STATE URBANISATION REPORT

KERALA

A STUDY ON THE SCATTERED HUMAN SETTLEMENT PATTERN OF KERALA AND ITS DEVELOPMENT ISSUES

DEPARTMENT OF TOWN AND COUNTRY PLANNING - GOVERNMENT OF KERALA

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FOREWORD

Urbanization is inevitable, when pressure on land is high, agricultural income is low, and population increase is excessive. Even where rural jobs are available, drift to cities occurs, as it offers a promise of economic opportunity and social mobility. It should be recognized that urbanization is not a calamity but a necessity. Urbanisation is a positive force and urban growth is an impetus to development. Both accelerate industrialization to some extent, they permit change in the social structure by raising the level of human aspiration, facilitate the provision of public services to a large sector of the population, and make possible increased economic opportunities and improve living conditions for those people who remains in the rural areas. The positive role of urbanisation can be materialized only if the cities are economically viable and capable of generating economic growth in a sustained manner.

Coming to Kerala, urbanisation as well as settlement pattern of the state shows marked peculiarities. In this context, the Department of Town and Country Planning undertook a detailed study on urbanisation in the state and has now come up with a State Urbanisation Report. I must appreciate the Department for undertaking such an innovative and timely study.

The State Urbanisation Report (SUR) explores the capabilities and implications of the urbanisation in the state, in the context of its unique settlement pattern. The report identifies a rapid increase in urban share of population in the state from 25.96% to 47.72% during last 10 years. The SUR assesses that the present urbanisation of Kerala is an urban spread rather than the result of the structural changes in the economy of the state and that it poses a major and herculean challenge in urbanization, relationship between urban and rural areas and the economic bases of both urban and rural settlements. SUR puts forward various recommendations meant for planned interventions for selective concentration of urban and rural economic activities, streamlined through balancing spatial order of the settlements/nodes. The findings and recommendations of the report require wider discussions in the interest of planned development of the State, among development departments, decision makers, planners, experts etc.

I firmly believe that the State Urbanisation Report will pave way for necessary policy interventions with regard to settlement planning and development in the state, and in turn to planned development of the state as a whole.

Thiruvananthapuram
14.03.2012

James Varghese IAS
Principal Secretary
Local Self Government Department
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PREFACE

Kerala Model of Development gained attention in the international arena due to the presence of the 'paradox' of high indicators of social development and comparatively low economic growth. But unique human settlement pattern of the state, its capabilities and implications are seldom discussed.

Kerala is characterised by diversified human habitat. The human settlement pattern of the State is characterised with dwellings made in individual plots, scattered all over the habitable area. Almost all other parts in India have nucleated built–up area in a settlement surrounded by rural hinter land. But Kerala shows an urban and rural settlement pattern manifested with an urban–rural continuum having a fairly uniform spread of dwelling units. In other words the population is distributed more or less evenly over the entire state. Thus comparing with other parts of India, Kerala is distinguished with comparatively low population density development in urban areas and high population density in rural areas. This distinctive pattern of human habitat has got many development issues. State Urbanisation Report (SUR) discusses these issues in detail.

2011 census shows that Kerala has undergone the highest level of urbanisation (47.71%) during 2001-11, with a percentage increase of 83.20 over the previous decade. The analysis shows that areal reclassification of a hitherto rural area as urban, due to the shift in the occupational structure from agriculture to other categories of employment causes such a huge urbanisation in the state. The report observes that in a state like Kerala marked by scattered settlement, physical dimension also should be taken into account while designating an area as urban. The SUR identifies the present urbanisation of Kerala as an urban spread rather than the result of the structural changes in the economy of the state. The report envisages a compact urban form and visualizes urban areas as instrument for the development of rural hinterland, besides being engines of development of Kerala. The report traces a strategy of urban clusters in 2021 and urban corridors in 2031. The report recommends that this urban profile shall be refined as an integral part of a regulated spatial structure of the state defined through spatio – economic plans at the state, district as well as local levels. The report also chalks out strategies for the compaction of different kind of urban areas up to the limit prescribed.

The SUR is an attempt of the Department of Town and Country Planning to place the development issues intrinsic to the unique human settlement pattern of the State before the people. The findings and suggestions of the report require wider discussions in the interest of development of the State, among the decision makers, planners, experts etc.

The task was performed by the State Project Cell of Department of Town and Country Planning under the guidance of Sri. Jacob Easow, Senior Town Planner and Smt. Ushakumari P.R., Town Planner. Sri. Baiju. K, Deputy Town Planner was responsible for putting all the ideas together, designing the methodology, performing systematic studies and putting the outcomes together into this report. We hope this document will provide guidance for a better Kerala.

Thiruvananthapuram
14.03.2012

Eapen Varughese
Chief Town Planner

ACKNOWLEDGEMENTS

A plan is a prerequisite for scientific development of an area. Such development plans are needed at national, state, regional and local levels, further broken down to long term, mid term and short term plans.

Department of Town and Country Planning is committed for the preparation of spatio- economic plans at state/regional/local levels. Giving priority, the department has prepared development plans for various towns, cities, urban regions etc. Consequent to the enactment of 73rd & 74th Constitution Amendment Acts, the state is committed in the preparation of draft district development plan for districts in line with Article 243 ZD of the Constitution. In this respect, the department takes the role as nodal agency in the preparation of Development Plan for Districts in our state and supported District Planning Committee of Kollam District in the preparation of Integrated District Development Plan (IDDP) for the District- the first District Development Plan in the country in line with the constitutional requirements. Besides, the draft plans for the districts of Thrissur, Palakkad and Idukki will be released in a couple of months. As an opening towards IDDP, the department has prepared District Spatial Plans (DSPs) for the districts of Thrissur and Palakkad and District Urbanisation Reports (DURs) for the districts of Thiruvananthapuram, Pathanamthitta, Alappuzha, Idukki, Kottayam, Ernakulam, Malappuram, Kozhikode, Wayanad, Kannur and Kasaragod. State Urbanisation Report (SUR) is the natural progression of the avowed commitment of the Department for the preparation of State Perspective Plan(SPP).

The outcomes of DUR/DSP/IDDP as well as the revelations of 2011 census necessitates planned intervention aiming at selective concentration of urban and rural economic activities, streamlined through balancing spatial order of the settlements/nodes. The State Urbanisation Report is part of the attempt towards this direction. The SUR defines future urban profile of the state for 2021 and 2031. To be realistic, the urban profile shall be derived as part of the general strategy for the comprehensive development of the state. Thus, the attempt of State Urbanisation Report is only a forerunner of State Perspective Plan (SPP). The preparation of State Perspective Plan needs inputs from all sectors of development and thus involves decisions and commitment at various levels and concerted efforts of various agencies. It is hoped that the State Urbanisation Report will be followed eventually with a State Perspective Plan, which again is a missing link in our multi level planning system.

Sri.S.M.Vijayanand IAS, Additional Chief Secretary, was always keen on the progress of the task and gave invaluable support in making available the Natural Resources and Environmental Data Base of Kerala, without which the SUR could not get into its present form. I must acknowledge with gratitude the timely supports extended by him.

The guidance and leadership provided by Sri. James Varghese IAS, Principal Secretary, Local Self Government Department has been immense. It is in the fitness of things to acknowledge the same.

The day-to-day guidance and support provided and the inputs given by Sri. Eapen Varughese, Chief Town Planner was of immense help. I thankfully acknowledge the supports rendered by the Chief Town Planner.

As already mentioned the Natural Resources and Environmental Data Base of Kerala, jointly developed by Kerala State Land Use Board and Center for Earth Sciences Studies, was made use of in the study for land use analysis. I thankfully acknowledge these institutions for making available the necessary data. I must also acknowledge the Department of Economics and Statistics and the Directorate of Census Operations, Kerala for supporting us with necessary data.

The suggestions of the two-day workshop organised to vet the study on SUR by senior level planners of the department has also greatly assisted in enhancing the quality of the document. I am to acknowledge the valuable suggestions offered by them. The district level studies on urbanisation, documented as District Spatial Plans/District Urbanisation Reports were major inputs for this state level study. In this respect, I thankfully acknowledge the officials of the district offices of the department.

The preparation of SUR is a direct task undertaken by the State Project Cell for LDP-IDDP-SPP. The concerted efforts of officials of the State Project Cell need special mention. In this respect, I appreciate the supports given by Smt. Ushakumari.P.R, Town Planner during the course of the study, especially in vetting and finalisation of the report. The untiring efforts made by Sri. Baiju.K, Deputy Town Planner, despite all odds, ensured that the document is prepared meticulously, without any compromise on quality or content, in time. Sri. Baiju has been able to enrich the report with his innovative thinking and laudable work. Special acknowledgements are due to him. I also acknowledge the untiring efforts made by officials of the State Project Cell for LDP-IDDP-SPP, especially the Planning Assistants Sri. Krishnend.G.K, Sri. K.P. Shimod, Ms Gayatri Rajan and Smt. Sreeja.K who were directly involved in the task. The earnest efforts put in by Smt. Sajitha Kumari.O, Computer Assistant is also appreciated. I also acknowledge the support rendered by the consultant firm M/s. Geotrans Technologies in GIS applications pertaining to the task.

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14.03.2012

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ABBREVIATIONS

DPC	-	District Planning Committee
DSP	-	District Spatial Plan
DUR	-	District Urbanisation Report
GIS	-	Geographical Information System
IDDP	-	Integrated District Development Plan
LDP	-	Local Development Plan
LSG	-	Local Self Government
OG	-	Out Growth
Ppn	-	Population
SPP	-	State Perspective Plan
SUR	-	State Urbanisation Report

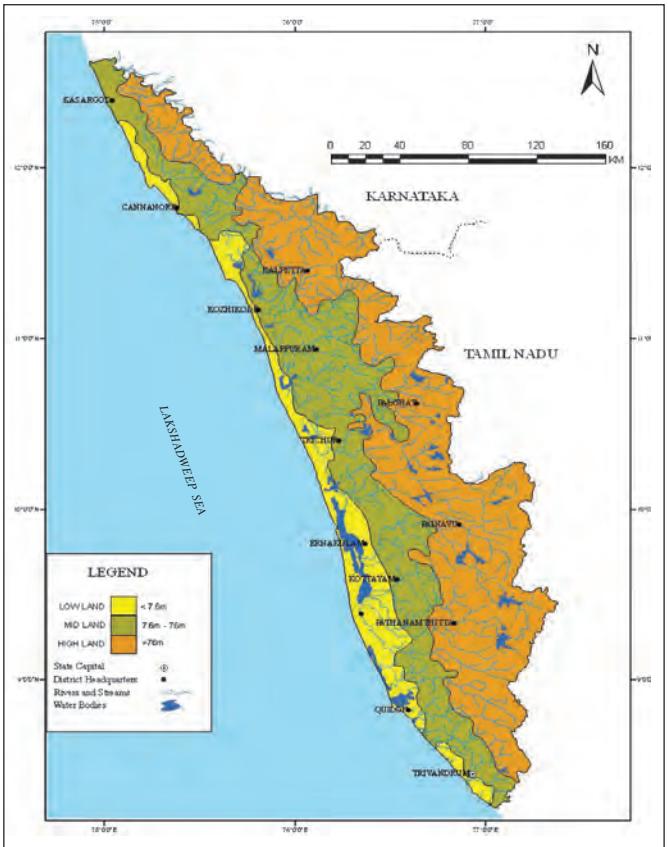
CHAPTER 1
Profile of Kerala

Kerala is located on the southernmost tip of India and embraces the coast of Lakshadweep Sea on the west and is bounded by the Western Ghats in the east. In many aspects of socio economic development it is in par with the developed world. Kerala experiences high level of urbanisation as against low population growth rate. The settlement pattern of Kerala is unique in the sense that it is having urban-rural continuum. This chapter look into the peculiarities of the socio-economical and physical profile of Kerala.

Kerala, lovingly called "God's own country" is truly a land of eternal bliss and a tropical Eden with the mesmerizing beauty of its sun bathed golden seashores edged with abundant coconut trees, the rocky terrain of the Western Ghats, straggling plantations and paddy fields, the cerulean lagoons and the bountiful rivers and mighty waterfalls, fascinating bio-diversity of its flora and fauna.

Geography

Kerala is located on the southernmost tip of India and embraces the coast of Lekshadweep Sea on the west and is bounded by the Western Ghats in the east. Lying within east longitudes 74° 52' and 72° 22' and north latitudes 8° 18' and 12° 48' this idyllic land of eternal beauty embraces less than 1.58 % area of the country of India. Tamil Nadu state is in east and Karnataka state is in north-east of Kerala. Due to the terrain and physical features, it is divided in east west cross-section into three distinct regions - hills & valleys midland plains and coastal region. Forests cover almost 30 per cent of the whole of Kerala. Some of the forests are so dense that their flora and fauna, in places such as Silent Valley, have not yet been completely assessed and recorded. Medicinal herbs, abundant in these forests, are used in Ayurveda.



Source: District Level National Hazard Zonation Map 2009, CESS, Trivandrum

Fig 1.1 Geographic regions of Kerala

Ecology plays an important role in the Kerala economy by providing a diversified natural resource base, enabling a large degree of occupational diversification. The topography and the geographical relief features are marked by distinct changes from east to west. Geographically, Kerala is divided into three regions comprising three zones i.e. lowlands, midlands & highlands.

The low land, where the population density is the highest, consists of sandy and fertile soils of the river valleys, lakes and backwaters, providing the basis for fishing, rice and coconut cultivation and horticulture. In the mid land region, coconut, rice, cassava, areca nut and cashew, along with rubber, pepper, and ginger on the slope predominate. The high ranges, where the population density is the lowest, and which once consisted almost wholly of natural evergreen tropical forests, gave way to plantations of tea, coffee and rubber during the colonial times. Over the past century, the high ranges have also received migrant peasants, big and small, from the midland and coastal tracts.

Kerala enclosed within the Western Ghats separates itself from the rest of India, however the gap in the western ghat, provides the link between Kerala to other neighboring states. The mountains appear thrown back and heaped up, as if some overwhelming deluge had burst through, sweeping them left and right. On either hand tower the giant Nilgiris and Anamalas, overtopping the chain of ghats by several thousand feet, while through the gap, the southwest winds bring pleasant moist air and grateful showers to the thirsty plains of Coimbatore, and roads and railways link the Carnatic to Kerala. The unique character of this Palghat gap, in the Western Ghats is only equaled by its great economic value to the states lying on either hand of it .

In addition to the Palghat Gap, there are others like the Perambadi Ghat linking Kerala and Coorg, the Perlya and Thamarasseri Gaps linking Wynad and Mysore, and Bodinayikannur, Kambam, Aryankavu, and Aramboli Passes connecting Kerala and Tamil Nadu.

Administrative History

The State of Kerala, located in the south-west part of India, in its present form, was formed in 1956 as part of the linguistic reorganization of the Indian States by merging the three Malayalam-speaking regions - the princely states of Travancore, Cochin and Malabar district of the Madras Presidency.

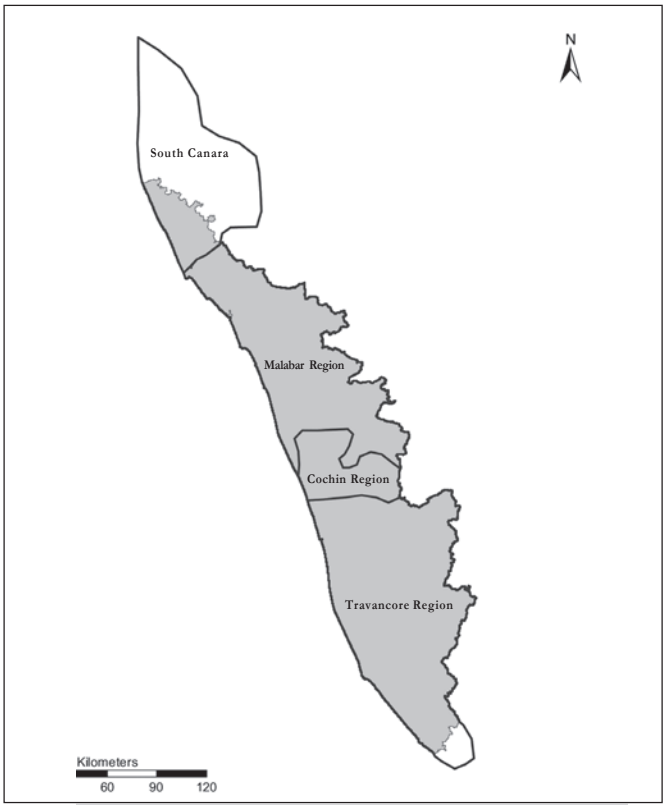


Fig 1.2 Formation of the state to its present form

Its land area is 38,863 sq. km and stretches from North to South along the coast line of 580 km in length with breadth of 30 - 130 km. While in terms of area, Kerala forms only 1.1 per cent of India, its population during its formation (in 1956) was 13.55 million and it has increased to 33.38 million in 2011, which accounts for 3.01 per cent of India's population.

Population density in Kerala is 859 persons per sq. km as per 2011 census, one of the highest in the

country. The first Kerala Legislative Assembly was formed on April 1, 1957. Kerala during 1950s' have only 8 number of districts. Alleppey district was carved out of erstwhile Kottayam and Kollam (Quilon) districts on 17 August 1957. The name of the district Alleppey was changed as 'Alappuzha' in 1990. Malappuram Districts have formed taking portions from Kozhikkode and Malappuram. Then Wayanad and Idukki District were formed. In 1982, Pathanamthitta district was newly constituted taking portions from the then Alappuzha, Kollam and Idukki districts. As on today Kerala State has 14 revenue districts, 21 revenue divisions, 63 Taluks, 1478 revenue villages. Politically Kerala is divided into 14 District Panchayats, 152 Block Panchayats, 978 Gram Panchayats, 5 Municipal Corporations and 60 Municipal Councils.

Fig 1.3 Districts of Kerala as on 2011

Settlement Pattern

Kerala is one of the most densely populated states in India. While only about one-fourth of the population was reported as urban in the early 21st century, such statistics are deceptive because of the close proximity of rural houses, especially in the coastal plain. Kerala is known for its unique settlement pattern with independent houses on individual plots scattered across the habitable areas. The dispersed settlement pattern, a result of historical trends, a liking for homestead type development, comparatively developed infrastructure in urban and rural areas, geographical reasons, availability of sub-soil water etc can be considered as both a prospect and a problem.

Fig 1.4 Kochi City

A clear distinction exists between the rural and urban areas else where in India. One can visually feel the difference of urban and rural area. A rural area mainly consists of vast areas of agricultural land with hamlets distributed sporadically whereas an urban area will have multistoried buildings, high road density, high volume of vehicular traffic etc.

But here in Kerala, one cannot clearly distinguish a rural area from an urban area. All over Kerala, it is like a large number of small and medium towns distributed in the village background. It is very difficult to demarcate the end or beginning of a town and a village.

Demography

Population of Kerala as per Census 2011 (provisional) is 33387677 persons comprising 16021290 males & 17366387 females with a decadal growth rate of 4.86 percent which is lowest among

the states of India. The decline in growth rate is observed, partly by decline in fertility and partly by net out-migration. It has unique sex ratio feature 1084 females per thousand males against 940 females per 1000 males in the country. Kerala's demographic trends have taken remarkable and much complex changes since late 1940s. The demographic peculiarity observed in the State with respect to its population density is that the highest population density is observed on the coastal area i.e. in the low land areas, the lowest density in the high land regions and a moderate density is observed in the mid land regions. Of the 14 Districts, Malappuram has the highest population with 41,10,956 persons followed by Thiruvananthapuram with 33,07,284 persons & Wayanad District has the least population with 8,16,558 followed by Idukki with 11,07,453 persons. It should be noted that the highest and lowest population comprises to 12.3% and 2.45% of the total population of the State. It is to be noted that the two districts Wayanad & Idukki are situated in the hilly regions (upper land) of Kerala. Malappuram district is not only the highest with respect to population size, but has also experienced higher population growth among all districts in Kerala. However, the decadal population growth rates have declined significantly. The population density with respect to land is the highest in Alappuzha followed by Thiruvananthapuram district as per the Census. The lowest population density is in Idukki followed by Wayanad district.

Socio – Economic Profile

Kerala has a good socio – economic status compared to other states in India. It has the highest quality of life index in the country with a high literacy rate at 93.91% against country's literacy rate of 74.04% according to the provisional data of Census 2011 with the male literacy rate 96.0 per cent and the female literacy rate 92.0 per cent. Kerala State, in south India, is an exception within the Indian subcontinent. Despite having a poor per-capita income, Kerala's health indicators and life expectancy are close to those of developed countries. The state has good health infrastructure comprising 835 Primary Health Centres, 24 Dispensaries, 237 Community Health Centres and 5403 Sub-Centres. Health status generally measured in terms of mortality indications like Death Rate, Infant Mortality Rate, Life Expectancy etc. Mortality indicators show that health status of Kerala is far advanced and higher than the all India average and even comparable with developed countries. Needless to state, achievements on the health and education fronts were to a large extent possible through investments in infrastructure. Kerala has had an edge over many other States in social and economic infrastructure, such as road transport, post offices, telecommunication, banking, schools, medical institutions, number of hospital beds and so forth but has remained below the all-India average in irrigation and electricity generation.

Natural Resources

Kerala lacks major reserves of fossil fuels. However, the state is rich in various mineral resources.

There are moderate deposits of Ilmenite (the principal ore of titanium), Rutile (titanium dioxide), Monazite (a mineral consisting of cerium and thorium phosphates), Zircon and Sillimanite all of which are found in the golden beach sands.

Though not plenteous Kerala has a variety of mineral deposits including limestone, iron ores, and

Fig 1.5 Golden sandy beaches of Kerala

bauxite (the principal ore of aluminum). The state is especially known for its high-quality kaolin (china clay/ white clay), which forms an important raw material for the manufacture of porcelain. Silica and quartz are also found abundantly and are used in the manufacture of glass and lenses. It has also been proven that certain areas in Kerala have deposits of gold at certain places of Wayanad, Kozhikode and Malappuram; though mining is yet to start. State also has abundant deposits of graphite which is used in making variety of products along with substantial deposits of granite.

Kerala has great hydroelectric potential, with some two dozen hydroelectric stations operating within the state. Several thermal plants supply additional energy, and in the late 20th century the state began to establish wind farms. Despite its wealth of renewable resources for power generation, Kerala has continued to import some of its electricity from elsewhere in India.

Cultural Life

The cultural heritage of Kerala reflects extensive interaction with diverse communities from antiquity to the present. With an array of ancient Hindu temples with copper-clad roofs, later, mosques with "Malabar gables" (triangular projections at the rooftops), and Baroque churches from the Portuguese colonial era, the state's architecture offers a chronicle of the social, spiritual, and political history of the area.

Fig 1.6 Sabarimala Temple

Other characteristically Kerala art forms include intricate paintings on wood, thematic murals, and a remarkable variety of indoor and outdoor lamps (from which the state has earned the sobriquet "Land of Lamps").

Literature and learning, in both Tamil and Sanskrit, have flourished since the 2nd century; meanwhile, the Malayalam language, though an offshoot of Tamil, has absorbed much from Sanskrit and also has a prolific literature. Most traditional dances of Kerala pertain to the great Indian epics — the Mahabharata and the Ramayana — or to the honoring of specific Hindu deities.

Kathakali, the classical martial dance-drama of Kerala, is one of the oldest theatre forms in the world. is a highly stylized classical Indian dance-drama noted for the attractive make-up of characters, elaborate costumes, detailed gestures and well-defined body movements presented in tune with the anchor playback music and complementary percussion.

Fig 1.7 Kathakali

Other dance forms of Kerala are Krishnanattom, Mohiniyattom, Thullal, Koodiyattom, Kolkkali, Thiruvathirakali, Kakkarishi Natakom, Oppanna and Chavittunatakom. Panchavadyam,

Nadanpattu and many more music forms have evolved over the centuries in Kerala.

Climatic Conditions

The coastal state of Kerala has commonly been called the tropical paradise of India. Kerala has an equable and tropical climate offering a pleasing atmosphere throughout the entire year. The state has hot and humid climate during April-May and pleasant, cold climate in December-January. Summer extends from the month of April to June when the temperature reaches to a maximum of 33 degrees centigrade. Summer is followed by South West Monsoon that starts pouring in the month of June and continues till September. With the arrival of winter there is certain drop in the temperature and you can feel a slight chill due to the cold wind. Winter in Kerala lasts from November to January or February.

With 120–140 rainy days per year, Kerala has a wet and maritime tropical climate influenced by the seasonal heavy rains of the southwest summer monsoon. In eastern Kerala, a drier tropical wet and dry climate prevails.

Kerala's rainfall averages 3,107 mm (122 in.) annually. Some of Kerala's drier lowland regions average only 1,250 mm (49 in.); the mountains of eastern Idukki district receive more than 5,000 mm (197 in.) of orographic precipitation, the highest in the state.

Fig 1.8 Seasonal heavy rains of southwest monsoon

During summer, Kerala is prone to gale force winds, storm surges, cyclone-related torrential downpours, occasional droughts, and rises in sea level. The mean daily temperatures range from 19.8 °C to 36.7 °C. Mean annual temperatures range from 25.0°C – 27.5 °C in the coastal lowlands to 20.0 °C – 22.5 °C in the eastern highlands. Rising temperature has been reported in Kerala.

The agro-climatic conditions in Kerala suit the cultivation of both cash crops and food crops. Under the colonial initiative, however, given an enabling legislative framework and market conditions, cash crops came to predominate. Agriculture forms the raw material base for a number of agro-processing industries, such as coir, cashew, wood and edible oil. These industries continue to occupy an important place, especially in terms of employment. A small segment of large modern industries based on minerals, chemicals and engineering have also come up, along with an increasing segment of small and : medium industries, some based on modern technology and management.

Overall Development

Since the formation of the state in 1956, Kerala has striven consistently to bring down the interregional disparities, gone ahead with the progressive legislations on land tenures and agrarian relations, brought down mortality and fertility rates and arrested population growth rate, promoted educational growth with significant support to private sector initiatives and modernized the healthcare sector. In the materially productive sectors of agriculture and industry, Kerala's performance has not been remarkable. It is the process of large scale emigration that began in the early 1970s that has kept the Kerala economy on an even keel and promoted near – revolutionary changes in consumption patterns, housing conditions, educational levels and health status.

Kerala attracts many foreign and domestic tourists and the tourism industry contributes in large measure to the state's Gross State Domestic Product (GSDP). A major part of the state's income accrues from remittances sent by migrants working abroad, mostly in countries in the Persian Gulf. The economy of the state is highly dependent on the tertiary sector, and the trade, hotels and restaurants segments of this sector are growing rapidly as the tourism industry develops.

Agriculture is dominated by rice and other plantation crops. Kerala produces over 90 per cent of India's natural rubber, more than half of India's cardamom, and 30 per cent of coconuts and tapioca. Traditional industries like coir, handlooms and handicrafts also employ a large number of people.

The state has a 590 km long coastline, and has one major and 17 intermediate and minor ports. The primary articles traded via these ports are petrol, oil and other lubricants and containers. Kerala is one of the highest ranked states in India in terms of Human Development Index.

At current prices, the Gross State Domestic Product (GSDP) of Kerala was about US$ 48.5 billion in 2009 – 10. The state's GSDP grew at a Compound Annual Growth Rate (CAGR) of 12.8 per cent between 2004-05 and 2009-10

Distribution of GSDP

In 2009-10, the tertiary sector contributed 61.5 per cent to the state's GSDP at current prices. It was followed by the secondary sector at 23.1 per cent. The tertiary sector grew at an average rate of 14.7 per cent between 2004-05 and 2009-10; driven by trade, hotels, real estate, finance, insurance, transport, communications and other ser vices. The secondary sector grew at an average rate of 14.6 per cent during the period 2004-05 and 2009-10. Its growth was driven by manufacturing, construction, electricity, gas and water supply. The primary sector grew at an average rate of 10.6 per cent between 2004 – 05 and 2009 – 10.

Its been observed that Kerala's economy is driven by the secondary and tertiary sectors, of which the secondary sector being the fastest growing sector along with tertiary sector, the largest contributor to Kerala's economy whereas the primary sector's share in GSDP has been declining with the mining and quarrying segment in this sector registered a high growth rate.

CONCLUSION:

Kerala is an abode of peculiarities. It has rich cultural heritage, high achievement in social development indicators (life expectancy, infant mortality, literacy rate and so on) even comparable to the developed nation but with comparatively low per capita income. The plotted development in almost all part of the State facilitated to the urban – rural continuum, a settlement pattern unique to Kerala. Kerala is undergoing high level of urbanisation without physical manifestation in tune to it, which is another peculiarity. The 2011 census puts the urban content of Kerala at 47.71% with a decadal growth rate of 82. 23 %. A study on the intricacies of the urbanisation of Kerala is inevitable in this context. ❑

CHAPTER 2

Demographic Transition

Urbanisation is often considered as a demographic phenomenon. The demographic transition that has undergone in the state has thus become an integral part of the study on urbanisation. Kerala is having high population density since its formation in 1956. But due to the rich cultural heritage and high level of socio-economic development that the state has achieved, the population growth rate is spontaneously controlled and is now the state is gearing towards zero population growth rate. This chapter explains the demographic transition in the state.

Population Trends

The world population is estimated by the United Nations to be 690 crores in 2011. The world population has been growing continuously and the fastest growth of population (above 20 % per decade) were seen briefly during the 1970's and 80's. Since then population growth rate is seen decreasing continuously and now it is at 12.8% (table 2.1). World birth have leveled off at about 134 million per year and are expected to remain constant, but the deaths are only about at 57 million per year and are expected to reach 90 million by the year 2050. Because births out number deaths world population is expected to increase continuously and reach 9 billion in 2050. (Source: Economic review 2010, Planning Board, Kerala State)

Table 2.1 World population and growth rate (1951 to 2011)

Year	Total Population	Population growth rate (decadal)
1951	2535093000	%
1961	3031931000	19.6
1971	3698676000	22
1981	4451470000	20.4
1991	5294879000	18.9
2001	6124123000	15.7
2011	6906558000	12.8

Source: World urbanisation prospects, revision, United Nations.

India, the second most populous country in the world, have 121 crores of population (2011 census data) contributing about 17.5% of the world population. Presently population of India is growing with a decadal growth rate of 17.8%. But during 1961-71, the decadal population growth rate was 36.2%, the highest growth rate recorded ever in the history of India. Since then the population growth rate of India started declining.

Table 2.2 Population in India

Year	Total Population	Population growth rate (decadal) %
1951	361088090	
1961	439234771	21.6
1971	548159652	24.8
1981	683329097	24.7
1991	846302688	23.8
2001	1027015247	21.4
2011	1210193422	17.8

Source: Census data

The population of Kerala is 3.34 crores presently (according to 2011 census) which constitute about 2.7 % of the total population of India. With an annual population growth rate of 0.5, Kerala is having

a very low population growth rate among the State's / Union territories of India according to 2011 census. The variation of the annual population growth rate of Kerala from 1951 on wards is shown in the table 2.3.

Table 2.3 Population in Kerala

Year	Total Population	Population Growth Rate (decadal) %
1951	13549118	
1961	16886394	24.60
1971	21347375	26.00
1981	25453680	19.00
1991	29098518	14.00
2001	31841374	9.42
2011	33387677	4.86

Source: Census Data

The table shows that historically Kerala is experiencing very low population growth rate, when compared with the population growth rate of India. The decline in growth rate was contributed to partly by decline in fertility and partly by out-migration. Kerala has been an out-migration State from the 1930s, and the rate of net out-migration reached its peak during 1981-91. It is projected that Kerala is likely to achieve zero population growth (ZPG) in 25 to 30 years (Source: Kerala Development Report.2010).

With regard to regional variations, the size of the population is the highest in Malappuram district (41 lakh) followed by Thiruvanthapuram (33 lakh), as per the 2011 Census (Table 2.4). The lowest population size was seen in Wayanad district (8 lakh) followed by Idukki district (11 lakh). It is to be noted that these two districts are situated in the hilly regions (upper land) of Kerala. Malappuram district has not only the highest population size, but has also experienced rapid population growth among all districts in Kerala. The population data from 1951 to 2011, shows that population of Malappuram has increased by 250% in a period of 60 years with an average decadal growth rate of 42%. The population growth rate of Malappuram district during 2001-2011 is 13.39%, the highest among the districts of Kerala.

Table 2.4 District wise Population Details in Kerala 1951-2011

Sl No	District	Population 1951	Population 2011	% increase in Population in 60 years	Average Decadal Population Growth Rate
1	Alappuzha	1206938	2121943	76	13
2	Ernakulam	1389217	3279860	136	23
3	Idukki	416611	1107453	166	28
4	Kannur	871801	2525637	190	32
5	Kasaragod	415063	1302600	214	36
6	Kollam	1141409	2629703	130	22
7	Kottayam	980577	1979384	102	17
8	Kozhikode	1253627	3089543	146	24
9	Malappuram	1171217	4110956	251	42
10	Palakkad	1206587	2810892	133	22
11	Pathanamthitta	615244	1195537	94	16
12	Thiruvananthapuram	1327812	3307284	149	25
13	Thrissur	1362665	3110327	128	21
14	Wayanad	194298	816558	320	53

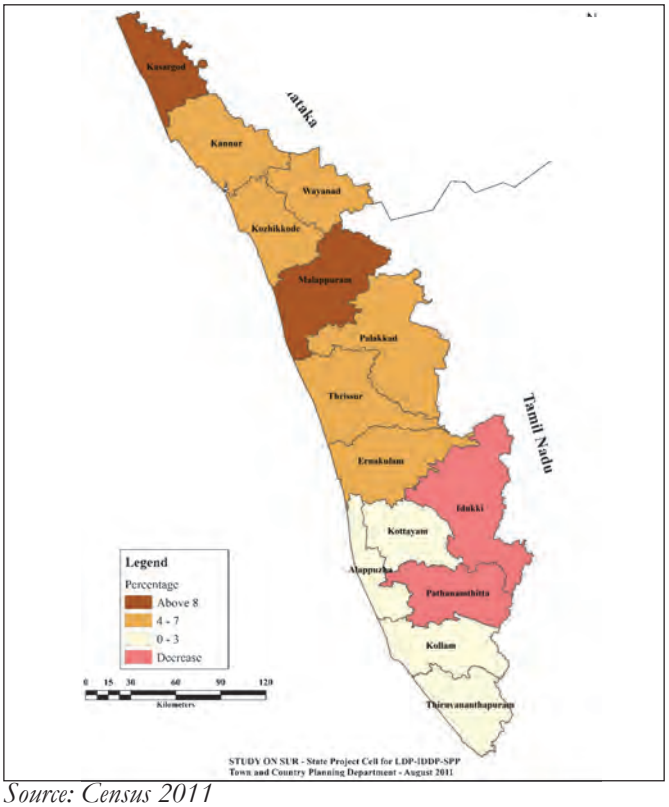
Source: Census data

At the other end of the spectrum, Alappuzha districts recorded the lowest average decadal growth rate of population (13%). The population growth rate during 2001- 2011 (fig 2.1) shows that Malappuram has experienced the highest population growth rate (13.39%) during this period, whereas all the southern districts shows very low population growth rate, with Pathanamthitta (-1.93%) and Idukki (-3.12%) recording negative population growth rate.

Table 2.5 District wise Population Details in Kerala 2001-2011.

Sl No	District	Population 1951	Population 2011	% increase in Population in 60 years	Average Decadal Population Growth Rate(%)
1	Alappuzha	2109160	2121943	0.61	13
2	Ernakulam	3105798	3279860	5.6	23
3	Idukki	1129221	1107453	-1.93	28
4	Kannur	2408956	2525637	4.84	32
5	Kasaragod	1204078	1302600	8.18	36
6	Kollam	2585208	2629703	1.72	22
7	Kottayam	1953646	1979384	1.32	17
8	Kozhikode	2879131	3089543	7.31	24
9	Malappuram	3625471	4110956	13.39	42
10	Palakkad	2617482	2810892	7.39	22
11	Pathanamthitta	1234016	1195537	-3.12	16
12	Thiruvananthapuram	3234356	3307284	2.25	25
13	Thrissur	2974232	3110327	4.58	21
14	Wayanad	780619	816558	4.6	53

Source: Census data



Source: Census 2011

Fig 2.1 Districtwise decadal growth rate-Kerala.

The comparison of the population growth rate during fifties and during present century shows that there is a spatial shift in the region of high population growth rate from the southern districts to the central and northern districts of Kerala. During fifties, the southern districts of Kerala experienced highest population growth rate, but at present the highest population growth rate is seen in the central and northern Kerala.

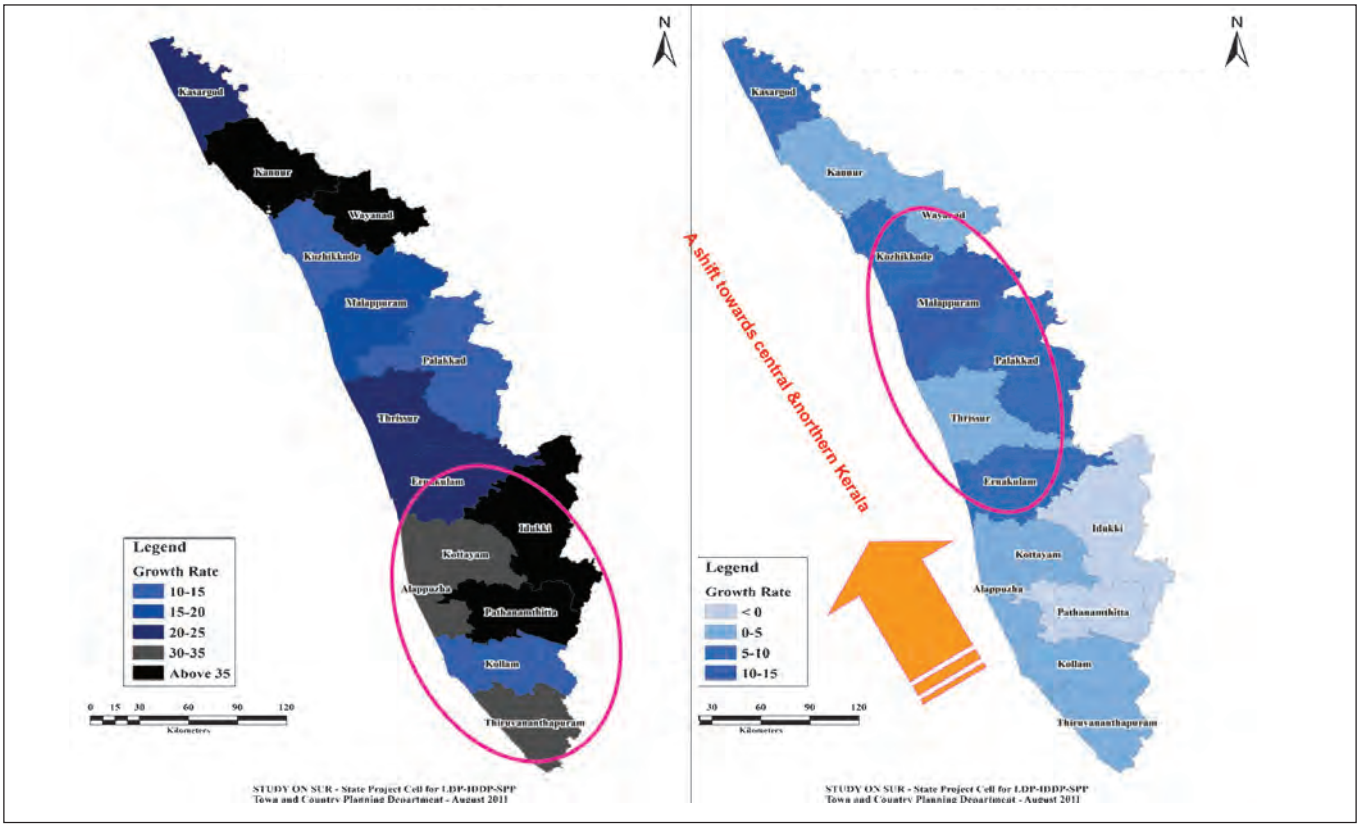


Fig 2.2 District wise population growth rate, comparison between 1951-61 and 2001-2011

Population Density

The average population density of India as per 2011 census is 382 person per square km, with the highest population density of 11297 PPSq.km in NCT of Delhi and the lowest (42 PPSq.km) in Anadaman and Nocobar Islands. The spatial distribution of gross population density of the States/Union territories of India is shown in fig 2.3. Kerala and Tamilnadu, two southern most States shows high population density, whereas majority of the States in India belongs to the low population density category.

The population density in Kerala at 859 persons per sq km is comparatively higher when compared with other States in India. The low population growth rate and comparatively higher population density are factors deciding

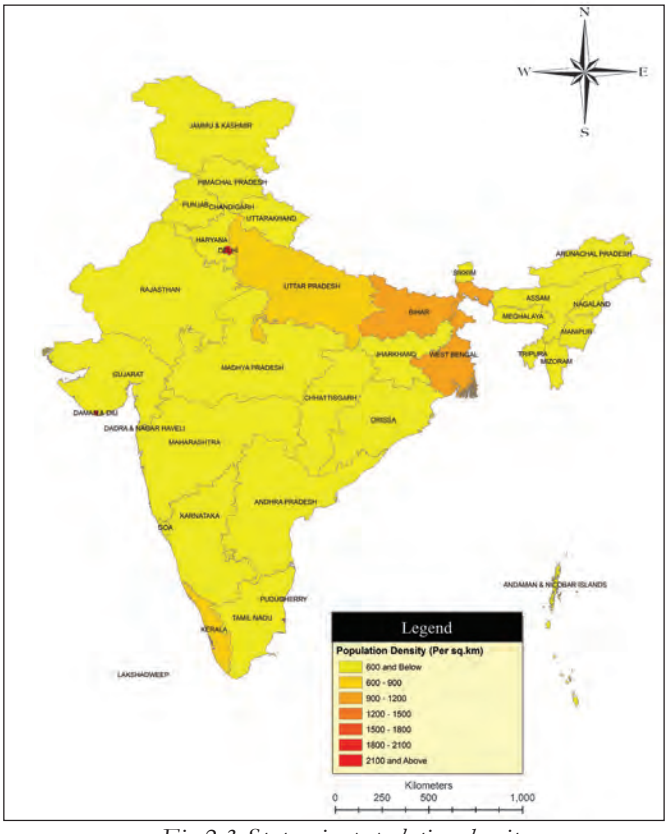


Fig 2.3 State wise population density

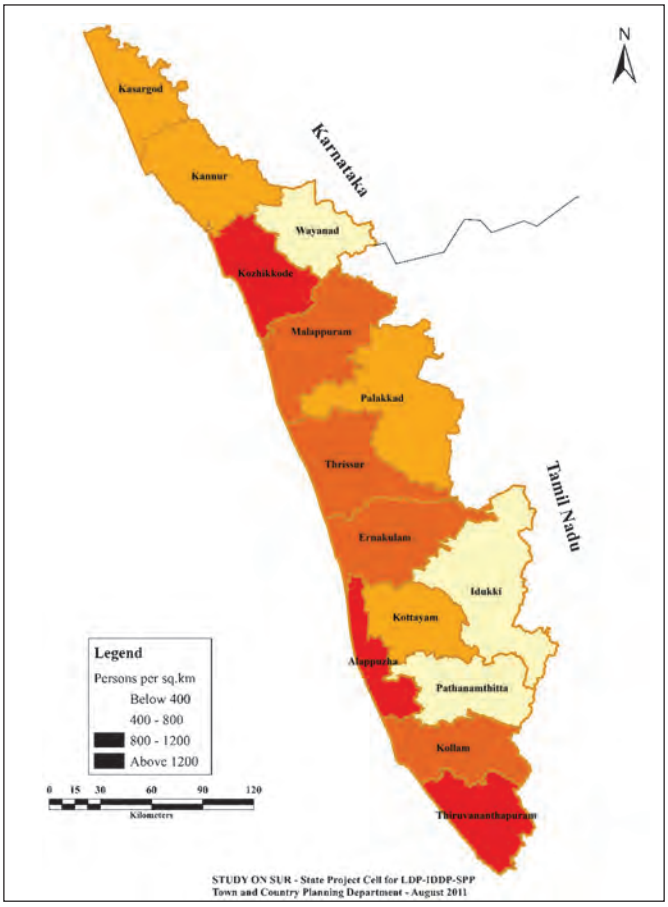


Fig 2.4 District wise population density

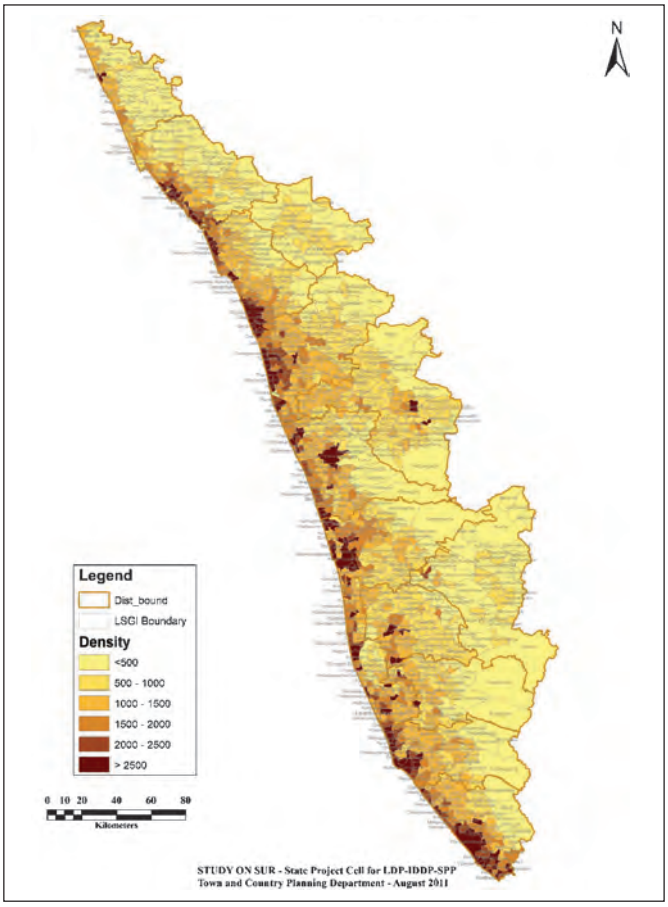


Fig 2.5 Local government wise population density

the future growth of the State. The regional variation in gross population density is shown in Fig 2.4. When the districts belonging to high land region show low population density, remaining districts show high population density.

The local government wise population density distribution is shown in Fig 2.5. The figure shows that all the coastal local bodies and those adjacent to them are in the highest population density range (above 1500 persons/sqkm), local governments in the midland region generally have population density in the range of 1000-1500 PPSq.Km and the local government in the highland region have less population density (less than 500 persons per sqkm.)

Demographic transition

The theory of "demographic transition" postulates a three stage sequence of birth and death rate as typically associated with economic development.

First Stage of Demographic Transition:- According to the theory, death rates are high in the first stage of an agrarian economy on account of poor diets, primitive sanitation and absence of effective medical aid. Birth rates are also high in this stage as a consequence of widespread prevalence of illiteracy, absence of knowledge about family planning techniques, early age of marriage and, last but not the least, as a consequence of deep-rooted social beliefs and customs about the size of the family, attitude towards children, etc. Moreover, in a primitive society there are economic advantages of large family size. "Children contribute at an early age and are the traditional source of security in the old age of parents. The prevalent high death rates, especially in infancy,

imply that such security can be attained only when many children are born." In such a society the actual rate of growth of population is not high since high birth rate is balanced by high death rate. It is a stage of high growth potential but of low actual growth.

Second stage of Demographic Transition:- Rise in income levels enables the people to improve their diet. Economic development also brings about all-round improvement including the improvement in transport which makes the supply of food regular. All these factors tend to reduce death rate. Thus in the second stage, birth rate remains high but death rate begins to decline rapidly. This accelerates the growth of population. High growth potential of the first stage is realized in the high actual growth in the second stage as a consequence of decline in death rate. High birth rate falling death rate contribute to the growth of the average size of the family in the second stage.

The Third Stage of Demographic Transition:- Economic development further changes the character of the economy from an agrarian to a partially industrialized one. With the growth of industrialization, population tends to shift away from rural areas towards industrial and commercial centres. Growth of urban population, "with the development of economic roles for women outside the home, tends to increase the possibility of economic ability that can better be achieved with small families, and tends to decrease the economic advantage of a large family. One of the features of economic development is typically increasing urbanisation, and children are usually more of a burden and less of an asset in an urban setting than in a rural." The consciousness to maintain reasonable standard of living tends to reduce the size of family in an industrialized economy; since the death rate is already low, this is possible only if birth rate falls. Thus, the characteristics of the third stage are low growth rate of population. This is the stage of incipient decline of population.

These three stages reveal the transformation of a primitive high birth and high death rate economy into a low birth and low death rate economy.

Kerala made a remarkable achievement in the demographic transition within a short period of time. The crude birth rate (CBR) which was 44 per 1,000 population in 1951-61 had declined to 14.70 per 1,000 population in 2009, a decline of around 66.5 percent. Similarly, the crude death rate (CDR) was 20 per 1,000 population in 1951-61, which declined to around 6.80 per 1,000 population in 2009. India's crude birth rate (47) was just 3 points above Kerala's CBR in 1951-61 which declined only to 22.51 in 2009. The crude death rate of the country declined from 28 to 7.3 between these two periods. In both Kerala and India, the birth rate and the death rate declined rapidly until 1971-75. However, for Kerala, as the death rate remained stable during the 1980s and 1990s, the birth rate continued to decline. As a result the rate of natural increase of the population also declined. The natural increase in population in Kerala is only 7.9 per 1000 population as against 15.2 per 1000 population of India. The Total Fertility Rate (TFR) in Kerala, started declining from the 1960s. TFR for Kerala in 2009 is 1.70 which is the lowest among states in India.

In Kerala, the total fertility rate (TFR), which was 5.6 per woman in the 1950s, declined to 3.7 in the 1970s, and reached 1.7 in 2009. The fertility rate declined in both rural and urban areas, and there is virtually no difference between the two. By contrast, in India, the TFR was 6.3 in the 1950s that declined to 2.6 in the 2009s. Though Kerala and India had a difference in TFR of only 0.7 during the 1950s, the

difference has widened to 0.9 in the 2009s, indicating a faster decline of TFR in Kerala than in India as a whole. As Kerala's TFR approached the replacement level (i.e. 2.1 children per woman), the rate of decline naturally slowed down from the late 1980s. It is generally agreed that one of the most important factors behind Kerala's remarkable performance in reducing fertility is the high level of female education (Source: Human development report, 2005, Website of Planning Commission of India).

A significant role in the dramatic decline in fertility in Kerala in the 1970s was played by the sharp decline in infant mortality rates. Among the major Indian States, Kerala's infant mortality rate is the lowest (12) as per the latest available estimates given by Demographic Indicators published by Planning Commission of India. In Kerala, out of every 1,000 children born, only 12 die (2009) before attaining their first birthday. In India as a whole, the infant mortality rate in 2009 is 50. Kerala has performed remarkably in reducing the infant mortality rate from 120 in the 1950s to 12 in 2009. For India as a whole, it has declined from 139 to 50 during the same period. The difference in' IMR was only 19 points between Kerala and India in the 1950s, which widened to 78 in 1976-80, but came down to 38 in 2009. Since Kerala has already achieved a lower level of IMR, further decline is expected to be slower due to the non-linear nature of the relationship.

The decline in IMR in Kerala almost ceased by the 1990s. For several years, IMR has remained around 14-15 per 1,000 live births, with virtually no change. Early neonatal (under one-week) deaths contribute around 65 per cent; and late neonatal mortality shares around 10 per cent of the infant deaths under one year. Biological factors and health care use during pregnancy are likely to influence early neonatal mortality and therefore, further reduction in IMR may be possible by identifying those factors and making specific interventions during pregnancy. Further, infant mortality seems to be still higher among children born in the households of SC/ST, fishing community and the poor (Human Development Report, 2005, Centre for Development Studies, Kerala). The absence of the rural-urban gap in Kerala is due to widespread infrastructure and health care facilities in the rural areas as well.

The very low natural increase in population, low fertility rate, stabilized death rate all leads to 3rd stage of demographic transition in Kerala. Kerala is now moving towards achieving zero population growth rate in future. It is projected that Kerala is likely to achieve Zero Population Growth (ZPG) within 25-30 years (Source: Kerala Development Report 2010, Planning Commission, Government of Kerala)

CONCLUSION:

Historically, Kerala is experiencing very low population growth rate as against comparatively high gross population density. The decline in growth rate is contributed partly by decline in fertility and partly by out-migration. The growth pattern of population shows regional variation within the State. The 2011 census data indicates that almost all the southern districts of the State shows very low population growth (less than 2% decadal growth) with districts of Pathanamthitta and Idukki recorded negative population growth rate. A spatial shift in the region of high population growth rate from the southern districts to the central and northern districts of Kerala is noted over a period of 60 years. With very low fertility rate and stabilized death rate, Kerala is expected to achieve zero population growth rate within the next 25 to 30 years. ❑

CHAPTER 3

Functional Character and Economic Activity Pattern

Urban functions are those urban activities expected to be delivered by an urban area. Besides other factors, the extent of plot sub division, the population density, the existing land use etc are some of the limiting factors that determine the function of an area. Determination of the functional character of an area based on these factors is essential to find out the desirable function of an area, be it urban or non urban. The urban-rural continuum in Kerala makes it difficult to delineate an area as urban or rural. In this respect, in connection with preparation of IDDP-Kollam, a new methodology for the delineation of an area as urban or rural in Kerala context is derived. The chapter details out the local body wise functional character and activity pattern of Kerala based on this new methodology.

Functional character

The function of a settlement is the major activity that can be brought in to the settlement, be it agricultural allied activity, secondary sector activity, tertiary sector activities or a combination of the two, determined based on the type of land use concentrated and the average plot size within the settlement. The functional character of an area may be urban, rural, semi urban or semi rural in the Kerala context.

In spatial planning, an urban area is defined as an area where the predominant livelihood activities are those other than primary economic activities of extractive nature. This includes all government, administration, legal, health, educational and other services, the transport, communication, storage activities; any and every form of trade and commerce and exchange of goods, thoughts, ideas, culture, recreation, entertainment and similar activities. (Source: Pp 2, Reading material on city and metropolitan planning and development, reader volume, ITPI, India). Rural area is an area where people thrive on agriculture and similar extractive activities. As far as the general Indian scenario is concerned it is easy to identify the urban or rural area

based on the definition as a clear distinction exists in physical term between the rural and urban areas else where in India. One can visually feel the difference of urban and rural area. A rural area mainly consists of vast area of agricultural land with hamlets distributed sporadically whereas an urban area will have multistoried buildings, high road density, high volume of vehicular traffic etc. But the situation in Kerala is different. Here in Kerala, one cannot clearly distinguish a rural area from an urban area. All over Kerala, it is like a large number of small and medium towns distributed in the village background. It is very difficult to demarcate the end or beginning of a town and a village. Here exists urban rural continuum. A close examination of the land use pattern existing in

Kerala will reveal that there is only a few areas in the State which are pucca urban or rural. A large chunk of land, can be seen in between the pucca urban or rural area which consist of mixed land use – a mixture of residential and agricultural land use. The pucca urban or rural area is only a minor share of the total area; the remaining area being mixed land use areas. Hence it is imperative to ascertain the character of the mixed land use area before determining the total character of the area.

This necessitates a new approach suitable to the State in classifying an area in to urban or rural based on physical development.

In connection with preparation of IDDP for Kollam district a new methodology for the delineation of an area as urban or rural or otherwise has been developed. This methodology is replicated to remaining districts also. Average plot size within the mixed land use area is taken as the criterion for classifying the mixed land use area because, in most of the cases it is a limiting factor which determines type of activity to be introduced there and consequently the character of the area having mixed land use. The average plot size in the mixed land use area may vary from too big a size to small in size. It is found that if the plot size of the mixed land use is greater than or equal to 70 cents (refer : IDDP, Volume I, Kollam Dist) a family can depend on agriculture and allied activities alone for their lively hood. That is, if the average plot size in the mixed land use is greater than or equal to 70 cents, that area can be classified as rural. If the plot size is less than 25 cents, then agricultural activity can't be taken as an economic activity of the area and hence this area can be categorized as urban.

The categorization of the mixed land use based on the plot size necessitates the introduction of two more categories in between rural and urban, viz. semi rural and semi urban. If the average plot size is such that a family can earn their livelihood only partially from the agricultural activity, the area can be termed as semi urban or semi rural. The share between the agricultural and non agricultural activity determines whether the area is semi urban or semi rural. If the plot size is such that a family can earn major share of their livelihood from rural activity but has to resort to some urban activity also to fill the gap (in the earnings) the area can be termed as semi rural. A reverse situation indicates a semi urban area. (Detailed procedure is given in Annexe 1).

As per the procedure the functional character of the Local Governments (LSGs) of Kerala are found out and the same is shown in Fig 3.1. District Urbanisation Report (DUR)/District Spatial Plan (DSP) has been prepared for 13 districts of Kerala and IDDP prepared for Kollam district. As a part of preparation of DUR LSG wise functional character has been determined. The LSG wise functional character of each district is compiled to get the State Map. Accordingly 76 local governments of Kerala shows urban character, 63 local governments show semi urban character, 103 local governments show semi rural character and 805

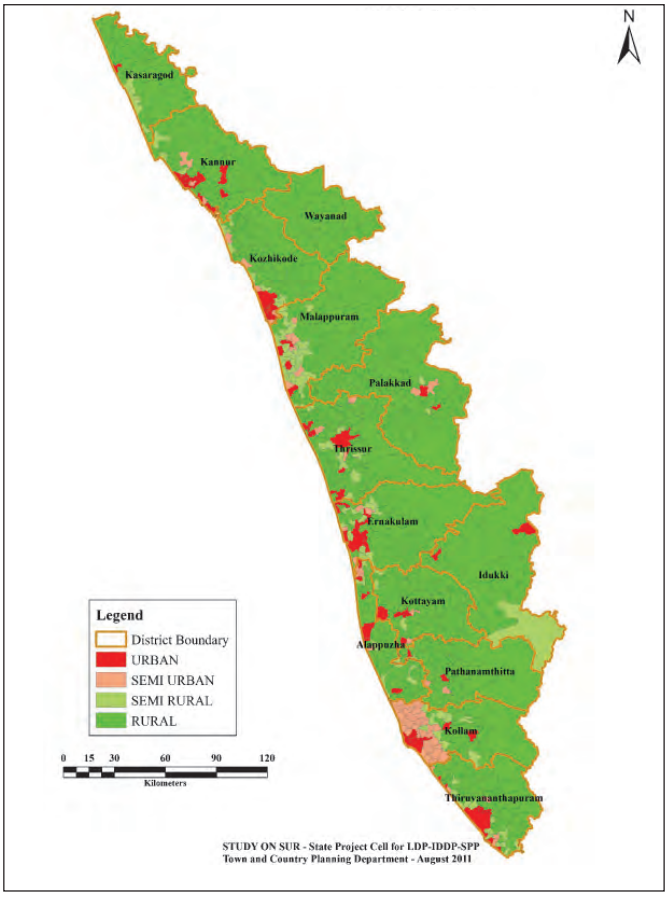


Fig : 3.1 Functional character of LSGs of Kerala

local governments show rural character. The list of local governments with their functional character is given in the District Urbanisation Reports/District Spatial Plan/ IDDP of respective districts.

Economic Activity Pattern

The determination of economic activity pattern is considered as an extension of the determination of functional character. While determining the economic activity pattern of an area, in addition to the functional character, the land use concentration pattern and urban profile as per census classification is also taken in to account.

The major economic activity that is characteristic of an LSG or that can be brought there in future is indicated by the term "Activity". The pattern evolved in a Region/District by plotting the activity of constituent LSGs gives the activity pattern of the District/Region.

The major activity of a settlement (LSG) is determined taking in to account the following three determining factors.

A. Functional character
B. Land use concentration
C. Urban profile

Concentration of a particular land use is assessed by land use concentration index, a value of which above 1 indicates the concentration of the particular land use in the study area (Refer: IDDP, Volume - I, Kollam District). Urban profile determines whether the area is census urban or not. Different possibilities of each of these factors is shown in Table 3.1

The major economic activity of an LSG is determined taking in to account the various combinations of the results of the three factors, which may be (related to Kerala) Agriculture, Plantation, Agriculture and Animal Husbandry, Industries-Agriculture-Animal Husbandry and SSI or Service Activities (Tertiary Activity).

The resultant Economic activity of an LSG through possible combinations of the three factors is as given in table 3.1.

3.1 Determination of Economic Activity Matrix

Combination	Urban Profile	Functional Character	Land Use Concentration	Economic Activity
1	Urban	Urban	Urban	Urban activity (residential, commercial, HH industries, fisheries,etc) Or activities other than agriculture and allied sectors.
2	Non Urban	Rural	Agriculture	PrimaryActivity(Agr)
3	Non Urban	Rural	Plantation	Primary Activity(Plantation)
4	Non Urban	Semi Rural	Agr/Plantation	Agr-Animal Husbandry
5	Non Urban	Semi Urban	Urban	Mixed (Industries-Animal Husbandry-Agriculture)
6	Urban/Non Urban	Rural	Agri	PrimaryActivity(Agr)
7	Urban/Non Urban	Semi Rural	Agri	Agr-Animal Husbandry)
8	Urban/Non Urban	Semi Urban	Agri	Mixed (Industries-Animal Husbandry-Agriculture)

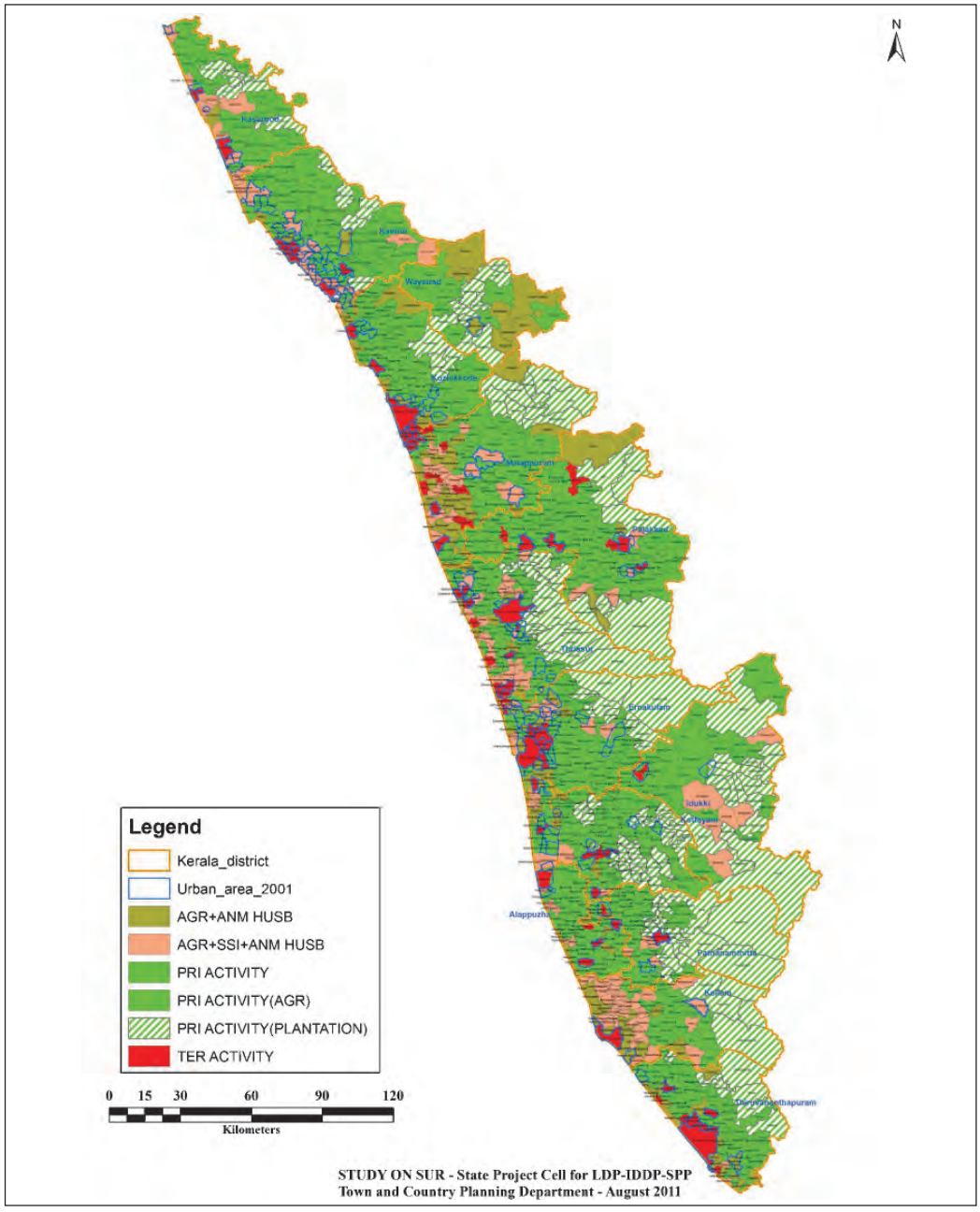


Fig 3.2 Activity pattern

The activity pattern of the state so derived is shown in the Fig 3.2.

As per the economic activity pattern of Kerala 717 LSGs have the potential for agriculture and allied sector development (including plantation and homestead agricultural activity) and 82 LSGs show urban nature.

The potential activity of each LSG so derived is available in the DUR/DSP/IDDP of districts.

CONCLUSION:

The analysis of the functional character of LSGs of Kerala reveals that majority of the LSGs exhibit rural character and as per the economic activity pattern majority of the area of Kerala, except for the forest cover in the high land and high density settlements in the coastal belt, all other areas are suitable for homestead agriculture and allied activities ❑

CHAPTER 4
Urbanisation Trend

When analysed in the world scenario, the urbanisation in India is comparatively low but it is 'massive' due to the enormity of population. Within India, the level of urbanisation varies among various states/union territories. Kerala is one of the states which shows high level of urbanisation. This chapter explores the level of urbanisation and its trend in Kerala. Area classified as urban by Census of India is taken for the study.

Urbanisation

The word urbanisation is derived from the Latin word 'Urbs' known as a city. As defined by United Nations, Urbanisation is the movement of people from rural to urban areas with population growth equating to urban migration.

Urbanisation has taken various forms at various periods. It is the process by which an area, a town or any place becoming urban, with an increased concentration of the people in that area leading to its development.

Urbanisation is an index of transformation from traditional rural economies to modern industrial one. It is progressive long-term process of concentration of population in urban areas. It is the population migration from rural area to an urban area that results in its expansion at the cost of rural or natural land.

Urbanisation is often considered as a demographic phenomenon; urban places are those which exceed the thresholds of population size and/ or population density .

Urbanisation process at different points in time show different factors leading to urbanisation over time. In the pre historic period, urbanisation was synonymous with the origin and rise of civilization, thus manifesting itself essentially as a cultural process. In the historic periods, from ancient times to the British period, urbanisation was exclusively related to the rise and fall of kingdoms, dynasties and empires and in effect, urbanisation during this period was essentially a political process. In recent times, urbanisation has been associated with industrialization and economic development.

History of Urbanisation

Around 10,000 years back people lived in tree tops, tree holes and in caves and fed on naturally available food without much effort from his part. But when his number increased he started moving out of forests and started living in plains and started cultivation. He lived in places that offered him natural protections like in hill tops and near rivers which he depended on for water and also for fishing. For protection from animals he started living in groups. This led to the formation of settlements or so called

villages. The formation of permanent villages dated back to the Neolithic times.

When all land did not respond to agriculture, people began to diverse themselves from food production to other occupations. The land that did not respond to agriculture was utilised for other purposes like housing etc. The cultivation of plants enabled men to change their economy, to produce food and to live in permanent settlements. The development of permanent settlements originated in Egypt, Mesopotamia, Indus Valley, China and Central America. In these entire cases peasant communities gave rise to urban communities and urban settlements.

The emergence of the town from the village was by the improvements in agriculture and allied activities like stock-breeding which was a Neolithic culture. The scattered population of Neolithic times, dwelling in hamlets of from ten to fifty houses, were concentrated forming cities in due course of time. These early cities resembled their village origins, transforming them to agricultural towns with the main source of food supply in the land around them.

The town developed as a focus of a producing region, and as a centre for exchange of goods from outside the region; the rise of artisans and manufactures; the division of labour and the division of society into classes and each with its special task; and all this reflection of complex organization makes the town a single unit, closely connected with its region.

This urban growth with food production governed the relation of the city with its neighbouring land with the improvement in the transportation linkages. The grains were transported over long distances. E.g.: Cities like Rome had their food supply mainly from the distant granaries of Africa. The cities tended to grow along rivers or near accessible harbours not only for easy transportation but also for the aquatic sources of food to supplement those produced by the soil.

The number of cites continued to increase during the Middle Ages. The sizes of the cities were limited to the size of castles with the fort walls and the availability of natural resources. Poor living conditions started to take root within the cities-with an increase in population density due to influx of people in search of jobs and shelter-with poor air quality, environmental and health problems due the lack of infrastructures.

The invention of gun powder led to the fall of the fort walls, which eventually led to the decentralization of people from the congested walled city to other areas. But the living condition of the people continued to detoriate. People continued to move to improve their living conditions.

The dawn of Industrial Revolution saw a number of changes in the cities. There was a transition from a traditional agricultural and rural economy to an urban and industrialized economy, as a result of invention of new technologies and production process which made dramatic changes in them.

The technological innovations in machinery paved a new route in the development process with new discoveries and innovations in all fields starting from agriculture, textiles, coal and iron which resulted in the establishment of factories and assembly plants. These developments and inventions acted as a pull factor for the people in rural areas, resulting in the migration to cities in search of jobs.

The cities became the engines of growth leading to the concentration of people around the factories forming congested environments leading to the formation of slums with unhealthy living conditions, lack of basic infrastructures like electricity, sewerage, drinking water, sanitation system etc.

This mass migration of people to the cities is referred to as urbanisation during the industrial revolution. The migration of people resulted in adverse effects in both rural and urban areas. Rural areas became devastated. The urban areas became the focus of the growth paving way for factory towns.

During the early beginning of Industrial

revolution, a large number of people were living in the rural areas, when compared to the urban areas. But the advancement in science and technology, job opportunities in urban areas started attracting more people to them. This stage continues till the present date and leads to Urbanisation

The twentieth century witnessed rapid urbanisation of world's population. The global proportion of urban population increased from 13 percent in 1900 to 29 percent in 1950 and 49 per cent in 2005 to 50.5 percent in 2011.

At a global level, the trend of urban population differs between the more developed regions and the less developed regions. While a majority of the inhabitants of the less developed regions live in rural areas, in the more developed regions the population is highly urbanized. Urbanisation tends to increase as the level of development increases.

United Nations have projected that for the next few decades, the urban areas of the less developed regions will have the maximum population growth in all countries. Population growth in urban areas of the less developed regions is projected at an average of 2.2 percent annually during 2011-2030. As a result of this the urban population in the less developed regions will increase from 2300 million to 3900 million over the next 25 years.

Urbanisation in the Indian context

The history of Urbanisation in India goes back to ancient India. Cities were formed at a stage when history was ever documented and recorded. The first known city originated in India was the Harappa and Mohenjo-Daro in ancient India. This urbanisation is known as the Indus or Harappan civilization which flourished during 3500-1500 B.C. The rest of India during this period was inhabited by farmers and hunters. With the introduction of iron technology about 3000 years ago, the focus of development shifted eastward into the Indo-Gangetic divide and the Ganga valley. Iron technology enabled pioneering farmers to clear the dense and tangled forests of the middle and lower Ganga plains. The focus of development shifted further eastward to eastern Uttar Pradesh and western Bihar. The second phase of urbanisation of India, marked by trade, coinage, script and birth of the first Indian empire, namely Magadha, with its capital at Pataliputra (Patna) also took place in this region in the sixth century B.C. As a consequence of the expansion of agriculture and loss of forests and wildlife, Stone Age hunter-gatherers were forced to assimilate themselves into larger agriculture-based rural.

In the traditional period the Indian social structure was predominantly a rural based agrarian society. However, during the British period, changes began to take place. Significant changes in the social structure like the introduction of Ryotwari system in Maharashtra (The ryotwari system, instituted in some parts of British India, used to collect revenues from the cultivators of agricultural land), caused an increasing income from the land revenue; change in the legal framework regulating the relationship between the money-lender and the farmer, introduction of the railway with a view to facilitating transport of raw-material, and introduction of post and telegraph. With the introduction of the railway (1853), process of urbanisation grew rapidly.

These developments contributed to the decline of the rural society and the growth of the urban society. In British period the population living in cities, and also the total number of cities increased, and comparatively the rural population and the number of villages in India declined.

During British rule, urban area was defined as including every municipality of what ever size, every cantonment, all civil lines that are not included in municipal limits, and every other collection of houses permanently inhabited by not less than 5000 persons which is of an urban character though not under municipal government. This definition, continued until 1961 census, left the scope for state census

superintendents to apply their judgments in declaring the settlements as urban.

Since 1961 census, urban areas are defined on the basis of two important criteria namely:

i. **Statutory administration:** includes civic status of towns. The towns identified on the basis of statutory administration are known as statutory or municipal towns.

ii. **Economic and demographic aspects:** criteria like population size, density of population and percentage of work force in non agricultural sector. The towns defined on the basis of economic and demographic aspects are termed as census or non-municipal towns.

Census of India classify an area in to urban if it has a minimum population of 5000 , with a density of population of at least 400 persons per sq.km and at least 75 per cent of male working population engaged in non-agricultural pursuits.

Degree of urbanisation

The degree or level of urbanisation is defined as relative number of people who live in urban areas. Percent urban [(U/P)*100] and percent rural [(R/P)*100 and urban-rural ratio [(U/R)*100] are most commonly used to measure degree of urbanisation. Percent urban population in a place is often termed as its urban content.

The urban content of the world population has just exceeded the 50% mark by 2011 indicating the level of urbanisation the world has undergone so far. Though the urban content of the world population has crossed 50% mark, the distribution of urban population is not uniform across the world. On the other hand it shows significant drastic variation between developed countries and developing countries. When the urban content of the developed regions stands

Table 4.1 Urban and rural population in the world scenario

No	Year	Polulation (in billions)			Percentage of	
		Urban	Rural	Total	Urban Population	Rural Population
1	1951	0.73	1.79	2.53	29.1	70.9
2	1961	0.99	2.03	3.03	32.9	67.1
3	1971	1.33	2.36	3.69	36	64
4	1981	1.74	2.71	4.45	39.1	60.9
5	1991	2.27	3.02	5.29	43	57
6	2001	2.85	3.27	6.12	46.6	53.4
7	2011	3.49	3.41	6.9	50.6	49.4

Table 4.2 Urban and Rural Population-Comparision between developed regions and less developed regions

Development Group	Population (in billions)						
	1950	1965	1975	2000	2005	2011	% increase
TOTAL POPULATION							
More developed regions	0.81	0.96	1.04	1.19	1.21	1.23	
Less developed regions	1.72	2.37	3.02	4.92	5.29	5.67	
URBAN POPULATION							
More developed regions	0.42	0.59	0.70	0.87	0.89	0.92	119%
Less developed regions	0.30	0.56	0.81	1.98	2.26	2.56	753%
Urban Population(%)							
More developed regions	51.85	61.46	67.31	73.11	73.55	74.8	
Less developed regions	17.44	23.63	26.82	40.24	42.72	45.15	

at 74.8% on an average, the less developed regions have an urban content of only 45.2%.

Among the less developed regions, Latin America and the Caribbea have an exceptionally high level of urbanisation (79 per cent), higher than that of Europe. Africa and Asia, in contrast, remain mostly rural, with urban content of 40 per cent and 42 per cent, respectively. (Source: World Urbanisation Prospects, 2009, United Nations)

Though the average urban content of the Asian continent is 42 %, the urban content of India, the second largest country in the world, is 31.16% as per the 2011 census which proclaims the general rural nature of the country. In south Asia, India has an edge over some of its neighbors in urbanisation. The countries like Bangladesh (18 per cent) Sri Lanka (21 per cent), Bhutan (16 per cent) and Nepal (10 per cent) have lower level of urbanisation than India. But Pakistan has higher level of urbanisation (32 per cent) than India. With a total population of 1.21 billion, an increase of 1% urban content in India means an addition of 12 crores of population in to the urban category. It is not the percentage increase that is notable as per urbanisation in India is concerned, but its total number added to urban category. It is however important to note that the comparison of the level of urbanisation at the world level is affected by varied definition of urban areas in each country. For example, in Bangladesh places having a municipality (*Pourashava)*, a town committee (*Shahar Committee*) or cantonment board are defined as urban; in Nepal, all localities of 9000 or more inhabitants are declared urban; in Pakistan places with municipal corporation, town committee or cantonment are declared urban; in Sri Lanka also Municipalities, urban councils and towns are treated as urban. On the other hand in India both civic status as well as demographic aspect are taken as criteria for declaring a settlement as urban.

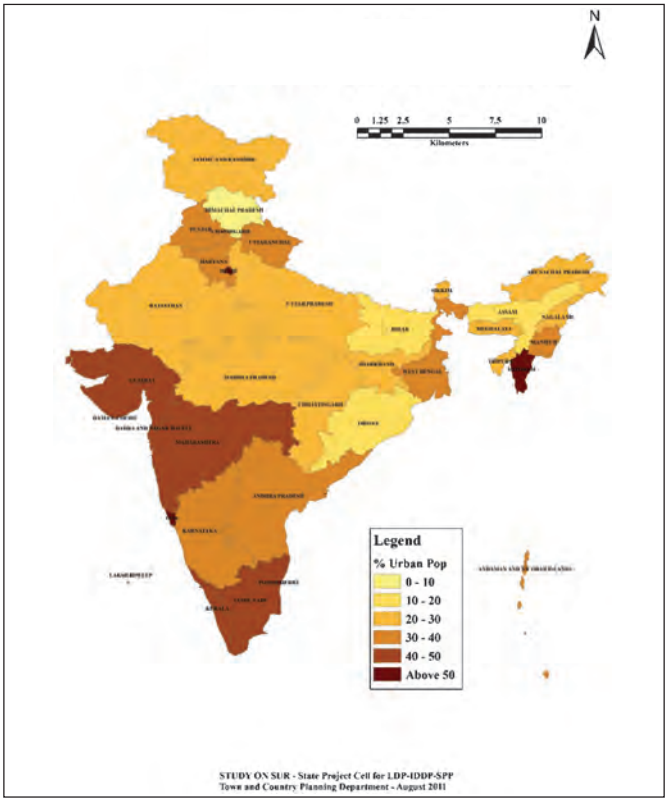


Fig 4.1 India-urban content of states/UTs-2011

Data on urban population shows that the urban content within the country varies from a low of 10% to a high of 90% between the constituent States and union territories. While Himachal Pradesh has the lowest urban content of 10.04%, National Capital Territory (NCT), Delhi records the highest urban content of 97.49% as per the census 2011. Variation of urban content among various States of India is shown in Fig 4.1. When southern India shows high urban content, Central India and Northern India possess lower urban content in general.

Among the southern States of India, Tamilnadu has the highest urban content at 48.5%. Kerala has an urban content of 47.2%.

A comparison of the urban content of Kerala, with that of the Nation and the World is shown in Fig-4.2. Kerala also has higher level of urbanisation.

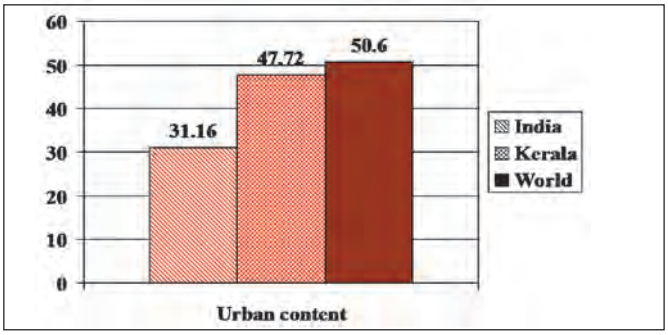


Fig 4.2 Urban content of Kerala- Comparison with Nation and the World

Trend of Urbanisation

Data shows that World wide growth rate of urban population is always higher than the population growth indicating a higher pace in the urbanisation. Fig-4.3 displays the world urban population growth rate against the total population growth rate. Present value of world urban population decadal growth rate is 22.4 as against the total population growth rate of 12.78. That is world urban population grows at a rate, 1.75 times higher than the total population.

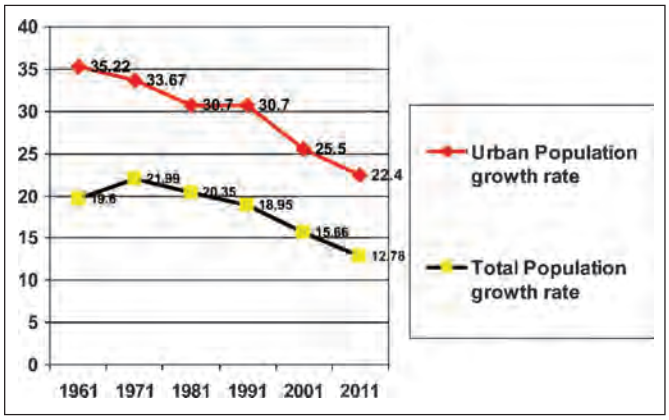


Fig 4.3 Total population & Urban population growth rate – world scenario

Fig 4.4 shows the variation of the percent urban and rural population in world scenario from 1951 on wards. During 1950's, if 70 percent of total population of world was rural by 2011 the rural component reduced to 49%. With the urban population growing two and a half times faster than its rural counterpart, the level of urbanisation is projected to cross the 70 per cent mark in 2050

In conformity with the pattern shown between the growth rate of total and urban world population, urban population in India also grows at a higher pace than the growth rate of its total population (Fig-4.5). But contrary to the world scenario, urban population growth rate of India shows a slight increase during 2001-11 when compared with the urban population growth rate during 1991 to 2001.

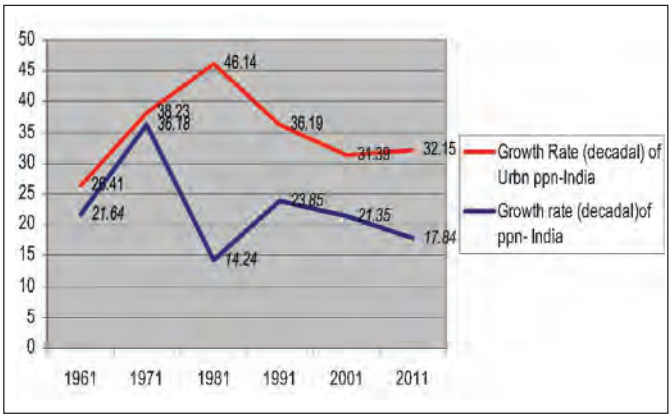


Fig 4.5 Total population & Urban population growth rate – India

The variation of the urban content of India from 1951 to 2011 is shown in Fig-4.6. The rural base that India keeps for a long time, is evident from the figure. The rural content of the Indian population is still hovering around at a whopping 68%. The figure also shows that it will take another 4 or 5 decades time to

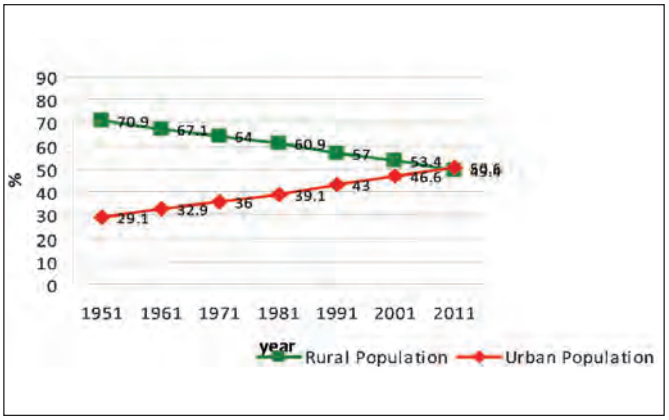


Fig 4.4 Percent Urban and Rural population– world scenario

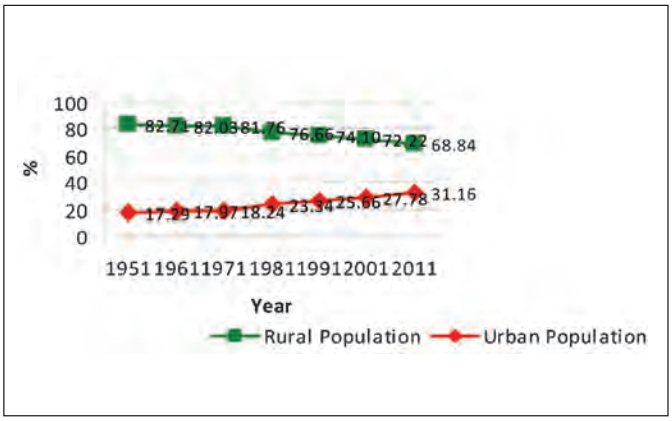


Fig 4.6 Percent Urban and Rural population– National scenario

have an urban content of 50%, which the world has reached by now.

Kingsley Davis, an American sociologist and demographer in the year 1962, explained urbanisation as a finite process, a cycle through which a nation pass as they evolve from agrarian to industrial society. He has mentioned three stages in the process of urbanisation. Stage one is the initial stage characterized by rural traditional society with predominance in agriculture and dispersed pattern of settlements. Stage two refers to acceleration stage where basic restructuring of the economy and investments in social overhead capitals including transportation, communication take place. Proportion of urban population gradually increases from 25% to 40%, 50%, 60% and so on. Dependence on primary sector gradually dwindles. Third stage is known as terminal stage where urban population exceeds 70% or more. At this stage level of urbanisation remains more or less same or constant. Rate of growth of urban population and total population becomes same at this terminal stage. According to this postulate, India now goes through an accelerated urbanisation stage.

The growth rate of total population and urban population of Kerala from 1961 to 2011 is shown in Fig-4.7

Though the decadal population growth rate of Kerala is very less (as per 2011 it is only 4.86) when compared with the National population growth rate (of 17.84), its growth of urban population is phenomenon. During 2001-2011, Kerala experienced an urban population growth rate of 92.72. But during 1991-2001, the urban population growth actually declined from 61.65 to 7.64. Since the first two criteria will be satisfied for almost all parts of Kerala, it can be presumed that it is due to the third criteria by which Kerala shows such a variation in growth of urban population.

Shifting of workforce from agriculture sector to tertiary sector is the reason for the high urbanisation in Kerala. The dispersed settlement pattern, the liking for homestead type development, comparatively developed infrastructure in urban and rural areas, geographical reasons, availability of sub-soil water etc all set for the easy conversion of the agriculture land and thus facilitating the shift from primary to tertiary sector.

When compared to the World and National scenario, where urban population growth rate is showing a decreasing tendency, Kerala shows an increasing tendency in the urban population growth rate (Fig-4.8). Urban population growth rate of Kerala shows an increase by 83.82% within a decade between 2001 and 2011.

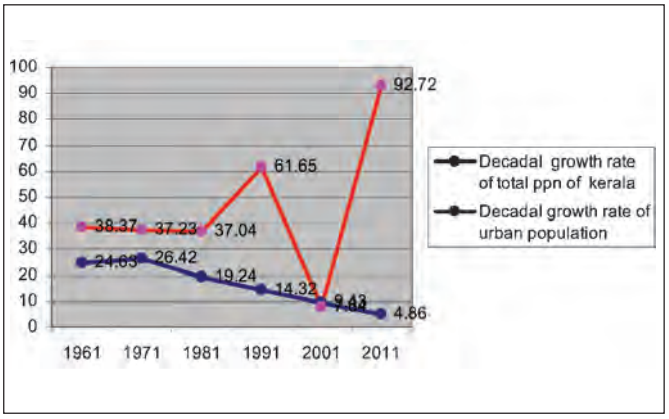


Fig 4.7 Total population & Urban population growth rate – Kerala

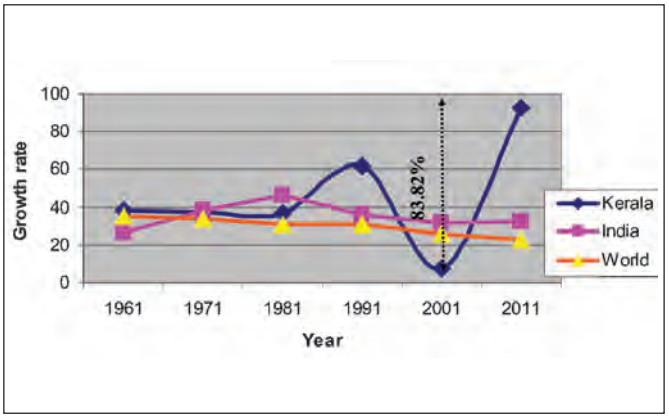


Fig 4.8 Decadal Urban population growth rate of Kerala , comparison with India and World

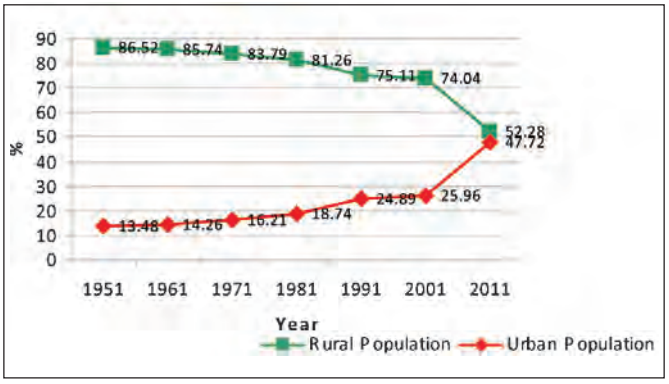


Fig 4.9 Percent Urban and Rural population–Kerala

The variation of urban and rural content of Kerala from 1961 (Fig-4.9) shows that urban content has reached 47.72 % in 2011 from a value of 13.48% in 1961. The present pattern of distribution of urban and rural content of Kerala resembles to that of the world population.

Kerala was positioned in the 19th rank in the level of urbanisation among the States of India as per the 2001 census. 2011 census data shows that Kerala has improved its position to 9th rank.

During 2001, the level of urbanisation of Kerala was the lowest among the southern States (Karnataka and Tamilnadu), but it has overtaken Karnataka by 2011.

The Urban population content is about to cross 50% mark with high rate of urbanisation. If this trend is continued Kerala will become 100% urban in the future. The high level of urbanisation and its high urban population growth rate is to be analyzed against the socio-economic development, the State has achieved over a period, to ascertain whether this pattern of urbanisation is suitable to the State or not. The low population growth rate with high level of urbanisation will increase the scarcity in labour force, especially agricultural and related activities.

Spatial Distribution of Urban Population & Urban Content in Kerala

As per 2011 census data total urban population of Kerala is 15932171. The distribution of urban

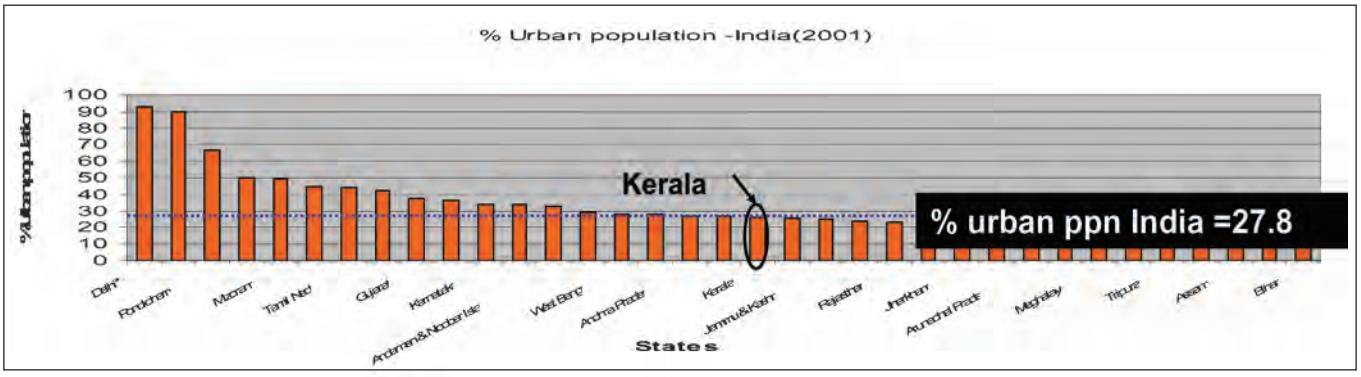


Fig 4.10(a) Urban content of the States & Urban Population of India (2001)

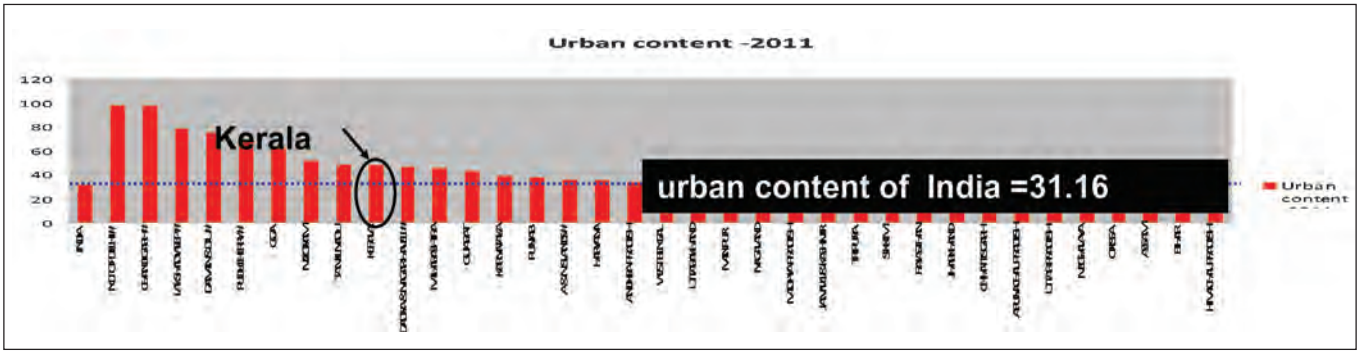


Fig 4.10 (b) Urban content of the States & Urban Population of India (2011)

Table 4.3 District wise Urban and Rural population– Kerala

Sl.No	District	Population 2011			
		Total	Rural	Urban	% Urban ppn
	Kerala	**33387677**	**17455506**	**15932171**	**47.7**
1	Ernakulam	3279860	1047296	2232564	68.1
2	Thrissur	3110327	1020537	2089790	67.2
3	Kozhikode	3089543	1014765	2074778	67.2
4	Kannur	2525637	882745	1642892	65.0
5	Alappuzha	2121943	974916	1147027	54.1
6	Thiruvananthapuram	3307284	1528030	1779254	53.8
7	Kollam	2629703	1443363	1186340	45.1
8	Malappuram	4110956	2294473	1816483	44.2
9	Kasaragod	1302600	797424	505176	38.8
10	Kottayam	1979384	1413773	565611	28.6
11	Palakkad	2810892	2133699	677193	24.1
12	Pathanamthitta	1195537	1064076	131461	11.0
13	Idukki	1107453	1055428	52025	4.7
14	Wayanad	816558	784981	31577	3.9

Source: Census 2011

population among the fourteen districts of the state is shown in table-4.3. Ernakulum is the most urbanized district of Kerala and Wayanad is the least urbanized district. Six districts (Ernakulam, Thrissur, Kozhikkod, Kannur, Alappuzha and Thiruvananthapuram) are having urban content more than 50%.

Four out of the 14 districts of Kerala show low level of urbanisation (urban content less than 25%), another 4 districts show medium level of urbanisation (urban content between 25% and 50%) and the remaining 6 districts show high level of urbanisation (table-4.4). In other words 56 % of the Districts in Kerala belongs to the low to medium level urbanisation category, whereas 42% falls under the high level of urbanisation category. When categorizing the districts of Tamilnadu and Karnataka based on the level of urbanisation (see table 4.4), it is seen that there is contrast between the Districts. When 92% of the total districts of Karnataka belongs to low or medium category, 8% belongs to high or very high level of urbanisation. In the case of Tamilnadu, the corresponding figures are 59 and 41 respectively.

The table 4.5 compares district wise urban content

Table 4.4 Comparison of the level of urbanisation of districts of Kerala,Karnataka and Tamilnadu

Level of Urbanisation	Kerala	Karnataka	Tamilnadu
Low (<25%)	4(28%)	14(46%)	9(28%)
Medium (25-50%)	4(28%)	14(46%)	10(31%)
High (50-75%)	6(42%)	1(3.3%)	10(31.2%)
Very high (>75%)	0	1(3.%)	3(9%)

Source : Census

Table 4.5 Districtwise urban content and its change

District	Urban content 2001	Urban content 2011	Change urban content
Alappuzha	29.46	54.06	24.6
Ernakulam	47.56	68.07	20.51
Idukki	5.1	4.7	-0.4
Kannur	50.35	65.05	14.7
Kasaragod	19.41	38.25	18.84
Kollam	18.02	45.11	27.09
Kottayam	15.35	25.58	13.23
Kozhikode	38.25	67.15	28.9
Malappuram	9.82	44.19	34.37
Palakkad	13.62	24.09	10.47
Pathanamthitta	10.03	11	0.97
Thiruvananthapuram	33.75	53.8	20.05
Thrissur	28.22	67.19	38.97
Wayanad	3.79	3.87	0.08

Source: Census

in Kerala between 2001 and 2011. The data shows that between 2001 & 2011 districts of Thrissur & Malappuram are subjected to the maximum urbanisation (based on urban content).

District of Idukki, Wayanad and Pathanamthitta are showing the lowest Urbanisation in both 2001 and 2011. Central and northern Kerala are subjected to high level urbanisation during 2001-2011, whereas the eastern part of Kerala with forest cover is experiencing low level of urbanisation during 2001 and as also during 2011.

Mapping of the district wise urban content shows that all the coastal district of Kerala are relatively highly urbanized.

It can be concluded that Kerala is experiencing high level of urbanisation all over the State except in the high range region. It can be attributed to the scattered settlement pattern of Kerala.

CONCLUSION:

India is in an accelerated stage of urbanisation. Regarding the growth rate of total population and urban population, India shows the similar pattern of the world, both are decreasing with urban population growth rate higher than the total population growth rate. As far India is considered, it is not the percentage increase in urban population that matters, but the quantum of population added to urban category for each percentage increase in urban population. The history of population growth rate in Kerala shows that the growth rate of urban population has always been greater than that of the total population, indicating the very high pace of urbanisation the state is experiencing. Kerala has undergone highest level of urbanisation in its history during 2001-2011 (with a percentage increase of 83.82 over the previous decade). Areal reclassification (the declaration of a hitherto rural area in to urban due to the shift in occupational structure) is the main reason for the high level of urbanisation noted here. Low population growth rate with high urbanisation in Kerala will get its reflection in the life style of the society also. Quality service in all aspects will be a demand for the society. High quality requirements in housing, commercial establishments, public utilities, social infrastructures etc will be the future requirement in Kerala. The spreading of such type of development utilizing the potential rural lands is not justifiable in the context low population growth rate. These point towards the containment of urban area from further spreading. ❑

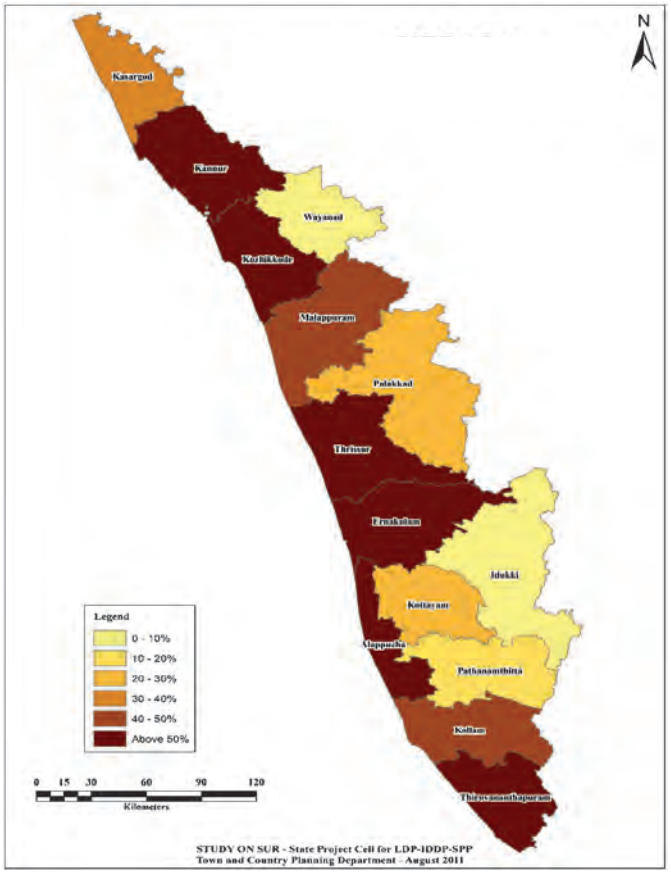


Fig 4.11 District wise urban content– Kerala (2011)

CHAPTER 5
Urban Areas and Urban Agglomerations

The census of India designates an area in to urban, based on demographic aspects. This chapter explores the census urban areas for their number, size, primacy etc to assess the extent of urbanisation that has happened in Kerala.

An urban area can be defined in a number of ways – taking criteria under social, physical or economical aspects but all the towns have the basic characteristics of being spatial concentrations of people and economic activities. As per the census of India, urban area constitutes Statutory Towns, Census Towns and Outgrowths.

All places under a municipal council, municipal corporation, cantonment board or notified town area committee are the Statutory Towns. The criteria for designating an area into urban as per the census is explained in Chapter 4.

An Out Growth should be a viable unit such as a village or part of a village contiguous to a statutory town and possess the urban features in terms of infrastructure and amenities such as pucca roads, electricity, taps, drainage system, education institutions, post offices, medical facilities, banks, etc. Examples of OGs are Railway colonies, University campuses, Port areas, that may come up near a city or statutory town outside its statutory limits but within the revenue limit of a village or villages contiguous to the town or city.

Urban agglomeration is a continuous urban spread constituting a town and its adjoining Urban Outgrowths (OGs) or two or more physical contiguous towns together and any adjoining urban out growths of such towns. One of the constituent towns of an urban agglomeration should necessarily be a statutory town and the total population of all the constituents should not be less than 20,000. With these two basic criteria having been met the following are the possible different situations in which urban agglomerations could be constituted.

i) a city or town with one or more contiguous outgrowths;

ii) two or more adjoining towns with or without their outgrowths;

iii) a city or one or more adjoining towns with their out growths all of which form a continuous spread

The number of Towns/Urban agglomerations in India is continuously increasing (Table 5.1), the number has doubled within 50 years (1951-2011)

Table 5.1 Number of towns in India

Year	Number of Towns/Urban Agglomerations
1961	2363
1971	2590
1981	3378
1991	3768
2001	5161
2011	7935

Source: Census of India, 1961-2011

The number of towns in India has risen from 2363 in 1961 to 7935 in 2011.

During the same period urban population of India increased to 3,77,105,760 from 7,89,366,03 and the level of urbanisation has increased to 31.16% from 17.97%

India now (2011) has 3 metropolitan cities (cities with more than 10 million population) and 53 metros (cities with population more than 1 million). Though the Urban content of 31.10% of India as whole is comparatively low when viewed from world scenario, India has cities of Bombay & Calcutta belonging to the category of worlds most populus cities.

The state scenario shows that, the number of towns (consisting of municipal councils/municipal corporations) in Kerala has increased from 27 to 59 (2 times increase) within a period of 50 years. (Table 5.2). But the increase in total number of urban areas (including the census towns) is from 93 to 536 during the same period (Table 5.3) ie a 6 fold increase.

Table 5.2 Number of towns in Kerala

Year	Number of towns (Municipal Councils/Municipal Corporations)
1961	28
1971	31
1981	45
1991	59
2001	58
2011	59

Source: Census of India, 1961-2011

The category wise break up of the urban areas of Kerala shows that the increase in the number of statutory towns is nominal whereas the increase in number of census towns and out growths are high which throws light in to the kind of urbanisation (spreading rather concentration) happening in the State.

Table 5.3 Category wise break up of urban area in Kerala

	Total	Corporations	Municipality	C.T	N.M.	O.G.	CB	TS
1961	93	1	27		65			
1971	88	3	28		55		1	1
1981	111	3	42		60	5		1
1991	219	3	56	138		20	1	1
2001	194	5	53	101		33	1	1
2011	536	5	54	461		16		

Source: Census of India 1961-2011

The temporal variation of the number of urban areas, extent of urban areas and urban population density are shown in figures 5.1, 5.2 & 5.3 respectively. When the Urban population has increased by 89% during 1961 to 2001, urban area increased by 184%. But the increase in urban population density is only by 15%. The striking feature is the maintenance of a constant value of urban population density which is contrary to the general belief of urbanisation that urban areas attracts more and more population in to it. This again, is an indication of the peculiar pattern of urbanisation occurring in Kerala, viz spreading rather than concentration.

Category wise break up of urban areas in various districts of Kerala as per census 2011 is shown in table 5.4.

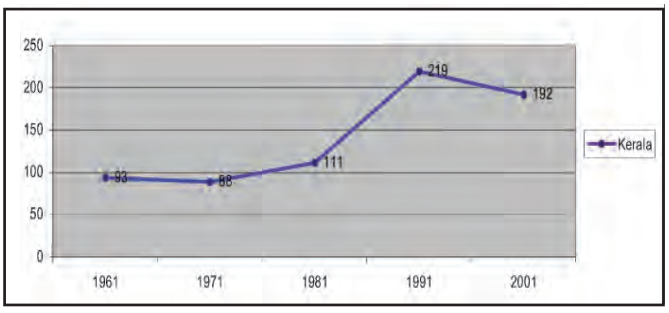


Fig 5.1 Number of urban areas of Kerala (1961-2001)

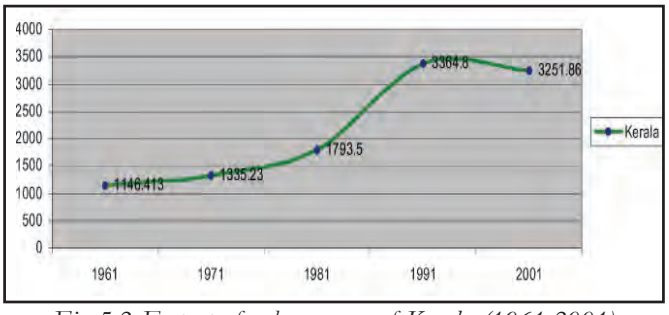


Fig 5.2 Extent of urban areas of Kerala (1961-2001)

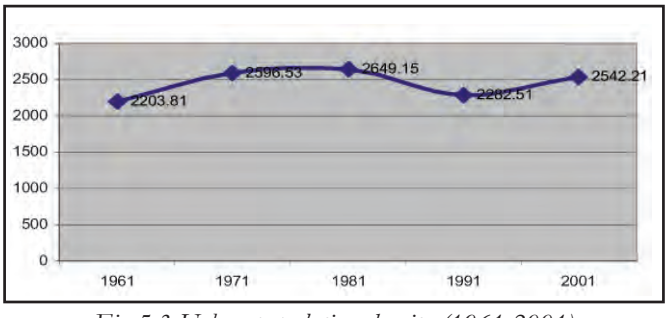


Fig 5.3 Urban population density (1961-2001)

Table 5.4 Urban areas in Kerala- Districtwise details

	Corporation	Municipality	C.T	O.G.	CB	TS
Alappuzha		5	38	4		
Ernakulam	1	8	59	2		
Idukki		1				1
Kannur		6	67		1	
Kasaragod		2	20	2		
Kollam	1	2	27	2		
Kottayam		4	14	0		
Kozhikode	1	2	52	4		
Malappuram		5	38	1		
Palakkad		4	18	0		
Pathanamthitta		3				
Thiruvananthapuram	1	4	30	2		
Thrissur	1	6	122	1		
Wayanad		1				

Source: Census 2011

The presence of large number of census towns in Ernakulam, Thrissur, Kannur and Kozhikkod districts is an indication of the extent of spreading of urban areas within these districts.

Statutory Urban Areas

The Kerala Municipalities Act do not prescribe any criteria for constitution of Municipalities. However Government as per G.O MS 108/67/HLD dt. 2nd March 1967 had laid down the following standards for the constitution of new Municipalities.

(i) The locality should predominantly be urban i.e. at least 3/4th of the adult population of the area should be engaged in pursuits other than agriculture.

(ii) The population of the locality should not be less than 20,000 and the density of population should not be less than 4000 per 2.59 sq.km. except in hilly areas.

(iii) Per capita revenue resources of the locality should not be less than Rs.5.

Kerala is now having 5 Municipal Corporations, 12 number of Ist grade Municipal Councils, 22 number of IInd grade Municipal Councils, 26 number of IIIrd grade Municipal Councils. The detailed list is annexed (Annexe-2).

Urban agglomerations in Kerala

Census of India introduced the concept of urban

agglomerations in 1981. There were 9 urban agglomerations in Kerala during 1981, which increased to 19 as per census 2011. The number of urban agglomerations in Kerala in different census years is shown in the table 5.5 below.

Table 5.5 Urban agglomerations in Kerala

Year	No of UA
1981	9
1991	16
2001	17
2011	19

Source: Census

Fig 5.4 and table 5.6 Shows urban agglomerations of Kerala in 2011

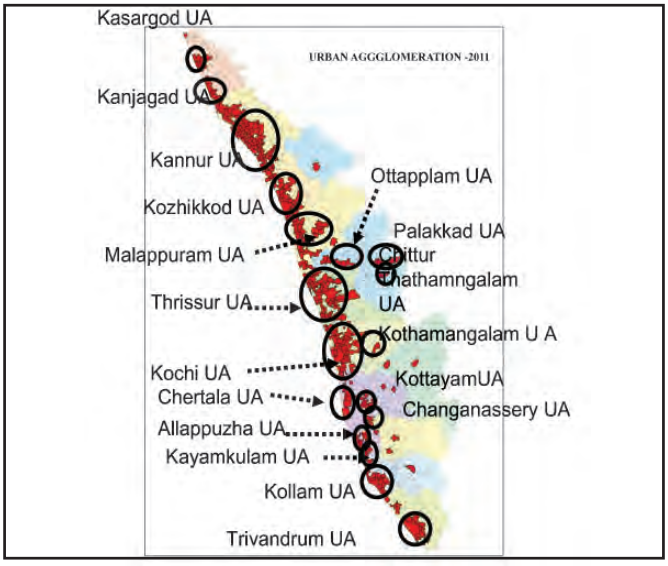


Fig 5.4 Urban Agglomeration 2011

Table 5.6 Urban Agglomerations 2011

District	Urban Agglomerations
Alappuzha	Cherthala, Alappuzha, Kayamkulam
Ernakulam	Kochi, Kothamangalam
Kannur	Kannur
Kasaragod	Kasaragod, Kanhangad
Kollam	Kollam
Kottayam	Kottayam, Changanassery
Kozhikode	Kozhikode
Malappuram	Malappuram
Palakkad	Palakkad, Chittur-Thathamangalam, Ottappalam
Thiruvananthapuram	Thiruvananthapuram
Thrissur	Thrissur

Source: Census 2011

The constituent local bodies of each of these urban agglomeration is shown in Annexe 4.

The total population in each of the urban agglomerations is shown in table 5.7

Table 5.7 Population in Urban Agglomeration

	Name of the UA	Population
1	Allappuzha	241072
2	Cherthala	455,408
3	Kochi	2117990
4	Kannur	1,642,892
5	Kanhangad	229706
6	Kasargod	192,761
7	Kollam	1110005
8	Kottayam	357,533
9	Kozhikkodu	2030519
10	Malappuram	1698645
11	Palakkad	293,566
12	Chittur-Thathamangalam	80563
13	Thiruvananthapuram	1,687,406
14	Thrissur	1854783
15	Kayamkulam	427,091
16	Ottappalam	238238
17	Changanassery	127,971
18	Chalakudy	114901
19	Kothamangalam	114,574

Source: Census of India 2011

As per 2001 census, Cochin urban agglomeration was the only one million plus agglomeration in Kerala but now the state has 7 million plus urban agglomerations (as per 2011 census). There are 18 urban agglomerations with population one million plus in Kerala. It is to be noted that neighbouring states of Karnataka and Tamilnad have 1 and 4 number of million plus urban agglomerations respectively.

All the Urban agglomerations are assigned rank based on population (table 5.8).

Table 5.8 Ranking of Urban Agglomeration of Kerala based on population (2011)

Rank	Population in lakhs	Number of UAs in each category	Name of Urban Areas
I	Above 20	2	Cochi UA, Kozhikode UA
II	15 - 20	4	Tvm UA, Thrissur UA, Malappuram UA, Kannur UA
III	10 - 15	1	Kollam UA
IV	5 - 10	0	0
V	5 - 1	11	Kanhangad UA, Palakkad, Chertala UA, Kottayam UA, Kayamkulam UA, Alappuzha UA, Ottappalam, Kasaragod UA, Changanassery UA, Kothamangalam UA, Chalakudy UA
VI	Below 1	1	Chittoor, Thathamangalam UA

Accordingly there are two agglomerations, Kochin Urban agglomeration and Kozhikode Urban Agglomeration with population more than 20 lakhs. Trivandrum, Thrissur, Malappuram and Kannur Urban Agglomeration comes in the population range of 15-20 lakhs. Kollam is the only one Urban Agglomeration belonging to population range of 10-15 lakhs. There is no Urban Agglomerations in the population range of 5-10 lakhs. There are 12 Urban Agglomerations with population less than 5 lakhs.

Degree of urban primacy

Urban primacy indicates the largest city in a region, disproportionately larger than any others in the urban hierarchy. Such a city is called a **primate city**. Urban primacy indicates the share of the urban population in an urban area, out of the total urban population in the region and it indicates the dominance of the urban area over others. Urban primacy, i.e., the concentration of the urban population in only 1 or 2 centers, is characteristic of many developing countries and is viewed by many social scientists as detrimental to the balanced development of the country as a whole. Political power is frequently concentrated in these large urban complexes. Consequently, the urban centers receive a larger and disproportionate share of the resources of the nation. In addition, the primate cities are overburdened and unable to meet the increasing demand for housing and others services.

Primacy of an urban area can be assessed based on the primacy ratio. Its value ranges between 0 to infinity, If the Primacy of an urban area is above 1, it indicates more than 50% the total urban population in the region is concentrated in that particular urban area and if it is 0, the area selected is no longer an urban(zero urban population there).

Primacy ratio of an urban area = (population of the urban area)/(total urban population of the region –population of the urban area)

Table 5.9 Primacy ratio of urban agglomerations

Urban Agglomorations	Primacy ratio
Kochi UA	0.165
Kozhikode UA	0.157
Thrissur UA	0.142
Malappuram UA	0.128
Thiruvananthapuram UA	0.127
Kannur UA	0.124
Kollam UA	0.080
Cherthala UA	0.031
Kayamkulam UA	0.029
Kottayam UA	0.025
Palakkad UA	0.020
Alappuzha UA	0.016
Ottappalam UA	0.016
Kanhangad UA	0.016
Kasaragod UA	0.013
Changanassery UA	0.009
Chalakudy UA	0.008
Kothamangalam UA	0.008

The primacy ratio of urban agglomerations of Kerala in 2011 is shown in the table 5.9 and Fig 5.5 The six urban agglomerations, Kochi, Kozhikkode,

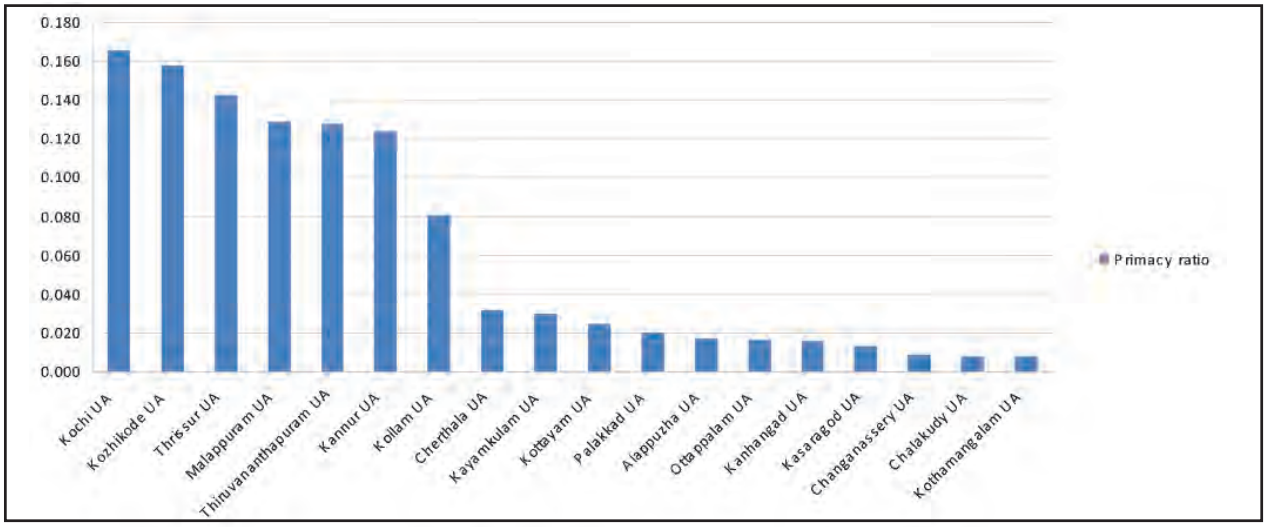


Fig 5.5 Primacy of UAs in Kerala

Thrissur, Malappuram, Thiruvananthapuram and Kannur shows comparatively higher primacy among the urban agglomerations in the State.

The real extent of primacy that the urban agglomerations in Kerala possess will be revealed only by comparing the primacy of urban agglomerations in other states. Bangalore is having a primacy ratio greater than one (1.08) in Karnataka state (indicating more than 50% of the urban population of Karnataka state is concentrated in Bangalore urban agglomeration), and Chennai has a primacy ratio equal to 0.7 in TamilNadu State. This indicates the extent of concentration of urban population in these two urban agglomerations.

It can be concluded that on comparison with the neighboring States of Karnataka and Tamilnadu, Kerala does not have a primate city like Bangalore or Chennai (Fig 5.6)

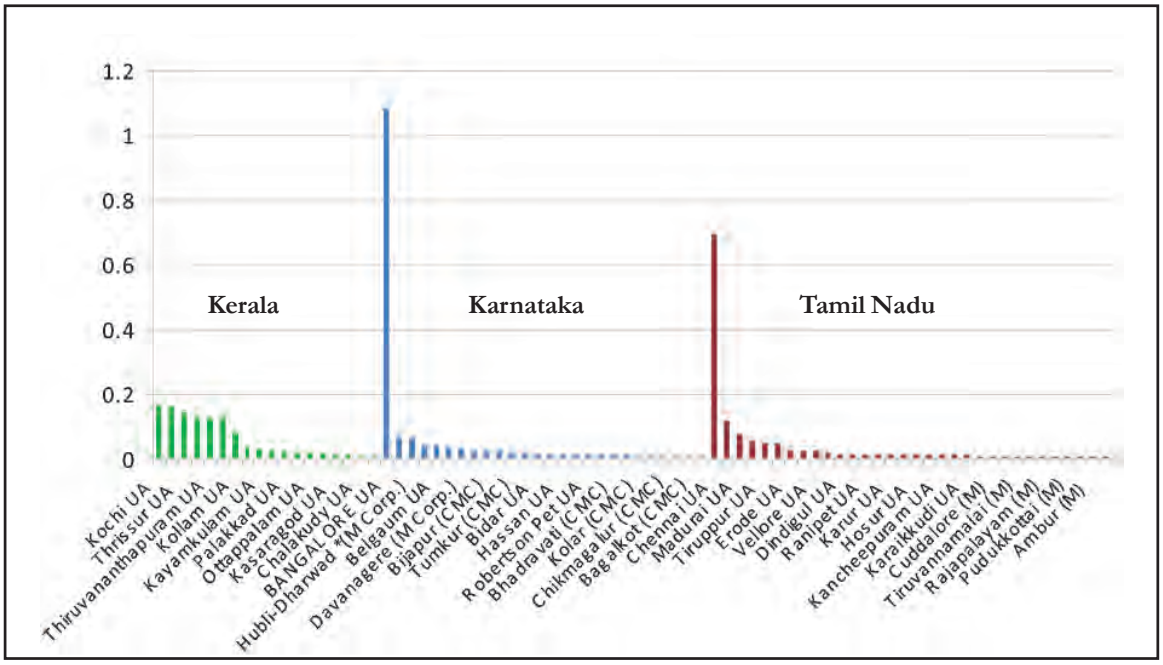


Fig 5.6 Primacy ratio for Kerala, Karnataka and Tamilnadu

Though there is no primacy for the urban settlements in Kerala, the ratio of number of UAs/10 lakh ppn (Table 5.10) is the highest in Kerala indicating UAs in Kerala are more distributed compared to Tamilnadu & Karnataka. It can be concluded that the urban areas in Kerala are comparatively smaller but fairly well distributed within the State.

Table 5.10 Number of UA's per 10 lakh population

District	Total population	No of UAs above 1 lakh ppn	No of UAs/10 lakh ppn
Kerala	33387677	18	0.54
Tamilnadu	72138958	32	0.44
Karnataka	61130704	26	0.43

CONCLUSION:

Urbanisation in the state of Kerala shows marked peculiarities. Generally, increase in urban population growth rate is the result of over concentration in the existing cities especially metropolitan cities. This is true in the case of urbanisation in the other states of India. In Kerala, the main reason for urban population growth is not by the concentration of population in to the existing urban areas, but the increase in the number of urban areas and also urbanisation of the peripheral areas of the existing major urban centers. Kerala is experiencing urban spread rather than concentration. Though Kerala is having high urban content in total, it does not have a single primate city but have 6 nos. of medium sized urban agglomerations which are found to be fairly well distributed when analyzed in the context of population distribution. ❑

CHAPTER 6

Urban morphology and pace of urbanisation

The concentration of population in to urban areas of different classes will give an idea about the kind of urban pattern that is evolving. The study on urban morphology is all about this. Pace of urbanisation gives an indication on how fast urban population concentration is taking place in an urban area. This chapter probes in to the urban morphology of Kerala and its comparison with the general scenario in India.

Urban Morphology

Urban morphology is the study of the form of urban settlement, process of their formation & transformation. Census of India classifies the urban places into following 6 categories depending upon the population.

Table 6.1 Classification of urban areas based on population

No	Class	Population
1	Class I	1,00,000 or more
2	Class II	50,000 to 99,999
3	Class III	20,000 to 49,999
4	Class IV	10,000 to 19,999
5	Class V	5,000 to 9,999
6	Class VI	Below 5,000

Source:: Census of India

The census 2001 further classifies the class I towns into 7 categories based on population size viz, M7 - 50 lakhs and above, M6 - 20 to 49.99 lakhs, M5 - 10 to 19.99 lakhs, M4 - 5 to 9.99 lakhs, M3 - 3 to 4.99 lakhs, M2 - 2 to 2.99 lakhs, M1 - 1 to 1.99 lakhs. The pattern of urbanisation in India is characterized by continuous concentration of population and activities in large cities. This is manifested in a high percentage of urban population being concentrated in class I cities. According to 2001 Census, more than two third (69%) of the countries' urban population lived in Class-I cities with more than 100, 000 population. Over the years there has been continuous concentration of population in class I towns (24% during 1901 to 69% during 2001). It may be observed that in 1901 there were only 24 class I cities, its number has gone up to 393 in 2001 which explains largely the increase in the share of population in this size category over the years. The graduation of number of urban centers from lower population size categories to class I cities has resulted top heavy structure of urban population in India. (Source Urbanisation in India, Prasanati Datta).

The Fig 6.1 shows the concentration of population in different classes of towns in India from 1961 onwards.

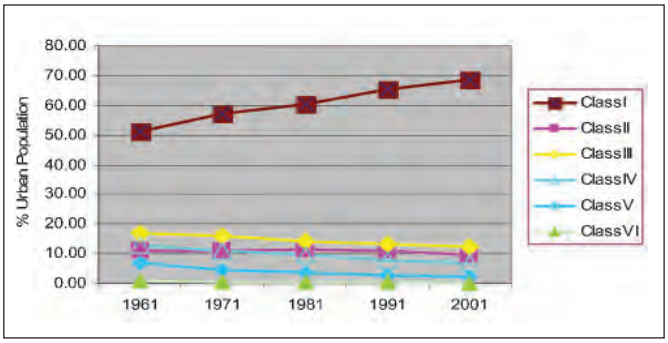


Fig 6.1 Percentage of Urban population by size class of towns India

The graph indicates more and more concentration of population in Class-I towns in India. The concept of urban agglomerations has been introduced in India in 1981 only. The graph in fig 6.1 shows that even before 1981, there was concentration of population in Class-I towns of India, avoiding formation of urban agglomeration as the reason for the high concentration of population in the Class-I urban areas.

In the case of Kerala also, it is seen that majority of the urban population (more than 68%) is concentrated in the class 1 towns. (fig 6.2). But contrary to what have seen in the case of India, the population concentration in Class I Towns of Kerala is significantly increasing after 1981 when the concept of urban agglomerations has been introduced by the Census of India, indicating that in the case of Kerala the formulation of urban agglomeration is the reason for high concentration of population in the category of class I towns.

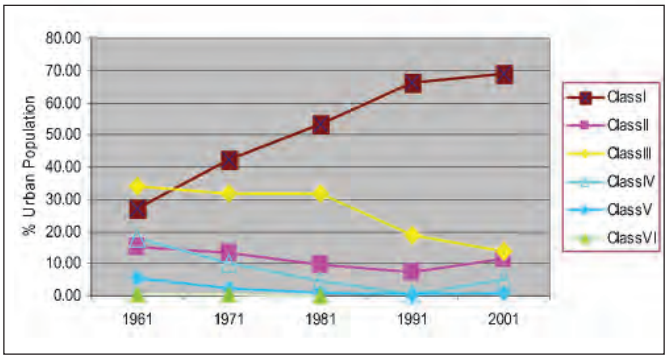


Fig 6.2 Percentage of Urban population by size class of towns Kerala

The total population size in Class I towns is much higher than total population in Class III since town 1981. This is because Class III towns are becoming part of urban agglomerations of Class I towns (evident from the decrease in number of class III towns in Fig 6.3)

Fig 6.3 shows the number of towns by size class in Kerala. Number of Class III Towns is always higher than number of other classes of towns. But number of Class III towns decreases since 1981. This is due to amalgamation of class III towns with higher class

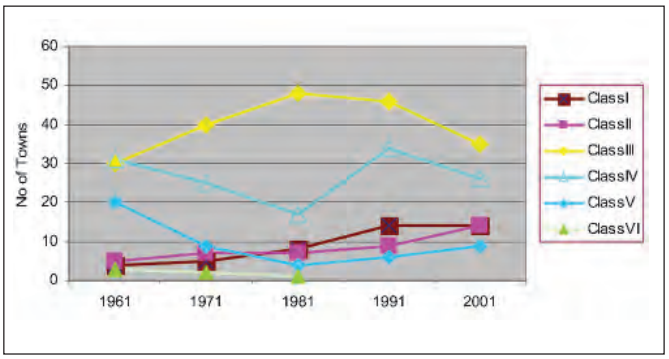


Fig 6.3 Number of Urban areas by size class- Kerala

towns to become large UAs(the concept UA begins in 1981).

Categorization of urban areas of 2001 in to different size classes taking their statutory status (Municipal council, Municipal corporation, Cantonment board, Outgrowth, Census Town, Town ship) in to account is shown in table 6.2.

Table 6.2 Categorization of Statutory Urban areas of 2001 in to size class of Kerala

Kerala	Class I	Class II	Class III	Class IV	Class V	Class VI
Mucicipal Corporation	5	0	0	0	0	0
Municipal Council	2	21	30	0	0	0
Outgrowth	0	0	24	6	1	2
Census Town	0	3	45	36	15	0
Town Ship	0	0	0	1	0	0
Non-Municipality	0	0	0	0	0	0
CB	0	0	0	0	0	1

Source: Census 2001

All the Municipal Corporations fall under Class I Towns. But Municipal Councils mostly fall under either in Class II or Class III towns (except 2 Municipal Councils which fall under Class I Towns). Majority of the urban areas fall under the Class III Towns.

The temporal variation of the number of towns under different size classes when categorized taking the status of towns in to account is shown in fig 6.4.

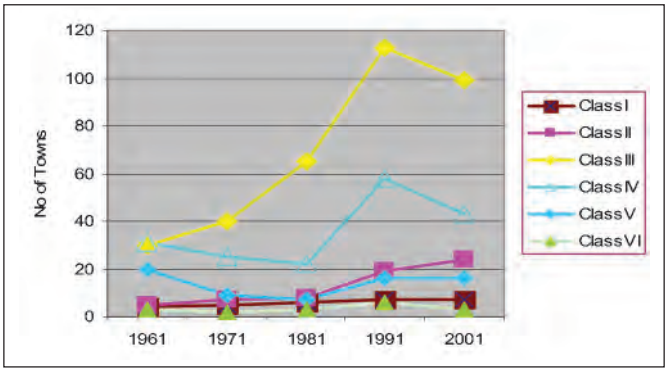


Fig 6.4 Number of statutory urban areas & others by size class- Kerala

The figure shows that when the number of class I towns remains the same, class II towns shows a slight increase. Whereas the number of class III towns shows significant increase.

The distribution of urban population among different size classes of towns is shown in fig 6.5

The spatial distribution of class III towns against that of Class I and II towns shows that class III towns are located adjacent to the class I and II towns indicating spreading urban areas rather than concentration (Fig 6.6).

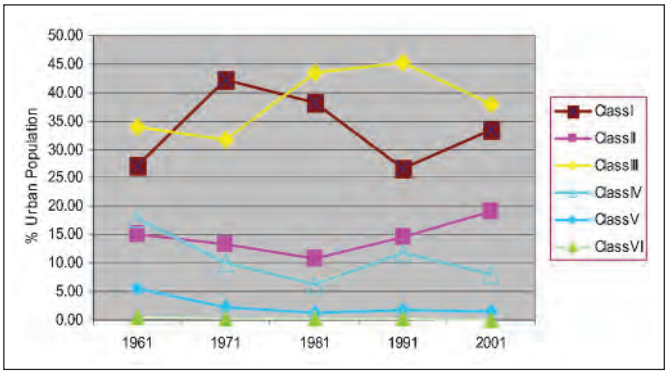


Fig 6.5 Distribution of urban population among different size classes of towns (statutory urban and others)

Though the number of class I towns remains the same, the share of population in these towns decreases. And the change in urban population in Class I and III towns are inversely proportional to each other, indicating possible population out flow from Class I towns in to the adjacent Class III towns.

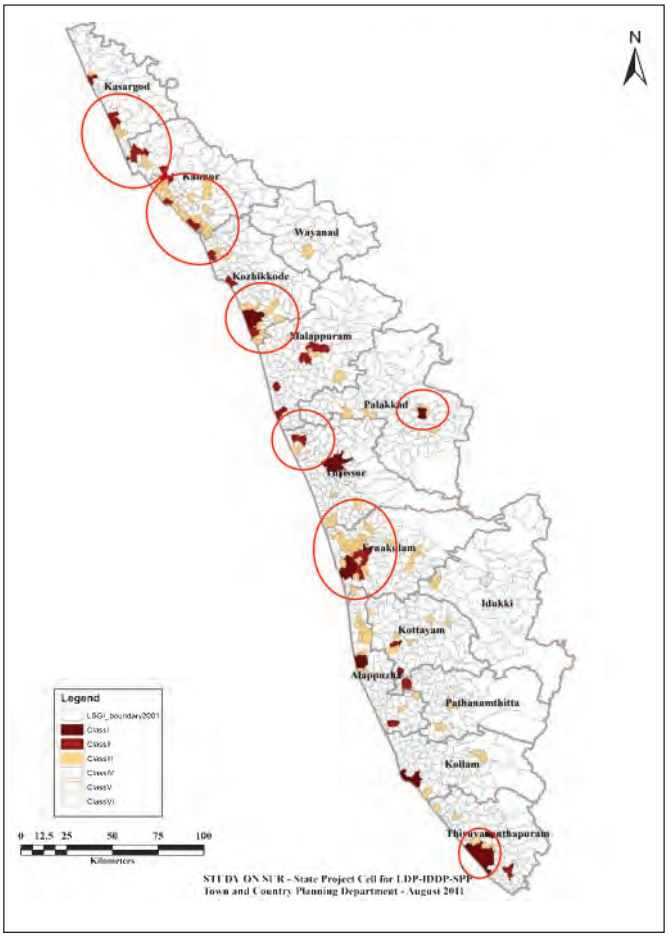


Fig 6.6 Location of the Class III towns with respect to class I and II towns

Million -Plus cities

Number of million plus cities in India (table 6.3) have increased from 5 in 1951 to 35 in 2001 and to 53 in 2011. About 42% of the total urban population lives in these million plus UA/cities as per 2011 census.

Table 6.3 Urban Agglomerations/Cities having population 1 million and above

No	State	Name of Urban Agglomeration/City	UA/City	Population
1	JAMMU & KASHMIR	Srinagar UA	UA	1273312
2	PUNJAB	Ludhiana (M Corp.)	City	1613878
3	PUNJAB	Amritsar UA	UA	1183705
4	CHANDIGARH	Chandigarh UA	UA	1025682
5	HARYANA	Faridabad (M Corp.)	City	1404653
6	NCT OF DELHI	Delhi UA	UA	16314838
7	RAJASTHAN	Jaipur (M Corp.)	City	3073350
8	RAJASTHAN	Jodhpur UA	UA	1137815
9	RAJASTHAN	Kota (M Corp.)	City	1001365
10	UTTAR PRADESH	Kanpur UA	UA	2920067
11	UTTAR PRADESH	Lucknow UA	UA	2901474
12	UTTAR PRADESH	Ghaziabad UA	UA	2358525
13	UTTAR PRADESH	Agra UA	UA	1746467
14	UTTAR PRADESH	Varanasi UA	UA	1435113
15	UTTAR PRADESH	Meerut UA	UA	1424908
16	UTTAR PRADESH	Allahabad UA	UA	1216719
17	BIHAR	Patna UA	UA	2046652
18	WEST BENGAL	Kolkata UA	UA	14112536
19	WEST BENGAL	Asansol UA	UA	1243008
20	JHARKHAND	Jamshedpur UA	UA	1337131
21	JHARKHAND	Dhanbad UA	UA	1195298
22	JHARKHAND	Ranchi UA	UA	1126741
23	CHHATTISGARH	Raipur UA	UA	1122555
24	CHHATTISGARH	Durg-Bhilainagar UA	UA	1064077
25	MADHYA PRADESH	Indore UA	UA	2167447
26	MADHYA PRADESH	Bhopal UA	UA	1883381
27	MADHYA PRADESH	Jabalpur UA	UA	1267564
28	MADHYA PRADESH	Gwalior UA	UA	1101981
29	GUJARAT	Ahmadabad UA	UA	6352254
30	GUJARAT	Surat UA	UA	4585367
31	GUJARAT	Vadodara UA	UA	1817191
32	GUJARAT	Rajkot UA	UA	1390933
33	MAHARASHTRA	Greater Mumbai UA	UA	18414288
34	MAHARASHTRA	Pune UA	UA	5049968
35	MAHARASHTRA	Nagpur UA	UA	2497777
36	MAHARASHTRA	Nashik UA	UA	1562769
37	MAHARASHTRA	Vasai Virar City (M Corp.)	City	1221233
38	MAHARASHTRA	Aurangabad UA	UA	1189376
39	ANDHRA PRADESH	Hyderabad UA	UA	7749334
40	ANDHRA PRADESH	GVMC (MC)	City	1730320
41	ANDHRA PRADESH	Vijayawada UA	UA	1491202
42	KARNATAKA	BANGALORE UA	UA	8499399
43	KERALA	Kochi UA	UA	2117990
44	KERALA	Kozhikode UA	UA	2030519
45	KERALA	Thrissur UA	UA	1854783
46	KERALA	Malappuram UA	UA	1698645
47	KERALA	Thiruvananthapuram UA	UA	1687406
48	KERALA	Kannur UA	UA	1642892
49	KERALA	Kollam UA	UA	1110005
50	TAMIL NADU	Chennai UA	UA	8696010
51	TAMIL NADU	Coimbatore UA	UA	2151466
52	TAMIL NADU	Madurai UA	UA	1462420
53	TAMIL NADU	Tiruchirappalli UA	UA	1021717

Source: Census 2011

Kochi Urban Agglomeration is the first million plus urban agglomeration in Kerala. The population of Kochi Urban Agglomeration exceeded 10 lakhs in 1991 census it self and remained as the only one million plus urban agglomeration during 2001 also. But data in census 2011 shows that Kerala is having 7 million plus urban agglomerations (table 6.4). About 76 % of the total urban population of Kerala lives in these million plus UAs as per 2011 census.

When compared to the neighboring states, Kerala is having the highest number of million plus urban agglomerations (table 6.4), but 5 out of 7 Urban Agglomerations belongs to the M5 category and there is no Urban Agglomerations in the M7 category.

Table 6.4 Number of Million plus urban agglomerations–Comparison with neighboring States

State	Million Plus UAs				Class I UAs(excluding Million Plus UAs)				
	M7 (50Lakh & above)	M6 (20-49.99 Lakh)	M5 (10-19.99 Lakh)	Total	M4 (5-9.99 Lakh)	M3 (3-4.99 Lakh)	M2 (2-2.99 Lakh)	M1 (1-1.99 Lakh)	Total
Kerala	0	2	5	7	0	3	4	4	11
Tamilnadu	1	1	2	4	3	3	9	13	28
Karnataka	1	0	0	1	5	5	3	12	25

Source: Census of India 2011

Pace of urbanisation

Pace of urbanisation refers to the speed of urbanisation and is measured as change registered in the level or degree of urbanisation over the years. Urbanisation in India has been relatively slow compared to many developing countries. India has added 298169157 number of urban population within a period of fifty years (1961-2011) whereas the total population added during this period is 770958651. Thus the average pace of urbanisation of India is 7.7% during this period. The average pace of urbanisation of Kerala during the same period is 16.2%.Kerala has added urban population at an average pace more than double that of the Nation. (fig 6.7)

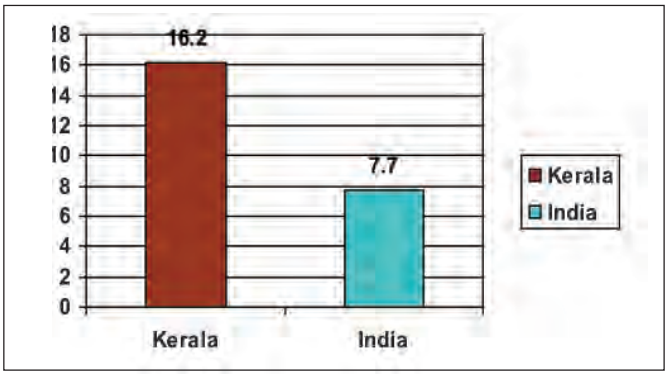


Fig 6.7 Average pace of urbanisation in 50 years (1961-2011)

District wise increase in total population & urban population in 50 years (1961-2011) and the average pace of urbanisation so calculated is shown in table 6.5.

Table 6.5 Average pace of urbanisation (District wise) in 50 years (1961-2011)

District	Increase in urban ppn from 1961-2011	Increase in population 1961-2011	% of urban population added to the total added population in 50 yrs	Pace of urbanisation
Alappuzha	870838	515272	169.01	33.8
Ernakulam	1837254	1600776	114.77	23
Idukki	52025	527218	9.87	2
Kannur	1444243	1347689	107.16	21.4
Kasaragod	416252	808454	51.49	10.3
Kollam	1042104	1347411	77.34	15.5
Kottayam	400142	665401	60.14	12
Kozhikode	1695257	1683960	100.67	20.1
Malappuram	1745518	2723578	64.09	12.8
Palakkad	544624	1441392	37.78	7.6
Pathanamthitta	97219	332020	29.28	5.9
Thiruvananthapuram	1313051	1562753	84.02	16.8
Thrissur	1915594	1422056	134.71	26.9
Wayanad	31577	541303	5.83	1.2

Source: Census 2011

Districts of Ernakulam, Kozhikode, Kannur, Thrissur, Thiruvananthapuram and Alappuzha shows the maximum pace in Urbanisation. Districts of Idukki, Wayanad and Pathanamthitta show the lowest pace in urbanisation. The spatial distribution shows that the Central & Northern Kerala shows the maximum pace in Urbanisation.

The higher pace in urbanisation means addition of more urban population in a specific time period, it does not indicate the extent of concentration of the urban population in the space. Change in density of the population over the time period, in the urban area gives the extent of concentration of the urban population during the period.

Table 6.6 shows the change in population density with pace of urbanisation (1961-2001). The study shows that Kannur district is having maximum pace in urbanisation, but the change in urban population density is negative indicating spreading of urban area rather than concentration.

Thiruvananthapuram district, shows comparatively lower pace in Urbanisation, but change in density is the maximum, indicating comparatively concentrated form of urbanisation in the district.

Table 6.6 District wise pace of urbanisation and change in urban population density

District	Increase in urban ppn from 1961-2001	Increase in population 1961-2001	% of added urban population to the added ppn in 40 yrs	Pace of Urbanisation (in 40 years)	Change in Urban ppn density (2001-1961)
Kannur	1014249	1231008	82.39	20.6	-353
Ernakulam	1081775	1426714	75.82	19	523
Alappuzha	345268	502489	68.71	17.2	6
Thrissur	665237	1285961	51.73	12.9	12
Kozhikode	721636	1473548	48.97	12.2	94
Thiruvananthapuram	625458	1489825	41.98	10.5	1511
Kollam	321742	1302916	24.69	6.2	401
Pathanamthitta	89556	370499	24.17	6	160
Kottayam	134339	639663	21	5.3	771
Kasaragod	144776	691932	20.92	5.2	955
Palakkad	224006	1247982	17.95	4.5	1094
Malappuram	285205	2238093	12.74	3.2	115
Idukki	57593	548986	10.49	2.6	-56
Wayanad	29612	505364	5.86	1.5	55

Source: Census data

CONCLUSION:

The Class I and Class II towns of Kerala show a decline in population growth whereas the lower order towns (Class III towns) located mainly in fringe area of Class I and Class II towns are growing. Majority of the urban population in Kerala is concentrated in class I towns. The higher order towns of Kerala grow not by attracting more people, but by amalgamating surrounding fringe areas showing the spreading nature in urbanisation. A shift in the pace of urbanisation is noted between south and north of Kerala . During 60's and 70's the pace of urbanisation was high in southern parts of Kerala. But now the central and northern part of the State have high pace of urbanisation. Malappuram shows the highest increase in urban content within a decade (2001-2010), followed by Kozhikkode and Kannur districts. ❑

CHAPTER 7
Population Density

The study on the urban population density in general and its temporal variation in particular gives an idea on the pattern of urbanisation, whether it is concentrated or spreaded. This chapter explores the urban population density variation of the state in general and that of urban agglomerations in particular. The density variations in the core and fringe of urban agglomerations are also studied.

Population density

The analysis of change in population density over a time often gives an insight in to the ability of an area to attract people in to it. The common reasons for increase of population in an area are either natural increase in population or net migration in to that area. The natural increase in population is attributed to the demographic momentum while the in-migration in to an area is caused due to the economic momentum created by the area.

Analysis of census data (Fig 7.1) shows that urban areas of Kerala have more or less the same population density (at around 2500 persons per sqkm) over a period of time (Population density 1961 to 2001). Significant population concentration in to the urban areas is not occurring. It can be seen that the urban population density of the state is comparatively less when analyzed in the context of high average overall population density of Kerala, second only to West Bengal. The rural population density of Kerala is also high when compared to the neighbouring states (Table 7.1). The rural population density of Kerala is 662 Ppn/Sq.Km. When that of Tamil Nadu & Karnataka are 273 Ppn/Sq.Km and 186 Ppn/Sq.Km respectively.

Table 7.1 Rural Population Density

State	Rural Population Density (Ppn/Sq.Km)
Kerala	662
Tamil Nadu	273
Karnataka	186

Source: Census 2001

The temporal variation of urban population density and total population density shows that during

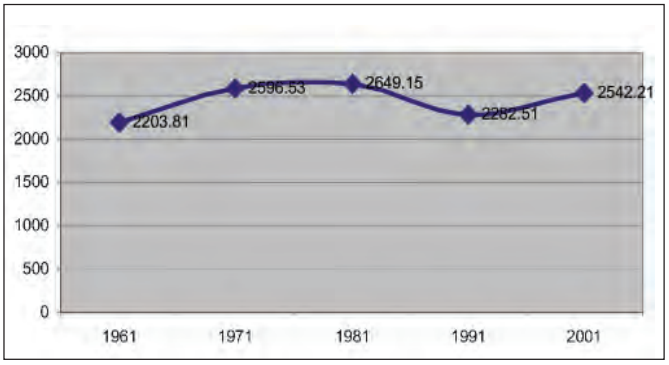


Fig 7.1 Temporal variation of population density (Ppn/Sqkm) (urban), Kerala

a span of 40 yrs, urban population density of Kerala increased by 15.4% whereas the general population density increased by 88.7%. (Table 7.2)

Table 7.2 Urban population density and general population density of Kerala

Year	Urban ppn density (persons/sq.km)	Total ppn density (persons/Sq.km)
1961	2203.81	434.51
1971	2596.53	549.3
1981	2649.15	654.96
1991	2282.51	748.75
2001	2542.21	819.32

Source: Census data

The analysis of the components of urban growth will shed light in to the reasons for the comparatively low urban population density prevailing in Kerala. Urban growth can be attributed to three components (R.B. Bhagat, 1992, Dept. of Geography, Maharshi Dayanand University, Rohtak) viz. Natural increase, in migration and aerial reclassification (i.e., addition of new towns minus declassification of existing towns). Natural increase of population in the state is very low (Ref: chapter-2 of the report), the in migration is also comparatively less.

This indicates that,

- Concentration of population in to urban areas is not taking place.
- The high value of urban population growth with practically zero increase in population density shows that urban area grows because of urban spread (more and more area becomes urban).
- Dilution in the function of urban areas simultaneously diluting the rural character of rural areas.

It can be concluded that the urban areas of Kerala often fail to create economic momentum needed to attract more people in to it. It is a reason for the kind of urban spread experiencing in Kerala. The urban spread demands more investment in infrastructure development. This trend may also increase in transportation cost and energy consumption.

Density of urban agglomerations

As per 2001 census data, the population density of urban agglomerations in Kerala is ranging between 1500 to 6000 persons per sq.km (table 7.3).

Table 7.3 Ranking of urban agglomeration based on population density

UAs	Ppn density (2001) (persons/Sq.km)	Rank
Kollam	6095.11	1
Trivandrum	5006.11	2
Palakkad	4384.03	3
Kozhikode	3746.37	4
Alappuzha	3568.23	5
Kannur	3242.69	6
Thrissur	3180.37	7
Kochi	2995.7	8
Kasaragod	2756.46	9
Kottayam	2694.48	10
Vadakara	2450.3	11
Kodungallur	2447.96	12
Guruvayoor	2424.92	13
Chittoor	1981.77	14
Cherthala	1545.22	15
Kanhangad	1538.62	16
Malappuram	1531.08	17

Million plus urban agglomerations elsewhere in India have a higher value of population density in the range 12000-24000 persons per sqkm. (table 7.4) The low value of population density of urban agglomerations in Kerala, shows the absence of concentration of population into these urban agglomerations and their scope for further densification.

Table 7.4 Population density

UAs (Million plus)	Population density (2001)
Chennai	24676
Bangalore	11574
Hyderabad	16988
Kolkata	12886

Population density variation of UAs in India shows an increasing tendency (fig 7.2) whereas it is decreasing in the case of urban agglomerations of Kerala. This is an indication of the existing low growth of urban centers of Kerala.

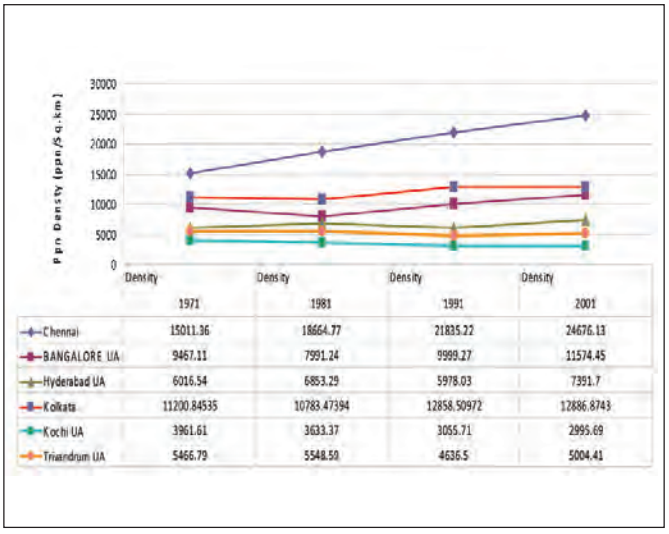


Fig 7.2 Population density of UAs (Million Plus)

Population density variation between core and fringe of urban agglomeration

Urban agglomeration is a continuous urban spread constituting a town and its adjoining urban outgrowths (OGs). The town in general will be either a Municipal Council or Municipal Corporation can be termed as core of the urban agglomeration whereas the outgrowth can be termed as the fringe. The population density variation between the urban agglomeration as a whole and its core is shown in fig7.3.

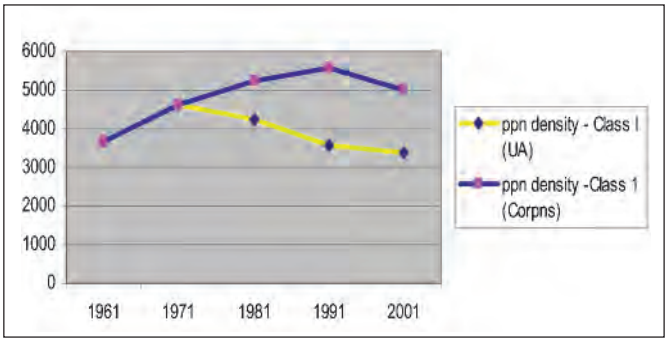


Fig 7.3 Population density variation between the core and fringe of urban agglomerations

It shows that in the case of Kerala, density of population of the Urban agglomeration as a whole is decreasing whereas that of the core shows slight increase. It is because of the addition of more and more out growths with less population density to the core to form the urban agglomerations. As a result the population density of the urban agglomerations in total is decreasing.

The variation in the area of core and the urban agglomeration as a whole is shown in fig 7.4. When the area of the core remains almost the same, the total area of agglomerations is increasing.

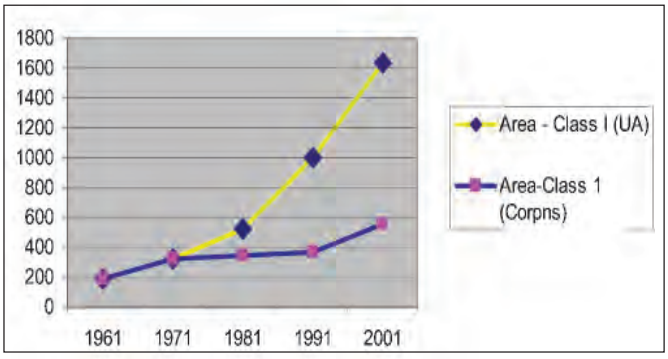


Fig 7.4 Temporal variation in the areas of Urban Agglomerations and Core

On comparing figures 7.3 and 7.4, it can be seen that the extent of urban agglomeration is increasing but population density in the urban agglomeration is decreasing. It shows that the growth of urban population in Kerala is due to urban spread caused by amalgamation of outgrowths in to the core, rather than concentration of population.

Analysis of the population density in the core and fringe of the urban agglomerations shows that

the population density of the core is always higher than that of the fringe, but the rate of increase of the density of the fringe is higher than that of the core, resulting in lower density urban agglomerations altogether. Population density variation of the core, out growth and urban agglomeration as a whole of some of selected UAs is given in Fig 7.5. The slope of the graph indicates the rate of growth of the population density. Comparison of the growth between the core & fringe shows that fringe is growing at a faster rate than its core.

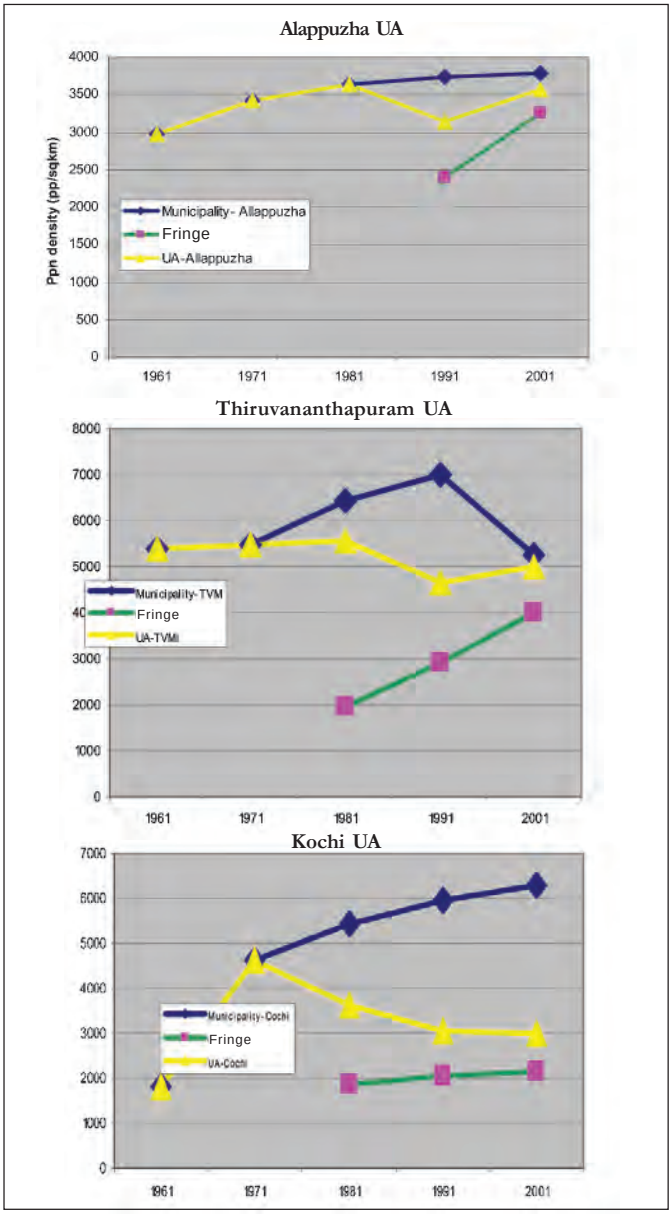


Fig 7.5 Population density of the core, fringe and Urban Agglomerations

The temporal variation of population density within the core of the urban agglomerations of Kerala (fig 7.6) shows that population density within the Core (3000- 6000 ppn/sq.Km) is always higher than that in out growths (2000-3000). Whenever the population density within the core reaches a value in between 6000- 7500 ppns/sqkm, there is a tendency of decreasing the population density (by the addition of more outgrowths with less population density into the core and thus to achieve a low density altogether). The population density range between 6000-7500 ppn/sqkm seems to be a maximum density that can have in a place present scenario of Kerala. The rate of increase of population density in the out growths is very high compared to the core.

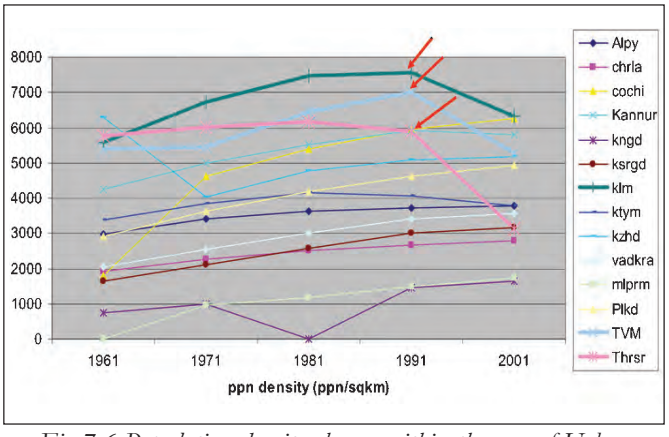


Fig 7.6 Population density change within the core of Urban Agglomerations

A study on the density variation between the core and fringe of urban agglomerations in Kerala is shown in the table 7.5. The fringe is considered to the in the pre transitional stage if density is less than the mean density of fringes taken together, transitional stage if density is between mean density and sum of mean density & Standard deviation, post transitional stage if the density is above the sum of mean density and Standard deviation. (The concept is taken from the study: "Recognizing Stages of transformation in the process of peri urban growth" by Maitrey Maiti, Research Scholar IIT, Khargpur. Technical Paper 56th National Town & Country Planners Congress).

Table 7.5 Population, Area and Density of Urban Agglomeration (2001) in Kerala

	UA			Fringe			Stage of fringe
UA	Population	Area	Density	Area	Population	Density	
Cochin	1355972	452.64	2995.7	357.76	760397	2125.44	Stage 1
Trivandrum	889635	177.71	5006.11	36.03	144652	4014.77	Stage 3
Koshikkod	880247	234.96	3746.37	150.67	443691	2944.79	Stabe 2
Kannur	498207	153.64	3242.69	142.61	434410	3046.14	Stabe 2
Kollam	380091	62.36	6095.11	5.08	18531	3647.83	Stabe 2
Thrissur	330122	103.8	3180.37	2.38	12596	5292.44	Stabe 3
Allappuzha	282675	79.22	3568.23	32.51	105646	3249.65	Stage 2
Palakkad	197369	45.02	4384.03	18.42	66602	3615.74	Stage 2
Kottayam	172878	64.16	2694.48	48.17	112150	2328.21	Stage 1
Malappuram	170409	111.3	1531.08	77.7	111918	1440.39	Stage 2
Chertala	141558	91.61	1545.22	75.42	96453	1278.88	Stage 2
Guruvayur	138681	57.19	2424.92	49.71	117495	2363.61	Stage 1
Kanhangad	129367	84.08	1538.62	44.54	63864	1433.86	Stage 2
Vadakara	124083	50.64	2450.3	29.32	48236	1645.16	Stage 2
Kodungallur	94883	38.76	2447.96	21.46	61344	2858.53	Stage 2
Kasargod	75968	27.56	2756.46	10.87	23334	2146.64	Stage 1
Chittoor	67935	34.28	1981.77	19.57	36049	1842.05	Stage 1

Source: Estimated based on Census 2001 data.

Stage 1 - Pre-transitional Stage Stage 2 - Transitional Stage Stage 3 - Post-transitional Stage

The analysis shows that the fringe area of most of the urban settlements of Kerala is in the transitional stage and hence there is scope for further densification. The study of density in the urban agglomerations shows that the density of the core remains the same or even decreasing, but in the fringes the population density is increasing at a much higher pace than the core. This indicates that Urban areas of Kerala is going through a phase of sub urbanisation where fastest growth is seen in the fringe.

Population density variation within the core of urban agglomeration

Core of Urban agglomerations can be further divided in to older core and younger core, younger core being the area attached to the older core recently. The change in density between the older core and younger core shows that the population within the older core is decreasing whereas it is increasing in the younger core. The table 7.6 shows the density

Table 7.6 Population density variation within the core of urban agglomerations

	Population denisty (ppn/sqkm)								
	Younger core			Older core			Total		
	1981	1991	2001	1981	1991	2001	1981	1991	2001
Thrissur Corporation	2091.484	2459.423		6159.921	5900.395		2598.935		2888.612
Kollam Corporation	4620.44	5313.43	6313.14	7464.45	7567.75	6310.06	5537.99	6040.73	6312.15
Trivandrum Corporation	1807.56		4304.89	5086.86		5263.04	720045		744983

Source: Census data

variation between the older core and younger core of Thrissur Corporation, Thiruvananthapuram Corporation and Kollam Corportaion. The analysis reveal that the density of the older core of the of the urban agglomerations is decreasing.

CONCLUSION

The population density of urban areas of Kerala is higher than that of its rural areas. When compared to other states population density of urban areas of Kerala is less. At the same time the rural Kerala shows comparatively higher population density. The urban population density of the state shows not much increase over a period of time. The high value of urban population growth rate with practically nil increase in population density of the urban areas of the state shows that state is experiencing urban spread rather than its concentration. Population density variation is seen within the urban agglomeration also. The analysis of the core and fringe of the urban agglomeration in Kerala shows that the core is either in stagnation stage with respect to increase in population, where as increase in population in the fringes occurs at a higher rate. The fringe area of the urban agglomeration is having lower density than the core and the fringe areas are in a transitional stage (in to the density of the core). This indicates the scope for further densification of the urban agglomerations in total as well as even the core of urban agglomeration, of the State. ❑

CHAPTER 8

Urban-Rural Distribution of Category of Workers

The employment classification by category with in the urban and non-urban area of Kerala is studied to understand the economic base prevailing in both urban and rural areas of Kerala. The data on classification of workers by industrial group by the census is used for the study.

Category of workers

The category of workers (employment by industry group by census of India) gives an indication on the economic base prevailing in an area. One of the criteria census adopts to classify an area in to urban is the percentage of non agricultural male workers. So in a census urban area, the majority of the workers will be engaged in non agricultural activities, but in a place like Kerala characterised by urban rural continuum, overlapping of agricultural activities and non agricultural activities is expected in both census urban and rural areas. Hence the study on the spatial distribution of employment by industry is very much relevant in Kerala, especially while formulating a desirable urban development strategy. This analysis is done using census data. The census 2001 gives data regarding the district wise, urban- rural area wise classification of workers under the following category

A – Agriculture, Hunting and Forestry;
B – Fishing
C – Mining and Quarrying
D – Manufacturing
E – Electricity, Gas and Water Supply
F – Construction
G – Wholesale and Retail Trade
H – Hotels and Restaurants
I – Transport, Storage and Communications
J – Financial Intermediation
K – Real Estate, Renting and Business Activities
L – Public Administration and Defense, Compulsory Social Security;
M – Education
N – Health and Social Work
O – Other Community, Social and Personal Service Activities
P – Private Households with Employed Persons
Q – Extra-Territorial Organizations and Bodies.

The above categories of workers are further clubbed in to 13 as per census 2001

1. Cultivators (A & B)
2. Agricultural labourers (A&B)
3. Plantation, Livestock, Forestry, Fishing, Hunting and allied activities (A&B)
4. Mining and Quarrying (C)
5. HHI (D)

6. Non HHI (D)
7. Electricity, Gas and Water Supply (E)
8. Construction (F)
9. Wholesale and Retail Trade (G)
10. Hotels and Restaurants (H)
11. Transport, Storage and Communications(I)
12. Financial Intermediation & Real Estate (J &K)
13. Other services (L to Q)

The above 13 categories are further grouped in to 10 to have comparison with 1971 and 1991 census data. The 10 categories are shown below.

1. Cultivators (A & B)
2. Agricultural labourers (A&B)
3. Plantation,Livestock,Forestry,Fishing, Hunting and allied activities (A&B)
4. Mining and Quarrying (C)
5. HHI (D)
6. Non HHI (D)
7. Construction (F)
8. Wholesale and Retail Trade (H&G)
9. Transport, Storage and Communications(I)
10. Other services (E, J&K,L to Q)

The Fig 8.1 shows the percentage of workers under the ten categories. As per the figure, agriculture and allied sectors workers contribute to about 42% of the total workers and the number of workers under manufacturing industries constitute 18% of the total workers. This data reiterates that the major economic base in Kerala during 1970,s was agriculture and allied sectors.

Fig 8.2 shows that during 2001, the agriculture and allied sector workers has reduced to 25 % of the total workers indicating a decline in agricultural activity. But the percentage of workers in plantation, live stock, fisheries etc have increased to 11% from a value of 6% in 1971. While the percentage of workers under manufacturing industries remains almost the same at about 16-17%, the workers under the category of trade and commerce and transportation sector has increased during the period 1971 -2001. This indicates a shift in economic base from agriculture & allied sector to trade & commerce and transportation sector in Kerala during the period 1971-2001. This shift in the category workers in the rural area of Kerala is not that much manifested physically in the land use. The functional character and activity pattern (Refer: chapter 3) indicates the predominant rural nature of Kerala because of the plotted development and mixed land use of the State. Another fact revealed from study of the pattern of shift in the category of workers in the rural areas of Kerala is the significant increase in the category workers in live stock and fisheries from 1971 to 2001.

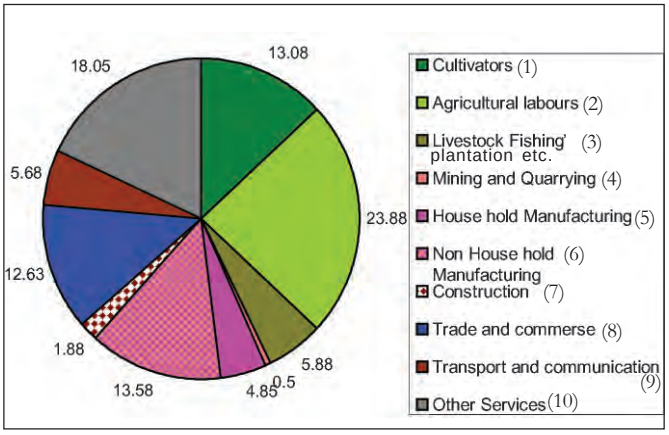


Fig : 8.1 10 fold classification of workers - 1971

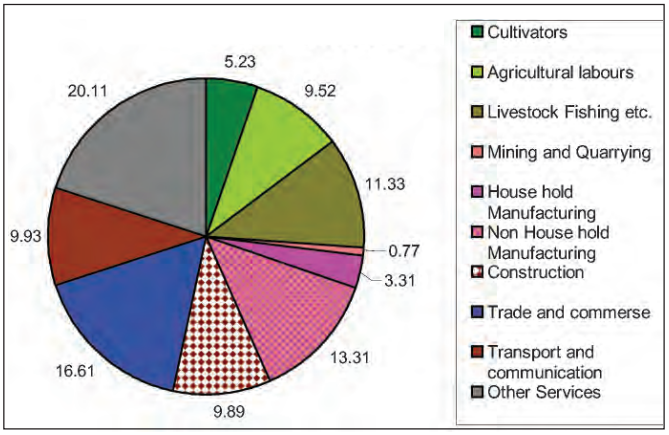


Fig :8.2. 10 fold classification of workers by industry group-2001

Category of workers Urban-Rural Distribution

The study of Urban-Rural distribution of workers will give an insight in to the difference between the economy thriving within the rural and urban areas of the State. Such a study assumes more relevance in the State of Kerala where urban-rural continuum persist and it is the criteria of non agricultural male workers which play a crucial role in classifying an area in to urban or non urban.

a. Sectorwise distribution of workers-urban and rural

In order to get an overview on the emerging Spatial (urban-rural) pattern of distribution of workers, the 10 fold classification of workers are further grouped in to Primary, Secondary and Tertiary (As per International Labour Organization (ILO), economic activity is to be classified in to primary, secondary or tertiary sectors of production. The primary production consists of agriculture & mining, secondary production consists of manufacturing & construction and services consists of transport, commerce, administration etc) as shown below.

Primary : Cultivators, Agricultural labours, Mining and quarrying, livestock, fishing, plantation, etc.

Secondary: Household manufacturing, Non-household manufacturing

Tertiary: Trade and commerce, transport and communication and other services

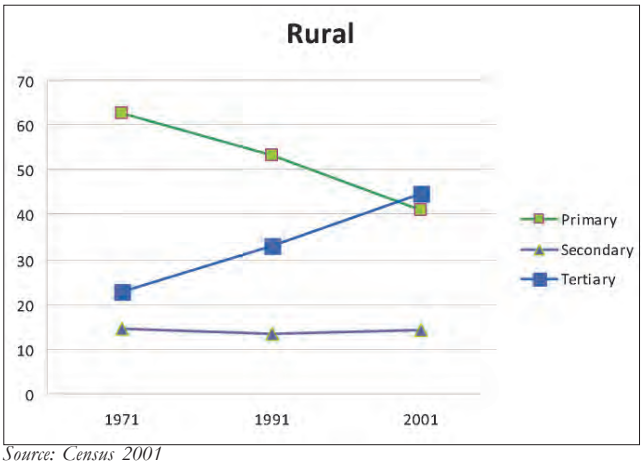
The sector wise distribution of workers, both for the urban and rural areas of Kerala, for the year 2001 is given in table 8.1.

Table: 8.1 Sector wise distribution of workers under three sectors-2001

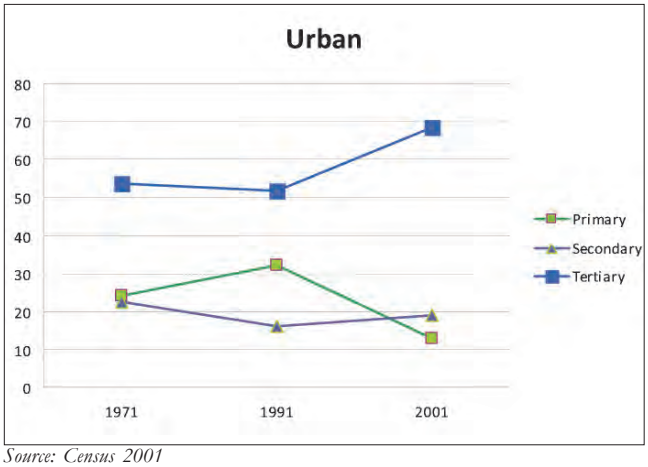
	Primary	Secondary	Tertiary	Total
Rural	40.93	14.32	44.75	100
Urban	12.77	18.92	68.31	100
Total	33.3	15.57	51.13	100

The fact that majority of workers (59 %) in the rural area of Kerala is engaged on secondary and tertiary activities, indicates the poor performance of primary sector in the State in general and rural areas in particular.

Comparitive analysis of workers under the three sectors of production, in rural and urban areas of Kerala (Fig 8.3.) from 1971 to 2001, shows that the workers under the primary sector of production is decreasing significantly. At the same time, that in tertiary sector is increasing even in the rural areas of the State. But the percentage of workers in the secondary sector, though comparatively less, remains almost constant during the same period.



Source: Census 2001

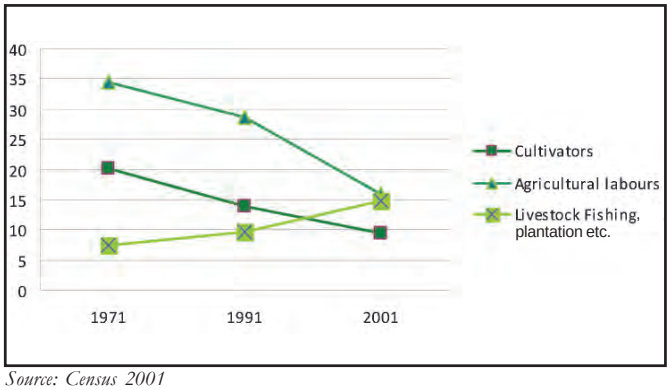


Source: Census 2001

Fig : 8.3 Temporal variation of workers under three sectors of production

It is clear evidence on the process of urbanisation taking place in the rural areas of Kerala.

Though the total percentage share of workers in the primary sector of production in the rural areas is decreasing from 1971 to 2001 period, all the constituent categories of workers under the sector are not declining (Fig 8.4). The percentage of workers under the category of cultivators and agricultural labourers are decreasing that under the live stock and fisheries sector is increasing.



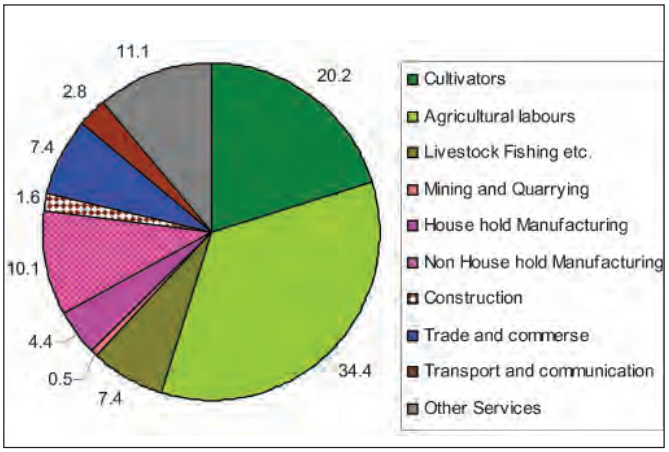
Source: Census 2001

Fig : 8.4 Temporal variation of constituent categories of workers under primary sector of production in rural areas

b. Tenfold category of workers-rural

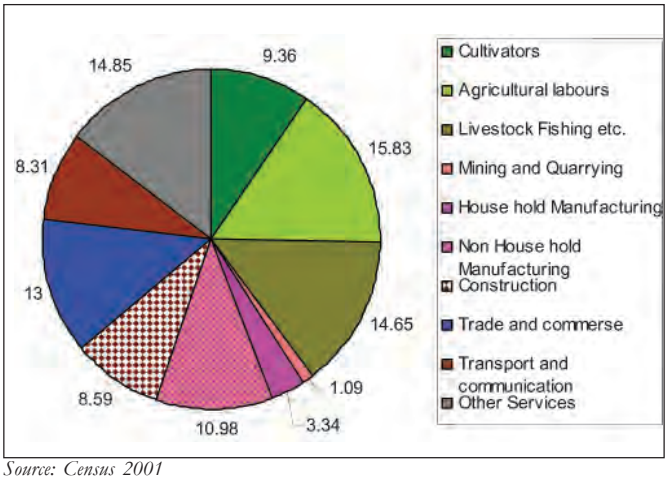
The analysis of the 10 fold category of workers in the rural areas will give a more focused idea on the shift in the category of workers in the rural area of Kerala. Figures 8.5 and 8.6 show the 10 fold category of workers during 1971 and 2001 respectively. Between 1971 and 2001, phenomenal increase in the share of workers under the category of construction, trade and commerce and transportation & communication and a drastic decline in the share of cultivators and agriculture labourers is noted in the rural areas of Kerala. This is a clear indication of the declining rural base of Kerala. At the same time it also indicates the diversification of economic base of rural areas of the State.

The issue of rural economic diversification has assumed considerable importance in the development dialogue since the seventies. It is regarded as a critical component of rural transformation in less developed



Source: Census 2001

Fig : 8.5 10 fold classification of workers by industry group, 1971-Rural



Source: Census 2001

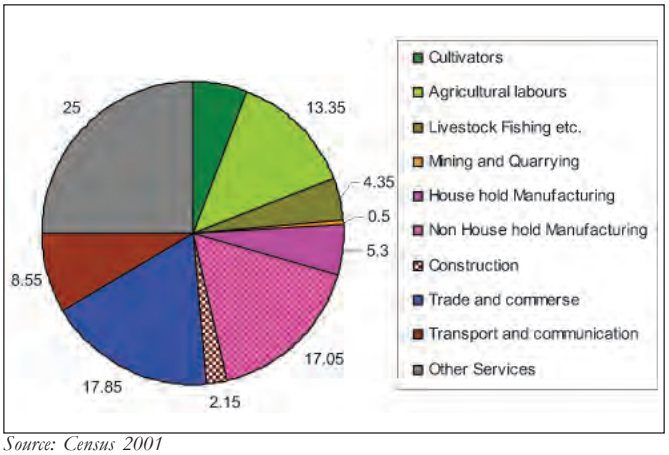
Fig : 8.6 10 fold classification of workers 2001-Rural

economies, given the failure of the industrialization-led development strategies of the fifties to "trickle down" to the rural poor. The latter failed most obviously in their inability to absorb rural labour into the process of industrialization as also to elicit the necessary supplies of food from the agricultural sector, required for it. A need was felt therefore for a restructuring of the development strategy with a more direct intervention in the agricultural sector. While the labour absorption capacity of agriculture in the aggregate appeared to be limited, it was the creation of non-agricultural activities, in particular rural small-scale manufacturing enterprises, that was more crucial

in the restructured strategy. (Source: "Economic diversification in Kerala", Mridul Eapen, Centre for Development Studies, Thiruvananthapuram). This factor indicates the necessity of urban area in rural pockets but its growth has to be controlled to curb urban evasion in to the rural area.

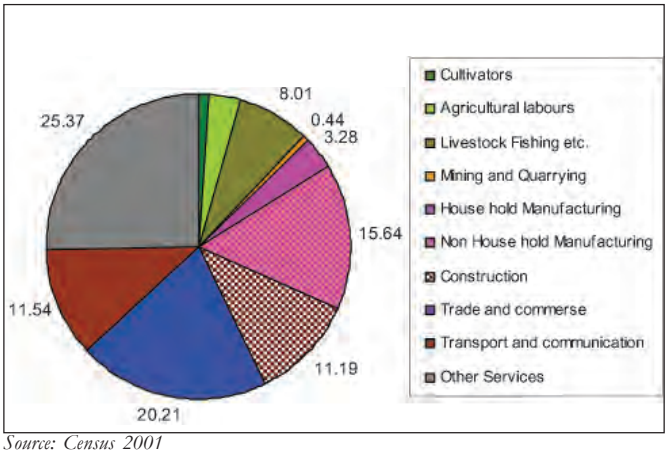
c. Tenfold category of workers-urban

The 10 fold category of workers in the urban area of the State in 1971 and 2001 are shown in the figures 8.7 and 8.8 respectively.



Source: Census 2001

Fig : 8.7 :10 fold classification of workers, 1971-Urban



Source: Census 2001

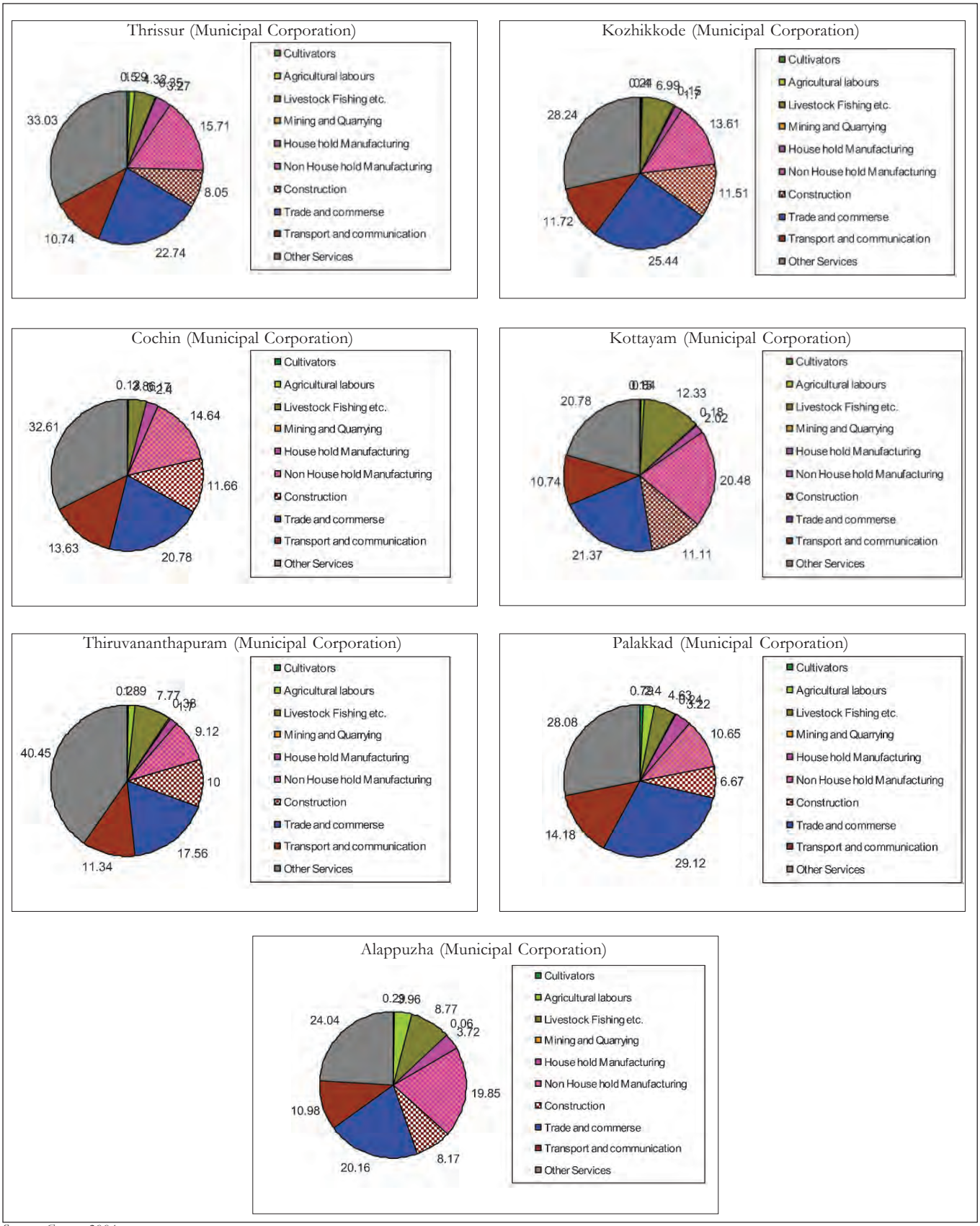
Fig :8.8 10 fold classification of workers, 2001-Urban

Barring the category of workers under other services, category of workers in trade & commerce and house hold industries constitute the major share of urban workers in the State in 1971.

The category wise break up of workers in the urban areas for 2001 (fig 8.8) shows that along with workers in the category of other services, trade & commerce and house hold industries, workers in the construction industries and transport and communication show significant share of the total workers. The rural base with a share of 19.30% of total workers in 1971 reduced significantly to only 4.31% in 2001.The data shows that workers in urban areas of Kerala no more consider agriculture as their economic activity. At least in terms of occupation structure the urban areas of Kerala show more and more urban nature contrary to the general belief of rural–urban mixed nature for even in the urban areas. At the same time, workers category of live stock, fisheries and plantation shows significant increase in the urban area from 1971.

The 10 fold classification of workers in the five Municipal Corporations and two Municipal Councils are analyzed to get a clearer picture on the type of economic activity in the urban area of Kerala. (Fig 8.9)

The analysis of the ten fold category of workers unequivocally reveals that the workers in the Municipal corporations of Kerala are not all engaged in agricultural activity whatsoever (except in Alappuzha and Palakkad Municipal Councils), but a small portion of them are engaged in livestock and fisheries activities etc. But in the case of the two Municipalities under study viz Palakkad and Alappuzha comparatively more share of workers is seen in agricultural pursuits. In a study conducted by CDS, Thiruvananthapuram (Source: Economic diversification in Kerala-Spatial analysis by M/s Mridul Eapen, 1991), it is revealed that in the case of class 3 and less towns of Kerala more than 50% of the workers were engaged in agricultural activities thus minimizing the function wise difference between the small towns and rural areas.



Source: Census 2001

Fig :8.9 10 fold classification of workers - 2001 of selected urban areas

Major urban industry class in the rural areas of Kerala

The district wise data on the five major sectors in which the workers, other than workers engaged in agriculture (cultivators and agricultural labourers), are engaged in the rural areas (according to census 2001) are is shown in table 8.2. The table give an idea about the major non agricultural pursuit existing in the rural area of each district of the State.

The data shows that, in six districts (Thiruvananthpuram, Ernakulam, Thrissur, Palakkad, Kozhikkode and Malappuram) construction activity is the major industrial type (other than cultivators and agriculture labourers) that engages workers in rural area. The major non agricultural activity in the rural area of the remaining eight districts are related to agriculture product processing industries (nut processing in Kollam District, rubber latex processing in Pathanamthitta, Kottayam & Kannur, bidi in Kasargod, Plantation workers in Idukki & Wayanad, coir in Alappuzha). This dictates the functions of the urban centers in the rural area of the Districts.

Table 8.2 Major class of industrial type other than cultivators and agricultural labourers in Rural area

Major class of industrial type other than cultivator and agricultural labourers		
District		**Class discription**
Trivandrum	**1**	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	2	Irrigations Systems Operations
	3	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	4	Fishing
	5	Public Services In State Government
Kollam	**1**	Edible Nut Processing/Food For Infants & Invalids/Frying of Dals & Cereals/Malted Food Preparation/Other Food Products N.E.C./Papads (Appalam)/Protein Flour/Sambar Powder & Etc./Spices Processing & Grinding
	2	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	3	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	4	Nets (Except Mosquito Net)/Newar / Tapes & Wicks/Rope/ Cordage of Coir Jute Mesta/Thread & Thread Ball
	5	Fishing

Major class of industrial type other than cultivator and agricultural labourers		
District		**Class discription**
Pathanamthitta	1	Rubber Latex Harvesting/Rubber Latex Treatment / Preservation/Rubber Plantation/Rubber Tree Growing
	2	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	3	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	4	Asses Farming/Cattle Farming/Goat Farming/Hinnies Farming/Horse Farming/Milks(Raw) Production/Mules Farming/Sheep Farming
	5	Other Literacy Programmes (Without Schools)/Pre- Primary Education/Primary Education
Kottayam	1	Rubber Latex Harvesting/Rubber Latex Treatment / Preservation/Rubber Plantation/Rubber Tree Growing
	2	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	3	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	4	Irrigations Systems Operations
	5	Asses Farming/Cattle Farming/Goat Farming/Hinnies Farming/Horse Farming/Milks(Raw) Production/Mules Farming/Sheep Farming
Alappuzha	1	Nets (Except Mosquito Net)/Newar / Tapes & Wicks/Rope/ Cordage of Coir Jute Mesta/Thread & Thread Ball
	2	Fishing
	3	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	4	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	5	Irrigations Systems Operations

Major class of industrial type other than cultivator and agricultural labourers		
District		**Class discription**
Idukki	1	Tea Plantation
	2	Rubber Latex Harvesting/Rubber Latex Treatment / Preservation/Rubber Plantation/Rubber Tree Growing
	3	Asses Farming/Cattle Farming/Goat Farming/Hinnies Farming/Horse Farming/Milks(Raw) Production/Mules Farming/Sheep Farming
	4	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	5	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
Ernakulam	1	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	2	Rubber Latex Harvesting/Rubber Latex Treatment / Preservation/Rubber Plantation/Rubber Tree Growing
	3	Fishing
	4	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	5	Goods Transport By Road (Including Man & Animals)
Thrissur	1	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	2	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	3	Irrigations Systems Operations
	4	Goods Transport By Road (Including Man & Animals)
	5	Activities of Caterers/Canteens Persons Who Prepared Food & Service Functions/Other Catering Activities/Persons Who Prepared Food For Feasts & Ceremonies/Restaurants With Bars & Without Bars/Tea Stall

Major class of industrial type other than cultivator and agricultural labourers		
District		**Class discription**
Palakkad	1	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	2	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	3	Goods Transport By Road (Including Man & Animals)
	4	Activities of Caterers/Canteens Persons Who Prepared Food & Service Functions/Other Catering Activities/Persons Who Prepared Food For Feasts & Ceremonies/Restaurants With Bars & Without Bars/Tea Stall
	5	Other Literacy Programmes (Without Schools)/Pre- Primary Education/Primary Education
Wyanad	1	Coffee Plantation
	2	Tea Plantation
	3	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	4	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	5	Growing Cereals & Pulses/Fibre Crops/Sugarcane/Plantation Tobacco/Cereal/Flowers/Vegetables
Malappuram	1	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	2	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	3	Other Literacy Programmes (Without Schools)/Pre- Primary Education/Primary Education
	4	Irrigations Systems Operations
	5	General Stores(Non-Specialized) (Retail)
Kozhikkod	1	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R

Major class of industrial type other than cultivator and agricultural labourers		
District		**Class discription**
Kozhikkod	2	Coconut Plantation
	3	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	4	Irrigations Systems Operations
	5	Other Literacy Programmes (Without Schools)/Pre- Primary Education/Primary Education
Kannur	1	Rubber Latex Harvesting/Rubber Latex Treatment / Preservation/Rubber Plantation/Rubber Tree Growing
	2	Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads
	3	Coconut Plantation
	4	Occasional Coaches (Including Man & Animals Transport)/Taxi Private Cars
	5	General Stores(Non-Specialized) (Retail)
Kasargod	1	Bidi
	2	Areca Nut Plantation
	3	Bridges Tunnels Construction/Building Construction (Alteration Addition & Repair & Maintenance)/Building Construction (Civil Engineering)/Pipelines Construction/Ports & Harbors Construction/Rail-Beds Construction/Roads Construction/Ropeways Construction/R
	4	Coconut Plantation
	5	Rubber Latex Harvesting/Rubber Latex Treatment / Preservation/Rubber Plantation/Rubber Tree Growing

Source: Census 2001

CONCLUSION:

The analysis of the category of workers shows the shift in employment of Kerala from primary sector to tertiary sector. In Kerala, even in rural areas, that majority of workers (58 %) are engaged in secondary and tertiary activities, which indicates the poor performance of primary sector in the State in general and rural areas in particular. It is clear evidence on the process of urbanisation taking place in the rural areas of Kerala and dilution of the rural economy. At the same time it indicates the rural economic diversification in the State. The urban areas of Kerala show more and more urban nature, at least in terms of the category workers, contrary to the general belief of rural –urban mixed category even in the urban areas of Kerala. However, the important aspects to be noted here is that the workers engaged in secondary sector of production is comparatively less in our urban areas and their share remaining almost constant.

CHAPTER 9
Physical Aspects Of Urbanisation

Census of India usually classify an area in to urban based on data on population and category of employment. The physical aspects are not often considered. But in some of the western countries, the physical development is also taken in to account while designating an area in to urban. Here an attempt is made to designate urban areas of the state based on physical development also.

Distribution of urban areas among different topographical regions

We have seen that, in Kerala 47.72 % of the total population lives in urban area as per census 2011 and more than 70% of the urban population lives in seven million plus urban agglomerations of Kerala. In order to understand the difference between the distribution pattern of urban area among the three topographical divisions viz, low land (coastal area), mid land and high land, of Kerala, the spatial distribution (fig 9.2) of the urban areas is analysed. It is seen that majority of the urban areas fall within low land and mid land region of Kerala.

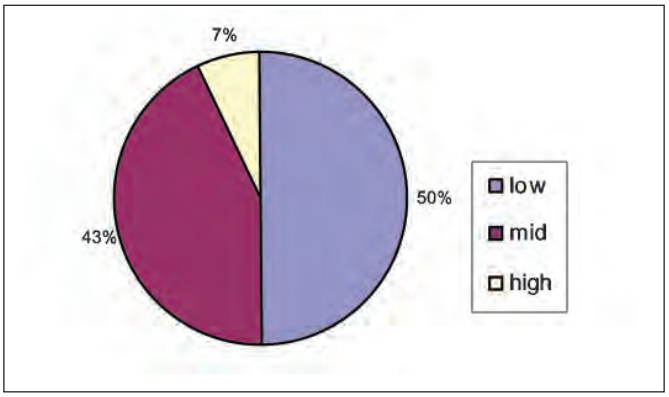


Fig 9.1 Percent distribution of urban area within the three topographical division of Kerala

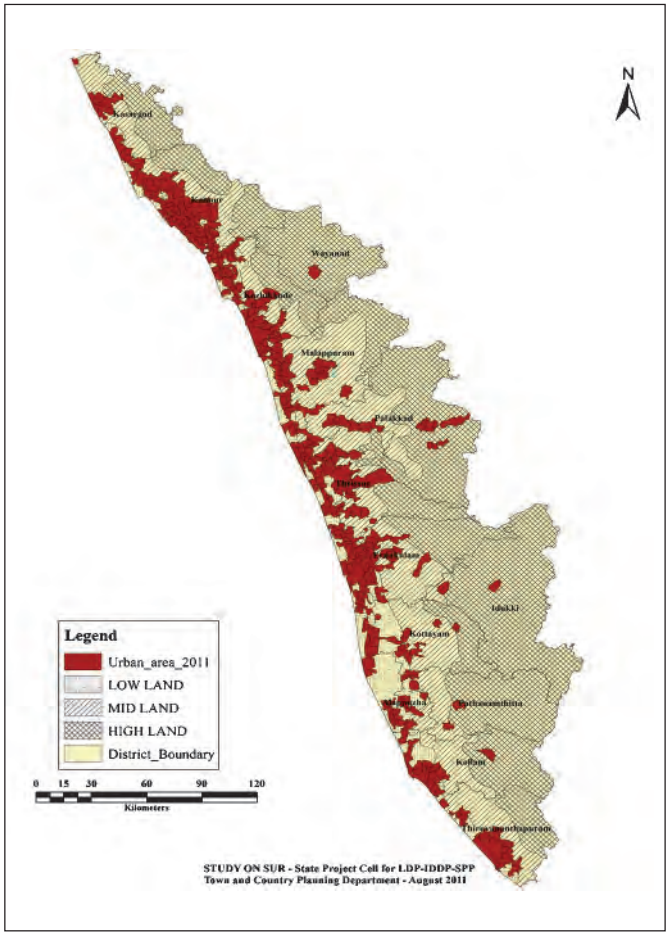


Fig 9.2 Spatial distribution of urban areas 2011

Spatial distribution of urban area as per 2001 census shows that 50% of urban areas are in lowland region (the costal belt of Kerala), 43% of urban areas in mid land region. The agriculture belt of Kerala and 7% of the urban areas are in high land region-the western ghat belt consisting of environmentally sensitive forest cover of Kerala.

The distribution of urban population among different topographical divisions of Kerala shows that 49% is in low land region, 45% in mid land region, and 6% in high land region.

The temporal variation of the distribution of the urban areas of Kerala among different topographical divisions from 1961 to 2001 is shown in Fig 9.3. The urbanisation in Kerala has taken a faster pace since 1981. This increased pace in urbanisation takes place in the low land and mid land region and is reflected by rapid increase in urban area in these regions. The urbanisation has spared environmentally sensitive high land but the fertile agricultural land in the mid land has been under threat.

Urban area in physical terms

In India, an area is designated into urban based on the criteria suggested by census, which is purely demographical and the physical development is not given any importance. This often results in a false notion about the urbanisation, especially, in a state like Kerala where urban-rural continuum exists due to scattered settlement pattern. In the western world, they consider the extent of physical development also to designate an area as urban. In United Kingdom, the concept of a Primary Urban Area has been introduced to take in to account the physical development also in designating an urban area. The concept of a Primary Urban Area was created in an attempt to enable economic and social comparisons between cities using definitions less arbitrary than the administrative boundaries of local authorities, but avoiding problem of using the Urban Areas defined by the Office for National Statistics. Primary Urban Areas are defined as areas of continuous built-up land containing urban structures that are within 50 metres of each other and the built-up area must have a population in excess of 125,000 .

On this basis England had 56 Primary Urban Areas in 2007. A large number of these areas do not hold official city status in the UK . Using this definition a "city" is defined as a Primary Urban Area, which is distinct from the Urban Area agglomeration defined by Office for the National Statistics.

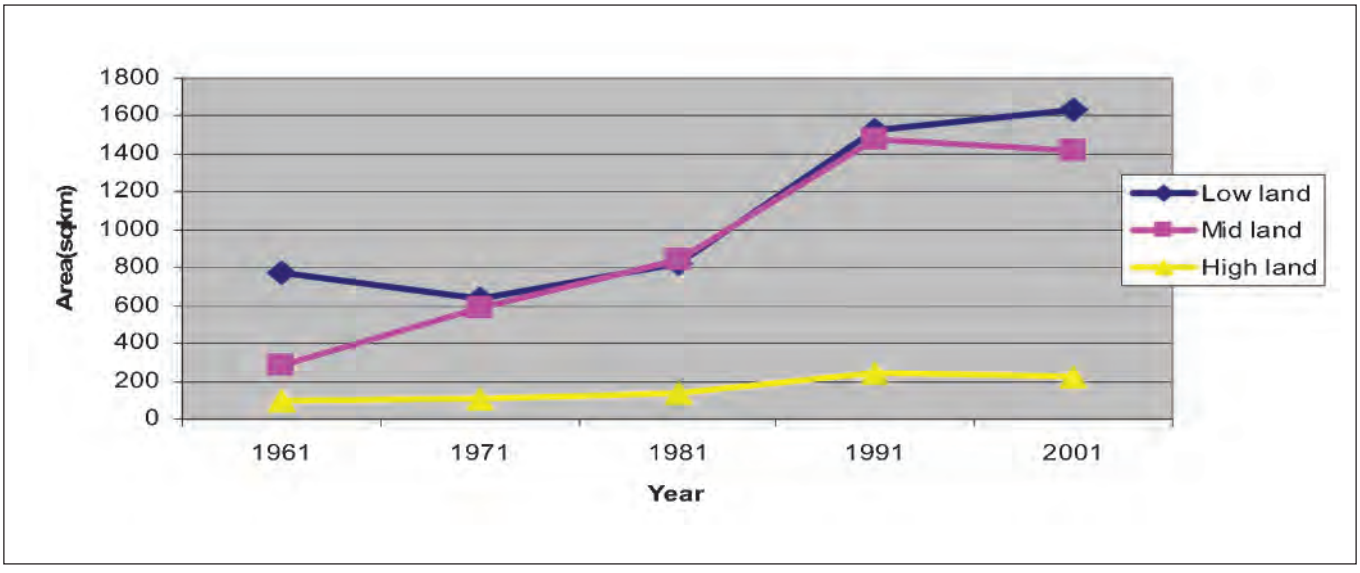


Fig 9.3 distribution of the urban area of Kerala among different topographical regions

In an attempt to assess the physical development of Kerala, the entire State is divided in to grids of size 2.5 km x 2.5 km, and the coverage of cluster of built up in these grids is observed. (Google map is used for assessing the coverage of cluster of built up in the grids). Coverage of cluster of built up in five ranges (0 % built up, 0-25% built up, 25-50% built up, 50- 75% built up and 75- 100% built up) are taken for the study. The result of the study is shown in Fig 9.4. Each of the grid is further analysed with the number of building foot prints in it to assess the urban nature.

Building footprint map of Thiruvananthapuram corporation is taken as the case study for accessing the nature of each grid based on the percentage coverage of the cluster of built up. The Thiruvananthapuram corporation is divided into grids of size 2.5 km x 2.5 km and their percentage coverage of cluster of built up and the number of footprint in each grid is taken to calculate the average plot size. The average plot size in each grid is calculated by dividing the grid area by the number of building foot prints in it. The result (in Annexe 3) shows that for grids having coverage of cluster of built up above 50%, the average plot size is less than 50 cents making agricultural activity uneconomical there. A plot with an extent of 50 cents or less is not vaible to bring agricultural and allied activity as the main source of income for livelyhood(Ref: Volume -I, IDDP, Kollam District). It implies that those grids with coverage of cluster of built up above 50% represents an urban area based on the physical development.

Fig 9.5, shows is the urban areas of Kerala based on the built-up nature/physical development

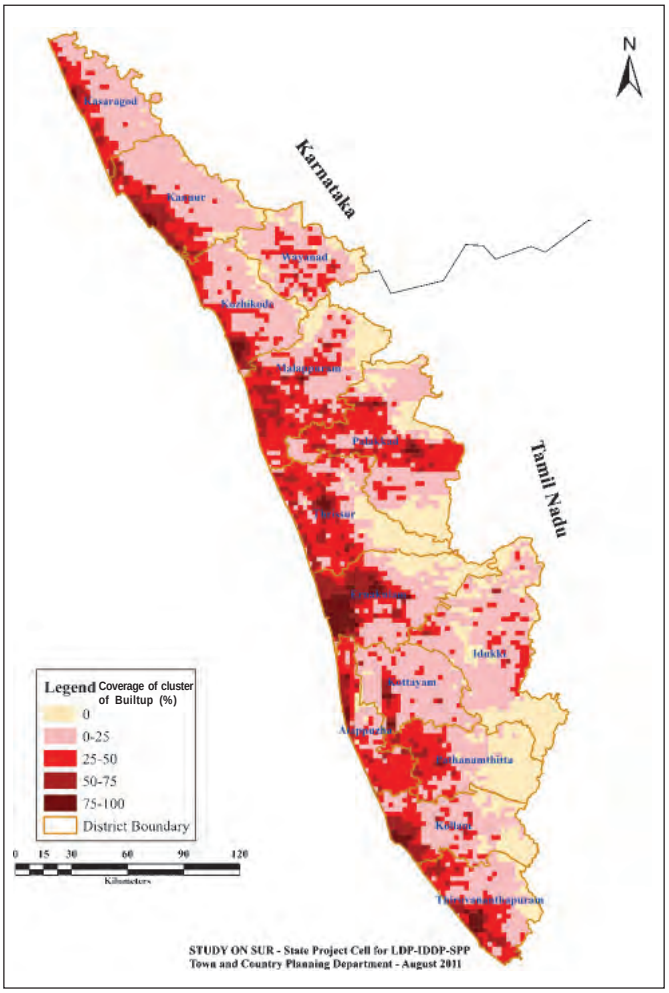


Fig 9.4 Coverage of cluster of built up of Kerala -2011

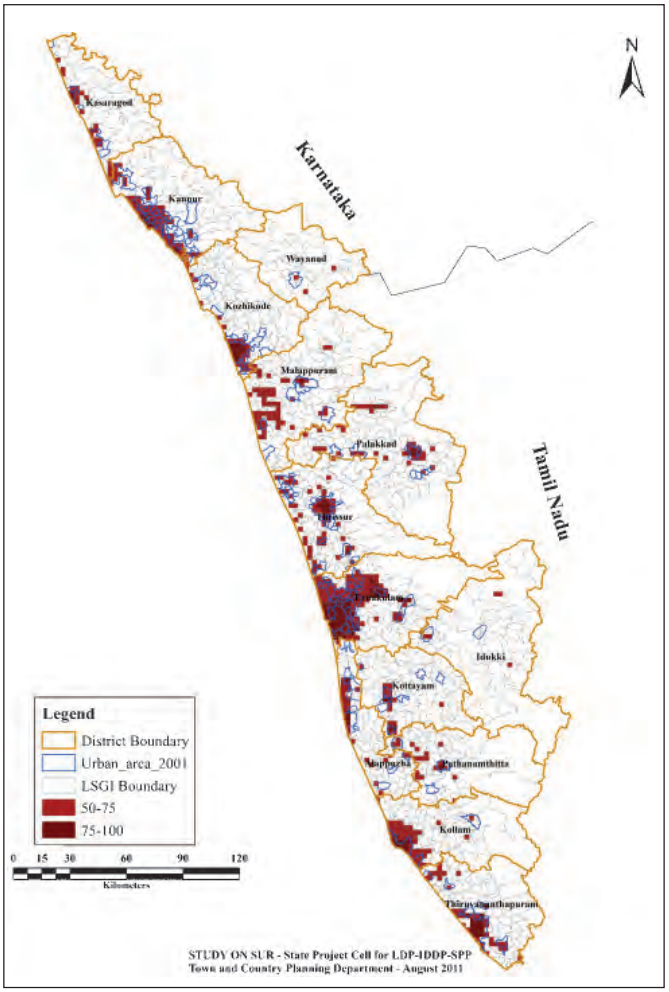


Fig 9.5 Urban area based on builtup nature and census urban - 2001

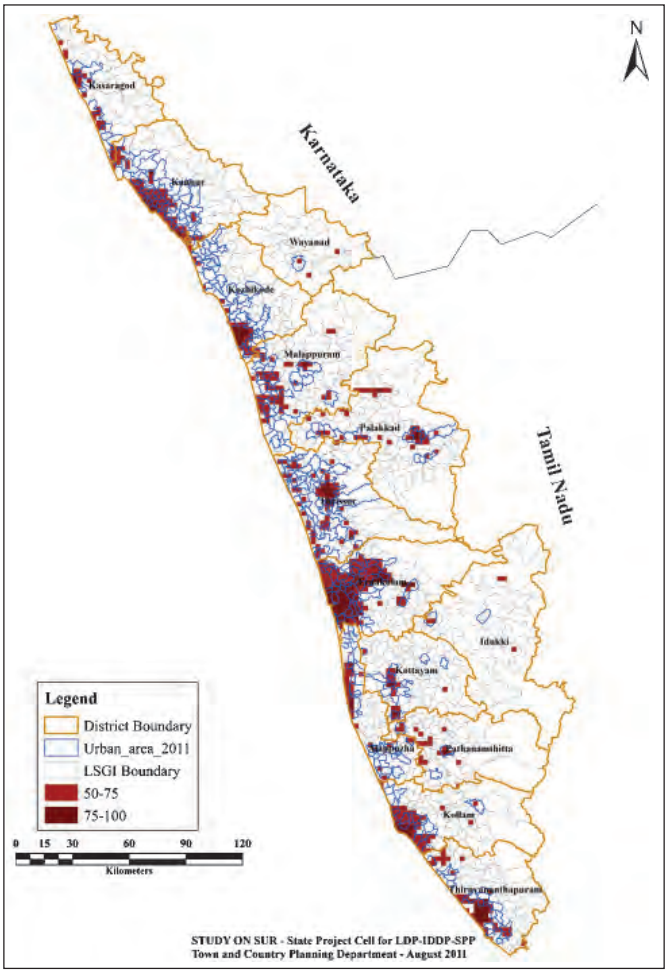


Fig 9.6 census urban area -2011 overlaid in the built-up map

determined through the above methodology. The census urban area-2001 is also overlaid in the same map. It can be seen that the census urban area - 2001 more or less coincides with the urban area based on built-up nature. But when census urban area -2011 is overlaid on the built up map, (Fig 9.6) it can be found that there is mismatch. In true sense an urban area is to be delineated taking in to account the physical development also.

The Urban Agglomerations of Kerala 2011 are ranked based on the built-up nature & population (Table 9.1).

The mismatch between the rank assigned to the Urban Agglomerations based on built-up nature and their rank based on population indicates that the physical development also is to be given due respect while designating an area as urban.

Table 9.1 Ranking of urban agglomeration based on builtup and urban population

Name of urban agglomeration	Rank based on built up	Rank based on population
Cochi UA	1	1
Tvm UA	2	2
Kozhikode UA	2	1
Kannur UA	2	2
Thrissur UA	3	2
Kollam UA	3	3
Guruvayur UA	3	4
Alappuzha UA	3	4
Palakkad UA	3	4
Kottayam UA	3	4
Kanjanhad UA	3	4
Malappuram UA	3	2
Cherthala UA	4	4
Kasargod UA	4	4
Vadakara UA	5	4
Chittoor Thathamangalam	5	4
Kodungalor UA	5	4

Coverage of built up within the urban area

Coverage of built up of an area indicates the percentage of built up in the selected area. In order to study the coverage of built up area in each of the grids, the building foot print map of Thiruvananthapuram Corporation is analysed. The result of the analysis (Table 9.2) is that even in a grid with the cluster coverage (indicates the coverage by the cluster of buildings in the grid) of 75-100%, the

Table 9.2 Percentage builtup coverage

% cluster coverage of a grid	% built up coverage
0-25	0.76
25-50	8
50-75	8
50-75	12
75-100	28

Source: Calculated from the building foot print map of Trivandrum

actual built up area is only 28%. This is an indication of the presence of under utilised pockets within the urban areas of Kerala. Due to the organic way of growth, ribbon development is predominant even in the core of urban area where under utilised land pockets are there in the interior of highly densified ribbon development.

Census urban area and activity pattern

Activity pattern specifies the most suitable economic activity (primary, secondary, tertiary) that a settlement (local government) can perform. Activity pattern is assessed based on the functional character of the settlement, the existing land use concentration there and the prospect of future urbanisation there (ref: Chapter 3). The census urban area -2001 and 2011 are overlaid in the activity pattern map of the State (figures 9.7 & 9.8) and it is found that in 2001, 63 local governments and in 2011, 179 local governments having agricultural potential (assessed based the study on activity patern)are designated as census urban (table 9.3). Such a situation of urbanisation will further deteriorate the already worsened food security of the State.

Table 9.3 Number of agricultural potential local bodies which are urban as per census classifications

Sl. No.	District	2001	2011
		No. of Urban Area	No. of Urban Area
1	Trivandrum	1	9
2	Kollam	0	0
3	Pathanamthitta	1	1
4	Alappuzha	6	17
5	Kottayam	4	11
6	Idukki	1	1
7	Ernakulam	10	20
8	Thrissur	13	42
9	Palakkad	2	7
10	Kozhikode	7	29
11	Wayanad	0	0
12	Malappuram	1	6
13	Kannur	15	33
14	Kasaragod	2	3
	Kerala	63	179

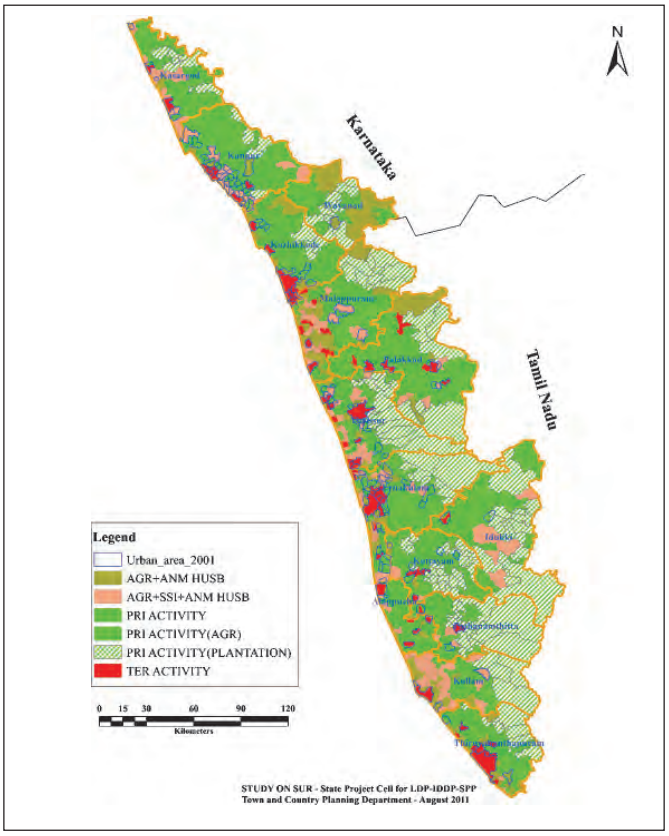


Fig 9.7 Activity Pattern and Urban Area 2001

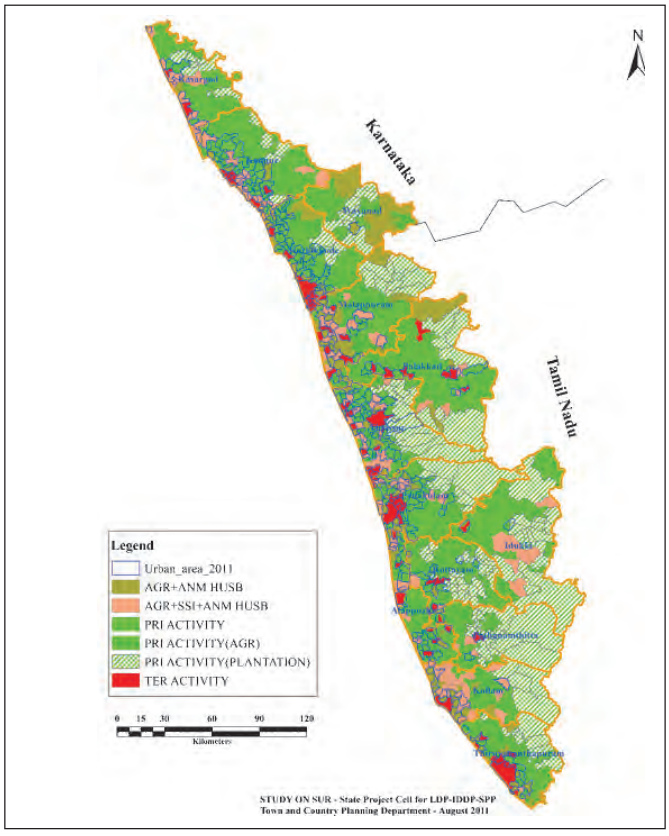


Fig 9.8 Activity Pattern and Urban Area 2011

Hierarchy of urban settlements

Hierarchy of a settlement is an indication on the availability and hierarchy of various facilities in the settlement. It is a reflection on the size of population depending that settlement for facilities. Data from Panchayat Level Statistics for the year 2005 published by Economics and Statistics Department is used for the study.

Facilities taken for hierarchy calculation

I Education

- HSS
- VHSS
- HSS & VHSS
- ITI
- Arts & Science College
- BEd College
- Teachers Training Institute
- Engineering College/College of Science and Technology/Poly Technic

II Health

Allopathic
- Govt. Hospital
- Pvt. Hospital
- Govt. Dispensary
- Pvt. Dispensary

Homeo
- Govt. Hospital
- Pvt. Hospital
- Govt. Dispensary
- Pvt. Dispensary

Ayurvedic
- Govt. Hospital
- Pvt. Hospital
- Govt. Dispensary
- Pvt. Dispensary

III Transportation

- NH/SH
- Railway Station
- Bus stand
- Airport

IV Communication

- HPO
- SO
- EDSO
- BO
- EDBO
- Telephone Exchange
- Telegraphic Exchange

V Community Facilities

- Library
- Community Hall
- Market

VI Public Offices

- Civil station/Mini Civil station
- Block Panchayat office
- Police Station
- Banks (National/Scheduled/Cooperative bank)

VII Others

- Gas Agency
- Petrol pump

The composite functional index method is used for calculating the hierarchy of settlements. While calculating the hierarchy of urban agglomerations facilities in the constituent local bodies together are considered. (Since the urban builtup is more or less matching with the census urban 2001, urban agglomerations in 2001 are taken for the study). The hierarchy of urban settlements so obtained is shown in table 9.4.

Table 9.4 Hierarchy of Urban Settlements

Sl.No	Urban Area	on facilities
1	Kochi UA	1
2	Kozhikode UA	2
3	Thiruvananthapuram UA	2
4	Kannur UA	3
5	Alappuzha UA	3
6	Kollam UA	3
7	Palakkad UA	3
8	Thrissur UA	3
9	Kottayam UA	4
10	Malappuram UA	3
11	Kasaragod UA	6
12	Pathanamthittah	5
13	Guruvayoor UA	4
14	Cherthala UA	4
15	Kanhangad UA	5
16	Changanassery UA	4
17	Kalpetta	6
18	Thodupuzha	6
19	Vadkara UA	4
20	Kayamkulam UA	5
21	Ottapalam UA	5
22	Nilamboor Municipality	5
23	Chalakkudy UA	6
24	Kothamangalam UA	5
25	Kodungallor UA	5
26	Koyilandi Municipality	5
27	Neyyattinkara Municipality	5
28	Chittur-Thathamangalam UA	5
29	Payyyanur Municipality	5
30	Thaliparambu Municipality	5
31	Ponnani Municipality	5
32	Tirur Municipality	5
33	Thiruvalla Municipality	5
34	Varkala Municipality	5
35	Chengannur Municipality	5
36	Perumbavur Municipality	5
37	Perinthalmanna Municipality	5
38	Thrikkakara Municipality	5
39	Nedumangad Municipality	5
40	Attingal Municipality	5
41	Punalur Municipality	5
42	Paravoor Municipality	6
43	Adoor Municipality	5
44	Pala Municipality	5
45	Vaikom Municipality	5
46	Kunnamkulam Municipality	6
47	Koothuparambu Municipality	6
48	Karunagappalli Municipality	5
49	Mattannur Municipality	5
50	Kottakkal Municipality	6
51	Irinjalakuda Municipality	6

CONCLUSION

The spatial distribution of the urban area within the State shows that urban area of Kerala is concentrated in coastal area and mid land region. The mid land and high land region is being subjected to the level of urbanisation with increased pace. The agricultural potential area of Kerala is located in the midland region of Kerala and forest land is concentrated in the high land to mid land region adjacent o the high land. As per present urbanisation pattern of Kerala the environmentally sensitive high land is spared but the fertile agricultural land in the mid land has been converting for non agricultural purposes.

Analysis of the built up in urban areas of Kerala shows that even the maximum coverage within the high density built up is only 32% indicating that there are under utilized pockets within the urban areas of Kerala. Due to its organic way of growth, ribbon development is predominant even in the core of urban area where underutilized land pockets are there in the interior of highly densified ribbon development. The spatial distribution of the higher density built up of Kerala (2011) is matching with urban area as per census 2001, but the census 2011 declares much more area as urban and it doesn't match with the high density built up. The points towards adopting a modified criteria (while consider physical development also) to define an urban area which is very relevant in the case of states like Kerala where urban-rural continuum exists. ❑

CHAPTER 10

Assessment of Impact of Urbanisation in the Socio-Economic Front

Kerala has been experiencing high pace of urbanisation since its formation in 1951. Resultant changes in the socio-economic front of the state, need to be explored. In this chapter the changes in GDP, Per capita income, human development index, cropping pattern and land holding size are studied against the pace of urbanisation.

GDP and Per capita Income

Urbanisation has direct impact on income generation. Urban areas are considered as generators of economic momentum. The table 10.1 shows the contribution of urban areas to National Income during 1951-2001 period. When the urban content of the nation doubled the contribution of urban areas to the national income also increased proportionately.

In Kerala also significant economic growth has taken place. The GDP of Kerala has increased by almost 10 times within a period of 40 years. An important feature of the Kerala's economy in nineties is the significant growth rate of the economy while in the 70's and 80's the economy was relatively stagnant (fig 10.1). The growth rate in the 90's is estimated at 5.99 percent. (Economic review 2003)

In relative terms, primary and secondary sectors have languished, meanwhile tertiary sector has leaped. During 1970's, the contribution of the primary sector towards GDP was 33%, which has drastically declined

Table:10.1 Estimated contribution of urban area to national income (%)

Year	Percentage of Urban to total population	Estimated contribution of Urban area to national income (%)
1951	17.3	29
1981	23.3	47
1991	25.7	55
2001	30.5	60

Source: National commission on urbanisation (2001)

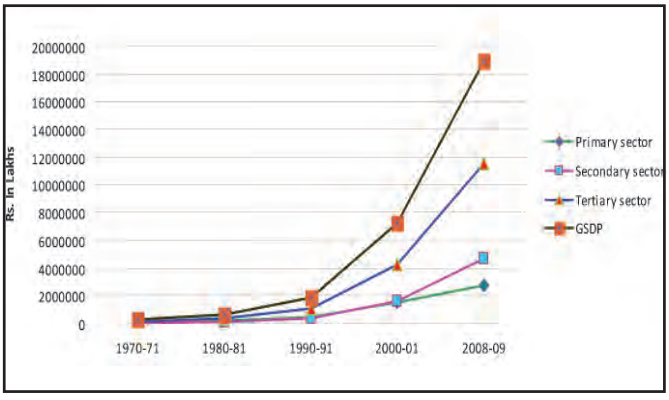


Fig 10.1 SDP of Kerala (at factor cost by industry of origin)- at Current price, Base year 1999-00

to 14% during 2008. Whereas during the same period the contribution of tertiary sector has increased from 54% to 61%. The secondary sector also showed significant increase (from 13% to 25%) during the same period. (fig 10.2)

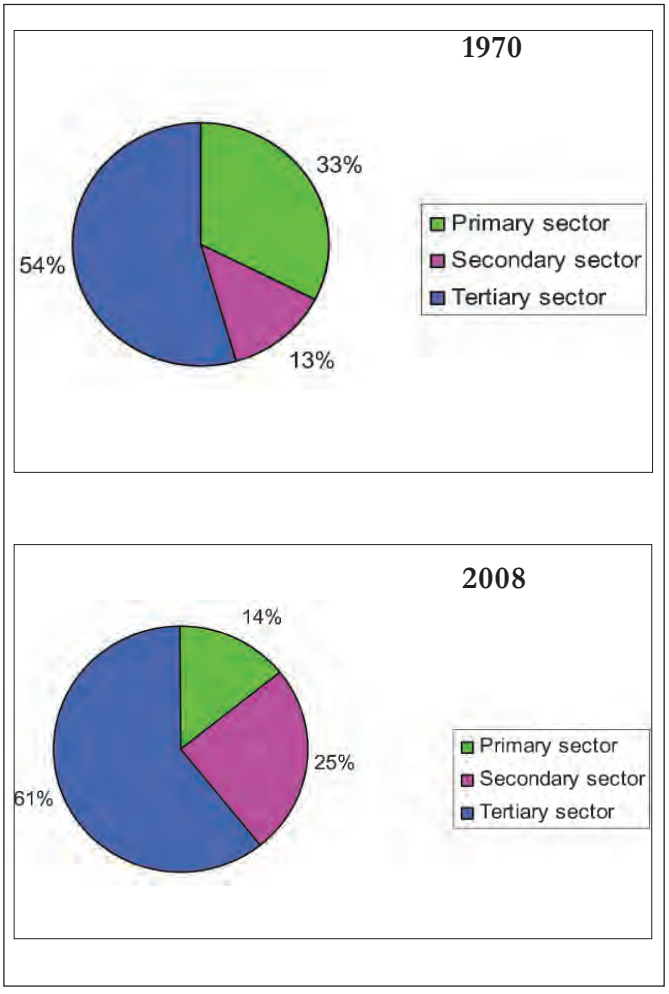


Fig 10.2 Contribution of different sectors to the GDP

A comparison of the growth of GDP with change in Urban content during 1971- 2008 period is shown in figure 10.3. Though both level of urbanisation and GDP of the State are increasing, the rates in increase do not match. Higher growth rate of GDP is seen from 1990 - 91 onwards, where as such a growth in urban population is seen only during the period 2000-2010.

The percent share of each district in the GDP

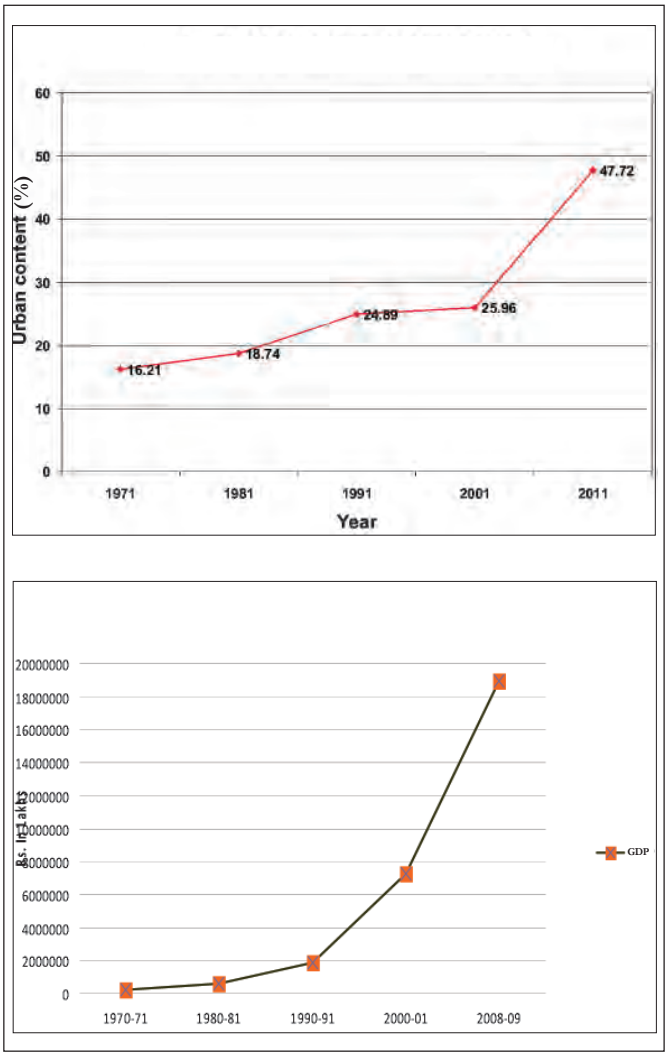


Fig 10.3 Comparison of the change in level of urbanisation with the change in GDP of Kerala

of the state is compared against its urban content in 2011 (table 10.2) to ascertain whether urbanisation has any direct influence in generating income in the case of Kerala. Though the data in the table doesn't explicitly correlate urbanisation with income generation, the coincidence of both can be seen in a few districts, like Thiruvananthapuram, Ernakulam, Thrissur (both contribution towards GDP and urban content high) and Pathanamthitta, Idukki, Wayanad (both contribution towards GDP and urban content low).

Per capita income is another indicator of economic development, the temporal variation of the

Table : 10.2 Contribution of different districts to GDP (2008-09) vis-a-vis Urban Content of the districts

Contribution of different districts to GDP (2008-09 (Quick)) and Urban Content of districts			
District	GDP	% share of GDP	Urban content in 2011
Thiruvananthapuram	2074507	11	53.8
Kollam	1410180	7	45.11
Pathanamthitta	738477	4	11
Alappuzha	1228590	6	54.06
Kottayam	1332999	7	25.58
Idukki	635292	3	4.7
Ernakulam	2747462	14	68.07
Thrissur	1848303	10	67.19
Palakkad	1457911	8	24.09
Malappuram	1472860	8	44.19
Kozhikkode	1676185	9	67.15
Wayanad	355459	2	3.87
Kannur	1370546	7	65.05
Kasaragod	635311	3	38.25
TOTAL	1,89,84,082	100	47.72

same is shown in fig 10.4. Similar to the pattern of variation of GDP, the per capita income also started increasing from nineties and has gone beyond the national average for the first time in 1991. The pattern of variation of urbanisation, however shows a different picture. The growth of urban content was almost stagnant until 1991-2001, but it increased phenomenally during 2001-2011. So it can be concluded that though the contribution to the state income increases with more urbanisation, a direct link of both urbanisation and income generation cannot be established specifically in the case of Kerala. Kerala's urbanisation does not have a direct correlation with the economic development.

Human Development Index

The Human Development Index (HDI) is a comparative measure of life expectancy, literacy, education and standard of living for countries worldwide. It is a standard means of measuring well-being of the society. It measures the average achievements in three basic dimensions, long and healthy life – indicated by life expectancy at birth, knowledge – measured by adult literacy rate (2/3rd weightage) and the combined primary, secondary and tertiary gross enrolment ratio (1/3rd weightage).

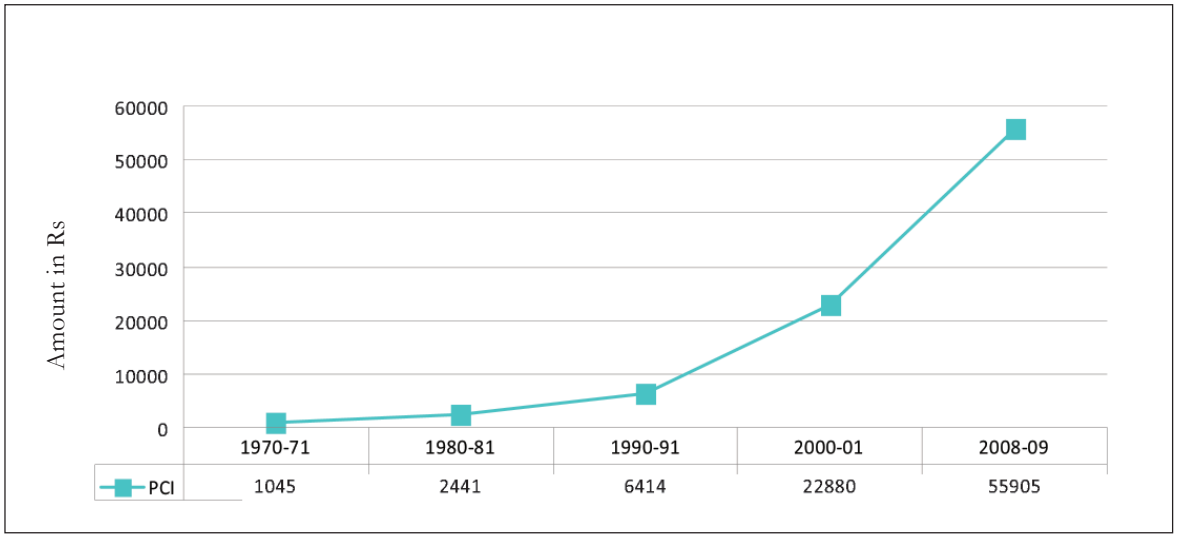


Fig : 10.4 Per capita income of Kerala (base year -1999-00)

Kerala has the highest Human Development Index (0.814) in India which is actually comparable with that of the Developed Nations. The variation of the human development index (ref: Human Development Index report – Kerala, 2005) between Kerala and India is shown in fig 10.6.

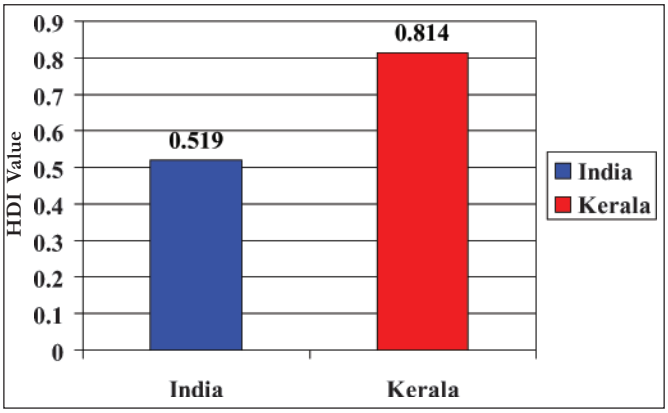


Fig : 10.5 Human Development Index of Kerala and India

In Kerala the HDI varies from 0.749 to 0.801 among the Districts. Maximum value of HDI is in Ernakulam District (0.801) whereas the minimum value is seen in Malappuram District (0.749). 8 out of the 10 coastal districts have higher human development index. Districts in the highland regions of Kerala viz, Wayanad, Palakkad and Idukki have lower HDI.

Fig 10.6 shows the distribution of human development index among the districts of Kerala. This when compared with the distribution of urban content of districts (fig 10.7). It is seen that generally highly urbanized Districts have higher HDI.

(Since data on district wise human development index available is for the year 2005, the urban content for the year 2001 is taken for the comparison).

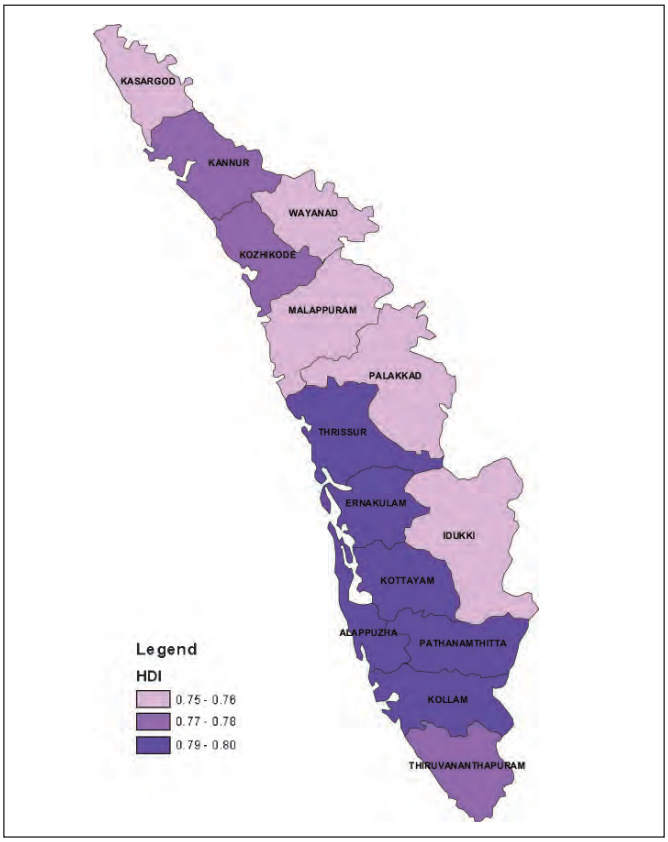


Fig : 10.6 Human Development Index – District wise variation

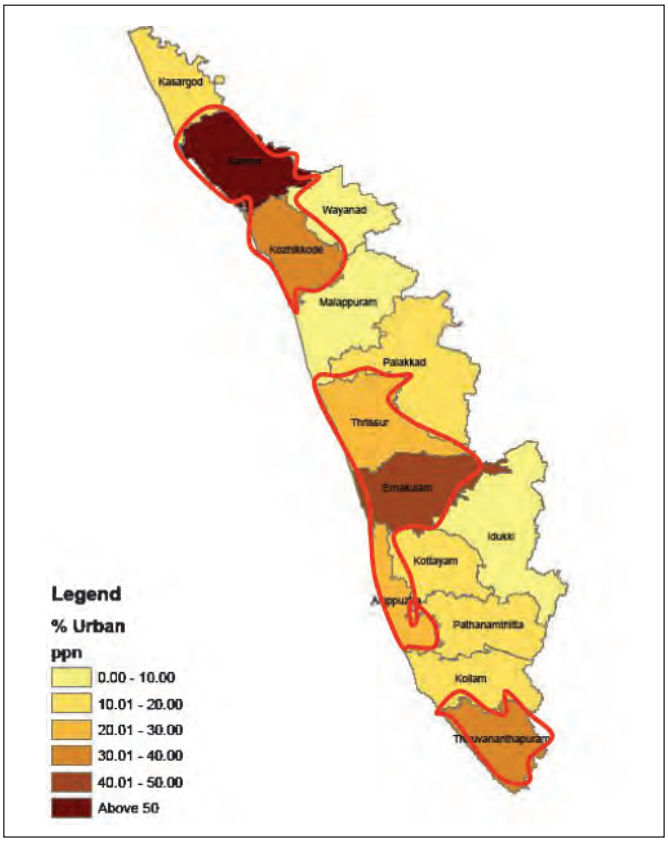


Fig : 10.7 Urban content 2001

Work Participation Rate and occupational structure

Work participation rate is an indication of the number of employment created in an area which in turn indicates the quantum of economic activity taking place. Historically, Kerala is having comparatively low work participation rate than that of the country as a whole (fig 10.8) indicating the low pace of economic activities in the State.

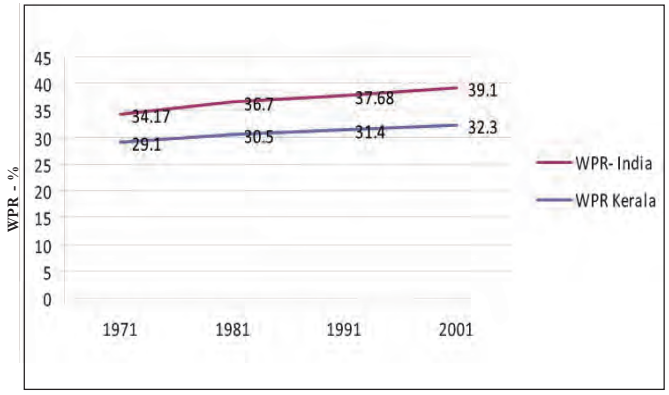


Fig 10.8 Work Participation Rate –India and Kerala

When Tamilnadu and Karnataka have high work participation rate at 44.78% and 44.60% respectively in 2001, Kerala has a work participation rate of only 32.30%. It is a paradoxical situation in the context of high urbanisation that Kerala has undergone in the State. General expectation that the employment opportunities increases with high level of urbanisation, did not come true in the case of Kerala. The State also showed low GDP till nineties. But after nineties the GDP of the State showed significant increase but this has not reflected in the change of work participation rate. The temporal variation in the share of major contributing sector towards GDP shows a shift from primary sector to tertiary sector. It implies that it is due to this shift high level of urbanisation has taken place in the State. Even if it resulted in increase in GDP, it failed to create proportionate employment opportunities.

The occupational structure of Kerala for 1971 and 2001 is shown in fig 10.9

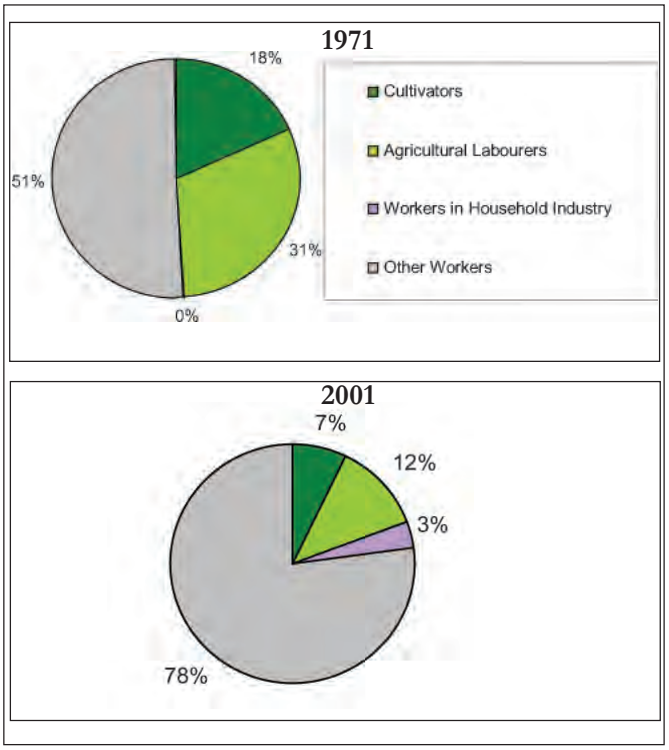
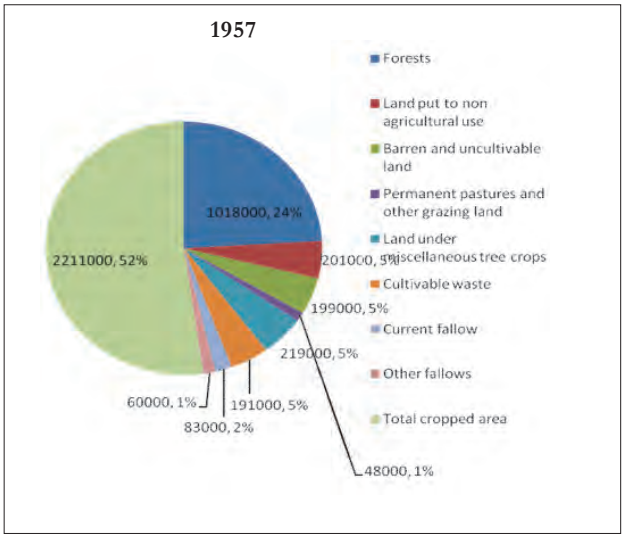


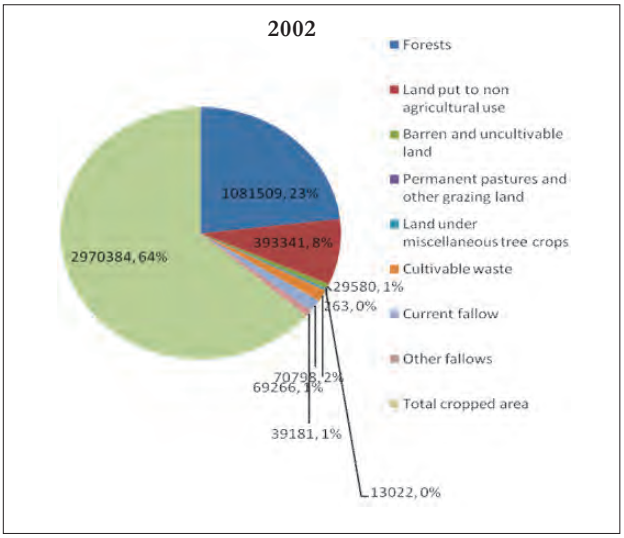
Fig 10.9 Occupational structure of Kerala-1971 and 2001

Reduction of employment in agricultural sector with corresponding increase in other workers category can be seen between 1971 and 2001. Cultivators and agricultural labourers together constituted 49% of the total workers in 1971, it has reduced to 19% within a period of 40 years. The other workers category increased to 78% from 51% during this period. It is for sure that the low population growth rate with high level of urbanisation will further reduce the number of workers engaged in agriculture and allied sector. This demand for a change in the present practice of agriculture from a family centered affair to more of a professionally managed one. Mechanisation suitable to the State is an inevitable impetus to it.

Land utilization pattern and cropping pattern

The changes that has happened in the general land utilization pattern of Kerala, within a period of 60 years, is analysed through comparing the general land utilization pattern of Kerala in 1957 and that in 2002 (shown in fig 10.10).

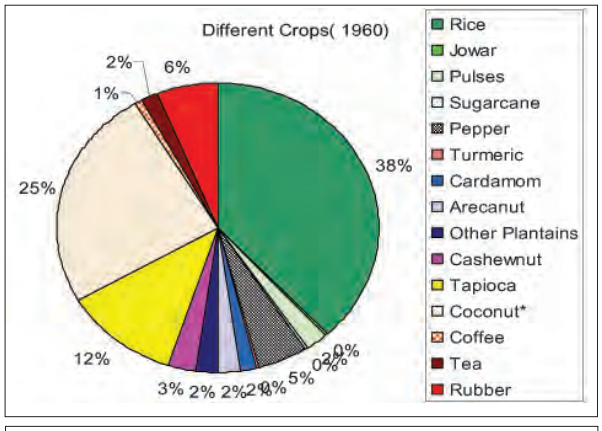




Source: Statistics for planning 2005, Economics and Statistics Department

Fig 10.10 Land Utilisation Pattern-Kerala

The figure shows that total cropped area has increased from 52% to 64% during this period. It is not reflected by corresponding increase in the contribution to GDP by the primary sector. Though the general land utilization pattern doesn't show much difference in Kerala during the cited period, the cropping pattern has undergone a sea change as revealed from Fig 10.11.



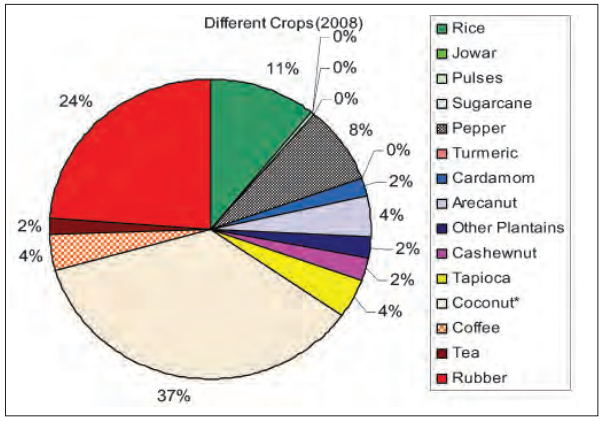


Fig 10.11 Cropping pattern of Kerala-1960 and 2008

A shift is noted in the cropping pattern, from food crops to cash crops. When the area under rice is reduced to 11% from 38% of the total cropped area, the area under rubber plantation has increased from 6% to 24%. In fact the area under rubber cultivation has surpassed that under paddy cultivation during nineties (fig 10.12) in Kerala.

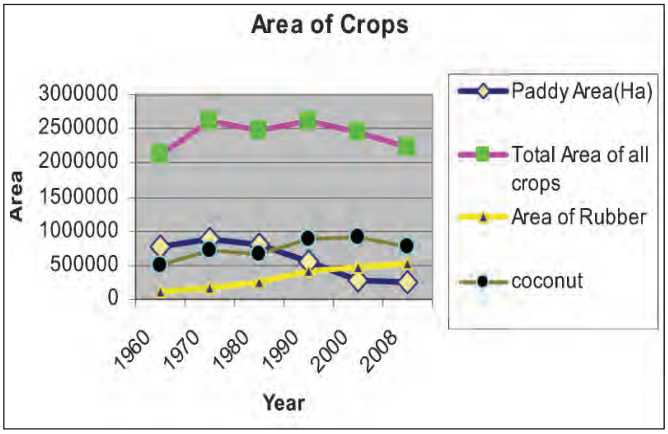


Fig 10.12 Change in the area under cultivation of major crops

This change in cropping pattern is very much reflected in the level of urbanisation that has

happened in Kerala over the same period of time. When the workers under paddy cultivation is reduced, the category of workers under agricultural labourers and cultivators will in turn be reduced as (plantation workers are not taken as agricultural labourers as per the census classification of workers). This in turn will lead to increased urbanisation when the census criteria for urban is applied.

Size of Land Holdings

Land holding size is a factor determining the type of development suitable for an area.

The temporal variation of the land holding size in Kerala indicated by the change in number of land holdings under various size categories (table 10.3)

Table 10.3 :Number of land holdings under various size categories

Number of Operational Holders and Area					
Year	Marginal	Small	Semi-medium	Medium	Large
	<=1 Ha	1-2 Ha	2-4 Ha	4-10 Ha	<10 Ha
1970	2295442	267833	125781	26880	4266
1985	4481482	282337	104227	24620	4062
1990	5016269	279738	97750	21486	3185
1995	5919075	261418	94098	19555	3141
2001	6335428	226810	75651	16008	2735
Change in %	176	-15.32	-39.85	-40.45	-35.89

Source: Agriculture Census 2001, Dept. of Economics & Statistics

shows enhanced plot subdivision indicated by increase in number of marginal holdings. It can be presumed that this is a reflection of the speedy urbanisation of Kerala .

The dearth of large land holdings limits the development prospects of the State by way of limiting land intensive developments.

The study of the functional character and activity pattern (Ref: Chapter 3) reveals that majority of the LSGs except in forest cover in high land region and high density residential colonies in the coastal belt of Kerala shows rural character and have scope for homestead agriculture and allied activities. The data on GDP also show that the contribution of primary sector to the economy of the state is significant, though not high. Occupational structure of both urban and rural indicate that the animal husbandry sector and fisheries sector are intact over a period of time. The Economic Review -2010 of Kerala unequivocally says the need for giving importance to agriculture, especially food crops, and animal husbandry sector in the economy of Kerala. The urban areas should function complementary with the rural areas.

The draft approach paper for 12th five year plan of the State focus on raising income of farmers through increasing productivity, subsidiary occupations, better marketing and through promotion of value added products. Special projects for food security targeting to increase rice production by 25 percent and vegetable production by 50 percent from the base level and homestead farming are mooted in this context. The conversion of the potential agricultural land for non agricultural purposes thus resulting in uncontrolled urban spread is against the policy of achieving food security.

The priority areas identified for development as per the medium term vision of development for the state for 2006 - 2010 period (as reported in the Kerala Development Report, Planning Commission, Government of India) were (1) tourism (2) inland-waterways; (3) marketing infrastructure; (4) pharmaceutical products; (5) training of paramedical personnel, (6) establishment of exclusive economic zones for NRIs and other investors; (7) fishing, fish-processing and marketing (8) processing of and value addition to agricultural products; (9) utilization of space technology for connectivity improvement; (11) watershed development, organic farming and credit marketing and provision of technological facilities for promotion of agriculture; (12) encouragement of traditional industries; and (13) measures for poverty reduction in general. All these point towards the need

and scope for strengthening of the rural economy of the State. So the urbanisation should be an impetus to this.

CONCLUSION

Due to nonavailability of data a direct relation between urbanisation and socio- economic and physical parameters like GDP, human development index, Work force participation rate, change in land use pattern, changes in cropping pattern, land holding size etc cannot be established. However by studying the variation of the above parameters against the change in urbanisation over a period of time, it is seen that all these parameters have relation with the pattern of urbanisation. Kerala's urbanisation has no direct correlation with the economic development, ie., GDP and per capita income. But the human development index and urbanisation trend coincide with high value of human development index observed in areas with high urban content. ❑

CHAPTER 11
Future Urbanisation in Kerala

The state need to have a vision on the desirable future urban profile. The urban profile is to be quantified and designated spatially as a manifestation of the vision. Consequent to this, a suitable strategy is to be designed to attain the desirable future urbanisation pattern. This chapter details out the urbanisation vision, future urban profile, and urban strategy for the state.

Urban vision

The urban vision of the State is formulated based on the following directives based on the findings of the analysis

- Since very low population growth is anticipated, the 'quantum of urban functions' to be delivered by urban areas in future is expected to remain the same as present, but quality wise change is expected towards the higher side. Significant increase in the aerial extent of the urban area from the present level is not necessary.
- Comparatively low urban population density and low built up intensity in the existing urban areas make possible the compaction of existing urban areas both in terms of population and built-up.
- High level of urbanisation and its spreading nature may lead to conversion of potential agricultural land for non agricultural purpose, depletion of forest cover and water bodies. Urban development has to be streamlined for a sustainable development.
- Comparatively high rural population density and spurt in household manufacturing industries there necessitates small to medium urban centers in rural areas. At the same time, higher order urban centers are needed to cater higher order urban functions at regional and State level. This necessitates assigning proper hierarchy and ensuring balanced distribution of urban areas within the State.
- Large scale plotted development with scattered settlements dictate a different approach, more of a homestead type but professionally managed and marketed development, as a more suitable model to the State. Urban areas have to facilitate such a rural oriented development. This requires the urban rural integration as inevitable process.

So the urban vision is **"Revitalized urban areas of compact urban form, distributed in a balanced and orderly manner in the entire Kerala, that perform urban functions complimentary to the rural hinter land and act as engines of development"**.

Transferring of this vision on ground has two aspects in it, the quantitative aspect as well as the spatial aspect. The quantitative aspects involves the estimation of future urban population and the spatial aspects involves formulation of a desirable spatial pattern of urban area.

Estimation of urban population

The estimation of future urban population is performed considering three scenarios.

- In the first scenario the existing trend of urban population growth is assumed to continue.
- In scenario two the average growth rate of urban population is assumed to remain as such in the next two decades.
- In the third scenario the likely future urban content is projected taking in to account overall future development of the State.

First Scenario: The exiting trend of urban population growth is assumed to continue. If the existing trend of urban population growth is continued cent percentage of the future population (table 11.1) will become urban in the next 20 years period ie, by 2031. It is an extreme situation and is not likely to be materialized.

Second scenario: The annual urban population growth rate of Kerala is 4.58% which higher than the annual urban population growth rate of the country 2.98% and that of the world 2.97%. If the same trend in urbanisation continues, 4.58% per annum is the maximum annual urban population growth rate that can be expected in Kerala. Assuming an annual urban population growth rate of 4.5%, the urban population is projected (table 11.2).

Table 11.1 Estimation of urban population (trend based)

Census Year	Total Population	Growth rate (decadal) of total population (trend based)	Urban ppn Growth rate(trend based)	urban ppn	%Urban
1951	13549118			1825897	13.48
1961	16886394	24.63	3.84	2526473	14.96
1971	21347375	26.42	3.72	3466968	16.24
1981	25453680	19.24	3.7	4751249	18.67
1991	29098518	14.32	6.16	7680194	26.39
2001	31841374	9.43	0.76	8266925	25.96
2011	33387677	4.86	9.27	15932171	47.72
2021	34687677	3.89	6.05	26447403	76.24
2031	35454677	2.21	6.65	44034927	100

Table 11.2 Estimation of urban population assuming annual growth rate remains the same

Census Year	Total Popn	Growth rate (decadal) of total population (trend based)	Urban ppn Growth rate	Urbn ppn Growth rate (annual) (4.5%)	%urban
1951	13549118		1825897		13.48
1961	16886394	24.63	2526473	3.84	14.96
1971	21347375	26.42	3466968	3.72	16.24
1981	25453680	19.24	4751249	3.7	18.67
1991	29098518	14.32	7680194	6.16	26.39
2001	31841374	9.43	8266925	0.76	25.96
2011	33387677	4.86	15932171	9.27	47.72
2021	34687677	3.89	23101647	4.5	66.6
2031	35454677	2.21	33497389	4.5	94.48

In this scenario the projected urban population comes to 94.48% in the next 20 years (by 2031) which is not desirable.

Third scenario: Though Kerala is having high urban content and comparatively higher pace of urbanisation, analysis shows that agriculture and allied sector is still a major economic base of the State and is expected to remain so in the future also. The likely future urban content of the State is arrived at taking this in to account. If we look at the States/Union Territories with highest urban content in the Nation, it can be seen that these are areas having comparatively low geographical area and population with limited scope for primary activity. As per the census 2011, the highest urban content (urban content greater than 50%) is noted in 7 union territories (table 11.3) where primary activity is practically nil and have very low population (less than 15lakhs except in the case of NCT of Delhi).

Table 11.3 States/UT s with highest urban content

States/UTs	Total Population	Urban Content
NCT of Delhi	16753235	97.49
Chandigarh	1054686	97.24
Lakshadweep	64429	78.08
Daman & Diu	242911	75.16
Puducherry	1244464	68.31
Goa	1457723	62.17
Mizoram	1091014	51.5

Source: Census 2011

Tamilnadu and Maharashtra are the two States with high urban content but with comparatively significant contribution of primary sector to the States economy (table 11.4). It can be assumed that the Indian scenario put a cap on urban content in an around 50% for a State/UT having a rural base.

Table 11.4 Selected States/UT s with highest urban content and agricultural base

States/UTs	Urban Content in percent	contribution of primary sector to the GDP in percent
Karnataka	38.57	19.98
Tamilnadu	48.44	13.71
Maharashtra	45.24	13.18
Andra Pradesh	33.50	28.96
Kerala	47.71	15.6

Source: Census of India 2011 and inter state comparison of GSDP of major states and gross domestic product of all India 2005-06, directorate of Economics & Statistics Government of Andhra Pradesh Hyderabad

So in a State like Kerala where primary sector share to the GDP of the State is still at 15.6% and in the context of States policy for more development in agriculture sector, one cannot expect a much higher urban content than the present value of 47.71%. However a trend reversal from the state of high urban content cannot be expected. Hence the desirable level of urbanisation of the State is fixed in the range 48-51% within the next two decades. The urban population of Kerala, so estimated is shown in Table 11.5.

Table 11.5 Estimation of Urban population based on urban content

Census Year	Urban Population	Urban content	Urban population growth rate
2001	8266925	25.96	
2011	15932171	47.72	92.72
2021	17343839	50	8.86
2031	18436432	52	6.3

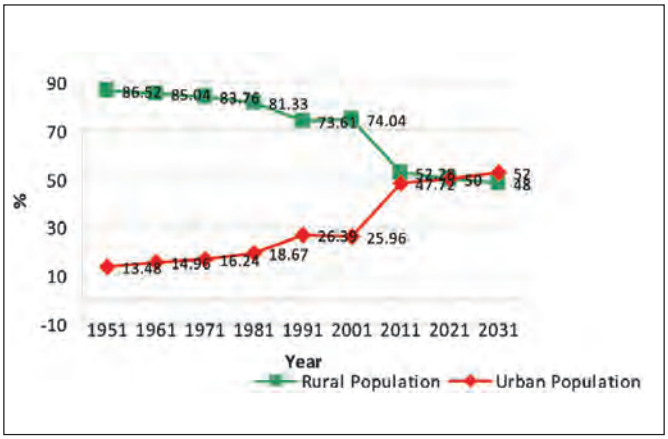


Fig 11.1Percent urban & rural population- Kerala

Hierarchy and spatial pattern of urban areas

The future spatial pattern of urban area is derived with the main objective of assigning proper hierarchy and ensuring balance distribution of urban areas within the State, in accordance with the urban vision.

The factors considered for the assessment of the future spatial pattern of urban area are

- Population concentration pattern

  Generally, in Kerala urban centres have two main functions to perform, ie, to support rural hinter land with higher order facilities needed for their rural functions and to produce higher order urban functions to the people within the urban area and its service zone. This necessitates proper distribution of urban centres within the rural area and also in accordance with the distribution of population.

- Distribution of environmentally sensitive areas

  Nearly 30% of the geographical area of the state is covered with forest and the concentration of the forest area is seen in the high land region of the State. Besides, the coastal plains have a number of estuaries and lagoons including the Ramsar sites of Vembanadu and Ashtamudi lakes. The spatial distribution of the urban areas should be in such a way that the environmentally sensitive areas are spared.

- Distribution of built-up area

  Grids with high density built up, with coverage of built up clusters greater than 50%, indicates an urban area. Agriculture activity is normally not viable in such area for a family to sustain on agricultural income. This is a factor to be considered for the delineation of the future urban areas.

- Hierarchy of settlements

  Hierarchy of settlements based on the concentration and hierarchy of various facilities is another factor to be considered for the assessment of the future urban area, because the concentration of facilities often accelerate the process of urbanisation in an area.

- On going and committed urban development projects

  The development projects which promote urban development are also considered for deciding the future urban area. DUR of each district have the data regarding the on going and committed project.

- Census urban area

  Census urban area should be given weightage. By taking the census urban area the criteria of high population density and concentration of non agricultural workers will automatically get satisfied.

The future spatial pattern of urban is derived in two steps.

1. Assigning hierarchy to the urban centre
2. Ensuring equity in distribution

Step1: Assigning hierarchy to the urban area.

All statutory urban local bodies as on 2011, Urban Agglomerations as per census 2001 and 2011 and Class I & II towns (in 2001) are taken for the calculation of the hierarchy.

Hierarchy of these selected urban areas (based on population, facilities, built up nature and administrative set up) are separately assessed and a combined hierarchy (Annexe-4)is arrived at.

Those urban centres with the entire State or even beyond as service area are the first order urban centres. Urban centres with a region consisting of 3 or 4 districts as service area are the second order and those with the district and adjacent districts as their service area are the third order urban centres. Urban centres with service area as the parent district only are taken as fourth order urban centres. Other lower order urban centres are considered as the fifth order and sixth order urban centres.

The assigned hierarchy to the urban centres according to the above priorities is shown in Table 11.6

Table 11.6 Hierarchy of urban areas

Sl. No	Urban Area	Combined Heirarchy
1	Kochi UA	1
2	Kozhikode UA	2
3	Thiruvananthapuram UA	2
4	Kannur UA	3
5	Alappuzha UA	3
6	Kollam UA	3
7	Palakkad UA	3
8	Thrissur UA	3
9	Kottayam UA	3
10	Malappuram UA	3
11	Kasaragod UA	4
12	Pathanamthittah	4
13	Guruvayoor UA	4
14	Cherthala UA	4
15	Kanhangad UA	4
16	Changanassery UA	4
17	Vazhathoppu	4
18	Thodupuzha	4
19	Vadkara UA	4
20	Kayamkulam UA	4
21	Ottapalam UA	4
22	Nilamboor Municipality	5
23	Chalakkudy UA	5
24	Kothamangalam UA	5
25	Kodungallor UA	5
26	Koyilandi Municipality	5
27	Neyyattinkara Municipality	5
28	Chittur-Thathamangalam UA	5
29	Payyyanur Municipality	5
30	Thaliparambu Municipality	5
31	Ponnani Municipality	5
32	Tirur Municipality	5
33	Thiruvalla Municipality	5
34	Varkala Municipality	5
35	Chengannur Municipality	5
36	Perumbavur Municipality	5
37	Perinthalmanna Municipality	5
38	Thrikkakara Municipality	5
39	Nedumangad Municipality	6
40	Attingal Municipality	6
41	Punalur Municipality	6
42	Paravoor Municipality	6
43	Adoor Municipality	6
44	Pala Municipality	6
45	Vaikom Municipality	6
46	Kunnamkulam Municipality	6
47	Koothuparambu Municipality	6
48	Karunagappalli Municipality	6
49	Mattannur Municipality	6
50	Kottakkal Municipality	6
51	Irinjalakuda Municipality	6

Step2: Ensuring equity in distribution.

- The spatial distribution of urban centres of different hierarchy are studied against population distribution (bisection method is used to delineate the service area and service inturn) and identified the gaps or necessity of elevation of the hierarchy of an existing urban centres.
- A modified hierarchy is obtained taking in to account the spatial aspects also.

Detailed procedure is explained here under:

Kochi Urban Agglomeration stands as the first order urban centre of the State (Table 11.6). Being the first order settlement in the State, it has to cater to the entire population of the State. Hence both area wise and population wise this will be biggest urban area in the State.

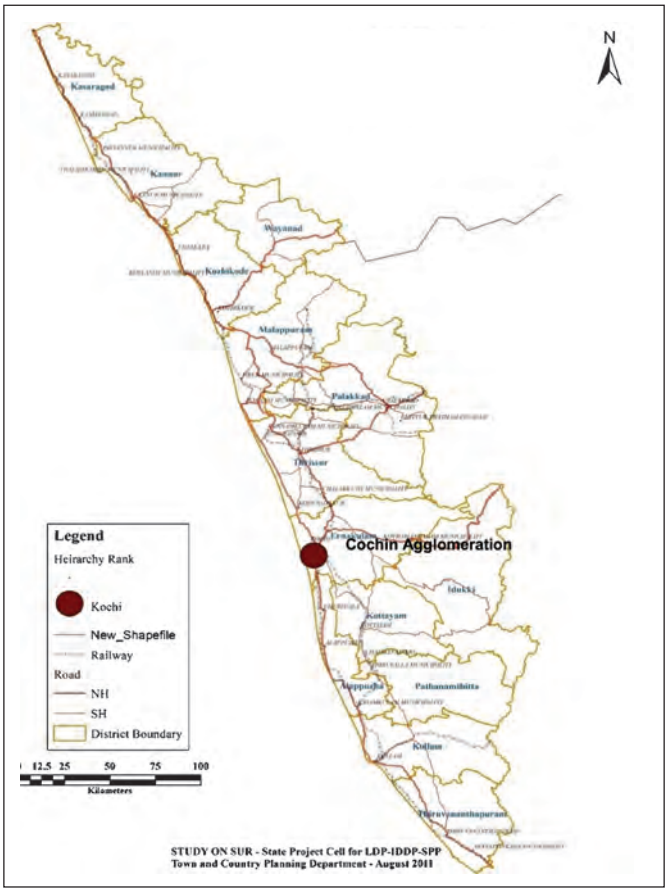


Fig 11.2 First order urban settlement

Thiruvananthapuram urban agglomeration and Kozhikkode urban agglomeration are as the second order urban areas in the State. While delineating the service population of the second order urban areas, the first order urban area is also considered as a second order urban area. Also the influence of cities like Coimbatore, Mangalore and Nagercovil in the neighbouring states also to be taken in to account. The service area of the second order urban settlements so delineated and their population is shown in Fig 11.3.

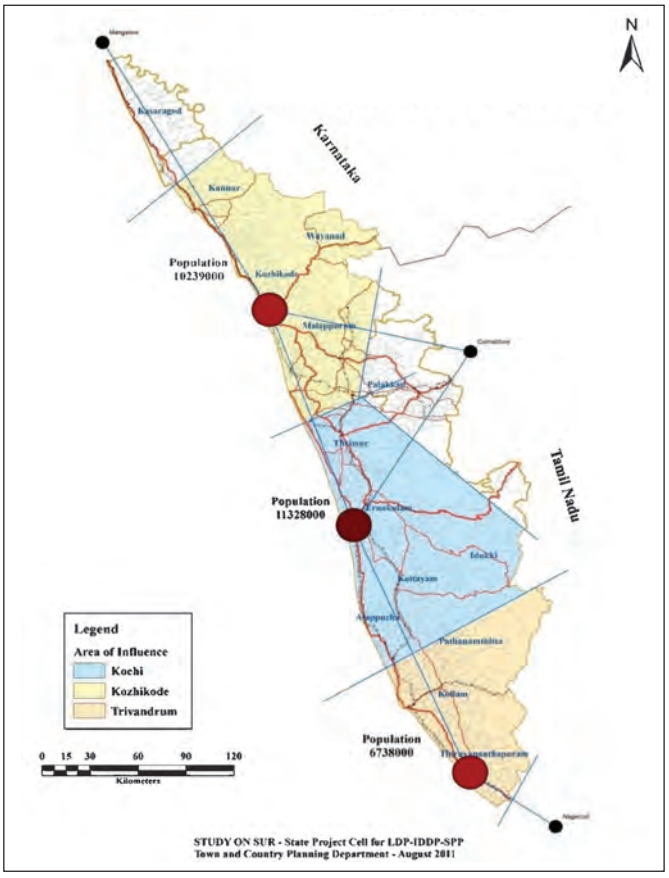


Fig 11.3 second order urban area

Table 11.7 Second order urban centres with service population

Second order urban centre	Service population
Kozhikode	10239000
Kochi	11328000
Thiruvananthapuram	6738000

If the service population of an urban centre of a particular hierarchy deviates less than 30% from the average service population of urban centres of that hierarchy it indicates a fairly well distribution of urban centres of that hierarchy. Here variation of service population of the three third order settlements from the average service population is less than 30%, indicating a fairly well distribution of the second order urban centres.

In a similar way the third order urban centres are spatially distributed and their service zones and population are assessed. The spatial distribution of the third order urban centres along with higher order urban centres and their service area delineation is shown in Fig 11.4.

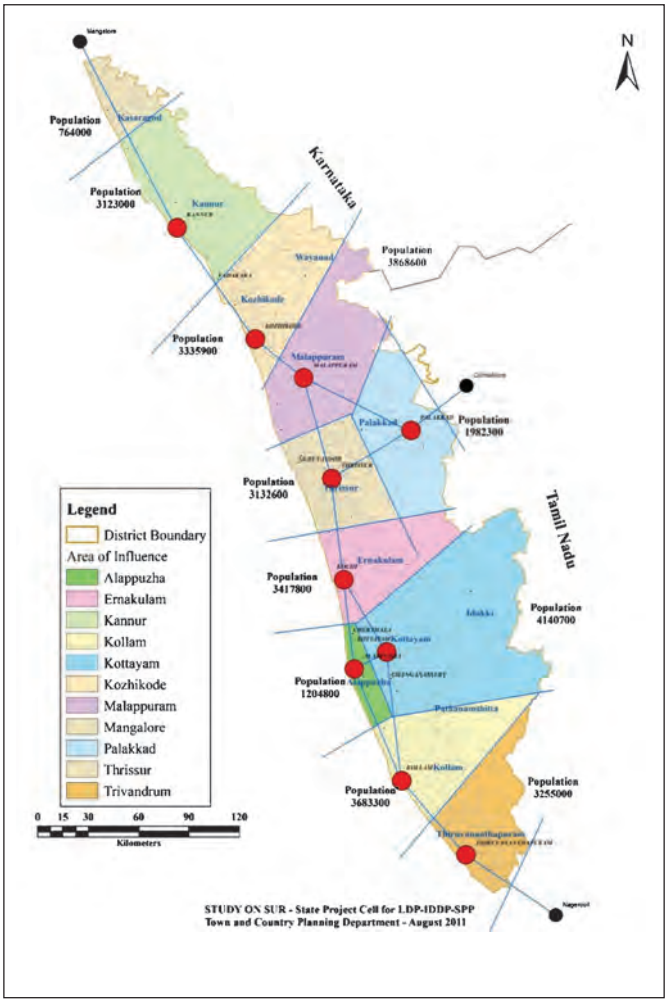


Fig 11.4 Third order urban centres with service zone and service population

Table 11.8 Third order urban with service population

Third order urban settlement	Service population
Kannur	3123000
Kozhikode	3335900
Malappuram	3868600
Palakkad	19282300
Thrissur	3132600
Kochi	3417800
Allappuzha	1204800
Kottayam	4140700
Kollam	3683300
Thiruvananthapuram	3255000

The distribution of the 3rd order urban centres shows that the service area and service population of Alappuzha district is comparatively lower than the other 3rd order urban centres. But since the urban content as well as urbanisation pace of Alappuzha District is noted high, Alappuzha urban agglomeration is retained as a 3rd order urban centres. The final third order urban centres is shown in Fig 11.5

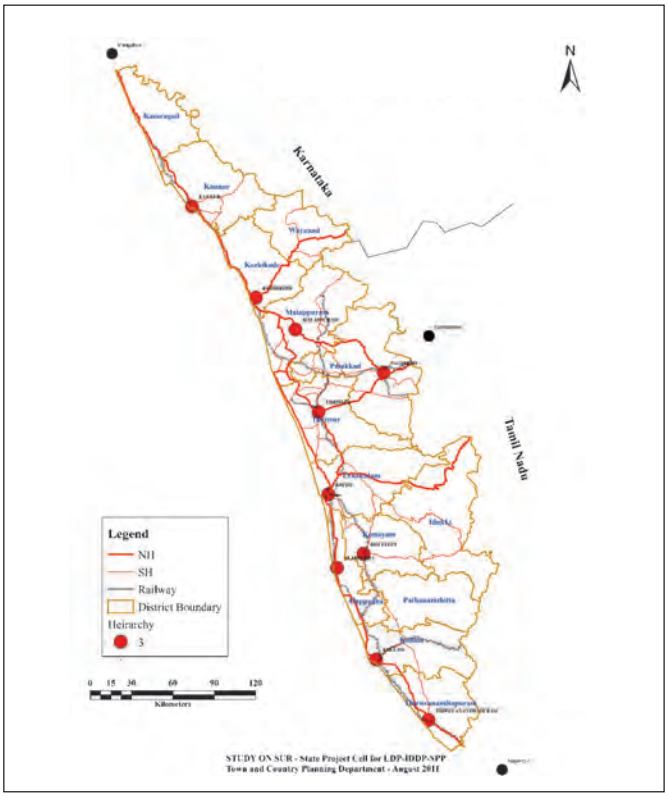


Fig 11.5 final 3rd order Urban centres

The fourth order urban centres along with the higher order centres is shown in fig 11.6.

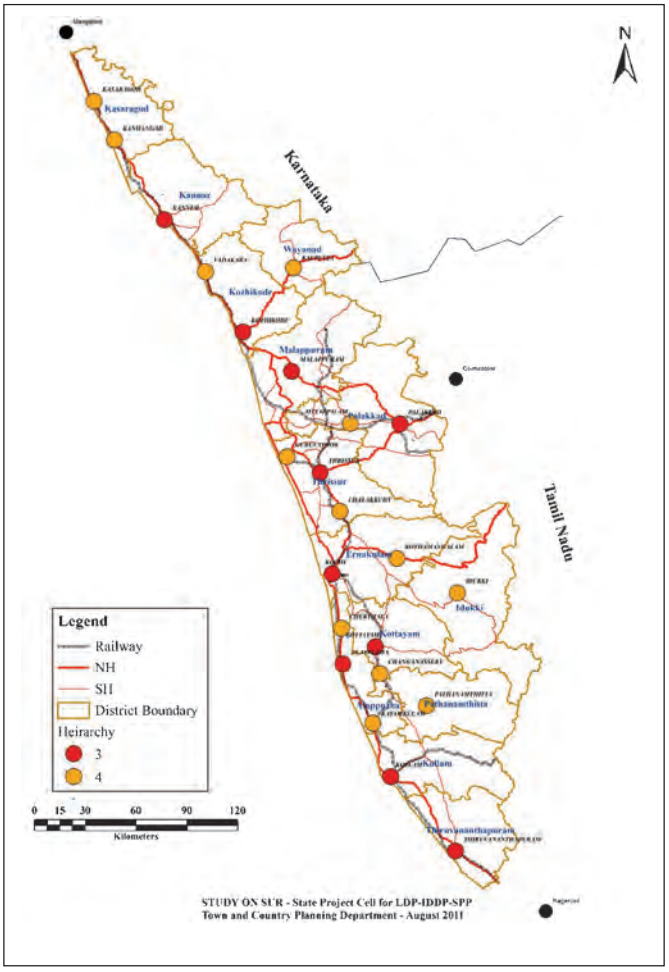


Fig 11.6 Fourth order urban centres

Distribution of the fourth order centres is checked against the population distribution (fig 11.7). Since both are tallying there is no scope for a new 4th order centres.

The spatial distribution of 4th order urban settlements is further checked against the distribution of water body and forest cover within the State to assess proximity to the environmentally sensitive area. It is found that the 4th order settlements are not causing much problem to the environmentally sensitive areas (fig 11.8).

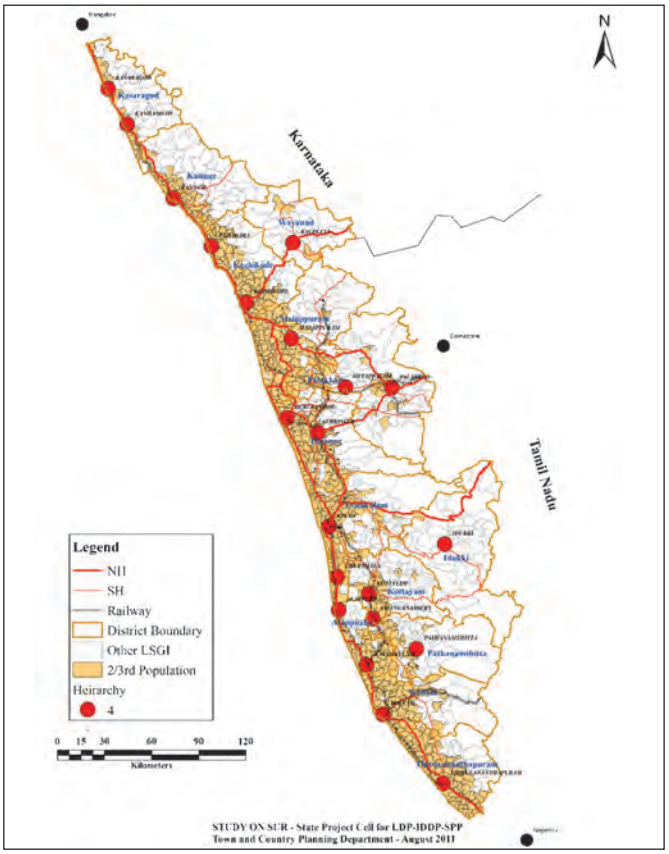


Fig 11.7 Fourth order urban centres vis-a-vis population distribution

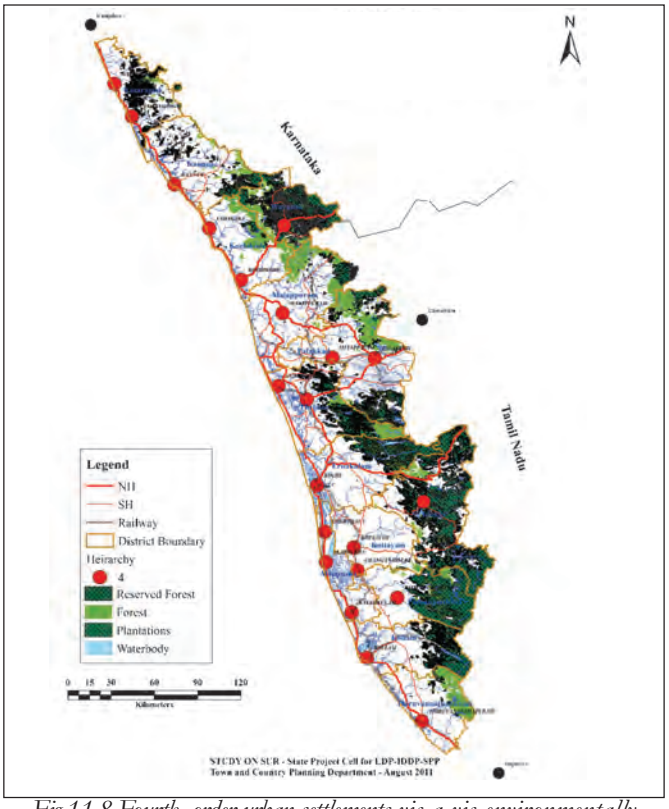


Fig 11.8 Fourth order urban settlements vis-a-vis environmentally sensitive areas

The urban areas belonging to the other two hierarchies (5 and 6) are assigned the same hierarchies. Being their service area limited to 3 or 4 local self governments within a district, the hierarchy of these are not further modified. The urban centres with final hierarchy is given in table 11.9 and the spatial distribution of these centres is shown in Fig 11.9.

Table 11.9 Future Hierarchy of Urban centres

Sl. No	Urban Area	Combined Heirarchy
1	Kochi UA	1
2	Kozhikode UA	2
3	Thiruvananthapuram UA	2
4	Kannur UA	3
5	Alappuzha UA	3
6	Kollam UA	3
7	Palakkad UA	3
8	Thrissur UA	3
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10	Malappuram UA	3
11	Kasaragod UA	4
12	Pathanamthitta	4
13	Guruvayoor UA	4
14	Cherthala UA	4
15	Kanhangad UA	4
16	Changanassery UA	4
17	Vazhathoppu	4
18	Thodupuzha	4
19	Vadkara UA	4
20	Kayamkulam UA	4
21	Ottapalam UA	4
22	Nilamboor Municipality	5
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32	Tirur Municipality	5
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48	Karunagappalli Municipality	6
49	Mattannur Municipality	6
50	Kottakkal Municipality	6
51	Irinjalakuda Municipality	6

There is close proximity between urban centres of different hierarchy indicating the chances of merging together of some of these centres in nearby future. This necessiates the delineation of each of the future urban areas to understand the possibility of merging of urban areas in future.

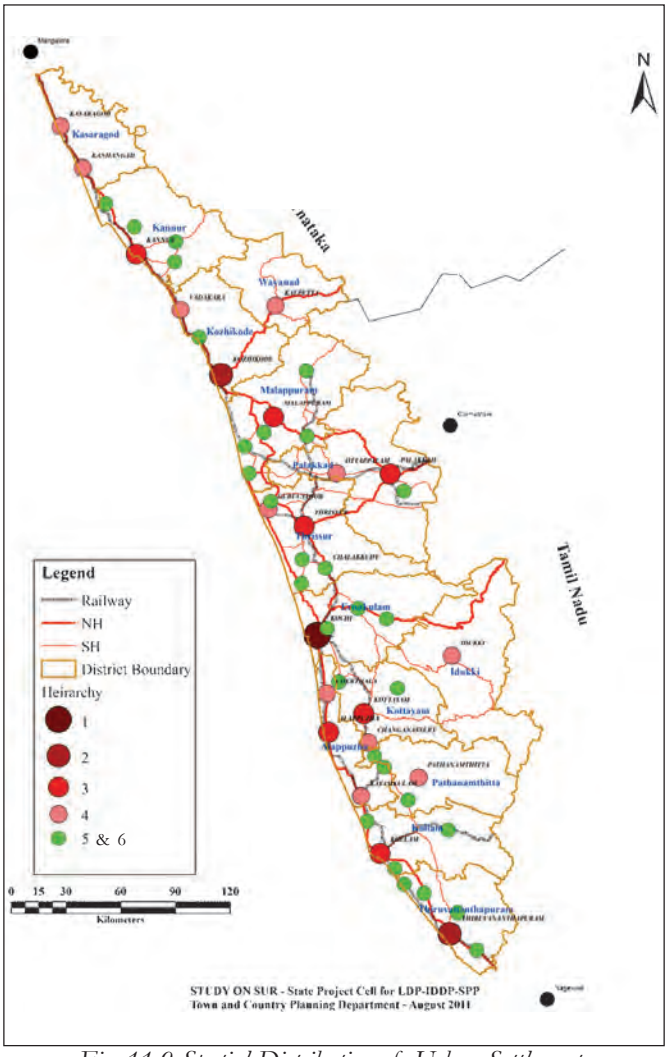


Fig: 11.9 Spatial Distribution of Urban Settlements with hierarchy

Delineation of future urban areas and future urban profile of the state

Future urban area has to be delineated taking into account the urban vision, and also different strategies to be adopted for determination of urban area of different hierarchy. The urban vision specifies for a compact urban form for our urban areas. The analysis of the population density within the core area of census urban agglomerations reveals scope for further densification of population. Analysis of the physical development in the core and surroundings also indicates the possibility of further densification in and around the existing urban areas. At the same time, the delineated urban area shall accommodate land intensive developments which, of course, will have to be located outside the core. So less developed fringes of existing urban areas also to be included in the future urban area to be delineated. Accordingly, it is proposed to have three zones for the urban areas – core urban, intermediary urban and peri- urban. But generally the development of peri urban area around a large city is guided through corridors along major highways. With ribbon type development this is very relevant to the higher order urban areas of the State. Hence for higher order urban centres (up to 4th order),

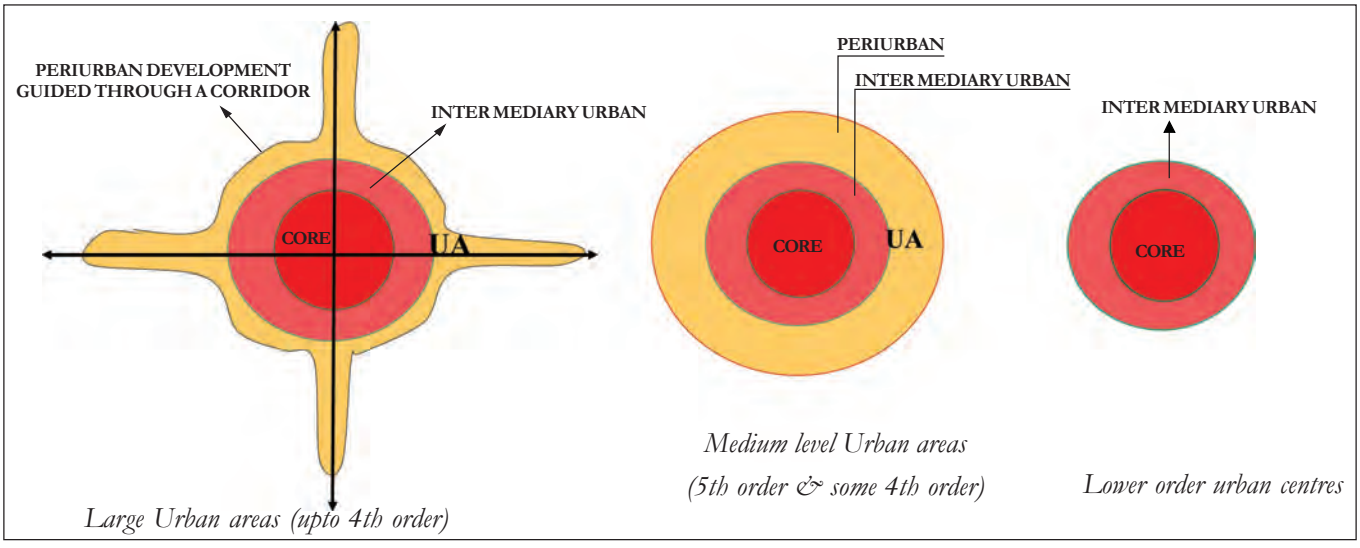


Fig 11.10 Zones of urban area

corridor type peri-urban development can be expected. For lower order urban centres (5th order or even some of the 4th order) extensive ribbon type of development may not be encouraged. For small urban centers which cater to the urban functions supportive to the rural hinter land, peri-urban development is often not required and to be limited, to protect the agricultural land in the hinter land. Taking these into account, urban profile of the state is arrived at for two periods viz 2021 and 2031.

Urban profile 2021

Urban profile for 2021 is derived taking in to account the high density physical development and mutual proximity between urban areas of different hierarchy. Thus areas with high density physical development and with more than two closely located higher order (up to 5th order) urban centres are delineated into a urban cluster.

The following are the urban clusters delineated accordingly : (Fig 11.11)

(1)Thiruvananthapuram cluster
(2)Kollam Cluster
(3)Alappuzha Cluster
(4)Kochi Cluster
(5)Thrissur Cluster
(6)Palakkad Cluster
(7)Kozhikkod- Malappuram Cluster
(8)Kottayam-Pathanamthitta cluster
(9)Kannur Cluster and
(10) Guruvayoor cluster.

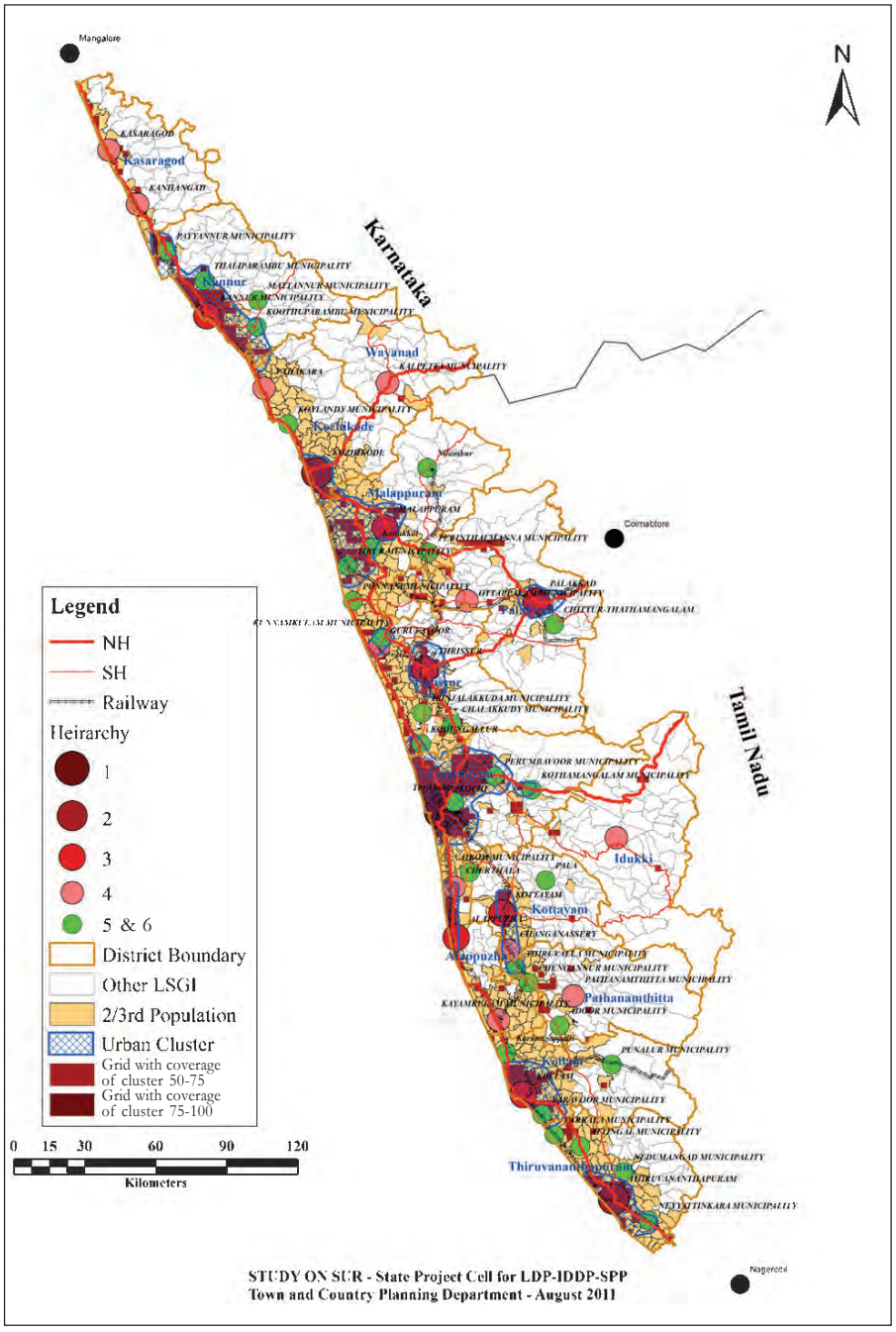


Fig 11.11 Delineation of urban clusters

Remaining urban areas as per table 11.9 fall outside these clusters. The urban profile for 2021 is then finalised after checking against following scenarios viz. Population distribution pattern (Fig 11.12) committed major development projects (Annexe 5) as well as the environmentally sensitive areas of the state (Fig 11.13).

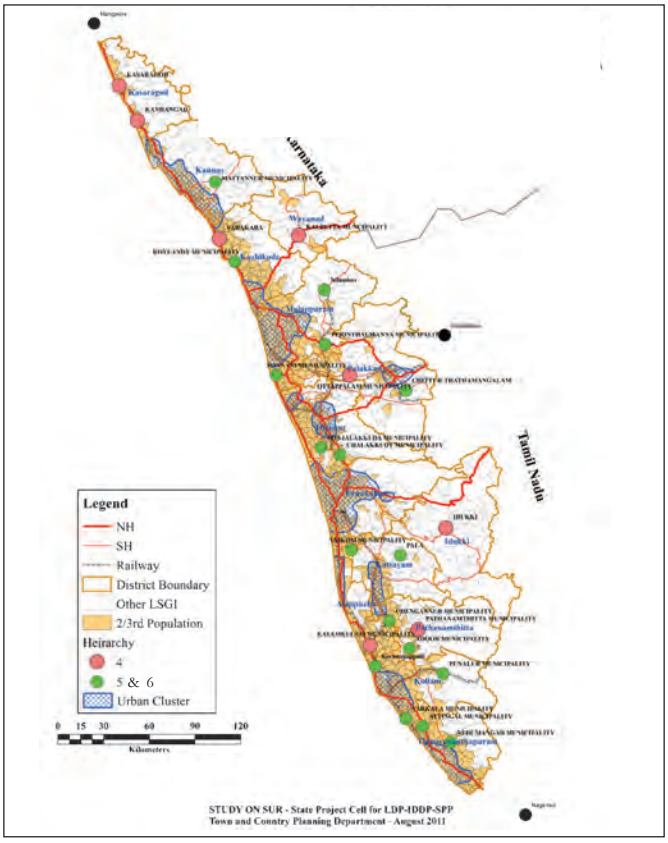


Fig 11.12 Urban Cluster & other urban areas vis-a-vis 2/3 population distribution

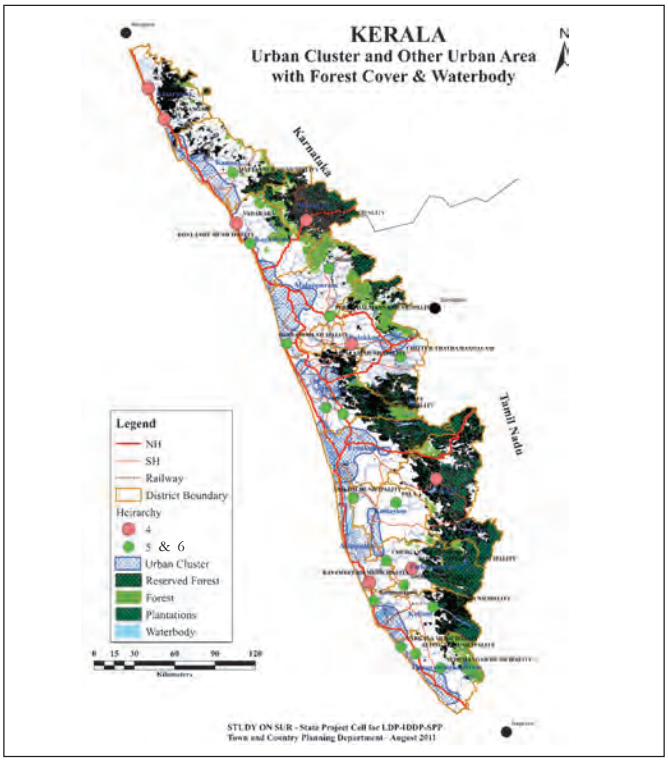


Fig 11.13 Urban cluster and other urban area vis-a-vis environmentally sensitive areas

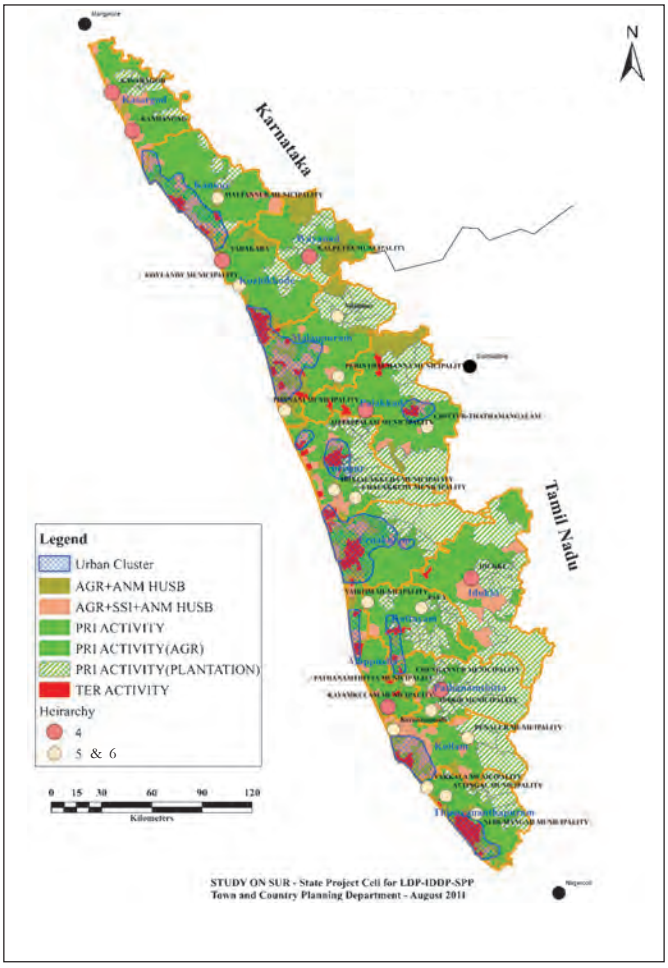


Fig 11.14 Activity pattern vis-a-vis urban areas 2021

During derivation of future urban areas itself the population concentration pattern is taken into account. Hence, naturally the urban profile 2021 is in conformity with the population distribution.

Annexe 5 reveals that the urban profile for 2021 and major development projects in pipeline are also coinciding.

The future urban areas as per urban profile 2021 also excludes the environmentally sensive areas of the state. The activity pattern of the state is checked against the delineated urban profile and found that both tallies. Since the urban profile delineated tallies with the population concentration pattern, distribution of urban development projects and activity pattern this profile is finalised as the urban profile 2021. Urban profile-2021 is shown in Fig 11.15 and Table 11.10. (urban areas outside the clusters are shown separately)

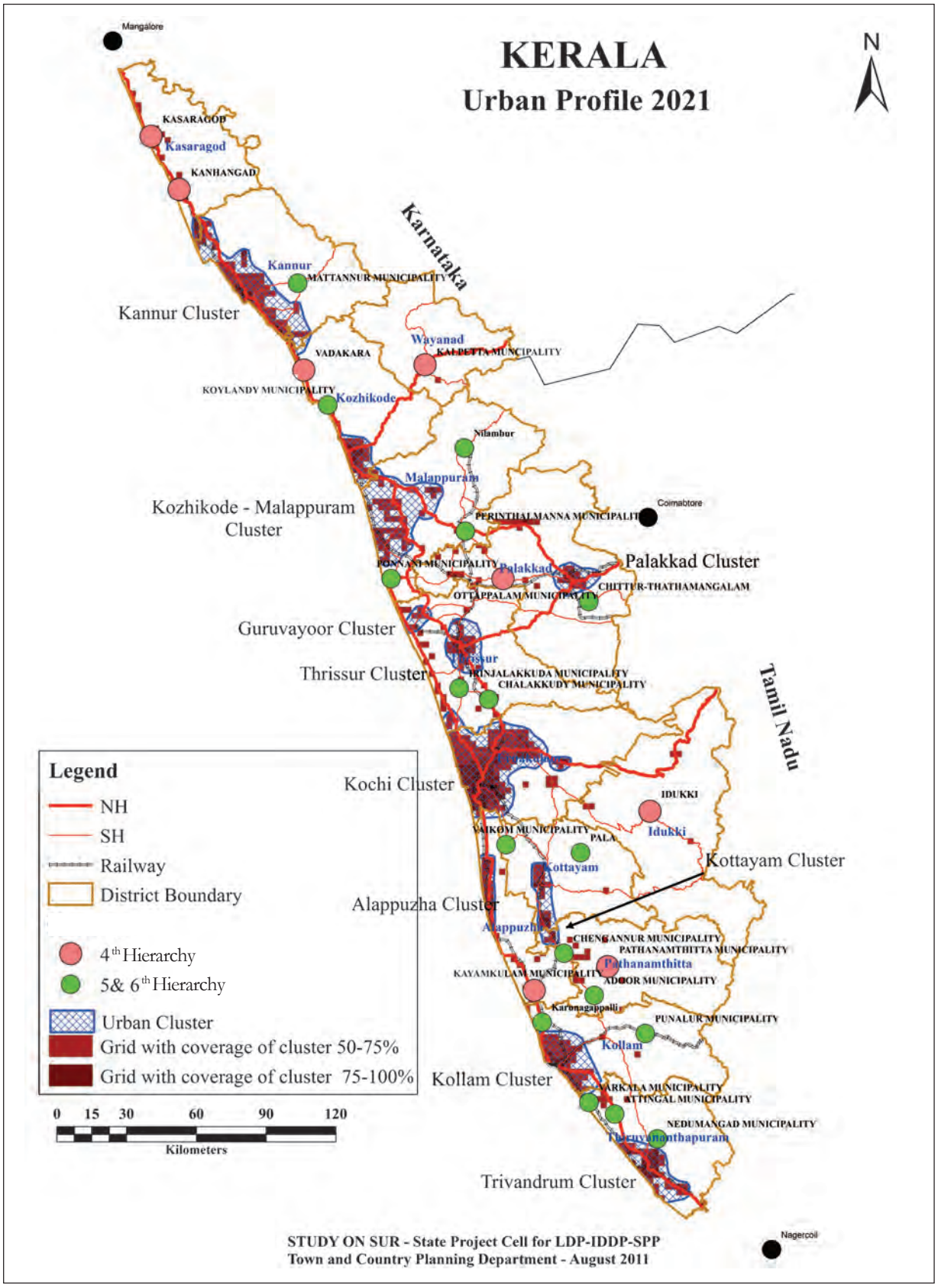


Fig 11.15 Urban profile 2021- Urban Clusters and other urban areas

Table 11.10 Urban profile 2021

Constituent LSGs in Urban cluster	
Trivandrum cluster	
Constituent LSGs in Urban cluster	Thiruvananthapuram
	Kudappanakkunu
	Kazhakkootam
	Sreekaryam
	Vattiyoorkavu
	Kovalam
Navayikkulam	
Elakamon	
Edava	
Chemmaruthi	
Karavaram	
Ottoor	
Manampoor	
Cherunniyur	
Vettoor	
Kadinamkulam	
Andoorkkonam	
Vilavoorkkal	
Pallichal	
Neyyattinkara	
Balaramapuram	
Athiyannoor	
Kottukal	
Kanjiramkulam	
Kalliyoor	
Venganoor	
Vizhinjam	
Karakulam	
Kollam Cluster	
Kollam UA	Kollam
	Neendakara
	Eravipuram
Panmana	
Thevalakkara	
Mantrothuruthu	
Kundra	
Chavara	
Perayam	
Thekkumbhagam	
Panayam	
Thrikkaruva	
Perinadu	
Elampalloor	
Nedumpana	
Kottamkara	
Thrikkadavoor	
Thrikovilvattom	
Adichanalloor	
Chathannoor	
Mayyanadu	
Kalluvathukkal	
Paravoor Municipality	
Poothakulam	
Alappuzha Cluster	
Alappuzha UA	Alappuzha-M
	Kalarkode-OG
	Punnapra-OG
	Komalapuram-CT
Cherthala UA	Cherthala-M
	Vayalar-OG
	Thanneermukkam-OG
	Kokkothamangalam-CT
	Muhamma-CT
Aroor	
Perumbalam	
Arookutty	
Cherthala South	
Kanjikkuzhi	
Mararikkulam North	
Mararikkulam South	
Mannanchery	
Kottayam-Pathanamthitta cluster	
Peringara	
Thiruvalla Municipality	
Kottayam UA	Kottayam
	Vijayapuram
	Perumbaikad
	Nattakam
Changanassery UA 2011	Changanassery
	Chethipuzha
	Thrikkodithanam
	Paippad
Athirampuzha	
Arpookara	

Constituent LSGs in Urban cluster	
Kumaranalloor	
Manarcad	
Panachikkad	
Kurichi	
Vazhappally	
Cochin Cluster	
Kochi UA	Kochi
	Thrippunithura
	Eloor
	Kalamassery
	Kakkanad
	Aluva
	Choornikkara
	Edathala
	Paravur
	Kedamangalam
	Kottuvally
	Alangad
	Varappuzha
	Kadungallur
	Cheriyakadavu
	Cheranallur
	Mulavukad
	Vazhakkala
	Thiruvankulam
	Maradu
	Angamaly
	Chengamanad
	Chowwara
	Kadamakkudy
	Kureekkad
Thuravoor	
Parakkadavu	
Puthenvelikkara	
Kalady	
Koovappady	
Vadakkekkara	
Nedumbassery	
Pallippuram	
Chendamangalam	
Mudakkuzha	
Kuzhuppilly	
Chittattukara	
Kunnukara	

Constituent LSGs in Urban cluster	
Ockal	
Kanjoor	
Karumalloor	
Chengamanad	
Sreemoolanagaram	
Ezhikkara	
Perumbavoor	
Edavanakkad	
Keezhmadu	
Asamannoor	
Vazhakkulam	
Kadungalloor	
Rayamangalam	
Vengola	
Nellidduzhy	
Njarackal	
Varappety	
Paipra	
Thrikkakkara	
Nayarambalam	
Elamkunnappuzha	
Kizhakkambalam	
Vadavucode-Puthencruz	
Thrikkakkara	
Kumbalangi	
Elamkunnappuzha	
Mulamthuruthy	
Vadavucode-Puthencruz	
Chottanikkara	
Chellanam	
Udayamperur	
Kumbalam	
Kunnathunadu	
Thrissur cluster	
Thissur UA	Thrissur
	Nadathara
Kodungallur UA	Kodungallur
	Eriyad
	Methala
Mulamkkunnathukkavu	
Madakkathara	
Kolazhy	
Paralam	

Constituent LSGs in Urban cluster	
Avinissery	
Nenmanikkara	
Cherpu	
Vallachira	
Alagappanagar	
Edavilangu	
Guruvayur Cluster	
Guruvayur	
Chavakkad (M)	
Kunnamkulam(M)	
Palakkad	
Palakkad UA	Palakkad
	Hemambikanagar
	Puthuppariyaram
	Marutharode
Akathethara	
Pirayiri	
Kodumba	
Kannadi	
Puthussery	
Kozhikode-Malappuram Cluster	
Malappuram UA	Malappuram
	Anakkayam
	Manjeri
Vazhayoor	
Cherukavu	
Chelembra	
Pallikkal	
Kondotty	
Morayur	
Nediyiruppu	
Thenchippalam	
Vallikunnu	
Pookkottur	
Peruvalloor	
Kannamangalam	
Munniyoor	
Oorakam	
A.R. Nagar	
Parappanangadi	
Vengara	
Othukkungal	
Tirurangadi	

Constituent LSGs in Urban cluster	
Kodur	
Parappur	
Edarikkode	
Nannambra	
Thennala	
Tanur	
Kottakkal	
Perumanna Klari	
Ozhur	
Ponmundom	
Kalpakancheri	
Thanlur	
Valavannur	
Cheriyamundom	
Athavanad	
Tirur	
Niramaruthur	
Thirunavaya	
Vettom	
Thalakkad	
Triprangode	
Mangalam	
Kozhikkode UA	Kozhikode
	Olavanna
	Cheruvannur
	Beypore
	Feroke
	Puthiyangadi
	Elathur
	Kakkodi
	Pantheeramkavu
	Ramanattukara
	Karuvanthuruthy
	Kadalundi
Eramala	
Kuruvattur	
Edachery	
Azhiyur	
Onchiyam	
Kannur Cluster	
	Kannur
	Kannur Cantonment
	Azhikode North
	Azhikode South

Constituent LSGs in Urban cluster	
Kannur UA	Valapattanam
	Chirakkal
	Elayavoor
	Puzhathi
	Pallikunnu
	Thottada
	Muzhappilangad
	Eranholi
	Dharmadom
	Thalassery
	New Mahe
	Kadachira
Karivellur-Peralam	
Payyanur	
Kunhimangalam	
Ramanthali	
Thaliparamba	
Madai	
Pattuvam	
Cherukunnu	
Kannapuram	
Mattool	
Kolachery	
Kalliassery	
Pappinissery	
Narath	
Chelora	
Munderi	
Vengad	
Chembilode	
Pinarayi	
Mokeri	
Anjarakkandy	
Edakkad	
Peralasseri	
Kuthuparamba	
Kadambur	
Kottayam	
Kathirur	
Kariyad	
Panoor	
Pannyanur	
Thrippangotur	
Peringalam	
Chokli	
Thrikkarippur	

Higher order urban LSGs outside cluster	
Attingal municipality	Chalakudy(M)
Nedumangadu municipality	Irinjalakkuda (M)
Varkala	Chittoor-thathamangalam
Punalur municipality	Pattambi
Karunagappally	Shornur
Adoor	Ottapalam
Pathanamthitta	Perintalmanna
Kayamkulam(M)	Ponnani
Chengannur (M)	Nilambur
Mavelikara(M)	Vadakara
Vaikom municipality	Villiappally
Pala municipality	Palayad
Thodupuzha municipality	Koylandy municipality
Vazhathope	Kalpatta
Kothamangalam	Mattannur
Nelliduzhy	Kasaragod
Muvattupuzha municipality	Kanhangad

Urban profile 2031

It is assumed that urban clusters identified as per urban profile for 2021 further grow along corridors and finally form urban corridors, by clubbing nearest clusters along major national highways. Physical development as well as proximity of urban clusters and other urban areas are taken in to account while delineating the urban corridors. The delineation is shown in fig 11.16

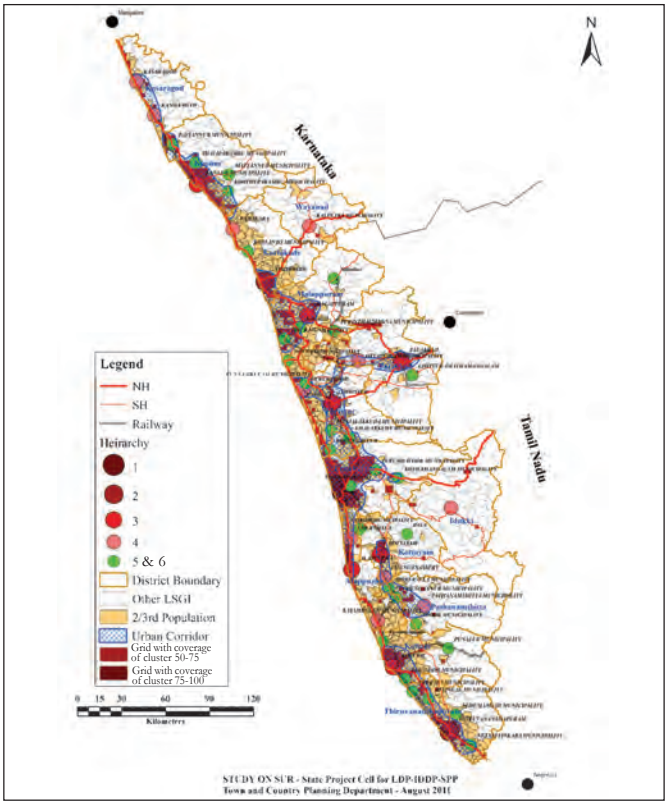


Fig 11.16 Delineation of urban corridors

The following five urban corridors are delineated accordingly

(1)Thiruvananthapuram – Kollam Corridor

(2) Pathanamthitta - Kottayam Corridor

(3)Alappuzha -Ernakulam-Thrissur-Palakkad Corridor

(4)Malappuram-Kozhikkod Corridor

(5)Kannur- Kasargod Corridor.

The urban profile 2031 is also finalised after checking against following scenarios viz. population distribution pattern of the state (Fig 11.17), committed major development projects (Annexe 5) as well as the environmentally sensitive areas of the state (Fig 11.18).

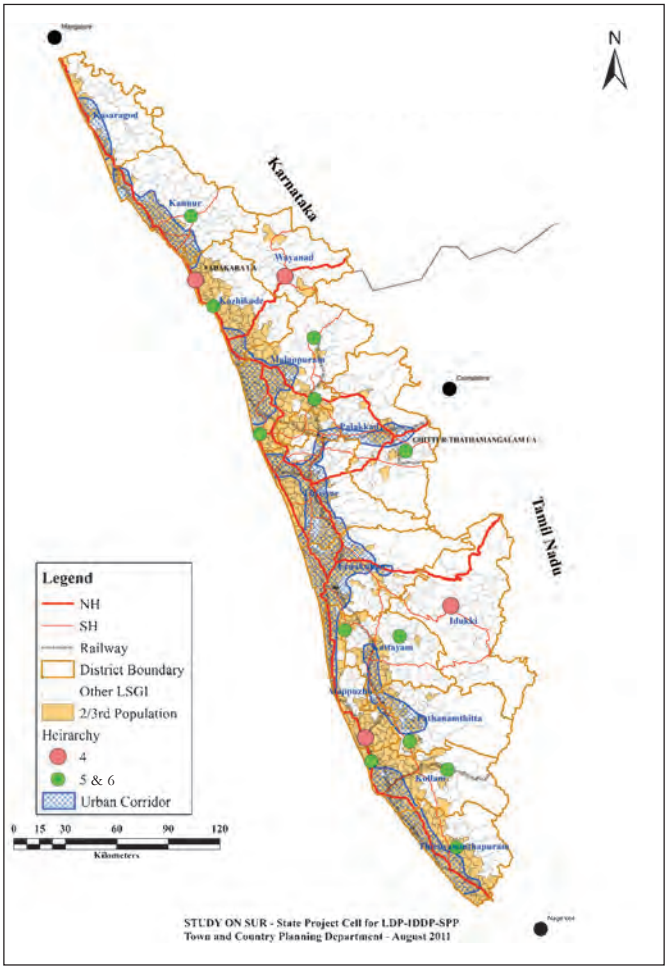


Fig 11.17 Urban Corridors and other urban area vis-a-vis 2/3 population distribution

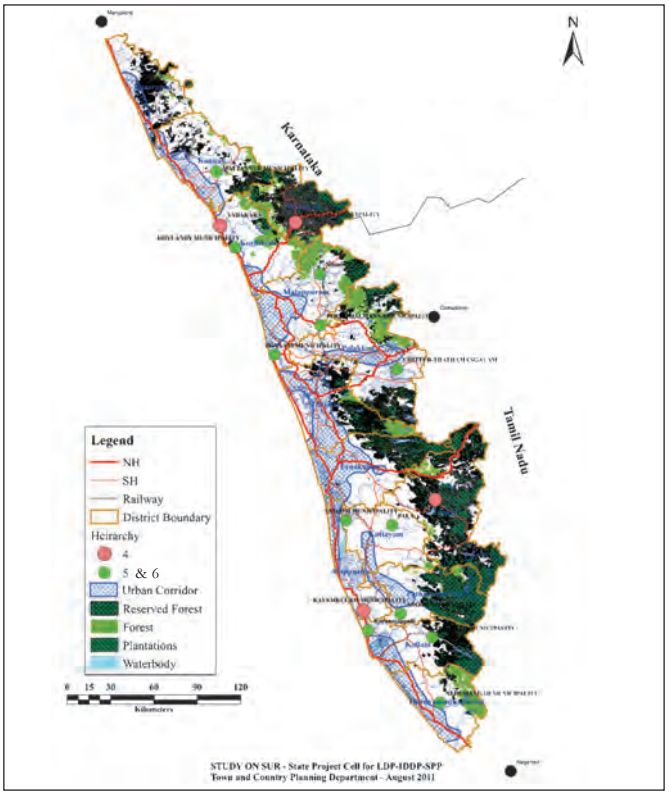


Fig 11.18 Urban corridors and other urban area vis-a-vis environmentally sensitive areas.

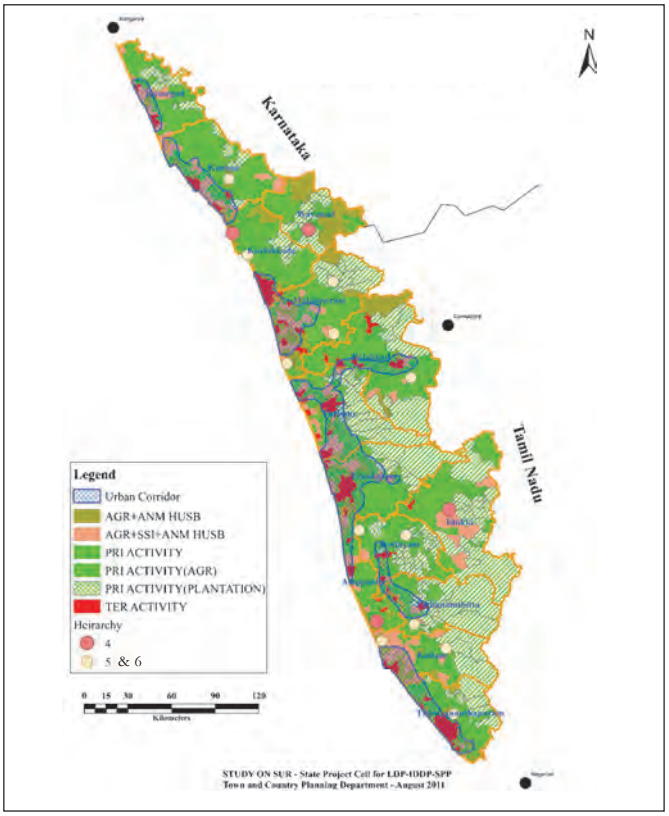


Fig 11.19 Activity pattern vis-a-vis urban areas 2031

The activity pattern of the state is also checked against the delineated urban profile 2031 and found that it tallies (Fig 11.19).

Here again, the urban profile 2031 is found to be in conformity with population distribution and major development projects in pipeline. Also, urban profile 2031 excludes the environmentally sensitive areas of the state.

The final urban profile is shown in fig 11.20 and Table 11.11 (urban areas outside the corridor is shown separately)

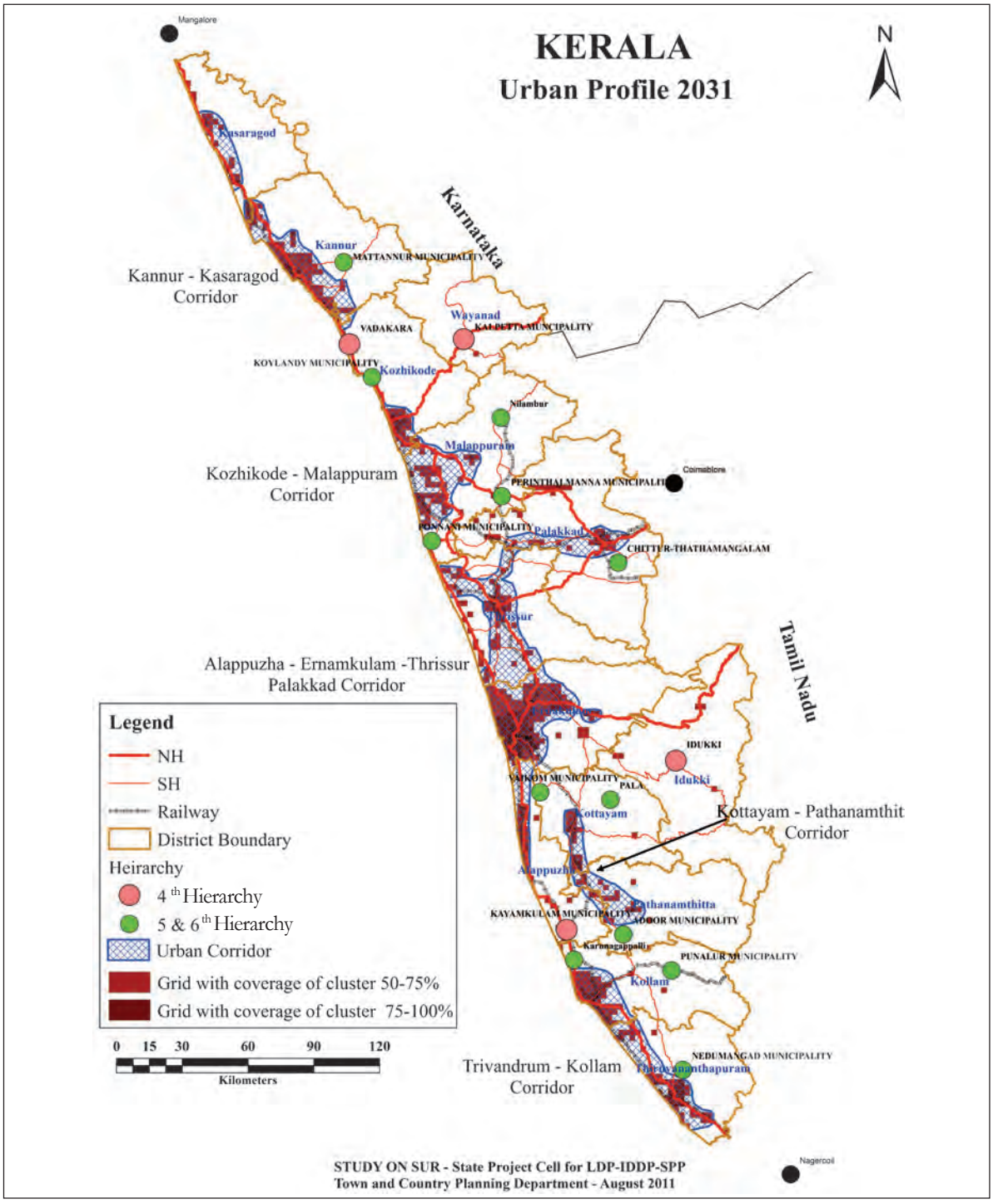


Fig 11.20 Urban profile 2031 - Urban Corridors and other urban areas

Table 11.11 Urban profile 2031

Constituent LSGs in Urban Corridor	
Trivandrum -Kollam Corridor	
Thiruvananthapuram UA	Thiruvananthapuram
	Kudappanakkunu
	Kazhakkootam
	Sreekaryam
	Vattiyoorkavu
	Kovalam
Navayikkulam	
Elakamon	
Edava	
Chemmaruthi	
Karavaram	
Varkala	
Ottoor	
Manampoor	
Cherunniyur	
Attingal Munplty	
Vettoor	
Vakkam	
Anchuthengu	
Kizhuvilam	
Kadakkavoor	
Chirayinkeezhu	
Pothankode	
Mangalapuram	
Azhoor	
Kadinamkulam	
Andoorkkonam	
Karakulam	
Vilavoorkkal	
Pallichal	
Neyyattinkara	
Balaramapuram	
Athiyannoor	
Kottukal	
Kanjiramkulam	
Kalliyoor	
Venganoor	
Vizhinjam	
Kollam UA	Kollam
	Neendakara
	Eravipuram
Panmana	
West Kallada	
Thevalakkara	
Mantrothuruthu	
Kundra	
Chavara	
Perayam	
Thekkumbhagam	
Panayam	
Thrikkaruva	

Constituent LSGs in Urban Corridor	
Perinadu	
Elampalloor	
Nedumpana	
Kottamkara	
Thrikkadavoor	
Thrikovilvattom	
Adichanalloor	
Chathannoor	
Mayyanadu	
Kalluvathukkal	
Paravoor Municipality	
Poothakulam	
Pathanamthitta-Kottayam Corridor	
Thiruvalla Municipality	
Kaviyoor	
Peringara	
Eraviperoor	
Thottappuzhasserry	
Koipuram	
Kuttoor	
Kozhencherry	
Naranganam	
Aranmula	
Mallappuzhasserry	
Elanthoor	
Pathanamthitta Municipality	
Mezhuveli	
Kulanada	
Chennerkara	
Omallur	
Vallicodu	
Kottayam UA	Kottayam
	Vijayapuram
	Perumbaikad
	Nattakam
Changanassery UA 2011	Changanassery
	Chethipuzha
	Thrikkodithanam
	Paippad
Athirampuzha	
Kumaranalloor	
Panachikkad	
Vakathanam	
Kurichi	
Vazhappally	
Alapuzha-Ernakulam-Trissur Corridor	
Alappuzha UA	Alappuzha-M
	Kalarkode-OG
	Punnapra-OG
	Komalapuram-CT
Cherthala UA	Cherthala-M
	Vayalar-OG
	Thanneermukkam-OG
	Kokkothamangalam-CT

Constituent LSGs in Urban Corridor	
	Muhamma-CT
Aroor	
Perumbalam	
Arookutty	
Ezhupunna	
Panavally	
Kodamthuruth	
Thaikattussery	
Kuthiathode	
Thuravoor	
Pattanakkad	
Kadakkarappally	
Cherthala South	
Kanjikkuzhi	
Mararikkulam North	
Mararikkulam South	
Thiruvanvandoor	
Chengannur	
Mannanchery	
Mulakuzha	
Kochi UA	Kochi
	Thrippunithura
	Eloor
	Kalamassery
	Kakkanad
	Aluva
	Choornikkara
	Edathala
	Paravur
	Kedamangalam
	Kottuvally
	Alangad
	Varappuzha
	Kadungallur
	Cheriyakadavu
	Cheranallur
	Mulavukad
	Vazhakkala
	Thiruvankulam
	Maradu
	Angamaly
	Chengamanad
	Chowwara
	Kadamakkudy
	Kureekkad
Karukutty	
Mookkannoor	
Thuravoor	
Parakkadavu	
Puthenvelikkara	
Kalady	
Koovappady	
Vadakkekkara	
Nedumbassery	
Pallippuram	

Constituent LSGs in Urban Corridor	
Chendamangalam	
Mudakkuzha	
Kuzhuppilly	
Chittattukara	
Kunnukara	
Ockal	
Kanjoor	
Karumalloor	
Chengamanad	
Sreemoolanagaram	
Ezhikkara	
Perumbavoor	
Edavanakkad	
Keezhmadu	
Asamannoor	
Vazhakkulam	
Rayamangalam	
Vengola	
Kunnathunadu	
Choornikkara	
Nayarambalam	
Kizhakkambalam	
Kadamakkudy	
Njarackal	
Varappety	
Paipra	
Thrikkakkara	
Elamkunnappuzha	
Vadavucode-Puthencruz	
Chottanikkara	
Chellanam	
Udayamperur	
Kumbalam	
Mulamthuruthy	
Kumbalangi	
Thissur UA	Thrissur
	Nadathara
Guruvayur UA	Guruvayoor
	Chavakkad
	Pookode
	Perakam
	Iringaprom
	Thaikkad
	Paluvai
	Pavaratty
	Venmanad
	Brahmakulam
Kodungallur UA	Kodungallur
	Eriyad
	Methala
Vallatholenagar	
Wadakkanchery	
Chowannur	
Vadakkekad	
Punnayur	

Constituent LSGs in Urban Corridor	
Kunnamkulam Municipality	
Mundathikode	
Choondal	
Avanur	
Guruvayur Municipality	
Kandanissery	
Kaiparamba	
Mulamkkunnathukkavu	
Madakkathara	
Tholur	
Elavally	
Kolazhy	
Orumanayur	
Adat	
Paralam	
Avinissery	
Nenmanikkara	
Cherpu	
Vallachira	
Alagappanagar	
Pudukkad	
Parappukkara	
Porathissery	
Muriyad	
Kodakara	
Irinjalakkuda Municipality	
Alur	
Poomangalam	
Velukkara	
Chalakkudy Municipality	
Vellangallur	
Melur	
Mala	
Puthenchira	
Kadukkutty	
Koratty	
Annamanada	
Edavilangu	
Poyya	
sreenarayanapuram	
Kuzhur	
Palakkad UA	Palakkad
	Hemambikanagar
	Puthuppariyaram
	Marutharode
Akathethara	
Ottappalam (M)	
Mannur	
Shoranur (M)	
Lakkidi-Perur	
Vaniyamkulam	
Pirayiri	
Kottayi	
Mathur	
Kodumba	

Constituent LSGs in Urban Corridor	
Peringottukurissi	
Kannadi	
Malappuram-Kozhikode Corridor	
Malappuram UA	Malappuram
	Anakkayam
	Manjeri
Cherukavu	
Chelembra	
Pallikkal	
Kondotty	
Morayur	
Nediyiruppu	
Thenchippalam	
Vallikunnu	
Pookkottur	
Peruvalloor	
Kannamangalam	
Munniyoor	
Oorakam	
A.R. Nagar	
Parappanangadi	
Vengara	
Othukkungal	
Tirurangadi	
Kodur	
Parappur	
Edarikkode	
Nannambra	
Thennala	
Tanur	
Kottakkal	
Perumanna Klari	
Ozhur	
Ponmundom	
Kalpakancheri	
Thanlur	
Valavannur	
Cheriyamundom	
Athavanad	
Tirur	
Niramaruthur	
Thirunavaya	
Vettom	
Thalakkad	
Triprangode	
Mangalam	
Kozhikkode UA	Kozhikode
	Olavanna
	Cheruvannur
	Beypore
	Feroke
	Puthiyangadi
	Elathur
	Kakkodi

Constituent LSGs in Urban Corridor	
	Pantheeramkavu
	Ramanattukara
	Karuvanthuruthy
	Kadalundi
Edachery	
Azhiyur	
Eramala	
Kuruvattur	
Cheruvannur-Nallalam	
Kannur-Kasaragod Corridor	
Kannur UA	Kannur
	Kannur Cantonment
	Azhikode North
	Azhikode South
	Valapattanam
	Chirakkal
	Elayavoor
	Puzhathi
	Pallikunnu
	Thottada
	Muzhappilangad
	Eranholi
	Dharmadom
	Thalassery
	New Mahe
	Kadachira
Karivellur-Peralam	
Payyanur	
Kunhimangalam	
Cheruthazham	
Ramanthali	
Thaliparamba	
Madai	
Pattuvam	
Cherukunnu	
Kannapuram	
Mattool	
Kolachery	
Kalliassery	
Pappinissery	
Narath	
Munderi	
Chirakkal	
Anjarakkandy	
Vengad	
Chelora	
Pinarayi	
Mokeri	
Kathirur	
Kariyad	
Panoor	
Chembilode	
Kannur	
Edakkad	

Constituent LSGs in Urban Corridor	
Peralasseri	
Kuthuparamba	
Kadambur	
Kottayam	
Pannyanur	
Thrippangotur	
Peringalam	
Chokli	
Kasaragod UA	Kasaragod
	Kudlu
Kanhangad UA	Kanhangad
	Perole
	Nileswar
Chengala	
Madhur	
Chemnad	
Udma	
Pallikkara	
Pullur Periya	
Ajanur	
Nileshwar	
Mogral Puthur	
Thrikkaripoor	

Urban areas outside the corridor

Nedumangad municipality
Punalur
Karunagappally
Adoor
Pala municipality
Vaikom municipality
Kayamkulam (M)
Mavelikara (M)
Kothamangalam
Nelliduzhy
Muvattupuzha
Chittoor-thathamangalam
Thodupuzha municipality
Vazhathope
Perintalmanna
Ponnani
Nilambur
Vadakara
Villiappally
Palayad
Koyilandi muncipality
Kalpatta municipality
Mattannur

District wise urban profile

The district urbanisation reports/district spatial plans for various districts/IDDP Kollam describe the future urban profile of respective districts. In the district level study, the future urban profile of the district is arrived at based on the proposed hierarchy of settlements (after correction of its spatial distribution in conformity with the population distribution), influence of urban development projects, administrative hierarchy of settlements and the application of census criteria. Thus at district level urban settlements up to fourth order are identified in each of the districts.

Now, that the urban profile of the State as a whole is derived, the district level future urban profile has to be suitably modified by integrating the result of study on urbanisation at the State level. The state level study identifies urban areas up to 6th order. Subsequently urban clusters and urban corridors are also delineated.

The district level urban profiles are obtained by transferring the state urban profile pertaining to a particular District and then assigning the lowest hierarchy to those urban areas in the respective district which are not accounted in the state urban profile.

Two scenarios, one with urban clusters for 2021 & the other with urban corridors for 2031, are evolved.

The final district level urban profile is given in annexes 6(a) and 6(b).

It can be concluded that Kerala is to have three categories of urban areas namely urban clusters/urban corridors, medium sized isolated urban areas (up to 5th hierarchy) and isolated small urban areas to cater to the urban needs of the rural areas. Special purpose urban centres (as a part of tourism related activity, religious related activity etc) also belongs to either isolated higher order urban area or to the third category.

Towards achieving the urban profile

In order to materialise the urban profile it shall be a component of planned regulated spatial structure of the state defined through plans at local, district and state level. The actual sequence of these multilevel plans starts with the State Perspective Plan, then the Integrated District Development Plan and finally the Local Development Plan. Often this sequence is not strictly adhered to in practice. Urban profile is an integral part of a Development Plan for an urban local governments. The Urban profile of the plan has to be prepared taking into account the following factors.

Three urban zones are to be considered for higher order urban area.

1. Core urban
2. Intermediary urban
3. Peri Urban

Urban clusters/urban corridors will have all the mentioned urban zones viz core urban, intermediary urban and peri urban. Often the isolated higher order urban areas will have only two zones, core urban and intermediary urban. Small urban centres will have only the core urban.

Strategies for the development of core urban areas:

Area development plan shall be prepared for the core urban areas within the frame work of development plan. In this regard those part of the urban area with more than 75% average built-up-cluster can be delineated as the core urban area. Area Development Plan for the core urban may be formulated, taking into account the following factors:

Revival of the core urban area of higher order settlements with maximum possible density (population and built up density) with necessary infrastructure to have a compact urban form is the strategy for the development of the core urban area.

Techniques like mixed land use, mixed building use, plot reconstitution, TDR etc can be applied in the core to have a compact urban form. Enabling Development Control Rules (DCRs) shall be framed specially suited to the core urban areas. The compaction of the core is suggested not to have a more congested core but to have well planned core with more open spaces and wider roads. Deliberate attempt is necessary to discourage the practice of leaving a plot unutilized within the core.

Strategies for development of intermediary urban areas:

As the name indicates it is an intermediary area both in terms of the intensity of development and location (located in-between the core and peri urban). Those part of the urban areas with coverage of 50-75% built-up-cluster can be delineated as the intermediary urban area. A planned comparatively low intensity development, is the general strategy for the intermediary urban area. Intensive residential activity, both plotted development and high rise buildings, is suggested for this area. Good connectivity is to be ensured between the intermediary urban area and core urban.

Strategies for development of peri-urban area:

Those parts of the urban areas with 25-50% coverage of built-up-cluster can be delineated as the core urban area. In the peri urban area low density is proposed. New developments/new generation developments which need large extent of land is to be located in these areas. Controlled organic growth with in the peri-urban area may be the objective. In order to contain the urban sprawl further possibility of a buffer zone between the peri-urban and rural area is to be explored. ❑

CHAPTER 12
Recommendations

This chapter summarises the findings of the study and puts forward recommendations regarding materialization of the suggested urban profile and also the future course of actions needed.

Summary of findings

(1) World is witnessing an increasing urban population and the increase is noticed visibly in the developing countries. Half of the world population now resides in urban area. World wide, the growth rate of both urban population and total population are decreasing but urban population growth rate is always higher than that of the total population growth rate indicating the shift of the world population towards urban.

(2) With an urban content of 31.1% and decadal growth rate of urban population of 32%, in 2001-2011, India is in an accelerated stage of urbanisation. Regarding the growth rate of total population and urban population, India too shows the similar pattern as that of the world viz. both are decreasing but urban population growth rate is higher than the growth rate of total population with a total population 1.21 billion, it is not the percent increase in urban population that is to be counted, but the total population added to the urban category even for small increase in percentage.

(3) In Kerala growth rate of total population is decreasing but the urban population growth rate is showing a dwindling nature since 1981, with sharp increase during 1981-91 decade followed by a sharp decline in 1991-2001 decade and again sharp increase during 2001-2011 decade. The history of population growth rate in Kerala shows that the growth rate of urban population has always been higher than that of the total population, indicating the high pace of urbanisation the state is experiencing. 2011 Census data shows that during 2001-2011, Kerala has undergone highest level of urbanisation in its history with a percentage increase of 83.82 over the previous decade.

(4) Analysis of the population growth rate indicates that Kerala is likely to achieve zero population growth (ZPG) in 25 to 30 years. The low population growth rate with high level of urbanisation, will increase the scarcity in labour force, especially in agriculture and related activities. This demand for a change in the present practice of agriculture from a family affair to more of a professionally managed affair. Mechanization suitable to the State is an inevitable impetus to it.

(5) The analysis of the components of urban growth, namely, natural increase, net migration and areal reclassification, reveals that urbanisation in Kerala is mainly due to areal reclassification and that the other two factors are comparatively insignificant

in Kerala scenario. Areal reclassification is the declaration of a hitherto rural area as urban mainly due to the shift in occupational structure there from agriculture to other categories of employment making the percentage of non agricultural male workers greater than 75, thus satisfying the census criteria to declare an area as urban. This may not have reflection in the physical development, but for presence of nodes with significant built up to cater the population in this area.

(6) Urbanisation in the state of Kerala shows marked peculiarities. Generally, increase in urban population growth rate is the result of over concentration in the existing cities especially million plus urban agglomerations. This is true in the case of urbanisation in the other states of India. However, in Kerala, the main reason for urban population growth is the increase in the number of urban areas as well as urbanisation of the peripheral areas of existing major urban centers. The existence of more census towns (class3 & 4 towns) shows higher degree of dispersion of urban settlements.

(7) The spatial distribution of urban areas within the State shows that urban areas of Kerala are concentrated in coastal and mid land regions. The mid land and high land regions are being subjected to urbanisation with increased pace. The agricultural potential areas of Kerala is located in the midland region of Kerala and forest land is concentrated mostly in the high land and also in mid land region adjacent to the high land. As per present urbanisation pattern of Kerala, the environmentally sensitive high land is spared but the fertile agricultural land in the mid land is being converted for non agricultural purposes.

(8) A shift in the pace of urbanisation is noted between south and north of Kerala. During 60's and 70's the pace of urbanisation was high in southern parts of Kerala. But now the central and northern parts of the State has high pace of urbanisation. Malappuram district shows the highest increase in urban content within a decade (2001-2011), followed by Kozhikkode district. Kannur district shows highest urban content from 1971 onwards.

(9) Though Kerala is having high urban content in total, it does not have a single primate city. Instead these are 6 medium sized urban agglomerations which are found to be fairly well distributed when analyzed in the context of population distribution.

(10) Though the population density of the State as a whole is high among Indian states, the population density of urban agglomerations in Kerala is less when compared to UAs of other States. Population density variation is seen within the urban agglomeration also. The analysis of change of population of the core and fringe of urban agglomerations in Kerala shows that the core is either in stagnation stage or even exhibit negative growth, where as fringes grow at a higher rate. The fringe areas of the urban agglomerations are having lower density than the core and the fringe areas are in a transitional stage (in to the density of the core). This indicates the scope for further densification of the urban agglomerations of the State.

(11) The temporal variation of population density within the core of the urban agglomerations of Kerala shows that whenever the population density within the core reaches a value in between 6000- 7500 persons/sqkm , there is a tendency of decreasing the population density (by the addition of more outgrowths with less population density in to the UA and thus achieving a low density altogether). The population density range between 6000-7500 persons/sqkm seems to be a maximum achievable density in the present scenario in the State.

(12) The higher order towns (Class I and II) in Kerala show a decline in growth of population whereas the lower order towns (Class III towns located mainly in fringe areas of higher order towns) are growing. Analysis shows that the outgrowths of Class I towns and Class II towns show more growth (in population) than their core indicating a stage of suburbanisation in Kerala.

(13) The analysis of the occupation structure shows the presence of non agricultural activities, mainly manufacturing industries and trade and commerce, significantly in the rural areas of Kerala. This along with the high population density across the State demand small urban centers in the rural areas to cater the rural population. But the strategy for such centers shall be such that they should not grow beyond the carrying capacity of the rural economy.

(14) The analysis of occupation structure reveals a shift in employment of Kerala from primary sector to tertiary sector. In rural areas of Kerala majority of workers (58 %) are engaged in secondary and tertiary activities, which is an indication of the poor performance of primary sector in the State in general and the rural areas in particular. It indicates the urbanising nature of rural areas of Kerala and inturn points towards a dilution of the rural economy.

(15) Analysis of the built up nature of urban areas of Kerala shows that even within the high density grids maximum coverage is only 32% indicating that there are under utilized pockets within the urban areas of Kerala. Due to organic way of growth, ribbon development is predominant even in the core of our urban areas and there are underutilized land pockets in their interiors.

(16) Comparatively low urban population density and low built up intensity in the existing urban areas make possible compaction of existing urban areas both in terms of population and built-up.

(17) The temporal variation of the land holding size in Kerala shows enhanced plot subdivision indicated by increase in the number of marginal holdings. It is an impact of the speedy urbanization of Kerala. It limits the development prospects of the State by imposing constraints to land intensive developments.

(18) The functional characters of majority of LSGs are rural. 77% of the total number of LSGs of Kerala shows rural nature. In Kerala 76 LSGs show urban character, 63 LSGs are of semi urban character, 106 LSGs are of semi rural nature and a vast majority of 805 LSGs are of rural characters.

(19) The spatial distribution of the higher density grids in 2011 is matching with urban areas as per census 2001. But census 2011 declares much more areas as urban and these added areas do not match with the distribution of high density grids. This points towards need for adopting a modified criteria which consider physical development aspects also to define an urban area which is very relevant in the case of states like Kerala where urban-rural continuum exists.

(20) With respect to GDP, Kerala is positioned 9th in the National scenario. Temporal data of per capita income and GDP shows a constant increase in both the parameter in the case of Kerala. However, analysis shows that the increase in GDP of the State does not have a direct correlation with urbanization.

(21) Contribution of different sectors to GDP of the State over a period of time shows a shift in the major contributor to tertiary sector from primary sector. The change in occupation structure also corresponds to this with the tertiary sector showing growth both in urban and rural areas. The pace of growth of tertiary sector is higher in rural areas.

(22) The urban spread that is happening in the state causes dilution in the economic base of both the urban and rural areas. At the same time, even the core of the existing urban areas have the scope for further densification both in terms of population and built-up. What is needed is selective concentration of urban functions and rural functions with a sincere attempt to have compact urban form so as to achieve more meaningful integrated development of urban and rural areas of the State

(23) Increase in per capita income at the National level is in proportion to the growth of urban content. But in the case of Kerala, the rate of increase of per capita income is at a higher rate than the rate of urbanisation indicating weakness of urban area of Kerala in delivering the urban functions.

(24) The Economic Review -2010 of Kerala unequivocally says the need for giving importance to agriculture, especially food crops, and animal husbandry sector in the economy of Kerala. The urban areas should function complementary with the rural area.

(25) The draft approach paper for 12th five year plan of the State focus on raising income of farmers through increasing productivity, subsidiary occupations, better marketing and through promotion of value added products. Special projects for food security targeting to increase rice production by 25 percent and vegetable production by 50 percent from the base level and homestead farming are mooted in this context. The conversion of the potential agricultural land for non agricultural purposes thus resulting in uncontrolled urban spread is against the policy of achieving food security. All these point towards the scope for strengthening of the rural economy of the State. So the urbanisation in the state should be an impetus to this.

Recommendations

With an urban content of nearly 50%, Kerala has under gone high level of urbanization during the previous decade which is not manifested either physically or economically in the State. The high level of urbanization that has occurred in Kerala is more of the nature of an urban spread and has caused dilution in the economic base of both the urban and rural areas of the State. Even within the core of the existing urban areas, there is scope for further densification both in terms of population and built-up. Despite of this the urban area spreads in to the potential agricultural land of the State. What is needed is the selective concentration of urban functions and rural functions through deliberate planning and to have compact urban form for the urban areas so as to contain the urban spread. In other words the state has to thrive for integrated development of its urban and rural areas.

Since very low population growth is anticipated for the State, it is not the quantum of urban functions, but quality of functions delivered by urban areas is going to matter. High quality housing, commercial establishments, public utilities, social infrastructure etc will be the future requirements in Kerala. Further spreading of developments at the cost of the potential rural lands is not justifiable in the context low population growth rate. This reiterates the need for containment of urban development.

With this in view the future urban content of the State for the next two decades is limited within a range 50- 52%. Also significant increase in the aerial extent of the urban areas from the present level is not envisaged. The urban vision of the State coined in the above considerations is "Revitalized urban areas of compact urban form, distributed in a balanced and orderly manner in the entire Kerala, that perform urban functions complimentary to the rural hinter land and act as engines of development". With this vision in mind the future urban areas are delineated and the urban profiles for 2021 and 2031 are descirbed along with recommendations to achieve the same.

☐ As per the urban profile of the state delineated for 2021 and 2031, (The urban profile is derived taking in to account both the demographic criteria (as per census) and the extent of physical development- Refer: Chapter 11 of the Report), Kerala is proposed to have three categories of urban areas namely-Urban clusters/urban corridors, isolated higher order urban areas and small urban areas. Future investments in the state shall be streamlined supportive to the urban profile delineated.

☐ It is proposed to have 3 zones within an urban area (except for small urban areas) - namely core urban, intermediary urban and peri-urban. Remoulding to compact urban form with high intensity development supported with necessary infrastructure is the strategy for the development of core urban. A planned, comparatively low intensity development, is the general strategy suggested for the intermediary urban area. Intensive residential activity, both plotted development, and high rise buildings, is suggested for this area. Good connectivity is to be ensured between the intermediary urban and core urban. In the peri

urban area low density is proposed. New developments/new generation developments which need large extent of land are to be located in these areas. Controlled organic growth within the peri-urban area may be the objective. In order to contain the urban sprawl further, possibility of a buffer zone between the peri-urban and rural area is to be explored.

☐ Limiting of the urban spread in Kerala within the delineated urban profile is a must for the conservation of agricultural land, prevention of dilution of rural economy and protection of the fragile eco system of Kerala. The land area left over after accommodating our urban areas, forest cover and water bodies is our rural areas where in our potential agricultural tracts are located. It is recommended to put this rural land to optimum utilization.

In order to achieve the above urban profile following strategy options are suggested:

- To be realistic urban profile shall be a part of the general strategy for the comprehensive development of the State. Hence it is recommended to prepare the State Perspective Plan with inputs from all sectors of development and modification, if necessary, may be made in the urban profile formulated.

- The urban profile of the state shall be made an integral part of the component of regulated spatial structure of the state defined through a State Perspective Plan. Within the purview of the State Perspective Plan, each of the urban cluster/corridor is to be further detailed out through regional plans/ inter district plan with planning area as the respective cluster/corridor with its influence area. Integrated District Development Plan is to be prepared within this regional frame work for each of the District. At lower tier settlement level plans ie, Local Development Plans for each of the rural and urban local governments shall be prepared.

- With comparatively higher population density within the entire State and enhanced plot subdivision indicated by increase in the number of marginal holdings, there is dearth of large land parcels in Kerala. So a policy backing and planning tools are necessary to conserve such existing lands and to pool such lands for future development.

- A settlement policy for the State encompassing the above factors is an immediate necessity. Urban policy, rural policy and land use policy shall be integral part of this settlement policy.

- The maximum population density that has been achieved even in the core of urban area in the present human settlement pattern in Kerala is in the range between 6000- 7500 persons/sqkm. This is low when compared to urban areas elsewhere in the country and indicates under utilization of the scarce but valuable commodity, the land in the State. A detailed study is recommended to assess the reasons for the same and to come out with the limiting density that can have in our urban areas and the desirable density for our rural areas as well.

- In a State like Kerala marked by scattered settlement, physical development shall also be taken into account while designating an area as urban. The urban profile of the district defined spatially in this report is to be further refined taking in to account the actual intensity of physical development on ground. ❑

ANNEXES

ANNEXE 1

Procedure to Identify Functional Character

The function of a settlement is the major activity within the settlement, be it agricultural and allied activity (pucca rural) or secondary sector and tertiary sector activities (pucca urban activities) or a combination of the two(semi urban or semi rural). The criteria taken here for identification of the functional character of a settlement are land use and population distribution and the average plot size within the settlement.

The procedure for determining the functional character is explained in the Annaxure 6 of IDDP of Kollam. LSG wise land use map, number of households, populations etc are required for the determination of the functional character based on this procedure. LSGI wise land use map of all the district of Kerala is not available. But the general utilization map of the districts of Kerala with LSG boundaries (Source: Natural resources and Environmental Data Base by land use board of Kerala) are available This land utilization map cannot be utilized as such in determining the functional character since it mainly gives agricultural oriented land use .The following procedure is adopted for getting the LSGI wise functional character from the land utilization map. It is a modification of the original method for the determination of functional character.

1. Find out the land use wise area break up (using GIS). 48 different land uses (it may vary district wise) are there in the Land utilization map (See table).

2. Categorize the land use in to the major heads – Neutral land use, Urban Land Use, Rural Land Use, and Residential- Agriculture (Res/Agri) mixed land use. (See table)

Sl.No.	Type of Land Use	Category
1	Dense mixed forest	Neutral
2	Dense mixed forest (R.F)	Neutral
3	Dense mixed forest mainly bamboo	Neutral
4	Dense mixed forest mainly bamboo and	Neutral
5	Dense mixed forest mainly bamboo (R.F)	Neutral
6	Dense mixed forest mainly teak	Neutral
7	Bamboo(R.F)	Neutral
8	Barren Rocky / Stone waste/sheet rock	Neutral
9	Coastal sand	Neutral
10	Land with scrub	Neutral
11	Open Mixed forest	Neutral
12	Perennial	Neutral
13	Reservoir	Neutral
14	Reservoir Bed	Neutral
15	Sands / riverine	Neutral
16	Scrub forest	Neutral
17	Temporarily (marshy land)	Neutral
18	Water Bodies	Neutral
19	Beaches	Urban
20	Commercial	Urban
21	Harbour/Port	Urban
22	Industrial	Urban
23	Mining / Industrial waste land	Urban
24	Mixed Built - up	Urban
25	Residential	Urban
26	Residential (Converted from Paddy)	Urban
27	cashew	Rural landuse
28	Rubber (R.F)	Rural landuse
29	Tea	Rural landuse
30	Tea and Eucalyptus	Rural landuse
31	Tea (R.F)	Rural landuse
32	Teak	Rural landuse
33	Teak & Softwood (R.F)	Rural landuse
34	Teak (R.F)	Rural landuse
35	Viruppu (1st Crop)	Rural landuse
36	Eucalyptus (R.F)	Rural landuse
37	Land with out scrub	Rural landuse
38	Oil palm	Rural landuse

Sl.No.	Type of Land Use	Category
39	Oil palm (R.F)	Rural landuse
40	Arecanut	Res/Agri
41	Banana	Res/Agri
42	Banana and Tapioca	Res/Agri
43	Coconut	Res/Agri
44	Coconut dominant mixed crop	Res/Agri
45	Current fallow	Res/Agri
46	Double crop	Res/Agri
47	Mixed crop	Resi/Agri
48	Rubber	Res/Agri

3. Find out the percentage of pucca urban land use share using the following formula.

Pucca Urban Land Use Share =

(Total Urban Land use share- area of residential zone)*100/ (Total area – area of neutral zone)

If it is more than 25 %, then the charcter of the LSGI will be urban.

(The analysis of the land use of various urban local bodies & the share of various land uses of an urban area as specified in the UDPFI guide lines shows that an urban area is having a residential land use of the same percentage as that of pucca urban land use (commercial, industrial, public & semi public etc. This is actually the residential land use attached to the urban land use. So if the pucca urban land use is 25% then by adding the residential share of 25% the total urban land use share becomes 50%)

4. Find out the percentage of urban land use share and rural land use share (excluding the area of neutral land use). In case the land use share so obtained- urban land use share or rural land use share -exceeds or equal to 50%, character of the Local Self Government Institutions (LSGI) will be that character (urban/rural).

For example , if the % of urban land use share is 53 %, then character of that LSGI will be urban.

If urban lands use share and rural land use share do not exceeds or equal to 50 %, categorize res/agr land use as in step 5

5. The Res/Agr mixed land use is categorized as either agricultural land use or residential land use based on the population density (denoted by population concentration category in which the LSGI falls- this has done in the *urbanisation study of the Districts*) and the workers engaged in non agricultural activity (denoted by % of other workers +HH industrial workers).

Two clear situations will arise:

In situation 1, the LSGI belongs to 1/3rd population (ppn) concentration category and the % of workers engaged in non agricultural activity is greater than or equal to 90%. Now, the res/agr mix is taken as purely Residential.

In situation 2, the LSGI belongs to 2/3rd to 1 ppn concentration category and the % of workers engaged in non agricultural activity is less than or equal to 70%.The res/agr mix is taken as purely Agricultural.

Situation	PPn Conc category	% of other workers +HH industrial workers	Category of Res/Agr mix
1	1/3rd ppn category	>= 90%	Residential
2	2/3 to 1 ppn category	<=70	Agricultural

Situation PPn Conc category % of other workers +HH industrial workers Category of Res/Agr mix

1 1/3rd ppn category >= 90% Residential

2 2/3 to 1 ppn category <=70 Agricultural

Repeat step 4 and find the character of the LSGI.

If the res/agr mix cannot be categorized under the above situations go to step 5.

6. If the two situations are not occurring, categorize the res / agr mix land use category based on the average plot size. This necessitates the number of Houses within this area. In the absence of primary data, the following procedure is adopted to find out the number of houses.N

* Net population density of the LSGI (X) = Total Population of the LSGI/ (Area of mixed built

up +area of res zone + area of res/agr mix).

* Population density in the residential zone (net residential density) and that of res/mix zone (net mixed zone density) will not be uniform.

The ratio between these two densities is:

Net residential density: Net mixed zone density = 2.25 :1 (deduced from the land use map and population distribution of Kollam District)

Therefore,

* Net residential density =1.4 * X and Net mixed zone density =0.6 *X
* Population in the mixed zone = Net mixed zone density * area of res/agr mix zone.
* Number of Houses in the res/agr mix zone = Population in the mixed zone / Average HH size

6.1 Avr plot size in the res/agr mix =

Area of res- agr mix zone/ Number of Houses in the res-agr mix zone

6.2. Categorize the res/agr mix land use category based on the average plot size as below.

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

7. If the character of the res/agr mix zone is urban or rural, step 4 is repeated to find out the character of the LSGI.

8 If the res/agr mix zone is classified as semi urban, find out the sum of the area of urban land use and res/ agr mix zone (which is semi urban). If this area is greater than or equal to 50 % of the total area (excluding the area of neutral land use), the character of the LSGI can be taken as Semi urban .

9. If the res/agr mix zone is classified as semi rural, find out the sum of the area of rural land use and res/ agr mix zone (which is semi rural). If this area is greater than or equal to 50 % of the total area (excluding the area of neutral land use), the character of the LSGI can be taken as Semi rural.

Note: . If Step 6 is used for identification of the character of an LSGI, it is suggested that the res/agr land use in 25 % of such LSGI is to be verified at site for any pucca agricultural area. Then the table in step 2 is to be reworked and repeat step 2 to 5.But in the case of IDDP District , res/agr land use in all such LSGIs are to be verified at site for any pucca agricultural area and then steps 2 to 5 area to be repeated.

ANNEXE 2

List of Statutory Urban Areas (2011) in Kerala

List of urban local bodies in Kerala 2011				
Corporation/Municipalities				
Sl.No.	Corporation	Municipalities		
		Ist Grade	IInd Grade	IIIrd Grade
1	Thiruvananthapuram	Alappuzha	Neyyattinkara	Nedumangad
2	Kochi	Changanassery	Attingal	Varkala
3	Kollam	Kottayam	Pathanamthitta	South Paravur
4	Thrissur	Thiruvalla	Punalur	Adoor
5	Kozhikode	Aluva	Kayamkulam	Mavelikara
6		Perumbavoor	Cherthala	Chengannur
7		Thirur	Pala	Vaikom
8		Kannur	Thodupuzha	Kalamassery
9		Vadakara	Kothamangalam	Chavakkad
10		Palakkad	Muvattupuzha	Guruvayoor
11		Thalassery	Kunnamkulam North	Chittur Thathamangalam
12		Kasaragod	Tripunithura	Ottapalam
13			Angamaly	Ponnani
14			Chalakudy	Kalpetta
15			Irinjalakuda	Payyanur
16			Kodungallur	Kuthuparamba
17			Shoranur	Taliparamba
18			Malappuram	Koyilandy
19			Perinthalmanna	Mattanur
20			Manchery	Karunagappally
21			Kanhangad	Maradu
22				Eloor
23				Thrikkakara
24				Kottakkal
25				Nilambur
26				Neeleswaram

ANNEXE 3

The average plot size in grids of different Percentage of built-up

Average Plot Area in grids of different % of built up in Thiruvananthapuram corporation			
Percentage built up in grids	**No of foot prints**	**Area of grid in cents**	**Avg. Plot Area in cents**
25-50	322	19922.67751	61.87166929
50-75	801	33608.00251	41.95755619
25-50	1822	118632.2647	65.11101246
50-75	1163	15335.94952	13.18654301
50-75	4857	137742.3889	28.35956123
25-50	1038	63836.19783	61.4992272
25-50	23	16494.02501	717.131522
50-75	443	7426.377231	16.76383122
50-75	7543	123941.8076	16.43136783
50-75	7388	154511.7429	20.91387966
75-100	6892	154511.7429	22.41899926
50-75	3022	97488.61762	32.25963522
0-25	33	2736.863707	82.93526386
50-75	3797	110898.6929	29.20692464
75-100	16666	154511.7429	9.271075417
75-100	20124	154511.7429	7.677983646
75-100	7219	154511.7429	21.40348288
50-75	2727	91131.87635	33.41836316
50-75	1969	90593.90387	46.01010862
25-50	5349	154511.7429	28.88609888
75-100	11117	154511.7429	13.89869055
75-100	8037	154511.7429	19.225052
50-75	6280	154511.7429	24.60378072
50-75	4364	93435.53346	21.41052554
0-25	122	58565.34726	480.04383
25-50	2816	154485.0857	54.85976054
50-75	4094	154511.7429	37.74102171
75-100	7947	146914.977	18.48684749
75-100	4524	99096.23225	21.90456062
50-75	2673	99232.39001	37.12397681
0-25	80	44307.51668	553.8439585
50-75	2444	70616.7062	28.89390598
25-50	2001	101016.2176	50.48286736
50-75	1470	60363.33356	41.06349222
50-75	3314	125040.33	37.73093843
0-25	113	10905.44429	96.50835651
25-50	188	11149.86832	59.3078102
25-50	144	7772.833399	53.97800972

ANNEXE 4

Combined hierarchy of urban area

Sl. No	Urban Area	Hr based on ppn- 2001	Hr based on facilities	Hr based on built up	Dist HQ	Combined Heirarchy
1	Kochi UA	1	1	1	1	1
2	Kozhikode UA	2	2	2	1	2
3	Thiruvananthapuram UA	2	2	2	1	2
4	Kannur UA	3	3	2	1	3
5	Alappuzha UA	3	3	3	1	3
6	Kollam UA	3	3	3	1	3
7	Palakkad UA	3	3	3	1	3
8	Thrissur UA	3	3	3	1	3
9	Kottayam UA	3	4	3	1	3
10	Malappuram UA	4	3	4	1	3
11	Kasaragod UA	4	6	4	1	4
12	Pathanamthittah	5	5	4	1	4
13	Guruvayoor UA	4	4	3	6	4
14	Cherthala UA	4	4	4	6	4
15	Kanhangad UA	4	5	3	6	4
16	Changanassery UA	4	4	4	6	4
17	Kalpetta	5	6	6	1	4
18	Thodupuzha	5	6	6	1	4
19	Vadkara UA	4	4	5	6	4
20	Kayamkulam UA	4	5	4	6	4
21	Ottapalam UA	4	5	4	6	4
22	Nilamboor Municipality	5	5	4	6	5
23	Chalakkudy UA	4	6	4	6	5
24	Kothamangalam UA	5	5	4	6	5
25	Kodungallor UA	4	5	5	6	5
26	Koyilandi Municipality	4	5	5	6	5
27	Neyyattinkara Municipality	4	5	5	6	5
28	Chittur-Thathamangalam UA	5	5	5	6	5
29	Payyyanur Municipality	5	5	5	6	5
30	Thaliparambu Municipality	5	5	5	6	5
31	Ponnani Municipality	4	5	6	6	5
32	Tirur Municipality	5	5	5	6	5
33	Thiruvalla Municipality	5	5	5	6	5
34	Varkala Municipality	5	5	5	6	5
35	Chengannur Municipality	5	5	5	6	5
36	Perumbavur Municipality	5	5	5	6	5
37	Perinthalmanna Municipality	5	5	5	6	5
38	Thrikkakara Municipality	5	5	5	6	5
39	Nedumangad Municipality	5	5	6	6	6
40	Attingal Municipality	5	5	6	6	6
41	Punalur Municipality	5	5	6	6	6
42	Paravoor Municipality	5	6	5	6	6
43	Adoor Municipality	5	5	6	6	6
44	Pala Municipality	5	5	6	6	6
45	Vaikom Municipality	5	5	6	6	6
46	Kunnamkulam Municipality	5	6	5	6	6
47	Koothuparambu Municipality	5	6	5	6	6
48	Karunagappalli Municipality	5	5	6	6	6
49	Mattannur Municipality	5	5	6	6	6
50	Kottakkal Municipality	5	6	5	6	6
51	Irinjalakuda Municipality	5	6	6	6	6

ANNEXE 5

Districtwise Urban Development Projects (Combined from DURs)

Committed and on going Urban Development Projects				
District	***Local body***	***Project***	Falls within the designated urban area	
Ernakulam	Mulavukad	Goshree Project	√	
		Inter National Container, Transshipment Terminal, Vallarpadam		
	Maradu	International Convention Centre (Gulfar)	√	
	Chengammanad	International Golf Course	√	
	Kakkanad	Smart city, Metro Rail, International Bunkering Terminal, International ship repairing comples, crude oil storage facilities, International Cruise Terminal, Port based special Economic Zone, Expansion of existing chemical plant	√	
	Kochi	Expansion of aluminium extrusion plant	√	
		Exhibition centre, Academic Zone, Residential and Commercial Developments, IT Township at Info Park, Capital dredging of navigational channels, Petrochemical complex, Water Sports, Tourist Vessels, Tourist Submarines, Kaloor International Stadium	√	
	Kunnathunadu	Smart city area		
Malappuram	Chelembra Panchayat	KINFRA Food & IT Park	√	
	Thenhippalam panchayat	LPG Bottling Plant of IOC	√	
	Ponnani	Fishing Harbor and Cargo Park		√
	Chamravattom	Arya Vaidya Sala, Kottakkal and Regulator cum Bridge		
	Parappanangadi	Fishing Harbor	√	
Pathanamthitta	Nil	Nil		
	Vizhinjam	The international container transhipment terminal	√	
	poovar & varkala	Investment in tourism sector		√

Committed and on going Urban Development Projects				
District	**Local body**	**Project**	Falls within the designated urban area	
hiruvananthapura	Karakulam, Vellanadu, Vembayam & Vellarada	Professional Education institutions		
	Kadinamkulam	The potential of waterfront development	√	
	Pazhayakunnumel & kilimanoor	The agro based industries		
	Neyyattinkara, Nedumangadu & Kattakada	Ongoing urbanization trend	√	√
	Andoorkonam	Technocity	√	
Palakkad	Kanjikode	Integrated railway coach factory		
		Integrated Textile park		
		Information Technology park		
		Defence park		
		Defence project of BEML		
Kottayam	Kanakkary, Athirampuzha, Kumaranellore, Panachikkadu, Kurichi, Vazahppally, Changanassery and	Doubling of Ernakulam-Trivandrum broadguage	√	
	Ettumanoor, Erumeli	Pilgrim amenities		
	Kottayam-vaikom, kottayam-alappuzha, changanassery-	National water ways		
	Pala and Vaikom	Integrated Development of Small and Medium (IDSMT Scheme)		√
	News Print Nagar	Expansion of Hindustan Newsprint Ltd.		
Kannur	Mattannur	Internation Airport (kannur)		√
	Azhikkal	Sea port		
		Coastal Shipping under National Maritime Development Programme (NMDP)		
		Proposed Strategic Oil Reserves storage facility		
	Thottada in Edakkad grama panchayath	National Institute of Fashion Technology (NIFT)	√	
	Kottappuram	National water ways		
	Mangattuparambu	Constainer Frieght Station		
Alappuzha	Chennampallipuram	Industrial growth centre and infopark		
	Purakkad	infopark		
	SN puram	Rail coach factory		
	....	Marina Cargo port		
	Cherthala, Thiruvizha and Kanichukulangara	Coir Park	√	
	Aroor	Town of excellence	√	
Thrissur	Avanoor Grama Panchayat	Medical University		
Kozhikode	Kozhikode	Pipeline	√	
	Palazhi-kozhikode corporation	IT park		
	Feroke and Kadalundi	Development of Beypore port	√	
	Kinaloor-Panangad Grama Panchayat	Industrial Town ship		

Committed and on going Urban Development Projects				
District	***Local body***	***Project***	Falls within the designated urban area	
Idukki	Nedumkandam, Kattappana, kumily	Airport and Spices park	√	
	Madhur Panchayat	Hindustan Aeronautics Ltd.	√	
	Bekal, Pallikkara Panchayat	Tourism project		
	....	Development of N.H. 17		
	Seethangoli, Puthige Panchayat	I.T. Park		
Wayanad	Mananthavady	Central School		
		Kannur University Campus		
	Edavaka	Kalan college of Arts & science		
	Meenangadi	HRD Applied Science College Mylampadi		
		Panchayat stadium		
		District cricket stadium		
		Bio diversity partk		
	Meppadi	Continential College of Engineering		
		Industrial school		
		MIMS Hospital unit		
		Uravu, Mandad,		
		Medical College		
	Muttil	Food park		
		Bus stand		
	Nenmeni	Brahmagiri meat processing unit		
		Women's ITI		
		Fruit and Vegetable Market		
	Pandincharathara	Banasura Tourism project		
	Poothadi	Drinking water project at Athirattukunnu		
	Pulppally	Archery Institute at Kolarattukunnu		
		Arts and science college		
	Thondernadu	Mini Industrial Estate		
	Vellamunda	Bus stand		
	Ambalavayal	Kaduvakkuzhi Tourism Project		
		Edakkal Caves		
	Vythiri	Veterinary University		
	Kalpetta Municipality	Bus stand		
		Drinking water project under UIDSSMT		
		Milma Plant		
		KINFRA Industrial part		
		Govt. Hospital at kainatty		
		District stadium at Maravayal		√

ANNEXE 6(a)

Detailed Urban Profile of Kerala 2021

URBAN PROFILE (2021) - URBAN CLUSTER AND OTHER URBAN AREAS

Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster	Lower order Urban areas(from the study of DUR)
Thiruvananthapuram				
1	Thiruvananthapuram UA	THIRUVANANTHAPURAM	Attingal Municipality	Aruvikkara
2		KUDAPPANAKKUNNU	Nedumangadu Municipality	Kattakkada
3		KAZHAKKOOTAM	Varkala	Kollayil
4		SREEKARYAM		Parassala
5		VATTIYOORKAVU		Vellanadu
6		KOVALAM		Vembayam
7	Navayikkulam			Chirayinkeezhu
8	Elakamon			Kunnathukal
9	Edava			Malayinkeezhu
10	Chemmaruthi			Maranalloor
11	Karavaram			Nellanadu
12	Ottoor			Pothankode
13	Manampoor			Vilappil
14	Cherunniyur			Navaikkulam
15	Vettoor			
16	Kadinamkulam			
17	Andoorkkonam			
18	Vilavoorkkal			
19	Pallichal			
20	Neyyattinkara			
21	Balaramapuram			
22	Athiyannoor			
23	Kottukal			
24	Kanjiramkulam			
25	Kalliyoor			
26	Venganoor			
27	Vizhinjam			
28	Karakulam			

Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster	Lower order Urban areas(from the study of DUR)
Kollam				
1	KOLLAM UA	KOLLAM	Punalur Municipality	Kottarakkara
2		NEENDAKARA	Karunagappally	Kulasekharapuram
3		ERAVIPURAM		Oachira
4	Panmana			Anchal
5	Thevalakkara			
6	Mantrothuruthu			
7	Kundra			
8	Chavara			
9	Perayam			
10	Thekkumbhagam			
11	Panayam			
12	Thrikkaruva			
13	Perinadu			
14	Elampalloor			
15	Nedumpana			
16	Kottamkara			
17	Thrikkadavoor			
18	Thrikovilvattom			
19	Adichanalloor			
20	Chathannoor			
21	Mayyanadu			
22	Kalluvathukkal			
23	Paravoor Municipality			
24	Poothakulam			
Pathanamthitta				
1	Peringara		Adoor	Pandalam
2	Thiruvalla Municipality		Pathanamthitta	Mallapally
3				Ranni
4				Konni
5				Kozhanchery
6				Kadapra
7				Ranni-Pazhavangadi
Alappuzha				
1	Alappuzha UA	ALAPPUZHA-M	Kayamkulam(M)	Pathiyoor
2		KALARKODE-OG	Chengannur (M)	Purakkad
3		PUNNAPRA-OG	Mavelikara(M)	Mannanchery
4		KOMALAPURAM-CT		Kodmthuruth
5	Cherthala UA	CHERTHALA-M		Ambalapuzha North
6		VAYALAR-OG		Ambalapuzha South
7		THANNEERMUKKAM-OG		Chettikulangara

Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster		Lower order Urban areas(from the study of DUR)
8		KOKKOTHAMANGALAM-CT			Chennampallippuram
9		MUHAMMA-CT			Pattanakkad
10	Aroor				Harippad
11	Perumbalam				Mannar
12	Arookutty				
13	Cherthala South				
14	Kanjikkuzhi				
15	Mararikkulam North				
16	Mararikkulam South				
17	Mannanchery				
Kottayam					
1	Kottayam UA	KOTTAYAM	Vaikom Municipality		Ettumanoor
2		VIJAYAPURAM	Pala Municipality		Kanjirappally
3		PERUMBAIKAD			Kaduthuruthy
4		NATTAKAM			Erattupetta (C.T)
5	Changanassery UA 2011	Changanassery			Pampady
6		Chethipuzha			Mundakayam
7		Thrikkodithanam			
8		Paippad			
9	ATHIRAMPUZHA				
10	ARPOOKARA				
11	KUMARANALLOOR				
12	MANARCAD				
13	PANACHIKKAD				
14	KURICHI				
15	VAZHAPPALLY				
Idukki					
1			Thodupuzha Municipality		Kattappana
2			Vazhathope		Kumily
3					Munnar
4					Adimaly
5					Nedumkandam
6					Peermade
7					Muttom
8					Vandiperiyar
Ernakulam					
1		KOCHI	Kothamangalam Cluster	Kothamangalam	
2		THRIPPUNITHURA		Nelliduzhy	
3		ELOOR	Muvattupuzha Municipality		
4		KALAMASSERY			
5		KAKKANAD			

Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster	Lower order Urban areas(from the study of DUR)
6	Kochi UA	ALUVA		
7		CHOORNIKKARA		
8		EDATHALA		
9		PARAVUR		
10		KEDAMANGALAM		
11		KOTTUVALLY		
12		ALANGAD		
13		VARAPPUZHA		
14		KADUNGALLUR		
15		CHERIYAKADAVU		
16		CHERANALLUR		
17		MULAVUKAD		
18		VAZHAKKALA		
19		THIRUVANKULAM		
20		MARADU		
21		ANGAMALY		
22		CHENGAMANAD		
23		CHOWWARA		
24		KADAMAKKUDY		
25		KUREEKKAD		
26	Thuravoor			
27	Parakkadavu			
28	Puthenvelikkara			
29	Kalady			
30	Koovappady			
31	Vadakkekkara			
32	Nedumbassery			
33	Pallippuram			
34	Chendamangalam			
35	Mudakkuzha			
36	Kuzhuppilly			
37	Chittattukara			
38	Kunnukara			
39	Ockal			
40	Kanjoor			
41	Karumalloor			
42	Chengamanad			
43	Sreemoolanagaram			
44	Ezhikkara			
45	Perumbavoor			
46	Edavanakkad			
47	Keezhmadu			

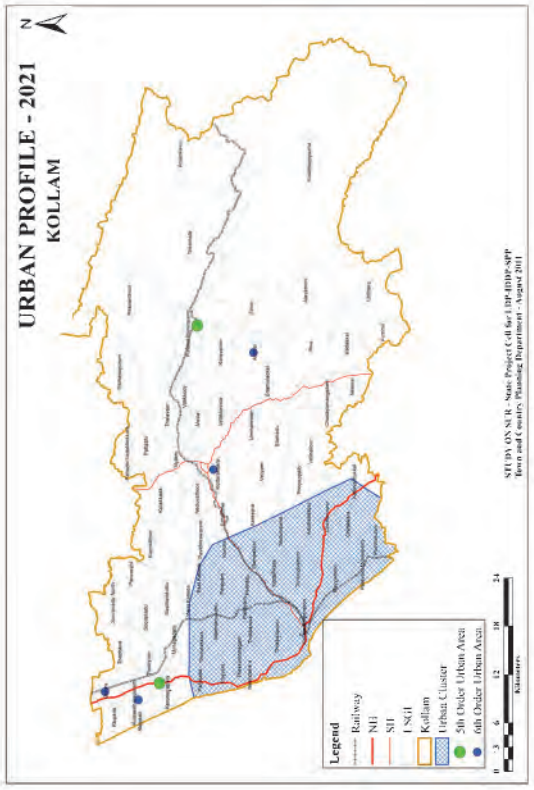
Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster	Lower order Urban areas(from the study of DUR)
48	Asamannoor			
49	Vazhakkulam			
50	Kadungalloor			
51	Rayamangalam			
52	Vengola			
53	Nellidduzhy			
54	Njarackal			
55	Varappety			
56	Paipra			
57	Thrikkakkara			
58	Nayarambalam			
59	Elamkunnappuzha			
60	Kizhakkambalam			
61	Vadavucode-Puthencruz			
62	Thrikkakkara			
63	Kumbalangi			
64	Elamkunnappuzha			
65	Mulamthuruthy			
66	Vadavucode-Puthencruz			
67	Chottanikkara			
68	Chellanam			
69	Udayamperur			
70	Kumbalam			
71	Kunnathunadu			
Thrissur				
1	Thissur UA	THRISSUR	Chalakudy(M)	Adat
2		NADATHARA	Irinjalakkuda (M)	Pavaratty
3	Kodungallur UA	KODUNGALLUR		Mala
4		ERIYAD		Valappad
5		METHALA		Sreenarayanapuram
6	Mulamkkunnathu kkavu			Pudukkad
7	Madakkathara			Manalur
8	Kolazhy			
9	Paralam			
10	Avinissery			
11	Nenmanikkara			
12	Cherpu			
13	Vallachira			
14	Alagappanagar			
15	Edavilangu			

Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster	Lower order Urban areas(from the study of DUR)
16	Guruvayur Cluster	GURUVAYOOR(M)		
17		CHAVAKKAD(M)		
18		Kunnamkulam(M)		
		Palakkad		
1	Palakkad UA	PALAKKAD	Chittoor-Thathamangalam	Koduvayur
2		HEMAMBIKANAGAR	Pattambi	Mannarkkad
3		PUTHUPPARIYARAM	Shornur	Alathur
4		MARUTHARODE	Ottapalam	Cherplasery
5	Akathethara			
6	Pirayiri			
7	Kodumba			
8	Kannadi			
9	Puthussery			
		Malappuram		
1	Malappuram UA	MALAPPURAM	Perintalmanna	Angadippuram
2		ANAKKAYAM	Ponnani	Valancheri
3		MANJERI	Nilambur	Kuttippuram
4	Vazhayoor			Areakode
5	Cherukavu			Thavanoor
6	Chelembra			Edappal
7	Pallikkal			Wandoor
8	Kondotty			
9	Morayur			
10	Nediyiruppu			
11	Thenchippalam			
12	Vallikunnu			
13	Pookkottur			
14	Peruvalloor			
15	Kannamangalam			
16	Munniyoor			
17	Oorakam			
18	A.R. Nagar			
19	Parappanangadi			
20	Vengara			
21	Othukkungal			
22	Tirurangadi			
23	Kodur			
24	Parappur			
25	Edarikkode			
26	Nannambra			
27	Thennala			
28	Tanur			

Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster		Lower order Urban areas(from the study of DUR)
29	Kottakkal				
30	Perumanna Klari				
31	Ozhur				
32	Ponmundom				
33	Kalpakancheri				
34	Thanlur				
35	Valavannur				
36	Cheriyamundom				
37	Athavanad				
38	Tirur				
39	Niramaruthur				
40	Thirunavaya				
41	Vettom				
42	Thalakkad				
43	Triprangode				
44	Mangalam				
Kozhikkode					
1	Kozhikkode UA	KOZHIKODE	Vadakara UA	VADAKARA	Peruvayal
2		OLAVANNA		VILLIAPPALLY	Mukkom
3		CHERUVANNUR		PALAYAD	Chathamangalam
4		BEYPORE	KOYLANDY MUNICIPALITY		Chelannur
5		FEROKE			Payyoli
6		PUTHIYANGADI			Perambra
7		ELATHUR			Balusseri
8		KAKKODI			Atholy
9		PANTHEERAMKAVU			Eramala
10		RAMANATTUKARA			Mavoor
11		KARUVANTHURUTHY			Chemanchery
12		KADALUNDI			KODUVALLY
13	Eramala				KUNNAMANGALAM
14	Kuruvattur				
15	Edachery				
16	Azhiyur				
17	Onchiyam				
Wayanad					
1			Kalpatta		Mananthavadi
2					Sulthan Batheri
3					Vythiri
4					Panamaram
5					Pulpally
6					Meenangadi

Sl. No	Constituent LSGs in Urban cluster		Higher order Urban Lsgs outside cluster	Lower order Urban areas(from the study of DUR)
7				Meppadi
8				Muttil
		Kannur		
1	Kannur UA	KANNUR	Mattannur	Alakode
2		KANNUR CANTONMENT		Sreekandapuram
3		AZHIKODE NORTH		Keezhur-Chavassery
4		AZHIKODE SOUTH		keezhallur
5		VALAPATTANAM		
6		CHIRAKKAL		
7		ELAYAVOOR		
8		PUZHATHI		
9		PALLIKUNNU		
10		THOTTADA		
11		MUZHAPPILANGAD		
12		ERANHOLI		
13		DHARMADOM		
14		THALASSERY		
15		NEW MAHE		
16		KADACHIRA		
17	KARIVELLUR-PERALAM			
18	PAYYANUR			
19	KUNHIMANGALAM			
20	RAMANTHALI			
21	THALIPARAMBA			
22	MADAI			
23	PATTUVAM			
24	CHERUKUNNU			
25	KANNAPURAM			
26	MATTOOL			
27	KOLACHERY			
28	KALLIASSERY			
29	PAPPINISSERY			
30	NARATH			
31	CHELORA			
32	MUNDERI			
33	VENGAD			
34	CHEMBILODE			
35	PINARAYI			
36	MOKERI			
37	ANJARAKKANDY			
38	EDAKKAD			

Sl. No	Constituent LSGs in Urban cluster	Higher order Urban Lsgs outside cluster	Lower order Urban areas(from the study of DUR)
39	PERALASSERI		
40	KUTHUPARAMBA		
41	KADAMBUR		
42	KOTTAYAM		
43	KATHIRUR		
44	KARIYAD		
45	PANOOR		
46	PANNYANUR		
47	THRIPPANGOTUR		
48	PERINGALAM		
49	CHOKLI		
		Kasaragod	
1	Thrikkarippur	KASARAGOD	Chengla
2		KANHANGAD	Pallikara
3			Manjaswaram
4			Mangalpadi
5			Mogral Puthur
6			Puthige
7			Kayoor Cheemeni
8			Karadka
9			West Eleri
10			Madhur
11			Uduma
12			Nileswar
13			Cheruvathur
14			Ajanur
15			Chamnad


URBAN PROFILE - 2021
KOLLAM
N
Legend
Railway
NH
SH
LSGI
Kollam
Urban Cluster
5th Order Urban Area
6th Order Urban Area
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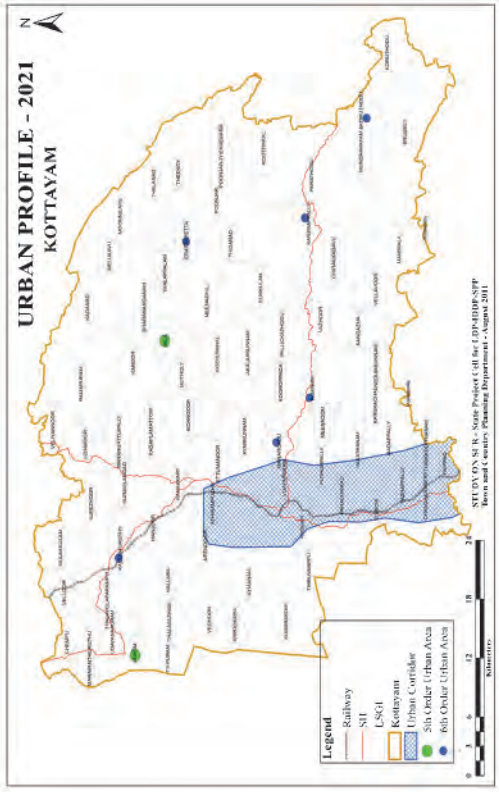
Town and Country Planning Department - August 2011


URBAN PROFILE - 2021
KOTTAYAM
N
Legend
Railway
NH
SH
LSGI
Kottayam
Urban Corridor
5th Order Urban Area
6th Order Urban Area
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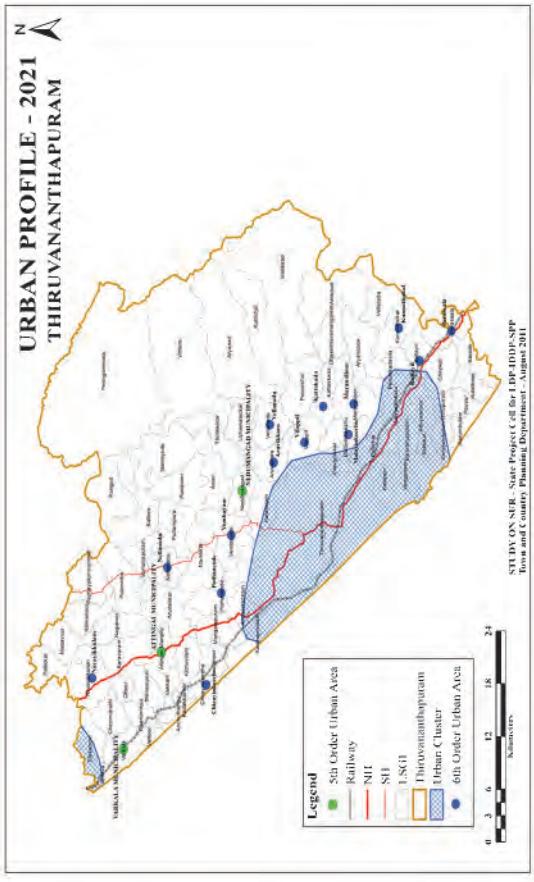
Town and Country Planning Department - August 2011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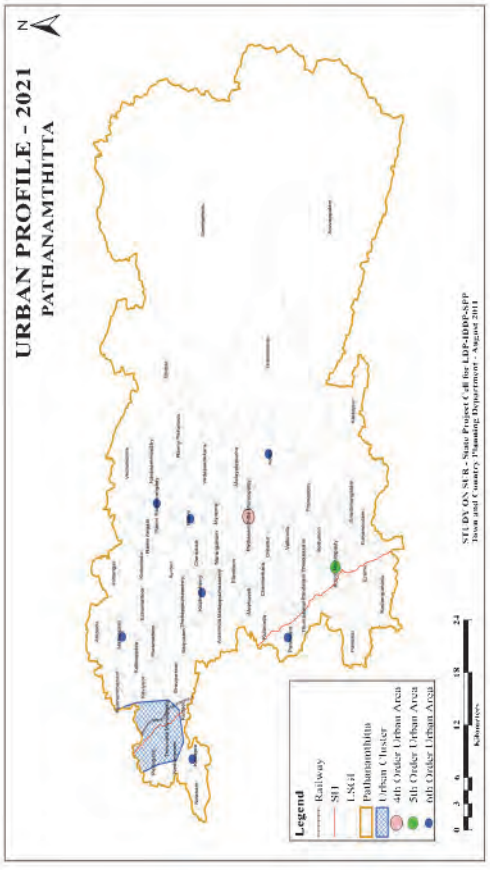
Railway
NH
SH
LSGI
Thiruvananthapuram
Urban Cluster
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SFP
Town and Country Planning Department - August 2011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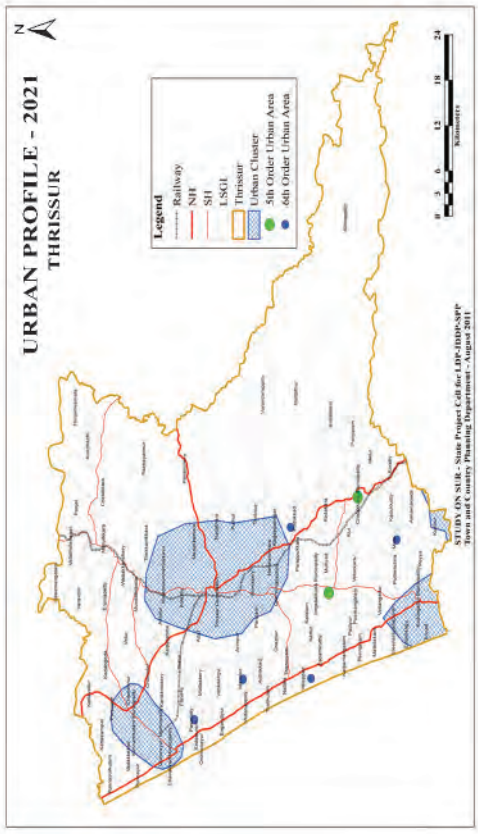
Urban Cluster
4th Order Urban Area
5th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SFP
Town and Country Planning Department - August 2011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Urban Cluster
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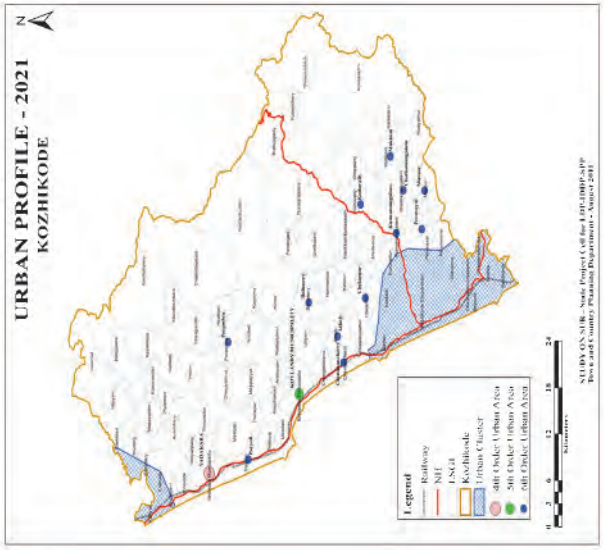
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011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LSGI
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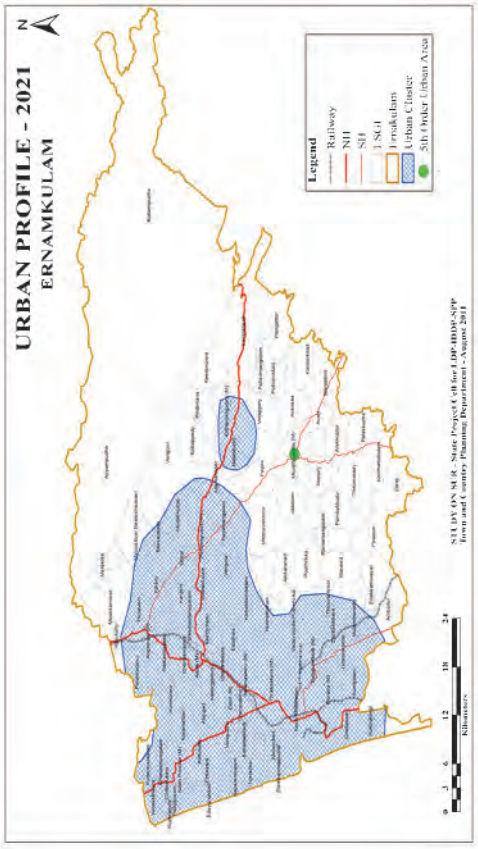
Urban Cluster
4th Order Urban Area
5th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2021
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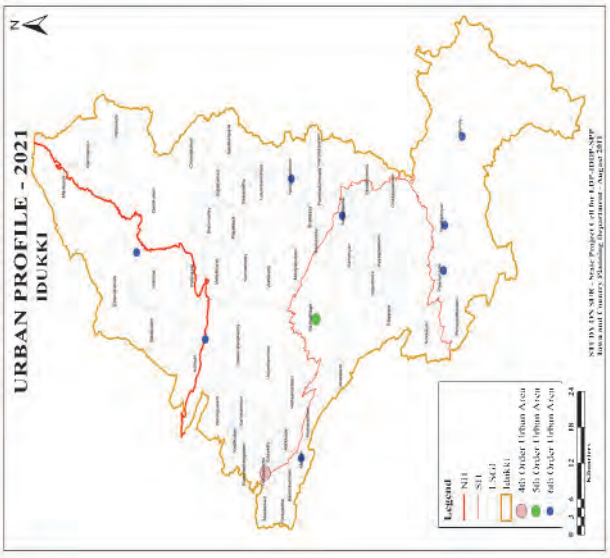
Ernakulam
Urban Cluster
5th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011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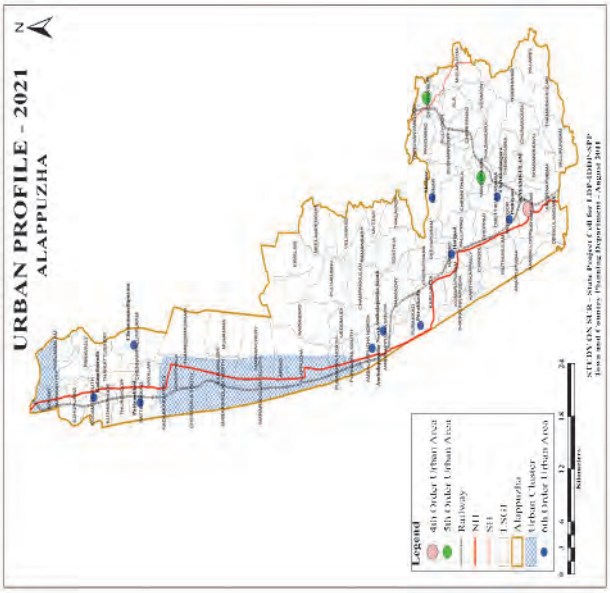
Town and Country Planning Department - August 2011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ALAPPUZHA
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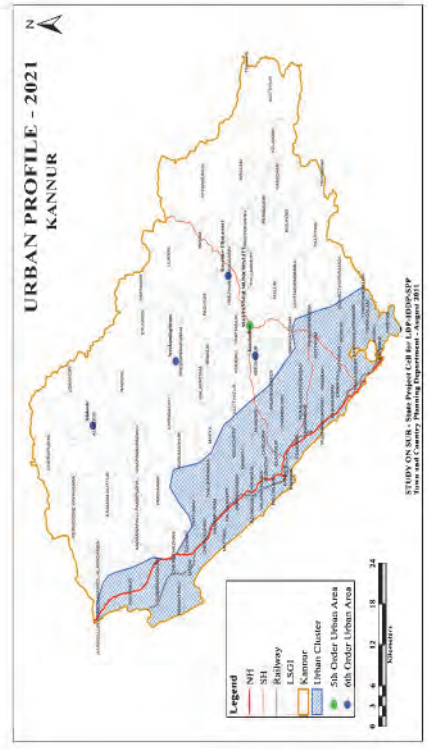
5th Order Urban Area
Railway
NH
SH
LSGI
Alappuzha
Urban Cluster
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2021
KANNUR
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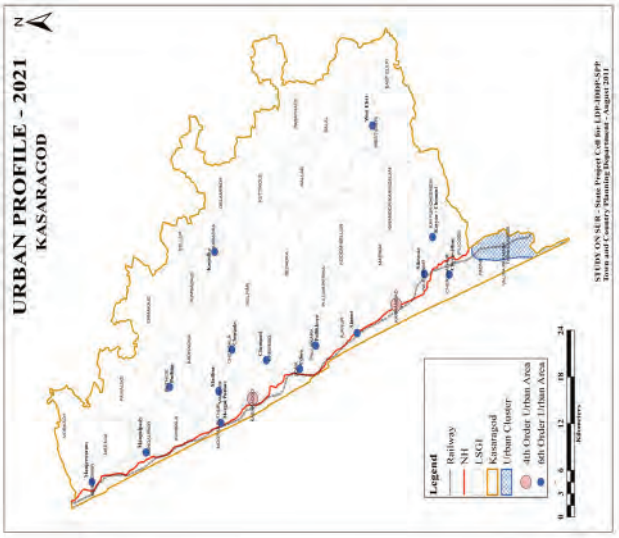
SH
Railway
LSGI
Kannur
Urban Cluster
5th Order Urban Area
6th Order Urban Area
Kilometers
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2021
KASARAGOD
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Legend
Railway
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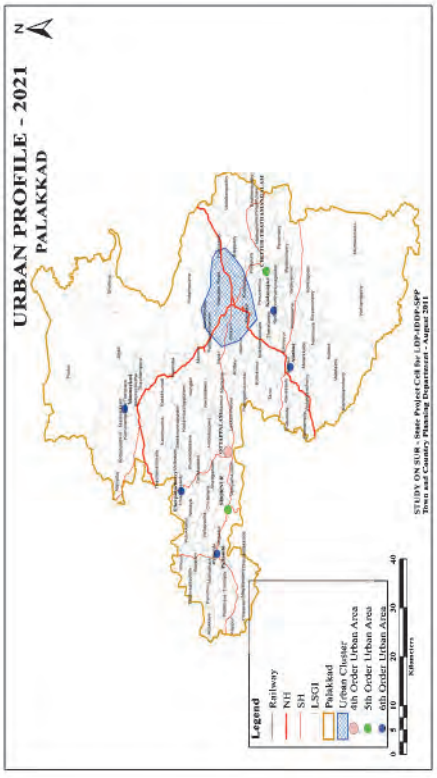
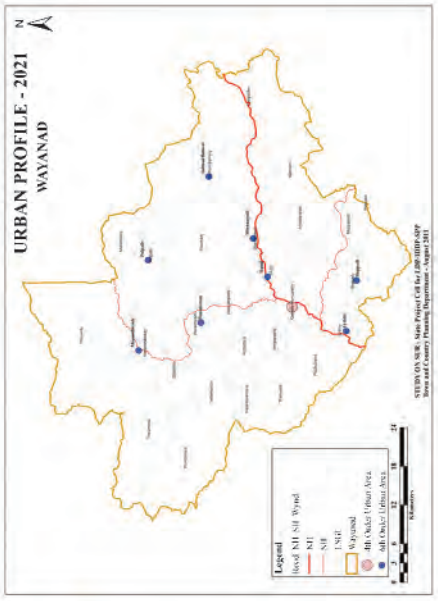
LSGI
Kasaragod
Urban Cluster
4th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2021
PALAKKAD
N
Legend
Railway
NH
SH
LSGI
Palakkad
Urban Cluster
4th Order Urban Area
5th Order Urban Area
6th Order Urban Area
Kilometers
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2021
WAYANAD
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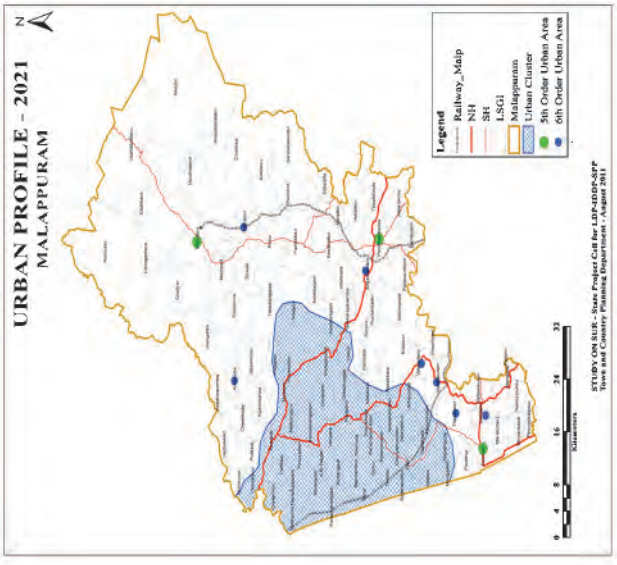
Wayanad
4th Order Urban Area
5th Order Urban Area
Kilometers
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2021
MALAPPURAM
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Legend
Railway_Malp
NH
SH
LSGI
Malappuram
Urban Cluster
5th Order Urban Area
6th Order Urban Area
Kilometers
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011

ANNEXE 6(b)

Detailed Urban Profile of Kerala 2031

URBAN PROFILE (2031) - URBAN CORRIDOR AND OTHER URBAN AREAS

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
Thiruvananthapuram				
1	Thiruvananthapuram UA	Thiruvananthapuram	Nedumangad Municipality	Aruvikkara
2		KUDAPPANAKKUNNU		Vilappil
3		KAZHAKKOOTAM		Kattakkada
4		SREEKARYAM		Kollayil
5		VATTIYOORKAVU		Parassala
6		KOVALAM		Vellanadu
7	Navayikkulam			Vembayam
8	Elakamon			Kunnathukal
9	Edava			Malayinkeezhu
10	Chemmaruthi			Maranalloor
11	Karavaram			Nellanadu
12	Varkala			
13	Ottoor			
14	Manampoor			
15	Cherunniyur			
16	Attingal Munplty			
17	Vettoor			
18	Vakkam			
19	Anchuthengu			
20	Kizhuvilam			
21	Kadakkavoor			
22	Chirayinkeezhu			
23	Pothankode			
24	Mangalapuram			
25	Azhoor			

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
26	Kadinamkulam			
27	Andoorkkonam			
28	Karakulam			
29	Vilavoorkkal			
30	Pallichal			
31	Neyyattinkara			
32	Balaramapuram			
33	Athiyannoor			
34	Kottukal			
35	Kanjiramkulam			
36	Kalliyoor			
37	Venganoor			
38	Vizhinjam			
Kollam				
1	KOLLAM UA	KOLLAM	Punalur	Kottarakkara
2		NEENDAKARA	Karunagappally	Kulasekarapuram
3		ERAVIPURAM		Ochiora
4	Panmana			Anchal
5	West Kallada			
6	Thevalakkara			
7	Mantrothuruthu			
8	Kundra			
9	Chavara			
10	Perayam			
11	Thekkumbhagam			
12	Panayam			
13	Thrikkaruva			
14	Perinadu			
15	Elampalloor			
16	Nedumpana			
17	Kottamkara			
18	Thrikkadavoor			
19	Thrikovilvattom			
20	Adichanalloor			
21	Chathannoor			
22	Mayyanadu			
23	Kalluvathukkal			
24	Paravoor Municipality			
25	Poothakulam			

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
Pathanamthitta				
1	Thiruvalla Municipality		Adoor	Pandalam
2	Kaviyoor			Mallapally
3	Peringara			Ranni
4	Eraviperoor			Konni
5	Thottappuzhasserry			Kadapra
6	Koipuram			Ranni-Pazhavangadi
7	Kuttoor			
8	Kozhencherry			
9	Naranganam			
10	Aranmula			
11	Mallappuzhasserry			
12	Elanthoor			
13	Pathanamthitta Municipality			
14	Mezhuveli			
15	Kulanada			
16	Chennerkara			
17	Omallur			
18	Vallicodu			
Kottayam				
1	Kottayam UA	KOTTAYAM	Pala Municipality	Kanjirappally
2		VIJAYAPURAM	Vaikom Municipality	Kaduthuruthy
3		PERUMBAIKAD		Erattupetta
4		NATTAKAM		Pampady
5	Changanassery UA 2011	Changanassery		Mundakayam
6		Chethipuzha		MANARCAD
7		Thrikkodithanam		
8		Paippad		
9	ATHIRAMPUZHA			
10	KUMARANALLOOR			
11	PANACHIKKAD			
12	VAKATHANAM			
13	KURICHI			
14	VAZHAPPALLY			
Alappuzha				
1	Alappuzha UA	ALAPPUZHA-M	Kayamkulam (M)	Purakkad
2		KALARKODE-OG	Mavelikara (M)	Ambalapuzha North
3		PUNNAPRA-OG		Ambalapuzha South
4		KOMALAPURAM-CT		Mannanchery

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor		Lower order Urban areas(from the study of DUR)
5	Cherthala UA	CHERTHALA-M			Chettikulangara
6		VAYALAR-OG			Chennampallippuram
7		THANNEERMUKKAM-OG			Pathiyoor
8		KOKKOTHAMANGALAM-CT			Mannar
9		MUHAMMA-CT			Harippad
10	Aroor				
11	Perumbalam				
12	Arookutty				
13	Ezhupunna				
14	Panavally				
15	Kodamthuruth				
16	Thaikattussery				
17	Kuthiathode				
18	Thuravoor				
19	Pattanakkad				
20	Kadakkarappally				
21	Cherthala South				
22	Kanjikkuzhi				
23	Mararikkulam North				
24	Mararikkulam South				
25	Thiruvanvandoor				
26	Chengannur				
27	Mannanchery				
28	Mulakuzha				
			Ernakulam		
1	Kochi UA	KOCHI	Kothamangalam Cluster	Kothamangalam	
2		THRIPPUNITHURA		Nelliduzhy	
3		ELOOR	Muvattupuzha		
4		KALAMASSERY			
5		KAKKANAD			
6		ALUVA			
7		CHOORNIKKARA			
8		EDATHALA			
9		PARAVUR			
10		KEDAMANGALAM			
11		KOTTUVALLY			
12		ALANGAD			
13		VARAPPUZHA			

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
14	Kochi UA	KADUNGALLUR		
15		CHERIYAKADAVU		
16		CHERANALLUR		
17		MULAVUKAD		
18		VAZHAKKALA		
19		THIRUVANKULAM		
20		MARADU		
21		ANGAMALY		
22		CHENGAMANAD		
23		CHOWWARA		
24		KADAMAKKUDY		
25		KUREEKKAD		
26	Karukutty			
27	Mookkannoor			
28	Thuravoor			
29	Parakkadavu			
30	Puthenvelikkara			
31	Kalady			
32	Koovappady			
33	Vadakkekkara			
34	Nedumbassery			
35	Pallippuram			
36	Chendamangalam			
37	Mudakkuzha			
38	Kuzhuppilly			
39	Chittattukara			
40	Kunnukara			
41	Ockal			
42	Kanjoor			
43	Karumalloor			
44	Chengamanad			
45	Sreemoolanagaram			
46	Ezhikkara			
47	Perumbavoor			
48	Edavanakkad			
49	Keezhmadu			
50	Asamannoor			
51	Vazhakkulam			
52	Rayamangalam			
53	Vengola			

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
55	Choornikkara			
56	Nayarambalam			
57	Kizhakkambalam			
58	Kadamakkudy			
59	Njarackal			
60	Varappety			
61	Paipra			
62	Thrikkakkara			
63	Elamkunnappuzha			
64	Vadavucode-Puthencruz			
65	Chottanikkara			
66	Chellanam			
67	Udayamperur			
68	Kumbalam			
69	Mulamthuruthy			
70	Kumbalangi			
		Thrissur		
1	Thissur UA	THRISSUR		Valappad
2		NADATHARA		Manalur
3	Guruvayur UA	GURUVAYOOR		
4		CHAVAKKAD		
5		POOKODE		
6		PERAKAM		
7		IRINGAPROM		
8		THAIKKAD		
9		PALUVAI		
10		PAVARATTY		
11		VENMANAD		
12		BRAHMAKULAM		
13	Kodungallur UA	KODUNGALLUR		
14		ERIYAD		
15		METHALA		
16	Vallatholenagar			
17	Wadakkanchery			
18	Chowannur			
19	Vadakkekad			
20	Punnayur			
21	Kunnamkulam Municipality			
22	Mundathikode			
23	Choondal			
24	Avanur			
25	Guruvayur Municipality			
26	Kandanissery			
27	Kaiparamba			

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
28	Mulamkkunnathukkavu			
29	Madakkathara			
30	Tholur			
31	Elavally			
32	Kolazhy			
33	Orumanayur			
34	Adat			
35	Paralam			
36	Avinissery			
37	Nenmanikkara			
38	Cherpu			
39	Vallachira			
40	Alagappanagar			
41	Pudukkad			
42	Parappukkara			
43	Porathissery			
44	Muriyad			
45	Kodakara			
46	Irinjalakkuda Municipality			
47	Alur			
48	Poomangalam			
49	Velukkara			
50	Chalakkudy Municipality			
51	Vellangallur			
52	Melur			
53	Mala			
54	Puthenchira			
55	Kadukkutty			
56	Koratty			
57	Annamanada			
58	Edavilangu			
59	Poyya			
60	sreenarayanapuram			
61	Kuzhur			
Palakkad				
1	Palakkad UA	PALAKKAD	Chittoor-Thathamangalam	Pattambi
2		HEMAMBIKANAGAR		Pudussery
3		PUTHUPPARIYARAM		Mannarkkad
4		MARUTHARODE		Alathur
5	Akathethara			Cherplasery
6	Ottappalam (M)			Koduvayur

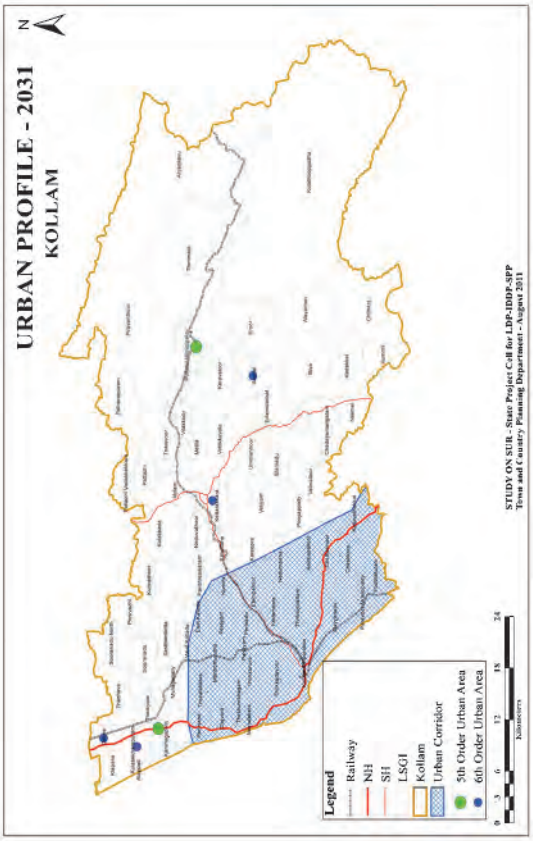
Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
7	Mannur			
8	Shoranur (M)			
9	Lakkidi-Perur			
10	Vaniyamkulam			
11	Pirayiri			
12	Kottayi			
13	Mathur			
14	Kodumba			
15	Peringottukurissi			
16	Kannadi			
		Idukki		
1			Thodupuzha Municipality	
2			Vazhathope	Kattappana
3				Kumily
4				Munnar
5				Adimaly
6				Nedumkandam
7				Peermade
8				Muttom
9				Vandiperiyar
		Malappuram		
1	Malappuram UA	MALAPPURAM	Perintalmanna	Angadippuram
2		ANAKKAYAM	Ponnani	Valancheri
3		MANJERI	Nilambur	Kuttippuram
4	Cherukavu			Areakode
5	Chelembra			Thavanoor
6	Pallikkal			Edappal
7	Kondotty			Wandoor
8	Morayur			
9	Nediyiruppu			
10	Thenchippalam			
11	Vallikunnu			
12	Pookkottur			
13	Peruvalloor			
14	Kannamangalam			
15	Munniyoor			
16	Oorakam			
17	A.R. Nagar			
18	Parappanangadi			
19	Vengara			
20	Othukkungal			

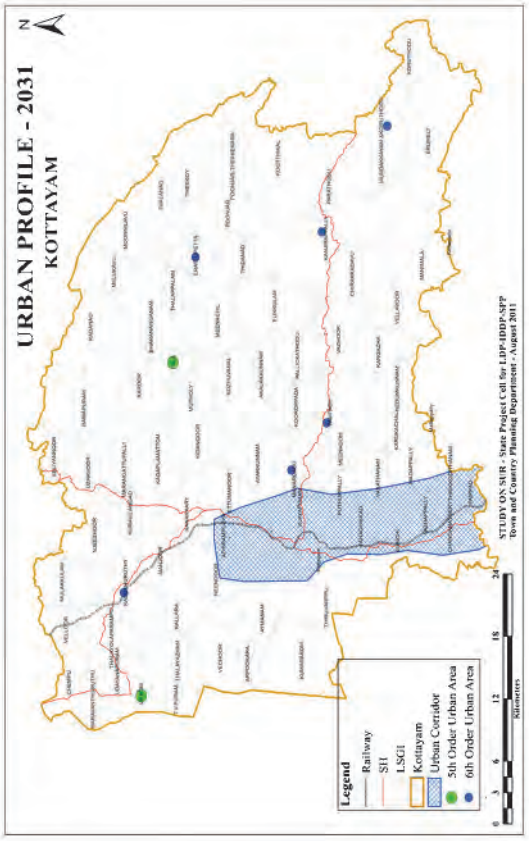
Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor		Lower order Urban areas(from the study of DUR)
21	Tirurangadi				
22	Kodur				
23	Parappur				
24	Edarikkode				
25	Nannambra				
26	Thennala				
27	Tanur				
28	Kottakkal				
29	Perumanna Klari				
30	Ozhur				
31	Ponmundom				
32	Kalpakancheri				
33	Thanlur				
34	Valavannur				
35	Cheriyamundom				
36	Athavanad				
37	Tirur				
38	Niramaruthur				
39	Thirunavaya				
40	Vettom				
41	Thalakkad				
42	Triprangode				
43	Mangalam				
Kozhikkode					
1	Kozhikkode UA	KOZHIKODE	Vadakara UA	VADAKARA	Peruvayal
2		OLAVANNA		VILLIAPPALLY	Mukkom
3		CHERUVANNUR		PALAYAD	Chathamangalam
4		BEYPORE	Koyilandi Muncipality		Chelannur
5		FEROKE			Payyoli
6		PUTHIYANGADI			Perambra
7		ELATHUR			Balusseri
8		KAKKODI			Atholy
9		PANTHEERAMKAVU			Koduvally
10		RAMANATTUKARA			Mavoor
11		KARUVANTHURUTHY			Chemanchery
12		KADALUNDI			Kunnamangalam
13	Edachery				
14	Azhiyur				

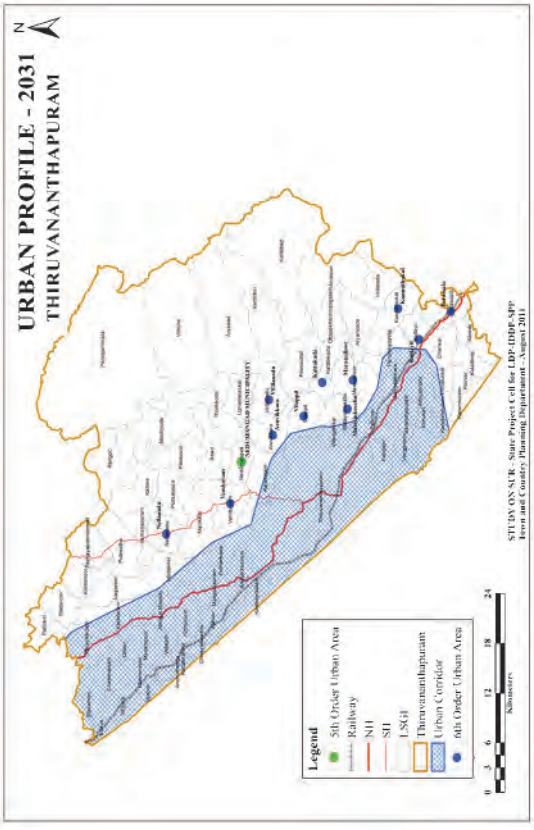
Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
15	Eramala			
16	Kuruvattur			
17	Cheruvannur-Nallalam			
		Wayanad		
1			Kalpatta Municipality	Mananthavadi
2				Sulthan Batheri
3				Vythiri
4				Panamaram
5				Pulpally
6				Meenangadi
7				Meppadi
8				Muttil
		Kannur		
1	Kannur UA	KANNUR	Mattannur	
2		KANNUR CANTONMENT		
3		AZHIKODE NORTH		
4		AZHIKODE SOUTH		
5		VALAPATTANAM		
6		CHIRAKKAL		
7		ELAYAVOOR		
8		PUZHATHI		
9		PALLIKUNNU		
10		THOTTADA		
11		MUZHAPPILANGAD		
12		ERANHOLI		
13		DHARMADOM		
14		THALASSERY		
15		NEW MAHE		
16		KADACHIRA		
17	KARIVELLUR-PERALAM			
18	PAYYANUR			
19	KUNHIMANGALAM			
20	CHERUTHAZHAM			
21	RAMANTHALI			
22	THALIPARAMBA			
23	MADAI			
24	PATTUVAM			
25	CHERUKUNNU			
26	KANNAPURAM			

Sl. No	Constituent LSGs in Urban Corridor		Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
27	MATTOOL			
28	KOLACHERY			
29	KALLIASSERY			
30	PAPPINISSERY			
31	NARATH			
32	MUNDERI			
33	CHIRAKKAL			
34	ANJARAKKANDY			
35	VENGAD			
36	CHELORA			
37	PINARAYI			
38	MOKERI			
39	KATHIRUR			
40	KARIYAD			
41	PANOOR			
42	CHEMBILODE			
43	KANNUR			
44	EDAKKAD			
45	PERALASSERI			
46	KUTHUPARAMBA			
47	KADAMBUR			
48	KOTTAYAM			
49	PANNYANUR			
50	THRIPPANGOTUR			
51	PERINGALAM			
52	CHOKLI			
Kasaragod				
1	KASARAGOD UA	KASARAGOD		Cheruvathoor
2		KUDLU		Manjaswaram
3	KANHANGAD UA	KANHANGAD		Mangalpadi
4		PEROLE		Puthige
5		NILESWAR		Kayoor Cheemeni
6	Chengala			Karadka
7	MADHUR			West Eleri
8	CHEMNAD			
9	UDMA			
10	PALLIKKARA			
11	PULLUR PERIYA			

Sl. No	Constituent LSGs in Urban Corridor	Higher order Urban Lsgs outside Urban corridor	Lower order Urban areas(from the study of DUR)
12	AJANUR		
13	NILESHWAR		
14	Mogral Puthur		
15	Thrikkaripoor		


URBAN PROFILE - 2031
KOLLAM
N
Legend
Railway
NH
SH
LSGI
Kollam
Urban Corridor
5th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-IDDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
KOTTAYAM
N
Legend
Railway
SH
LSGI
Kottayam
Urban Corridor
5th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-IDDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
THIRUVANANTHAPURAM
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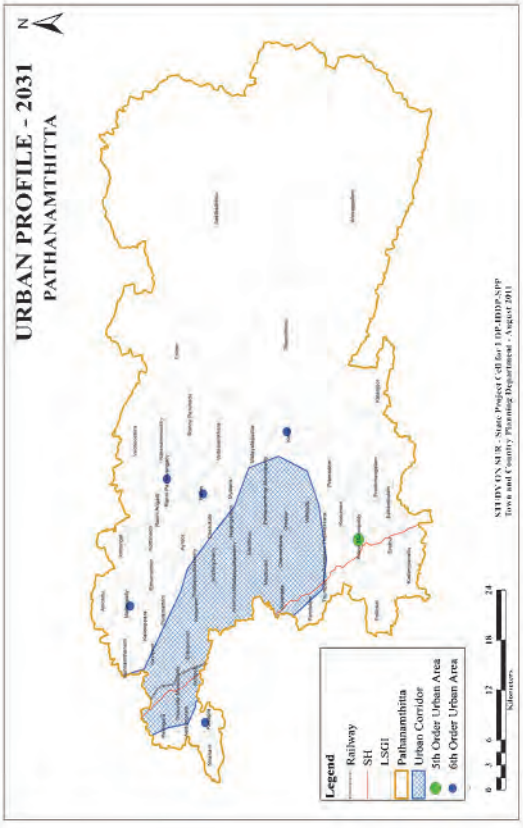
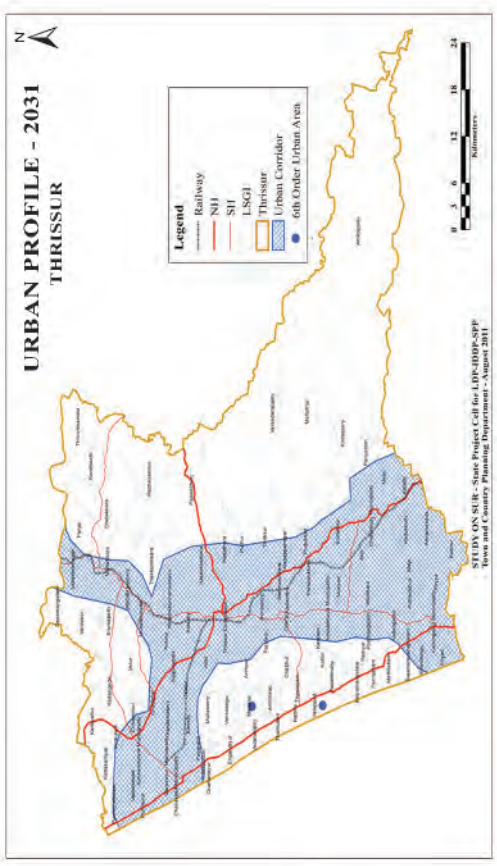
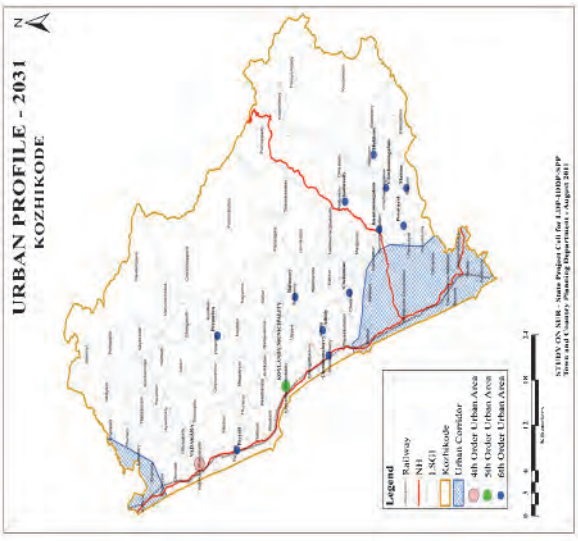
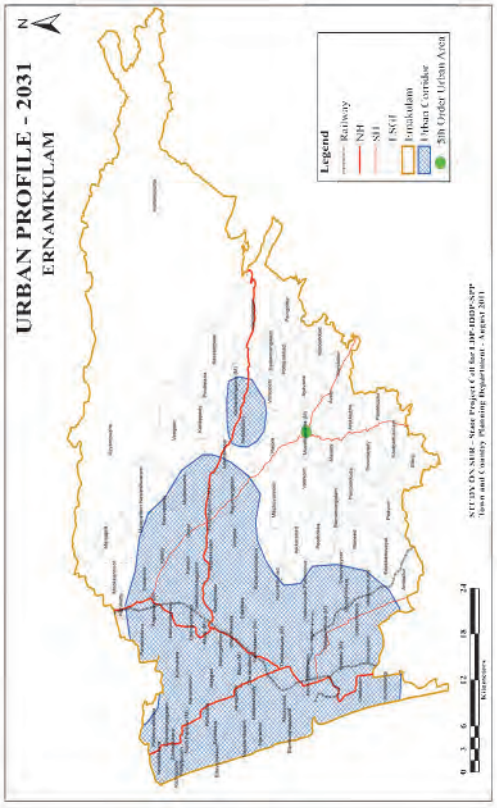
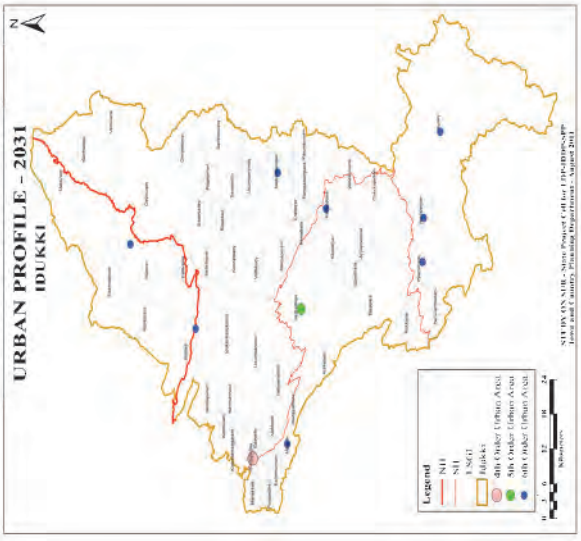
Legend
5th Order Urban Area
Railway
NH
SH
LSGI
Thiruvananthapuram
Urban Corridor
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-IDDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
PATHANAMTHITTA
N
Legend
Railway
SH
LSGI
Pathanamthitta
Urban Corridor
5th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-IDDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
THRISSUR
Legend
Railway
NH
SH
LSGI
Thrissur
Urban Corridor
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
KOZHIKODE
Legend
Railway
NH
LSGI
Kozhikode
Urban Corridor
4th Order Urban Area
5th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
ERNAMKULAM
Legend
Railway
NH
SH
LSGI
Ernakulam
Urban Corridor
5th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
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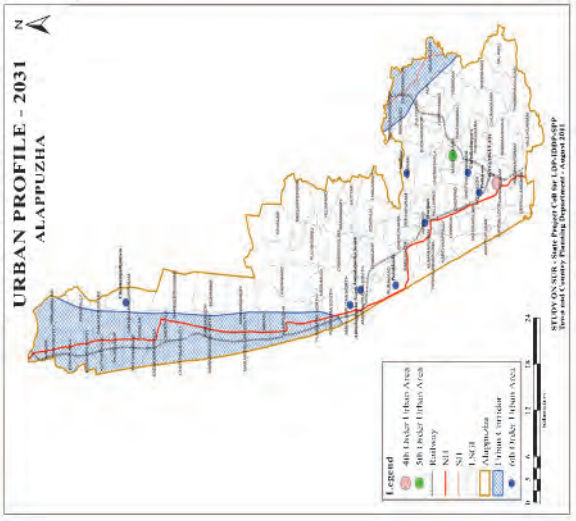
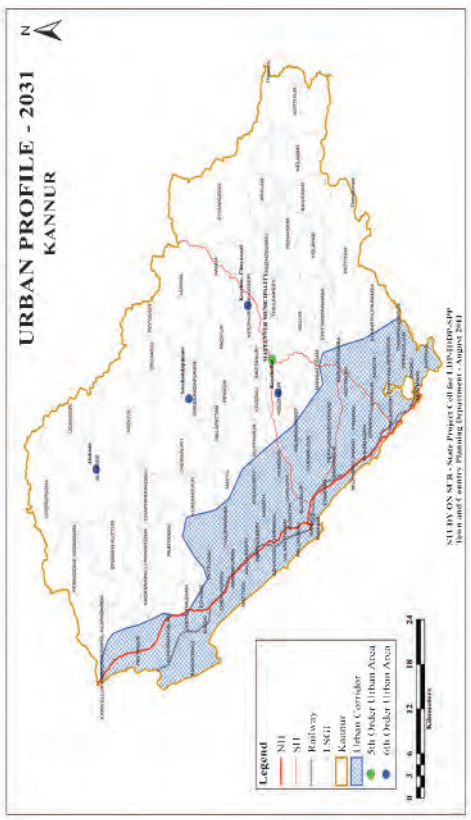
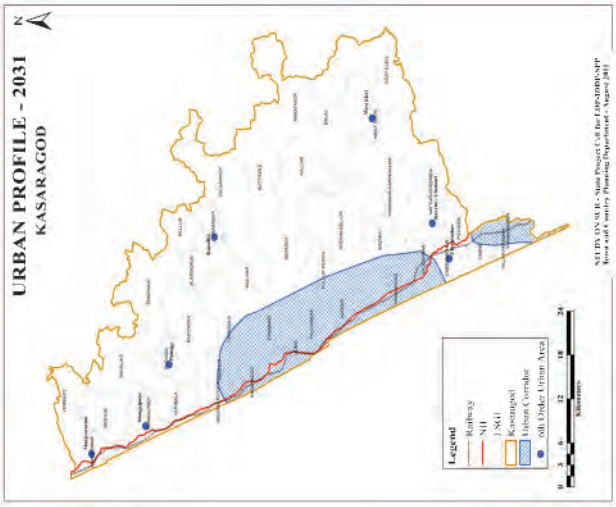
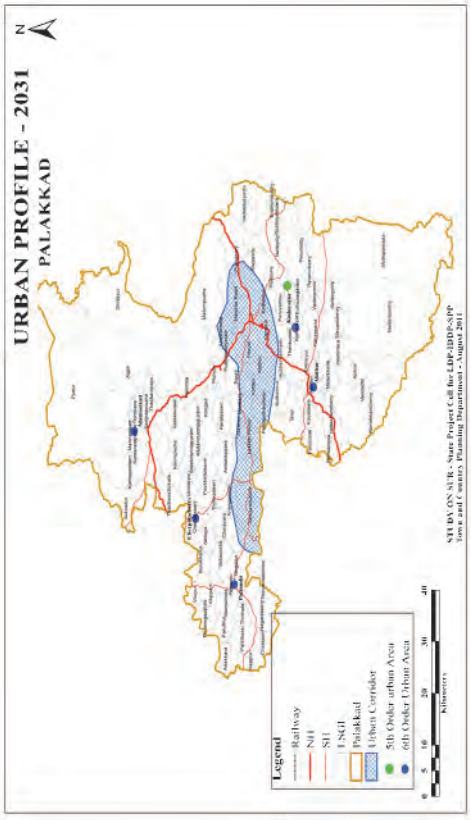
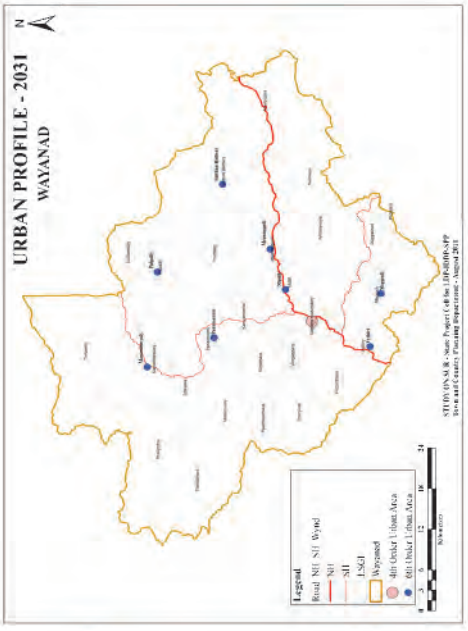
Legend
NH
SH
LSGI
Idukki
4th Order Urban Area
5th Order Urban Area
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011

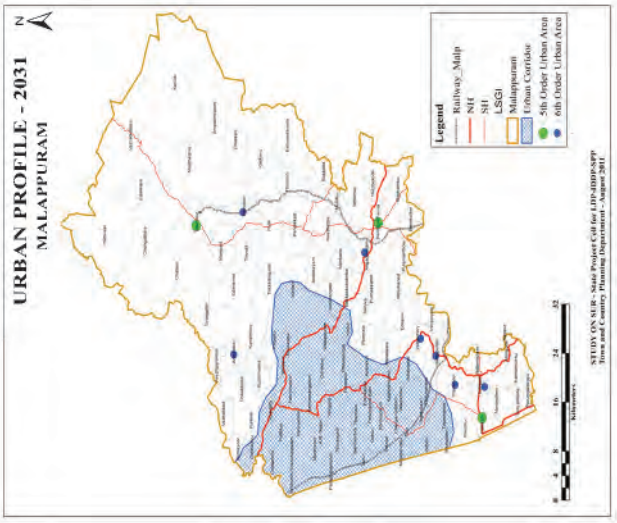

URBAN PROFILE - 2031
ALAPPUZHA
Legend
4th Order Urban Area
5th Order Urban Area
Railway
NH
SH
LSGI
Alappuzha
Urban Corridor
6th Order Urban Area
STUDY ON SUR - State Project Cell for LDP-DDP-SPP
Town and Country Planning Department - August 2011


URBAN PROFILE - 2031
KANNUR
Legend
NH
SH
Railway
LSGI
Kannur
Urban Corridor
5th Order Urban Area
6th Order Urban Area
Kilometers


URBAN PROFILE - 2031
KASARAGOD
Legend
Railway
NH
LSGI
Kasaragod
6th Order Urban Area


URBAN PROFILE - 2031
PALAKKAD
Legend
Railway
NH
SH
LSGI
Palakkad
Urban Corridor
5th Order urban Area
6th Order Urban Area
Kilometers


URBAN PROFILE - 2031
WAYANAD
Legend
Road
NH
SH
LSGI
Wayanad
4th Order Urban Area
6th Order Urban Area
Kilometers


URBAN PROFILE - 2031
MALAPPURAM
Legend
Railway_Malp
NH
SH
LSGI
Malappuram
Urban Corridor
5th Order Urban Area
6th Order Urban Area
Kilometers