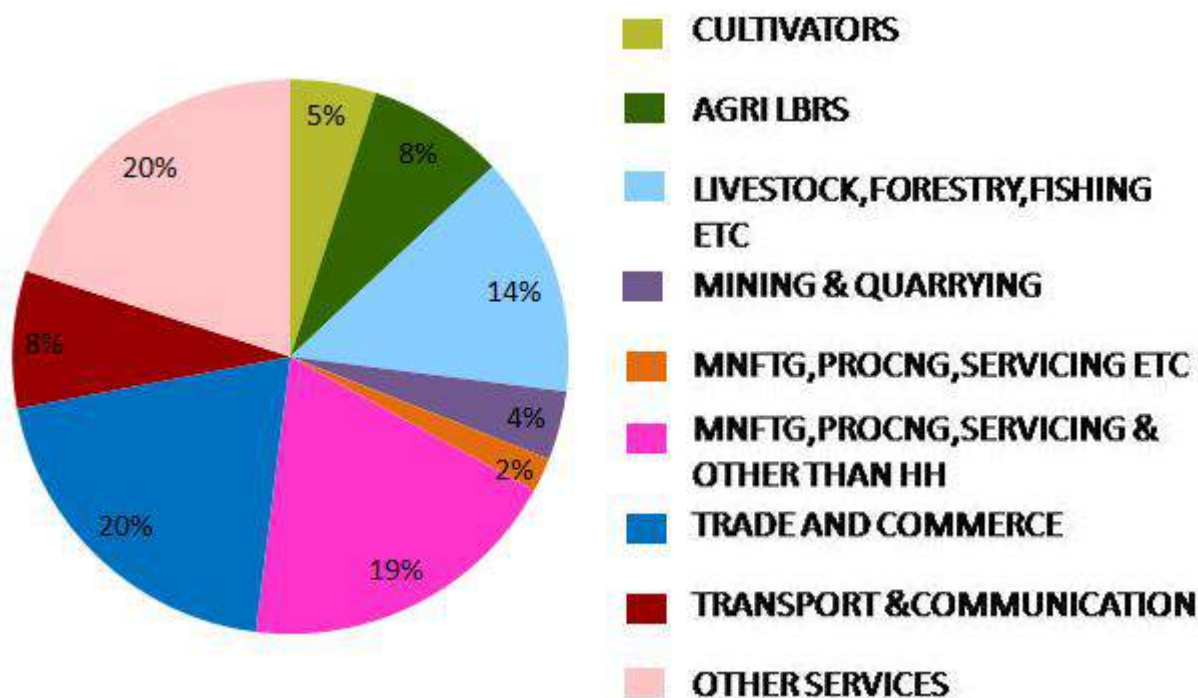
Fig. 4.6 Occupation Structure 2001 - (9 Fold Classification)
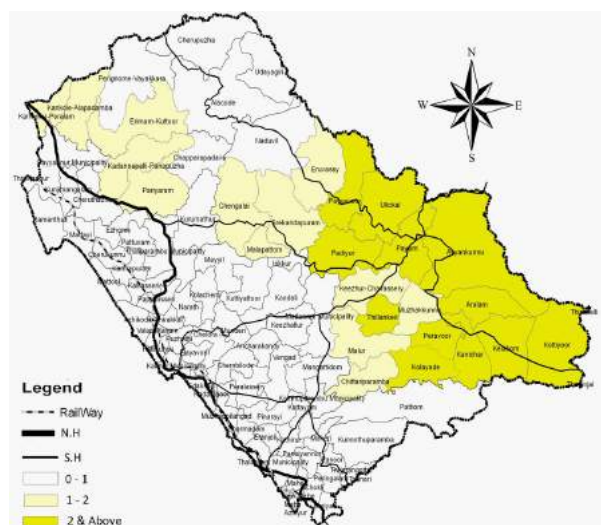
Fig. 4.7 Concentration Index Cultivators
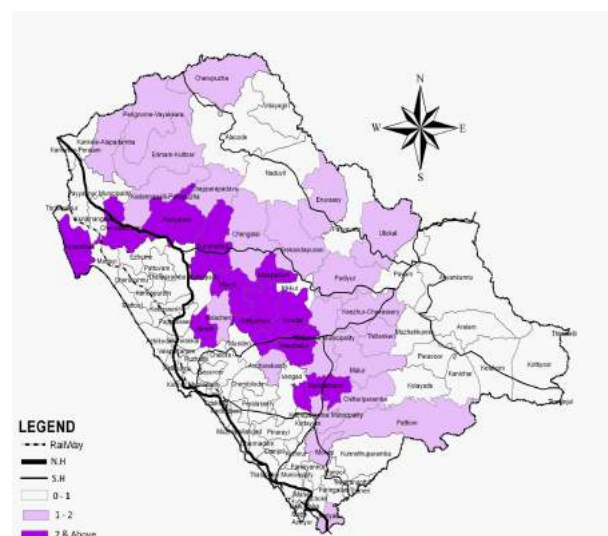
Fig. 4.10 Concentration Index Mining
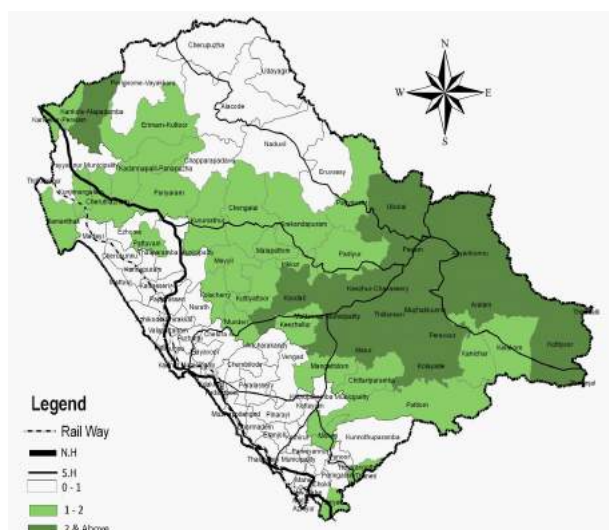
Fig. 4.8 Concentration Index - Agricultural Labourers
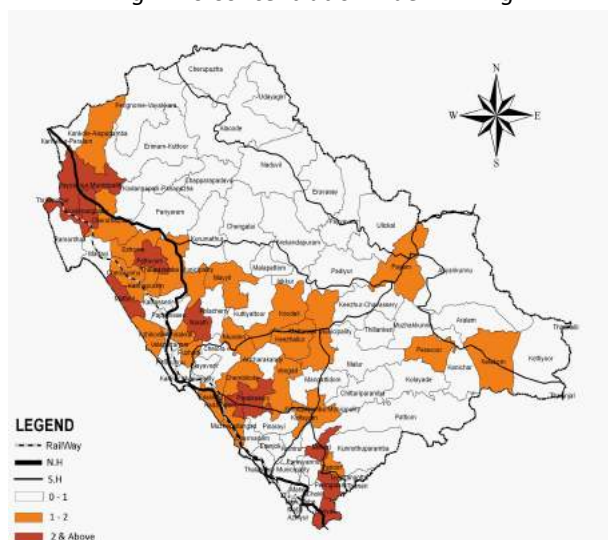
Fig. 4.11 Concentration Index - Manufacturing & Household Industries
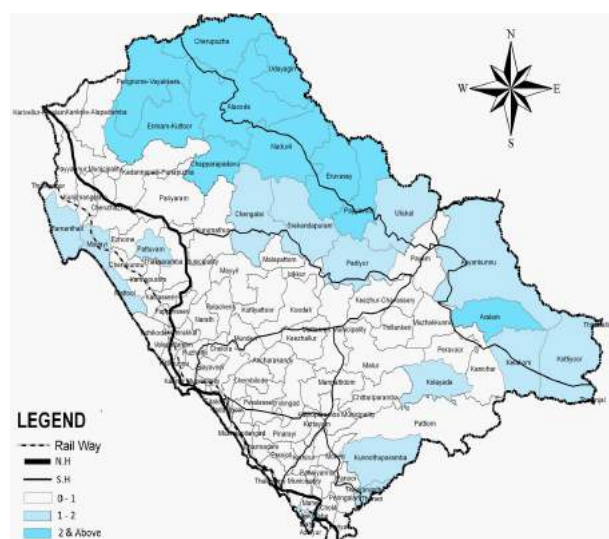
Fig. 4.9 Concentration Index Livestock Forestry & Fishing
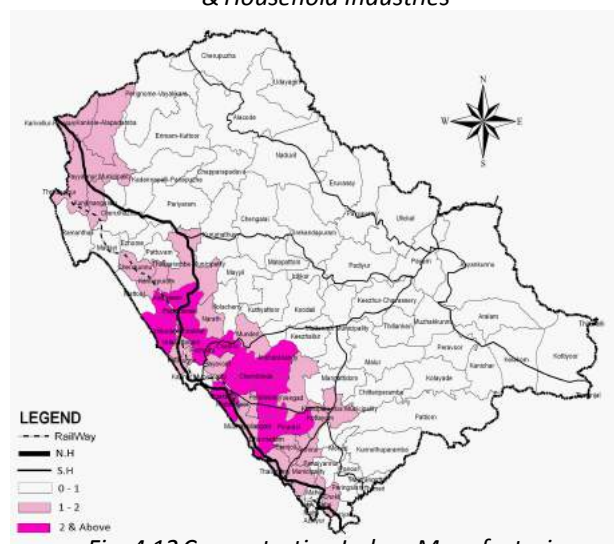
Fig. 4.12 Concentration Index - Manufacturing & Other than Household Industries
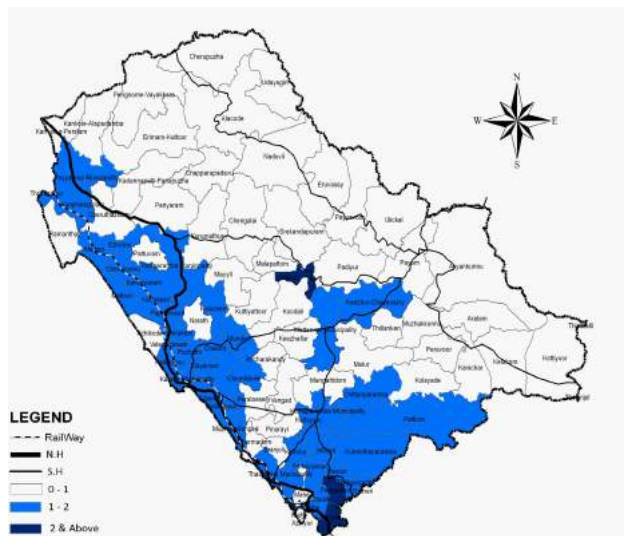
Fig. 4.13 Concentration Index - Trade & Commerce
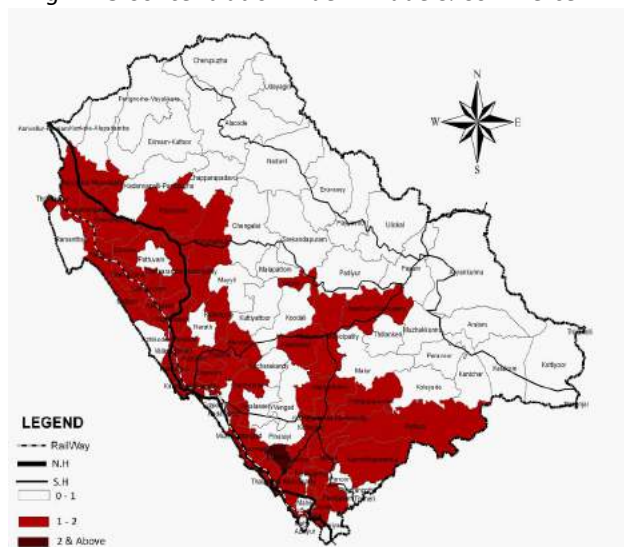
Fig. 4.14 Concentration Index - Transport & Communication
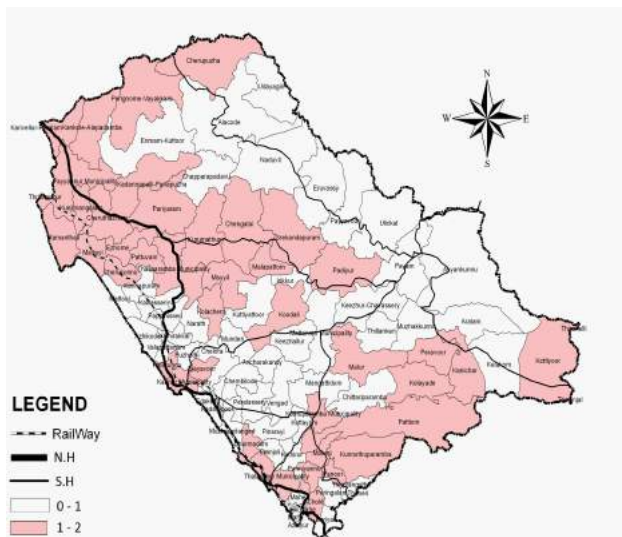
Fig. 4.15 Concentration Index - Other Services

4.5 ACTIVITY PATTERN BASED ON OCCUPATIONAL STRUCTURE OF WORKERS

Activity pattern based on the occupation structure reveal that the primary activity is concentrated mainly in eastern high land as well as in northern grama panchayats. Secondary activity mainly concentrated in mid land areas as well as in coastal areas.

Tertiary services are mainly in coastal panchayats as well as in six municipalities. The fig. 4.16 shows the detailed map.
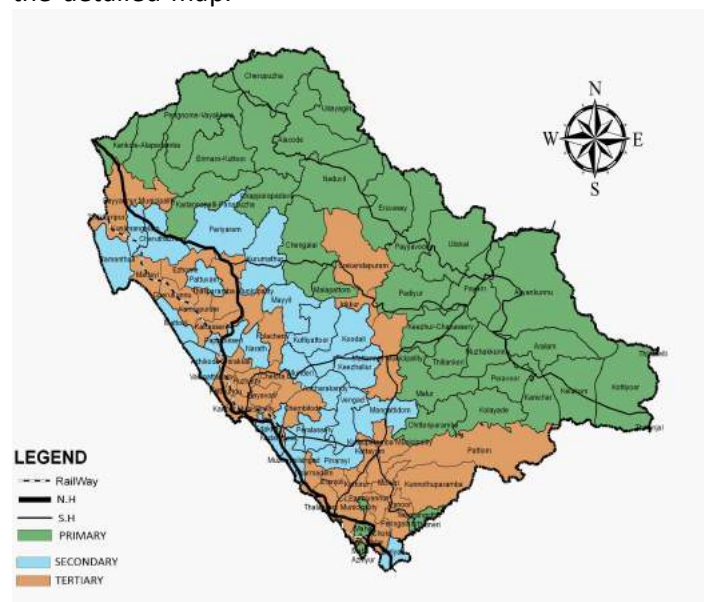
Fig 4.16 Integrated Activity Pattern Based on Occupational Structure

4.6 OCCUPATIONAL STRUCTURE - TEMPORAL VARIATION

The number of various categories of workers from 1981 to 2001 in the district is shown in the table 4.4.

Cultivators and agricultural labourers show drastic decrease in total numbers (a decrease of approximately 50%) during the period from 1981 to 2001, whereas the other workers show an increase of 81%. This is a clear indication of the weakening of the primary, mainly the agricultural sector, in the district.

The fig 4.17 and table 4.4 shows the variation of different category of workers in the urban area from 1981 to 2001. There is significant increase in the category of other workers during this period, meanwhile

the category of Cultivators and agricultural labours are decline during the same period.

The pattern of change in the number of workers in different category show that the rural area also exhibit the same pattern as that of urban areas .This indicates that the primary sector activity, mainly the agricultural activity is on the decline in the rural areas of the District.

Table 4.4 *Four Fold Workers Classifications*

	Cultivators	Ag. labourers	HH industrial workers	Others
1981	84726	129982	19753	289175
1991	108331	145961	12502	408799
2001	42106	73083	15855	524049

Source: Census 2001
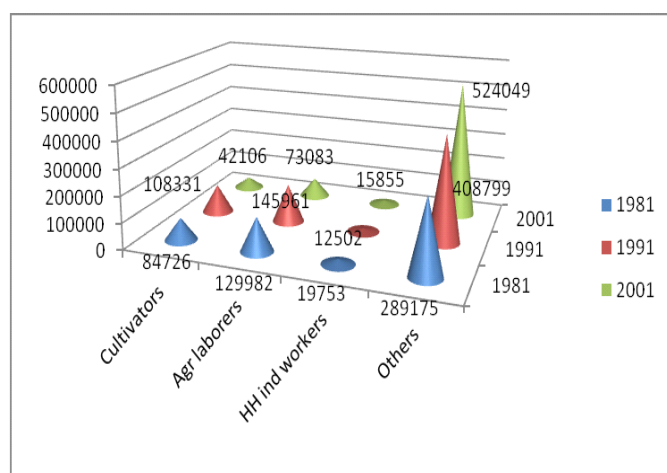
Fig. 4.17 Variation of the number of different category of workers in the urban area
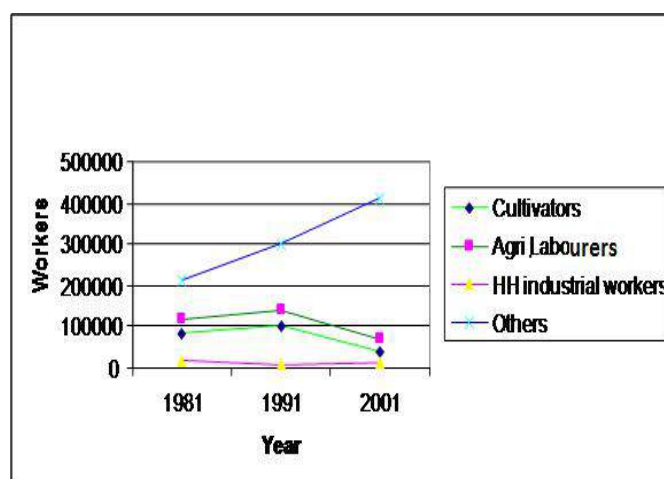
Fig. 4.18 Variation in the number of different category of workers in rural area

4.7 INFERENCE

The backbone of any economy of a region is the production sector. The analysis of the occupational structure of the District shows a very alarming situation about the economic base of the district. The production sector including the agriculture and industrial sector shows declining trend in the district. The only sector, which shows growth, is the service sector. Around 60% of the urban population depends on the service sector for their lively hood. It is revealed that the rural area of the district is also slowly abandoning the primary sectors such as agriculture and started depending more on the service sector.

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CHAPTER 5 >>

Chapter- 5
LAND USE

Analysis of the existing land use is inevitable to understand the predominant economic activities of an area as well as the availability of vacant land for future economic activities. Land use may Residential, agriculture, commercial, forest, industrial etc. according to the present use of land. Land use pattern represents the physical characteristics of land. In order to spatially analyze the land use pattern and economic activity as well as linkages between them land use survey in all the 87 LSGs in the district has to be completed.

However this will take considerable time period. The source of the data available are from IRS-P6, LISS IV, IC/ID LISS III+ PAN 2003-04 Satellite data (ie from India Satellite Data) purchased fromLand use Board. Source of the data is from IRS is taken for the analysis in this case. The above data base is predominantly agriculture oriented and as such the analysis limited to that extent. A close study of the present land-use patterns and the trends during recent years will help to suggest the scope for planned shifts in the patterns.

5.1 LANDUSE PATTERN OF KERALA STATE

The Land use of Kerala can be categorized under 9 Major categories and the percentage share of these categories is shown inTable (5.1) and Fig 5.1. Accordingly the major land use of state consist of Residential/ Agriculture mix with 41.38 percent followed by forest with 23.18%. It can be further seen that the Agricultural Land use and plantation land use together constitute 20.18% (Agricultural 10.17% and plantation 10.01%) of total area.

Exclusive residential area is only 3.45%. Water bodies consist of 2.92% of total area and 0.28% area comes under marshy land. Other land use including built up area comes around 8.50%. This will include the circulation areas also. The above analysis further support the real to ground peculiar scenario of the state in terms of urban rural continuum, highly scattered settlement pattern, and traditional homestead type of development individual residence surrounded by agriculture land mainly mixed crop.

Table 5.1 Land use Pattern of Kerala State

SI 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	0.48
9	Others	8.13
	Total	100
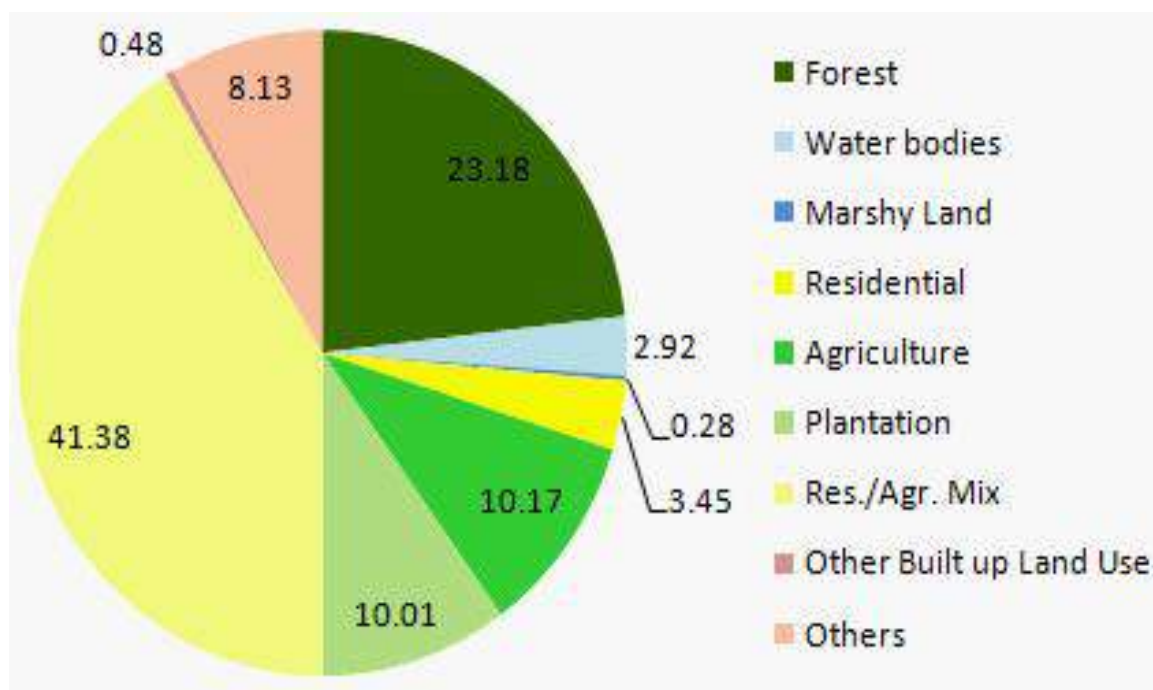
Fig. 5.1 Land use classification - Kerala State

5.2 LANDUSE BREAK UP OF THE DISTRICT

The total geographical area of Kannur distrct is 2970 sq. Km. The residential cum Agiculture areas in Kannur constitute about 44.56 percent of the total land use of the district which is above state average. The forest area occupies about 14.69 percent of land which is way below state average. Land used for pure agricultural activity occupies a share of 18.96 percent and plantation area constitute a share of 9.94 percent. Reasonable land is available for circulation and other built up with 3.07 percent in Kannur district. There is very negligible area under Marshy land but the rivers and water bodies consists of 2.06 percent of total geographical area. Detais of breakup of land use in percentage of total is as shown in Table 5-2

Comparing with the land use pattern of the state, the share of forest in district is 40 percetage less than the state average. But the share of residential cum agriculture land is more than the state average. The agriculture area is almost double the state average where as plantation is almost equal to the state average.

Table 5.2 Land use Classification and breakup in % - Kannur District

Sl No.	Land use Category	% of Total Area
1	Forest	14.69
2	Water bodies	2.69
3	Marshy Land	0
4	Residential	0.96
5	Agriculture	18.96
6	Plantation	9.94
7	Res/Agr Mix	44.56
8	Other Built up Land Use	3.07
9	Others	5.13
	Total	100

Source: Landuse board (IRS satellite image data) 2003-04 (NREDB)
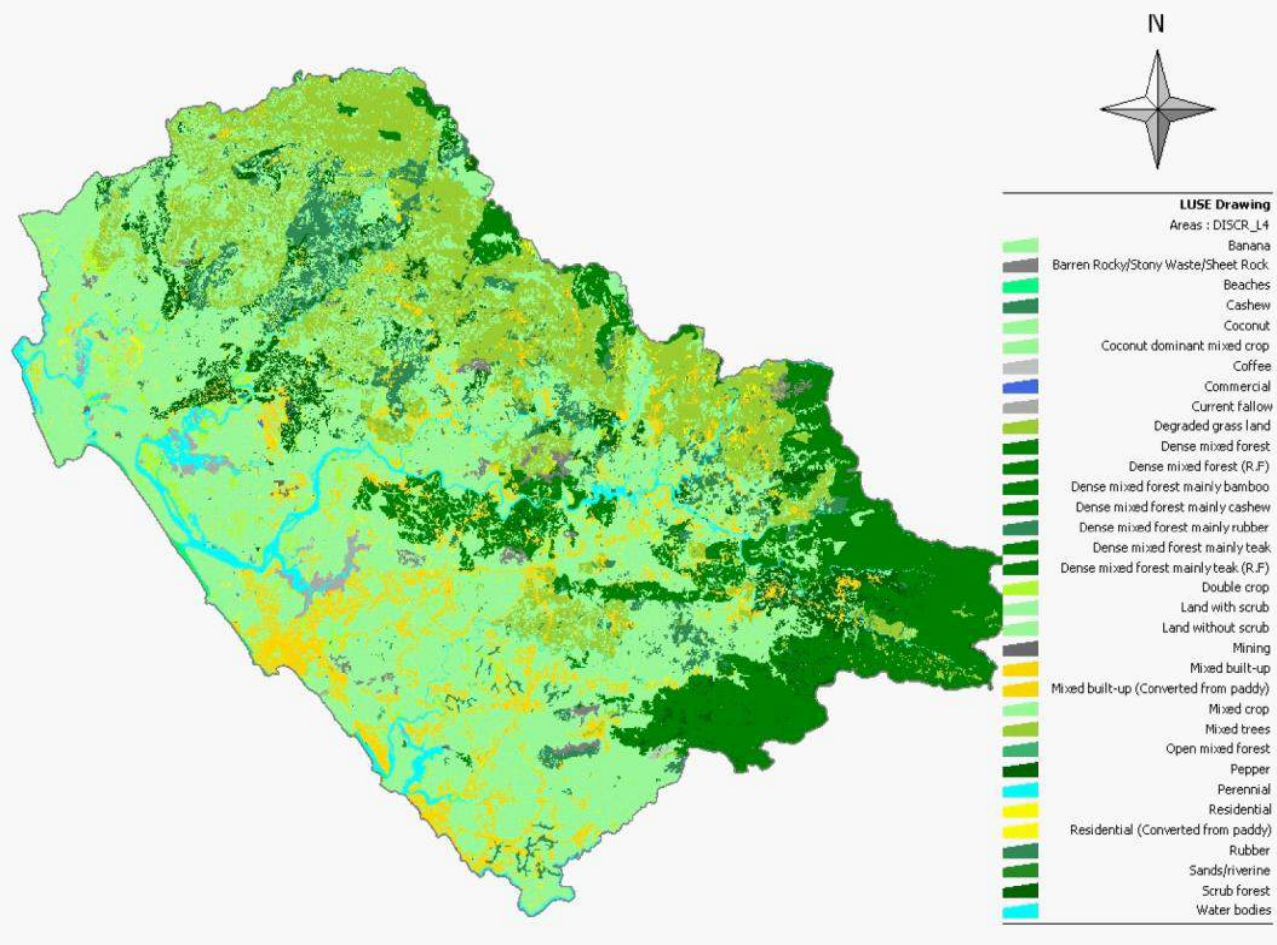
Fig. 5.2 Land use Map of Kannur District
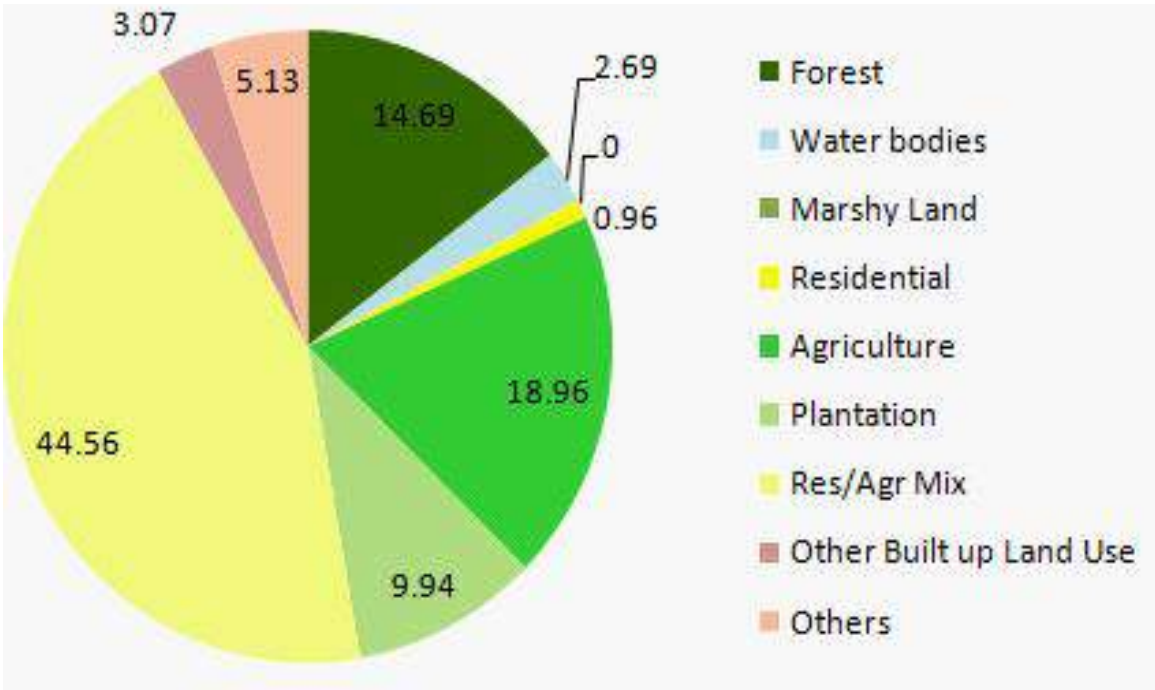
Fig. 5.3 Land use Classification - Kannur

5.3 REGIONAL LAND USE STUDY

Comparison of the land use pattern of Kannur district with that of northern districts of the state near to the district and of almost the same size such as Kohikkode, Malappuram and Palakkad were done under regional land use study. Wayanad and Ksaragod were not taken for comparative study due to the peculiar characteristics of those districts.

Comparing to the other northern districts Kannur shows higher per centage of area used for agriculture than other three districts. Where as the area under Forest in Kannur District is less in comparison to the other three northern Districts. Water bodies comes almost equal to other two districts except Malappuram,

where it is comparatively less. Kannur is having more area under plantation than all the other three districts and other built up area is more than Malappuram and Palakkad but behind Kozhikode. The Res./Agr. Mix area which can be considered as a representation of area available for development is almost same that of palakkad but is about 2/3rd of the other two Districts.

The regional land use study shows a general observation that Kannur stand in the second or third position with respect to surrounding district in the case of urban components of landuse (residential, mixed builtup, resi/agri mix etc., other built up etc.) and first in rural components of the landuse (Agriculture, plantation etc.)

Table 5.3 Showing Comparison of Landuse of Kannur District with Kerala State

SI No.	Land use Category	Total Area Kannur District (Sq.Km)	% of Total Area Kannur District	% of the corresponding Area in State
1	Forest	436.24	14.69	23.18
2	Water bodies	79.91	2.69	2.92
3	Marshy Land	0	0	0.28
4	Residential	28.65	0.96	3.45
5	Agriculture	563.02	18.96	10.17
6	Plantation	295.1	9.94	10.01
7	Res/Agr Mix	1323.49	44.56	41.38
8	Other Built up Land Use	91.31	3.07	0.48
9	Others	152.28	5.13	8.13
	Total	2970	100	100

Source: Landuse board (IRS satellite image data) 2003-04 (NREDB)

Table 5.4 Showing Comparison of Landuse of Northen Districts with Kannur District

SI No.	Land use Category	Kannur	Kozhikode	Malappuram	Palakkad
1	Forest	14.69	18.68	18.11	28.28
2	Water bodies	2.69	2.54	1.61	2.76
3	Marshy Land	0	0.18	0.33	0.1
4	Residential	0.96	3.42	0.51	0.27
5	Agriculture	18.96	5.44	7.1	16.91
6	Plantation	9.94	0.29	3.89	4.67
7	Res/Agr Mix	44.56	63.98	60.79	40.57
8	Other Built up Land Use	3.07	0.19	0.56	1.27
9	Others	5.13	5.29	7.1	5.17
	Total	100	100	100	100

Source: Landuse board (IRS satellite image data) 2003-04 (NREDB)

5.4 CONCENTRATION PATTERN OF LANDUSE

Table 5.5 Criteria based on which the Landuse Concentration Pattern was Analysed

Sl No.	Land use	Criteria
1	Non Agriculture	CI Urban > CI Agri / CI Plantation / CI Forest
2	Agriculture	CI Agri > CI Urban /CI Plantation
3	Plantation	CI Plantation > CI Forest /CI Urban / CI Agriculture
4	Forest	CI Forest > CI Plantation /CI Urban / CI Agriculture

The concentration pattern of the different land use in the district has analysed based on the criteria shown in the table below.

LSG wise details of landuse & landuse concentration is shown in annexe 6 & 6A .

In the study, different land uses in the district and its concentration in each local body with respect to the land use in the whole district is analysed.

5.4.1 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 (RF), Scrub forest, Degraded grass land (RF), Dense mixed forest mainly rubber, Under utilized /

Fig. 5.4 Concentration of Forest and Water body in Kannur District

degraded notified forest and Dense Grassland/ Degraded grass land. Based on that study it is found that the concentration of forest area is in eastern hilly areas of the district and in south east portion. Mainly reserved forest spread in the LSGs of Kottiyoor, Aralam, Kelakam and in Patyam panchayat. The map shown as fig.5.4 shows the location of local bodies where there are concentration of forest land use and water bodies in Kannur district. Total area of active forest land of the district is 436.24 sq km which is about 14.69% of the total area of the district.

5.4.2 AGRICULTURE LANDUSE

The Agricultural land use consists of Cashew/ pepper/pineapple, Viruppu (1st Crop)/Mundakan, Land without scrub, Double Crop/Triple crop, Agriculture farm, Agriculture farm (Orchads)/and Mixed trees catagories of land use as demarketed in the landuse map generatedout of NREDB. The concentration pattern of agricultural land use (Figure-5.5) shows that agricultural area of the District is mainly concentrated in the central, and some of the up land regions north regions in north of the District. The pattern also reveals that the concentration pattern of agricultural land use is also influenced by the location of water bodies. Similarly it is revealed from the study that agriculture activity is predominant in north and central area . It means the agriculture land uses in these local bodies more than the district average. This includes areas under the paddy,coconut, Tapioca, banana, pepper and arecanut.

Fig. 5.5 Concentration of Agriculture Area in Kannur District - Local Body Wise

5.4.3 PLANTATION LANDUSE

This category of Land use include land use categories of Rubber (R.F), Tea/Cofee/cardomom/ Eucalptus, Tea & Eucalyptus, Tea (R.F)/Cofee (RF)/ Cardomom(RF), Teak, Teak & Softwood (R.F), Teak (R.F)/ Cashew (RF), Eucalyptus (R.F)/ Eucalptus and soft wood. The plantation in Kannur district is mainly cashew and rubber. They are mainly concentated in eastern part of the district mainly in high land areas. Kunnothparamba, Ulikkal, Padiyur,Payyavur,Aralam and Kottiyoor are the local bodies with more concentration index in plantation. The details of area are shown in figure 5.6.
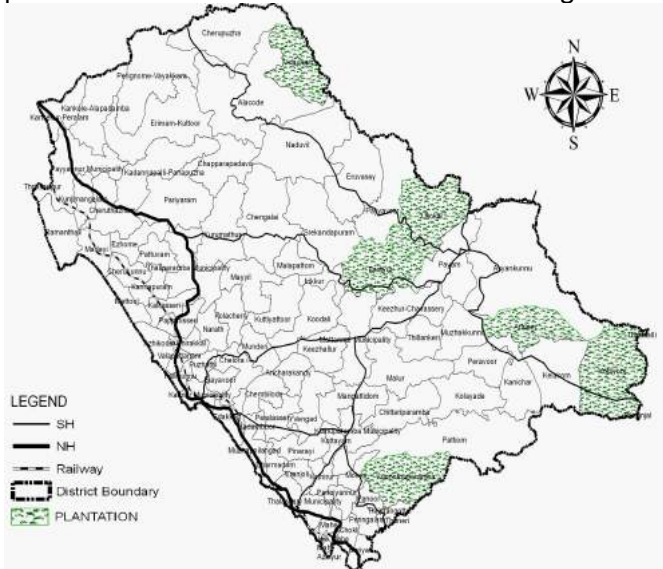
Fig. 5.6 Concentration of Plantation in Kannur District

5.4.4 OTHER BUILT UP LANDUSE

Other built up land use include Commercial, Industrial/Industrial Park and Educational Institutions. Figure 5. 7 shows the distribution of the conce ntration pattern of the other Built up Land Use.From the figure it is clear that the concentration index of the other Built up Land use in urban LSGs and in those LSGs along the major transport corridors are higher than that in other LSGs. Also it is observed that high land area of the district has lesser concentration of Other Built up Land Uses even in LSGs along main transportation corridors indicating that the economic activity of hill areas is not considerably dependent on secondary / tertiary sectors.

The variation of concentration index of other builtup land use among the local bodies where concentration index of other builtup land use is greater than one is shown in Fig 5. 7 mainly western part of the district.
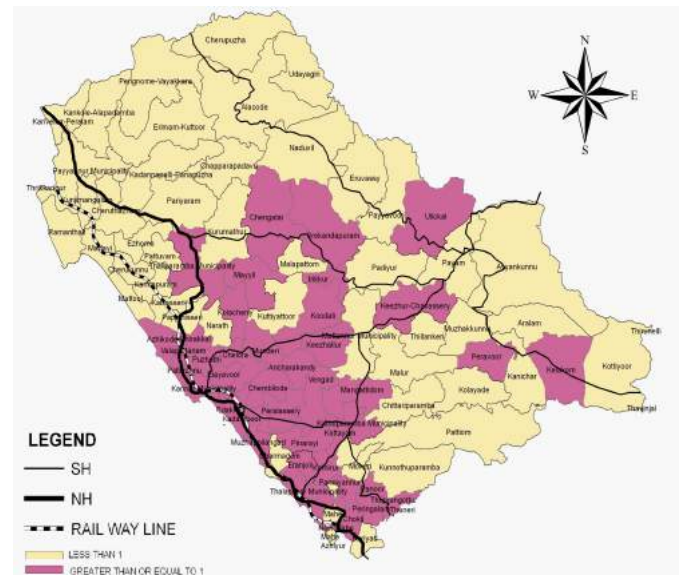
Fig. 5.7 Concentration of other Builtup Landuse in Kannur District

5.4.5 RESIDENTIAL LANDUSE

The concentration pattern of Residential land use shows (Figure 5.8) that Residential area of the District is mainly concentrated on the north east corridor of the district. The LSGs wise concentration index of Residential land use and list of LSGs where residential

land use is concentrated are given in annexe 6. The variation of concentration index of Residential land use among the LSGs where concentration index of Residential landuse is greater than one is shown in Fig 5.8
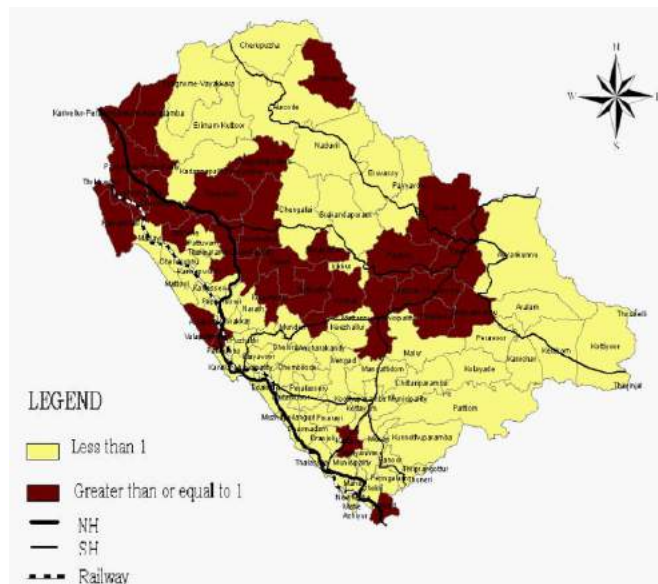
Fig. 5. 8 Concentration of Residential Landuse in Kannur District

5.4.6 RESIDENTIAL / AGRICULTURE MIXED LANDUSE

Resi/Agri mixed land use consists of land use categories of Arecanut, Banana, Banana & Tapioca, Coconut/coconut & arecanut/cocconut & tapioca, Coconut dominant mixed crop, Current fallow, Mixed crop. Concentration pattern of Res / Agr mixed landuse Res / Agr landuse is concentrated in the coastal areas of the district. The concentration pattern of Res / Agr landuse is shown in fig. 5.9. The pattern also reveals that the concentration of Res / Agr landuse is in coastal and midland regions of the district. Along the thalassery Coorg road this area extended upto Karnataka border.
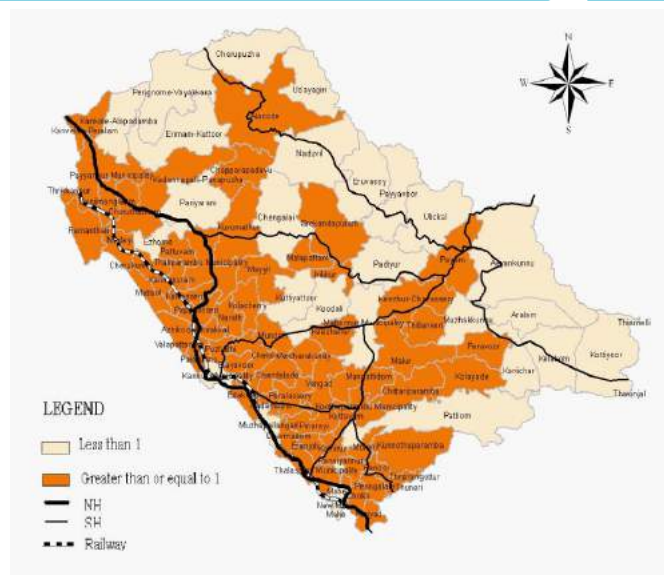
Fig. 5.9 Concentration of Residential / Agriculture Landuse in Kannur District

5.4.7 RESULTANT LANDUSE CONCENTRATION

As a result of above landuse analysis the resultant landuse concentration pattern of the district based on the criteria given in the table 5.6 can be summirsed as shown in figure 5.10
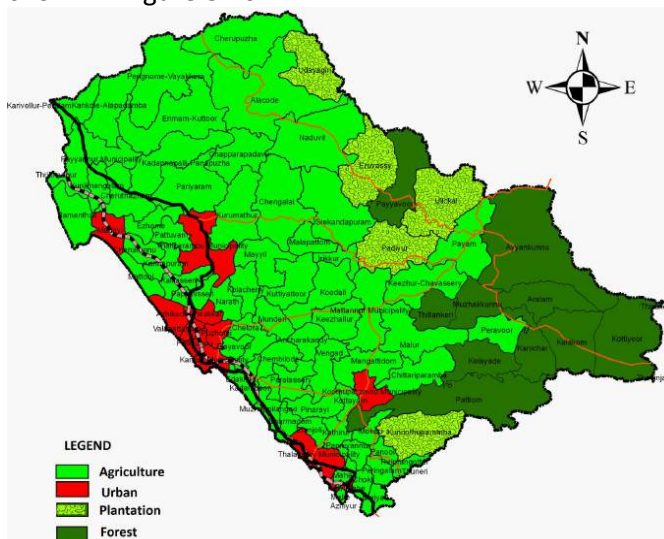
Fig. 5.10 Final Landuse Concentration pattern of Kannur Dist.

Table 5.6 Criteria for Landuse Concentration Pattern

Sl No	Land use	Criteria
1	Urban	CI Urban > CI Agri / CI Plantation / CI Forest
2	Agri culture	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

5.5 INFERENCE

On analysis of Land use and its concentration pattern in Kannur District, it is revealed that Compared to other Districts of the state, especially to the Northern Districts, Kannur is having major concentration of areas under agriculture and plantation. About one third of the total geographical area is covered by this category in Kannur district. Even though primary sectorshows a declining trend in all over the state and also in Kannur District, Land use pattern of Kannur District shows that there is potential for development of primary sector to some extent. In the case of other categories such as built up area, water bodies, residential etc. are of the same pattern represented in the state.

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CHAPTER 6 >>

Chapter- 6
FUNCTIONAL CHARACTER OF SETTLEMENTS

Functional character of a region is determined based on the population distribution within the region, average plot size and land use of that area. Function of a settlement is determined based on the major activity within the settlement. This may be rural if agriculture and allied activity or urban if secondary or tertiary sector activities. The methodology used here to determine the major function of the settlements are by studying the land use and the average plot size within the settlement.

CHARACTER OF SETTLEMENTS

The settlement pattern in Kerala is unique with a rural urban continuum and hence cannot classify a settlement as rural or urban area. There exist a charecter of both urban and rural area. This may lead to semi urban and semi rural areas along with urban and rural based on the analysis of land use and plot size.An area can be classified as semi urban, if there exists both uran and rural activities but the predominant activity is urban. If the predominant activity is rural, it is classified as semirural area. Function of a settlement means the major activity within the settlement based on the following criteria taken together.

SETTLEMENT CLASSIFICATION

Functional aspects of the towns as spelt out by labour participation rate in the primary, secondary and territory sectors like industry, commerce, transport, service etc.have been dealt with here.

1. Agriculture and Allied activities (Pucca Rural)

2. Secondary & Tertiary sector activities (PuccaUrban)

3. Combination of 1& 2 (Semi rural or semi urban)

CRITERIA TAKEN FOR ANALYSIS OF FUNCTIONAL CHARACTER

1. Land use

2. Population distribution

3. Average Plot size

FUNCTIONAL CHARACTER OF SETTLEMENT FROM LANDUSE MAP

Categorizing the land use in to the major heads under Neutral land use,Urban Land Use (Commerce, Industrial, Residential, Mixed Built Up), Rural Land Use and Residential- Agr. mixed land use.

From that the percentage of pucca urban land use share is finding out and if it is more than 25 %, then the character of the LSGs will be taken as urban.

If the percentage of urban land use share (excluding the area of neutral land use)

>= 50 than taken as- Urban. Similarly for the rural and if Urban / Rural Land use share < 50 than categorizing Residential / agriculture based on population density and workers engaged in non agricutural activities.

If the res./agr.mix cannot be categorized under the above situations than Categorize the res /agr mix land use category based on the average plot size as shown below.

The res/agr mix zone is classified as semi urban or semirural to find out the sum of the area of urban land use and res/ agr mix zone.

Based on the above criteria the entire LSG of the district is classified in to urban, semi urban,semirural and rural and tabulated in the table (Table 6.1) below and its spatial distribution is shown in the attached figure.

Situation	PPn Concentration category	% of other workers + HH workers	Category of Res./Ag.r mix
1	1/3rd ppn category	>= 90%	Residential
2	2/3 to 1 ppn category	<=70	Agricultural

Average plot size (cents)	Category of Res/Agr mix
Plot size less than 25	Urban
Plot size 25-50	semi urban
Plot size 50-75	semi rural
Plot size >75	Rural
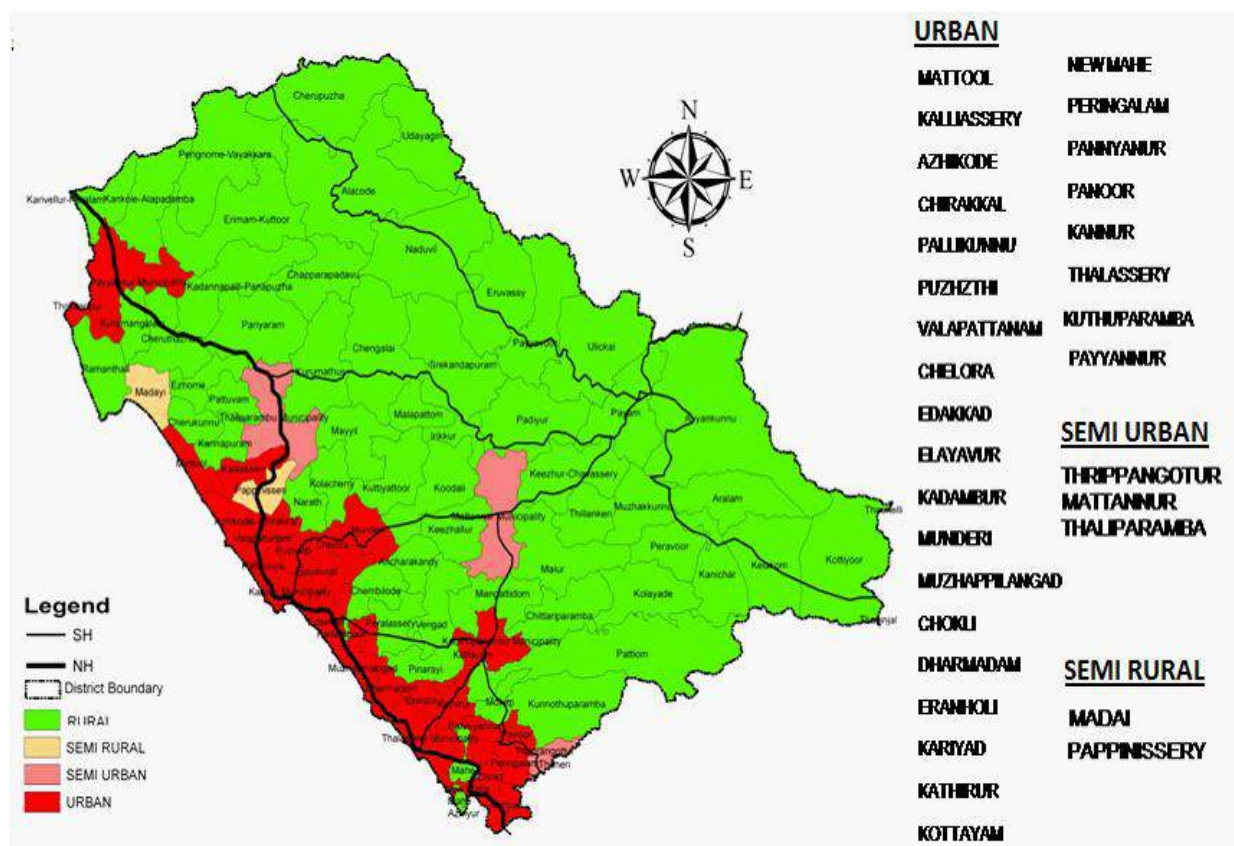
Fig. 6.1 Functional Classification of LSGs

Table 6.1 Urban / Semi Urban and Semi Rural Settlements of the District

Urban	Semi urban	Semi rural
Kannur (M)	Dharmadom	Madai
Thalasserri (M)	Elayavoor	Pappinisseri
Kuthuparamba (M)	Thripangottur	
Mattannur(M)	Payyannur	
New mahe	Taliparamba	
Munderi		
Muzhappilangad		
Chelora		
Valapatanam		
Puzhathi		
Pallikkunnu		
Chirakkal		
Azhikode		

6.1 INFERENCE

Functional classification of settlements in the district attained based on the occupation structure, population distribution , land use and plot size. These parameters were anlysed with respect to the available data and the settlements are classified as urban, semi urban, semi rural and rural are shown in fig 6.1 . Urban and semi urban areas are mainly concentrated along the National highway and some portion of state highway.

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Chapter- 7

HIERARCHY OF SETTLEMENTS

In this chapter the hierarchy of settlements (LSGs) based on the number and order of facilities existing are assessed and rural nodes and urban rural growth centers of the District are identified

7.1 EXISTING HIERARCHY SETTLEMENT

Cumulative functional index (CFI) method is used to find out the hierarchy of settlement. The CFI of a settlement is assessed based on the number and presence of the following types of facilities in the settlement.

1. Educational facilities
2. Health facilities
3. Market
4. Facilities in agriculture and allied sector
5. Physical infrastructure facility
6. Transportation facility

The weightage of each of these facilities in the district and CFI index calculated based on this is given in the Annexe II & IIa

CFI is plotted against the number of settlements to find out the hierarchy of settlement in the district. The graph, so obtained is shown in fig 7.1

From graph it is obtained that there are 2 first order settlements, 2 second order settlements, 9 third order settlements, 22 fourth order settlements and 53 fifth order settlements in the district. The names of the settlements in various hierarchies as identified above is listed below.

CFI vs. No. of Settlements graph
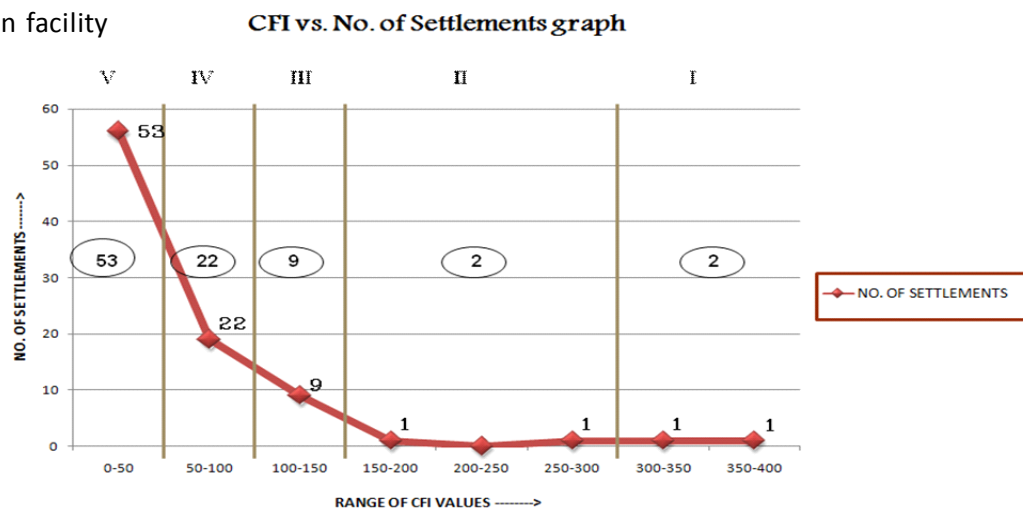
Fig. 7.1 CFI v/s No. Settlements Graph

The settlement of the district can be classified in to five orders as follows.

I ORDER SETTLEMENT

Thalassery

Kannur

II ORDER SETTLEMENT

Payyannur

Thaliparamba

III ORDER SETTLEMENT

Keezhur-Chavassery

Kuthuparamba

Mattannur

Kallyassery

Cantonment

Dharmadam

Ramanthali

Pallikkunnu

Puzhathi

IV th ORDER SETTLEMENT

Madai

Anjarakkandy

Elayavur

Vengad

Kadannapally-Panappuzha

Azhikkode

Chelora

Chembilode

Sreekandapuram

Edakkad

Chirakkal

Kuttyattur

Pariyaram

Peravur

Aralam

Valapattanam

Eramam-Kuttur

Pappinissery

Mayyil

Panoor

Cherupuzha

V th ORDER SETTLEMENT

Cherukunnu	New Mahe
Kunhimangalam	Malur
Kadirur	Mangattidam
Eranholi	Keezhallur
Kelakam	Kannapuram
Payyavur	Cheruthazham
Peringalam	Muzhakkunnu
Chengalayi	Irikkur
Peralassery	Pattiyam
Eruvassi	Naduvil
Kadambur	Muzhappilangad
Payam	Mokeri
Chokli	Udayagiri
Ulikkal	Kottayam
Peringome	Chittariparmba
Kankol-Alapadamba	Kariyad
Kolayad	Thillankeri
Thrippangottur	Chapparapadavu
Munderi	Kurumathur
Ayyankunnu	Karivellur-Peralam
Mattool	Kottiyur
Kunnothuparamba	Kolachery
Ezhome	Padiyur
Koodali	Pattuvam
Pinarayi	Kanichar
Panniannur	Malappattam
Narath	

The spatial distribution of the settlements is shown in the fig 7.2. The first order and second order settlement are along National Highway 17. At present first order towns Thalasserri and Kannur are I st grade Municipalities and the 2nd order settlements Taliparamba and Payyannur are IIIrd grade Municipalities.

Among the nine third order settlements include two III rd grade municipalities Kuthuparamba and Mattannur which are situated along the State High way connecting Coorg district of Karnataka state.
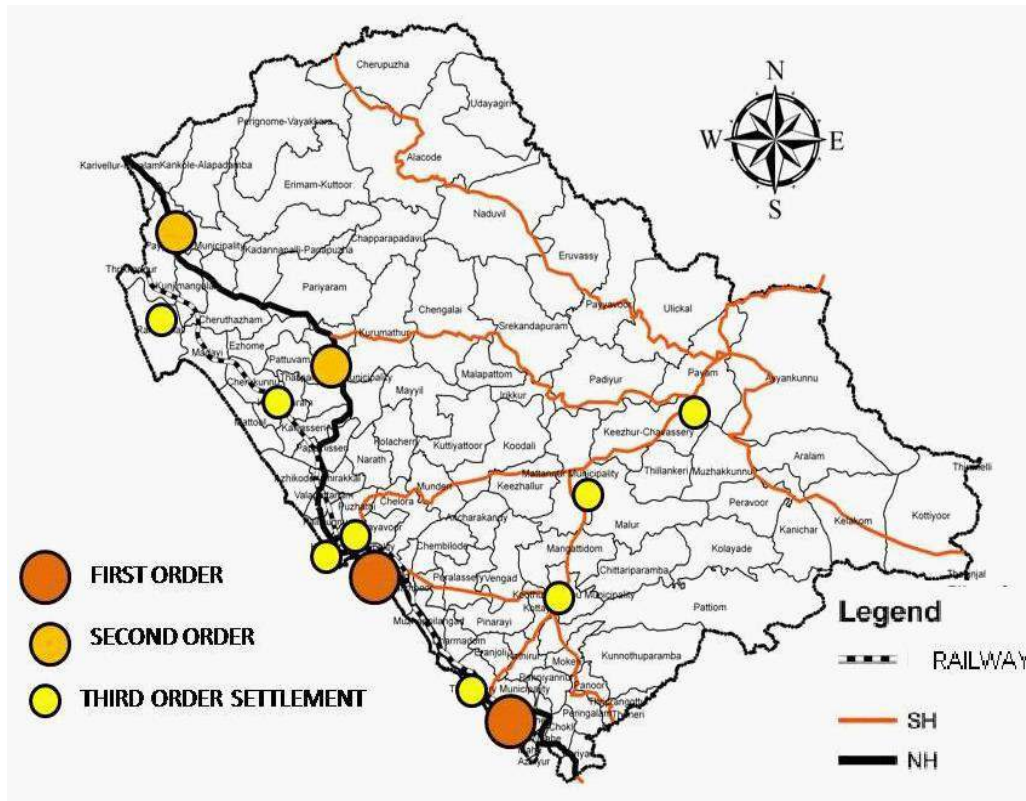
Fig. 7.2 Spatial Distribution

7.2 SUGGESTED HIERARCHY OF SETTLEMENTS

One of the uniqueness of spatial planning is the identification of the future hierarchy of various settlements of a region based on certain factors like the trend of physical development, location importance, administrative status of settlements, trend of urbanization in the next twenty years and existing hierarchy of settlements. Various theories are there elaborating the hierarchy of settlements, its service area, and location of lower order settlements with respect to the higher order settlements. Crystallor's central place theory is a well accepted theory in this regard. This chapter attempts to identify the proposed hierarchies of various settlements of the District based on these concepts. After the identification of the proposed hierarchy of the settlements, each of the settlement is assigned a character based on the functions it has to perform.

7.2.1 PROPOSED HIERARCHY OF SETTLEMENTS - METHODOLOGY ADOPTED

The methodology adopted to identify the proposed hierarchy is explained here. The concept as per the Crystallor's Central place theory in identifying the proposed hierarchy of the settlements is that spatial distribution of settlements of various hierarchies should be such that they shall be centrally located (as far as possible) with respect to the service area or service population to be served. Theoretically speaking, there will be one first order settlement serving the entire region (District). The service area of a settlement is hexagonal in shape as per the Crystallor's theory. But practically the service area of the first order settlement cannot be taken as hexagonal but it is actually the entire district. This limits the identification of the second order settlement by Crystallor's Central Place theory. The Crystallor's Central Place theory stipulates that the lower order settlements are placed at the vertices of the hexagonal shaped service area of the higher order settlement. But here there are two first order settlements and one of them is the south-west sub region. Hence it is assumed that there are at least three second order settlements one from each of the remaining sub regions (North-East division, North-West division and South-East division of the district). The service areas of the second order settlements are of

the second order settlements are delineated by drawing the 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 the hexagon determine the location of the next lower settlements i.e. the third order settlement. The service area of the third order settlement can be delineated as hexagonal in shape. The remaining settlements of the District are assumed to be having the lowest order, i.e. the fourth order.

7.2.2 PROPOSED HIERARCHY OF SETTLEMENTS - PROCEDURE ADOPTED

IDENTIFICATION OF LOWER ORDER SETTLEMENT

While assessing the proposed hierarchy of settlements of the District after 20 years (based on the method explained earlier), the existing hierarchy of the settlements, especially of those settlements with higher order, cannot be shuffled altogether. The existing hierarchy of the settlements in Kannur District shows that the settlements here falls under five hierarchies viz. I order settlement, II Order settlements, III order settlements, IV Order settlements and V order settlements. Those settlements in the first three orders as per the existing hierarchy of settlements are taken as such with a slight modification while identifying the proposed hierarchy of settlements. The modification is that the existing II order settlements are coming in

the North west quadrant and in the other two quadrants in the east only III order settlements are existing. These III order settlements are taken as the proposed service centre of this area. This means that in the proposal also the first order settlements will be Kannur and Thalasseri Municipalities in south-west, and Payyannur and Thaliparamba Municipality are taken as the II order settlements.

The first order settlement and the second order settlements are marked in the District map and it is shown in the fig 7.4

From the figure it is clear that there are no second order settlements from the North -East and South - East division of the region. Cryastallor's theory (As per the theory the lower order settlements will be placed at the vertices of the hexagonal service area of the higher order) cannot be applied here as the entire district is assumed as the service area of the first order settlements .And hence a second order settlement is identified from the North - East and South - East division based on the following criteria

1.   Administrative status of the settlements
2.   Centrality
3.   Connectivity
4.   Existing hierarchy
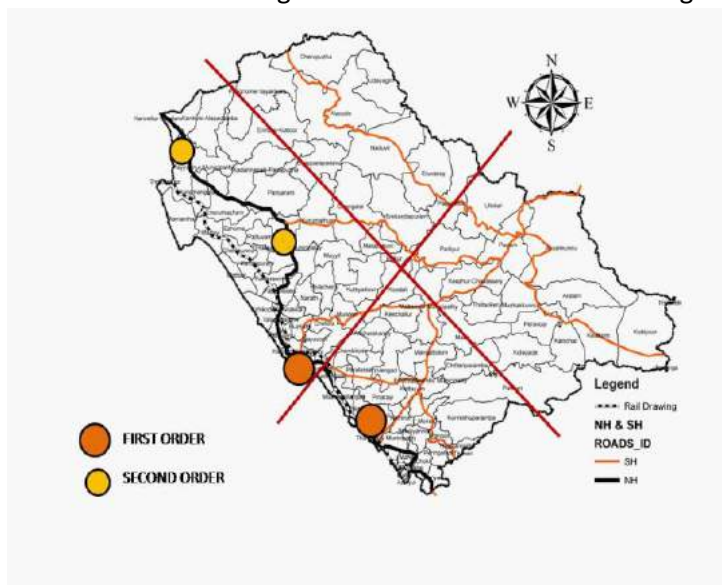
Fig. 7.3 Existing I st and II nd Order Settlement
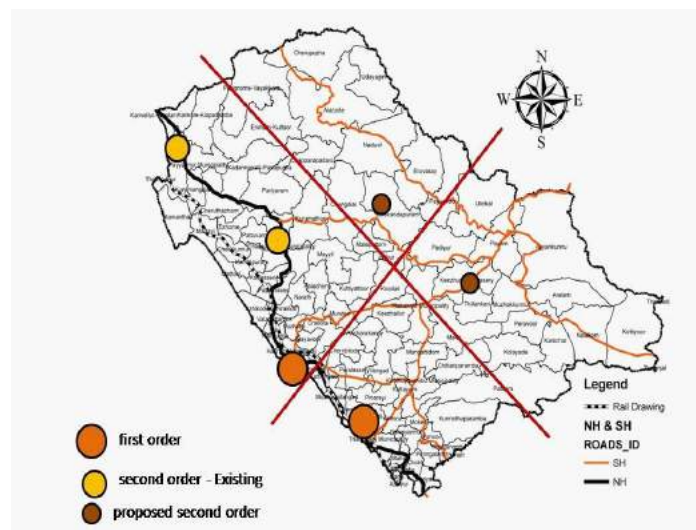
Fig. 7.4 Projected II nd Order Settlement

That settlement with maximum preferred values in the above criteria in each of the division is taken as the third order settlement from the division. Accordingly Sreekandapuram from the N-E division and Keezhur-Chavasserri from the S - E division are identified as the future second order settlements.

The identified future second order settlements are

1. Payyannur
2. Thaliparamba
3. Keezhur- Chavasserri
4. Sreekantapuram

The spatial distribution of the second order settlements are given in fig. 7.5.

In order to identify the service area of each of the second order settlements, perpendicular bisectors are drawn (in accordance with the Crystallors theory) from the line joining nearest second order settlements and the polygon formed with center as the second order settlements are taken as the service area of the second order settlement under consideration (see fig. 7.5).

Usually a higher order settlement fulfils the second order needs of the surrounding settlements. That is the first order settlements usually function as seco ond order settlement also. Hence, though the service area of the second order settlements are delineated as described above, this has to be readjusted taking in to account the service area of the first order settlement, when it function as a second order settlement . The line joining the first order settlement and the second order settlements are bisected and the bisector is extended to meet the service area polygon of Sreekantapuram to get the service area of Keezhur Chavasserri, Thaliparamba, Thalasseri and Kannur.

The adjusted service area (service settlements) of the second order settlements is shown in fig 7.6.

IDENTIFICATION OF 3 rd ORDER SETTLEMENT

As per Crystallor's theory, the lower order settlements will fall in the vertices of the hexagonal

service area of the higher order settlements. This meansthat the third order settlements will be thosesettlements coinciding with the vertices of the hexagonal service area of the second order settlements. These settlements can be taken as the third order settlements.But while providing the hexagonal shape to the service area of each centres a void found in NE and SW quadrant. Here Alakkod and Kuthuparamba are taken as the third order settlement after comparing the physical development and facilities in these two LSGs. Theoretically the service area of each of these third order settlements will be uniform and hexagonal in shape. Five hexagons of equal shape with the third order settlement as the centre are fixed.As per Crystallor's theory the higher order settlements will function as the lower order settlements as well. And hence the service area of the higher order settlements (first order settlements and the second order settlements), when they function as the third order settlement also are to be delineated. The service areas of these higher order settlements are also hexagonal in shape.

But from the figure 7.6, it is clear that some area of north-east and south-west regions are un served by any of the third order settlements necessitating the identification of new third order settlements from thesesub regions. It is to be noted that the population in the Eastern sub regions are very less compared to the coastal area in which Thalasserri and Kannur sub region falls.
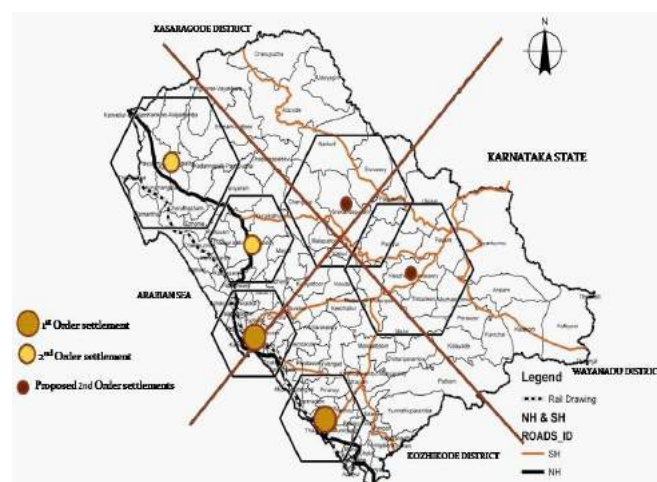
Fig. 7.5 Service Area of II nd Order Settlements
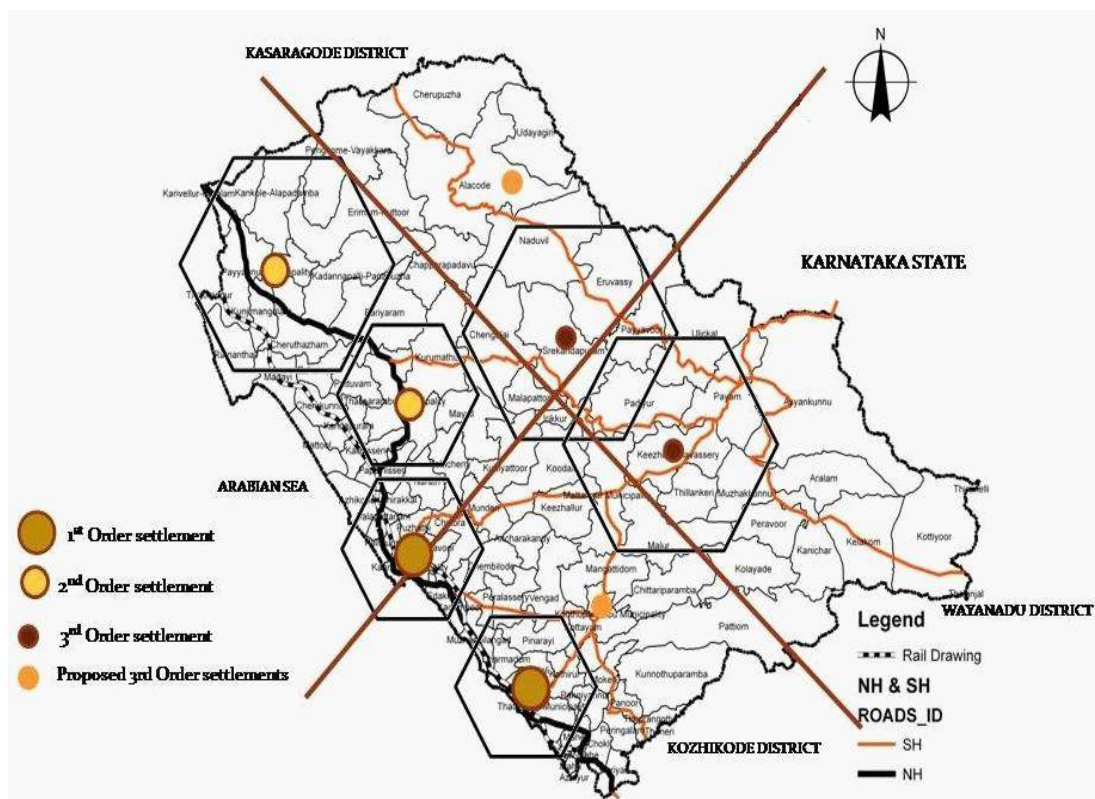
Fig. 7.6 Service area of III rd Order Settlements
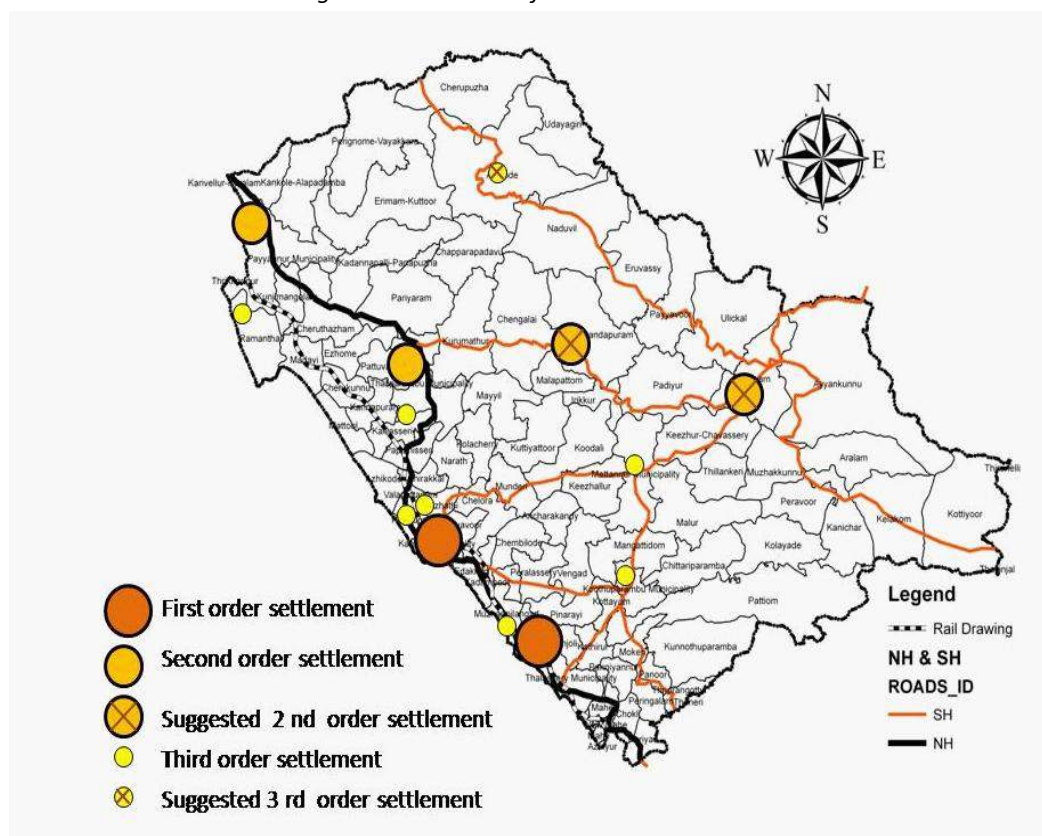
Fig. 7.7 Suggested Hierarchy of Settlement

Table 7.1 Hierarchy of Urban LSGs (Proposed)

Sl no	Urban LSGs	Hierarchy
1	Kannur Municipality	1
2	Thalasserri Municipality	1
3	Payyannur Municipality	2
4	Thaliparamba Municipality	2
5	Keezhur chavasserri	2
6	Sreekandapuram	2
7	Ramanthali	3
8	Alakode	3
9	Kuthuparamba Municipality	3
10	Mattannur Municipality	3
11	Kannur Cantonment	3
12	Kallyaserry	3
13	Dharmadam	3
14	Pallikkunnu	3
15	Puzhathi	3

Based on the criteria Centrality , Connectivity, and existing hierarchy , Alakkod and Kuthuparamba are selected. In the remaining areas in sub regions, it is assumed that (both second order settlements) will function as third order settlements of the sub region catering the needs of the third order settlements. Alakkod in the north east quarter and Kuthuparamba in the south west quarter will act as third order settlements.

The spatial distribution of the third order settlements and the adjusted service area are shown in (Fig 7.7).

7.3 INFERENCE

As per the proposed hierarchy of settlements there are two first order settlements, four second order settlements and nine third order settlements in the District. The character wise analysis of this higher order settlements shows that the first order settlement Kannur and Thalasseri Municipalities are purely urban in nature. Out of the four second order settlements Payyannur and Thaliparamba Municipality are existing urban areas. Keezhur Chavasseri and Sreekantapuram are the other proposed second order settlements.

Among the third order settlements Pallikunnu, Puzhathi and Cantonment are near to Kannur Municipality.Dharmadom near Thalasseri Municipality Kalliasseri which is near to Thaliparamba Municipality and Ramanthali near Payyannur Municipality.In Municipalities Kuthuparamba and Mattannur are the other two third order settlements.Among the proposed third order settlements Alakkode is the ninth one at the north east of the district.

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Chapter- 8
URBAN PROFILE

8.1 TREND OF URBANIZATION - KERALA

The processes of urbanization can be assessed in relation to urban population content. At the turn of the 20th century, Kerala had a population of 63.96 lakhs, of which 59.42 lakhs were in its rural areas (source census 2001, p 17). This constituted 92.89 per cent of the total population of the state. At the end of the 20th century the total population in Kerala has increased to 3.18 crores (31838619) of which rural population is 2.35 cores (table).This means that the rural population constitutes about 74 % of the total population on 2001. The population figures of the State as per census 2001 are shown in the table 8.1.

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. (0.40%) decline in urban population during 1991-2001 period is partially due to declassification of Pandalam, Piravam, Koothattukulam and Manarkadu municipalities to panchayat during 1991-2001.

The declassification of Eloor and Erattupetta municipalities has not however effected urbanization due to classification of area contained in these municipalities as census towns 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 populations of the state lives in urban area. Among the district the percentage of urbanization has varied from 3.8% in Wayanad to 50.4% in Kannur. Ernakulam district follows Kannur with 47.6% of urban population. In six districts Kannur, Ernakulam, Kozhikode, Thiruvananthapuram, Alappuzha and Thrissur the percentage of population is higher than the state average. In three districts viz, Wayanad, Malappuram and Idukki the urban population is 10% or less.

Table 8.1 Population Figures (2001) of Kerala at a Glance

2001				
	Person	**Males**	**Females**	**Growth rate**
Total	31838619	15468664	16369955	9.42
Rural	23571484	11450785	12120699	10.05
Urban	8267135	4017879	4249256	7.64

Source: Census 2001

In Kerala situation, the development of territory sector is the main cause of urbanization, it is not the outcome of accelerated industrialization as seen in Tamilnadu, Maharashtra and Andra Pradesh and Karnataka. Kannur district with an urban population of 50.45 ranked first in urban content but 11th in per capita income this is due to prevalence of low income generating small-scale industries. Ernakulum district with an urban content of 47.6% is ranking second in urban content and first in per capita income. This is due to the commercial importance of port induced service sector development. Idukki district though ranks 13th in urban content are second in per capita income; this is due to production specialization in plantation crops.

Urbanization with accelerated industrialization in selected settlement of Kerala needs special attention in spatial-economic planning. This shows the application of Keynes theory of economic development for solving unemployment of Kerala.

Urbanization with accelerated industrialization in selected settlement of Kerala needs special attention in spatial-economic planning. This shows the application of Keynes theory of economic development for solving unemployment of Kerala.

There is an increase of about 400% in the total population of Kerala within a century. During this period rural population has increased by 300 %. Rural population content in Kerala has declined from 92.89% to 74% of the total population within a century. This is an indication on the trend of urbanization in Kerala that has happened in a century. That is the urbanization trend in the immediate past. The population figures of the last three decades are analysed here (see table 8.3).

Table 8.2 Urbanisation Process and Percapita Income Distribution in Kerala

District	Population 2001				Urban Content rank 2001	Per capita Income 2003	PCI Rank
	Urban	Rural	Total	%Urban			
Kannur	1212898	1196058	2408956	50.3	1	24369	11
Ernakulam	1477085	1628713	3105798	47.6	2	32918	1
Kozhikode	1101157	1777974	2879131	38.2	3	25964	8
Thiruvananthapuram	1091661	2142695	3234356	33.8	4	27686	5
Alappuzha	621457	1487703	2109160	29.5	5	26459	7
Thrissur	839433	2134799	2974232	28.2	6	27871	4
Kasargod	233700	970378	1204078	19.4	7	23414	12
Kollam	465978	2119230	2585208	18	8	25646	9
Kottayam	299808	1653838	1953646	15.3	9	28622	3
Palakkad	356575	2260907	2617482	13.6	10	22132	13
Pathanamthitta	123798	1110218	1234016	10	11	26901	6
Malappuram	356170	3269301	3625471	9.8	12	16766	14
Idukki	57593	1071628	1129221	5.1	13	31697	2
Waynad	29612	751007	780619	3.8	14	24432	10
KERALA STATE	8266925		31841374	26		25764	

Source : Census 2001, provisional totals

Table 8.3 Trends of Population Growth of Kerala 1981- 2001

Year	Total population	Growth rate of total population	Growth rate in urban population
1981	25453680	19.24	37.64
1991	29098518	14.32	60.97
2001	31838619	9.42	7.64

Source : Census 2001, provisional totals p 106

There is steady decline in the population growth rate over the last three decades. Population growth rate was 19.42% in 1981 and it reduced to 9.42% in 2001. During the period 1981-91 population of 36.45 lakhs were added to the previous decade's population, whereas during the period 1991-2001, population of only 27.4 lakhs were added within the next decade. The growth rate of urban population of Kerala over the last three decades shows that it is in a transition phase. Over the last two decades (1971-81 and 1981-91) growth rate in urban population was on the rise, 37.64% in1981 and 60.97% in 1991. But the urban population growth rate has drastically declined to 7.64% in 2001 with a decrease of 87.5 % over the preceding decadal urban population growth rate. At the same time the growth rate in total population has decreased from 14.32 % to 9.42% only with a decrease rate of 34.2%. This indicates that over the last decade there is a slowdown in population flow from the rural area. This is an indicator to the planners to take the planning of rural areas with more concern than before.

8.2   URBAN AREAS IN THE DISTRICT

As per the 2001 census, the population of Kannur District is 24, 08,956, which constitutes about 7.56 % of the total population of the State. Of the total population of the Kannur district, 1212898 is urban population. That is 50.35 % of the total population of the District is in the census urban area of the District. There are seven statutory urban areas, Kannur Municipality, Thalassery Municipality, Payyanur Municipality, Taliparamba Municipality, Kuthuparamba Municipality, Mattannur Municipality and Kannur Cantonment in the District. The census urban areas of

Kannur District are shown in the figure 8.1. The Census urban areas are listed in table 8.5

8.3   URBAN POPULATION CONTENT (EXISTING) KANNUR DISTRICT

The process of urbanization of an area can be assessed in relation to its urban population content. The urban population content of Kerala state is 26%, whereas that of the District is 50.3%. On comparing the urban content of all the 14 Districts of the State, it can be seen from the table 8.5 that urban content of Kannur District is 1st among other districts. This shows that the process of urbanization is rather fast in Kannur District. It can be seen from the table 8.5 that urban content of Kannur District is 1st among other districts. This shows that the process of urbanization is rather fast in Kannur District.

DECADAL VARIATION IN URBAN POPULATION CONTENT VS URBAN AREA

Kannur, being the administrative headquarters, of the district has influence over the whole district. Among the urban centres of the district, Kannur and Thalassery are the major ones, which are only 23 Kms. apart. These two towns are functioning as twin towns to certain extent. The proportion of rural and urban population of Kannur District as well as the state is furnished in Table 8.6.

The population growth of Kannur district since 1901 is furnished in Table 8.7 below. The declination of urban population in 1971 in Kannur district is due to the change in concept of urban area and the resultant declassification of urban area of 1961 census. However a steady progress in urbanization is seen from the

Table 8.4 Trends in Urbanisation of Kerala 1981- 2001

Year	Total population	Total urban population	Percentage of urban population	Growth rate of total population	Growth rate in urban population
1981	25453680	4771275	18.74	19.24	37.64
1991	29098518	7680294	26.39	14.32	60.97
2001	31838619	8267135	25.97	9.42	7.64

Source : Census 2001, provisional totals p 106

above-furnished data. At present Kannur is a highly urbanized district of Kerala, with more than half of its population living in urban areas.

There is a steep increase (From 2.81 % to 15.46 %) in the growth of urban content of the total population for a period from 1921 to 1931. The sudden decrease in the growth of urban population was noted during the period from 1991 to 2001 though there is no change in extent of the urban area of the district.
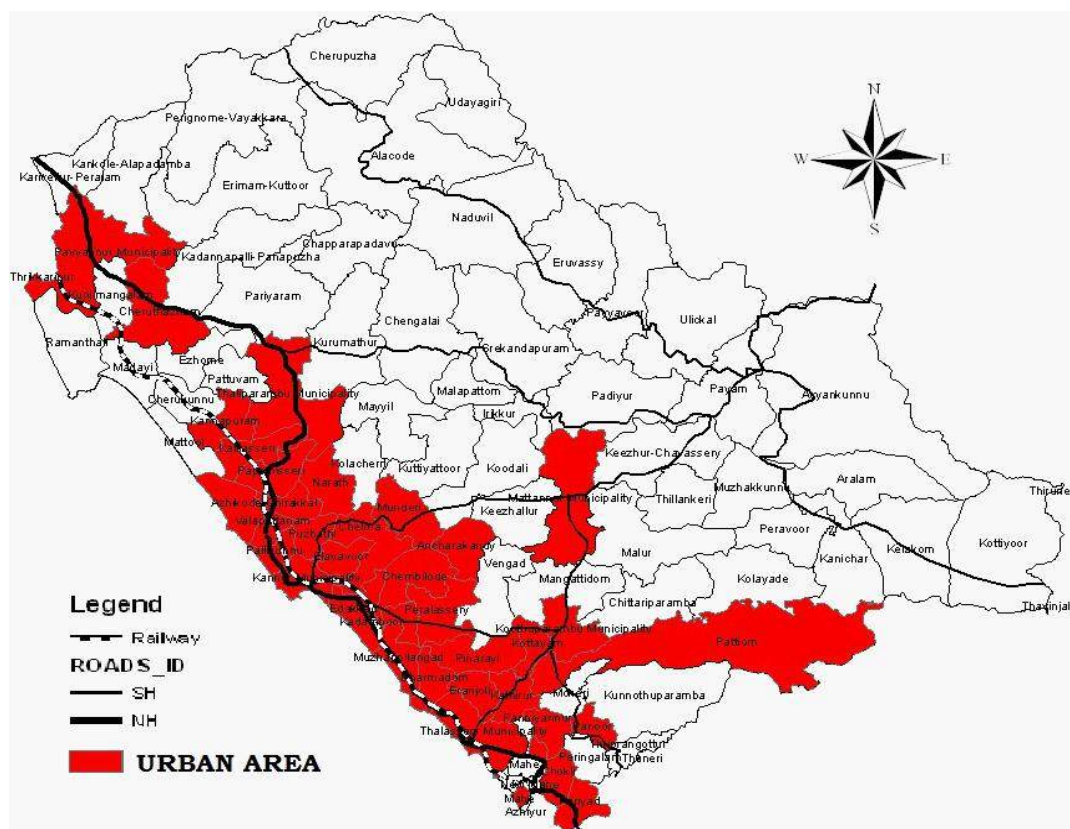
Fig. 8.1 Census Urban Areas of Kannur District

Table 8.5 Census Urban Areas of Kannur - 2001

1	Cheruthazham	14	Edakkad	27	Chockli
2	Kannapuram	15	Chembilode	28	Panniyannur
3	Kalliasseri	16	Ancharakandy	29	Panoor
4	Pappinisseri	17	Peralasseri	30	Kariyad
5	Azhikode	18	Kadambur	31	Kannur (M)
6	Valapattanam	19	Muzhappilangad	32	Thalassery (M)
7	Chirakkal	20	Pinarayi	33	Payyanur (M)
8	Narath	21	Kottayam-Malabar	34	Taliparamba (M)
9	Puzhathi	22	Pattiom	35	Kuthuparamba (M)
10	Pallikkunnu	23	Kadirur	36	Mattanur (M)
11	Elayavoor	24	Eranholi	37	Kannur Cantonment
12	Chelora	25	Dharmadom		
13	Munderi	26	New Mahe		

Source: Census 2001

Table 8.6 Rural Urban Break up of Population - Kannur District

Census Year	No. of persons per 1000 total population			
	Rural		Urban	
	Kannur	Kerala	Kannur	Kerala
1901	929	929	71	71
1911	921	926	79	74
1921	928	913	72	87
1931	926	904	74	96
1941	927	891	73	101
1951	909	865	91	135
1961	831	849	169	151
1971	863	838	137	162
1981	766	813	234	187
1991	490	736	510	264
2001	495	740	505	260

Source: Census 2001
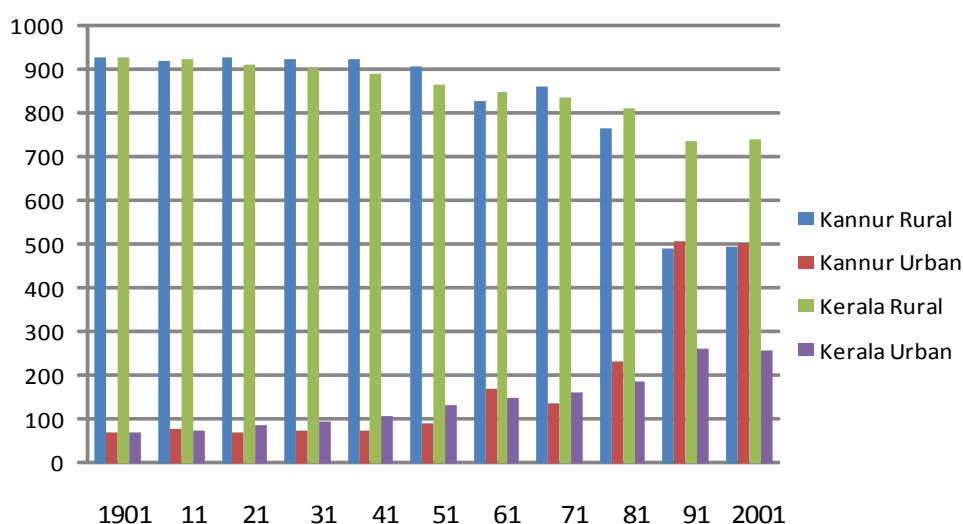
Fig. 8.2 Rural - Urban Breakup of Population (Kannur District)

New districts of Wayanad and Kasargod are formed by carving out Kasargod, Hosdurg and north Wynad Taluks from the erstwhile Kannur district and hence the reduction in population. The population furnished includes Kasargod and Hosdurg Taluks.

The increase in urban areas of the District as indicated in the corresponding years census figures is shown fig 8.3. In 1971 the extent of urban area in Kannur District was 30.21 sq km, which has increased to 637.29 sq km in 1991.The increase of urban area of the district was not uniform from 1971 to 2001, but the increase was high during the period from 1971 to 1981 and from 1981 to 1991.There is no increase of urban area during the last decade, i.e. during the period 1991 –2001.

It can be summarized that urban population has increased by 879 % against an increment of 2010 % in the extent of urban area. This indicates there is

Table 8.7 Decadal Variation in the Urban Population of Kannur District from 1901 - 2001

Census Year	Total Population	Urban Population	% of Decennial Variation of urban population
1901	7,60,903	249730	
1911	8,12,728	266737	6.81
1921	8,35,611	274232	2.81
1931	9,64,758	316628	15.46
1941	10,85,623	356302	12.53
1951	13,15,501	431731	21.17
1961	16,90,094	554688	28.48
1971	18,35,829	733797	32.29
1981	19,30,772	970740	25.39
1991	22,51,727	1132174	16.63
2001	24,12,365	1212898	7.13

Source : 2001 Census
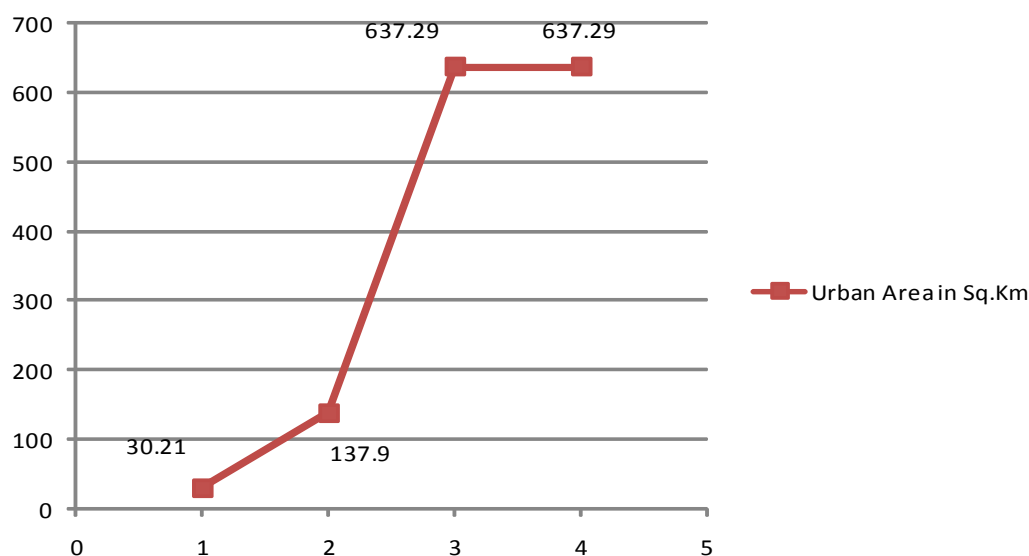
Fig. 8.3 Extent of Urban Area of the District - Decadal Variation

increase in the population in the existing urban areas rather than the additional population of the newly annexed urban areas until 1991. But after that (1991-2001) there is slight increase in the urban content of the population with no addition to the urban area. This is an indication of the formation of new urban settlement around rural nodes.

8.4 GROWTH RATE OF URBAN POPULATION

The chart (see fig 8.4) shows the decadal variation in the urban population of Kannur District from 1971 to 2001.The total Urban population of the District has increased from 123921 to 1212898 in a period of four decades. The variation during this period was not uniform. A steady increase in the urban population is observed from 1971 to 1991, but during the period from 1991 to 2001 there is comparatively less increase in the urban population.

The graph (see fig 8.5) depicts the growth rate of urban population against the growth rate of population over the last two decades in the District. When the urban population growth rate of the District has declined
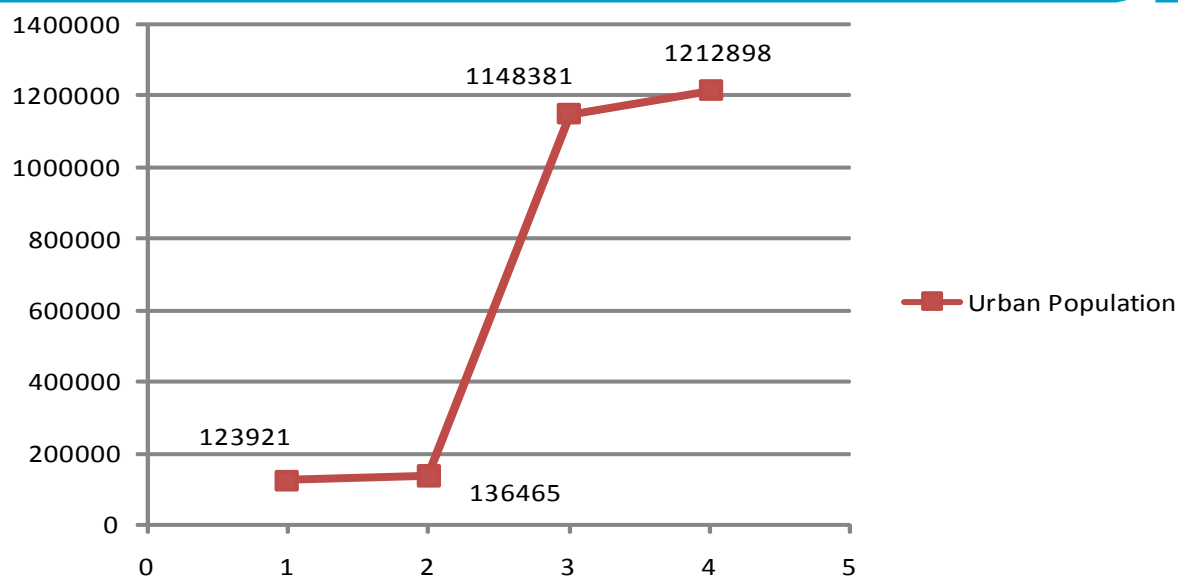
Fig. 8.4 Growth Rate of Urban Population

Table 8.8 Growth Rate of Urban Population - Comparison with State

	1971-81	**1981-91**	**1991-01**
Kerala	37.64	60.69	7.64
Kannur	25.39	16.63	7.13
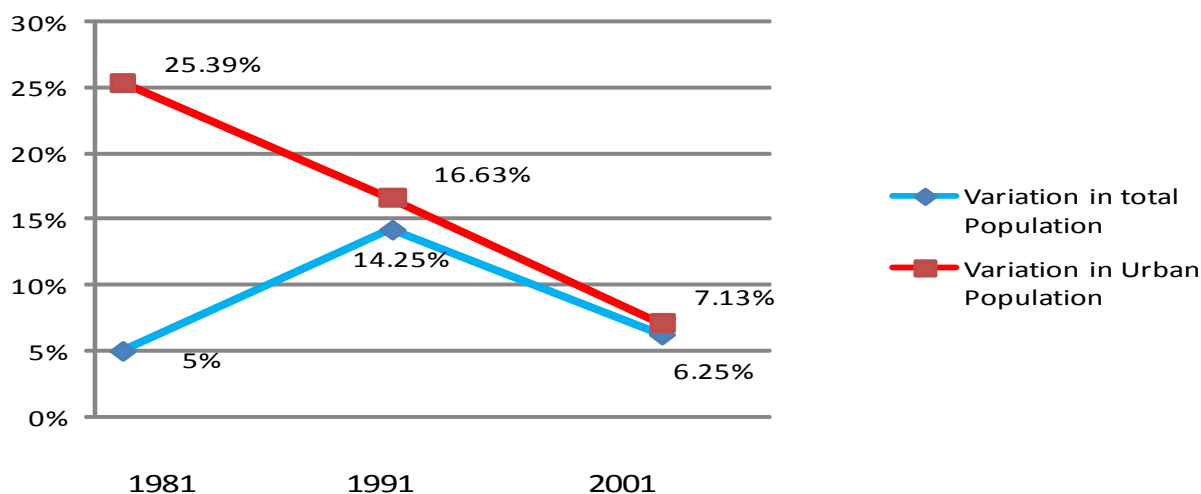
Fig. 8.5 Variation of Total & Urban Population during various decades

steadily from 25.39 to 7.13, the total population growth rate has increased from 5 to 6.25 during the same time period (1981 to 2001).

The figure indicate marginal migration of population from the urban area have been occurred in the district.

This is a pattern of urban growth contrary to the popular belief that there is in migration of people in to the urban area. The growth of urban population of the State shows the same pattern of shrinking of urban population growth rate figures during 1971 to 2001.

Table 8.8 compares the growth rate of urban population of the State and the District. This shows that

there is a huge decline in the growth rate of urban population of Kerala, but for Kannur District more or less the same pattern is seen here in Kannur also.

Figure (fig 8.5) depicts how the population growth rate of various LSGs of Kannur district. It is clear from the picture that the Growth rate of population of the main urban area of Kannur district (Kannur Municipality and Thalassery Municipality) is less than that of the Surrounding Panchayats and other lower grade municipalities (Payyanur, Taliparamba, Mattanur and Kuthuparamba) indicating out migration of people from the urban area to its fringe areas.

SPATIAL DISTRIBUTION OF URBAN POPULATION

In spite of the fact that there is a slight increase in the total urban population of the district, the concentration pattern of the urban population in the district is probed here.The distribution of the Taluk wise urban population is shown in the following table 8-9.

The table shows that 44.94 % of the total urban population of the Kannur District is concentrated in Kannur Taluk and 43.83 % in Thalassery Tauk. The Taliparamba taluk has 11.23 % of its total population as Urban population. The urban area in Kannur Taluk (Kannur Municiplity and nearby Grama Panchayats) constitutes about 45.71 % of the total urban area of the Kannur District making this Taluk as the most urbanized Taluk of Kannur District. Whereas Thalassery (36.76 %) and Taliparamba(17.53 %) are the least urbanized Taluks.

8.5 URBAN SETTLEMENTS FROM 1971 - 2001

The number of urban settlement of the district was increased from 1971 to 1991 (see table 8.10). In 2001, Kodiyeri Panchayat was added to Thalasseri municipality, thus there is decrease in the total number of urban settlement of district compared to the previous decade. But area wise there is no increase from 1991 to 2001 in the urban area.

Table 8.9 Population Details Taluk wise

Name of Taluk	Population			% Decennial Growth rate (1981-91)	% Decennial Growth rate (1991-01)	% Distributio n of urban Population	Urban Area in Sq. km.
	1981	1991	2001				
Thaliparamba	566341	668046	731283	17.96	9.47	11.23	98.47
Kannur	608955	701074	748410	15.12	6.75	44.94	296.55
Thalassery	755426	882607	932672	16.84	5.67	43.83	242.27
Kannur Dist	1930722	2244685	2412365	16.63	7.13	100	637.29

Source : 2001 Census

Table 8.10 Urban Settlements in different Period of time

Census year	Total number of Urban area	Municipal corporation	Municipal Towns	Non municipal towns	Urban out growth	Total area (sq km)
1971	2		2	0	0	30.21
1981	5		2	3	0	137.9
1991	38		7	31	0	637.29
2001	37		7	30	0	637.29

8.6 FUTURE URBANIZATION PROFILE OF THE DISTRICT

Future urbanisation profile of the district is derived based on the following five criteria.

1. Census urban areas
2. Grade of local bodies
3. Urban development project
4. Hierarchy of settlements
5. Existing urban areas.

8.6.1 CENSUS URBAN AREA

As mentioned in the beginning of this chapter urban content of Kannur district is more than 50% of total population. The urban LSGs in Kannur districts numbered 37 out of which seven are municipal towns and others are non municipal towns. The list of census urban LSGs are shown in Table 8.5 and its spatial representation in fig 8.1

8.6.2 GRADE OF LSGS

The grading of LSGs was given comparing their physical and economical development. So, here, in the absence of direct data to assess the physicaland economical development. So, here, in the absence of direct data to assess the physical and economic development, the grade of Panchayat , (assigned earlier)can be taken as a proxy indicator to measure the physical and economic development of the settlement.

Spatial distribution of these LSGs are as shown in fig 8.6. The 87 LSGs (as in Annexe 2) in Kannur district include 6 municipalities, 1 cantonment board ,12 special grade panchayat s, 42 first grade panchayats,26 second grade panchayats and one third grade panchayat. Among the special grade panchayath Keezhur - Chavasserri, Ezhome, Madai, Alakkode,Peringome Vayakkara and Ulikkal Panchayat are not included in the census Urban area.All special grade panchayats considering their level of physical development were considered to form the probable list of urban LSGs .
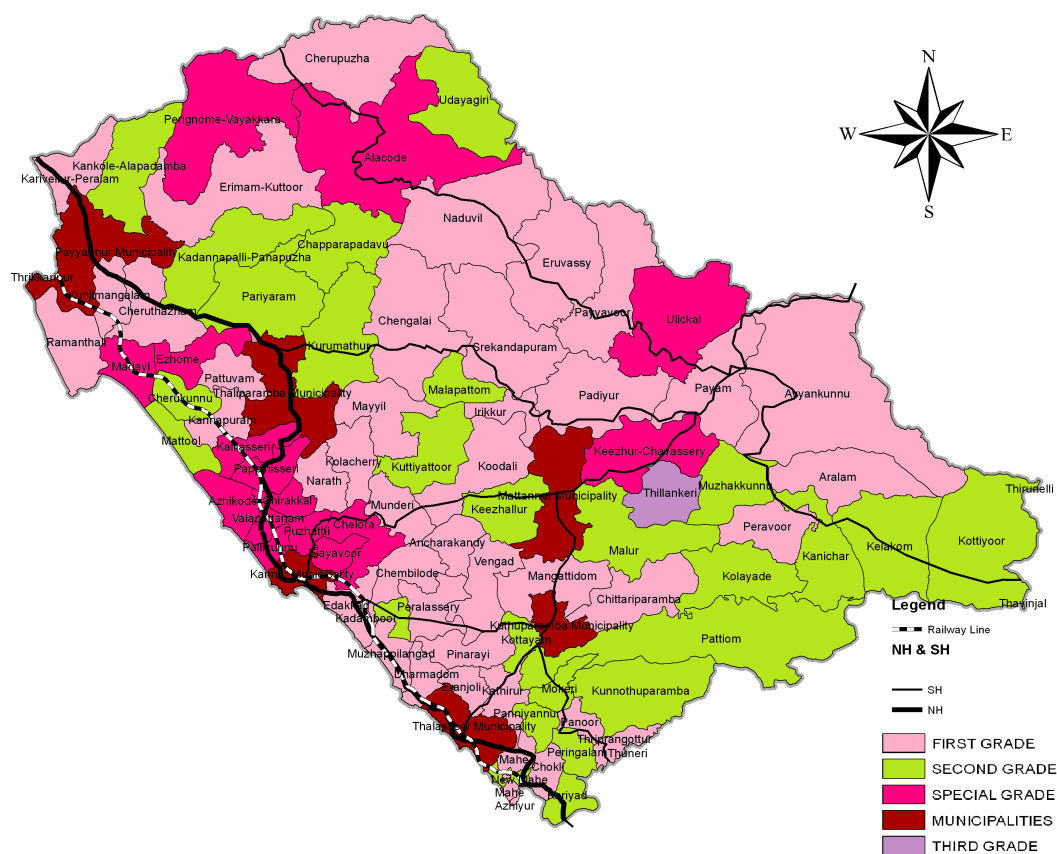
Fig. 8.6 Grade LSGs and Municipalities

Table 8.11 Special Grade LSGs

SI no.	Name of Special grade LSGs
1	Chelora
2	Elayavoor
3	Peringome Vayakkara
4	Alakkode
5	Ulikkal
6	Pappinissery
7	Chirakkal
8	Pallikkunnu
9	Puzhathi
10	Valapattanam
11	Azhikode
12	Keezhur Chavassery
13	Maadaayi
14	Ezhome
15	Kalliassery

Before finalizing the future urban profile of the District, the important urban development Projects of the District and their impact are also to be studied.

8.6.3 PRESPECTIVES IN URBAN DEVELOPMENT

A brief review of the urban development schemes / projects in the anvil in the district which are likely to induce urban development in future years are detailed below.

1) KANNUR AIRPORT

The state's prestigious green field airport project named "KANNUR INTERNATIONAL AIRPORT" will be coming up close to Mattannur in Kannur district of Kerala State. It is only 20 Km away from Kannur city. And 2 Km from Mattannur on Kannur-Mattannur-Mysore road.

Government of Kerala vide its order GO (MS)No.2/98/Tran dated 17.01.1998 accorded sanction for setting up Kannur International Airport and appointed KINFRA as the nodal agency for its implementation. The Ministry of Civil Aviation gave approval for setting up an International Airport at Kannur.

In the meeting held on 17 December 2008 convened by the Home Ministry and attended by the Finance Minister, PWD Minister, PWD Secretary, Tourism

Secretary and Special Officer, Kannur Airport Project, it was decided to develop major roads leading to Kannur, Thalassery, Payyannur, Wayanad, Mahe, eastern part of Kozhikkode and Karnataka border.

Provision for these road work made in the State budget from 2010-11 to complete in a phased manner.

In a major function held on 17th December 2010, the foundation stone of Air port laid by the Chief Minister and decided to speed up the work of largest Inter National Air port in Kerala under KIAL.

The Tourism industry, especially health, pilgrimage and beach tourism would be developed to attract more national and international tourists. The air port will be established quite close to Wayanad and Coorg which are suitable locations for adventure and wild life tourism. Even before the commencement of the construction of the airport several hotel chains have come up to explore the tourism potential of the region. There is chance of heritage tourism can be promoted in this area due to the presence of a large number of internationally famous shrines belonging to different religions.

Traditional industries like textile, handloom and modern sectors like IT will get a boost with the establishment of the airport. Similarly tha airport will grow due to rapid industrialization from the flow of increased passengers. It s a win-win situation.

2) AZHIKKAL PORT

The Azhikkal Port, near Kannur has been identified by the centre for developing coastal shipping under National Maritime development programme (NMDP). A detailed report on the project had earlier been prepared by ICICI-Kinfra and the consultant will be required to review the report and effect suitable changes to integrate the port with NMDP. The report is to be developed in modules in a phased manner to include berths for containers, general cargo and petroleum carriers.

By virtue of being served by multiple rail lines, a road network and inland waterway, Azhikkal port will

be able to offer a competitive edge by keeping the inland transportation costs lower.

In the Malabar region of North Kerala, at the entrance of the Valapattanam river in Kannur district, Azhikal holds out immense potential for development as a major port.

Kochi is the only major port in Kerala. After almost 70 years the Kerala Government has finalizeda development plan to make Vizhinjam, near Thiruvanadapuram an international container transhipment terminal in three stages by BOT under a public-private partnership.

Now, a look at the advantages and attractions of Azhikkal to be developed as a third major port in Kerala. By virtue of being served by multiple rail lines, a road network and inland water ways, Azhikkal will be able to be offer a competitive edge by keeping the inland transportation cost lower. Second, a major sea port should be located close to the sea so that the expenditure to be incurred on capital and maintenance dredging of the access channel could be kept minimal. Since the length of the approach channel from the sea to the inner area of Azhikkal port is unlikely to exceed more than about five- six meters, which is the depth of the Valapattanam river. Azhikkal is ideal for development as a sheltered harbour. Third, Valapatanam is a broad river, about 1500 meter wide. On both side of its bank are large tracts of land (about 3000 acres) which can be made available for port development as there is not much human settlement. Four, the geographical location of Azhikkal will stimulate industrial development in the backward region and easy emerge as an effective competitor to New Mangalore port, which is situated just 160Km north of Azhikkal.

There will be bright prospects for Azhikkal if it is developed as a major port. The new Mangalore port, situated close to it, has handle a record traffic of 33.89 million tones with a capacity utilization of 112 per cent by 2004-2005.

The large importance of this port is crude oil for MRPL, which account for about 12 million tonnes per annum. As the capacity of MRPL is now proposed to bound to go up to 15 million tones per annum. Additional facilities have to be created in this port to handle the expected increase in traffic.

Recent reports suggest that ONGC plans to set up a second refinery near New Mangalore with an installed capacity of 15 million tones. This could well be located in Azhikkal, which will avoid concentration of crude refining capacity and serves the stated objectives of the centre to have a balanced regional economic development.

According to reports, the centre plan to establish two strategic oil reserve storage facility for about 15 million tones of crude oil – one on the east and the other is on the west coast, and a location near Mangalore is reported to have been favoured by an expert committee. Locating this proposed strategic oil reserves storage facility near Azhikkal port, where land acquisition costs are likely to be much lower, would improve the prospects for Azhikkal port. These two units alone could provide an annual petroleum oil and lubricant traffic of about 20 million tones when the facility fully operational.

The major items of export through New Mangalore port is Iron ore. The annual traffic of the commodity is established at about 10 million tones; about 4 million tones comes to the port through pipelines and the balance by road mainly from the Bellary-Hospet region over a distance about 650 Km incurring a freight charge of about Rs.850 per tones.

As the demand of Iron ore in international markets is increasing due to aggressive buying by China, about 2 million tones of iron ore traffic could be expected for being routed through Azhikkal.

Another important items of imports through New Mangalore port is wooden logs and wood pulp, about 0.3 million tones annually. Since Valapattanam is

famous for trade of timber and its products, there is a scope for this trade to be extended to Azhikkal port. Large area of land can be made available on the bank of the Valapattanam river for long-term storage and manufacturing activities at competitive rates.

Other item of import such as coal, fertilizer and edible oil could provide an additional traffic of about 2.5 million tones. With in ten years of commissioning, the major port proposed in Azhikkal may find itself capable of handling a total traffic of about 25 million tones annually.

Efficient seaport and port facility, apart from earning considerable foreign exchange, can ensure the balanced growth of the country's economic, social and environmental life.

The Azhikkal port, near Kannur has been identified by the Union government for developing coastal shipping under the National Maritime Development Programme (NMDP).

A detailed report on the project had earlier been prepared by ICICI-KInfra and the consultant will be required to review the report and effect suitable changes to integrate the port with NMDP. The port will be developed in modules in a phased manner to include berths for containers, general cargo and petroleum carriers.

3) NATIONAL INSTITUTION OF FASHION TECHNOLOGY

National institute of fashion technology (NIFT), has sanctioned its 12th regional centre in Kannur. The centre has starts functioning at Thottada in Edakkad grama panchayath in a rented building. The first institute was established at Delhi in 1986 under the Ministry of Textiles, Government of India. The main motive behind the idea of this institute was to be fulfill the long-felt needs of the export-oriented garment industry to train manpower in fashion in fashion design , garment manufacturing technology and apparel marketing and merchandising. NIFT is one of the leading fashion school of India. It is the founder member of "Fashion school of foundation of world", which comprises 23 fashion schools world wide. Many of the leading designers of India are NIFT alumni. NIFT has been empowered by an act of parliament to grant its own degrees.

The new buildings for NIFT, Kannur has to be constructed at Mangattuparamba aside of National Highway 17. Other centers of NIFT are at Delhi, Mumbai, Kolkata, Gandhinagar, Hyderabad, Chennai, Bangalore, Raebareli, Patna, Shillong and Bhopal.

APPAREL PRODUCTION

This four year undergraduate course and two year PG course is one of the best courses offered in garment manufacturing in any of the fashion schools worldwide. The course was earlier called Garment Manufacturing Technology(GMT), then it was named Fashion Technology, Than Apparel Manufacturing and Information Technology(AMIT), and finally arrived at its current name in 2006. The course deal with the manufacturing part of the fashion business. One of the notable point is that it also deals with the IT(Information Technology) applications in the garment industry. Earlier the course was available as a 2 year PG Diploma course while the name was GMT. It was started as 4 year course in the academic session of 2003. All the centers except Raebareli, Bhopal, Patna offer this course.

FASHION DESIGN

A faculty of trained and highly qualified staff is a plus point of NIFT. Here, the "learning by doing" approach is given importance and hence students are being trained according to the national as well as international demand of the market. This course is a 4-year degree course.

ACCESSORY DESIGN

The accessory design program of NIFT started in 1991 and was available for seven years only at NIFT Delhi. In these seven years, the program become the most successful at NIFT and graduates from the program went on to make remarkable change with in the industry, offering 'Design for Business' a mantra of the

AD program thet led firms and establishments to see immense profitably through an intelligent and almost intuitive application of design.

One of the most focused design courses in the Indian design education environment, the program emphasizes on the fashion perspective in personal product design as well as on the appreciation and application of traditional Indian crafts base in a contemporary milieu. NIFT infrastructure provides a through working knowledge of related materials, process and technologies in the area of leather goods, footwear, gift wear, tableware, precious and costume jewellery and students graduate with conceptual as well as technical strength.

It also delves into the design of personal products such as writing instruments, watches and eyewear. Graduating students move on to work and contribute significantly in the domain of fashion based accessories, products, packaging and display design.

4) NATIONAL WATERWAY

Government of India declared Kollam-Kottappuram as National water way No.3. The Inland Waterway Authority of India (IWAI) have taken steps to widen the national water way which would in future facilitates cargo movement by water as well as tourism activities. As a result, the district tourism industry will receive a boost with the declaration of the national water way. This will in turn boost up the economy of the region.

5) CONTAINER FREIGHT STATION

The proposed container frieght station at Mangattuparambu will generate more job opportunities in this region. It will be more convenient for costumes clearances of exporters and importers of near by districts of home state and Kodagu district of Karnadaka state on completion of Kannur air port and Azhikkal sea port.

6) TOURISM RESOURCES

Kannur district is blessed with enormous tourism potential to add to the district's economy. Kannur is perhaps the only district of Kerala having large number of tourisms products due to its topography. It has a long coast line which includes only drive in beach (5km long Muzhappilagad beach) River, scenic sites in the highland – Vaithal mala and also a number of pilgrimage sites. Tourism has a major share in the economy of district. As per the NSDP 1999, the teritary share in Kannur district is 40%, which that of tourism in the teritary sector is 33%, which is equivalent to the teritary share of the district. The existing three urban area, Kannur Municipality, Thalasseri Municipality and Thalipparamba Municipality has the tourism potential due to the presence of pilgrim centres like Parassinikkadavu, Rajarajewswari temple, Heritage sites like Arrakkal palace, Forts, Bunglows built during Portugheese, Germans, Aglican Church and the Aralam forest bird sanctuary which will add to the LSGs economy. Theyyam the traditional art form and Kalari the martial arts also attracting the tourists in this land.

The perspective in urban development of the District shows that the major urban development projects envisaged in the District as of now are the Keezhallur (Kannur Air port) & Azheekode (Azhikkal sea port). The up gradation of these ports will be a boon for those industries of the District, which either export their products or import raw materials. The Handloom, fishing and spices export, of the district will be benefited out of the proposed up gradation of the port. The well known Handloom industry (once known as Manchester of south) is spread throughout the Kannur taluk. The development in the industrial sector in turn will enhance the commercial activity and activities in other service sectors. However it can be summed up that though the proposed airport enhances the overall industrial activity of the District, the process of urbanization due to this will be mainly confined in Taliparamba and Mattannur Municipality, Azhikode and Keezhallur Grama Panchayats.

It is to be noted that Keezhallur (other have already included in the list) is not included in the list of the probable urban LSGs of the District. This LSG

is adjacent to the Mattannur Municipality and hence the developments in this panchayat have direct influence on the developments in Mattannur Municipality. So these local body need to be considered while listing the future urban LSGs. After the inclusion of these local body the number of LSGs in the select list is increased to 44.

The proposed Kannur- Airport is expected to enhance the commercial and industrial activity of the District in general and that of those LSGs near to it. But the impact of the Air port in the District on a major scale will be mainly confined to the LSGs adjacent to the Air port. The Thalasserri Municipality and Kannur Municipality are the existing Major urban LSGs and Payyannur, Taliparamba, Kuthuparamba and Mattannur are the other municipalities of the District. Considering the major development Keezhallur is included in the probable future urban LSGs of the District.

8.6.4 HIERARCHY OF SETTLEMENT
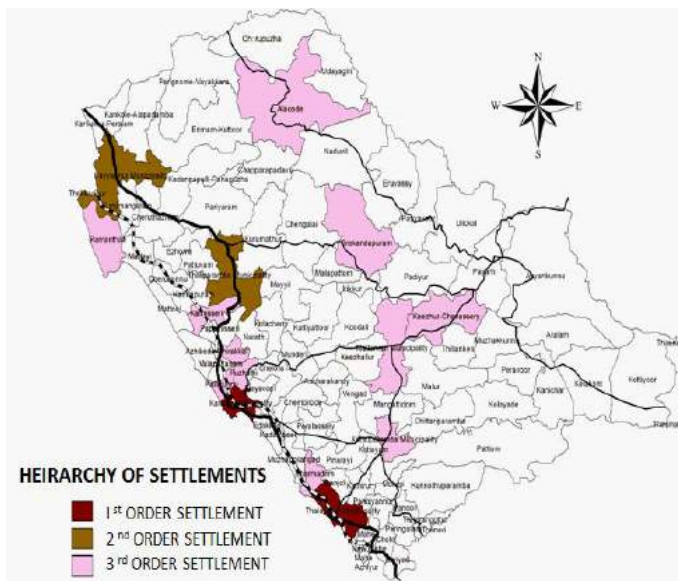
Fig. 8.7 Hierarchy of settlements

The hierarchy of the above LSGs in the overall context of the District are also to be taken in to account before finalizing the LSGs with urban character, because the hierarchy of LSGs is an indicator on the type and number of facilities in the LSGs. The detailed methodology dealt in the previous chapter. The result of this analysis shows the 15 LSGs as listed in table 7.1

are the higher order settlements and among these LSGs except Sreekantapuram and Ramanthali are already listed inthe probable list of LSGs . These two LSGs also can be included in the probable list. Fig 8.7 shows the hierarchy of the settlements. Out of the 46 LSGs listed the Kariyad panchayath comes in the category of LSGs having the lowest hierarchy. This LSG excluded from the list of likely urban LSGs.

8.6.5 URBAN AREA

The Spatial distribution of the urban LSGs (by 2021) shows that most of them are situated along the NH-17 in the coastal stretch and others in midland along SH 30, indicating a distribution of urban population in coastal plains and in midland of the District. Urban LSGs (existing and projected) of the district shown in table 8.12 and 8.13

URBAN CONTENT

The projected urban population content for 2021 AD of the District is 76% of the total population. The urban population content of the District as per 2001 census data is only 50.34% of the total population. This means that urban population content of the District is projected to increase by another 50% within a time period of 20 years (2001-2021). In net figures, this means an increase of about 7, 14,000 in urban population (from 12 lakhs to 19.7 lakhs) in the District during this period. This increase in urban population is mainly due to the attaining of urban nature by some of the rural LSGs and subsequently the population of these LSGs is being treated as urban.

8.7 URBAN VISION

The existing land use pattern of the District shows that nearly 50% of the total land use of the District is agricultural in nature. The Spatial Distribution of the land use shows that most of the agricultural area is concentrated in the mid land and high land region of the district. And also the general character of the service area of higher order settlements shows that most of them are semi urban in nature, indicating that the economic base of the District can be the primary as well as teritiary sector, specifically the service sector as well

as agriculture and plantation sector.

This observation contradicts with the observation made regarding the urban population content of the District and occupational structure of the District.

The population content is projected to be above 76% of the total population in 2021. Spatially most of the Urban LSGs are concentrated in the coastal plains and midland. In fact one can say that there exists a clear distinction in physical terms between the urban and rural area of the district. The occupational structure of the district shows that (Refer Chapter 4), more than 70% of the total workers of the District.

Engage in non-agricultural activity (even the rural area shows the same pattern) indicating the declining trend of the primary sector in Kannur District. This indicates that the agricultural land in the district is either unutilized or underutilized. From the point of view of the economic stability as well as environmental stability of the District the agricultural land should be put in the use. While deriving an urban vision of the district these factors should be taken into account.

The trend of migration of people from urban to semi urban area has to be controlled, by creating more job opportunities in the urban areas, at the same time the underutilized agriculture land in the rural area has to be put in use, resulting in the utilization of both the resources (Land resource & Human Resource) of the District. The WPR of the District in urban and rural area are projected (Ref Chapter 4) keeping this in mind. As per the projected work force for 2001-2011, an additional job opportunity of about 25,000 has to be created in the District.

Similarly an additional job opportunity of about 50000 is to be created in the area during 2011-2021.Investment on a large scale is needed to generate this much employment opportunities in the district. Once there is heavy investment and consequent development in the urban area, there will be pressure on the rural LSGs in the urban fringes for land for residential purposes and other non agricultural uses.

This has to be arrested for safe guarding the agriculture land and other fragile ecosystem existing in the rural area. Hence the urban vision of the district district should be the enhancement of the urban area (existing and projected) without the destruction of rural base of the District by confining the projected urban population and urban activities within the projected urban area itself. In short this can be termed as the Development of the urban area, not at the cost of rural area.

More jobs have to be created in the urban area in the secondary and tertiary sector and at the same time there will be thrust for the development of the agricultural sector in rural areas. The high density of population in the urban areas in the coastal plains limits the functioning of heavy industries in the urban area and hence the ideal choice is none polluting or less polluting industries. Tourism and IT are non polluting industries which have plenty of scope here in Kannur. And also thrust should be given to small and cottage industries.

8.8 URBAN PROFILE

The projected and existing urban area, their character and their proposed hierarchy are given in table 8.12 & 8.13

Administrative statuses of the above LSGs (Municipality, Nagar Panchayat) are derived based on the following criteria.

1.Status of the existing urban LSGs is maintained as such

2.Those settlements with their character as urban are proposed to be upgrade as Municipalities.

3.Settlements with their character as semi urban are proposed to upgrade as Nagar panchayts .

Pallikkunnu, Puzhathi and Elayavoor panchayat which are existing urban areas from the immediate peripheri of Kannur Municipality assumed to become merged with it in near future 2011. The other LSGs Azhikod, Valapatanam, Chirkkal and Chelora which are the other designated urban areas adjacent to Kannur Municipality and hence assumed to become the part of Kannur Corporation by 2021.

Keezhur- Chavasserri having a suggested hierarchy of 2 nd order is assumed to become Municipality by 2011.Keezhallur panchayat near to Mattannur municipality is assumed to be merged with Municipality where the large scale development activities take place in connection with Kannur international airport by 2021.

Kalliasseri Panchayat merge with Thaliparamba municipality by 2021 where the head quarters of Kannur university and the proposed coast guard accadamy to be set up.

Madai, Ramanthali, Sreekantapuram and Alakkode remain to be town panchayat with service area of near by LSG's.
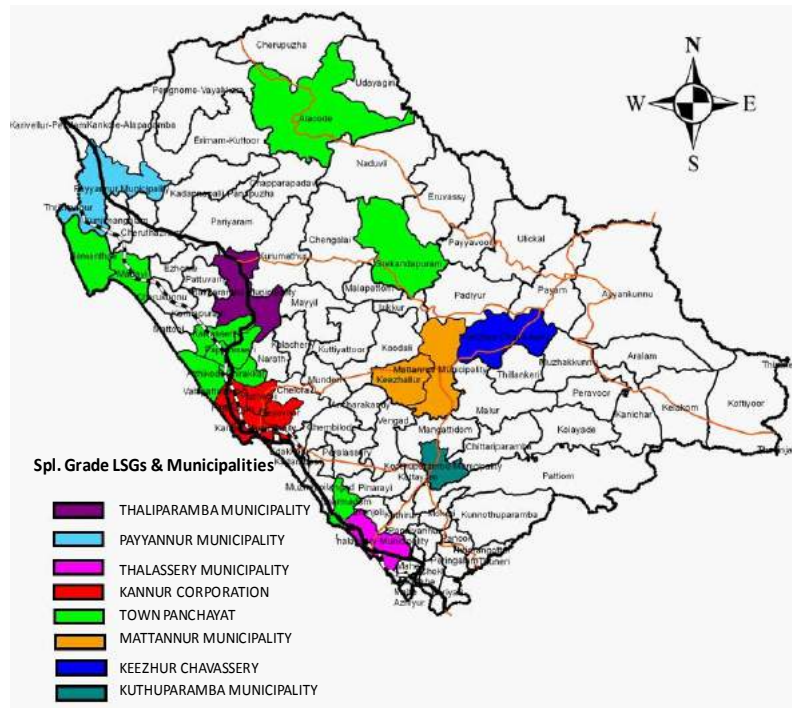
Fig. 8.8 Future Urban Profile 2011
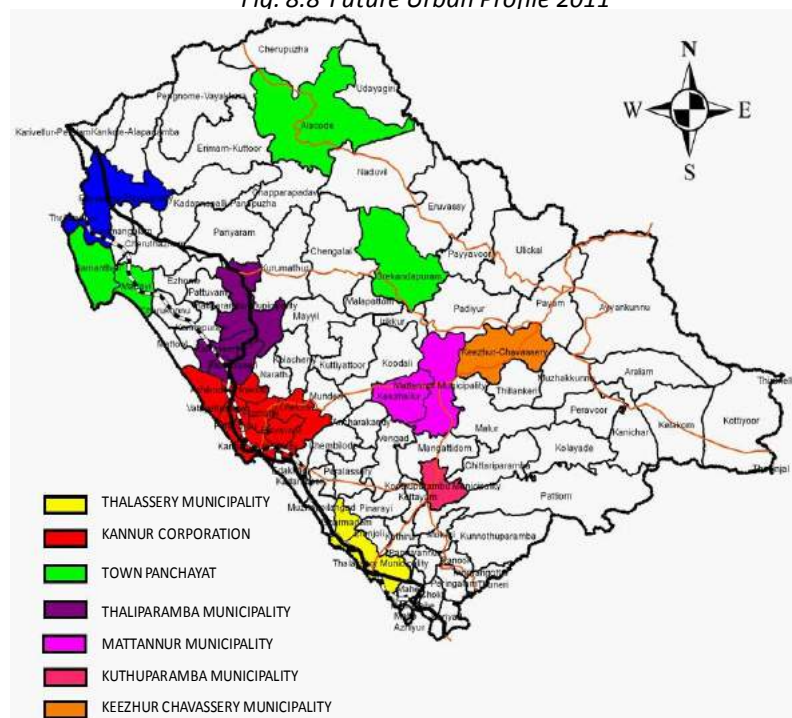
Fig. 8.9 Future Urban Profile 2021

Table 8.12 Character and Hierarchy of Urban LSGs (Existing)

Sl no.	Urban LSGs	Character	Hierarchy
1	Kannur Municipality	Urban	1
2	Thalasserri Municipality	Urban	1
3	Payyannur Municipality	Urban	2
4	Thaliparamba Municipality	Urban	2
5	Kuthuparamba Municipality	Urban	3
6	Mattannur Municipality	Semi urban	3
7	Kannur Cantonment	Urban	3
8	Kallyaserry	Semi urban	3
9	Dharmadam	Urban	3
10	Pallikkunnu	Urban	3
11	Puzhathi	Urban	3
12	Anjararakandy	Semi urban	4
13	Elayavur	Semi urban	4
14	Azhikode	Semi urban	4
15	Chelora	Semi urban	4
16	Chembilode	Semi urban	4
17	Edakkad	Semi urban	4
18	Chirakkal	Semi urban	4
19	Valapattanam	Semi urban	4
20	Pappinissery	Semi urban	4
21	Panoor	Semi urban	4
22	Cheruthazham	Semi urban	4
23	Kadirur	Semi urban	4
24	Pannyanur	Semi urban	4
25	New mahe	Semi urban	4
26	Eranholi	Semi urban	4
27	Peralassery	Semi urban	4
28	Kadambur	Semi urban	4
29	Chokli	Semi urban	4
30	Munderi	Semi urban	4
31	Pinarayi	Semi urban	4
32	Kannapuram	Semi urban	4
33	Pattiyam	Semi urban	4
34	Muzhappilangad	Semi urban	4
35	Narath	Semi urban	4
36	Kottayam	Semi urban	4

Table 8.13 Character and Hierarchy of Urban LSGs (Proposed)

Sl no	Urban LSGs	Character	Hierarchy
1	Keezhur chavasserri	Semi urban	2
2	Sreekandapuram	Semi urban	2
3	Ramanthali	Semi urban	3
4	Alakode	Semi urban	3
5	Madai	Semi urban	4
6	Ulikkal	Semi urban	4
7	Keezhallur	Semi urban	4
8	Peringome - vayakkara	Semi urban	4
9	Ezhome	Semi urban	4

8.9 INFERENCE

The process of urbanization and the resulting pattern of settlement are unique in Kerala. The process of urbanization is palpable and the urban growth are concentrated and definite elsewhere in India. Whereas in Kerala, there exists urban-rural continuum. It is very difficult to distinguish the beginning of an urban area or a rural area in Kerala. A big urban area like Chennai, Hyderabad or Bangalore which attracts economic activities and creating development impulses is absent here in Kerala.

Kannur, one of the Northern most district of Kerala, also exhibits the same pattern of settlement as the state has. From the above study it can be concluded that the level of urbanization of the State shows a declining trend in general. Kannur District shows high level of urbanization when compared to the State average. And also, the level of urbanization shows an increasing trend within the District. The urban areas of the district shows lower growth rate of population whereas the rural areas surrounding the statutory urban towns show significantly higher growth rate indicating possible out migration of people from the urban centres to the surrounding urban

settlements. This happens mainly due to the availability of urban facilities in these settelements.

The spatial distribution of urban centres in Kannur district shows a healthy situation. The low land area in the district shows most urbanised comparing to eastern hilly areas. Out of 87 LSGs 38 are listed as urban as per census among these include 6 municipalities and Kannur cantonment. Major development projects happened in recenet years include Navel Academy, National Institute of Fashion Technology, Industrial park and the Container Frieght Station. The other major projects ongoing are Kannur International Airport, Azhikkal sea port and Coast guard Academy. All these development activities help the growth of urbanization of the district. The urban continuum in Kannur urban area shows a thurst and need to become Kannur corporation, by merging adjacent urban settlements. Similarly Keezhallur panchayat were the work of Kannur International Airport is in progress will recently merg with the Mattannur municipality in near future. Keezhur-Chavassery the heart of hill trade centre also on its way to become a municipality. The study shows 45 LSGs become urban status by 2021 in Kannur district.

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Chapter- 9
ACTIVITY PATTERN

Activity pattern is determined based on the three important parameters, ie. Land use concentration pattern, future urban profile and functional classification of that area. The existing land use represents the predominant economic activities of an area as well as the availability of vacant land for future economic activities. Land use pattern represents the physical characteristics of land. Future urban profile of an area is derived considering the present urban areas analysed in census oparations, grade of LSGs which representing their economic activities and financial capabilities, location of on going major urban development projects and the hierarchy of settlements. Functional classification of LSGs based on the population distribution within the region, average plot size and occupation structure prevailing in the LSGs.

9.1 DESCRIPTION OF LANDUSE CONCENTRATION PATTERN

The land use concentration pattern of the LSGs in Kannur district is analysed in the chapter 5. Mainly this land use can be split into three categories namely agriculture, forest and urban or non agriculture. The forest area concentrated on eastern hilly region as well as some parts of south east in Kottiyoor and

LEGEND

- Agriculture
- Urban
- Plantation
- Forest
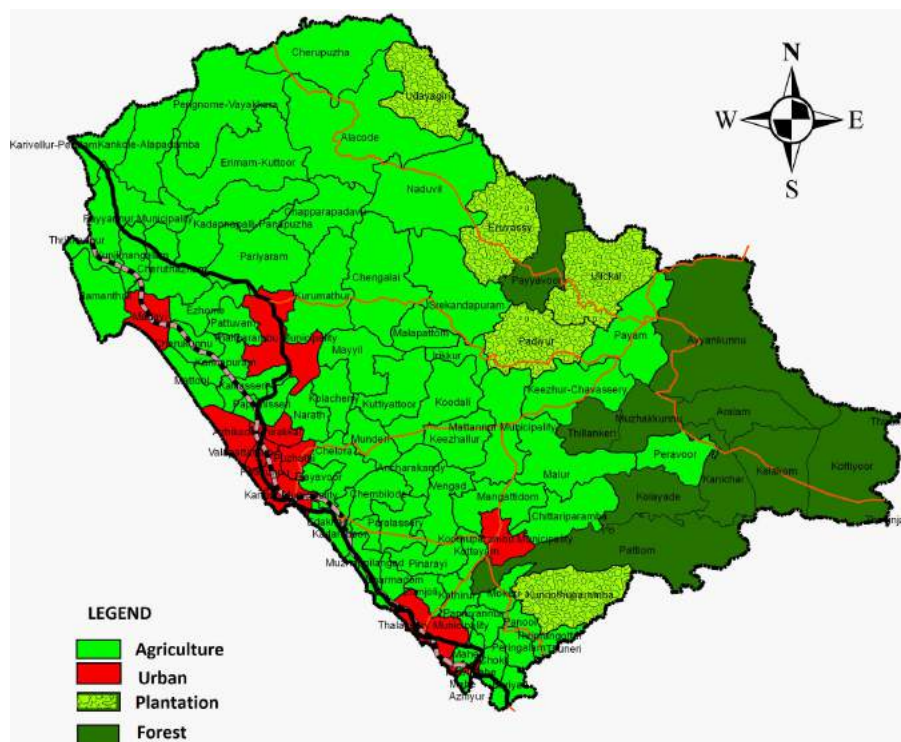
Fig. 9.1 Landuse Concentration Pattern

Kannavam reserve forest areas. The agriculture area evenly spread throughout the district in mid land as well as in highlands. The low land mainly along the coastal belt of the district predominantly became non agricultural land use and mixed built up.

9.2 DESCRIPTION OF FUTURE URBAN PROFILE

A detailed analysis of existing LSGs with respect to its urbanaisation was detailed in chapter 8. The LSGs which are urban by statutory will remain as Urban LSGs and those LSGs with more urban settlements will become municipalities. Those LSGs near to Kannur municipality like Pallikkunnu, Puzathi Azhikode, Valapatanam, Chirakkal and Elayavoor which are designated as urban areas assumed to become the part of Kannur Urban are(Corporation) within next 10 years. Similarly the Keezhallur Grama panchayat near to Mattannur Municipality assumed to become the part of it.

Other designated urban LSG Keezhur – Chavasseri grama panchayat will become another Municipality.

9.3 DESCRIPTION OF FUNCTIONAL CLASSIFICATIION

Functional character of the settlements was studied in details in chapter 6. The criteria used toclassify the settlements are the labour participation rate in different sectors such as primary, secondary and territory. Apart from this, analysis of functional character based on the distribution of land use, population distribution and the plot size of individual holdings are also taken into account. Based on this analysis, the LSGs were classified as urban, semi urban, rural and semi rural. The resultant is shown in the figure 9.3.

Urban Profile	Land Use Concentration	Functional Classification
Urban	Non Agricultural	Urban
Non urban	Agricultural	Semi Urban
	Forest	Rural
		Semi Rural
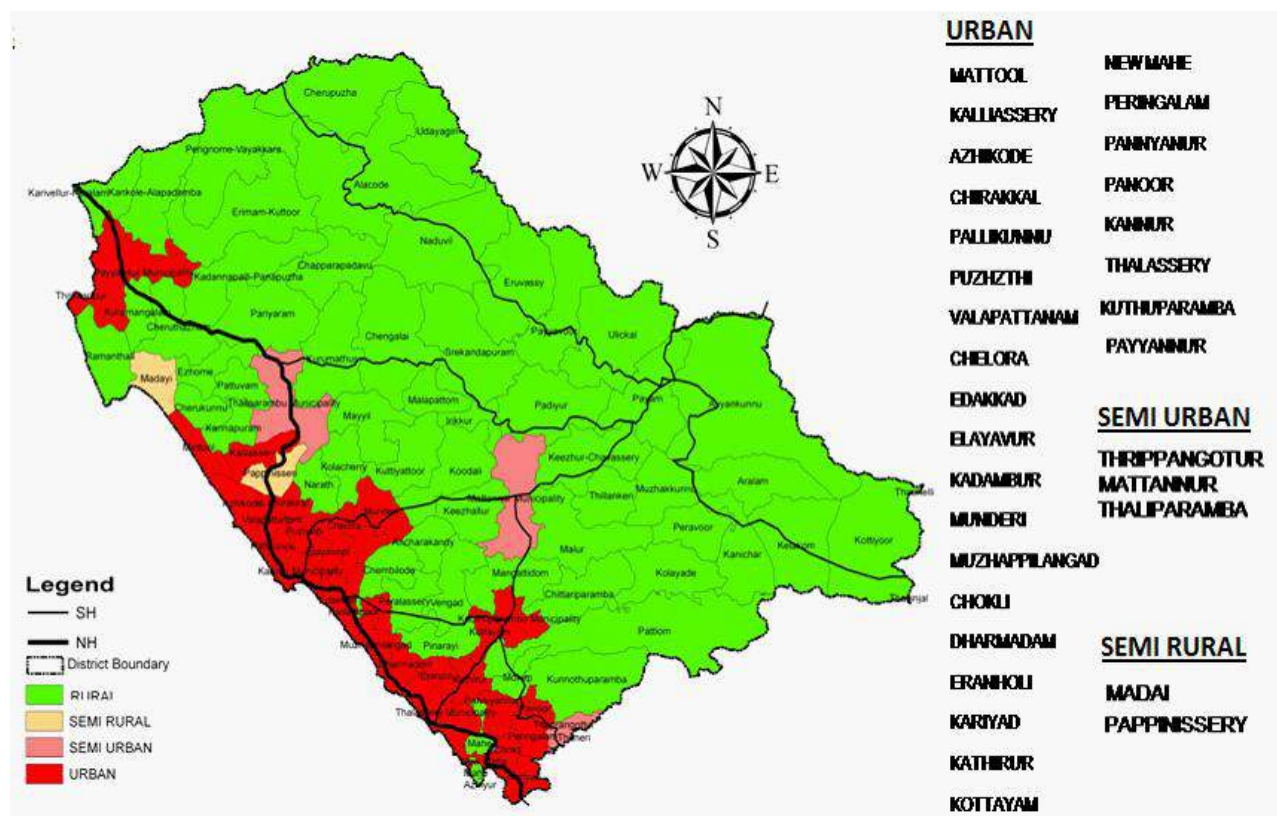
Fig. 9.2 Functional Classification of LSGs

9.4 DETERMINATION OF ACTIVITY PATTERN
9.4.1 URBAN ACTIVITY

Urban activity is decided according to the combined result of urban profile, type of land use and functional characteristics of LSG. Those LSGs with urban profile as urban, land use classification as non-agriculture and functional character as urban taken as having urban activity.

9.4.2 PRIMARY ACTIVITY PATTERN

Primary activity pattern is decided according to the criteria as follows. Those with urban profile as non urban and land use category as agriculture or plantation and functional character as rural can be classified as having primary activity.

9.4.3 SECONDARY ACTIVITY PATTERN

Secondary activity pattern is decided according to the criteria as follows. Those with urban profile as either urban or non urban and land use category as agriculture or non agriculture and functional character as urban or semi urban can be classified as having secondary activity.

9.4.4 SPATIAL CONCENTRATION AREA ACTIVITY PATTERN

Spatial conservation area activity pattern is decided according to the criteria as those with urban profile as non urban and land use category as forest and functional character as rural can be classified as with Agricultural activity non detrimental to forest.

Similarly to determine the agriculture and allied activity pattern is decided according to the criteria as follows. Those with urban or non urban profile and land use category as agriculture and functional character as semi rural.

Urban Profile	Land Use	Function	Activity
Urban	Non agricultural	Urban	Urban

Urban Profile	Land Use	Function	Activity
Non urban	Agri / Plantation	Rural	Primary activity

Urban Profile	Land Use	Functional	Activity
Urban	Non Agri	Urban	Secondary
Non urban	Agri	Semi Urban	

Urban Profile	Land Use	Nature	Activity
Non urban	Forest	Rural	Agricultural activity non detrimental to forest.

DISTRIBUTION OF AGRICULTURE AND ALLIED ACTIVITY

Urban Profile	Land Use	Nature	Activity
Urban	Non Agri	Urban	Agricultural & Allied Activity
Non urban	Agri	Semi Urban	
	Forest	Semi Rural	

9.5 RESULTANT ACTIVITY PATTERN OF THE DISTRICT

The resultant activity pattern is as shown in the figure 9.4 based on integration of the three criteria's above. The detailed table showing LSGs with its four fold classification is attached as annexe 5. Teritiary activities are mainly concentrated in

Azhikkode

Chirakkal

Pallikkunnu

Kannur

Puzhathi

Thalassery

Newmahe

Valappattanam

Agriculture, SSI and animal husbandary are found in

Chelora   Kadirur

Edakkad   Panniyannur

Elayavoor   Panoor

Kadambur   Thrippangotur

Munderi   Aralam

Muzhappilangad   Kottiyur

Dharmmadam   Thaliparamba

Eranjoli   Payyannur

Agriculture & animal husbandary are concentrated in

Madai

Pappinissery

Mattannur

Primary activities are concentrated in LSGs of

Kunnothuparamba   Udayagiri

Ulikkal   Padiyur
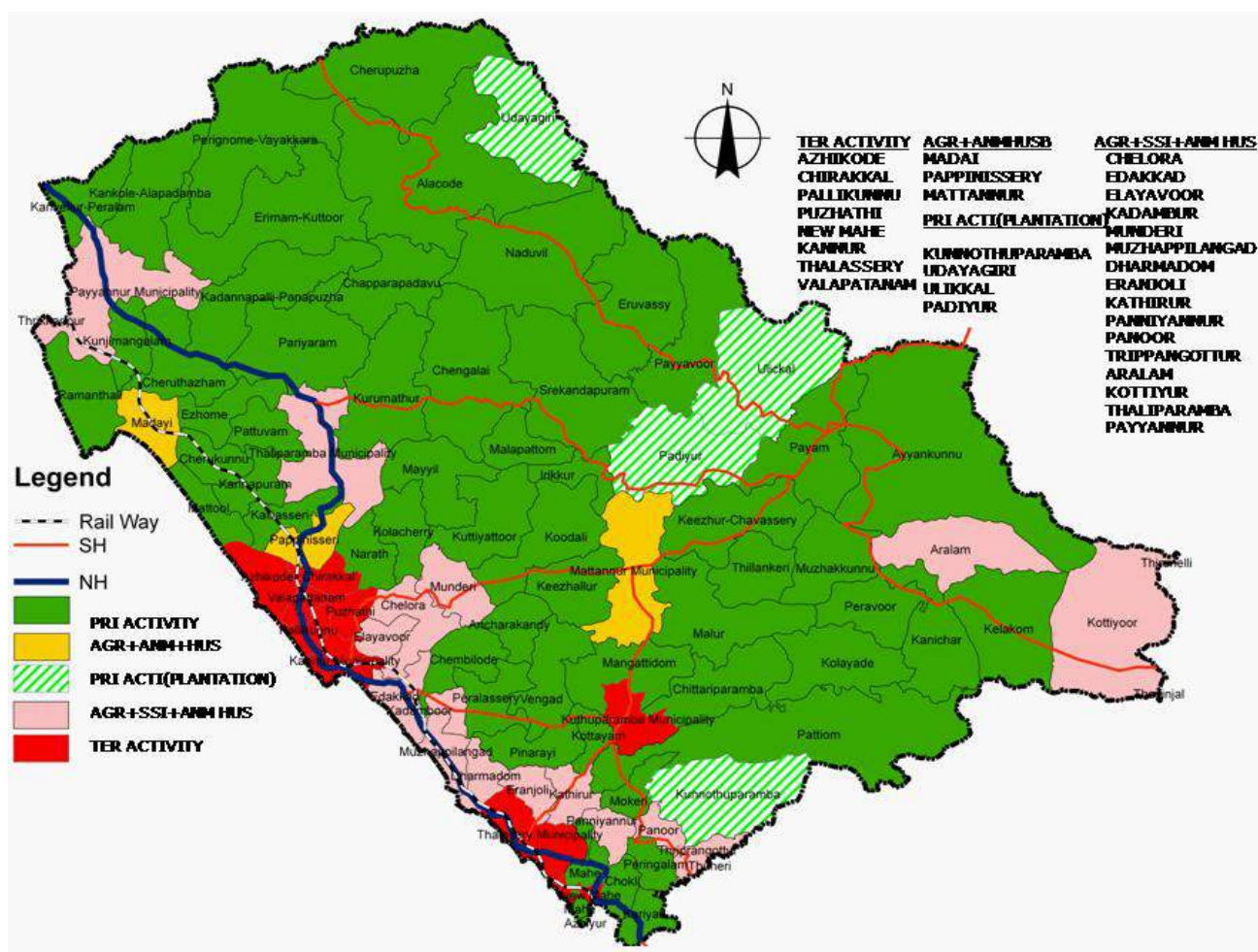
Fig. 9.3 Activity Pattern Kannur District

9.6 INFERENCE

Activity pattern arrived from the analysis shows that the urban activities are mainly concentrated in the two first order Municipalities Kannur and in Thalassery and its surroundings. The five local bodies near to Kannur are Azhikode, Chirakkal, Pallikkunnu and Puzhathi near to Kannur and New Mahe near to Thalassery.

The secondry activities are concentrated mainly in local bodies along coastal areas in between Kannur and Thalassery and in Thaliparamba, Kottiyur and Aralam. The secondary activity in less intensity is Payyannur, Kuthuparamba and Mattannur Municipalities.

The forest area is classified as spacial conservation areas and the rest of the LSGs are predominantly agriculture and primary activities.

Chapter- 10
CONNECTIVITY

This chapter deals with the existing regional transport and traffic net work in Kannur district. As the transport net work provide the vital infrastructure backup needed for the economic development of a place, the analysis and planning of Traffic and transportation network in a District acquires vital importance. Kannur District is well connected by rail and road network to the other parts of the state and the Country. There exist two airports within a distance of 150 Kms. Also there is proposal to construct an air port in the District and there is every possibility of the district having an airport within a limited time period.

10.1 ROAD NETWORK

The road network is the most important mode of transportation in the district connecting almost all important nodes. The district has comparatively good connectivity due to the existence of National Highway (NH-17) and three state high ways namely SH-30,SH-36 and SH-38. Broadly, the transport network structure in the district has two major corridors running through the district, with road and railway routes running parallel to each other. First of the above Two is the North-South Corridor connecting Kozhikkode to Mangalore, running parallel to coastline and passing through Kannur.
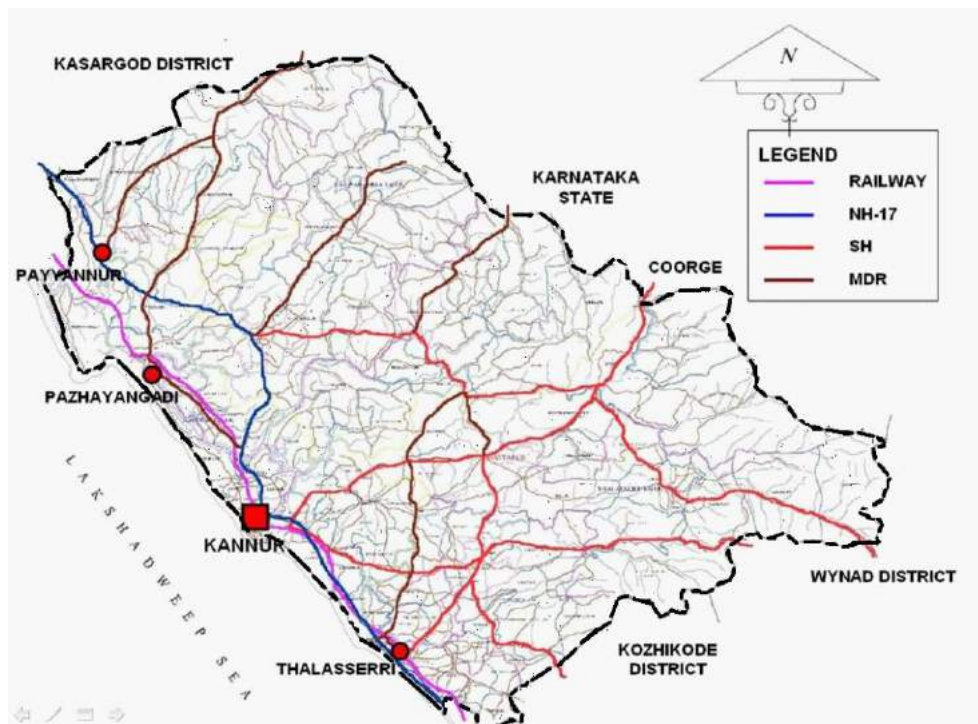
Fig. 10.1 Road Network of Kannur District

SH 36- Sreekantapuram

SH 38 - Panoor

The second corridor runs through the center of the district and connecting Thalassery to Mysore. Both of these are act as main inter-state traffic movement corridor. The district has three important State highways SH-30 (Thalassery -Mysore), SH- 36 (Taliparamba – Iritty) and SH-38 (Kannur – Kuttyaadi) are serving all the mid land and high land areas of Kannur district. Kannur district is served by public transport system which includes private buses and KSRTC buses. The mofusil services and inter-city services are provided by KSRTC buses operating from the State Road Transport Bus Stations located various parts of the district.

NH17 —Thana Junction

Kannur – Thalassery Road near police ground

Municipal Bus Terminal- Kannur

There are Bus terminals in almost all important Municipal towns and Panchayath centres in the District. Kannur Town is having two Bus terminals within a distance of 2 Kms. The first inter district bus terminal constructed by private agency under BOT (built operate and transfer) scheme is recently started functioning in Kannur Municipal Town.

The proposed Hill highway; linking Cherupuzha at north end and Adakkathod at south end passingthrough western ghat areas of Kannur district andconnects Alakkode, Payyavur, Ulikkal, Iritty and Peravur nodes of the district.

Besides these highways; several Major District Roads (MDR) act as main inter district traffic corridors of the district.

The most important of them are Payyannur - Cherpuzha, Cherpuzha–Kottiyur, (Hill highway) Pilathara – Ponnampara, Valapattanam – Pilathara (pazhayangadi road), Thaliparamba – Alakkode, Kannur – Mattanur, ThazheChovva – Mattanur, Thalasery – Irikkur, Kuthuparamba – Peravur, Thalassey – Panur, Mahe – Panur and Uruvachal –Peravur roads . These roads along with the National Highways and state high-ways form the road traffic net work of the District.
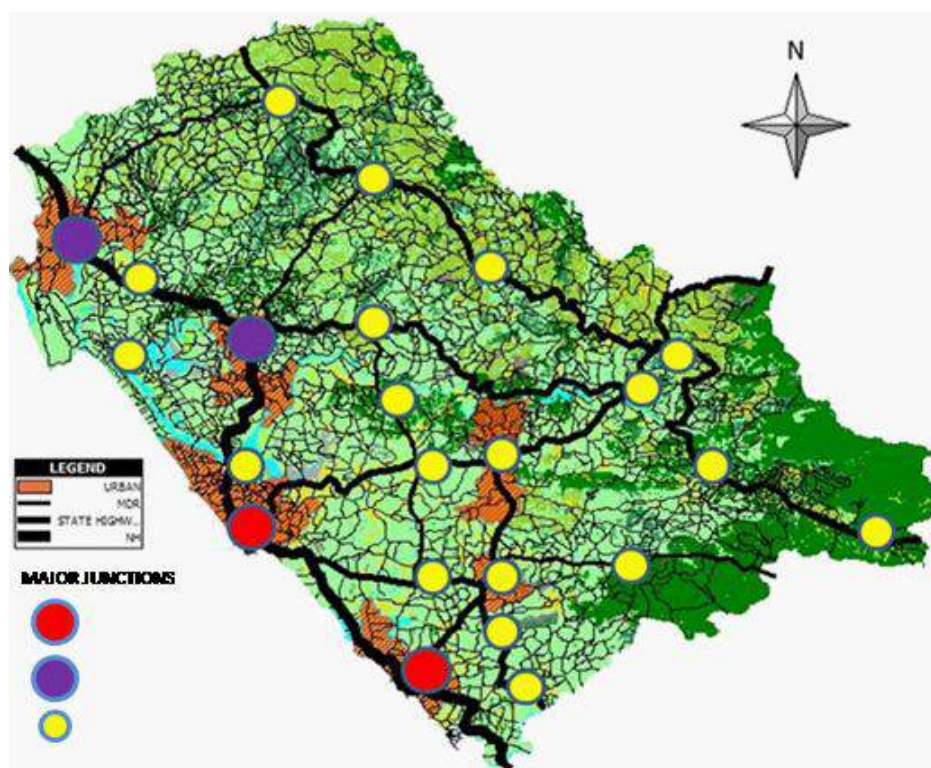
Fig. 10.2 Existing Road Network and Major Junctions

10.2 RAIL NETWORK

Kannur Railway Station

Railways play an important role in transport sector in terms of inter-regional passenger and goods movement. Railways provide the cheaper and fast inter city and inter-district transportation facility for commuters. Kannur is linked to Mangaluru at north and Kozhikkode at South by Broad Gauge railway line.

There are about 79.8 Kms. long of railway line in the district. There exists only Broad gauge line in the District. Doubling the railway line in Kannur District is all most completed except Valapattanam - Pappinissery stretch, which require a bridge to Valapattanam river. The administrative control of the railway network in the district is under the Palakkad Railway Division of Southern Railways. The railways in the district is in the form of broad-gauge running North-South .

There are 12 passenger Railway stations along the railway line in Kannur District. They are Thalasseri,Dharmadom, Temple gate, Edakkad, Kannur south, Kannur, Valapattanam, Chirakkal, Kannapuram, Pappinissery, Pazhayangadi and Payyannur. Out of these Kannur, Thalassery and Payyannur are Major stops of Long distance Express trains and others are local passenger stations.

Thalassery Railway Station
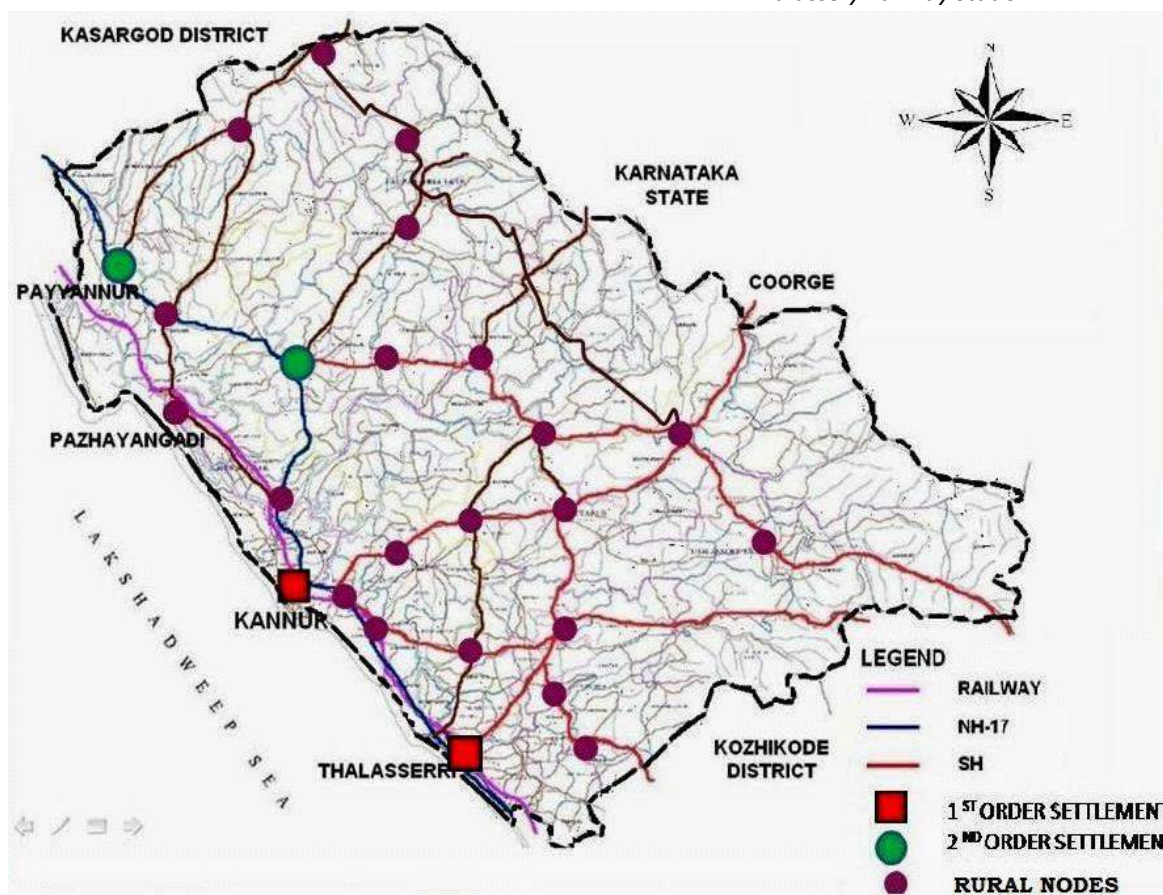
Fig. 10.3 Railway and Major Stations in Kannur District

10.3 WATER WAYS

Water ways are the most economic way of transportation with less pollution.Fishing boat services and some ferry services limits the water ways in Kannur district. If developed properly these water ways can be used for passenger as well as goods traffic. These backwater channels can also be used for Development of Tourism. The boat station at Kotty near to Payyannur , Sulthan Thod towards Pazhayangadi, Azhikkal ferry , Parassinikkadavu, Muzhappilangad and Pinarayi are the places having potential in ferryservices. The Proposed National waterway connecting these places can improve the traffic through waterways. The work of constructing terminal for ships to Lakshadweep at Azheekal has started. This will improve the facility of transportation through water and the economy generating activities in and around the Port.
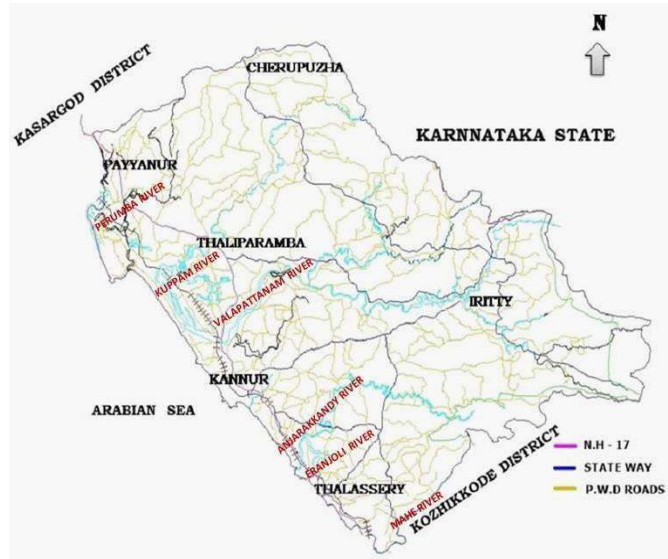
Fig. 10.4 Major Waterbodies of Kannur District

10.4 PROPOSED ROAD NETWORK

The district has comparatively good connectivity due to the existence of National Highway (NH-17) and three state high ways. Broadly, the transport network structure in the district has more or less good network. But the narrow right of way and the poor surface condition of the roads are the major problem. Even though the district has three State highways SH-30 (Thalassery -Mysore), SH- 36 (Taliparamba – Iritty) and SH-38 (Thazhe Chovva – Kuttyaadi) except the first one

others are recently converted MDR and not up to the standard. The construction of hill highway with state highway status is progress in most of its stretches. The existing Road net work and major junctions are shown in fig. 10.2

The proposed road net work of the district is derived based on the hierarchy of settlements and the present traffic requirements.

The road net work should connect the higher order settlements mutually. Figure 10.2 shows the suggested hierarchy of settlements together with existing major road network. From the figure, it is clear that most of the suggested 1st, 2nd and 3rdorder settlements are well connected by already existing NH, SH and ODR. The first and second order settlements are connected by the NH-17 .

A conceptual road network based on hierarchy of settlements has been derived and superimposed over the existing transportation network (See figure 10.5). The proposed transportation network thus emerged consists of 1st order liner roads (primary roads 45m) and second order(secondary roads 30m) peripheral rings connecting all other major settlements. All other cross connections are through 20m tertiary roads which support and justify the transportation planning concept for the region.

The entire district depends on both first order settlements, for higher order facilities. Considering the service area of the first order settlement, As far as the linkage between the first order settlement and second order settlement is concerned, there is already linear pattern of roads and the other third order settlements are connected in a grid iron pattern which support the planning concept . In corporating the spatial distribution of settlement in the District, the following conceptual road network can be suggested and it is shown in fig 10.5.

The proposed road net work connecting the higher order settlements are shown in fig.10.5 . Most

of these roads are existing major roads of PWD withinsufficient Right of way. These roads have to up graded as per the proposal. Mainly two types of roads are proposed. Primary roads with 45m right of way and Secondary roads with 30m right of way connecting higher order settlements. Among these proposals, the NH bypass proposal of both first order settlements was taken and the rest mostly along the existing corridors with slight modification of geometrical shapes as well as easiest connectivity.
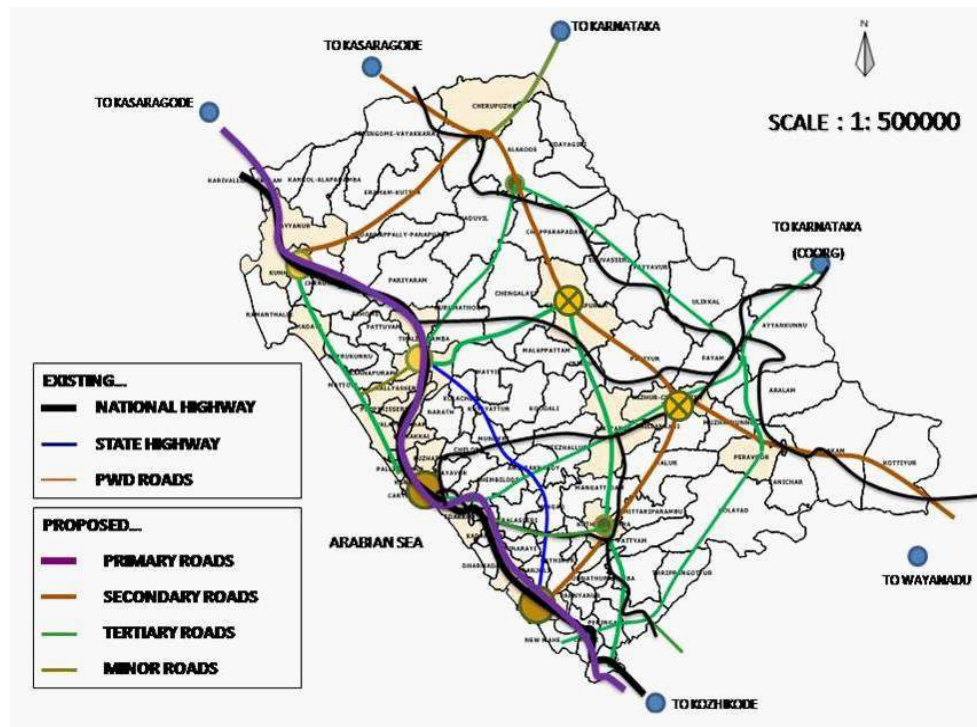
Fig. 10.5 Suggested Conceptual Road Network in Kannur District
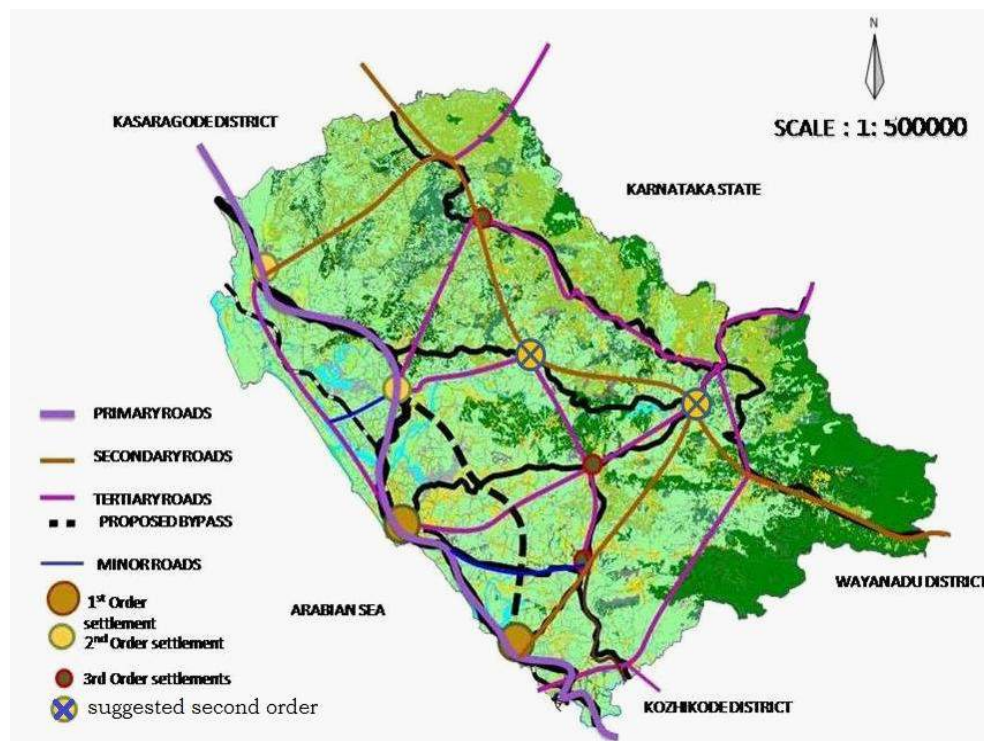
Fig. 10.6 Proposed Road Network in Kannur District

10.5 INFERENCE

As per the proposed hierarchy of settlements, there are two first order settlements, 4 second order settlements and 9 third order settlements in the District. The character wise analysis of this higher order settlement shows that, the first order settlements, Kannur and Thalasserri Municipalities are Purely urban in nature. Out of the two second order settlements, Payyannur and Thaliparamba are existing urban areas; Keezhur Chavasseri and Sreekantapuram are proposed to attain urban character by 2020.

The road network proposed is mainly along the existing corridors except in some stretches. The connectivity between higher order settlement and the new link through coastal road and hill highway and the by pass to NH - 17 can cater the long term traffic demands. The rail corridor from Thalasseri to Mysore and rail connectivity to the proposed Airport are the other possibilities in transportation.

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CHAPTER 11 >>

Chapter- 11
SPATIAL STRUCTURE

The spatial structure is derived from the spatial pattern of activities, settlement hierarchies and road networks.

The regional setting of a Town can be arrived at only from the regional plan which spells out hierarchy of the town in the district scenario, the activity of the town has to perform and its connectivity with different settlements. The study on urbanization of the District gives the hierarchy of the local body which forms a part of the regional road network. The study of activity pattern based on the land use data is also an important component. The activity pattern of a District is the sum total of a pattern of functional character among various settlements, land use concentration pattern and urban profile within the district. This in effect integrates the land use distribution, population distribution, occupational structure, average plot size and distribution of facilities within the district. Functional character is determined based on the population, average plot size and land use. Urban profile is derived taking in to account the occupational structure, and hierarchy of settlements. The landuse concentration pattern is studied based on the land use analysis.

Spatial structure of the district may be the resultant of hierarchy of settlement, connectivity and activity pattern

11.1 SUGGESTED HIERARCHY OF SETTLEMENTS

Suggested   hierarchy of settlements is determined based on the following criteria ;

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

The chapter 7 details this methodology in depth and following findings were attained. The Kannur and Thalasserri municipalities are the two first order settlements and Thaliparamba and Payyannur are two second order settlements. All these four LSGs are Municipalities and are located along the western corridor of the district. The future second order settlements apart from existing are Sreekandapuram and Keezhur- Chavasserri. The proposed Third order settlement is Alakkode and the existing third order settlements are Mattannur municipality, Kuthuparamba municipality, Madai and Ramanthali panchayat. Other third order settlements Azhikkode, Chirakkal, Valapattanam, Puzhathi, Pallikkunnu and Elayavur panchayats are likely to merge with Kannur municipality to form corporation. Similarly Keezhallur, Dharmmadam and Kalliassery likely to merge with adjacent municipalities. Fig. 11.1 shows the suggested future hierarchy of settlements.

11.2 PROPOSED CONNECTIVITY   NETWORK BASED ON HIERARCHY OF SETTLEMENT

Proposed road net work based on various criteria were detailed in chapter 10. The road network finally proposed consists of a loop connecting the grid
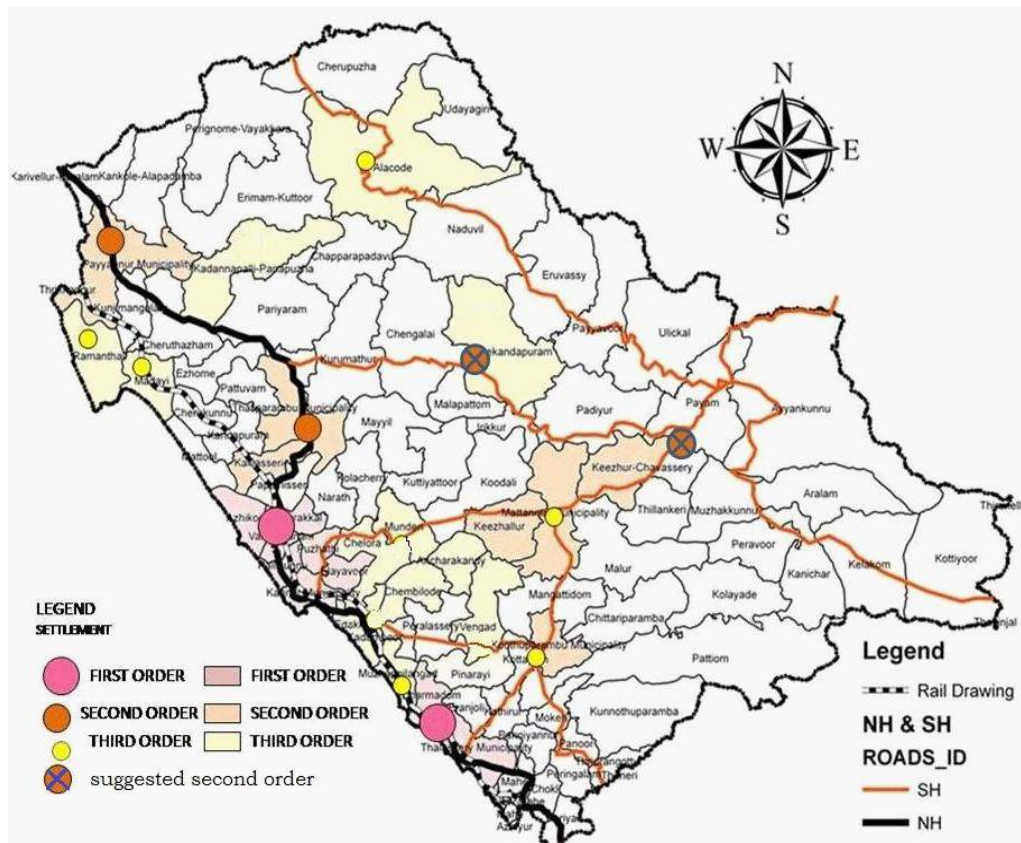
Fig. 11.1 Suggested Hierarchy of Settlements

Fig. 11.2 Proposed Road Network

pattern roads from higher order settlements which is helpful in connecting first and second order settlement and connecting secondary road with other major nodes, By pass roads and Road connecting NH -17 is already finalized and the process of execution is in progress. The detailed map showing the proposed Road net work is shown in fig 11.2

11.3 ACTIVITY PATTERN OF THE DISTRICT

Activity pattern is determined based on the three important parameters, ie. land use concentration pattern, future urban profile and functional character of that area. The activity pattern of urban, primary, secondary, agriculture and allied activity, forest activity are analyzed based on the above data. The detailed analysis of activity pattern is explained in   chapter 9.

Activity pattern arrived from the analysis shows that the urban activities are mainly concentrated in the two first order Municipalities Kannur and in Thalasserri and its surroundings.

The secondry activities are concentrated mainly in LSGs along coastal areas in between Kannur andThalasserri and in Thaliparamba, Kottiyur and Aralam. The secondary activity with less intensity in Payyannur, Kuthuparamba and Mattannur municipalities.

The forest area is classified as spatial conservation areas and in the rest of the LSGs the predominant activity is agriculture primary . Fig. 11.3 shows the activity pattern of the district.

11.4 TRANSPORTATION CORRIDOR DEVELOPMENT BASED ON REGIONAL CONNECTIVITY

Kannur district is located between the major towns of western peninsuela Mangalore and Kozhikode. The major corridor connecting these metros are through Kannur and hence the traffic and goods movement is mainly along the NH- 17 passing north-south. Also this consider leads the traffic towards Kochi and Coimbatore. The another Linkages the near by Towns are Coorg in Karnataka and Mananthwadi in Wayanad. The Traffic towards Coorg and that extents to Bangalore is through the east west corridor of Kannur.
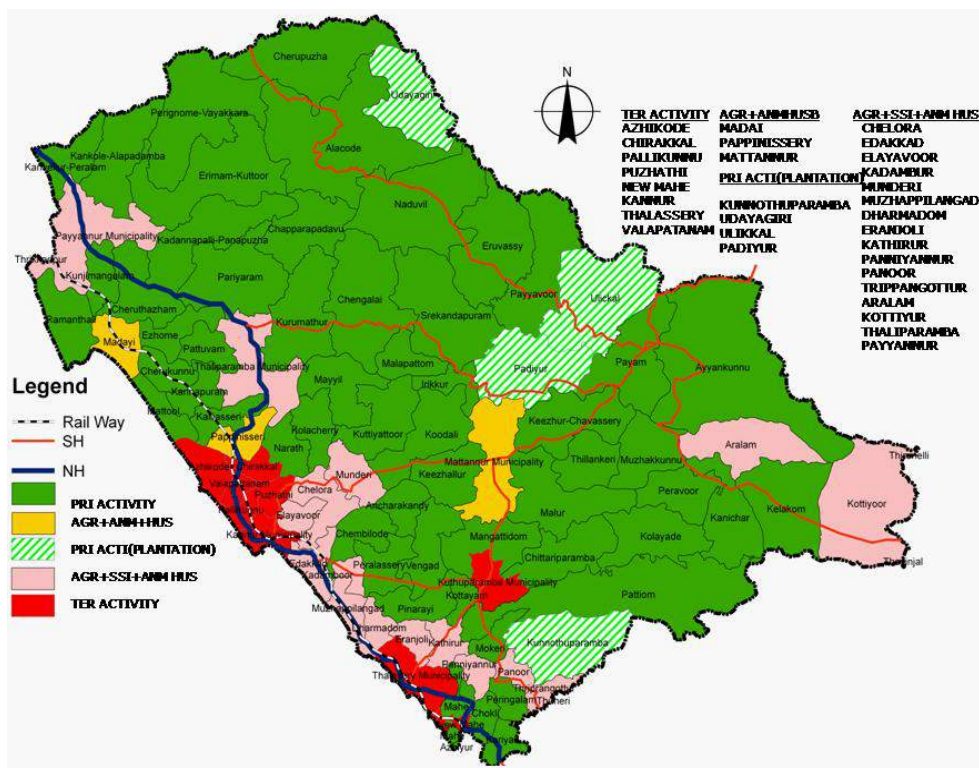
Fig. 11.3 Activity Pattern Kannur District

The Thalasserri – Coorg road is developed early in British period and was once the major corridor in the region. The hill products and related economic activities are concentrated along this corridor. Apart from this, the tourist flow from and towards Coorg is mainly through Kannur –Mattannur – Coorg road and Thalasserri- Coorg road.

Another regional link is toward Wayanad and Ooty through Mananthowadi. The Kuthuparamba – Nidumpoil road towards south east act as another regional connection, and thus have enough flow along these corridor. The major transportation corridor based developments are shown in Table 11.1

11.5 SUGGESTED SPATIAL STRUCTURE OF THE DISTRICT

The spatial structure of the district is obtained by overlaying the activity pattern, road net work and hierarchy of settlements derived. The spatial structure so obtained is shown in figure 11.4

Table 11.1 Details of Major Transportation Corridor based Developments

SI no.	Name of Transportation Corridor	Major Transportation Network	Major Activities asper Spatial Structure	Suspected Generators of Developement Momentum
1	Kozhikode Thalassery Kannur Payyannur Kanjangad	NH 17	Tertiary Supported by Fisheries, SSI, and HHI	Vadakara and Mahe Municipality Urban Agglomaration of Kannur and Thalassery Thalipparamba- Payyannur
2	Thalassery-Coorg Road	SH 30	Tertiary Supported by SSI Agriculture and Allied Activities	Coorg-Kuthuparamba,Iritty, Mattannur Kuthuparamba and Thalassery
3	Kannur- Kuthuparamba-Payam Road	SH 38	Secondary and Tertiary Agriculture and Allied Activities	Mambaram Kuthuparamba Panoor and Other Rural Settlements
4	Thaliparamba-Sreekandapuram Irikkur-Iritty Road	SH 36	Agriculture and Allied Activities SSI and HH Industry	Thaliparamba Sreekandapuram Irikkur, Iritty Road and Other Settlement
5	Cherupuzha -Alakkode Naduvil- Payyavur Irrity-Peravur	Hill Highway	Tertiary Activities Supported by Secondary Activities	Cherupuzha Alakkode Naduvil Payyavur Irrity Peravur
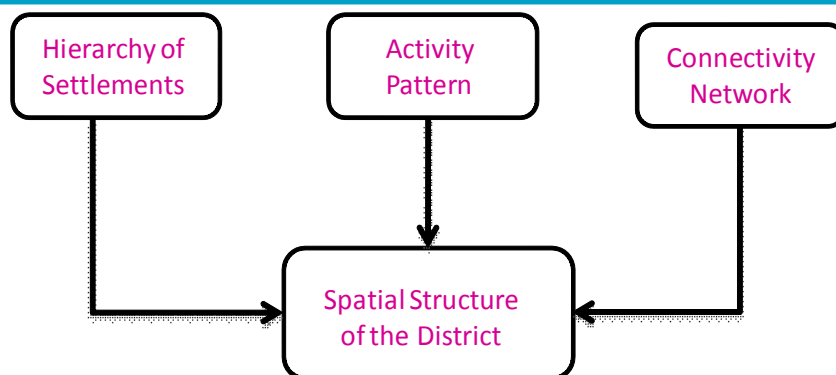
Table 11.2 Spatial Network of the District

Sl No.	Name of Grama Panchayat/Municipality	Suggessted Hierarchy	Remarks
1	Thalassery municipality	First order	Existing municipality
2	Kannur municipality	First order	Existing muncipality with several nearby urban local bodies. Proposed Corporation
3	Kannur Cantonment	First order	Existing cantonment board under defense ministry.
4	Dharmadam	First order	Existing panchayat proposed to merge with Thalasserri municipality
5	Pallikkunnu	First order	Existing panchayat proposed to merge with Kannur municipality
6	Puzhathi	First order	Existing panchayat proposed to merge with Kannur municipality
7	Elayavur	First order	Existing panchayat proposed to merge with Kannur municipality
8	Azhikode	First order	Existing panchayat proposed to merge with Kannur municipality
9	Chelora	First order	Existing panchayat proposed to merge with Kannur municipality
10	Chirakkal	First order	Existing panchayat proposed to merge with Kannur municipality
11	Valapattanam	First order	Existing panchayath proposed to merge with Kannur municipality
12	Payyannur municipality	Second order	Existing municipality
13	Thalipparamba municipali	Second order	Existing municipality
14	Kuthuparamba municipalit	Second order	Existing municipality
15	Mattannur municipality	Second order	Existing municipality
16	Keezhur chavasseri	Second order	Existing panchayat Proposed municipality
17	Kallyaserry	Second order	Existing panchayat Proposed to merge with Taliparamba municipality.
18	Sreekandapuram	Second order	Proposed nagara panchayat
19	Keezhallur	Second order	Exisiting panchayat proposed to merge with Mattannur municipality
20	Ramanthali	Third order	Existing panchayat with Naval academy

21	Anjararakandy	Third order	
22	Chembilode	Third order	
23	Edakkad	Third order	
24	Vengad	Fourth order	
25	Kadannapally-panapuzha	Fourth order	
26	Pariyaram	Fourth order	
27	Pappinissery	Fourth order	
28	Mayyil	Fourth order	
29	Panoor	Fourth order	
30	Cherupuzha	Fourth order	
31	Alakode	Third order	
32	Cherukunnu	Fourth order	
33	Kunhimangalam	Fourth order	
34	Kadirur	Fourth order	
35	Kolachery	Fourth order	
36	Pattuvam	Fourth order	
37	Pannyanur	Fourth order	
38	New mahe	Fourth order	
39	Mangattidam	Fourth order	
40	Eranholi	Fourth order	
41	Perigalam	Fourth order	
42	Chengalayi	Fourth order	
43	Peralassery	Fourth order	
44	Eruvassi	Fourth order	
45	Kadambur	Fourth order	
46	Chokli	Fourth order	
47	Kankol-alapadamba	Fourth order	
48	Thrippangottur	Fourth order	
49	Munderi	Fourth order	
50	Mattool	Fourth order	
51	Ezhome	Fourth order	
52	Koodali	Fourth order	
53	Pinarayi	Fourth order	
54	Kannapuram	Fourth order	
55	Cheruthazham	Fourth order	
56	Irikkur	Fourth order	
57	Pattiyam	Fourth order	
58	Muzhappilangad	Fourth order	
59	Narath	Fourth order	
60	Kottayam	Fourth order	
61	Chittariparamba	Fifth order	
62	Kariyad	Fifth order	
63	Karivellur - peralam	Fifth order	

64	Payam	Fifth order	
65	Kolayad	Fifth order	
66	Ayankunnu	Fifth order	
67	Kunnothuparamba	Fifth order	
68	Kelakam	Fifth order	
69	Payyavur	Fifth order	
70	Malur	Fifth order	
71	Mangattidam	Fifth order	
72	Keezhallur	Fifth order	
73	Ulikkal	Fifth order	
74	Peringome	Fifth order	
75	Naduvil	Fifth order	
76	Mokeri	Fifth order	
77	Udayagiri	Fifth order	
78	Kottayam	Fifth order	
79	Thillankeri	Fifth order	
80	Chapparapadavu	Fifth order	
81	Kurumathur	Fifth order	
82	Kottiyur	Fifth order	
83	Kolachery	Fifth order	
84	Padiyur	Fifth order	
85	Pattuvam	Fifth order	
86	Kanichar	Fifth order	
87	Malappattam	Fifth order	
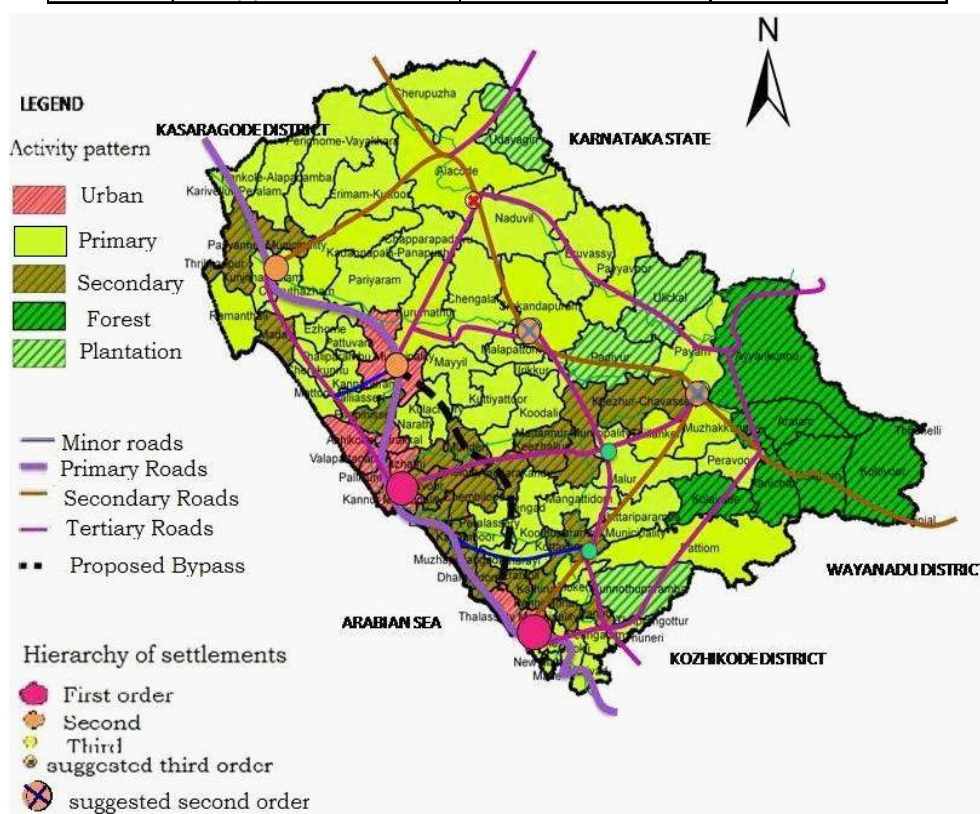
Fig. 11.4 Suggested Spatial Structure of Kannur District

11.6 INFERENCE

The activity pattern of urban, primary , secondary Agriculture and allied activity, forest activity are studied. Based on the hierarchy of settlements , connectivity   network and the activity pattern the spatial structure of the district is evolved.The spatial structure provides the overall frame work for future planning and development of Kannur district by way of determining the functions and hierarchy of settlements and the connectivity between them.

Chapter- 12
SUMMARY OF FINDINGS

The trend of urbanisation as emerged from the fore going chapters brings out a number of interesting points. It may be apparent from the demographic point of views that the district urbanization is growing very slow especially during last two decades. But urbanization is viewed as a multiple process involving spatial as well as social process and the result is quite different. Advantage in our physiographical as well as the settlement pattern is helpful in development of small towns in our state as well as in Kannur District. The natural development of smaller towns with in a distance of 20 Kms. in any direction throughout the district is an example of urban development with regional resource base. The results and findings from the analysis and study of various parameters influencing the urbanization in the district may be summarised as below.

1) GENERAL

The urbanisation in the district started very early as port towns and collection centers of hill products and spices along with the trade relations between Kerala and outside world in the ancient and medieval periods.

The district has comparatively good road connectivity and circulation pattern in almost all parts of the district. Kannur District is connected to other parts of the State and the Country through two modes of transport, rail and roads. But geometry and pavement characteristics of our road net work are to be improved to cater to the ever increasing traffic growth witnessing now a days.

The nearest airport Kozhikode (Calicut International Airport) is situated at a distance of 120 kms. and the nearest sea port of Mangalore is situated at a distance of 160 kms. from Kannur Town. Large numbers of NRI's working in gulf states and belongs to Kannur and surroundings necessitate and demand the need of an airport in Kannur District itself.

Kannur district is blessed with enormous tourism potential, to add to the district's economy. The beach tourism to hill stations and religious tourism to medical/health tourism, variety of arts and cultures.

There are six major rivers in district namely Valapatanam, Kuppam, Peruvamba, Anjarakandy, Eranjoly and Mahe river potential of which in irrigation and water supply is yet to be utilised.

Pazhassi Dam across Valapatanam river is the only main reservoirs of the district. This is the major source of drinking water in this district. There is potential to construct and develop such resources of water for drinking, irrigation and industrial purposes.

Important physiographic regions in the district are (i) Low lands (ii) Mid Lands and (iii) High Lands and the developments are mainly concentrated in coastal and midlands.

The district has about 14.69% of its geographical area as forest, mainly located in the eastern and south

eastern part of the district.

The district is blessed with resourceful hill areas in the Eastern part of the district as part of western ghat which separate the district from the Karnataka State.

Findings arrived in different sectors are as detailed below :

2) POPULATION

Highest concentration of population is seen in LSGs situated in the periphery of existing National Highway, coastal LSGs and LSGs situated near to coastal LSGs.

Eastern high land region of the district shows least concentration of population.

Gross population density of the district shows that the LSGs in the coastal region, has highest gross density ranging from 1500 persons per/sq.kms. to 5000 persons/sq.kms.

The LSGs located in the mid land region shows a gross density in the range of 750-1500 persons per/sq. kms. and LSGs in high land regions shows least gross density.

Population growth rate is the highest in those LSGs situated in the periphery of existing urban areas. The first order LSGs Kannur and Thalasserri shows a negative growth rate. It can be presumed that immigrants to the urban centre of the district prefer to settle in the periphery of urban areas rather than within. This may lead to undesirable spread of urban area and conversion of agricultural land in rural areas for residential and other non agricultural purposes, thus affecting the economic base of rural areas and environmental degradation.

3) WORKERS

WPR of the district (24.46%) is very less compared to that of the state. It is well below the desirable WPR of a developed economy. This indicates idling of certain portion of potential work force of the district.

The number of workers in primary sector of production shows declining trend. Number of workers in service sectors is on the increase. Number of industrial workers shows a slight increase. It is observed that rural areas of the district are slowly withdrawing from the primary sector and depends more on service sector and on industrial sector.

There is dilution in the rural nature of the rural areas of the district. This has resulted in narrowing down of the boundary distinguishing the character of rural and urban areas in terms occupational structure.

Growth Rate of total workers during the last decade 1991-2001 is slightly less than the growth rate of total population indicating that work opportunities are decreasing in proportion to the increase in population.

Rate of increase in number of main workers shows a decreasing trend, indicating disturbing picture about employment generation which has reflection in resource utilization and in turn in the economic base and may lead to reduced local economic growth.

Very low percentage (8.2%) of workers constitutes agriculture labourers and cultivators which indicate less intensive agriculture activity in the District.

3.3% are House Hold industrial workers. This indicates the moderate strength of the district in house hold industrial sector. House Hold industrial workers shows a clear concentration in coastal LSGs.

4) LANDUSE

Nearly 19% of land use is agricultural. From the point of view of economic as well as environmental stability of the District, the agricultural land should be put to optimal use.

District still has potential for rural activities where as it ranks first with respect to urban content among the districts in the state.

The land use analysis shows concentration of forest land use in LSGs located in eastern highland region of the district indicating rich natural resources

More than 10% of the area of the district comes under plantation which is above state average, which shows that the district has high potential to grow in the sector of cash crops and spices.

The concentration of urban areas along western corridor, where the only National Highway and Rail corridor of the district is located, indicating the inadequacy of road/ rail network of higher order in other parts of the district.

5) OTHER MAJOR FINDINGS

Kannur district, contributing 7.33 % of the GDP of the state is ranked 8 th in the state.

Kannur district, with per capita income of Rs 33,087/- ranks 6TH among districts of the state.

Kannur, Thalasserri and Taliparamba municipalities and the LSGs located around these municipalities of the district characterized by high population concentration exhibits urban character. Semi urban character is exhibited by other three municipalities and LSGs that have urban influence like Grama Panchayats of Madai and Keezhur –Chavasseri. Most of the LSGs in the midland and high land region of the District exhibit rural character. Semi rural character is seen in a few LSGs placed as a transition zone between the LSGs with urban and rural character.

Kannur and Thalasseri Municipalities are the two first order settlements in the district. There are 4 second order settlements and 9 third order settlements in the District.

Activity pattern shows that there is a clear demarcation of areas of concentration of urban activity, agricultural activity, agriculture and allied activity and agriculture activity non detrimental to forests in the district, making it possible to assign definite development character to each region.

The district is blessed with potential resources such as tourism potential spots, minerals, lengthy coastal stretch with potential for fishing, number of religious centres with archaeological & historic importance, major river basins and wild life sanctuary Aralam and well connected road net work covering entire district.

Based on the study of the urban settlements near Kannur, ie, Pallikkunnu, Puzhathi and Elayavur panchayat are likely to become the part of Kannur municpality by 2015 and the other LSGs Azheekkode, Chirakkal, Valapattanam and Chelora merged with the municpality and become Kannur corporation by 2021.

Keezhur-Chavassery is the another panchayat likely to become municpality by 2015. Keezhallur, Kalliassery and Dharmmadam panchayat are likely to merge with Mattannur, Taliparamba and Thalassery municplaity respectively by 2021.

The major road net work proposed is mainly along existing corridors except in some stretches. The connectivity between higher order settlements, the new link through coastal road hill highway and the bypass to N.H 17 can cater the long term traffic demands.

The spatial structure of the district arrived by integrating the above aspects shows the main urbanised corridor is along N.H parallel to the coastal stretch. The future trend of urbanisation along east-west corridor and connectivity along eastern stretch will impart a healthy spatial distribution of uraban area in the district.

ANNEXE 1

Details of Taluk and Village of Kannur District

Taluk		Village	Taluk		Village
Talipparamba	1	Karivellur	Talipparamba	40	Nuchiyad
	2	Vellur		41	Malappattam
	3	Payyannur		42	Thirumeni
	4	Ramanthali		43	Puligome.
	5	Korome	Thalassery	1	Thalassery
	6	Kankole		2	Thiruvangad
	7	Peralam		3	Dharmadam
	8	Peringome		4	Eranholi
	9	Eramam		5	Kadirur
	10	Kuttoor		6	Eruvatty
	11	Thimiri		7	Pinarayi
	12	Alakode		8	Pathiriyad
	13	Naduvil		9	Kottayam
	14	Vellad		10	Chockli
	15	Kooveri		11	Peringathir
	16	Pariyaram		12	Kodiyeri
	17	Kuttiyeri		13	Pazhassi
	18	Punniyoor		14	Kolari
	19	Pattuvam		15	Keezhallur
	20	Thaliparamba		16	Chavasseri
	21	Kurumathur		17	Keezhur
	22	Chuzhali		18	Payam
	23	Chengalayi		19	Vilamana
	24	Andoor		20	Aralam
	25	Morazha		21	Ayyamkunnu
	26	Alappadamba		22	Koodali
	27	Perinthatta		23	Pattannur
	28	Vayakkara		24	Mangattidam
	29	Vellora		25	Paduvilayi
	30	Kolacherry		26	Kuthuparamba
	31	Cheleri		27	Kandamkunnu
	32	Kayaralam		28	Manantheri
	33	Mayyil		29	Kolayad
	34	Kuttiyattoor		30	Kannavam
	35	Maniyoor		31	Cheruvancheri
	36	Irikkoor		32	Pattiam
	37	Padiyoor		33	Mokeri
	38	Vayattar		34	Panniyannur
	39	Kalliad		35	Puthur

Taluk		Village	Taluk		Village
Thalassery	36	Panoor	Kannur	12	Kanhirode
	37	Triprangottur		13	Anjarakandi
	38	Kolavallur		14	Iriveri
	39	Tholambra		15	Chelora
	40	Sivapuram		16	Chembilode
	41	Thillankeri		17	Kadambur
	42	Muzhakunnu		18	Mavilayi
	43	Vellaravalli		19	Makreri
	44	Manathana		20	Muzhappilangad
	45	Vekkelam		21	Edakkad
	46	Kanichar		22	Kunhimangalam
	47	Kelakam		23	Cheruthazam
	48	Kottiyoor		24	Panapuzha
Kannur	1	Kannur I		25	Kadannappally
	2	Kannur II		26	Madai
	3	Puzhathi		27	Ezhome
	4	Pallikkunnu		28	Mattool
	5	Chirakkal		29	Cherukunnu
	6	Baliapattam		30	Kannapuram
	7	Azhikode South		31	Kalliasseri
	8	Azhikode North		32	Pappinisseri
	9	Elayavoor		33	Kannadipparamba
	10	Valuyannur		34	Narath
	11	Munderi			

ANNEXE 2

LSGs Area in Kannur District

Sl no.	Name Of Block / LSGs	Area (in KM^2)	Grade
	Edakkad Block		
1	Edakkad	18.26	I st
2	Chembilode	20.99	I st
3	Peralasseri	19.4	I st
4	Munderi	20.42	I st
5	Chelora	21.18	Special
6	Elayavoor	11.57	Special
7	Kadambur	7.95	II nd
8	Kolachery	20.72	I st
	Payyannur Block		
9	Kunhimangalam	15.44	I st
10	Ramanthali	29.99	I st
11	Karivellur Peralam	22.23	I st
12	Kankole Alappadamba	42.07	II nd
13	Eramam Kuttoor	75.14	I st
14	Peringome Vayakkara	76.98	Special
15	Cherupuzha	75.64	I st
	Taliparamba Block		
16	Pattuvam	16.85	I st
17	Kadannappally -	53.75	II nd
18	Chengalayi	67.33	I st
19	Kurumathur	50.79	II nd
20	Pariyaram	54.77	II nd
21	Chapparapadav	69.99	II nd
22	Naduvil		I st
23	Udayagiri	51.8	II nd
24	Alakkode	77.7	Special
	Irikkur Block		
25	Eruvassy	49.09	I st
26	Irikkur	11.22	I st
27	Malappattam	19.3	II nd
28	Payyavoor	67.34	I st
29	Kuttiyattoor	35.1	II nd
30	Mayyil	33.08	I st
31	Sreekandapuram	69	I st
32	Padiyoor kalliad	54.09	I st
33	Ulikkal	74.68	Special

Sl no.	Name Of Block / LSGs	Area (in KM²)	Grade
	Kannur Block		
34	Pappinissery	15.24	Special
35	Chirakkal	13.56	Special
36	Pallikkunnu	6.9	Special
37	Puzhathi	9.17	Special
38	Valapattanam	2.04	Special
39	Azhikode	16.04	Special
	Thalassery Block		
40	Anjarakkandy	15.47	I st
41	Muzhappilangad	7.19	I st
42	Vengad	28.09	I st
43	Dharmadam	10.66	I st
44	Eranholi	10.08	I st
45	Pinarayi	20.04	I st
46	New Mahe	5.08	II nd
	Kuthuparamba Block		
47	Kottayam	8.43	II nd
48	Thrippangottur	32.39	I st
49	Chittariparamba	33.81	I st
50	Kunnothuparamba	29.77	II nd
51	Mangattidam	33.31	I st
52	Pattiam	27.88	II nd
	Iritty Block		
53	Aralam	77.93	I st
54	Ayyankunnu	122.8	I st
55	Keezhallur	29.02	II nd
56	Thillankerry	25.06	III rd
57	Koodali	40.27	I st
58	Payam	31.21	I st
59	Keezhur Chavassery	45.65	Special
	Peravoor Block		
60	Kanichar	51.96	II nd
61	Kelakom	77.92	II nd
62	Kottiyoor	155.87	II nd
63	Muzhakkunnu	31.04	II nd
64	Kolayad	33.15	II nd
65	Malur	41.38	II nd
66	Peravoor	34.1	I st
	Kalliassery Block		
67	Cheruthazham	32.18	I st

Sl no.	Name Of Block / LSGs	Area (in KM^2)	Grade
68	Maadaayi	16.71	Special
69	Mattool	12.82	II nd
70	Ezhome	18.95	Special
71	Cherukunnu	15.37	II nd
72	Kalliassery	15.73	Special
73	Kannapuram	14.39	I st
74	Narath	17.24	I st
	Panoor Block		
75	Kadirur	12.3	I st
76	Chokli	11.98	I st
77	Kariyaad	9.81	II nd
78	Peringalam	10.65	II nd
79	Panoor	8.54	I st
80	Mokeri	10.53	II nd
81	Pannyannoor	10.02	II nd
	Municipalities		
1	Payyannur	54.63	III rd
2	Taliparamba	43.08	III rd
3	Kannur	11.03	I st
4	Thalassery	23.96	I st
5	Koothuparamba	16.76	III rd
6	Mattanur	54.15	III rd
	Kannur Cantonement	1.79	Class II

ANNEXE 3

CFI Values of LSGs in Kannur District

LSGs NAME	CFI	LSGs NAME	CFI
CHERUPUZHA	51.19	ULIKKAL	37.68
CHERUTHAZHAM	29.24	AZHIKODE	80.42
ERAMAM-KUTTUR	60.78	CHIRAKKAL	70.83
EZHOME	33.08	PALLIKKUNNU	103.09
KADANNAPALLY-PANAPUZHA	81.81	PUZHATHI	102.81
KANKOL-ALAPADAMBA	37.44	VALAPATTANAM	61.14
KARIVELLUR-PERALAM	20.51	ANJARARAKANDY	92.34
KUNHIMANGALAM	47.94	CHELORA	77.77
MADAI	93.27	CHEMBILODE	76.89
MATTOOL	35.99	EDAKKAD	71.83
PERINGOME	37.46	ELAYAVUR	87.86
RAMANTHALI	114.12	KADAMBUR	40.57
ALAKODE	50.85	MUNDER	36.16
CHAPPARAPADAVU	22.48	MUZHAPPILANGAD	27.59
CHENGALAYI	42.06	PERALASSERY	41.93
CHERUKUNNU	49.08	CHOKLI	39.35
KALLYASERRY	127.79	DHARMADAM	122.96
KANNAPURAM	29.34	ERANHOLI	45.55
KURUMATHUR	21.14	KARIYAD	23.55
NADUVIL	27.72	KADIRUR	47.1
NARATH	26.84	KOTTAYAM	24.94
PAPPINISSERY	59.75	NEW MAHE	31.6
PARIYARAM	65.89	PERIGALAM	43.91
PATTUVAM	16.76	PINARAYI	31.99
UDAYAGIRI	25.86	CHITTARIPARAMBA	23.86
ERUVASSI	40.88	KUNNOTHUPARAMB	34.73
IRIKKUR	28.39	MANGATTIDAM	31.04
KOLACHERY	17.92	MOKERI	26.73
KUTTYATTUR	66.72	PANNYANUR	31.82
MALAPPATTAM	12.9	PANOOR	55.42
MAYYIL	58.8	PATTIYAM	27.92
PADIYUR	17.37	THRIPPANGOTTUR	37.09
PAYYAVUR	44.5	VENGAD	84
SREEKANDAPURAM	72.66	ARALAM	61.8

LSGs NAME	CFI
AYYANKUNNU	36.06
KEEZHALLUR	29.93
KEEZHUR-CHAVASSERY	145.71
KOODALI	32.01
PAYAM	39.59
THILLENKERI	23.05
KANICHAR	13.91
KELAKAM	45.43
KOLAYAD	37.22
KOTTIYUR	18.86
MALUR	31.08
MUZHAKKUNNU	28.61
PERAVUR	65.2
KANNUR	309.22
THALASSERY	350.68
PAYYANUR	275.59
THALIPARAMBA	158.41
KUTHUPARAMBA	135.9
MATTANUR	131.07
CANTONMENT	123.81

Department of Town & Country Planning, Kerala

ANNEXE 3A

Details of Facilities

Sl.No.	LSGs Name	Post Office HO	LP and UP	HS	HSS	Arts & Science College	BEd College	Teachers Training Institute	Engineering College/ College of Science and Technology/Poly Technic	Medical college (Ayurveda /Allopathy/	Banks(National/scheduled/cooperative bank)
		No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities
1	CHERUPUZHA		5	2	4						9
2	CHERUTHAZHAM		11		1	1					5
3	ERAMAM-KUTTUR		13		1	2	1	1			5
4	EZHOME		10	1	2	1					6
5	KADANNAPALLY-PANAPUZHA		11	1	1					2	5
6	KANKOL-ALAPADAMBA		9		1	1			1		3
7	KARIVELLUR-PERALAM		7		1						4
8	KUNHIMANGALAM		7		1	2					4
9	MADAI	1	13		3	1	1	1			8
10	MATTOOL		8	2	1				1		5
11	PERINGOME		10		2						4
12	RAMANTHALI		4	1	1						5
13	ALAKODE		11	2	1	1					8
14	CHAPPARAPADAVU		4	2							5
15	CHENGALAYI		13	1	1						7
16	CHERUKUNNU	1	7		1						5
17	KALLYASERRY		10	1					1		4

Note: Number of LSGs in the district 88

#	Name										
18	KANNAPURAM		5	1	1						7
19	KURUMATHUR		11	1							3
20	NADUVIL		6	1	1						5
21	NARATH		11	1	1						4
22	PAPPINISSERY		8		1						9
23	PARIYARAM		11	4	1	1				1	4
24	PATTUVAM		8		1						2
25	UDAYAGIRI		6	1	1						9
26	ERUVASSI		9	5	2				1		3
27	IRIKKUR		9	2	2						4
28	KOLACHERY		4	1							4
29	KUTTYATTUR		12	1	1	1	1	2	1		9
30	MALAPPATTAM		5	1	1						2
31	MAYYIL		14		1						10
32	PADIYUR		6	1							4
33	PAYYAVUR		10		3	1					6
34	SREEKANDAPURAM		10	3	4	1	1				11
35	ULIKKAL		14	2	1						6
36	AZHIKODE		13		3						10
37	CHIRAKKAL		14	1							10
38	PALLIKKUNNU		8	1	1						4
39	PUZHATHI		7	4	1	1					10
40	VALAPATTANAM		3	1	2						6
41	ANJARARAKANDY		20	1	1		1	1		1	16
42	CHELORA		17	1	1						11
43	CHEMBILODE		24	2	1		1	1			15
44	EDAKKAD		18	1	1				1		17
45	ELAYAVUR		12	1	3	1	1				10
46	KADAMBUR		9	2	1			1			12

47	MUNDERI		15	1	1						11
48	MUZHAPPILANGAD		8	1	1						5
49	PERALASSERY		24		1						12
50	CHOKLI		25	2	1						7
51	DHARMADAM		14	1	1	3		1			6
52	ERANHOLI		15	1	1				1		7
53	KARIYAD		12	1							4
54	KADIRUR		22	2	2						13
55	KOTTAYAM		13	1	1						6
56	NEW MAHE		15	1							9
57	PERIGALAM		11	1	1		1	1			6
58	PINARAYI		15	1	1						11
59	CHITTARIPARAMBA		13		1						5
60	KUNNOTHUPARAMBA		24	1							6
61	MANGATTIDAM		15		1						5
62	MOKERI		12	1		1					6
63	PANNYANUR		17	1							4
64	PANOOR		13		2						10
65	PATTIYAM		18	1	1						4
66	THRIPPANGOTTUR		17		2						8
67	VENGAD		26	1	2						10
68	ARALAM		8	1	3						8
69	AYYANKUNNU		14	2		1					7
70	KEEZHUR-CHAVASSERY		12	4	1	2		1			21
71	KOODALI		13	1	1						13
72	PAYAM		13	3	2	1					2
73	THILLENKERI		12	1							5
74	KANICHAR		5	1	1						3
75	KELAKAM		5	4							8
76	KOLAYAD	1	12	1							6

77	KOTTIYUR		8		1						5
78	MALUR		10	2	1						9
79	MUZHAKKUNNU		6	2	1						5
80	PERAVUR		6	2	1						11
81	KANNUR	1	17		7			2			40
82	THALASSERY	1	54	11	8	1	1				34
83	PAYYANUR	1	21		5				2		15
84	THALIPARAMBA	1	17		3	1			1		11
85	KUTHUPARAMBA	1	19	1	2	2					13
86	MATTANUR	1	20		1	1	1		1		18
87	CANTONMENT		2		2						
88	KEEZHALLUR		7		1			1			7

ANNEXE 3A

Details of Facilities

LSGs Name	Seed Farm	Market - Weekly	ITC/ITI	Taluk Hospital	CHC	PHC	ESI Hospital	Super speciality	Speciality Alone	Veteriinary Hospital	Krishi Bhavan	Hatcheries	Fire station
	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities	No of facilities
CHERUPUZHA						1			3	1	1		
CHERUTHAZHAM						1				1	1		
ERAMAM-KUTTUR						1			2	1	1		
EZHOME						2				1	1		
KADANNAPALLY-PANAPUZHA						2				1	1		
KANKOL-ALAPADAMBA						1			2	1	1		
KARIVELLUR-PERALAM		1				1			1	1	1		
KUNHIMANGALAM						1			1	1	1		
MADAI			1			1			3	1	1		
MATTOOL						1			1	1	1		
PERINGOME						1				1	1		1
RAMANTHALI						2			1	1	1		
ALAKODE		1				1			3	1	1		
CHAPPARAPADAVU						2			1	1	1		
CHENGALAYI						1	1		1	1	1		
CHERUKUNNU						1			3	1	1		
KALLYASERRY						1	1		1	1	1		
KANNAPURAM		1				2				1	1		

KURUMATHUR				1			1	1		
NADUVIL				1			2	1	1	
NARATH				3			1	1	1	
PAPPINISSERY	1		1				2	1	1	
PARIYARAM		1					1	1	1	
PATTUVAM							1	1	1	
UDAYAGIRI				2				1	2	
ERUVASSI				2			1	1	1	
IRIKKUR				1			1	1	1	
KOLACHERY				2				1	1	
KUTTYATTUR				1			1	1	1	
MALAPPATTAM				1				1	1	
MAYYIL		1	1					1	1	
PADIYUR				1				1	1	
PAYYAVUR	1	1		1			1	1	1	
SREEKANDAPURAM	1	2					2		1	
ULIKKAL				1			2	1	1	
AZHIKODE			1			1		1	1	
CHIRAKKAL	2			1			3	1	1	
PALLIKKUNNU	1			1			1	1	1	
PUZHATHI	1		1	1	1	1	1	1		1
VALAPATTANAM	1		1					1	1	
ANJARARAKANDY	1			1				1	1	
CHELORA	1			1			3	1	1	1
CHEMBILODE	1		1					1	1	
EDAKKAD	1	1		1	1			1	1	
ELAYAVUR	1	1		1			1	1	1	1
KADAMBUR	1			1				1	1	
MUNDERI	1			1				1	1	

MUZHAPPILANGAD						1				1	1		
PERALASSERY						1				1	1		
CHOKLI						1				1	1		
DHARMADAM	1					1	2			1	1		
ERANHOLI						1	1			1	1		
KARIYAD		1				1				1	1		
KADIRUR						1			1	1	1		
KOTTAYAM						1				1	1		
NEW MAHE		1				1				1	1		
PERIGALAM		1				1				1	1		
PINARAYI						1				1	1		
CHITTARIPARAMBA						1				1	1		
KUNNOTHUPARAMBA						1				1	1		
MANGATTIDAM			1			1				1	1		
MOKERI						1				1	1		
PANNYANUR					1					1	1		
PANOOR		1				1	1		3	1	1		
PATTIYAM						1				1	1		
THRIPPANGOTTUR		1				1			1	1	1		
VENGAD	1	1				1			1	1	1		
ARALAM	1					1				1	1		
AYYANKUNNU						2				2	1		
KEEZHUR-CHAVASSERY			3		1				5	2	1		
KOODALI						1				1	1		
PAYAM		1	1			1				1	1		
THILLENKERI						1				1	1		
KANICHAR						1				1	1		
KELAKAM			1			1			2	3	1		

KOLAYAD						1				1	1		
KOTTIYUR						1				1	1		
MALUR						1				1	1		
MUZHAKKUNNU		1			1					1	1		
PERAVUR		1			1				5	1	1		1
KANNUR		2	5			1	1	2	14	1	1		
THALASSERY			2	1			1		10	1	2		1
PAYYANUR		1	2	1	9		1		10	1	1		1
THALIPARAMBA		1	2	1		3			6	2	1		1
KUTHUPARAMBA		1	1		1			2		1	1		1
MATTANUR		1	3	1					3	1	1		
CANTONMENT				1		1							1
KEEZHALLUR						1				1	1		

ANNEXE 3A

Details of Facilities

LSGs Name	Ferries/ Boat jetty	Railway Station	Bus stand	Cinema Theatere A	B	C	Airport	University	Telephone exchange	Income on Tax(residential)	Income on Tax(non residential)	Defence Security Core	Navel academy	
	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie	No of facilitie
CHERUPUZHA			2			2			4					
CHERUTHAZHAM			1						1					
ERAMAM-KUTTUR						1			4					
EZHOME			1						1					
KADANNAPALLY-PANAPUZHA														
KANKOL-ALAPADAMBA						1								
KARIVELLUR-PERALAM														
KUNHIMANGALAM		1			1	1			1					
MADAI		1	2			2			1					
MATTOOL			1						1					
PERINGOME						1			1					
RAMANTHALI						1			3				1	
ALAKODE			1			1			3					
CHAPPARAPADAVU									3					
CHENGALAYI						1			1					
CHERUKUNNU		1				2			1					
KALLYASERRY								1	1					
KANNAPURAM		1												

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
KURUMATHUR									1							
NADUVIL						1			2							
NARATH									1							
PAPPINISSERY	1	1														
PARIYARAM									1							
PATTUVAM									1							
UDAYAGIRI									2							
ERUVASSI									3							
IRIKKUR			1						1							
KOLACHERY									3							
KUTTYATTUR																
MALAPPATTAM																
MAYYIL	1								1							
PADIYUR									2							
PAYYAVUR			1						3							
SREEKANDAPURAM			1			1			3							
ULIKKAL			1						2							
AZHIKODE	1		1						1							
CHIRAKKAL		1			1	3			1							
PALLIKKUNNU				4	1											
PUZHATHI									1							
VALAPATTANAM	1	1			1				1							
ANJARARAKANDY									1							
CHELORA						1			1							
CHEMBILODE			1						1							
EDAKKAD						1			1							
ELAYAVUR						1			1							
KADAMBUR									1							
MUNDERI									1							
MUZHAPPILANGAD		1							1							

	1	2	3	4	5	6	7	8	9	10	11	12	13
PERALASSERY								1					
CHOKLI													
DHARMADAM	1	1				1		1					
ERANHOLI													
KARIYAD													
KADIRUR								1					
KOTTAYAM													
NEW MAHE													
PERIGALAM								1					
PINARAYI													
CHITTARIPARAMBA								1					
KUNNOTHUPARAMBA													
MANGATTIDAM								1					
MOKERI													
PANNYANUR													
PANOOR			1			1		1					
PATTIYAM													
THRIPPANGOTTUR								1					
VENGAD						1		2					
ARALAM			2					1					
AYYANKUNNU								2					
KEEZHUR-CHAVASSERY			1	1	3			2					
KOODALI													
PAYAM								2					
THILLENKERI								1					
KANICHAR													
KELAKAM			2			1		1					
KOLAYAD			1					1					
KOTTIYUR								1					

MALUR			1						1				
MUZHAKKUNNU									1				
PERAVUR			1			1			1				
KANNUR		2	3	3	2				2				
THALASSERY		2	2	6	1				3				
PAYYANUR		1	2		5				1				
THALIPARAMBA			1	2		1			2				
KUTHUPARAMBA			1			3			1				
MATTANUR			1		1				2				
CANTONMENT												1	
KEEZHALLUR			1										

ANNEXE 4

Nine Fold Classification of Workers as per Census 2001

LSGs name	Cultivators	Agr lbrs	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	Total workers 2001
CHERUPUZHA	18	11	5171	670	105	647	1513	585	2365	11085
CHERUTHAZHAM	334	820	316	1166	247	1598	1401	928	2185	8995
ERAMAM-KUTTUR	604	990	3329	743	132	694	1274	501	1924	10191
EZHOME	207	416	527	127	123	680	1389	597	1548	5614
KADANNAPALLI-PANAPUZHA	476	852	676	480	81	642	1084	462	2326	7079
KANKOL-ALAPADAMBA	472	1154	301	389	196	1304	838	366	1841	6861
KARIVELLUR-PERALAM	429	1128	181	282	117	2762	914	374	1935	8122
KUNHIMANGALAM	217	495	246	94	223	1067	1157	495	1194	5188
MADAI	156	217	1612	200	89	1117	2712	743	1730	8576
MATTOOL	59	201	1222	140	269	561	1292	518	932	5194
PERINGOME VAYAKKARA	217	165	3929	384	55	565	1083	359	1751	8508
RAMANTHALI	131	551	1163	575	28	640	951	404	1148	5591
ALAKODE	179	118	8551	349	74	523	1193	507	2086	13580
CHAPPARAPADAVU	349	641	5291	604	47	457	1058	412	1709	10568
CHENGALAYI	675	1323	1364	802	68	567	1906	616	2506	9827
CHERUKUNNU	115	185	522	116	111	957	1101	484	987	4578
KALLIASSERY	75	432	285	146	52	3566	1723	742	1460	8481
KANNAPURAM	128	227	344	145	177	1654	1433	543	1102	5753
KURUMATHUR	372	1145	1087	721	102	923	1660	699	1948	8657
NADUVIL	311	276	8494	238	68	477	964	369	1430	12627
NARATH	96	425	423	646	470	2250	1481	484	1237	7512
PAPPINISSERY	55	183	339	144	82	4123	1985	789	1631	9331
PARIYARAM	476	1168	633	1039	118	1289	1737	808	2629	9897
PATTUVAM	185	641	764	88	215	393	805	303	1306	4700

UDAYAGIRI	176	208	4986	57	52	244	472	181	699	7075
ERUVASSI	521	511	3753	376	32	251	663	309	1194	7610
IRIKKUR	55	345	83	89	23	206	1490	296	613	3200
KOLACHERY	191	665	514	478	118	1280	1552	624	1420	6842
KUTTYATUR	363	947	331	2766	130	630	1241	473	1362	8243
MALAPATTAM	219	377	482	418	32	338	536	126	1049	3577
MAYYIL	250	858	774	1608	217	1004	1387	591	1951	8640
PADIYUR	1069	1296	1106	580	86	313	1097	335	2069	7951
PAYYAVUR	1453	1003	4326	167	92	372	1058	295	1536	10302
SREEKANDAPURAM	1069	1287	3062	531	89	539	1926	659	3064	12226
ULIKKAL	3016	2188	1821	1028	106	499	1803	514	1607	12582
AZHIKODE	24	130	1435	39	355	7009	2534	1105	1941	14572
CHIRAKKAL	13	184	311	41	438	5869	2958	1376	2216	13406
PALLIKUNNU	15	26	150	9	71	2659	1947	916	1763	7556
PUZHZTHI	18	132	221	12	268	4304	2345	1166	1742	10208
VALAPATTANAM	0	0	30	4	2	765	674	270	265	2010
ANJARAKKANDY	127	360	185	363	47	3535	1160	573	1214	7564
CHELORA	78	369	269	54	86	4239	2278	1159	1759	10291
CHEMBILODE	53	334	344	43	216	3472	2320	835	1263	8880
EDAKKAD	12	134	598	72	344	4197	2112	773	1788	10030
ELAYAVUR	14	116	284	15	31	3376	2090	1020	1927	8873
KADAMBUR	66	135	178	12	249	1696	1156	434	860	4786
MUNDERI	90	845	264	113	183	3525	2208	828	1669	9725
MUZHAPPILANGAD	18	42	674	78	201	1699	1767	685	860	6024
PERALASSERI	87	555	311	71	342	4582	1285	504	1364	9101
CHOKLI	43	246	337	163	12	1232	2197	651	1467	6348
DHARMADAM	57	69	723	71	97	3848	1705	955	1868	9393
ERANHOLI	24	188	387	31	28	2832	1382	1415	1483	7770
KARIYAD	65	411	183	297	247	379	1979	291	728	4580
KATHIRUR	78	528	188	85	162	3102	2166	1258	1583	9150
KOTTAYAM	63	317	192	30	153	1482	1612	637	776	5262
NEW MAHE	1	19	595	6	42	636	1578	425	513	3815
PERINGALAM	42	319	134	85	188	310	1820	339	798	4035
PINARAYI	106	538	836	154	188	5337	1567	799	1655	11180
CHITTARIPARAMBA	396	924	775	421	94	909	1687	832	1360	7398
KUNNOTHUPARAMBA	390	712	1573	387	85	708	2823	936	2316	9930

Department of Town & Country Planning, Kerala

MANGATTIDAM	342	1134	771	1090	163	1746	2002	914	1821	9983
MOKERI	130	457	237	299	209	798	1375	567	1213	5285
PANNYANUR	42	279	552	30	42	762	1553	527	1514	5301
PANOOR	53	183	209	73	83	317	1412	238	1298	3866
PATTIYAM	371	1044	497	670	58	1722	2063	978	1877	9280
THRIPPANGOTUR	271	596	1413	146	37	423	2145	407	1103	6541
VENGAD	135	832	499	422	369	4389	2338	889	1716	11589
ARALAM	1465	2098	3212	248	63	260	1226	272	1705	10549
AYYANKUNNU	2465	1754	2183	355	42	399	877	368	1586	10029
KEEZHALUR	229	706	147	1137	123	927	1292	754	1205	6520
KEEZHUR-CHAVASSERI	775	2210	706	842	203	790	3074	1135	1970	11705
KOODALI	287	1825	219	1139	293	1240	1763	702	1884	9352
PAYAM	1477	2211	1158	280	244	590	1336	642	1851	9789
THILLANKERY	553	1423	173	268	82	359	1029	318	932	5137
KANICHAR	1968	1065	1028	157	42	477	685	287	1825	7534
KELAKAM	1843	984	1556	85	151	247	631	240	1097	6834
KOLAYAD	713	1158	1542	83	49	305	777	496	1522	6645
KOTTIYUR	1668	1293	1055	41	49	328	683	259	1459	6835
MALUR	624	1682	402	561	88	651	1432	544	1538	7522
MUZHZKUNNU	542	1736	863	260	51	505	1405	386	1328	7076
PERAVOOR	1077	1954	516	221	183	587	1274	649	1990	8451
KANNUR	22	38	1505	15	141	3232	5880	1822	4443	17098
THALASSERY	33	150	3304	53	360	5770	9015	3280	5904	27869
PAYYANNUR	846	1762	741	318	1099	5111	5523	2516	4747	22663
THALIPARAMBA	184	582	760	440	566	3958	6504	2557	5108	20659
KUTHUPARAMBA	81	406	266	460	222	1943	2421	1178	1837	8814
MATTANUR	525	2849	789	1035	354	1377	3617	1606	2877	15029
CANTONMENT	0	0	0	0	1	1	0	0	2576	2578
Total	**35319**	**63493**	**105488**	**31770**	**13722**	**146048**	**156561**	**62204**	**152578**	**767183**

ANNEXE 4A

Concentration Index of Workers

LSGs name	Cultivators	Agr lbrs	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
CHERUPUZHA	0.04	0.01	3.39	1.46	0.53	0.31	0.67	0.65	1.07
CHERUTHAZHAM	0.81	1.1	0.26	3.13	1.54	0.93	0.76	1.27	1.22
ERAMAM-KUTTUR	1.29	1.17	2.38	1.76	0.72	0.36	0.61	0.61	0.95
EZHOME	0.8	0.9	0.68	0.55	1.22	0.64	1.21	1.31	1.39
KADANNAPALLI-PANAPUZHA	1.46	1.45	0.69	1.64	0.64	0.48	0.75	0.8	1.65
KANKOL-ALAPADAMBA	1.49	2.03	0.32	1.37	1.6	1	0.6	0.66	1.35
KARIVELLUR-PERALAM	1.15	1.68	0.16	0.84	0.81	1.79	0.55	0.57	1.2
KUNHIMANGALAM	0.91	1.15	0.34	0.44	2.4	1.08	1.09	1.18	1.16
MADAI	0.4	0.31	1.37	0.56	0.58	0.68	1.55	1.07	1.01
MATTOOL	0.25	0.47	1.71	0.65	2.9	0.57	1.22	1.23	0.9
PERINGOME VAYAKKARA	0.55	0.23	3.36	1.09	0.36	0.35	0.62	0.52	1.03
RAMANTHALI	0.51	1.19	1.51	2.48	0.28	0.6	0.83	0.89	1.03
ALAKODE	0.29	0.1	4.58	0.62	0.3	0.2	0.43	0.46	0.77
CHAPPARAPADAVU	0.72	0.73	3.64	1.38	0.25	0.23	0.49	0.48	0.81
CHENGALAYI	1.49	1.63	1.01	1.97	0.39	0.3	0.95	0.77	1.28
CHERUKUNNU	0.55	0.49	0.83	0.61	1.36	1.1	1.18	1.3	1.08
KALLIASSERY	0.19	0.62	0.24	0.42	0.34	2.21	1	1.08	0.87
KANNAPURAM	0.48	0.48	0.43	0.61	1.72	1.51	1.22	1.16	0.96
KURUMATHUR	0.93	1.6	0.91	2.01	0.66	0.56	0.94	1	1.13
NADUVIL	0.53	0.26	4.89	0.46	0.3	0.2	0.37	0.36	0.57
NARATH	0.28	0.68	0.41	2.08	3.5	1.57	0.97	0.79	0.83
PAPPINISSERY	0.13	0.24	0.26	0.37	0.49	2.32	1.04	1.04	0.88
PARIYARAM	1.04	1.43	0.47	2.54	0.67	0.68	0.86	1.01	1.34

PATTUVAM	0.85	1.65	1.18	0.45	2.56	0.44	0.84	0.8	1.4
UDAYAGIRI	0.54	0.36	5.13	0.19	0.41	0.18	0.33	0.32	0.5
ERUVASSI	1.49	0.81	3.59	1.19	0.24	0.17	0.43	0.5	0.79
IRIKKUR	0.37	1.3	0.19	0.67	0.4	0.34	2.28	1.14	0.96
KOLACHERY	0.61	1.17	0.55	1.69	0.96	0.98	1.11	1.12	1.04
KUTTYATUR	0.96	1.39	0.29	8.1	0.88	0.4	0.74	0.71	0.83
MALAPATTAM	1.33	1.27	0.98	2.82	0.5	0.5	0.73	0.43	1.47
MAYYIL	0.63	1.2	0.65	4.49	1.4	0.61	0.79	0.84	1.14
PADIYUR	2.92	1.97	1.01	1.76	0.6	0.21	0.68	0.52	1.31
PAYYAVUR	3.06	1.18	3.05	0.39	0.5	0.19	0.5	0.35	0.75
SREEKANDAPURAM	1.9	1.27	1.82	1.05	0.41	0.23	0.77	0.66	1.26
ULIKKAL	5.21	2.1	1.05	1.97	0.47	0.21	0.7	0.5	0.64
AZHIKODE	0.04	0.11	0.72	0.06	1.36	2.53	0.85	0.94	0.67
CHIRAKKAL	0.02	0.17	0.17	0.07	1.83	2.3	1.08	1.27	0.83
PALLIKUNNU	0.04	0.04	0.14	0.03	0.53	1.85	1.26	1.5	1.17
PUZHZTHI	0.04	0.16	0.16	0.03	1.47	2.21	1.13	1.41	0.86
VALAPATTANAM	0	0	0.11	0.05	0.06	2	1.64	1.66	0.66
ANJARAKKANDY	0.36	0.58	0.18	1.16	0.35	2.45	0.75	0.93	0.81
CHELORA	0.16	0.43	0.19	0.13	0.47	2.16	1.08	1.39	0.86
CHEMBILODE	0.13	0.45	0.28	0.12	1.36	2.05	1.28	1.16	0.72
EDAKKAD	0.03	0.16	0.43	0.17	1.92	2.2	1.03	0.95	0.9
ELAYAVUR	0.03	0.16	0.23	0.04	0.2	2	1.15	1.42	1.09
KADAMBUR	0.3	0.34	0.27	0.06	2.91	1.86	1.18	1.12	0.9
MUNDERI	0.2	1.05	0.2	0.28	1.05	1.9	1.11	1.05	0.86
MUZHAPPILANGAD	0.06	0.08	0.81	0.31	1.87	1.48	1.44	1.4	0.72
PERALASSERI	0.21	0.74	0.25	0.19	2.1	2.64	0.69	0.68	0.75
CHOKLI	0.15	0.47	0.39	0.62	0.11	1.02	1.7	1.26	1.16
DHARMADAM	0.13	0.09	0.56	0.18	0.58	2.15	0.89	1.25	1
ERANHOLI	0.07	0.29	0.36	0.1	0.2	1.91	0.87	2.25	0.96
KARIYAD	0.31	1.08	0.29	1.57	3.02	0.43	2.12	0.78	0.8
KATHIRUR	0.19	0.7	0.15	0.22	0.99	1.78	1.16	1.7	0.87
KOTTAYAM	0.26	0.73	0.27	0.14	1.63	1.48	1.5	1.49	0.74
NEW MAHE	0.01	0.06	1.13	0.04	0.62	0.88	2.03	1.37	0.68

PERINGALAM	0.23	0.96	0.24	0.51	2.6	0.4	2.21	1.04	0.99
PINARAYI	0.21	0.58	0.54	0.33	0.94	2.51	0.69	0.88	0.74
CHITTARIPARAMBA	1.16	1.51	0.76	1.37	0.71	0.65	1.12	1.39	0.92
KUNNOTHUPARAMBA	0.85	0.87	1.15	0.94	0.48	0.37	1.39	1.16	1.17
MANGATTIDAM	0.74	1.37	0.56	2.64	0.91	0.92	0.98	1.13	0.92
MOKERI	0.53	1.04	0.33	1.37	2.21	0.79	1.27	1.32	1.15
PANNYANUR	0.17	0.64	0.76	0.14	0.44	0.76	1.44	1.23	1.44
PANOOR	0.3	0.57	0.39	0.46	1.2	0.43	1.79	0.76	1.69
PATTIYAM	0.87	1.36	0.39	1.74	0.35	0.97	1.09	1.3	1.02
THRIPPANGOTUR	0.9	1.1	1.57	0.54	0.32	0.34	1.61	0.77	0.85
VENGAD	0.25	0.87	0.31	0.88	1.78	1.99	0.99	0.95	0.74
ARALAM	3.02	2.4	2.21	0.57	0.33	0.13	0.57	0.32	0.81
AYYANKUNNU	5.34	2.11	1.58	0.85	0.23	0.21	0.43	0.45	0.8
KEEZHALUR	0.76	1.31	0.16	4.21	1.05	0.75	0.97	1.43	0.93
KEEZHUR-CHAVASSERI	1.44	2.28	0.44	1.74	0.97	0.35	1.29	1.2	0.85
KOODALI	0.67	2.36	0.17	2.94	1.75	0.7	0.92	0.93	1.01
PAYAM	3.28	2.73	0.86	0.69	1.39	0.32	0.67	0.81	0.95
THILLANKERY	2.34	3.35	0.24	1.26	0.89	0.37	0.98	0.76	0.91
KANICHAR	5.67	1.71	0.99	0.5	0.31	0.33	0.45	0.47	1.22
KELAKAM	5.86	1.74	1.66	0.3	1.24	0.19	0.45	0.43	0.81
KOLAYAD	2.33	2.11	1.69	0.3	0.41	0.24	0.57	0.92	1.15
KOTTIYUR	5.3	2.29	1.12	0.14	0.4	0.25	0.49	0.47	1.07
MALUR	1.8	2.7	0.39	1.8	0.65	0.45	0.93	0.89	1.03
MUZHZKUNNU	1.66	2.96	0.89	0.89	0.4	0.37	0.97	0.67	0.94
PERAVOOR	2.77	2.79	0.44	0.63	1.21	0.36	0.74	0.95	1.18
KANNUR	0.03	0.03	0.64	0.02	0.46	0.99	1.69	1.31	1.31
THALASSERY	0.03	0.07	0.86	0.05	0.72	1.09	1.59	1.45	1.07
PAYYANNUR	0.81	0.94	0.24	0.34	2.71	1.18	1.19	1.37	1.05
THALIPARAMBA	0.19	0.34	0.27	0.51	1.53	1.01	1.54	1.53	1.24
KUTHUPARAMBA	0.2	0.56	0.22	1.26	1.41	1.16	1.35	1.65	1.05
MATTANUR	0.76	2.29	0.38	1.66	1.32	0.48	1.18	1.32	0.96
CANTONMENT	0	0	0	0	0.02	0	0	0	5.02

ANNEXE 5

Activity Pattern of Kannur District

Sl. No	Name of LSGs	Urban Profile	Fn Classification	Land Use Conc	Predominance of		Draft Activity Pattern derived by SPC
					Forest	Water body	
1	CHERUPUZHA	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
2	CHERUTHAZHAM	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
3	ERAMAM-KUTTUR	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
4	EZHOME	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
5	KADANNAPALLI-PANAPUZHA	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
6	KANKOL-ALAPADAMBA	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
7	KARIVELLUR-PERALAM	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
8	KUNHIMANGALAM	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
9	MADAI	URBAN	SEMI RURAL	URBAN	Nil	Water body	AGR+ANM HUSB
10	MATTOOL	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
11	PERINGOME VAYAKKARA	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
12	RAMANTHALI	URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY
13	ALAKODE	URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY
14	CHAPPARAPADAVU	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
15	CHENGALAYI	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
16	CHERUKUNNU	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
17	KALLIASSERY	URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)

18	KANNAPURAM	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
19	KURUMATHUR	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
20	NADUVIL	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
21	NARATH	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
22	PAPPINISSERY	URBAN	SEMI RURAL	AGR	Nil	Water body	AGR+ANM HUSB
23	PARIYARAM	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
24	PATTUVAM	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
25	UDAYAGIRI	NON URBAN	RURAL	Plantation	Nil	Nil	PRI ACTIVITY (Plantation)
26	ERUVASSI	NON URBAN	RURAL	AGRI	Nil	Nil	PRI ACTIVITY (Agri)
27	IRIKKUR	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
28	KOLACHERY	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
29	KUTTYATUR	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
30	MALAPATTAM	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
31	MAYYIL	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
32	PADIYUR	NON URBAN	RURAL	Plantation	Nil	Water body	PRI ACTIVITY (Plantation)
33	PAYYAVUR	NON URBAN	RURAL	AGR	Forest	Nil	PRI ACTIVITY (AGR)
34	SREEKANDAPURAM	URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
35	ULIKKAL	NON URBAN	RURAL	Plantation	Nil	Nil	PRI ACTIVITY (Plantation)
36	AZHIKODE	URBAN	URBAN	URBAN	Nil	Water body	TER ACTIVITY
37	CHIRAKKAL	URBAN	URBAN	URBAN	Nil	Water body	TER ACTIVITY
38	PALLIKUNNU	URBAN	URBAN	URBAN	Nil	Nil	TER ACTIVITY
39	PUZHATHI	URBAN	URBAN	URBAN	Nil	Water body	TER ACTIVITY
40	VALAPATTANAM	URBAN	URBAN	URBAN	Nil	Nil	TER ACTIVITY
41	ANJARAKKANDY	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
42	CHELORA	NON URBAN	URBAN	AGR	Nil	Nil	AGR+SSI+ANM HUSB

45	ELAYAVUR	URBAN	SEMI URBAN	AGR	Nil	Nil	AGR+SSI+ANM HUSB
46	KADAMBUR	NON URBAN	RURAL	AGR	Nil	Nil	AGR+SSI+ANM HUSB
47	MUNDERI	NON URBAN	URBAN	AGR	Nil	Nil	AGR+SSI+ANM HUSB
48	MUZHAPPILANGAD	NON URBAN	URBAN	AGR	Nil	Water body	AGR+SSI+ANM HUSB
49	PERALASSERI	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY(AGR)
50	CHOKLI	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY(AGR)
51	DHARMADAM	URBAN	Rural	AGR	Nil	Water body	AGR+SSI+ANM HUSB
52	ERANHOLI	NON URBAN	RURAL	AGR	Nil	Water body	AGR+SSI+ANM HUSB
53	KARIYAD	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY(AGR)
54	KATHIRUR	NON URBAN	RURAL	AGR	Nil	Nil	AGR+SSI+ANM HUSB
55	KOTTAYAM	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
56	NEW MAHE	NON URBAN	URBAN	URBAN	Nil	Water body	TER ACTIVITY
57	PERINGALAM	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
58	PINARAYI	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
59	CHITTARIPARAMBA	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
60	KUNNOTHUPARAMBA	NON URBAN	RURAL	Plantation	Nil	Nil	PRI ACTIVITY (PLANTATION)
61	MANGATTIDAM	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
62	MOKERI	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
63	PANNYANUR	NON URBAN	RURAL	AGR	Nil	Nil	AGR+SSI+ANM HUSB
64	PANOOR	NON URBAN	RURAL	AGR	Nil	Nil	AGR+SSI+ANM HUSB
65	PATTIYAM	NON URBAN	RURAL	AGR	Forest	Nil	PRI ACTIVITY (AGR)
66	THRIPPANGOTUR	NON URBAN	SEMI URBAN	AGR	Nil	Water body	AGR+SSI+ANM HUSB
67	VENGAD	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
68	ARALAM	NON URBAN	RURAL	Plantation	Forest	Nil	AGR+SSI+ANM HUSB
69	AYYANKUNNU	NON URBAN	RURAL	AGR	Forest	Nil	PRI ACTIVITY (AGR)

71	KEEZHUR-CHAVUSSERI	URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY
72	KOODALI	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
73	PAYAM	NON URBAN	RURAL	AGR	Nil	Water body	PRI ACTIVITY (AGR)
74	THILLANKERY	NON URBAN	RURAL	AGR	Forest	Nil	PRI ACTIVITY (AGR)
75	KANICHAR	NON URBAN	RURAL	AGR	Forest	Nil	PRI ACTIVITY (AGR)
76	KELAKAM	NON URBAN	RURAL	AGR	Forest	Nil	PRI ACTIVITY (AGR)
77	KOLAYAD	NON URBAN	RURAL	AGR	Forest	Nil	PRI ATIVITY (AGR)
78	KOTTIYUR	NON URBAN	RURAL	Plantation	Forest	Nil	AGR+SSI+ANM HUSB
79	MALUR	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
80	MUZHZKUNNU	NON URBAN	RURAL	AGR	Forest	Nil	PRI ACTIVITY (AGR)
81	PERAVOOR	NON URBAN	RURAL	AGR	Nil	Nil	PRI ACTIVITY (AGR)
82	KANNUR	URBAN	URBAN	URBAN	Nil	Nil	TER ACTIVITY
83	THALASSERY	URBAN	URBAN	URBAN	Nil	Water body	TER ACTIVITY
84	PAYYANUR	URBAN	SEMI URBAN	AGR	Nil	Water body	AGR+SSI+ANM HUSB
85	THALIPARAMBA	URBAN	SEMI URBAN	URBAN	Nil	Water body	AGR+SSI+ANM HUSB
86	KUTHUPARAMBA	URBAN	URBAN	URBAN	Nil	Nil	TER ACTIVITY
87	MATTANUR	URBAN	URBAN	AGR	Nil	Nil	AGR+ANM HUSB

Department of Town & Country Planning, Kerala

ANNEXE 6

Land use Breakup

Sl. No	Name of Panchayats	Total Area of LSGs	Forest	Water bodies	Mars hy Land	Resident ial	Agricult ure	Plantati on	Resi / Agr Mix	Other Built-up land use	Others
1	CHERUPUZHA	1792630.4	69202.39	13972.1	0	4911.09	1330468	0	292753.6	9331.85	71991.48
2	CHERUTHAZHAM	804043.06	0	24118.35	0	35507.6	102238.2	0	499511.4	34314.64	107679.77
3	ERAMAM-KUTTUR	1835921.02	0	8248.44	0	15664.64	785438	0	448198.5	15547.42	561241.99
4	EZHOME	455129.94	0	111420.4	0	7451.93	112772.3	0	190023.8	8058.37	24953.83
5	KADANNAPALLI-PANAPUZHA	1288947.5	0	10671.72	0	12431.29	230493.2	0	722806.6	896.39	311648.29
6	KANKOL-ALAPADAMBA	1031141.58	19222.42	917.4	0	13558.74	285800.6	0	351703.2	12248.88	346569.38
7	KARIVELLUR-PERALAM	565959.02	7172.34	1540.98	0	8756.83	9938.84	0	522473.9	267.18	15808.99
8	KUNHIMANGALAM	390374.28	0	37119.29	0	10309.8	32211.64	0	282256	11475.4	16844.05
9	MADAI	449037.85	0	32717.34	0	2466.82	9897.79	0	327446	926.8	70542.77
10	MATTOOL	337940.59	0	80920.9	0	161.26	14497.23	0	229374.2	4375.75	8611.26
11	PERINGOME VAYAKKARA	1938506.93	0	3498.43	0	8312.41	945449.5	0	371155.4	23517.25	580796.5
12	RAMANTHALI	737893.81	0	64400.28	0	8446.79	11252.93	0	519873.5	19499.69	108362.72
13	ALAKODE	2945452.9	75047.88	25904.76	0	28485.85	1209244	0	1417851	24280.17	164638.82
14	CHAPPARAPADAVU	945223.45	0	18062.78	0	12310.06	355870.1	0	450141.4	9748.21	99024.83
15	CHENGALAYI	1695686.72	0	28830.32	0	12468.43	768552.3	0	499140.9	114119.41	272575.37
16	CHERUKUNNU	380555.64	0	92935.22	0	2088.15	83462.62	0	197661.6	636.08	3752.22
17	KALLIASSERY	394732.83	0	19738.47	0	1500.34	31221.48	0	317514.7	19243.65	4139.13
18	KANNAPURAM	378517.87	0	36063.11	0	460.76	39419.74	0	277888.7	159.78	23107.16
19	KURUMATHUR	1271733.68	0	21134.87	0	21170.77	425835.3	0	611562.2	21167.77	166338.4
20	NADUVIL	2078627.16	257344.86	1433.16	0	15936.01	1244875	0	469578.4	45285.82	43450.02
21	NARATH	410027.6	0	44840.23	0	4225.73	27789.7	0	312715.1	18813.4	1607.45
22	PAPPINISSERY	383030.81	0	82195.38	0	954.81	25786.18	0	262724.8	9500.09	1635.11
23	PARIYARAM	1383321.97	0	30060.79	0	20812.64	482529.8	0	535690.5	45186.2	268793.82
24	PATTUVAM	397878.65	0	47425.97	0	1243.97	55895.15	0	236307.3	565.8	56440.44
25	UDAYAGIRI	1171392.33	95220.79	7005.23	0	14671.63	594740.2	10521.3	446366.4	219.66	2647.1
26	ERUVASSI	1548241.86	2411.86	11612.11	0	12775.13	992671.7	0	363129.6	62599.57	103041.85
27	IRIKKUR	312152.05	25246.74	24524.77	0	225.85	21763.35	0	176171.1	33235	30985.3

28	KOLACHERY	488656.25	0	16339.8	0	8650.57	9136.12	0	413930	32315.9	8284.06
29	KUTTYATUR	873581.93	360413.6	5874.29	0	26870.63	35782.76	0	349960	48182.46	46498.49
30	MALAPATTAM	435288.48	1066.98	11064.28	0	4896.55	45432.25	0	296768	7647.86	68412.14
31	MAYYIL	791756.89	113088	46582.93	0	14235.45	56264.84	0	482785	68465.25	10335.75
32	PADIYUR	1326500.02	211167	48700.12	0	15074.93	269494.3	9848.28	429954	45685.02	296576.18
33	PAYYAVUR	1361433.29	366620	12110.71	0	1045.52	411235.1	0	440112	48077.45	82232.86
34	SREEKANDAPURAM	1675916.82	0	29301.27	0	16162.85	350279	0	878318	120795.5	281060.12
35	ULIKKAL	1827510.14	34010.07	26336.28	0	58066.53	1018922	11304.2	496256	128091.9	54523.02
36	AZHIKODE	394315.37	0	38239.89	0	4253.97	2484.19	0	311955	756.92	36150.74
37	CHIRAKKAL	232402.66	0	52664.27	0	770.88	11013.3	0	126626	40863.23	153.31
38	PALLIKUNNU	179071.96	0	0	0	0	0	0	101024	71219.49	6500.45
39	PUZHZTHI	226427.97	0	12205.38	0	161.59	6070.64	0	160184	47806.09	0
40	VALAPATTANAM	166052.33	0	1209.26	0	5470.59	0	0	117659	41205.33	409.68
41	ANJARAKKANDY	390104.07	0	144.83	0	1757.9	11611.89	0	297072	70380.68	9136.78
42	CHELORA	554806.43	0	10704.13	0	895.09	29080.9	0	322679	166599.8	24532.38
43	CHEMBILODE	515526.92	0	0	0	2680.91	1537.17	0	441953	57494.21	11861.98
44	EDAKKAD	387172.78	0	1131.65	0	3833.5	4236.6	0	264771	75654.96	37545.5
45	ELAYAVUR	236923.3	0	614.23	0	1260.48	18305.99	0	109130	107140.1	472.75
46	KADAMBUR	172349.01	5976.48	0	0	0	0	0	121306	19220.16	25846.02
47	MUNDERI	484012.17	0	1314.69	0	3913.86	13153.94	0	337294	128335.8	0
48	MUZHAPPILANGAD	306882.91	162.56	43835.14	0	0	2639.71	0	118834	112642.4	28768.77
49	PERALASSERI	502473.56	0	9071.97	0	0	27837.38	0	410159	44371.26	11033.63
50	CHOKLI	291482.11	0	4584.42	0	772.89	0	0	240738	45386.35	0
51	DHARMADAM	274516.82	0	65825.98	0	0	0	0	206836	414.18	1441
52	ERANHOLI	249962.66	1078.63	29440.24	0	959.05	5247.02	0	189670	16046.07	7521.7
53	KARIYAD	266949.16	0	23337.28	0	4590.9	1488.14	0	226050	11482.85	0
54	KATHIRUR	303501.21	12254.65	2543.65	0	3871.54	6290.68	0	207255	69732.69	1552.53
55	KOTTAYAM	227199.15	0	0	0	455.85	1465.91	0	174495	50782.61	0
56	NEW MAHE	91742.29	0	10483.36	0	0	0	0	38208.8	43050.12	0
57	PERINGALAM	257512.32	0	5392.9	0	174.67	2009.46	0	214403	35532.18	0
58	PINARAYI	481023.36	0	25120.07	0	0	1573.18	0	368564	74766.2	6743.91

59	CHITTARIPARAMBA	922634.04	26748.13	4935.85	0	6493.24	18337.89	0	700765.72	57201.04	108152.16
60	KUNNOTHUPARAMBA	1337770.6	69820.14	0	0	2745.2	24589.31	10110.48	1141898.7	25242.83	52563.8
61	MANGATTIDAM	806163.55	19395.28	9905.14	0	781.13	83797.91	0	551634.21	140074.84	575.05
62	MOKERI	272815.51	0	0	0	469.47	404.55	0	247064.61	16382.18	8494.7
63	PANNYANUR	237267.79	0	7.12	0	0	0	0	204297.34	32963.34	0
64	PANOOR	198315.96	0	0	0	0	0	0	176481.17	21834.79	0
65	PATTIYAM	2757242.4	2012541.9	180.98	0	3010.17	27949.94	0	592001.58	75935.79	45622.08
66	THRIPPANGOTUR	218982.25	0	6283.44	0	974.99	0	0	159536.13	42362.21	9825.49
67	VENGAD	702124.64	0	21448.65	0	3085.94	17971.4	0	542315.81	114332.21	2970.63
68	ARALAM	1069559.9	830170.27	23243.31	0	1095.61	5946.89	11508.2	22862.2	6.12	184727.61
69	AYYANKUNNU	3810741.82	1519735.7	32094.06	0	39121.48	1226770	0	680501.11	132211.57	180158.32
70	KEEZHALUR	680255.88	18767.63	689.05	0	2802.73	25999.4	0	444281.9	64624.24	123090.92
71	KEEZHUR-CHAVASSERI	1134318.38	151810.43	55977.56	0	17583.39	61355.44	0	627049.4	167157.26	53384.9
72	KOODALI	1017478.67	323947.21	13957.12	0	17981.92	53485.19	0	385148.02	151699.96	71259.26
73	PAYAM	1292162.88	0	87187.34	0	16841.16	379658.5	0	670174.23	75232.77	63068.84
74	THILLANKERY	613412.56	180554.98	0	0	8336.72	17260.07	0	354628.83	37894.21	14737.76
75	KANICHAR	942871.58	456877.46	8512.98	0	2488.37	203330.9	0	229357.6	9436.36	32867.89
76	KELAKAM	1372734.46	609369.52	23757.85	0	9357.42	540195.3	0	95609.26	91735.77	2709.34
77	KOLAYAD	981111.02	168011.61	504.45	0	6367.5	118853.2	0	602850.35	33350.23	51173.65
78	KOTTIYUR	2073899.47	1967754	7975.83	0	10775.09	40008.48	14840	22136.48	10404.97	4.57
79	MALUR	1223423.58	99825.68	2576.21	0	6108.28	387365.1	0	571122.61	45551.88	110873.8
80	MUZHZKUNNU	783720.98	327450.36	18861.45	0	12788.54	62749.16	0	285940.96	47329.86	28600.64
81	PERAVOOR	668105.91	69389.25	2264.36	0	3830.09	143501.9	0	321345.76	99103.92	28670.58
82	KANNUR	334883.8	0	1426.12	0	1483.37	246.01	0	58628.88	268099.01	5000.42
83	THALASSERY	622292.97	0	58554.1	0	1324.94	242.94	0	367157.71	194188.15	825.13
84	PAYYANUR	1329565.11	0	97721.76	0	31429.57	46302.9	0	1026307	29316.98	98427.13
85	THALIPARAMBA	1069147.48	0	71203.48	0	24383.7	47732.87	0	719322.57	143960.51	44439.3
86	KUTHUPARAMBA	424866.58	156.96	0	0	10.46	2350.6	0	333704.66	87002.27	1641.63
87	MATTANUR	1079632.24	325980.56	17563.24	0	16918.37	263020.5	0	291515.97	125003.1	39630.54
	TOTAL	**73274657.9**	**10835014**	**1982317.2**	**0**	**706724.8**	**16372134**	**68132.4**	**32652609**	**4715003.5**	**5888317.9**

ANNEXE 6A

Concentration Index of Landuse

LSGs name	Concentration Index Of Land use Breakup								
	Forest	Water bodies	Marshy Land	Residential	Agriculture	Plantation	Res/Agr Mix	Other Built-up land use	Others
CHERUPUZHA	0.26	0.29	0	0.28	3.32	0	0.37	0.08	0.5
CHERUTHAZHAM	0	1.11	0	4.58	0.57	0	1.39	0.66	1.67
ERAMAM-KUTTUR	0	0.17	0	0.88	1.91	0	0.55	0.13	3.8
EZHOME	0	9.05	0	1.7	1.11	0	0.94	0.28	0.68
KADANNAPALLI-PANAPUZHA	0	0.31	0	1	0.8	0	1.26	0.01	3.01
KANKOL-ALAPADAMBA	0.13	0.03	0	1.36	1.24	0	0.77	0.18	4.18
KARIVELLUR-PERALAM	0.09	0.1	0	1.6	0.08	0	2.07	0.01	0.35
KUNHIMANGALAM	0	3.51	0	2.74	0.37	0	1.62	0.46	0.54
MADAI	0	2.69	0	0.57	0.1	0	1.64	0.03	1.95
MATTOOL	0	8.85	0	0.05	0.19	0	1.52	0.2	0.32
PERINGOME VAYAKKARA	0	0.07	0	0.44	2.18	0	0.43	0.19	3.73
RAMANTHALI	0	3.23	0	1.19	0.07	0	1.58	0.41	1.83
ALAKODE	0.17	0.33	0	1	1.84	0	1.08	0.13	0.7
CHAPPARAPADAVU	0	0.71	0	1.35	1.69	0	1.07	0.16	1.3
CHENGALAYI	0	0.63	0	0.76	2.03	0	0.66	1.05	2
CHERUKUNNU	0	9.03	0	0.57	0.98	0	1.17	0.03	0.12
KALLIASSERY	0	1.85	0	0.39	0.35	0	1.81	0.76	0.13
KANNAPURAM	0	3.52	0	0.13	0.47	0	1.65	0.01	0.76
KURUMATHUR	0	0.61	0	1.73	1.5	0	1.08	0.26	1.63
NADUVIL	0.84	0.03	0	0.79	2.68	0	0.51	0.34	0.26
NARATH	0	4.04	0	1.07	0.3	0	1.71	0.71	0.05
PAPPINISSERY	0	7.93	0	0.26	0.3	0	1.54	0.39	0.05
PARIYARAM	0	0.8	0	1.56	1.56	0	0.87	0.51	2.42
PATTUVAM	0	4.41	0	0.32	0.63	0	1.33	0.02	1.77
UDAYAGIRI	0.55	0.22	0	1.3	2.27	9.66	0.86	0	0.03
ERUVASSI	0.01	0.28	0	0.86	2.87	0	0.53	0.63	0.83
IRIKKUR	0.55	2.9	0	0.08	0.31	0	1.27	1.65	1.24
KOLACHERY	0	1.24	0	1.84	0.08	0	1.9	1.03	0.21
KUTTYATUR	2.79	0.25	0	3.19	0.18	0	0.9	0.86	0.66
MALAPATTAM	0.02	0.94	0	1.17	0.47	0	1.53	0.27	1.96
MAYYIL	0.97	2.17	0	1.86	0.32	0	1.37	1.34	0.16
PADIYUR	1.08	1.36	0	1.18	0.91	7.98	0.73	0.54	2.78
PAYYAVUR	1.82	0.33	0	0.08	1.35	0	0.73	0.55	0.75
SREEKANDAPURAM	0	0.65	0	1	0.94	0	1.18	1.12	2.09
ULIKKAL	0.13	0.53	0	3.29	2.5	6.65	0.61	1.09	0.37
AZHIKODE	0	3.58	0	1.12	0.03	0	1.78	0.03	1.14
CHIRAKKAL	0	8.38	0	0.34	0.21	0	1.22	2.73	0.01

SREEKANDAPURAM	0	0.65	0	1	0.94	0	1.18	1.12	2.09
ULIKKAL	0.13	0.53	0	3.29	2.5	6.65	0.61	1.09	0.37
AZHIKODE	0	3.58	0	1.12	0.03	0	1.78	0.03	1.14
CHIRAKKAL	0	8.38	0	0.34	0.21	0	1.22	2.73	0.01
PALLIKUNNU	0	0	0	0	0	0	1.27	6.18	0.45
PUZHZTHI	0	1.99	0	0.07	0.12	0	1.59	3.28	0
VALAPATTANAM	0	0.27	0	3.42	0	0	1.59	3.86	0.03
ANJARAKKANDY	0	0.01	0	0.47	0.13	0	1.71	2.8	0.29
CHELORA	0	0.71	0	0.17	0.23	0	1.31	4.67	0.55
CHEMBILODE	0	0	0	0.54	0.01	0	1.92	1.73	0.29
EDAKKAD	0	0.11	0	1.03	0.05	0	1.53	3.04	1.21
ELAYAVUR	0	0.1	0	0.55	0.35	0	1.03	7.03	0.02
KADAMBUR	0.23	0	0	0	0	0	1.58	1.73	1.87
MUNDERI	0	0.1	0	0.84	0.12	0	1.56	4.12	0
MUZHAPPILANGAD	0	5.28	0	0	0.04	0	0.87	5.7	1.17
PERALASSERI	0	0.67	0	0	0.25	0	1.83	1.37	0.27
CHOKLI	0	0.58	0	0.27	0	0	1.85	2.42	0
DHARMADAM	0	8.86	0	0	0	0	1.69	0.02	0.07
ERANHOLI	0.03	4.35	0	0.4	0.09	0	1.7	1	0.37
KARIYAD	0	3.23	0	1.78	0.02	0	1.9	0.67	0
KATHIRUR	0.27	0.31	0	1.32	0.09	0	1.53	3.57	0.06
KOTTAYAM	0	0	0	0.21	0.03	0	1.72	3.47	0
NEW MAHE	0	4.22	0	0	0	0	0.93	7.29	0
PERINGALAM	0	0.77	0	0.07	0.03	0	1.87	2.14	0
PINARAYI	0	1.93	0	0	0.01	0	1.72	2.42	0.17
CHITTARIPARAMBA	0.2	0.2	0	0.73	0.09	0	1.7	0.96	1.46
KUNNOTHUPARAMBA	0.35	0	0	0.21	0.08	8.13	1.92	0.29	0.49
MANGATTIDAM	0.16	0.45	0	0.1	0.47	0	1.54	2.7	0.01
MOKERI	0	0	0	0.18	0.01	0	2.03	0.93	0.39
PANNYANUR	0	0	0	0	0	0	1.93	2.16	0
PANOOR	0	0	0	0	0	0	2	1.71	0
PATTIYAM	4.94	0	0	0.11	0.05	0	0.48	0.43	0.21
THRIPPANGOTUR	0	1.06	0	0.46	0	0	1.63	3.01	0.56
VENGAD	0	1.13	0	0.46	0.11	0	1.73	2.53	0.05
ARALAM	5.25	0.8	0	0.11	0.02	11.5	0.05	0	2.15
AYYANKUNNU	2.7	0.31	0	1.06	1.44	0	0.4	0.54	0.59
KEEZHALUR	0.19	0.04	0	0.43	0.17	0	1.47	1.48	2.25
KEEZHUR-CHAVUSSERI	0.91	1.82	0	1.61	0.24	0	1.24	2.29	0.59
KOODALI	2.15	0.51	0	1.83	0.24	0	0.85	2.32	0.87
PAYAM	0	2.49	0	1.35	1.31	0	1.16	0.9	0.61
THILLANKERY	1.99	0	0	1.41	0.13	0	1.3	0.96	0.3
KANICHAR	3.28	0.33	0	0.27	0.97	0	0.55	0.16	0.43
KELAKAM	3	0.64	0	0.71	1.76	0	0.16	1.04	0.02
KOLAYAD	1.16	0.02	0	0.67	0.54	0	1.38	0.53	0.65
KOTTIYUR	6.42	0.14	0	0.54	0.09	7.7	0.02	0.08	0
MALUR	0.55	0.08	0	0.52	1.42	0	1.05	0.58	1.13
MUZHZKUNNU	2.83	0.89	0	1.69	0.36	0	0.82	0.94	0.45
PERAVOOR	0.7	0.13	0	0.59	0.96	0	1.08	2.31	0.53
KANNUR	0	0.16	0	0.46	0	0	0.39	12.4	0.19
THALASSERY	0	3.48	0	0.22	0	0	1.32	4.85	0.02
PAYYANUR	0	2.72	0	2.45	0.16	0	1.73	0.34	0.92
THALIPARAMBA	0	2.46	0	2.36	0.2	0	1.51	2.09	0.52
KUTHUPARAMBA	0	0	0	0	0.02	0	1.76	3.18	0.05
MATTANUR	2.04	0.6	0	1.62	1.09	0	0.61	1.8	0.46

ANNEXE 7

Proposed Heirarchy of Settlements

SI no.	Name of LSGs	Hierarchy
1	Kannur Municipality	1
2	Thalasserri Municipality	1
3	Dharmadam	1
4	Pallikkunnu	1
5	Puzhathi	1
6	Elayavur	1
7	Azhikode	1
8	Chirakkal	1
9	Valapattanam	1
10	Keezhallur	2
11	Keezhur chavasserri	2
12	Payyannur Municipality	2
13	Thaliparamba Municipality	2
14	Kuthuparamba Municipality	2
15	Mattannur Municipality	2
16	Kannur Contonment	3
17	Kallyaserry	3
18	Sreekandapuram	3
19	Alakkode	3
20	Chelora	3
21	Ramanthali	3
22	Edakkad	3
23	Pappinissery	3
24	Vengad	4
25	Chembilode	4
26	Panoor	4
27	Cherukunnu	4
28	Kadirur	4
29	Pannyanur	4
30	New mahe	4
31	Eranholi	4
32	Perigalam	4
33	Peralassery	4
34	Kadambur	4
35	Chokli	4
36	Munderi	4
37	Pinarayi	4

38	Kannapuram	4
39	Pattiyam	4
40	Muzhappilangad	4
41	Narath	4
42	Kottayam	4
43	Cheruthazham	4
44	Kadannapally-panapuzha	4
45	Irikkur	4
46	Pariyaram	4
47	Mayyil	4
48	Cherupuzha	4
49	Alakode	4
50	Kunhimangalam	4
51	Kolachery	4
52	Pattuvam	4
53	Mangattidam	4
54	Anjararakandy	4
55	Chengalayi	4
56	Eruvassi	4
57	Kankol-alapadamba	4
58	Thrippangottur	4
59	Mattool	4
60	Ezhome	4
61	Koodali	4
62	Peravoor	4
63	Kuttiyattur	5
64	Mokeri	5
65	Aralam	5
66	Eramam-Kuttur	5
67	Karivellur-Peralam	5
68	Payam	5
69	Kelakam	5
70	Payyavur	5
71	Kurumathur	5
72	Malappattam	5
73	Ulikkal	5
74	Peringom	5
75	Kolayad	5
76	Padiyur	5
77	Ayyankunnu	5
78	Malur	5
79	Chittariparamba	5
80	Kariyad	5
81	Kottiyur	5
82	Udayagiri	5
83	Muzhakkunnu	5
84	Kunnothuparamba	5
85	Kanichar	5
86	Naduvil	5
87	Thillankeri	5
88	Chapparappadavu	5

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