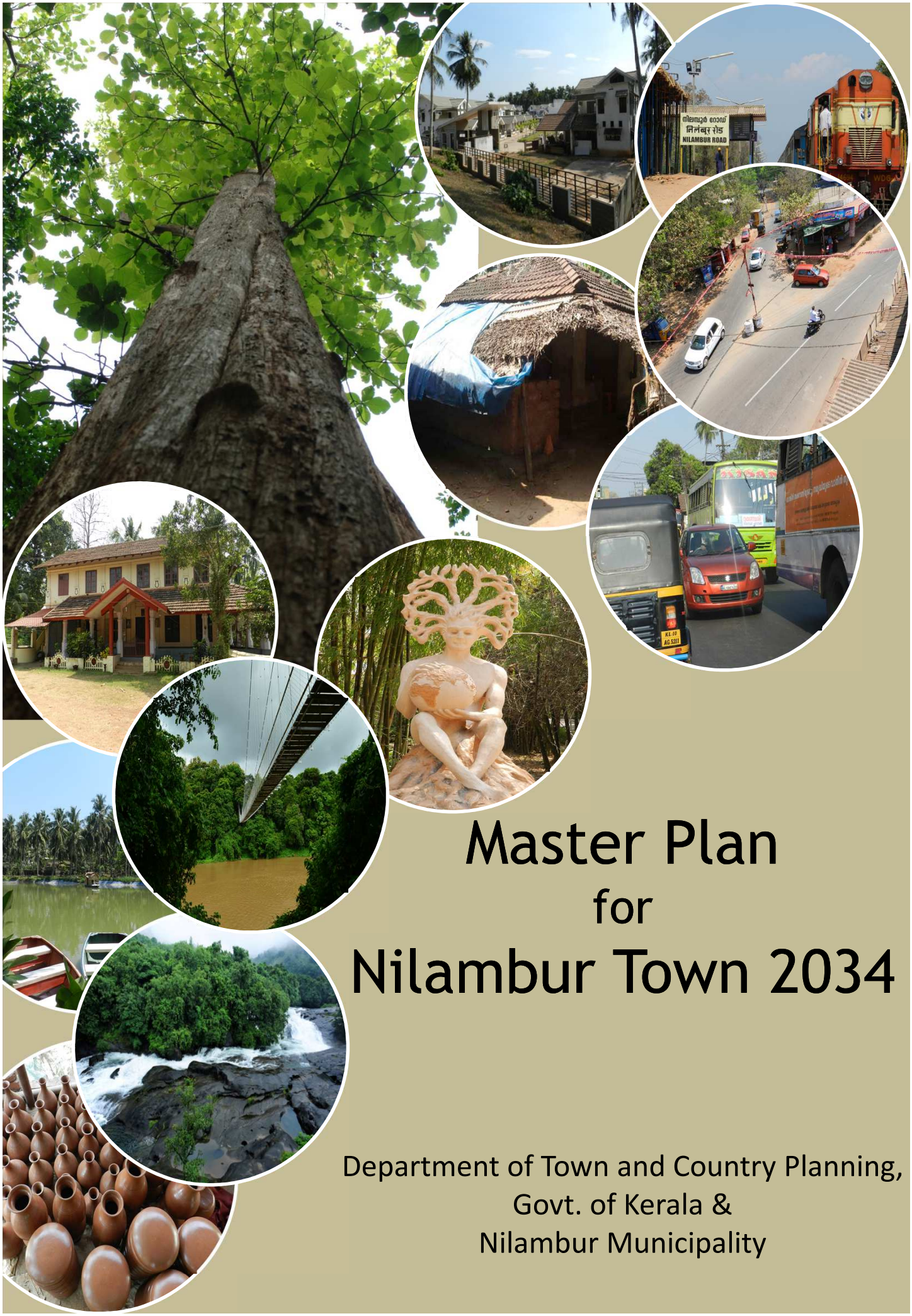

Master Plan
for
Nilambur Town 2034

Department of Town and Country Planning,
Govt. of Kerala &
Nilambur Municipality

MASTER PLAN FOR NILAMBUR TOWN
2014-2034

Nilambur Municipality

&

Town & Country Planning Department,

Government of Kerala

Foreword

Nilambur, located on the banks of River Chaliyar in Malappuram district, blessed with beautiful greenery and fertile landscapes, is an evolving tourist destination, and also one among the towns experiencing rapid urban growth. Nilambur Panchayat was formed in 1936 during the British period, and the town attained Municipality status in 2010. It was raised from a Third Grade Municipality to a Second Grade Municipality in 2014.

Nilambur municipality is the urban service provider for the whole of Taluk being its Headquarters. Nilambur is renowned for world's first and the oldest teak plantation, the Conolly's plot, and the unique teak museum. The region occupies a special place in the history of Malabar and is famous for its vast rain forests, natural scenic beauty, unique biodiversity, waterfalls, ancient kovilakams and rich colonial past. There were no serious efforts or initiatives for making a spatial development plan or scheme for Nilambur town till date. The lack of a development plan for Nilambur has lead to unregulated growth and environmental decay. To safeguard it's rich and abundant natural resources as well as biodiversity, and sustain its potential in tourism sector, together with ensuring a good quality of life in the town, a scientific spatial planning framework is mandatory for atleast the Municipal area. Being one of the recent municipalities in the district, the earliest efforts for regulating and directing its growth in an organized manner would ensure better results.

Recognizing the immediate need of a plan for the future of Nilambur town, the Municipal Council resolved to prepare a Master Plan. The master plan was prepared after detailed scientific studies as well as thorough consultation of the people of the town. With immense pleasure and faith, I present the Master plan for Nilambur Town - 2034, herewith. The materialization of the Master plan depends upon the wholehearted cooperation of the people as well as all the related agencies. This Master Plan will play a key and vital role in the development of Nilambur. Let's join hands for the implementation of Master plan for Nilambur Town to ensure a better tomorrow.

Smt. Padmini Gopinath
Chairperson
Nilambur Municipality

Preface

Extensive urbanization in the state is a product of urban sprawl and population explosion rather than the expansion of production base and ensuing economic development. The resultant pressure on the state's land resources and threats to its environment and biodiversity are not fully comprehended by the civil society yet. Limiting the adverse effects of urbanization, while capitalizing on its benefits, is crucial for the comprehensive development of the state both in terms of environmental quality and economic sustenance.

In accordance with the 73rd and 74th constitutional amendments and the subsequent state legislations, spatial planning for scientific and economic development has become a municipal function and the LSG stands responsible to prepare its master plan. A comprehensive and visionary master plan has become essential in all settlements with the decentralized planning efforts put in by the people's planning campaign in the state. The master plan has multiple objectives in the backdrop-to ensure efficiency of built form of the town so as to augment economic development, facilitate inclusive and faster development by the impetus given to various sectors of economy and put in place a regulatory mechanism for limiting the anthropogenic threats to the scarce environmental resources, keeping the demands of development well within the carrying capacity of our precious environment. The Government of Kerala vide G.O. No 1376/2012/LSGD dated 17/05/2012, accorded administrative sanction and financial sanction to the Town and Country Planning Department, for the preparation of master plan for various municipalities including Nilambur. Municipal Council of Nilambur Municipality resolved to prepare a master plan for Nilambur town and requested the Department of Town and Country Planning to prepare the plan.

The commendable task of preparation of Master Plan for Nilambur Town was done by Office of the Town Planner, Malappuram, which is gratefully acknowledged. The invaluable support and cooperation of the Municipal Council deserve a special mention. I take this opportunity to appreciate the officials of the Malappuram District Office of the Town and Country Planning Department, especially Sri. K.V. Abdul Malik, Smt. Isha P A and Sri.K.V. Ranjith, Town Planners, for the preparation of this development plan. I also appreciate the consistent efforts of Smt. Girija K S, Chief Town Planner, Sri. Ramanan K, Chief Town Planner (Rtd.), Smt. T.M. Sudha, Chief Town Planner (Planning) (Rtd.), Sri. Ajayakumar, Chief Town Planner (Rtd.), Sri. K Devarajan, Additional Chief Town Planner (Rtd.), Smt. Darly D S Mony, Chief Town Planner (Rtd.), Smt. Ushakumari P.R, Senior Town Planner, Sri.Jayakumar J, Smt. Asha Ajoy Ghosh, Smt. Sabithamini C K, Sri.

Preface

Ravikumar P, Town Planners and other officials of the office of the Chief Town Planner (Planning).

The Master Plan for Nilambur will indeed provide a framework for development of the town in the years to come. I optimistically look forward to effective implementation of this plan and urge all the concerned for the same.

Sri. Gigi George
Chief Town Planner (Planning)
Town & Planning Department
Government of Kerala

Place:
Date:

Acknowledgement

The preparation of Development plan for Nilambur town was taken up by the end of the year 2012, following the direction of the Government and felt need of the Municipality, in the absence of a development plan for the town and changes in the planning process brought forward by the 74th Constitutional Amendment and the subsequent state legislations. A methodology was evolved for the preparation of development plans at the state level and the same was adopted with suitable modifications at the town level. Active and thorough People's participation in all the stages has been a crucial element in the methodology. The development plan once sanctioned shall give directions to the development process in the municipality in the years to come.

We have heavily relied on statistical data from various departments, who cooperated wholeheartedly in all the activities of the plan preparation including the one-to-one discussions conducted with them and readily shared the data, which is gratefully acknowledged. The collection of data and analysis would not have been possible without the active involvement of the Spatial Integration Committee and the Municipal Council, under the Chairmanship of the Municipal Chairpersons Smt. Padmini Gopinath and Sri. Aryadan Shoukath. The unique leadership provided by Sri.Eapen Varughese, Chief Town Planner (Rtd.), Sri. Jacob Easow, Additional Chief Town Planner (Rtd.), Sri. Devarajan. K, Chief Town Planner (Rtd.), Sri. Krishnarajan.V.V, Chief Town Planner (Rtd.), Sri. Ajayakumar. S, Chief Town Planner (Rtd.), Smt.T.M.Sudha, Chief Town Planner (Rtd), Smt. Darly. D. S. Mony, Chief Town Planner (Rtd), Sri. K.Remanan, Chief Town Planner(Rtd), Sri.Shaji Joseph, Chief Town Planner (Planning), has been a constant source of inspiration. Sri. Poulose C.J, Senior Town Planner (Rtd), Smt.Ushakumari P.R, Smt. Girija K. S, Senior Town Planners, gave necessary directions. The resourcefulness of Sri.Baiju K, Smt. Asha Ajoy Ghosh, Town Planners has been a constant guidance throughout the project. The other staff members of the State Project Cell and Office of the Chief Town Planner (Planning) have been highly helpful in giving various inputs for the project.

Sri. K.V. Abdulmalik, Town Planner, initiated the preparation of the master plan and laid a strong base. Sri. K.V. Ranjith, Town Planner, did a commendable work in transforming the studies into sectoral proposals, which is respectfully acknowledged. Smt. Athira Ravi, Smt. Leelitty Thomas, Sri. Mohammed Musthafa. K, Deputy Town Planners and Sri. Hamza.M, Smt. Preeja Padmanabhan Mavoor, and Smt. Reni L.J, Assistant Town Planners have spear-headed office and field activities in the project. The assistance offered by the statistical wing of this office in primary and secondary data collection is remarkable. The efforts put in by Sri. Saheer Poovanthodi. Smt. Sini.G.Nair,

Acknowledgement

Town Planning Surveyors and Kum. Ranjusha.V, Planning Assistant, for the preparation of the maps needs special mention. Smt. Reshma.C.R has efficiently co-ordinated the Traffic &Transportation Survey, which was conducted in-house. All the staff members of the Office of the Town Planner, Malappuram need to be specially acknowledged for their keen participation in various stages, without which this work would not have been successfully completed.

Smt. Isha P.A
Town Planner
Malappuram

Date:

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PART I

STUDY AND ANALYSIS

PART II

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PART III

LAND USE AND SECTORAL PROPOSALS

PART IV

DEVELOPMENT REGULATIONS

ANNEXURES



1 INTRODUCTION

1.1 PROFILE OF THE TOWN

Nilambur Municipality, the headquarters of Nilambur taluk of Malappuram District, is situated close to the Nilgiris range of the Western Ghats, on the banks of the Chaliyar River. It is about 40 kilometers from Malappuram town and 24 kilometers from Manjeri on the State Highway 28, also called the KNG road (Calicut-Nilambur-Gudalur road). Nilambur region is famous for its forests, especially its wildlife habitats, rivers, waterfalls and teak plantations and is home to the oldest aboriginal tribe of Kerala, the Cholainaickans.

Nilambur, one of the youngest among the seven municipalities in the district, attained Municipality status is 2010. It was recently raised to Second Grade Municipality in 2014, from Third Grade. The most popular event in the region is the Nilambur Vettekkorumakan Paattu, which is celebrated every year in the Nilambur Kovilakom Temple.

1.2 LOCATION AND CONNECTIVITY

Nilambur Town situated towards the eastern boundary of Malappuram District, within11° 15'- 11° 29' N latitudes and 76° 12'- 76° 16' E longitudes, and is bounded by Chaliyar and Chungathara panchayats in the North, Karulai panchayat in the East, Amarambalam and Wandoor panchayats in the South and Mampad panchayat in the West.

Located on Shoranur-Nilambur railway line, Nilambur Road Railway Station is the main railhead serving the destination. Though there is no national highway passing through the town, the town has good road network with the surrounding towns and the district headquarter (Figure 1.1). The Kozhikode – Manjeri – Nilambur -Gudalur – Ooty State highway (SH 28, 103.6 kilometers long) is the main road in this area, which connects the town to the western part of the district and state. Perimbilavu – Nilambur Road (SH 39) is also one of the major roads which

extend from Mukkatta to Nallanthanni. The SH 39 has the route; Perumbilavu – Koottanad - Pattambi – Perinthalmanna - Pattikkadu–Karuvarakundu – Kalikavu – Nilambur Road. Situated onthe SH 28, Nilambur Town Bus Station is the oldest bus station in the area. This station serves regular buses from Edavanna, Malappuram, Keezhparamba and Manjeri. There is a KSRTC Depot functioning in the town, with inter-state services to Karnataka and Tamil Nadu, intra-state services to different parts of the state.

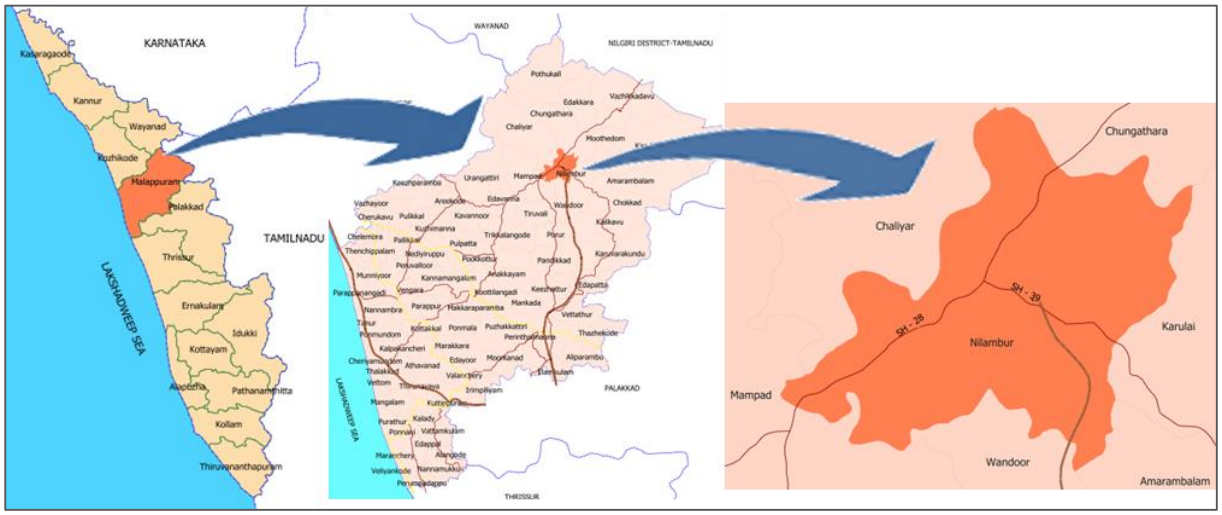


Figure 1-1: Location of Nilambur Municipality

The nearest airport is the Kozhikode International Airport at Karipur, around 45 Kms away from the Town. Nilambur had a very active inland navigation system through Chaliyar River in the past, which was widely used for transporting wood merchandise from the forests to Beypore.

1.3 AREA AND POPULATION

Nilambur municipality has an area of 29.69 sq km, divided into 33 electoral wards, with a total population of 46,345 as per the 2011 census data. There are 22252 males and 24093 females which make a sex ratio of 1083 females for 1000 males. The female population constitutes 52% and male population 48% of the total population of the town. The total population of Nilambur forms 1.13% of the total population of the district. The area of the town accounts for 0.84% of the geographical area of the district. The gross population density of Nilambur municipality is 1561 persons/sq km, which is a little higher compared to the district density 1159 persons/sq km and is ranked second least when compared to other municipalities in the district. Nilambur has an average literacy rate 94.9% much higher than the national average literacy rate 63%, with a female literacy rate of 93% and male literacy rate of 96.9%.In Nilambur, 11.9% of the population is under 6 years of age and more than 4400 people belong to SC/ST category.

1.4 CLIMATE

Nilambur was highly thick evergreen forest once, experiencing tropical climate. It is generally hot and humid, and has significant rainfall for most of the months, with a short dry season. The temperature varies from 17°C to 37°C with an average annual temperature of 27.7°C. About 2666 mm of precipitation falls annually, which is lower than that of the state and the district.

1.5 PHYSIOGRAPHY

Nilambur is a midland town and lies about 40-60 m above sea level with some low hills rising to 180 m. But Nilambur forest range is situated about 400 m above sea level, in the valley surrounded by New Amarambalam Reserve Forests, of Western Ghats and Wayanad Hills, (as shown in Figure 1.2). The area is drained by Chaliyar River flowing from East to West, and its tributaries.

Nilambur is surrounded by the Chaliyar river along the northwestern boundary, Kuthirapuzha along southern boundary and Karimpuzha along the north-eastern boundary of the municipality.

The soils found in this area are fertile alluvial soil, clayey soil, lateritic soil and sandy soil. Erosion is moderate to severe. Hard laterites with rock outcrops are present. High content of silica, calcium and magnesium, moist alluvial soil and gravelly alluvial soil favour extensive growth of high quality teak in the area.



Figure 1-2: Nilambur Municipal area - Satellite image extract

1.6 BIO DIVERSITY OF NILAMBUR

Nilambur is intimately linked to its natural resources and forests, as indicated by its name which means an abode of Nilimba (bamboo in Sanskrit). Nilambur taluk lies within the Malappuram district and comprises two forest divisions, namely Nilambur North and South. The taluk borders the Gudalur and Wayanad South forest divisions in the North, plain regions in the South and the Mukurthi national park in the East. The Nilambur region is considered a biodiversity hotspot and accorded a great degree of protection by the Forest Department. The New Amarambalam Reserve Forests lying within Nilambur division forms a part of the core zone of the Nilgiri Biosphere Reserve. The lives of the people here traditionally revolved around the forests for social, cultural and economic purposes. Nilambur is also home to the oldest teak plantations in the country.

1.7 HISTORY OF DEVELOPMENT

The Nilambur Kovilakam, established by the Thacharakkavil Eradis, who came from Nediyiruppu in the 13th century, was instrumental in the development of the village. They have been also known by the names Thamban, Thirumulpadu and Raja. The Aadivasis were the owners of the forest, but a ruler named 'Shakthan' captured the whole forest by his power. The rulers encouraged migration from other places and provided suitable spaces for their business. Because of the wide variety of trees, bamboos and the quality of the soil, people from various places colonized Nilambur in search of better livelihood.

In the beginning of the 19th century, Nilambur was small village situated in the border of the forest which was on the banks of the Chaliyar River. The first Teak Plantation in Nilambur was established by the then Malabar Collector H.V Connolly in 1844. Rubber Plantations were first established by Vaniyamkulam Rubber Company in 1902.

Education played a vital role in the development of the region. The Kovilakom played an important role in introducing formal education in the region. The primary school established by the Kovilakam management in the year 1903 is now a Govt. UP School. Yet, there was not a single high school towards the east of Manjeri, and the noble minded Senior Manavedan Raja started the high school in 1940, which has now become the Govt. Manavedan Vocational Higher Secondary School. However, formal education was restricted to the members of socially and economically forward classes, while the rest of common public pursued their traditional livelihood means, as caste system was very much prevalent. But the awareness created by the social workers and civic activists influenced the socially weaker sections, and inspired them in getting educated, and avenues for formal education opened up for all people.

During the British rule, the rich forest and teak plantation of Nilambur used to cater to the needs of strong woods for all constructions and furniture making. This was the reason for connecting the railway line to Nilambur from Shoranur junction. Another reason was, to quickly transport armed forces to control Malabar Rebellion occurred in 1921. The line was opened in 1927 in stages: from Shoranur to Angadipuram, then to Vaniyambalam, and finally connecting Nilambur.

Manavedan Raja of Nilambur Kovilakom contributed significantly in the development of Nilambur, by building schools and hospitals, and also by introducing electricity to Nilambur from Paikkara generating station in Tamil Nadu in 1952, when electricity was only available in the main cities of Kerala.

The functioning of national parties in the region had a great influence in the development and welfare of the community. When Mr. Mohammed Abdurahiman Sahib became a candidate for the elections in the Malabar district board, it helped the people to have more confidence and courage to fight against the feudals. National awareness among the Muslim society was created by Kallan Kunnan Ahmed Kutty Sahib and Panolen Ahmed Kutty Sahib. K.V. Kunjalan Kutty Sahib, M.P. Velayudhan Nair, Velayudan Chetiyar, T.K. Madhavan, Kunjunni, Nilambur Balan were among the other important public figures who gathered the public to fight for social welfare and development. In the year 1953another leader Kunjali along with group of farmers started struggle for land reforms, which successfully concluded as the new land bills were made by the communist Government in 1958. About 953 landless farmers were able to get land for housing and agricultural purposes. Many a protests were organized against amorality, feudalism, and various social evils, in this period. Kunjikuttan Thamban from among members of the Nilambur Kovilakam also opposed the feudalism, which requires an acknowledgement. The 'Viradoor March' organised by the Sree Narayana Dharma Paripalana (SNDP) Yogam and Aikya Sahodara Sangham under the leadership of Sri. Kunjikannan and Kuttayi Vaidyar concluded peacefully at the timely interference of Senior Raja, who opened all the 21 temples under Kovilakam administration, except their family temple to the public. Though the role of the Kovilakam in the administration and governance of the region faded after the independence and fall of feudalism, they are an active presence in the cultural arena of the region.

Nilambur set an example of communal harmony when several communal riots happened in the Malappuram district in the first quarter of 19th century and several Muslim men sacrificed their lives while protecting their Hindu fellow beings. Christians from Central Kerala started migrating to Nilambur by the middle of the 20th century, attracted by the fertile agricultural lands in the region. Their migration marked the beginning a new chapter in farming in the region and rubber, tapioca etc. started to get widely cultivated. They also contributed significantly for the development of educational as well as medical fields.

Literature, music and art forms like Kathakali developed under the patronage of the Rajas. In the history of the kovilakam, a Vidwan Thamban is specially mentioned who was a great

patron of literature and art. In the year 1934 a literature fest, a congregation of the 'Sahithya Parishad' was celebrated at the Kovilakam. But it had not created any influence among the local people. The literature as well as art forms played a vital role in bringing together the local people. The field of amateur drama was developed by persons like Dr. M. Usman, E.K. Ayamu, Nilambur Balan, K.G. Unneen, Nilambur Ayisha, but is dormant now. The names of the famous cinema playback singers like Krishna Chandran, Karthikayen, Sreenath should be strongly mentioned while discussing about the arts field of Nilambur. The famous magician Gopinath Muthukad is also from the land of teaks. Muthukad founded the first magic academy of Asia at Thiruvananthapuram.

The important events which marked the progress of Nilambur as a flourishing urban centre are listed below.

1903	-	First primary school in the region established
1927	-	Shornur - Nilambur Board gauge Railway line was established
1936	-	Nilambur panchayat was formed with 258 sq. miles (including present areas of several panchayats between Vadapuram Bridge and Nadukani Churam)
1940	-	First high school in the region established
1940	-	Railway line was removed for want of iron during World War II for manufacturing of armaments
1947	-	Formation of Peoples' Council (Janakeeya Bharana Samiti)
1950	-	Migration of people from Central Kerala started
1952	-	Electricity introduced in the panchayat
1954	-	Railway line was re-established
1977	-	Sub-center of Kerala Forest Research institute was established
1979	-	Reorganisation of Panchayats (Area 36.26 sqkm)
1982	-	Nilambur CD Block carved out from Wandoor CD Block; Nilambur instituted as the Block head-quarters
1992	-	Nilambur CD Block extended to include Kalikavu panchayat from Wandoor Block
1995	-	Nilambur Block panchayat formed
1996	-	Formation of Nilambur Taluk
2010	-	Kalikavu Block Panchayat carved out from Nilambur Block Panchayat
		Formation of Nilambur Municipality (01-11-2010)
2014	-	Upgradation to a second grade municipality

1.8 NEED FOR THE PLAN

Nilambur Municipality is the urban services' provider for the whole taluk, being its head-quarters, and especially the highland panchayats towards the eastern boundary of Malappuram district. It is enriched with abundant natural resources like the forests, wildlife, water bodies, fertile agricultural lands etc. To safeguard and sustainably utilize these environmental resources, while not compromising on the urban services it shall provide, scientific spatial planning measures are essential. Besides, being a developing tourism destination, interventions in infrastructure and service provisions is indispensible, to assure quality services to the tourists.

The development of a region mainly depends upon the transportation. Ooty road, one among the good roads contributed by the Mysore Sulthans to Malabar, has been a great influence in the development of Nilambur. However, this majestic street of olden times is now overcrowded and throttled by the haphazard development on its sides.

Having been a gramapanchayat till 2010, no serious efforts have been made for the planning and development of Nilambur Town till date. The town experiences rapid growth and doesn't have any spatial planning schemes. This state of affairs leads to environmental decay and inefficient use of land and other resources. The spatial constraints put up by the unregulated growth blocks economic development. It is important that the urban growth is regulated in a scientific and sustainable manner, to ensure a good quality of life in the municipality. Being one of the recent municipalities in the district, the earliest efforts for regulating its growth in an organized manner would ensure better results.

In the wake of the 73rd and 74th constitutional amendments, the spatial planning for scientific and economic development has become a municipal function and the LSG stands responsible to prepare its master plan. A comprehensive and visionary master plan has become essential in all settlements with the decentralised planning efforts put in by the people's planning campaign in the state. The government of Kerala has accorded administrative sanction and financial sanction vide G.O. No 1376/2012/LSGD dated 17/05/2012, to the Town and Country Planning Department, Government of Kerala, for the preparation of master plan for Nilambur municipality which was included in the second phase of the Scheme for Preparation of Master Plans and Detailed Town Planning Schemes.

In this context, Nilambur municipality resolved to prepare a master plan for Nilambur town vide resolution No. 22(7), in the agenda of the municipal council meeting held on 29/11/2012 and requested the Department of Town and Country Planning to prepare the plan.

1.9 PLAN FOR AND BY THE PEOPLE

One of the major paradigm shift brought about by the 73rd& 74th constitutional amendments and the subsequent state legislations is the participation of common people in the planning process. The methodology for the preparation of this master plan was formulated to ensure people's participation at all levels of plan preparation and implementation. The General process (technical) of preparation of the Master Plan involved four major steps; Data Collection, Analysis, Envisioning and Detailing, as represented in Figure 1-3below.

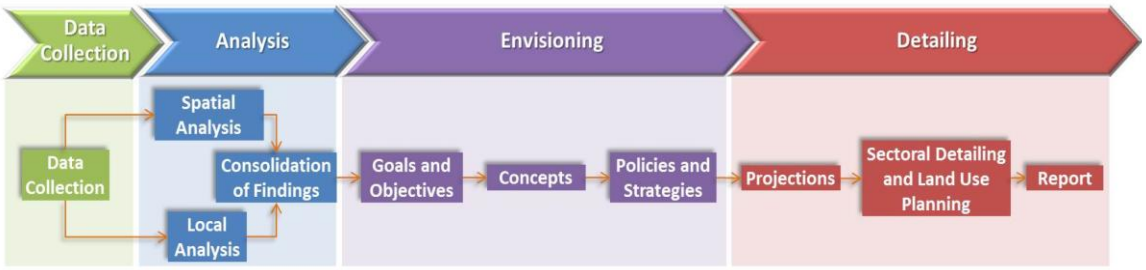


Figure 1-3: General Planning Process

The Spatial Integration Committee formed at the municipal level and chaired by the Chairperson of the municipality spear-headed the plan preparation process. The Municipal Secretary was the convenor and the Municipal Engineer the joint convenor of this committee. One representative from each of the working groups (the subject wise working group, constituted for the formulation of annual plans of the municipality), Town planner and a resource person (a non-official who has enough knowledge and experience to advice the committee on matters related to spatial planning) were the members of the committee. Stake holder meetings were conducted for various groups and organizations including College students, Senior Citizens, CDS Ayalkkoottam, Oppatthinoppam workers, Farmers, Anganvadi workers, ASHA workers, and various line departments and Government agencies like the Kerala Water Authority, Irrigation, Animal Husbandry, Education, Health for collecting inputs and

suggestions of different sectors in the town. Primary surveys were conducted for detailed study of land use, traffic and transportation, socio-economic characteristics and backward housing clusters.

The collected data and their analysis were presented in a one day workshop conducted at Municipal town hall on 04-03-2013 for evaluating the collected data. The workshop was attended by the councilors; SIC members, working group members, department officers and representatives of various stakeholder organizations. The section wise data collected from line departments and primary survey discussed with SIC members and working groups. The problems and potentials of each sector were assessed and linked with spatial data.

1.10 SCOPE AND LIMITATIONS

The scope of this Master Plan includes study of the general profile of the town, its regional importance, demographic and employment pattern, different productive sectors, infrastructure provisions; projection of population and infrastructural requirements in future, and evolving a development framework for the municipality considering a future time frame of 20 years, including a development vision, a scientific land use plan, transportation plan and general proposals to improve the infrastructural provisions, economic base and quality of life in the municipality. Hence, finer detailing of technical, financial or implementation particulars of the proposals made in this plan shall be taken up as separate exercises.

As the status as on 2009 was taken as the base, Nilambur Municipality is considered as a panchayat in Census 2011. Ward level data on demography and employment were not published and hence were not available during the preparation of this Master Plan. Hence such data was interpolated using the latest electoral ward delimitation report (33 wards) of the Municipality. The total area of the municipality has been quoted differently in the previous Census, but the Revenue record data states the area as 29.69 sqkm. Hence this has been adopted for the preparation of Master Plan for the Municipality. The land use maps are presented to a scale of 1:10000.



2 REGIONAL SETTING

2.1 REGIONAL SIGNIFICANCE

The regional setting of a town is depicted by its hierarchy in the District, the activity the town has to perform in the district scenario and its connectivity with different settlements.

The District Urbanization Report, 2011 prepared by the Town & Country Planning Department, details the functional importance and the specific role of every LSG in the district, after studying various aspects like land use concentration pattern, functional character, hierarchy of settlement, and urban profile of LSGs in the whole district. The report classifies Nilambur as one among the two third order settlements (the other being Kottakkal) in functional hierarchy among the municipalities in the district. This indicates the absence of higher order infrastructure facilities and indirectly reflects the relatively low population depending on Nilambur for various urban facilities, compared to other municipalities. Nilambur is classified as a rural settlement of the district based on the study of the functional character and as a plantation based economy based on the land use concentration pattern. Thus it is clear that Nilambur is currently an agricultural town.

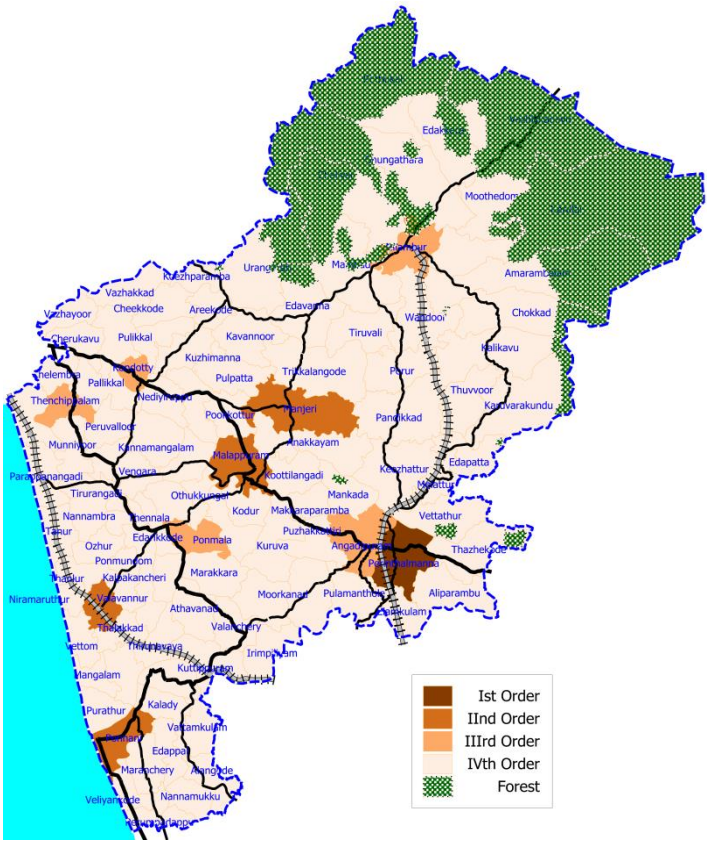


Figure 2-1: Existing Major Settlements in the District

The District Urbanisation Report presents the spatial structure of the district, as given in, derived by overlaying activity pattern of the settlements, connectivity, physiographical limitations and functional hierarchy of settlements. The plantation and forest resources are

concentrated in the eastern high lands and the LSGs around, and Nilambur falls in this region. In the West, the coastal strip is segregated from the rest of the District by railway line running in north-south direction. This is a constraint on connectivity. The economic activities, various land uses, workers and people are almost evenly distributed in the rest of the district. The urban nodes are also evenly distributed showing a dispersed urban growth.

Of the seven municipalities in the District, Malappuram Municipality is the administrative headquarters of the District and houses most of the major centres related to district administration. Manjeri municipality, the largest municipality in the District in terms of area and population, is one of the major and oldest commercial centers of the region and also houses major institutions like the Govt. Medical College. Perinthalmanna is an important healthcare facilities' provider, commercial node and an intermediate service center between various important cities within and outside the state. Tirur Municipality is considered the gateway to the District as it houses Tirur Railway station, the major railway station of the District, and the foreign goods markets here attract customers from all over the region. Kottakkal Municipality is a major transportation node in the District, as the NH 66 and the SH 71 intersects in the town and is a well-known center for Ayurveda; the Kottakkal Arya Vaidya Sala attracts patients and health tourists from the world over. Ponnani, the only coastal municipality in the District, is the major fishing harbor and has gained more importance in the light of the proposed cargo port here.

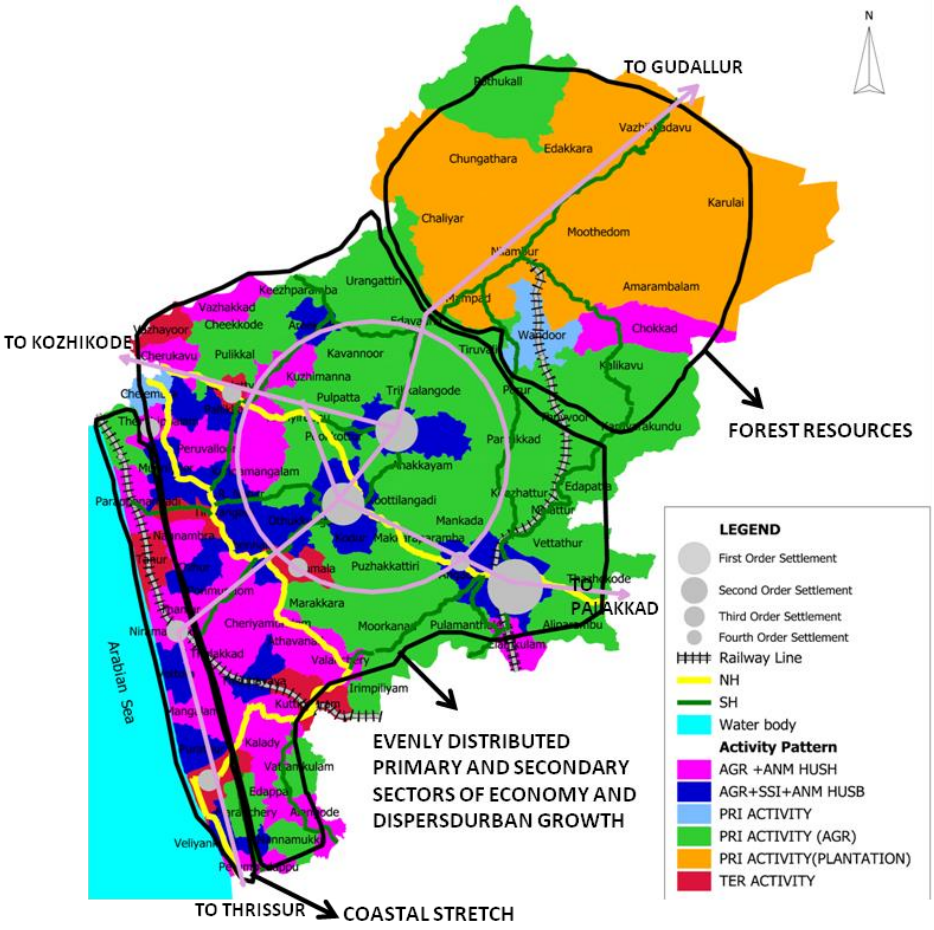


Figure 2-2: Spatial Structure of Malappuram Dt. (Source: District Urbanization Report)

Nilambur, owing to Nilambur Road Railway Station, is a main transportation hub for the people of highlands and midlands of the district which facilitates long distance travel needs. Being the only urban centre adjacent to the forest-covered highlands and the tribal settlements, and the headquarters of Nilambur taluk, it has an important role to play in providing the services and amenities for them. The town well known for teak plantations, Teak museum, forest reserve and places of cultural and heritage importance, is a developing tourism destination which attracts international tourists as well. Regionally, it is the most popular destination for recreation and short-duration tours, in the District. Besides Nilambur has the strongest agriculture base among the municipalities in the District.

2.2 REGIONAL CONNECTIVITY

The existing spatial structure (Figure 2-2) of the district reveals a well-developed transportation network, in the form of a hub and spoke arrangement with an outer ring strengthening the nature of growth. Manjeri, Malappuram and Valluvambram junctions come in the vertices of a triangle which forms the hub. The spokes are in the North-East, South-East, South-West and North- West directions. Higher order settlements (other than Manjeri and Malappuram) are placed mostly at junctions where these spokes intersect the outer ring.

Nilambur, a third order settlement, stands at the end of the spoke on the eastern side and is an important node on the east-west corridor leading to Gudalur in Tamil Nadu. Nilambur town, located in the north-eastern part of the district, where the terrain changes from midland to highland, is well connected to its surrounding LSGs and other important towns in the District by the State Highways and Major District Roads, to other major towns in the State and beyond by the Southern Railways and internationally by the airways based at Karipur International Airport.

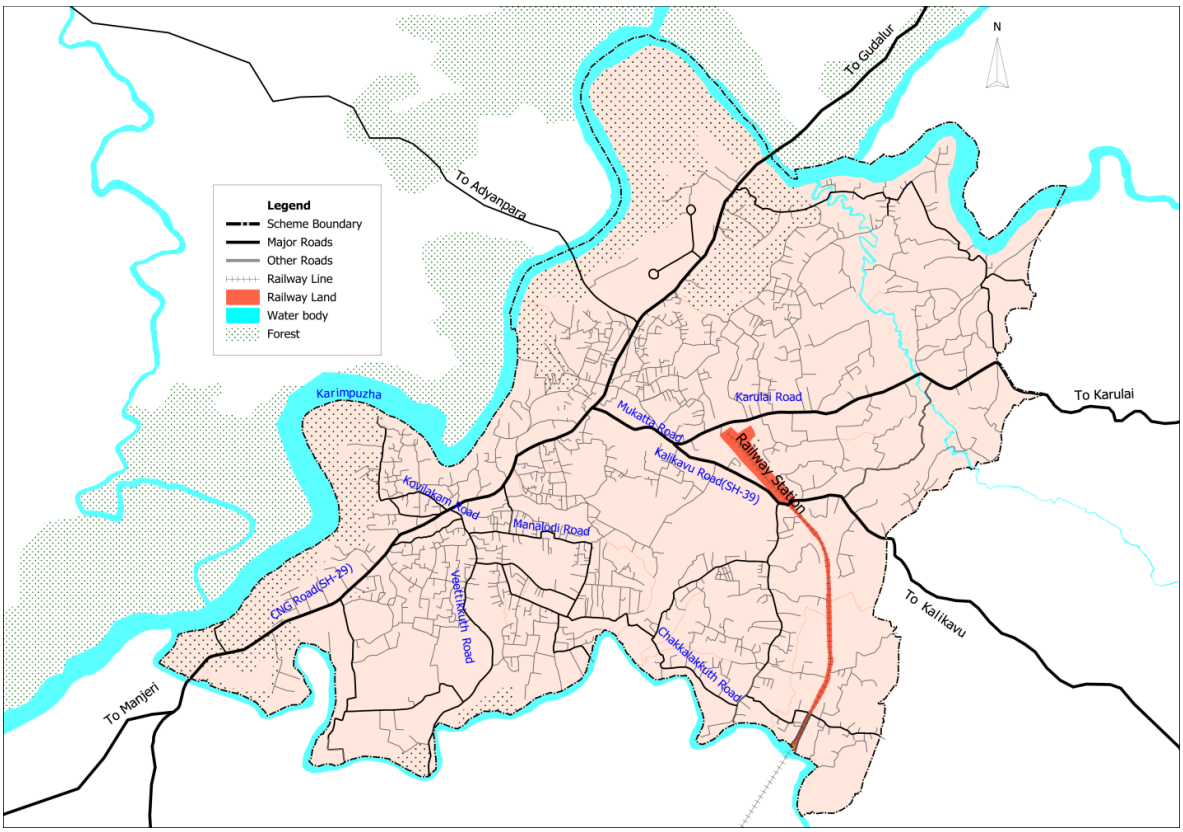


Figure 2-3 Road and Railway Network in Nilambur Town

The Kozhikode – Manjeri – Nilambur -Gudalur – Ooty State Highway 28 is the most important road in the town. Other major roads connecting Nilambur to other towns are the Nilambur-Kalikavu- Perumbilavu Road (SH-39) and Karulai Road (MDR).The Kulakkandam Road, Veettikkuth Road, Chakkalakkuth Road, Adyanpara Road and Enanthi road are other roads connecting the town to nearby LSGs, (Figure 2-3). The general pattern of road network in the town resembles the structure of a leaf with the KNG road as the '*mid rib*', and other branches forming '*veins*'.

The Nilambur–Shoranur railway is a branch line of the Southern Railway Zone in Kerala state and one of the shortest broad gauge railway lines in India, (Figure 2-3). It is a single line with 66 km length running from Shoranur Junction (in Palakkad district) to Nilambur Road Railway Station (in Malappuram district). The Nilambur Road Railway Station is just 4 km from

Nilambur Junction on the Kozhikode–Ooty state highway. The station has 2 platforms and 3 tracks. This serves the people with 4 trains to Shoranur, one to Ernakulam, one to Palakkad and one Express train (Rajya Rani Express) to Thiruvananthapuram daily. The railway line provides interstate and intrastate connectivity for people living in the midlands and highlands of Malappuram District as well as for those who live near the state borders with Tamil Nadu.

The Kozhikode International Airport which caters to the air transport needs of the people of Malabar including Malappuram district, is just 45 km away from this town. Services are operated to the major destinations within the country and in the Middle East from this airport.



Malappuram District is a unique case of demography in the State, characterized by the highest population size (41.13 lakhs), highest household size, highest share of 0-6 age group population, highest population growth for the last three decades, lowest work force participation etc. The present population of the District accounts for 12.31% of the State population. It ranks third in the State in total area and fifth in population density. 44% of the District's population is urban.

Table 3-1: Municipalities in the district and their year of formation (Source: LSGs)

Year of Formation	Name of Municipality
1970	Malappuram
1971	Tirur
1977	Ponnani
1978	Manjeri
1990	Perinthalmanna
2010	Nilambur, Kottakkal
2016	Tanur, Parappanangadi, Valanchery, Kondotty, Tirurangadi

Nilambur Municipality got recognized as an urban area (a census town), by the Census of India only in 2011. (As the status of the local body in 2009 was taken as the base for Census 2011, the upgradation of Nilambur to Municipality status was not taken into account). According to Census 2011, Nilambur is a Class III Town with a population of 46,345 persons.

The year of formation of municipalities in the district is presented in Table 3.1. Though, five more municipalities (Valanchery, Kondotty, Parappanangadi, Tirurangadi and Tanur) were formed in the district in 2016, Nilambur municipality, which was formed in 2010, is one among the relatively new municipalities of the district. The municipality accounts for approximately 1.13% of the total population of the District and 2.55% of the urban population of the District, as presented in Figure 3-1.

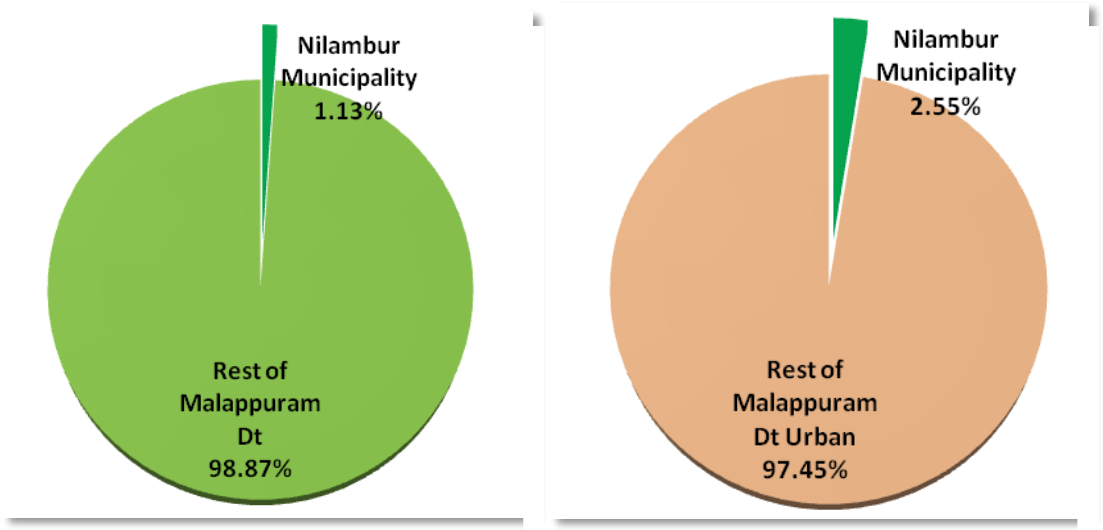


Figure 3-1: Population of Nilambur Municipality compared to the District and Urban Areas of District (Source: Census 2011)

3.1 POPULATION SIZE

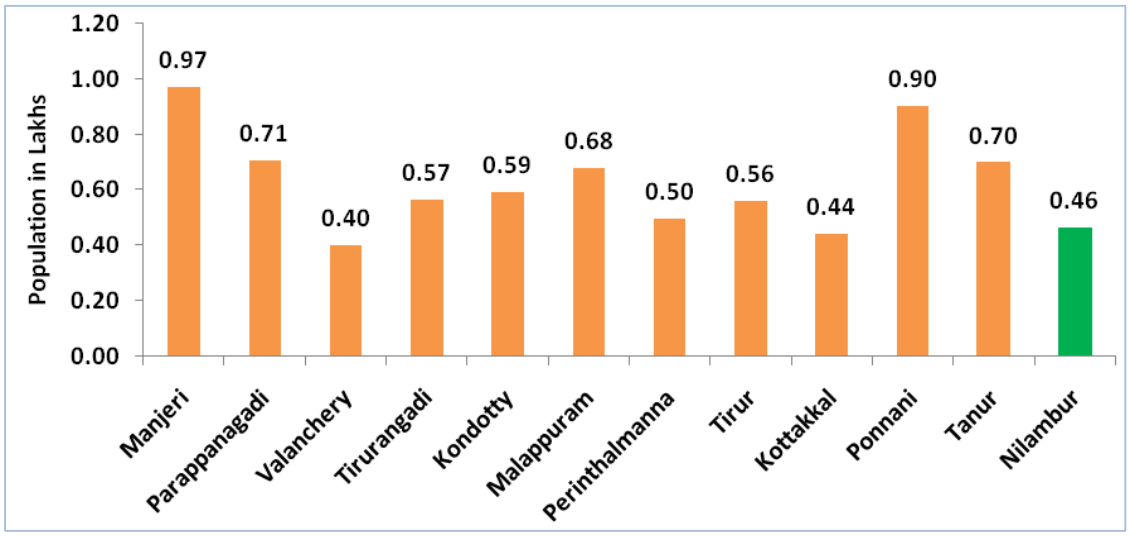


Figure 3-2 Population Size Compared to Other Municipalities in the District (Source: Census 2011)

Being one of the relatively new municipalities and placed in the midland - highland junction in the district, Nilambur has only the third lowest population among its counterparts, only higher than that of Valanchery and Kottakkal.

When compared to similar municipalities in the state, Nilambur has the third lowest population, next to Kalpetta and Kothamangalam. While Mattannur and Punalur have slightly higher population sizes, Nedumangad and Thodupuzha exhibit much higher population compared to Nilambur.

When compared to the LSGs surrounding it, Nilambur has higher population than all the LSGs in its own CD Block, while it has lesser population than Wandoor Panchayat which falls in the Wandoor CD Block and is part of midland.

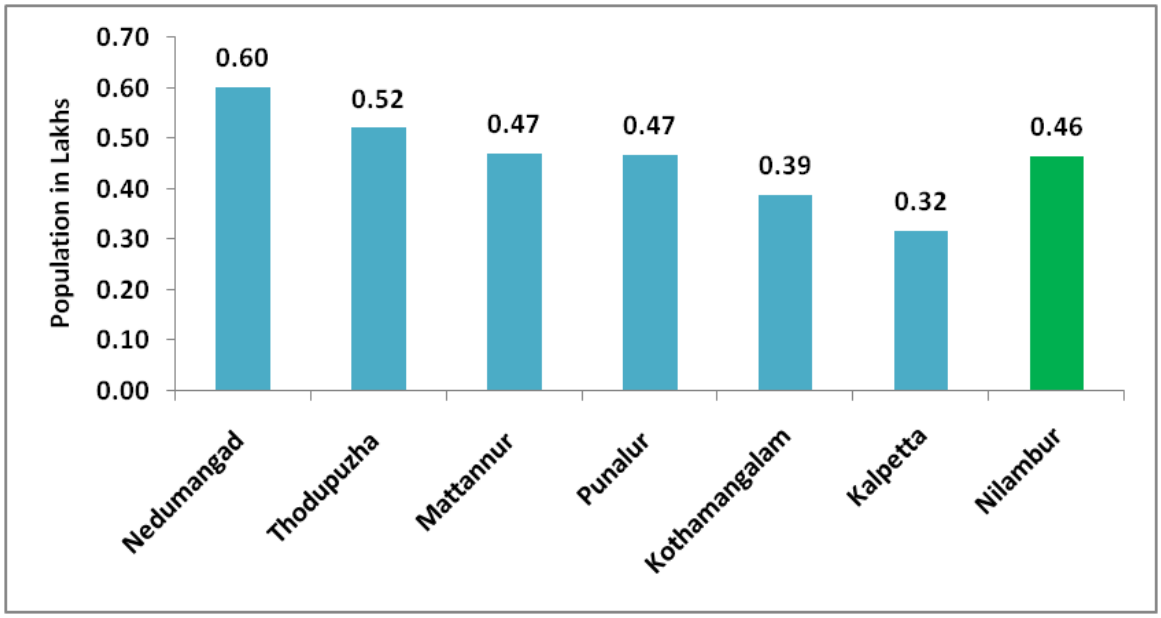


Figure 3-3: Population Size Compared to Similar Municipalities in the State (Source: Census 2011)

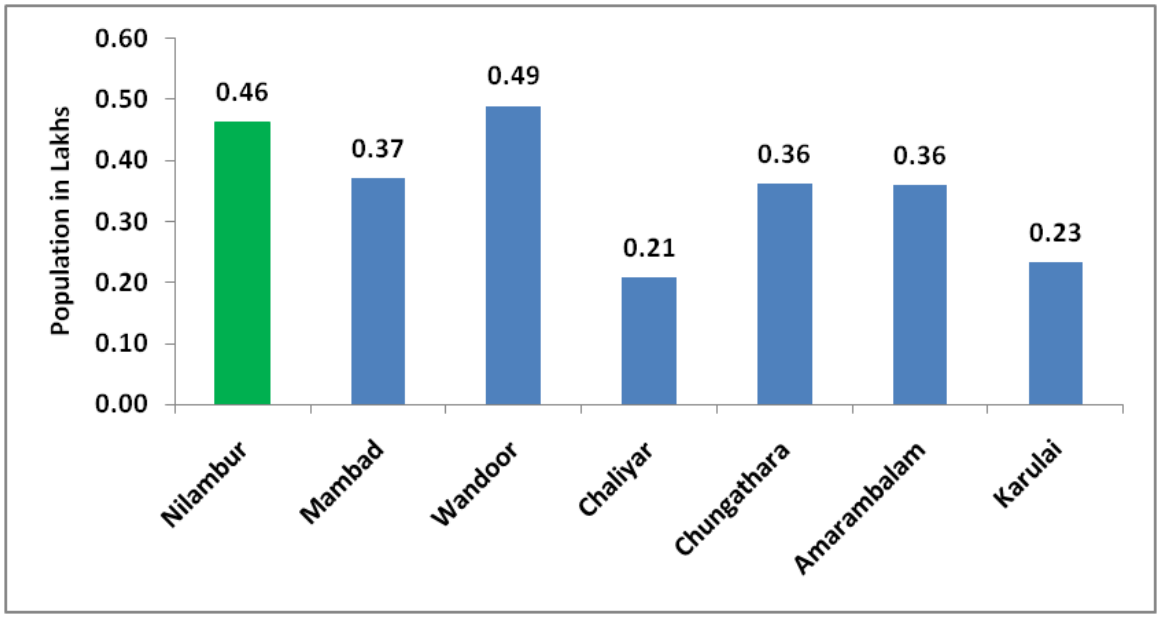


Figure 3-4: Population Size Compared to Nearby LSGs (Source: Census 2011)

3.2 POPULATION GROWTH RATE

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% (Ref: State Urbanisation Report). Its population growth rate over the last decade 2001-2011 is 13.45%, highest in the state. Though the population growth rate is declining, indicating a slowly urbanising society as well as dissemination and access to population control and family planning measures, it is still very much higher than the State average (4.86%). This is indicative of the relatively rural economy and society of the District, compared to its counterparts in the state.

The population growth rate of Nilambur Municipality is also very high when compared to the State, in lines with the District. Currently at 12.31%, slightly lower than that of the District, the Municipality had a slightly higher population growth rate in 1991-2001 (District 17.09%, Nilambur 18.01%) but a significantly lower growth rate in 1981-1991 (District 28.87%, Nilambur

21.33%) when compared to the district. The temporal variation in population growth rate is shown in Figure 3.5.

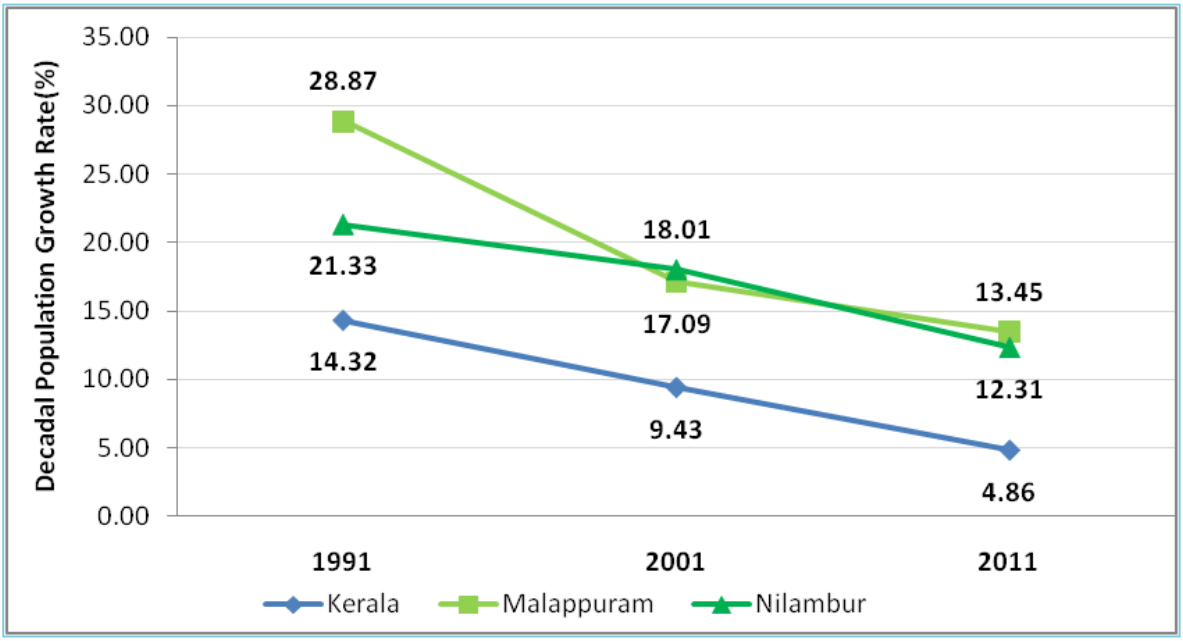


Figure 3-5: Temporal Variation in Population Growth Rate (Source: derived from Census)

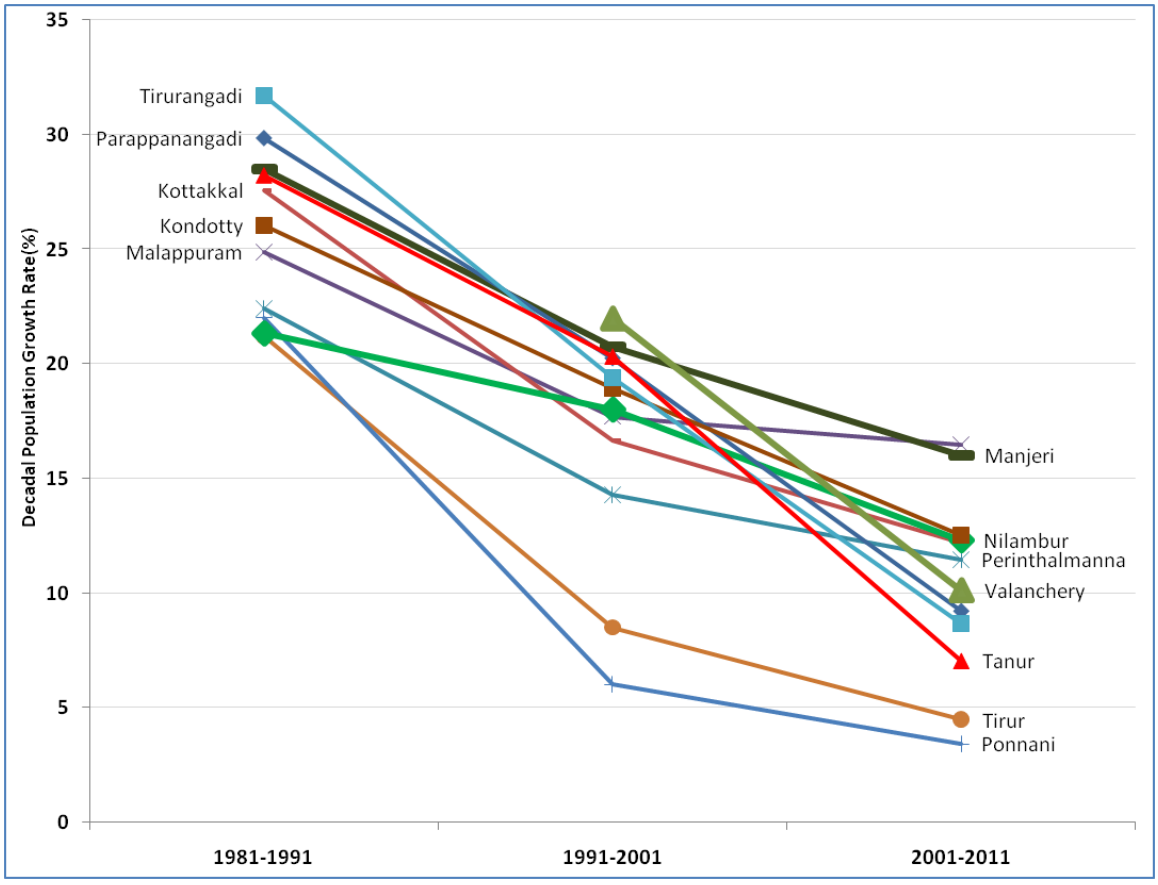


Figure 3-6: Population Growth Rate – Municipalities in the District (Source: derived from Census)

When compared to the municipalities in the district (Table 3-2, Figure 3-6), Nilambur currently exhibits a population growth rate above their average. While Malappuram tops the chart with 16.47% growth, followed by Manjeri at 16%, Ponnani has the lowest population

growth at 3.42%. Tirur also exhibits a growth rate lower than the State. It can be seen that all the lowland municipalities have a growth rate less than 10, while the midland municipalities have growth rate more than 10, with Malappuram and Manjeri presenting values more than 15. Valanchery and Perinthalmanna have the lowest growth rates among midland municipalities, while Nilambur, Kottakkal and Kondotty have similar growth rates and Malappuram and Manjeri have far higher growth rates.

The temporal variations and current population growth rates indicates that both Tirur and Ponnani, the coastal municipalities, are progressing towards stabilisation, and the remaining midland municipalities are growing at a much higher pace compared to the State, though at decreasing growth rates over the decades. Nilambur presents an above average growth rate in both the previous decades among the municipalities in the district. It had the seventh highest population growth rate among the twelve in 1991-2001 while the fourth highest in 2001-2011. Nilambur recorded a reduction in population growth rate at 3.32 percentage points in the previous decade and at 5.7 percentage points in the last decade. This point out a faster decline in population growth in Nilambur, in the last decade. In fact it has the highest rate of reduction in population growth rate, among the municipalities formed prior to 2016, in the last decade. All the newly formed municipalities have higher rates of reduction of growth rate compared to Nilambur.

Table 3-2: Population Growth Rate – Municipalities in the District (Source: derived from Census)

LSG	Population Growth Rate			Change in Growth Rate	
	1991	2001	2011	1991-2001	2001-2011
Malappuram	24.90	17.71	16.47	-7.19	-1.23
Perinthalmanna	22.44	14.31	11.46	-8.13	-2.85
Tirur	21.20	8.49	4.48	-12.70	-4.01
Ponnani	22.00	6.03	3.42	-15.98	-2.60
Kottakkal	27.57	16.65	12.21	-10.93	-4.44
Manjeri	28.49	20.73	16.00	-7.76	-4.73
Nilambur	21.33	18.01	12.31	-3.32	-5.70
Parappanangadi	29.84	20.25	9.23	-9.59	-11.02
Kondotty	26.04	18.91	12.52	-7.13	-6.39
Valanchery	NA	21.99	10.13	NA	-11.86
Tirurangadi	31.70	19.40	8.68	-12.31	-10.72
Tanur	28.24	20.34	7.04	-7.91	-13.30

When compared to the nearby LSGs, Nilambur has a population growth rate slightly below their average. While Mambad has a far higher population growth rate compared to all the other LSGs at 21.12%, Nilambur falls only fourth among the seven, and Wandoor (15.36%), and Amarambalam (14.67%) has comparatively higher growth rates. The higher growth rates in the some of the surrounding LSGs at present shows faster urbanization in them, compared to the municipality.

Further it can be seen that among the nearby LSGIs Mambad shows a slight increase in population growth rates compared to the last two decades, while all other LSGs exhibit decrease.(Exceptional values for Chungathara Panchayat are due to change in area and associated change in population in 1991-2001 period.) This shows that population growth has slowed down in the region, except for Mambad.

Further it can be seen that among the nearby LSGIs Mambad shows a slight increase in population growth rates compared to the last two decades, while all other LSGs exhibit decrease. (Exceptional values for Chungathara Panchayat are due to change in area and associated change in population in 1991-2001 period.) This shows that population growth has slowed down in the region, except for Mambad.

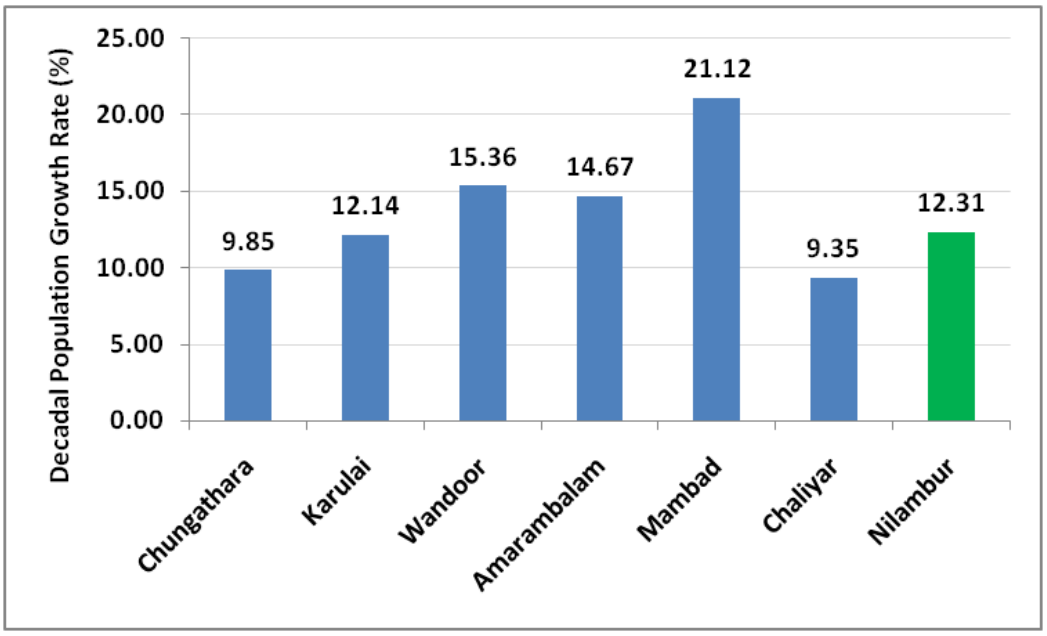


Figure 3-7: Population Growth Rate –Nearby LSGs (Source: derived from Census)

Table 3-3: Population Growth Rate - Nearby LSGs (Source: derived from Census)

LSG	Population Growth Rate		Change in Growth Rate
	2001	2011	2001-2011
Chungathara	-25.92	9.85	35.77
Karulai	17.29	12.14	-5.16
Wandoor	18.85	15.36	-3.49
Amarambalam	17.05	14.67	-2.38
Mambad	19.52	21.12	1.60
Chaliyar	15.64	9.35	-6.29
Nilambur	18.01	12.31	-5.70

When similar municipalities in the State are considered, it can be seen that Nilambur has a far higher growth rate when compared to similar towns in the state, in tune with the general scenario in the District.

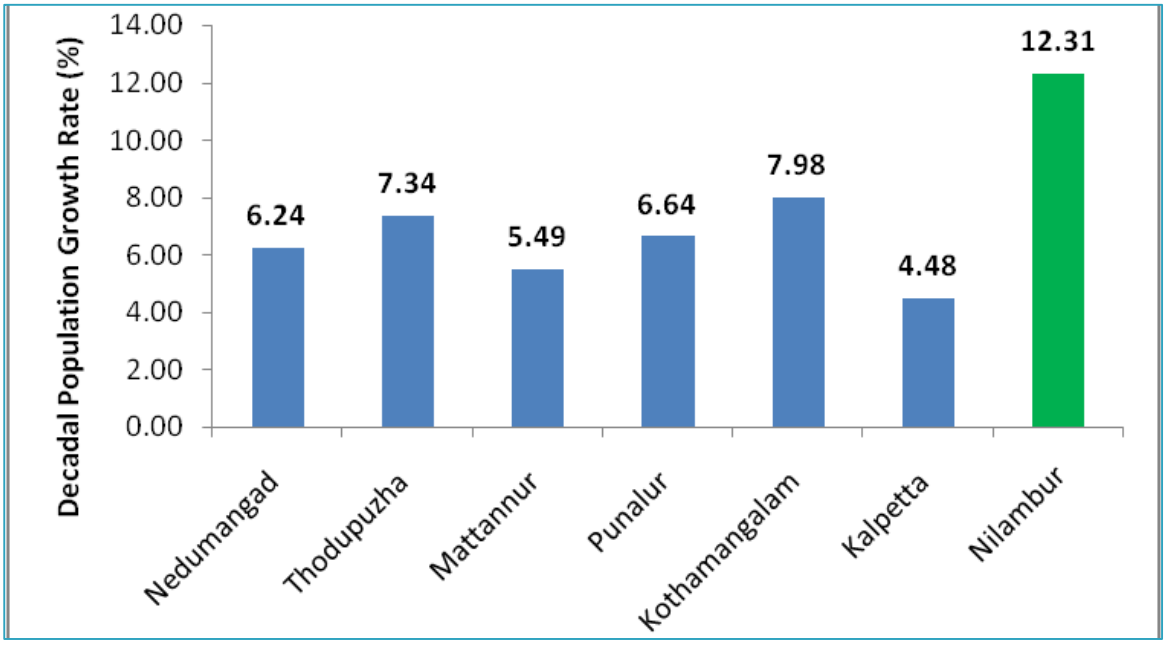


Figure 3-8: Population Growth Rate -Similar Municipalities in the State (Source: derived from Census)

3.3 SPATIAL DISTRIBUTION OF POPULATION

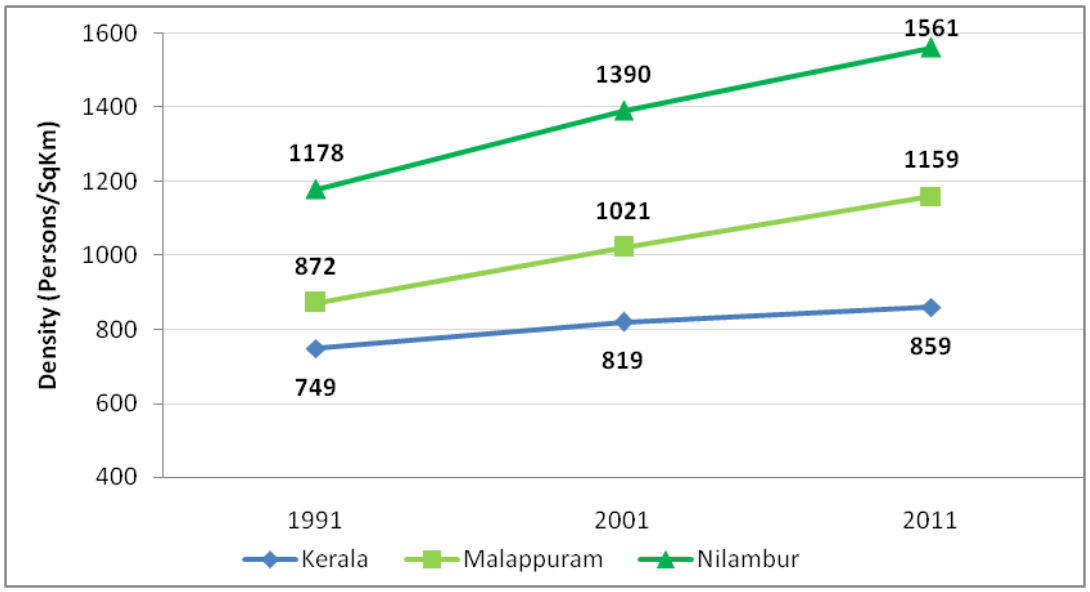


Figure 3-9: Temporal Variation in Density (Source: derived from Census)

Malappuram District temporally has a higher density compared to the state, as presented in Figure 3-9. As per Census 2011, the district has a population density of 1159 ppsqkm, fifth highest among the districts in the State, against 859 ppsqkm of the State.

As evident from Figure 3-9, Nilambur municipality, with a density of 1561 persons per square kilometer in 2011, have had a temporally increasing density, much higher than the district and the State. The density of the municipality increased by 383 points between 1991 and 2011 while that of the district increased by 287 points and the State by 110 points.

Among the LSGs in the District, Nilambur falls in the medium density category, along with other midland municipalities like Manjeri and Perinthalmanna as presented in Figure 3-10. Besides, it can also be observed that Nilambur is the only LSG that has medium density towards the north-eastern highland region of the district.

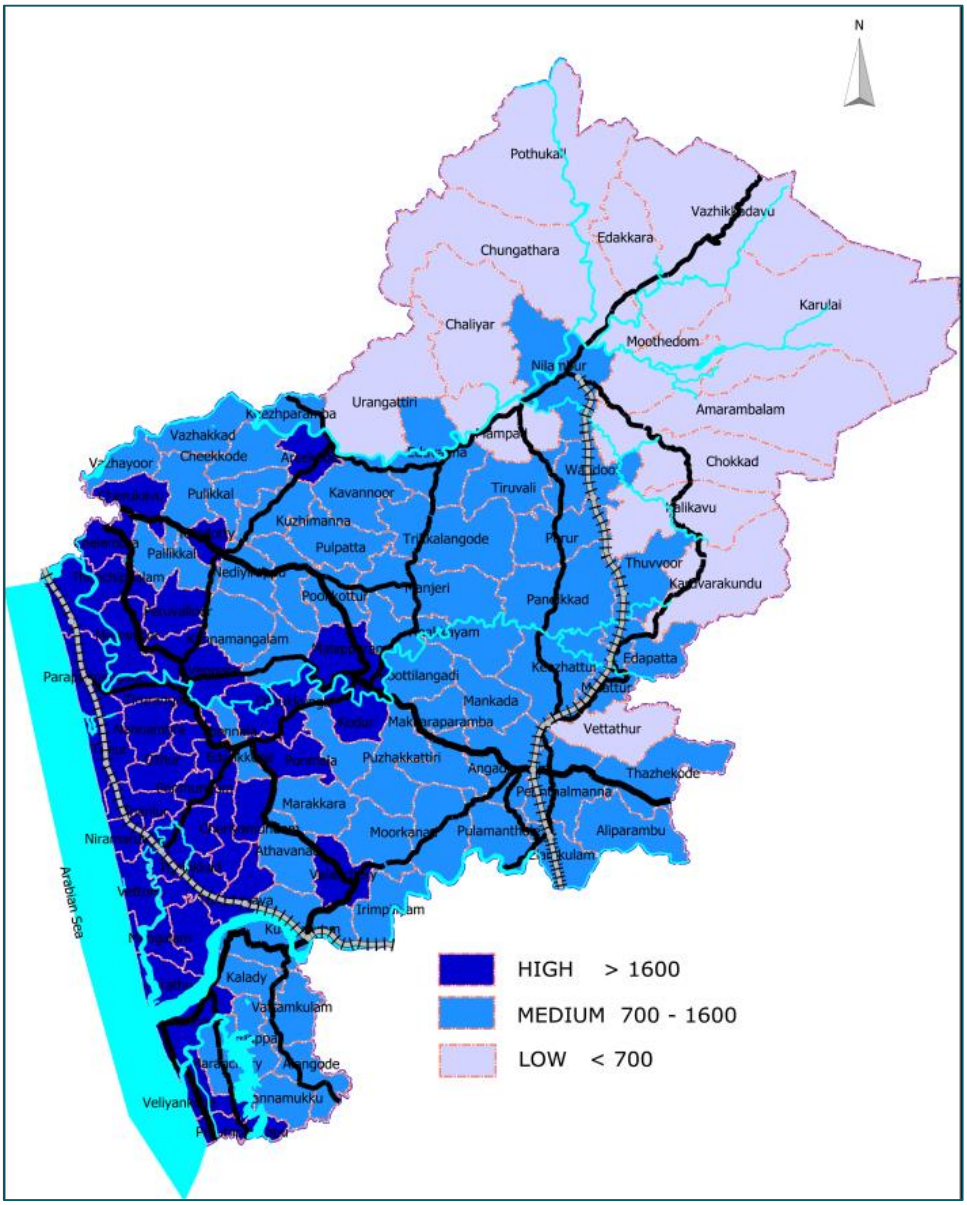


Figure 3-10: Variation of Gross Density among LSGs in the District (Source: District Urbanisation Report 2011)

Among the municipalities in the District (Figure 3-11), Nilambur temporally has the second lowest density, next to Perinthalmanna. The densities of all the municipalities are increasing temporally, and the densities of municipalities in the coastal strip are significantly higher than the others, historically. Nilambur has only less than half the density of the coastal municipalities.

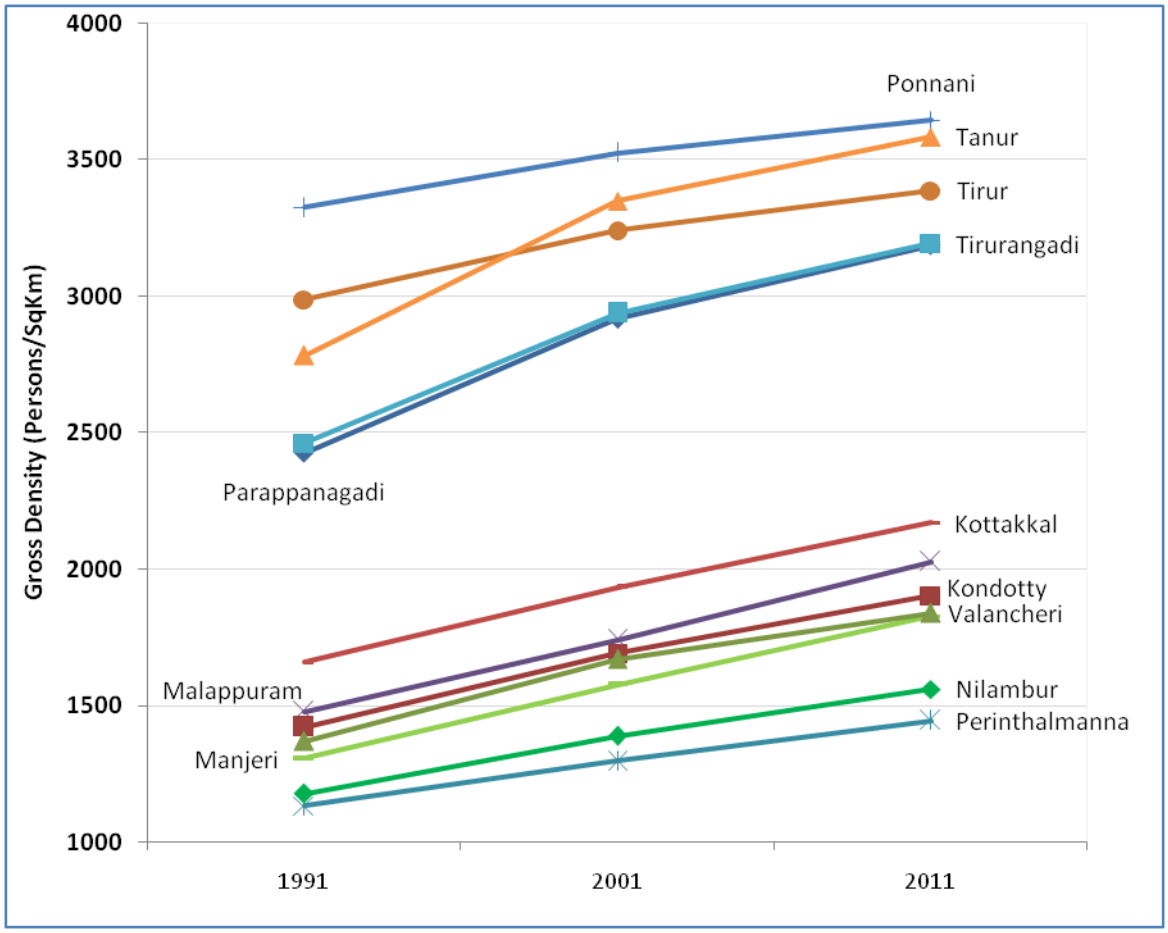


Figure 3-11: Variation in Gross Density – Municipalities in the District (Source: derived from Census)

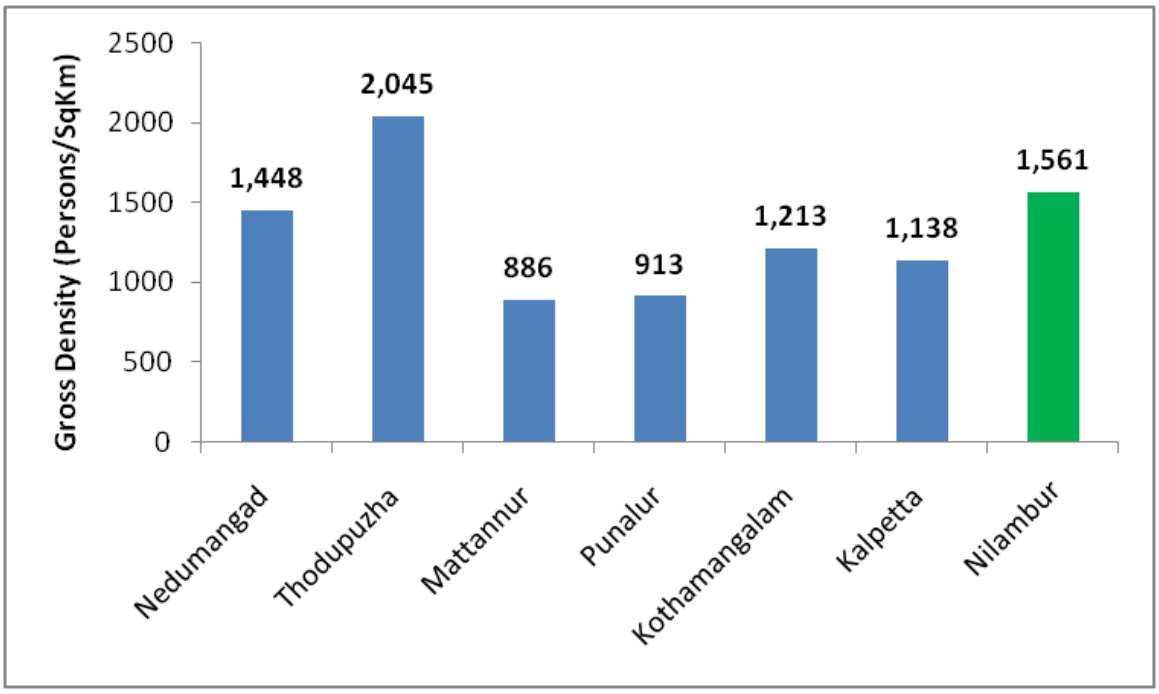


Figure 3-12: Gross Density Comparison – Municipalities in the State (Source: derived from Census)

Compared to similar municipalities in the State, Nilambur has the second highest density, next to Thodupuzha, as presented in Figure 3-12. Nilambur has a far higher density when compared to the nearby LSGs, as presented in Figure 3-13, being the sole urban area in the

less-dense upper reaches of the district.

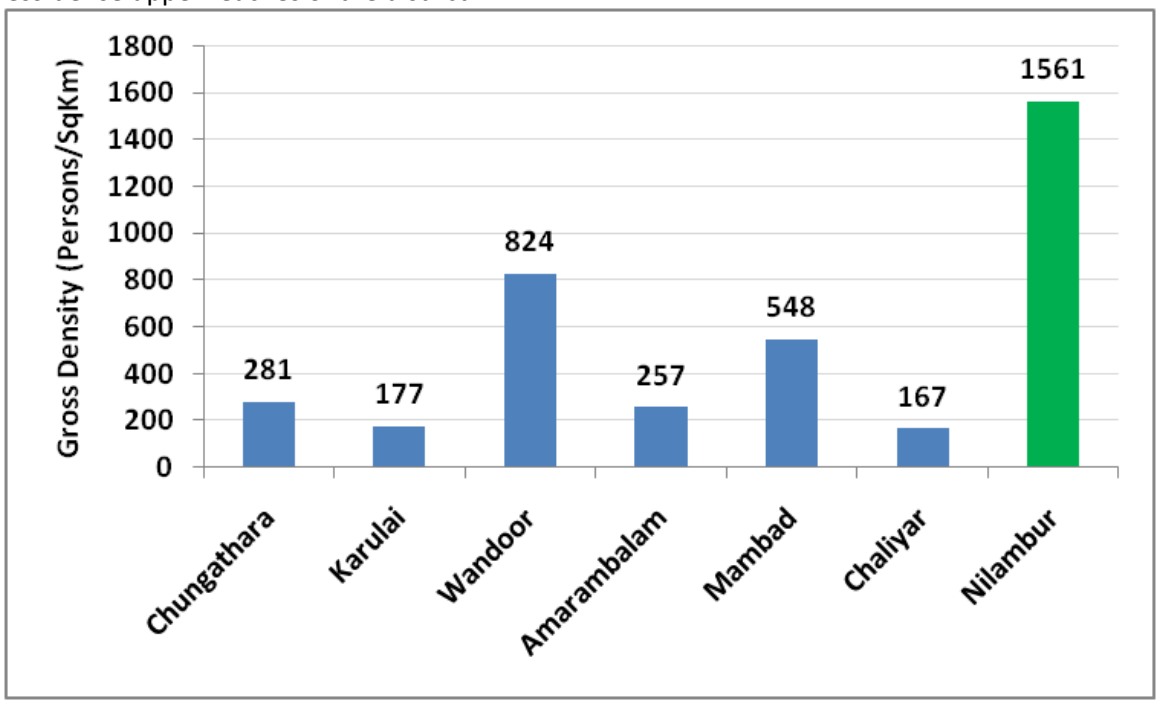


Figure 3-13: Gross Density Comparison – Nearby LSGs (Source: derived from Census)

3.3.1 Gross Density

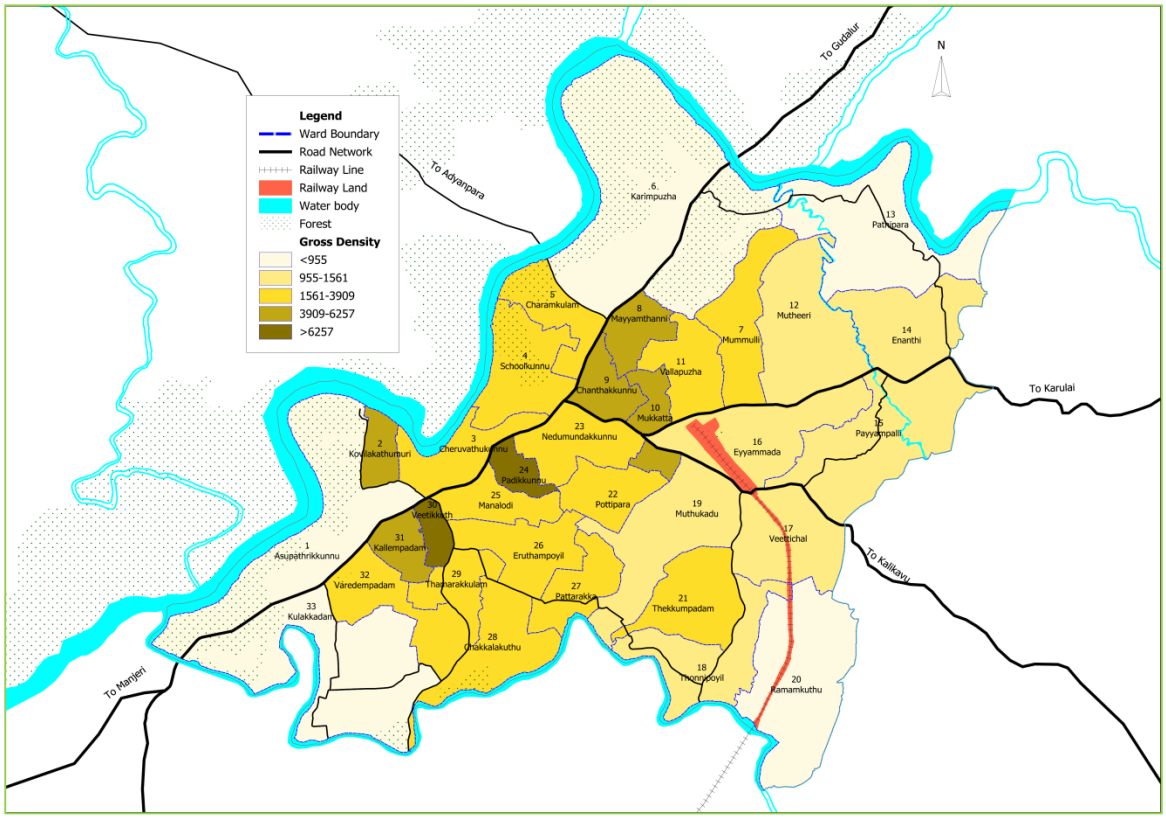


Figure 3-14: Gross Density Variation within the Municipality

To study the variations in density within the municipality, ward wise population data was interpolated using electoral ward delineation details, in the absence of such data in Census. The gross density variations thus obtained is presented in Figure 3-14. Most of the denser wards are along Calicut – Gudalur State highway.

While the lowest density of 348 ppsqkm is observed in ward 6 – Karimpuzha dominated by forests, highest density of 8605ppsqkm is observed in ward 30 – Veettikkuthu. Ward 24 – Padikunnu also has a very high density at 7429 ppsqkm compared to other wards. It can be seen that the density significantly varies within the municipality, around 25 fold between the most dense and least dense wards, and is relatively higher in the well-connected areas, mainly along the KNG road and in Kovilakathumuri, which houses the old settlement. Ward -21 Thekkumapadam shows a higher density may be due to the concentration of housing colony in the area.

3.3.2 Population Concentration Pattern

The population concentration pattern within the municipality, derived by mapping the cumulative population in the order of their gross densities, is presented in Figure 3-15. It can be seen that population is concentrated in the well connected areas and near the important road junctions. While 1/3rd of the total population in the municipality is concentrated in less than 4sqkm (12%) of the municipal area, half the population is concentrated in less than 7sqkm (22%) and 2/3rd of the population is concentrated in less than 11sqkm (35%) of the total area. While this reveals the areas where infrastructure and service provisions need more focus, it also suggests the presence of vast tracts of less-developed land in the peri-urban areas.

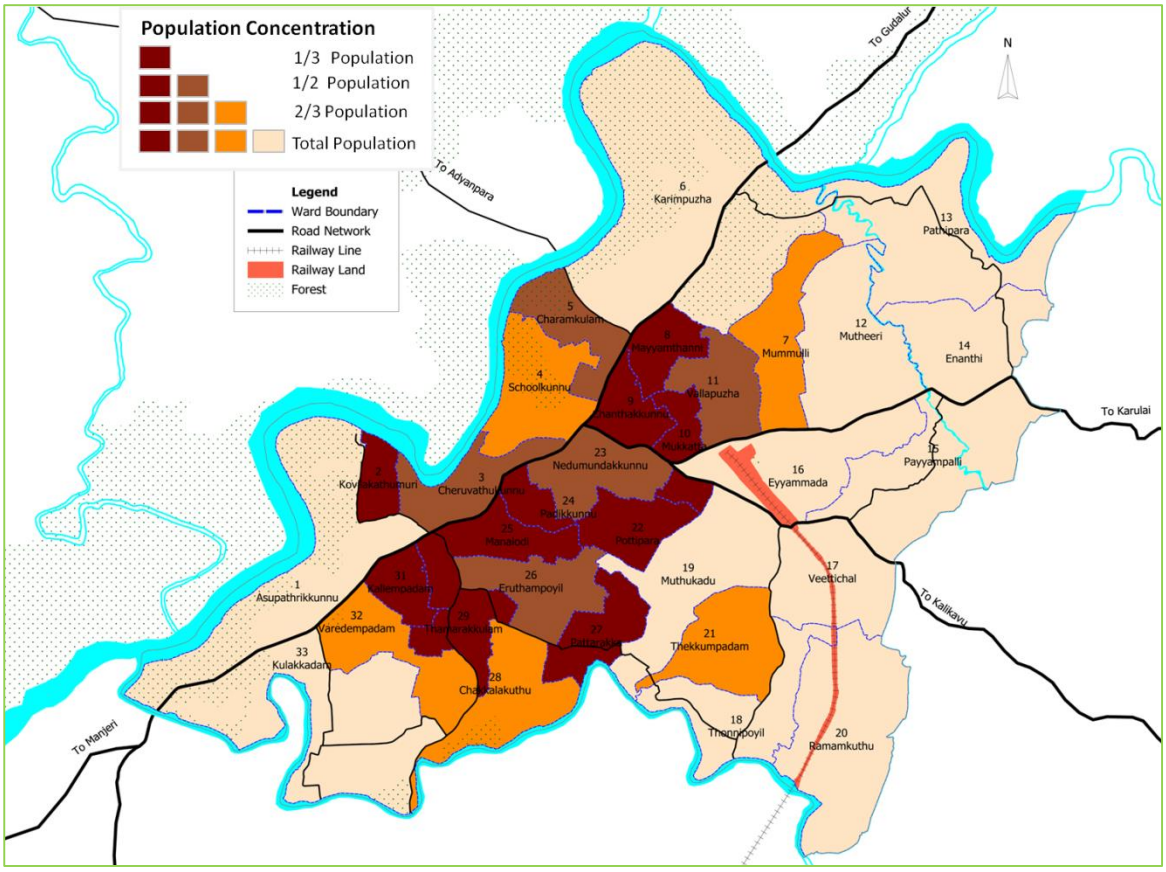


Figure 3-15: Population Concentration Pattern in the Municipality

3.3.3 Net Density

Net density is the density in net area, which can be considered as the inhabitable areas. It gives a clearer picture of population distribution. Forests and water bodies are the uninhabitable areas in Nilambur, which are deducted from the total area to derive the net area of each ward. The net density distribution in the municipality thus derived is presented in Figure 3-16 .

Net density of the municipality is 1953 ppsqkm. It can be seen that the net density varies around tenfold between the least dense and most dense wards, from 861ppsqkm is observed in ward 33- Kulakkandam to 8605 ppsqkm is observed in ward 30 – Veettikkuthu. It can also be observed that Ward 7- Mummulli and Ward 21-Thekkumpadam which were in the above-average gross density group has reduced to below average net density group. Figure 3-16 makes it clear that above-average densities are spread over a smaller region on either sides of SH 28.Veettikkuthu and Padikkunnu remain the densest wards and ward 33- Kulakkandam and ward 20 - Ramamkuthu are the least dense wards.

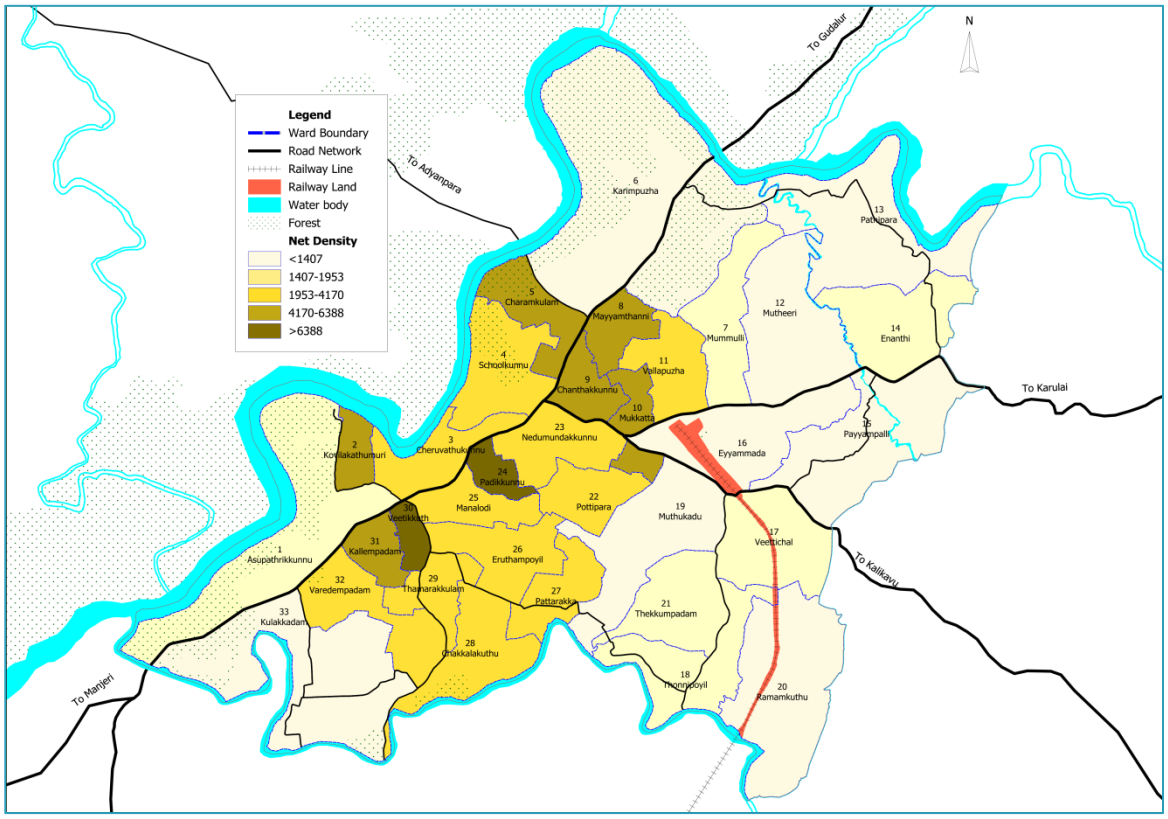


Figure 3-16: Net Density Variation within the Municipality

3.3.4 Net Residential Density

Net Residential Density gives the density in the residential areas. Net residential density of the municipality is 6523 ppsqkm. The residential density, as presented in Figure 3-17 depicts a significantly different picture compared to gross and net densities. The net density varies around fourfold between the least dense ward 16 – Eyyammada and most dense ward 30 – Veettikkuthu, from 3572 ppsqkm to 16003 ppsqkm. Ward 30 –Veettikkuthu and ward 22 – Pottippara have the densest residential pockets and ward 16- Eyyammada and ward 26 - Eruthampoyil have the least dense residential pockets.

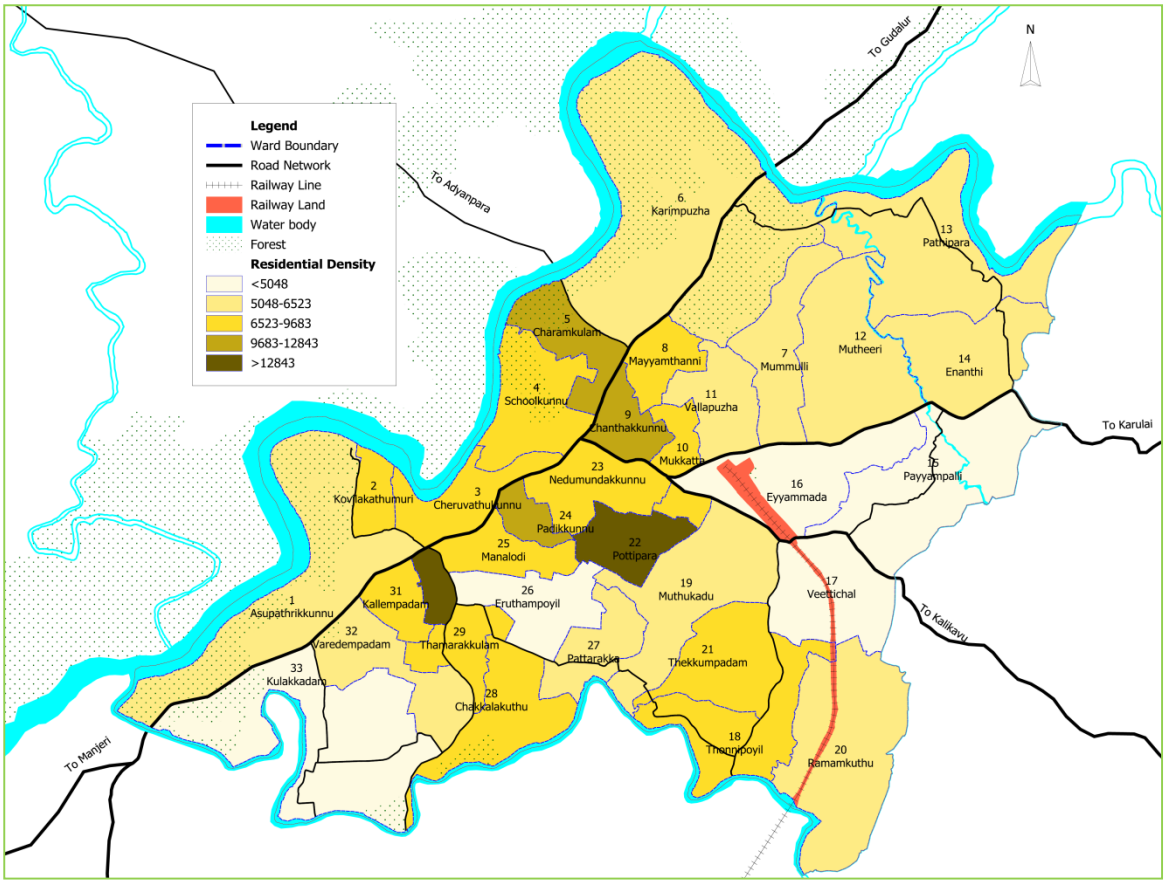


Figure 3-17: Net Residential Density Variation within the Municipality

3.4 SEX RATIO

Sex Ratio, the number of females per thousand males, is an indicator which reflects the gender preferences and status of women in a society and has direct bearing on its social and economic wellbeing. Kerala state has the highest sex ratio of the general population, 1084, in the Country and all its districts have a positive sex ratio in 2011. Urban Kerala exhibits a higher sex ratio of 1091 when compared to rural areas (1078).

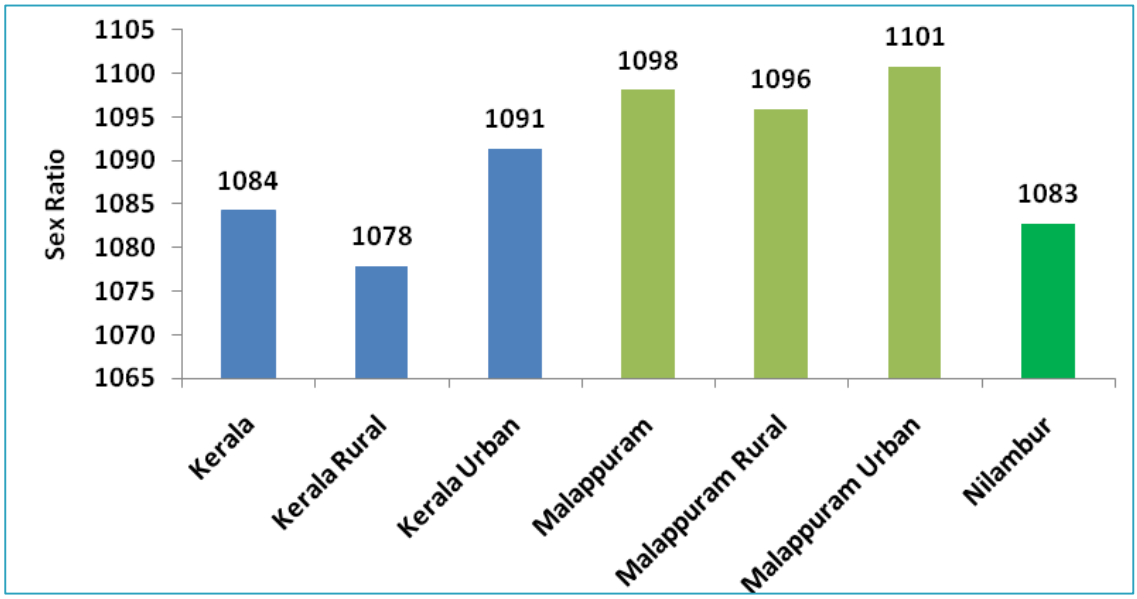


Figure 3-18: Sex Ratio – Comparison with State, District, Urban and Rural averages (Source: derived from Census 2011)

Nilambur Municipality has a sex ratio of 1083, comparable to the state average. However this is lower than the urban average of the state, 1091, by 8 points. Malappuram District has a sex ratio of 1098, higher than the state average by 15 points, and the Urban average is 1101 whereas the rural average is 1096. It can be seen that the sex ratio of Nilambur is lower than the urban average of the district by 18 points and the rural average by 13 points. (Figure 3-19).

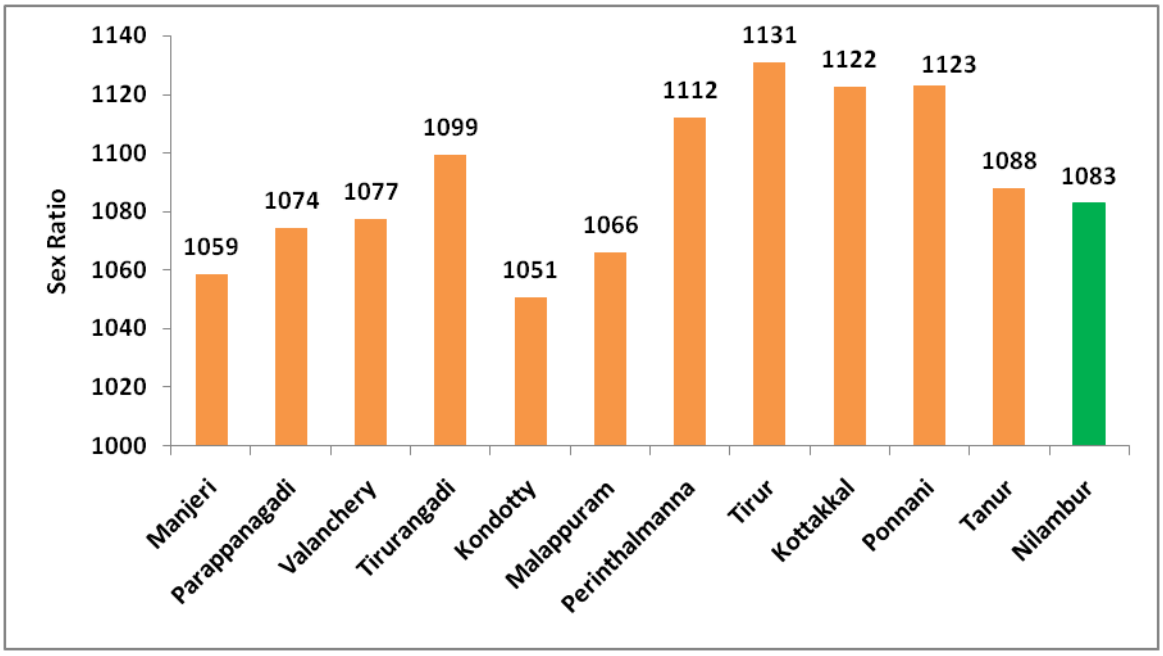


Figure 3-19: Sex Ratio- Comparison with municipalities in the district (Source: derived from Census 2011)

When compared to other municipalities in the District, (Figure 3-19). Nilambur has a sex ratio lower than their average, and the sixth lowest among the twelve.

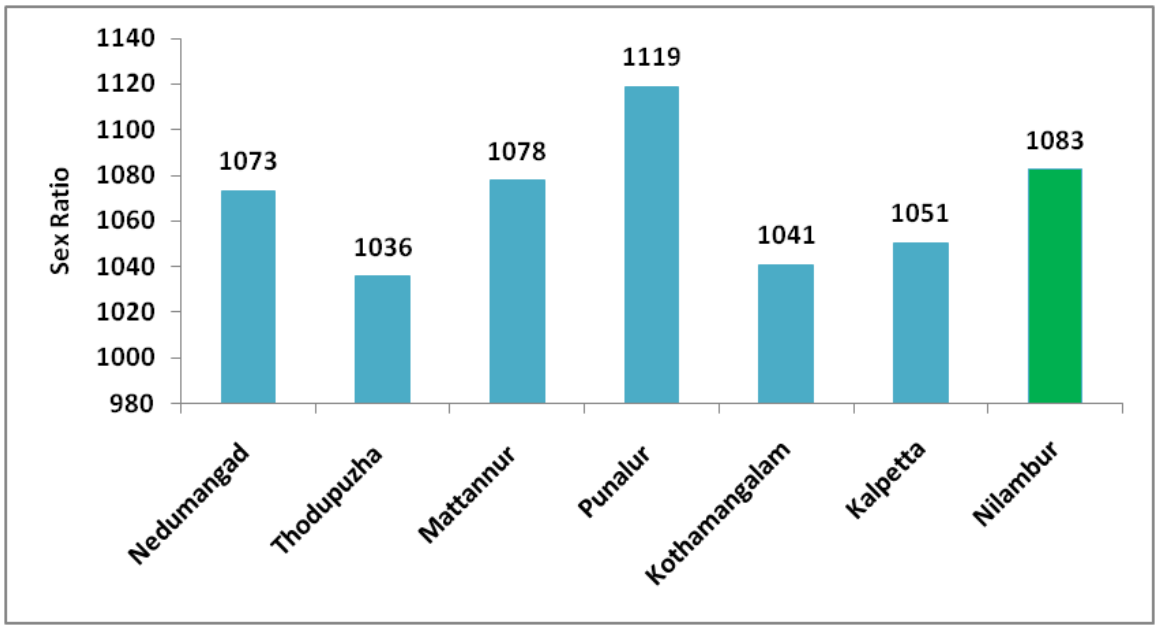


Figure 3-20: Sex Ratio- Comparison with municipalities in the State (Source: derived from Census 2011)

When compared to similar towns in the state, Nilambur has a sex ratio above their average, and the second highest among them, next to Punalur. When the sex ratios of the districts in which these towns fall are compared, it can be seen that these towns follow similar patterns as their districts, except Mattannur. While Kannur has the highest sex ratio in the state,

Mattannur has only the third highest sex ratio among these towns. Kannur, Kollam, Malappuram, Thiruvananthapuram districts have higher sex ratios, than the state average as well as Wayanad, Ernakulam and Idukki Districts.

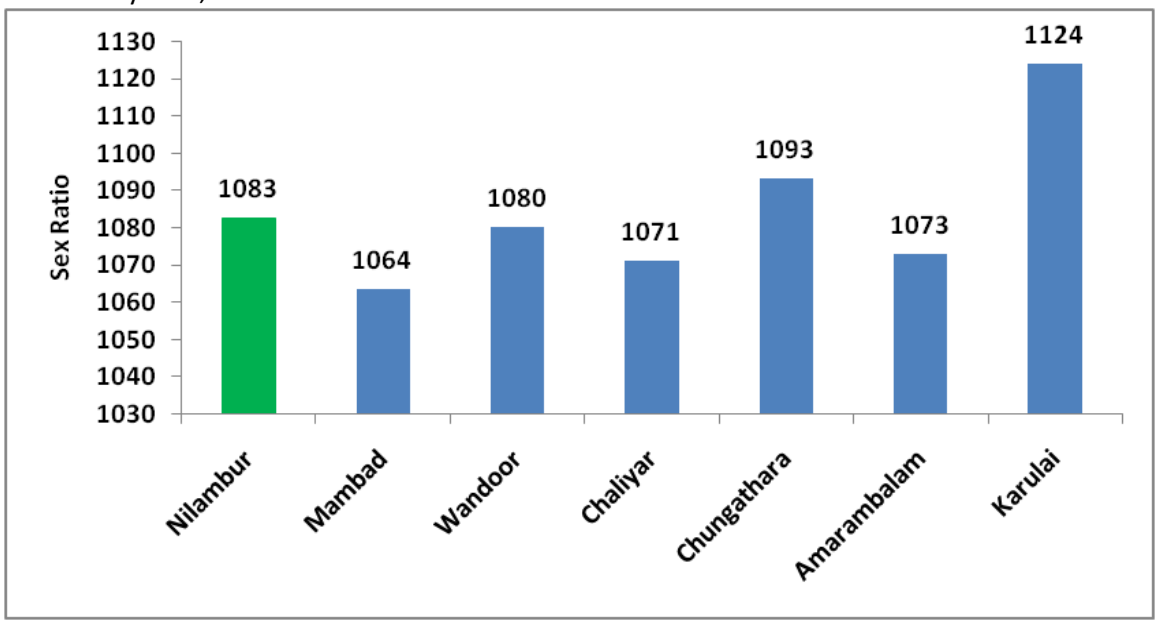


Figure 3-21: Sex Ratio- Comparison with Nearby LSGs (Source: derived from Census 2011)

When compared to the nearby LSGs, Nilambur has an average sex ratio among them. Karulai has a very high sex ratio compared to all the other panchayats. Chungathara also has a higher sex ratio than Nilambur. All these LSGs except Karulai have a lower sex ratio than the rural average of the district.

3.5 CHILD POPULATION

3.5.1 Population in 0-6 Age Group

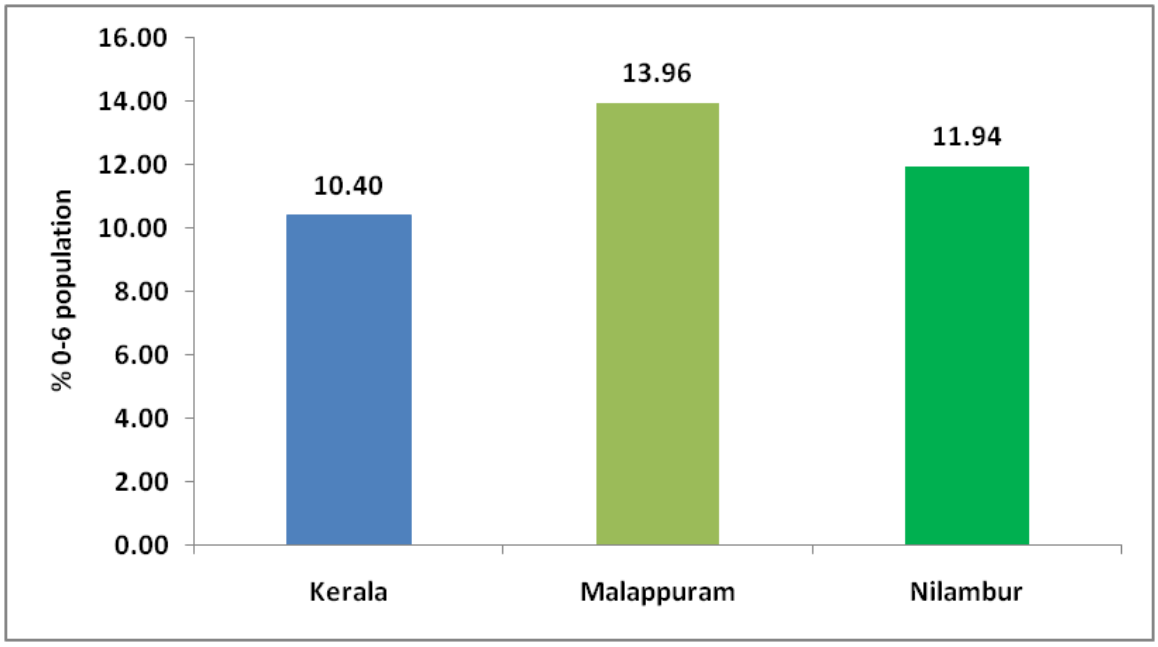


Figure 3-22: 0-6 age group – comparison with state and district (Source: Census 2011)

Malappuram District has the highest share of children in the total population, 13.96%, in the State. Nilambur also has a higher share, 11.94% when compared to the State, which has 10.4% of child population.

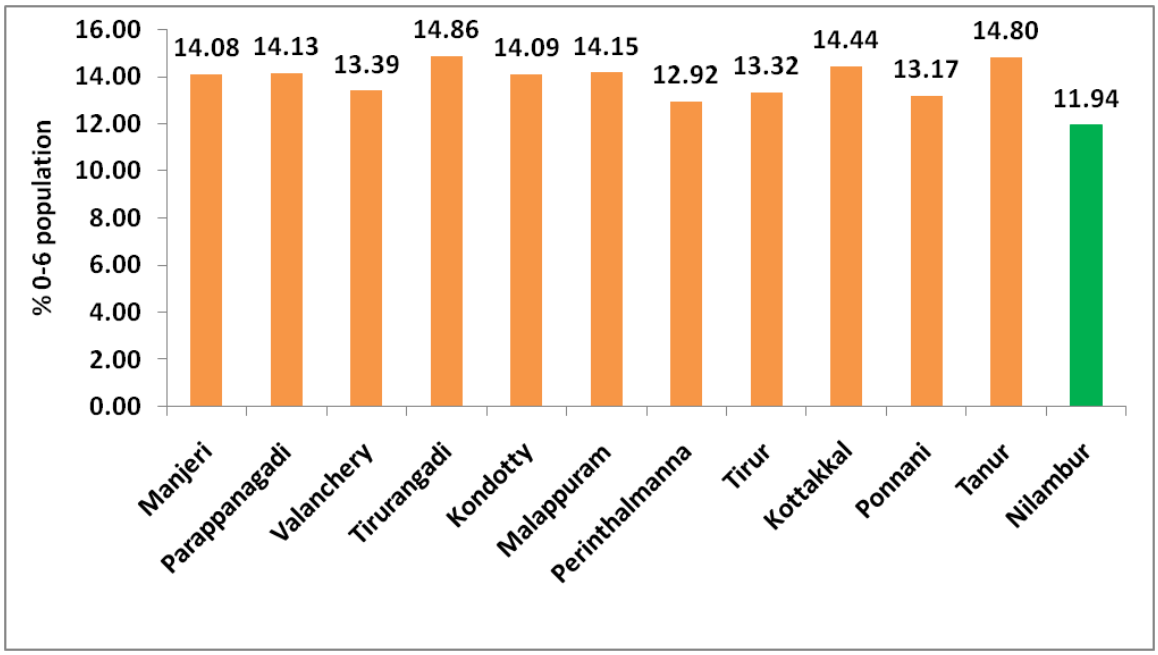


Figure 3-23: 0-6 age group – comparison with municipalities in the district (Source: Census 2011)

Among the municipalities in the district, Nilambur has the least share of 0-6 population, followed by Perinthalmanna. This indicates relatively lower fertility rates in the municipality and probable out-migration of young families in search of better employment and facilities. Tirurangadi has the highest share (14.86%), closely followed by Tanur (14.80%).

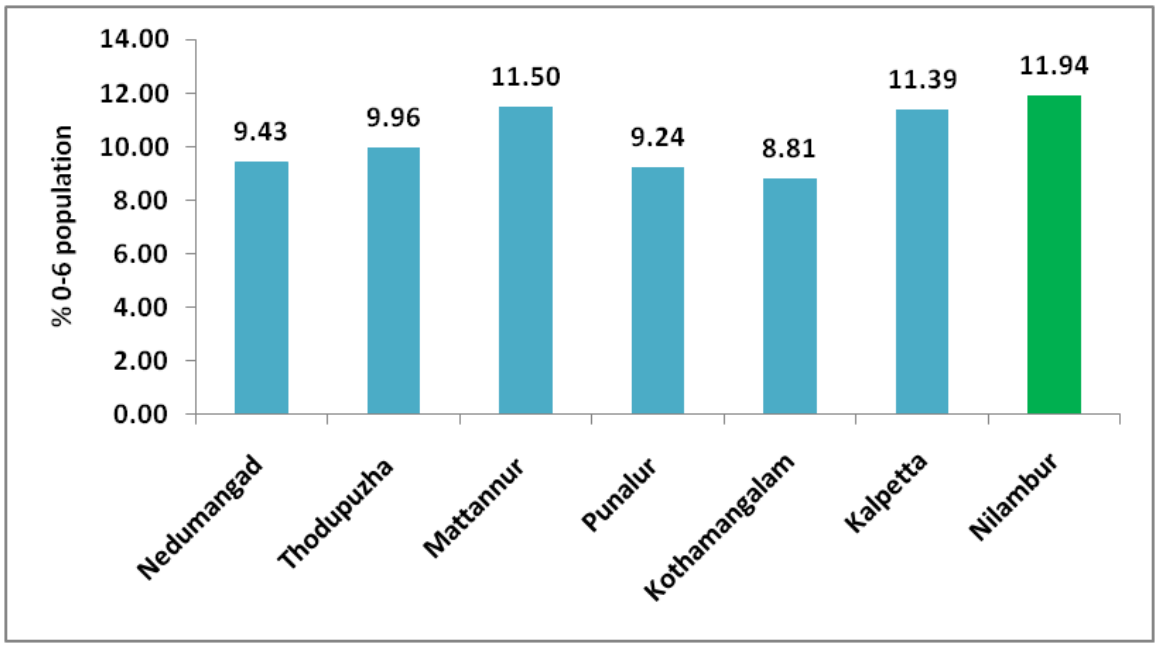


Figure 3-24: 0-6 age group – comparison with municipalities in the State (Source: Census 2011)

Following the trend of the District, Nilambur has the highest share of child population when compared to similar towns in the state, closely followed by other towns in North Kerala, Mattannur (11.50%) and Kalpetta (11.39%). Rest of the towns have the share below 10% with Kothamangalam striking the least at 8.81%.

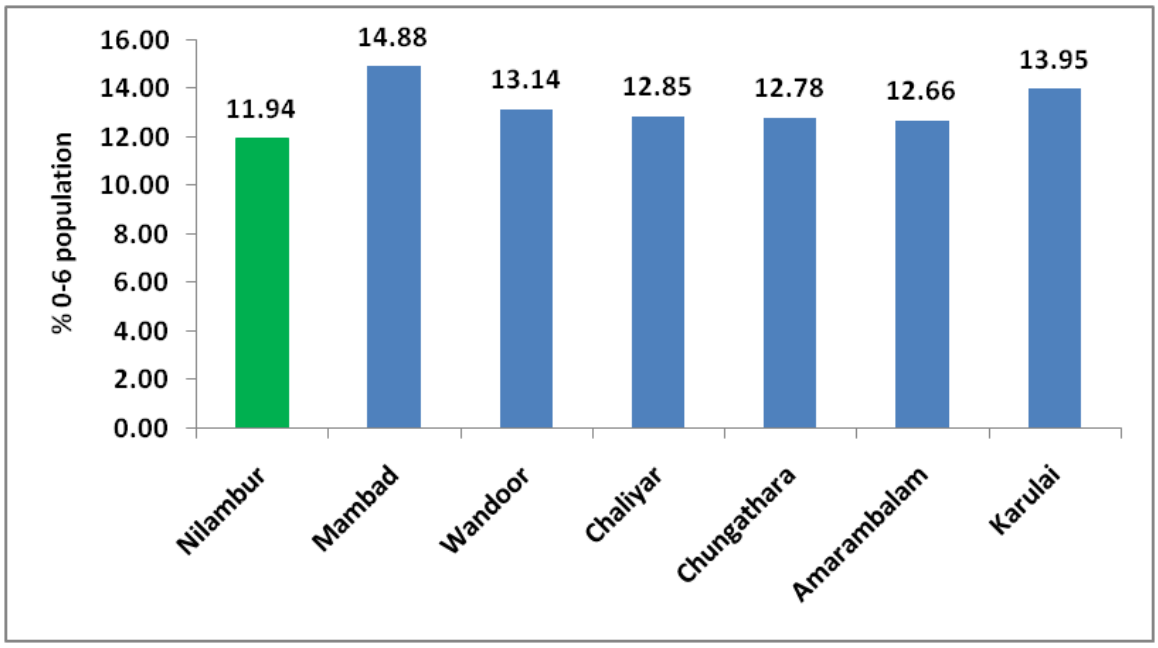


Figure 3-25: 0-6 age group – comparison with nearby LSGs (Source: Census 2011)

Among the nearby LSGs Nilambur has the least share of child population and falls below the average by 1.23%. It can be seen that the share is lower than the district rural average (13.94%) and urban average (13.98%) for most of the LSGs except Mambad and Karulai.

3.5.2 Sex Ratio of 0-6 Age Group

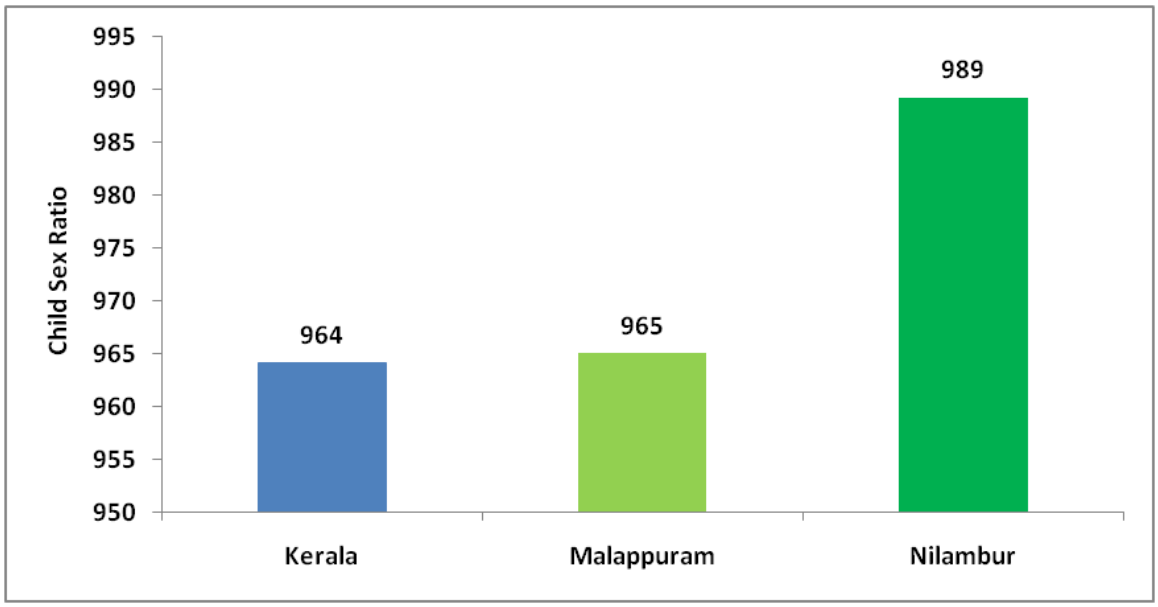


Figure 3-26: Sex Ratio (0-6) – comparison with state and district (Source: derived from Census 2011)

The sex ratio of child population is negative in the state as well as the district. Malappuram District has a 0-6 age group sex ratio comparable to that of the State. Nilambur has a sex ratio of 989 among the child population, higher than the State by 25 points and the District, by 24 points.

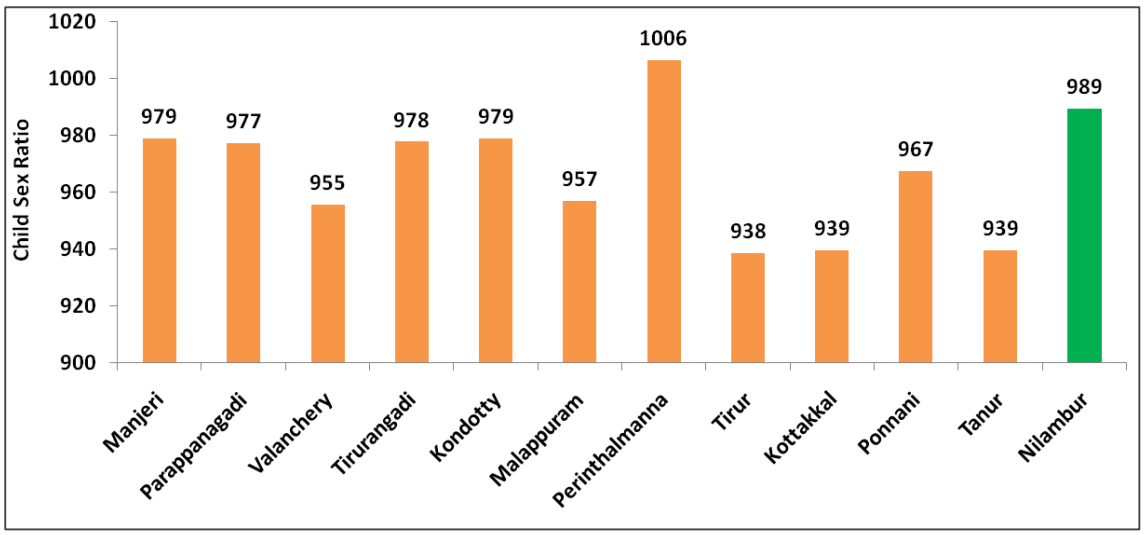


Figure 3-27: Sex Ratio (0-6) – comparison with municipalities in the district (Source: derived from Census 2011)

When compared to the other municipalities in the district, Nilambur has a value higher than their average by 24 points, and has the second highest sex ratio among child population, only behind Perinthalmanna.

When compared to similar towns in the state, Nilambur has the second highest 0-6 age group sex ratio, next to Punalur, and higher than their average by 14 points.

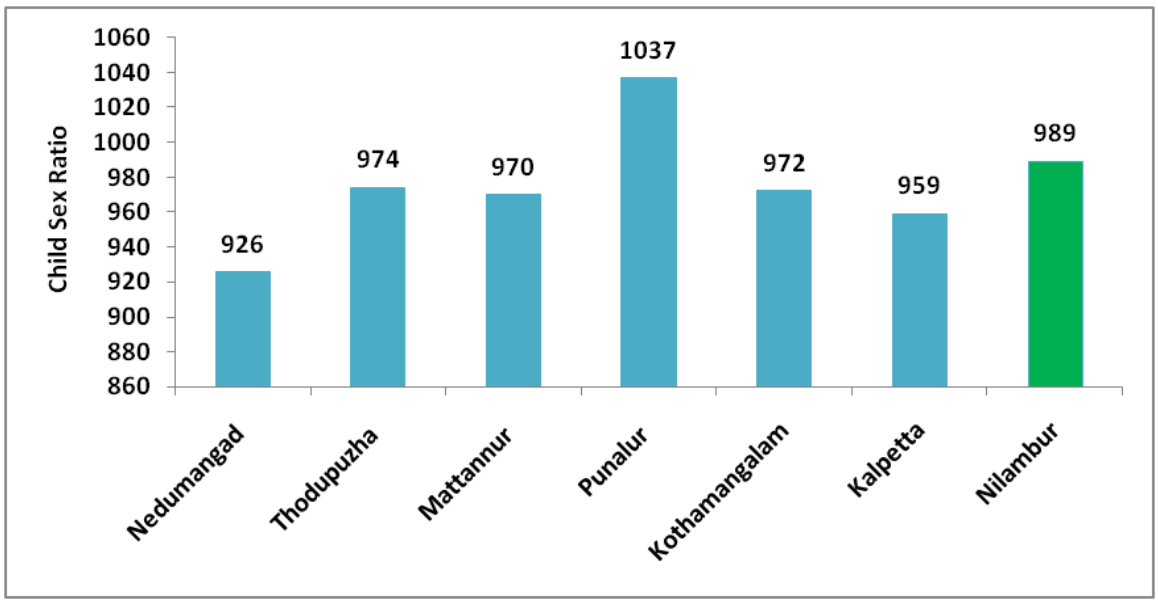


Figure 3-28: Sex Ratio (0-6) – comparison with municipalities in the State (Source: derived from Census 2011)

Nilambur has the third highest 0-6 age group sex ratio when compared to nearby LSGs, just behind Wandoor and Chaliyar. Amarambalam has the least value followed by Mambad.

The relatively higher value of sex-ratio among 0-6 age group in Nilambur indicates a girl-child friendly social environment in the Municipality.

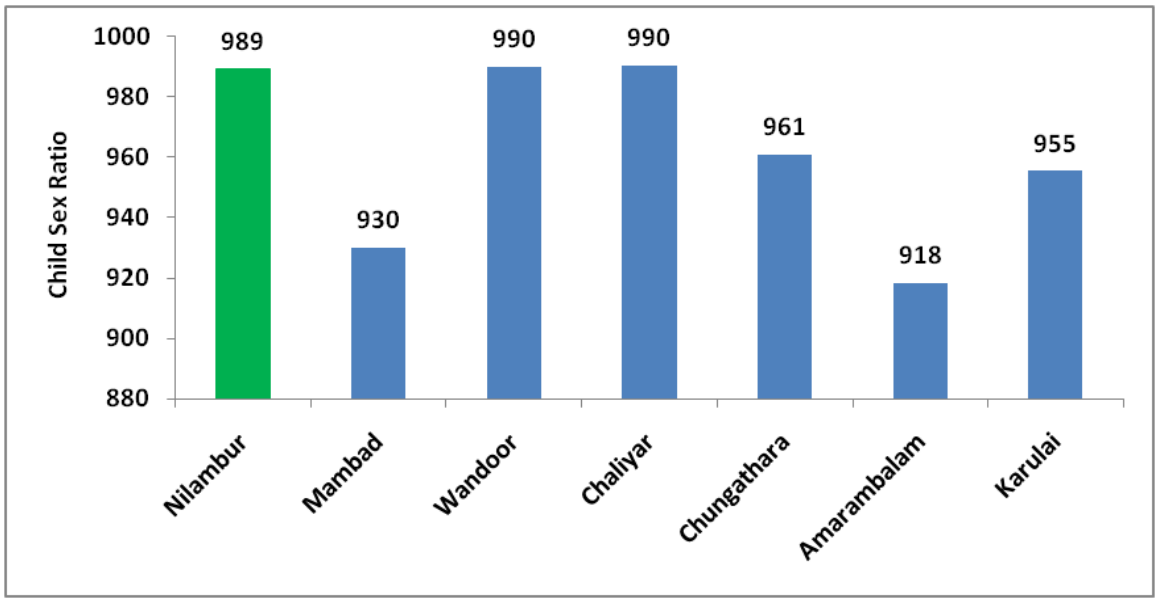


Figure 3-29: Sex Ratio (0-6) – comparison with nearby LSGs (Source: derived from Census 2011)

3.6 AGE SEX STRUCTURE

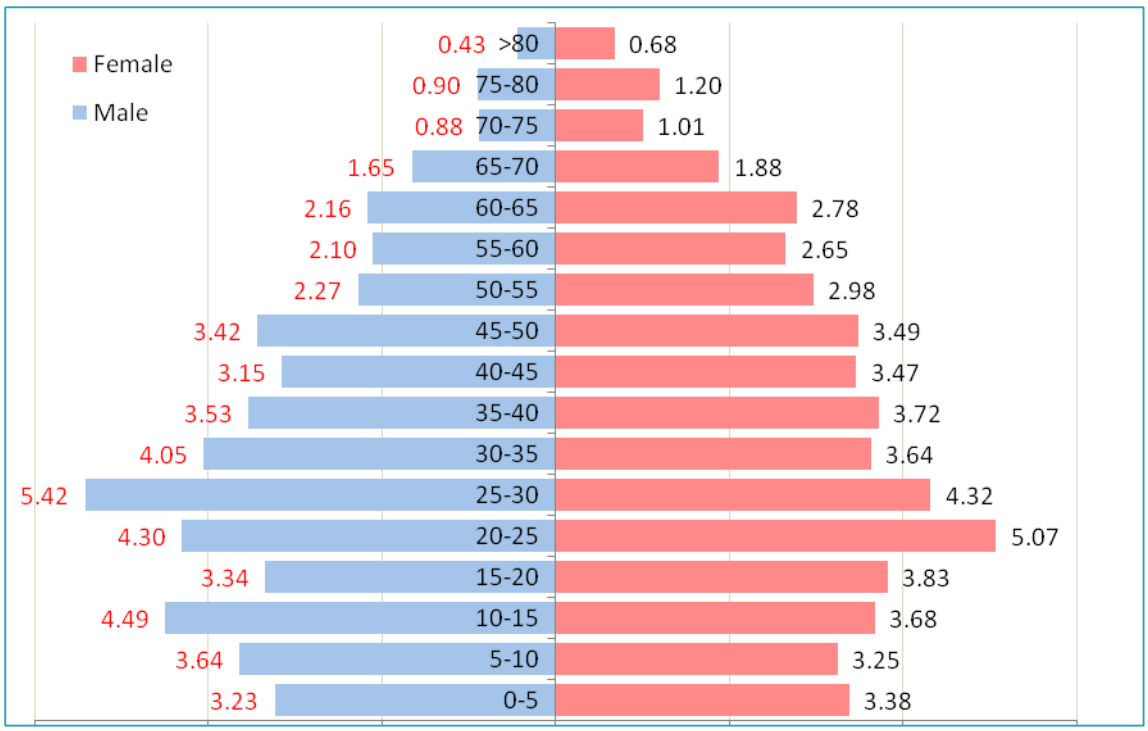


Figure 3-30: Age – Sex Pyramid (Source: Socio Economic Survey 2012)

The age sex pyramid depicts the gender-wise age group composition of the population and gives an idea of the dependency rates, demographic dividend etc.

The age-sex pyramid of Nilambur municipality is progressing towards constrictive nature, with low proportions of 0-10 and 50+ age groups and high proportion of youth and middle-aged. Yet there is a considerable proportion of the population in the 50+ age group.

44% of the population is in 0 – 25 years age group, 38% in the working (25 – 55 years) age group and 18% in the > 55 age group. The low proportion of working age group indicates high economic dependency, which works out to be 1.62. However, it can be seen the 20- 25 age

group has a high share of the population, ensuring a higher share of people in the working age in the next decades. The narrowing base due to lowering proportions of 0-10 age group indicates declining fertility rates. However, the proportion is not too low and ensures a reasonable demographic dividend for Nilambur in future.

The pyramid indicates declining fertility and mortality rates prevailing in the municipality, in tune with the general picture of the State. Also, it is understood that the proportion of older persons in the population will be growing in future and there will be a greater demand for medical and other geriatric services in the municipality, in the coming decades.

3.7 SC/ST POPULATION

The presence of ethnic groups in a region indicates the cultural diversity and heritage of the region. It also indicates the necessity of special attention required in the region, for the welfare of socially and economically backward ethnic groups.

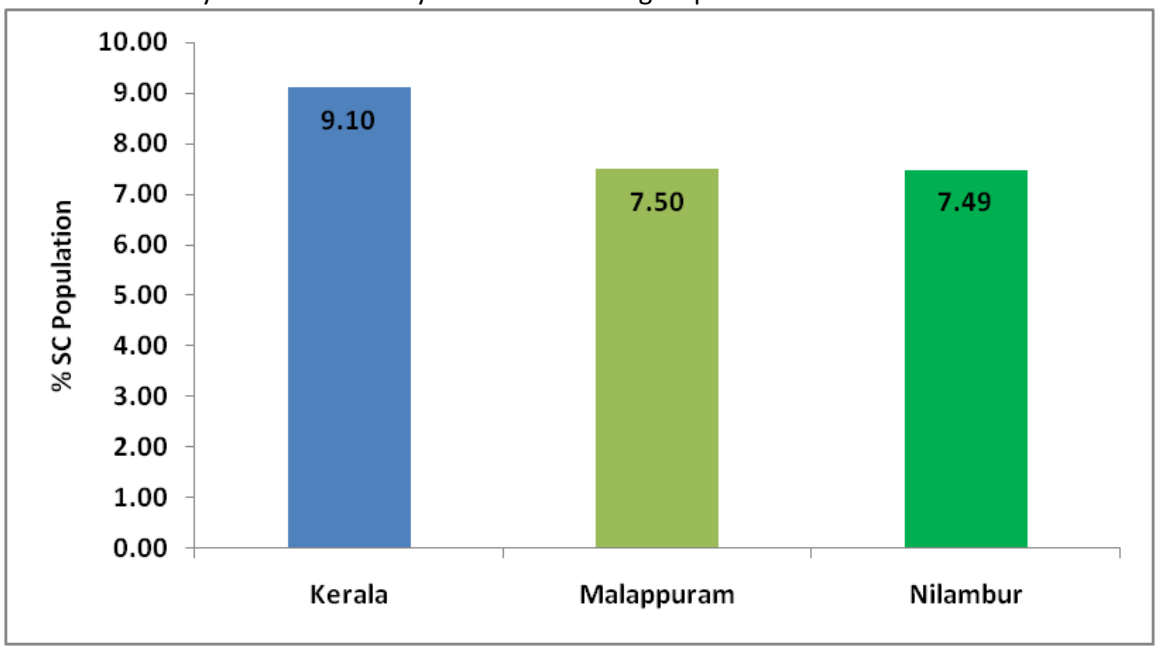


Figure 3-31: % SC Population – comparison with State and District (Source: Census 2011)

Malappuram District has a lower share of Scheduled Caste population, 7.5%, when compared to the State, 9.10%. Nilambur has a lower share of SC population, 7.49%, when compared to the State and has an almost equal share when compared to the District.

When compared to the municipalities in the District, Nilambur has a share of SC population above their average and the fifth highest. Kondotty has the highest share of SC population (12.28%), followed by Perinthalmanna, 10.41%. It can be observed that none of the coastal/lowland municipalities of Malappuram District has an above-average share of SC population.

When compared to the similar towns in State, the % of SC population is the third highest in Nilambur, the highest being in Nedumangad, 9.56%, followed by Punalur, 8.68%.

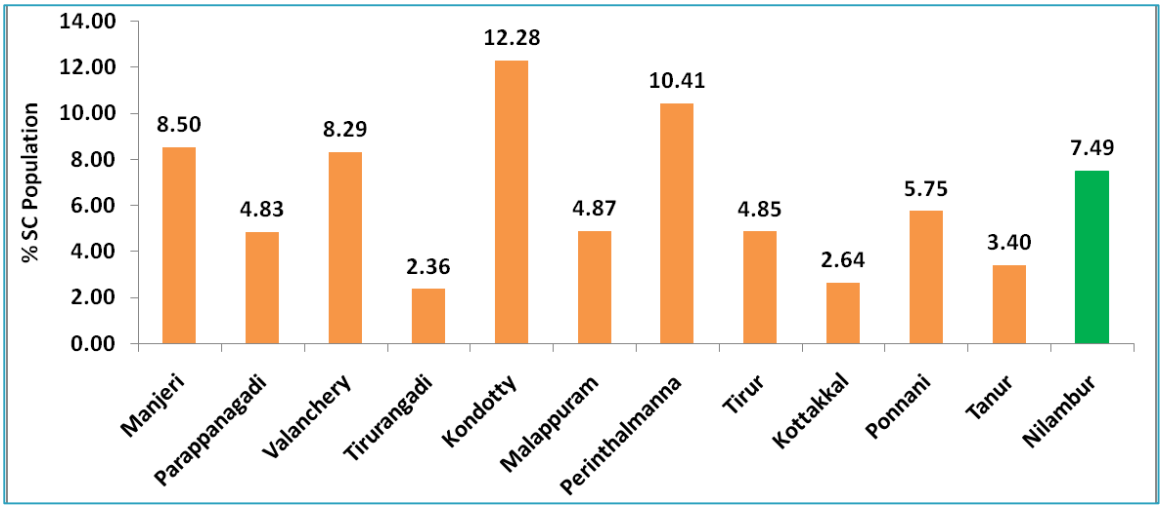


Figure 3-32: % SC Population – comparison with municipalities in the District (Source: Census 2011)

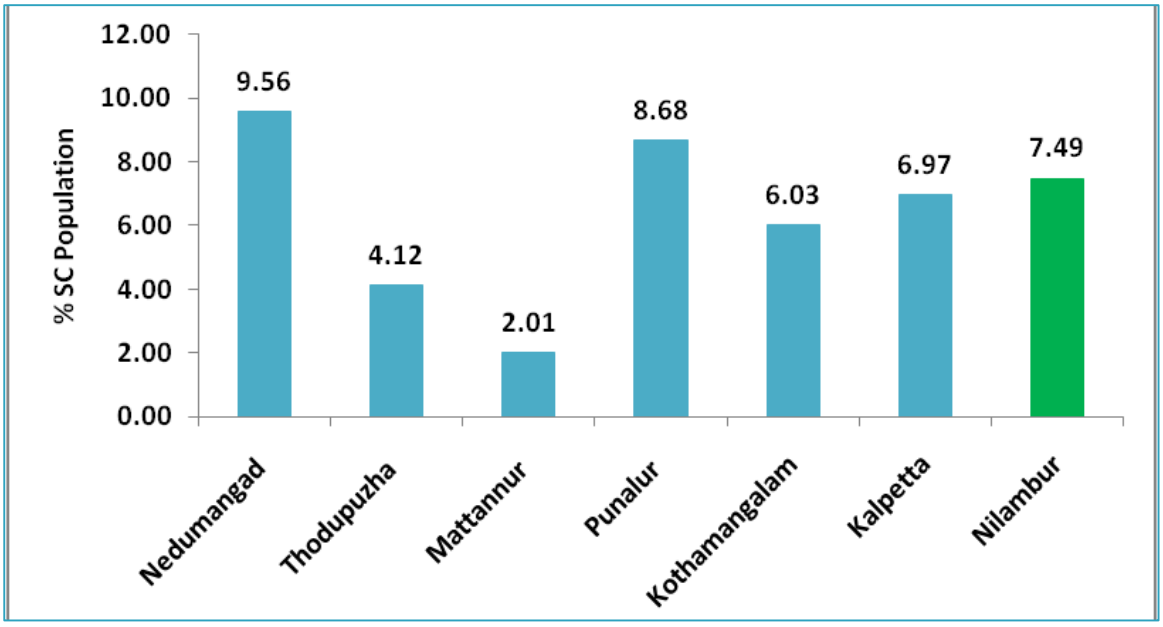


Figure 3-33: % SC Population – comparison with Municipalities in the State (Source: Census 2011)

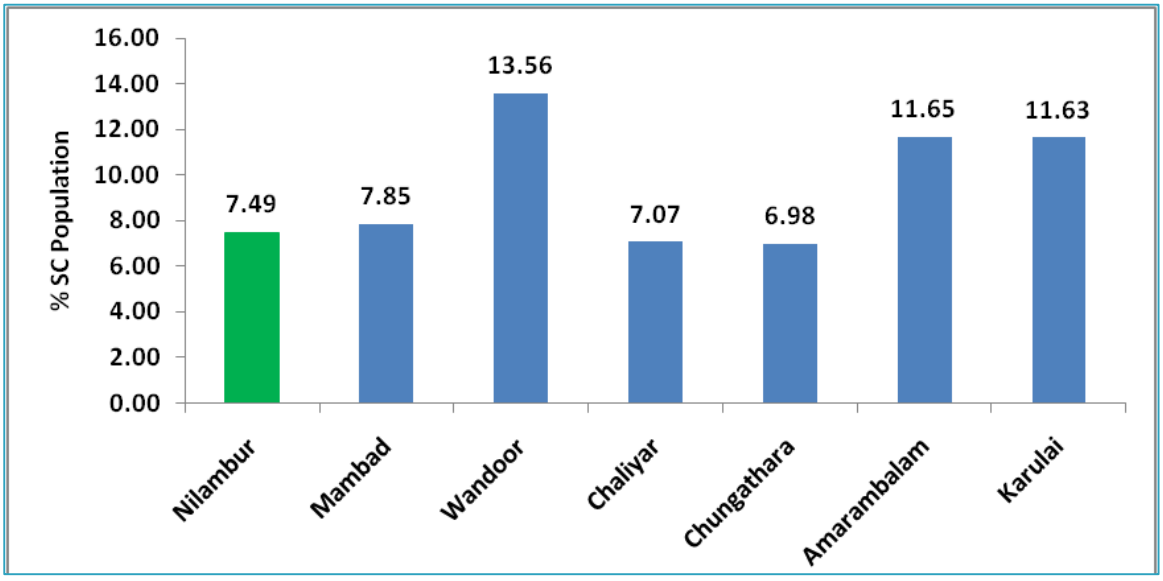


Figure 3-34: % SC Population – comparison with Nearby LSGs (Source: Census 2011)

When the share of SC population in the nearby LSGs is compared to Nilambur, it can be seen that Wandoor has the highest share, 13.56%, followed by Amarambalam and Karulai. Nilambur has the third lowest share of SC population. This indicates that the SC population is concentrated in the highland belt and nearby midland LSGs.

When compared to the State, Malappuram has a low share of Scheduled Tribe population. Nilambur with 2.04% of tribal population has a higher share compared to the State and District.

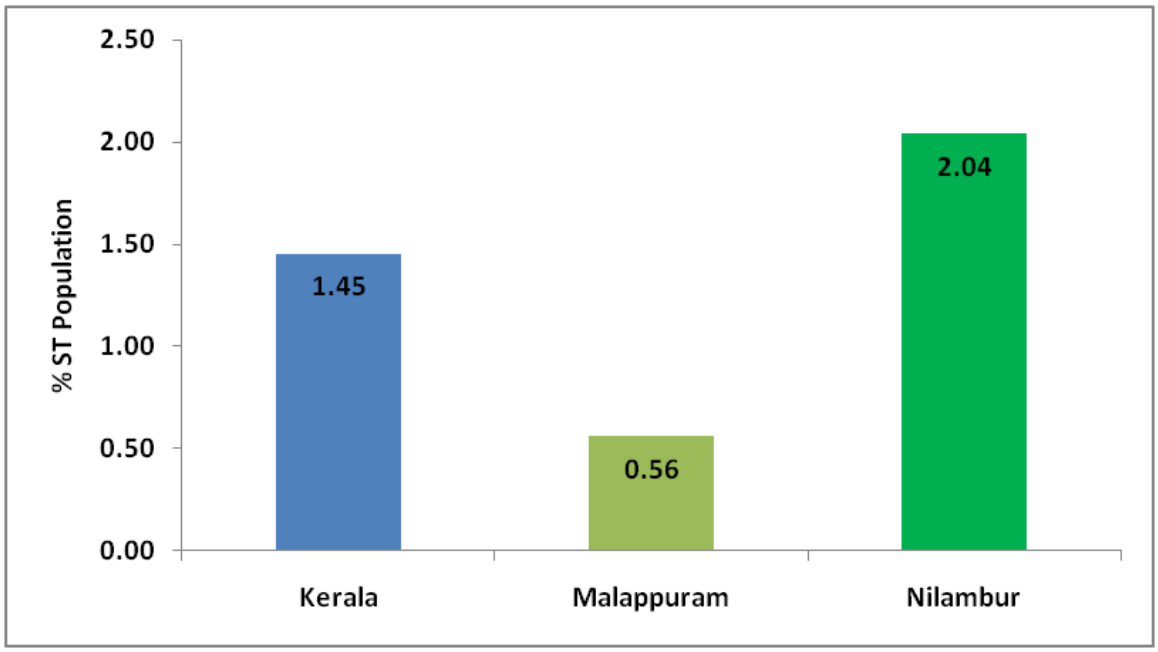


Figure 3-35: % ST Population – comparison with State and District (Source: Census 2011)

Nilambur is the only municipality with a significant presence of tribal population, among the municipalities in the District. This could be attributed to the presence of forest belt within and adjacent to the Municipality.

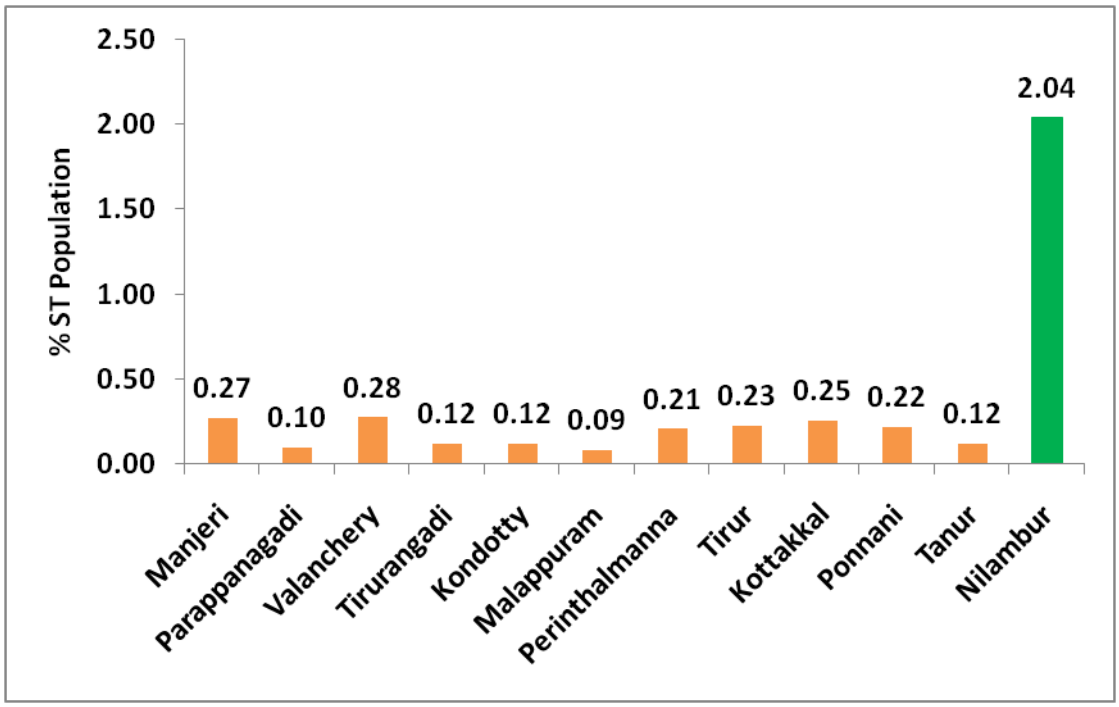


Figure 3-36: % ST Population – comparison with municipalities in the District (Source: Census 2011)

Among the similar towns in the State, Kalpetta has a very high and unmatched share of

tribal population. Kalpetta is the only highland municipality amongst them and has a high share of forest land within the municipality. Nilambur has the second highest share, followed by Thodupuzha.

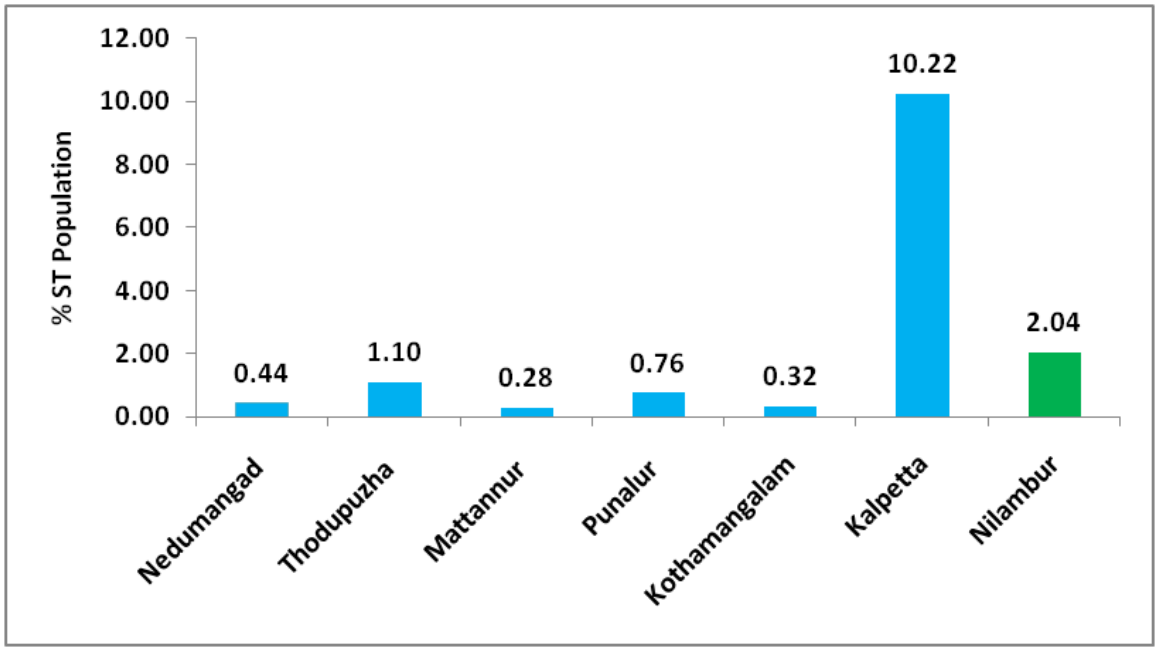


Figure 3-37: % ST Population – comparison with Municipalities in the State (Source: Census 2011)

When compared with the nearby LSGs, Chaliyar has the highest share of tribal population followed by Chungathara. Wandoor, which falls in another CD block, has the least share of ST population. Nilambur only has the second lowest share.

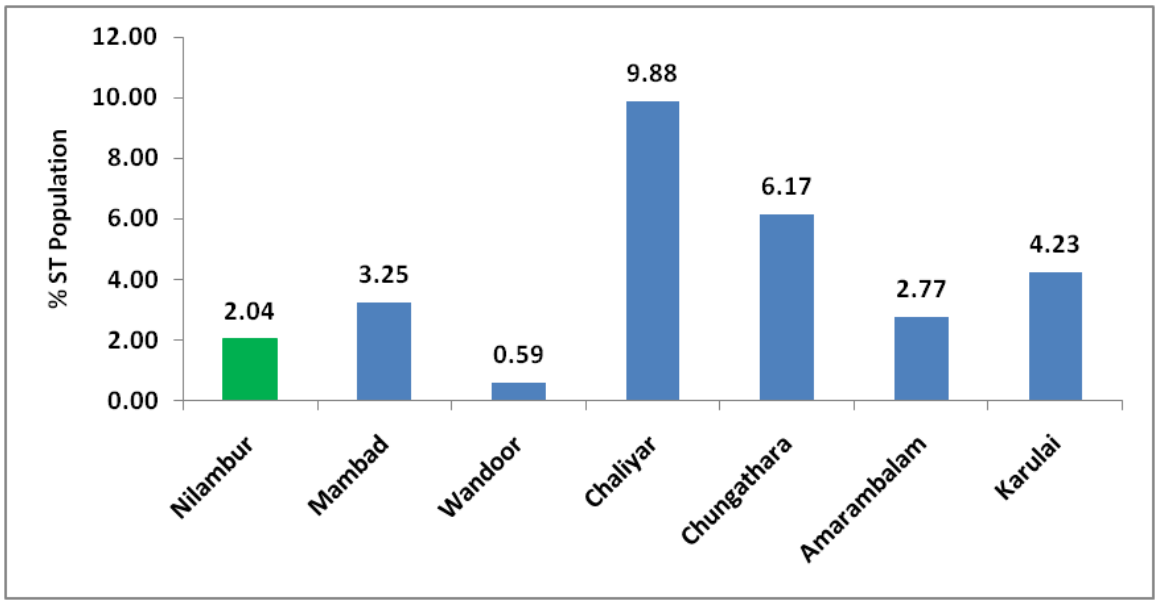


Figure 3-38: % ST Population – comparison with Nearby LSGs (Source: Census 2011)

The statistics reveals that the ST population of the District is concentrated in the forest belt and adjacent LSGs, in and around Nilambur.

3.8 LITERACY

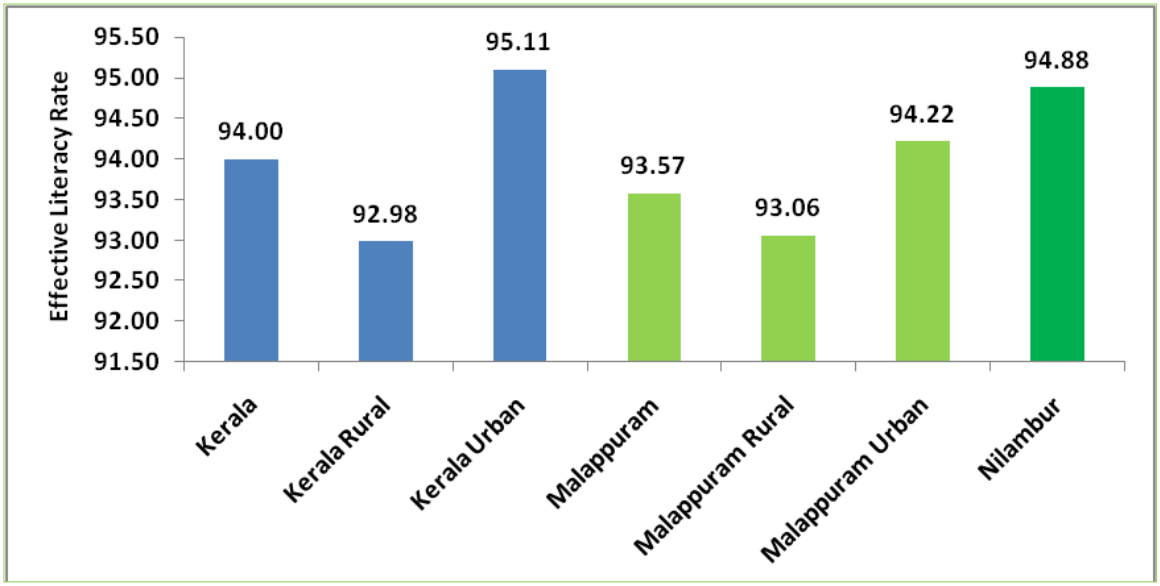


Figure 3-39: Literacy– comparison with State and District (Source: derived from Census 2011)

Nilambur has a high effective literacy rate compared to the State and the District, at 94.88%. However, it is lower than the urban average of the State.

When compared to the other municipalities in the District, Nilambur has an above-average literacy rate, the sixth highest among them. The highest literacy rate is observed in Malappuram and the least in Ponnani.

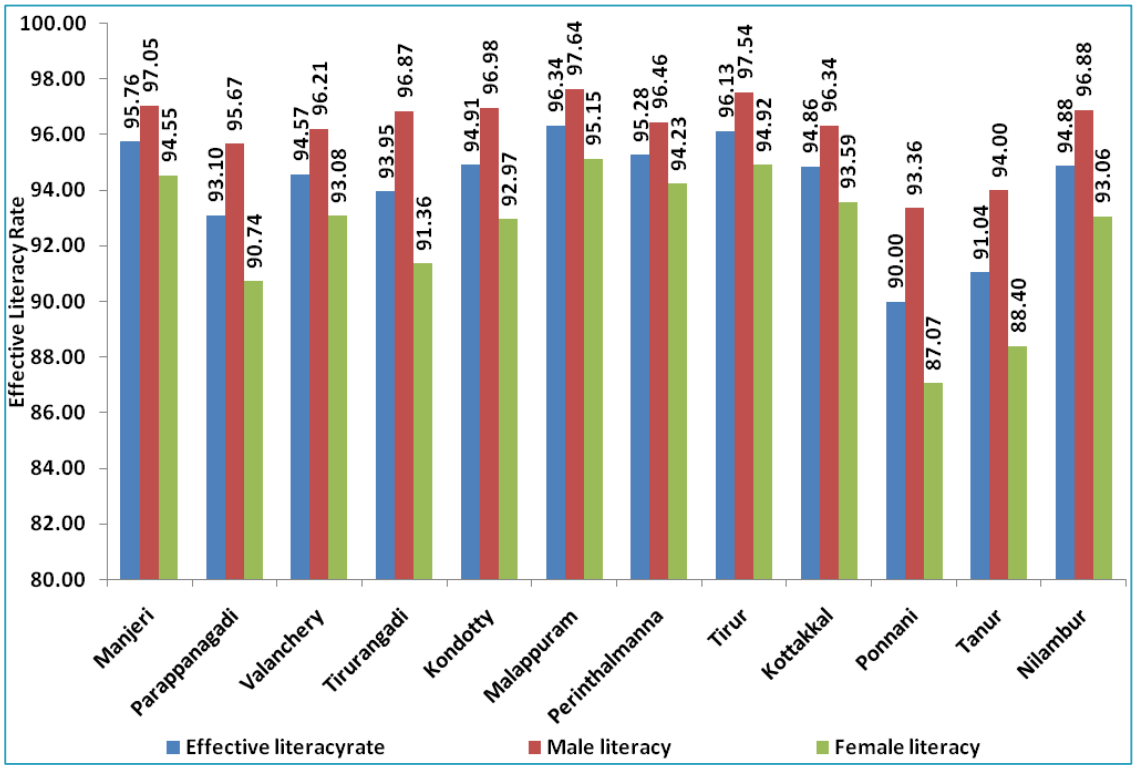


Figure 3-40: Literacy– comparison with municipalities in the District (Source: derived from Census 2011)

Among similar towns in the State, Nilambur has the third highest literacy rate. Kothamangalam and Thodupuzha have higher literacy rates than Nilambur.

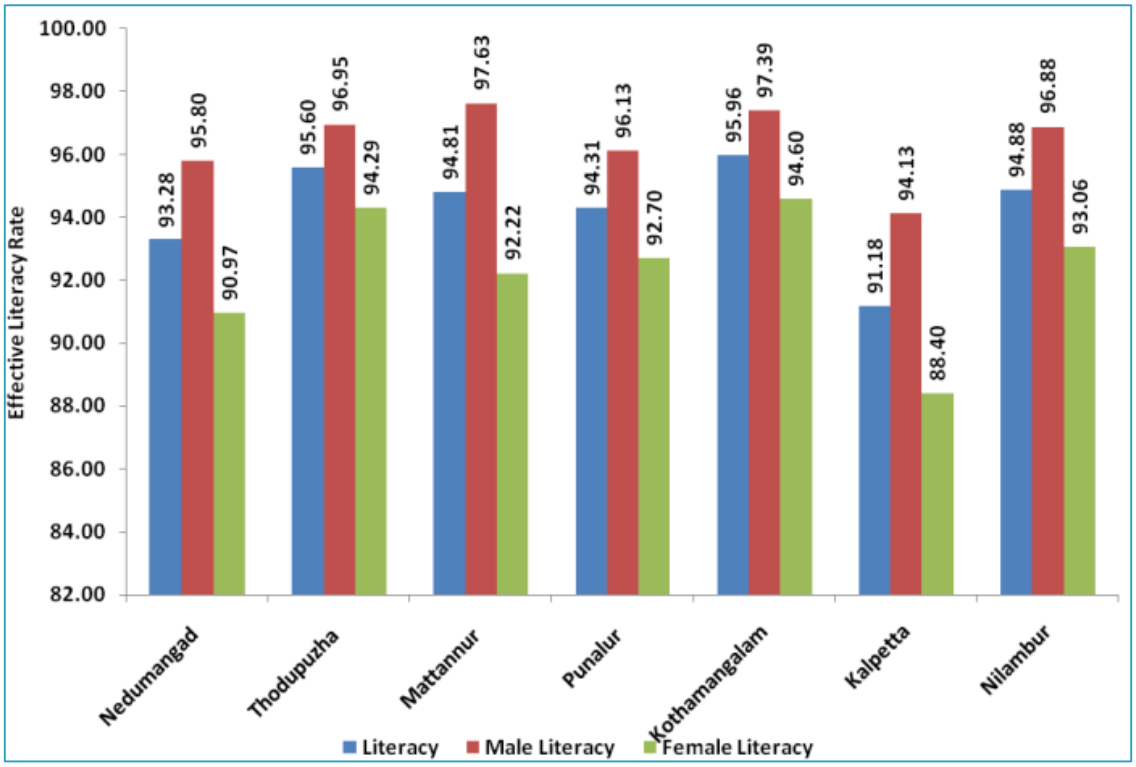


Figure 3-41: Literacy– comparison with municipalities in the State (Source: derived from Census 2011)

Among the nearby LSGs, Nilambur has the highest literacy rate, indicating the relatively better social development in the Municipality compared to its surroundings. Karulai has the least literacy rate among them.

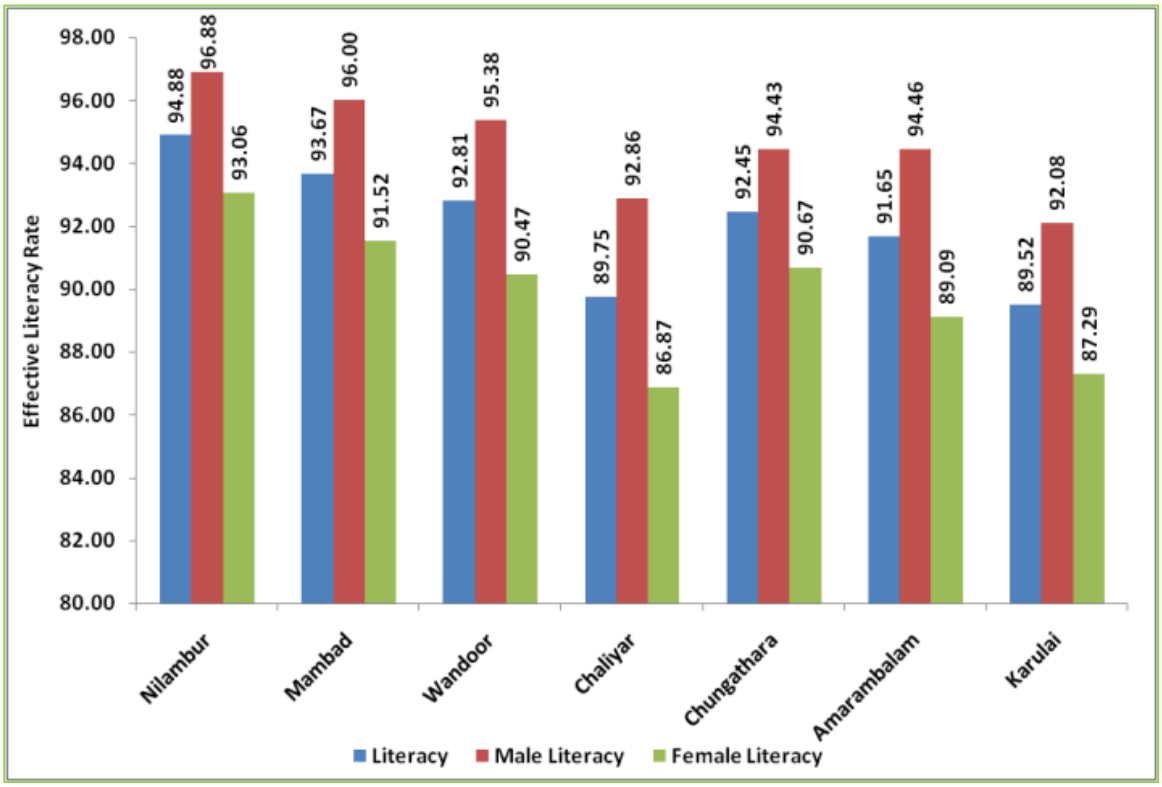


Figure 3-42: Literacy– comparison with Nearby LSGs (Source: derived from Census 2011)

The data reveals that though Nilambur is relatively better-off when compared to its nearby LSGs in literacy, and similar towns in the state, it has not achieved comparable literacy rates to the other urban areas of the State and the District.

3.8.1 Gender Gap in Literacy

The gender gap in literacy indicates any gender based preferential treatments prevalent in the community, in providing basic education. While Nilambur has a lower literacy gap compared to the district urban and rural averages, and that of the state, it has higher literacy gap than the state urban average.

When compared to the municipalities in the district, Nilambur has an average gender gap among them. Ponnani has the highest gender gap. It can be observed that the coastal municipalities, Ponnani, Tanur, Parappanangadi and Tirurangadi have high gender gap.

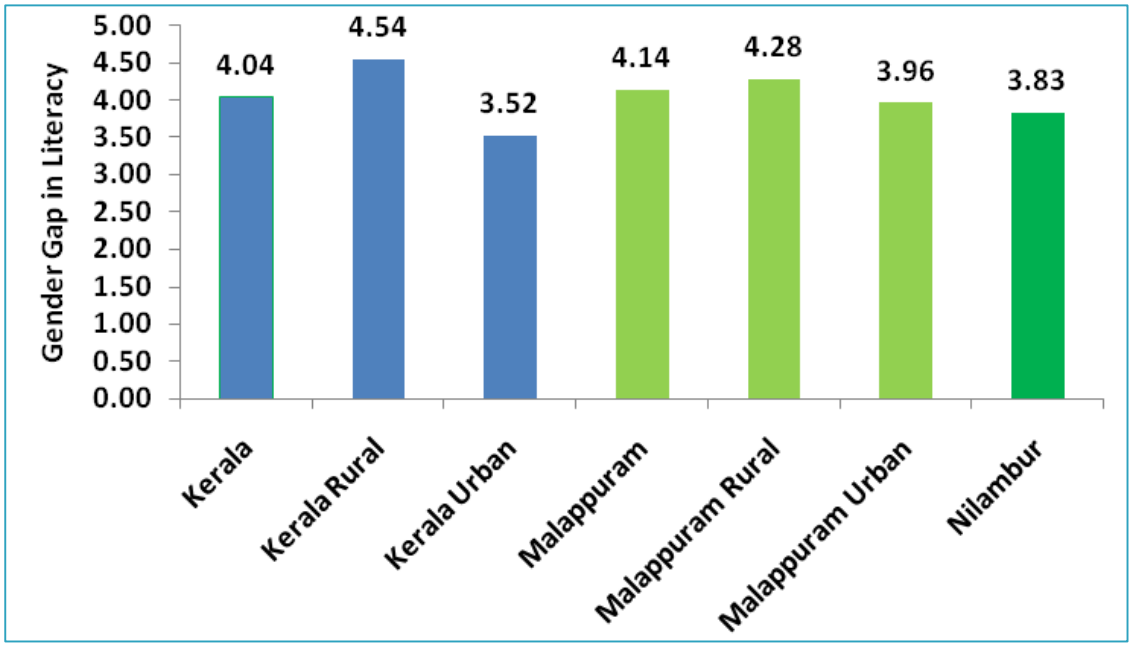


Figure 3-43: Gender Gap in Literacy– comparison with State and District (Source: derived from Census 2011)

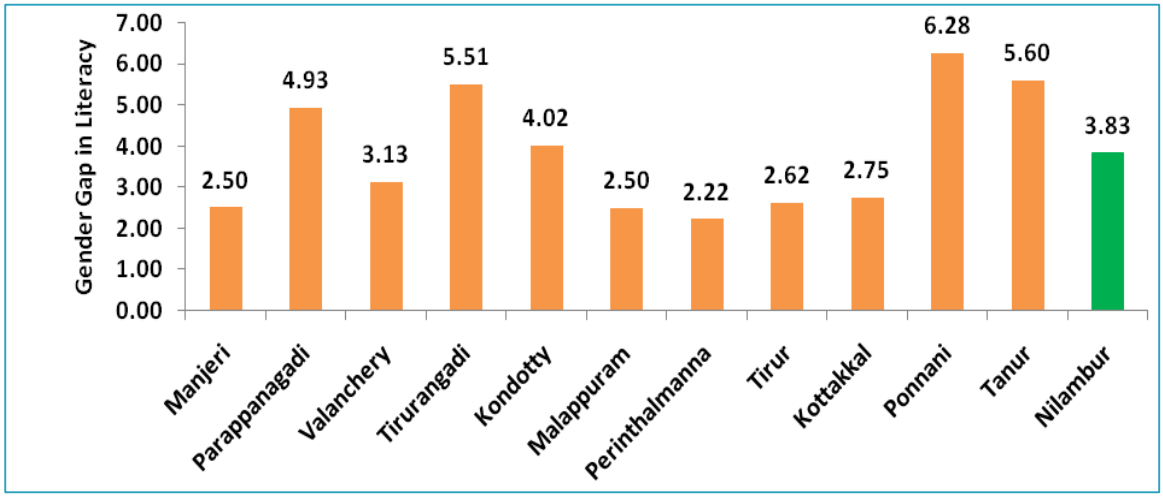


Figure 3-44: Gender Gap in Literacy–comparison with municipalities in the District (Source: derived from Census 2011)

It can be observed that Kondotty, which has a higher literacy rate than Nilambur, has a higher gender gap than Nilambur. On the other hand, Kottakkal and Valanchery, which have lower literacy rates than Nilambur, have lower gender gaps, indicating lower gender discrimination.

When compared to similar towns in the State, it has the fourth highest gender gap, behind Kalpetta, Mattannur and Nedumangad.

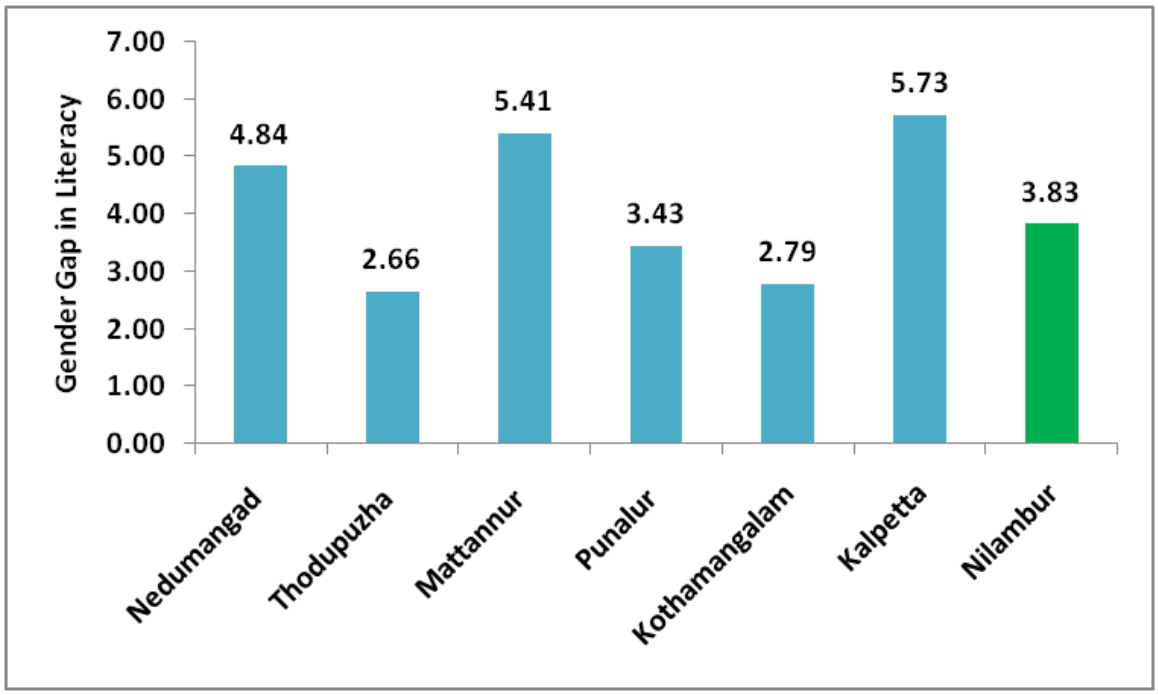


Figure 3-45: Gender Gap in Literacy– comparison with municipalities in the State (Source: derived from Census 2011)

When compared to the nearby LSGs, Nilambur has the second least gender gap, next to Chungathara.

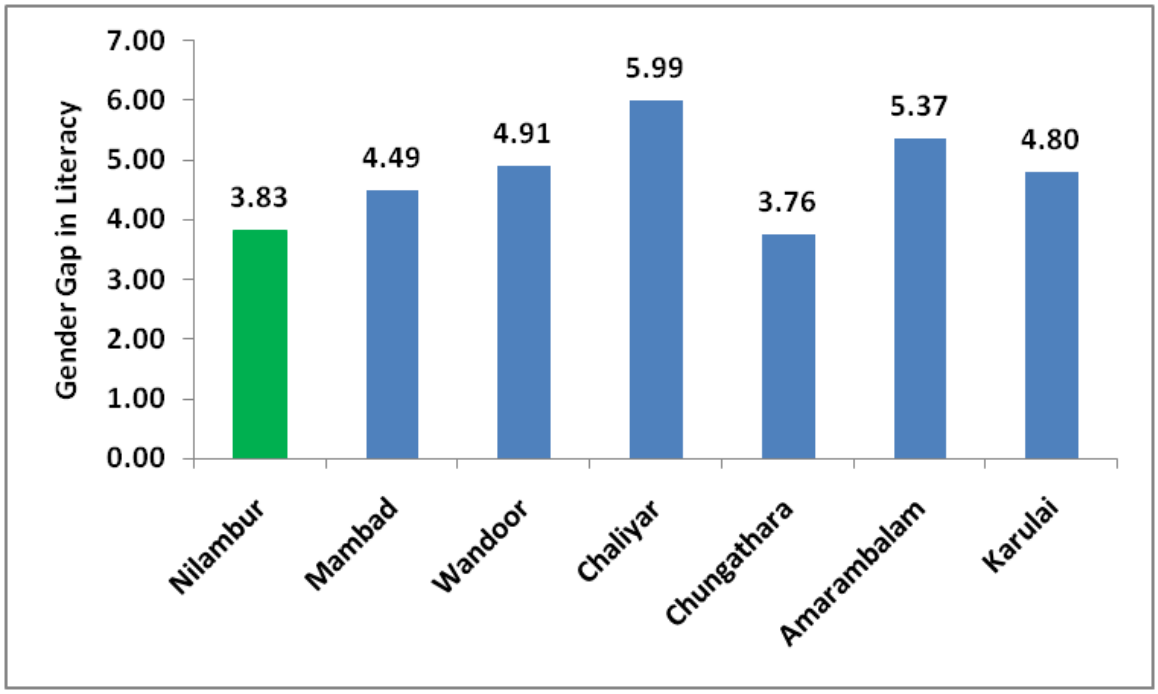


Figure 3-46: Gender Gap in Literacy– comparison with Nearby LSGs (Source: derived from Census 2011)

The gender gap analysis reveals a slightly bad situation of female literacy in Nilambur when compared to urban areas of the state and municipalities of the district, while it is better off than the district and the nearby region in general.

3.9 HOUSE HOLD SIZE

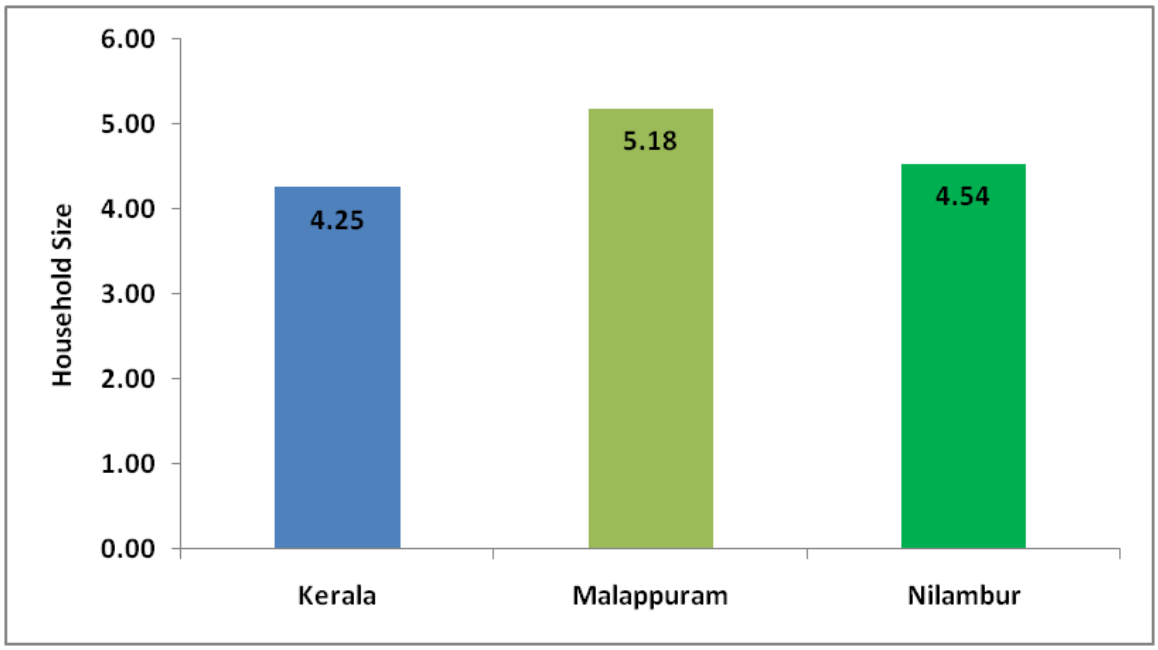


Figure 3-47: Household size – comparison with State and District (Source: derived from Census 2011)

The household size in Nilambur municipality, 4.54, though lower than the District average 5.18, is higher than the state average, 4.25. All municipalities in the District have a higher household size than the State average.

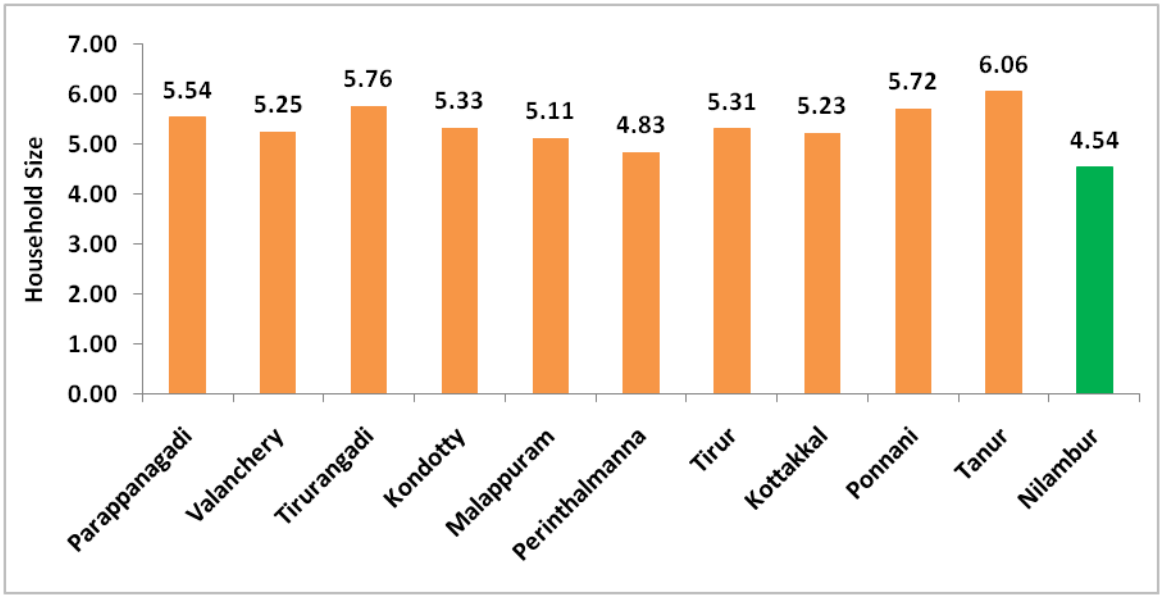


Figure 3-48: Household size –comparison with municipalities in the District (Source: derived from Census 2011)

Among municipalities in the District, Nilambur has the least household size, behind Perinthalmanna (4.83). All the other municipalities have a household size higher than 5. Tanur has the highest household size, above 6. Nilambur, Perinthalmanna, and Malappuram are the only towns in the District which have household sizes lower than the district average.

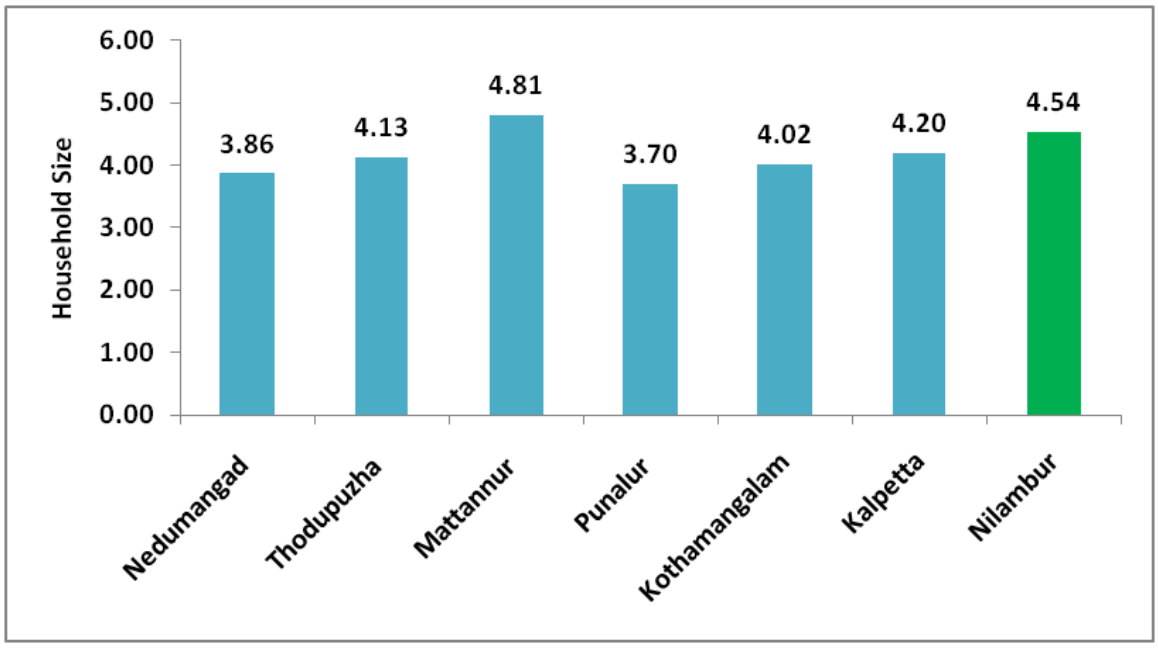


Figure 3-49: Household size – comparison with municipalities in the State (Source: derived from Census 2011)

Compared to similar towns in the State, Nilambur has the second highest household size, behind Mattannur (4.81). It can be seen that towns in North Kerala has higher household size compared to towns in Central and South Kerala. Other than Nilambur, Mattannur is the only municipality among these having a higher household size than the state average.

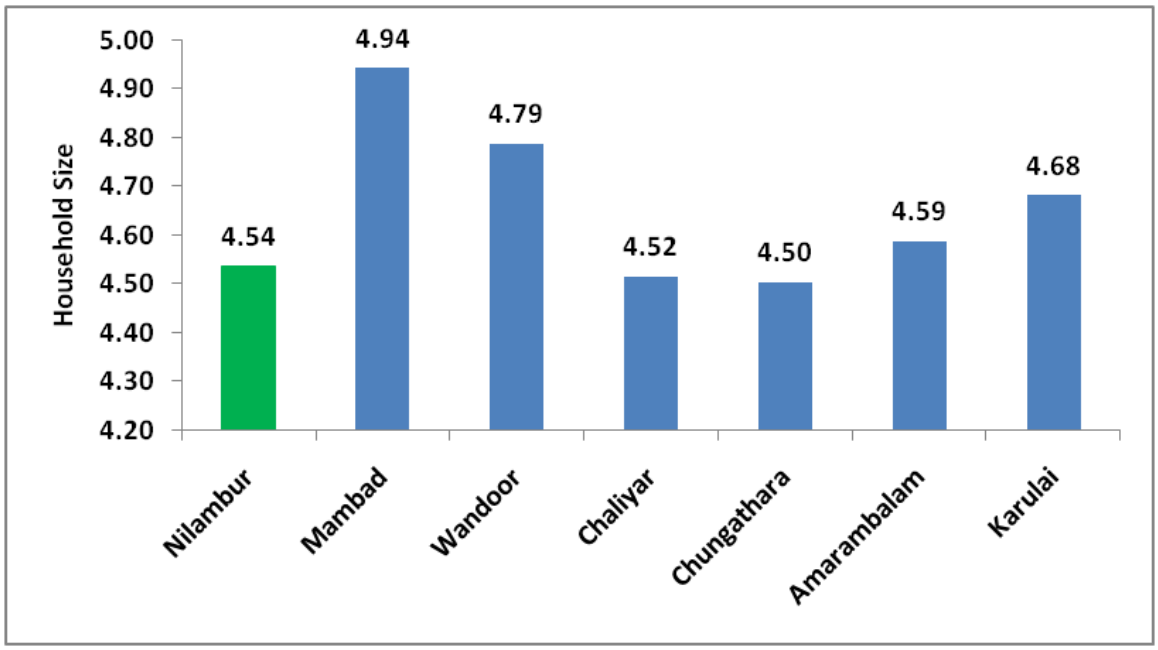


Figure 3-50: Household size – comparison with Nearby LSGs (Source: derived from Census 2011)

When the nearby LSGs are considered, it can be seen that all these LSGs have a household size lower than the district average (5.18). Among them, Nilambur has the second least household size. Chungathara has the lowest household size (4.5), and Mambad has the highest (4.92).

3.10 INFERENCE

Nilambur, a relatively new municipality in the district, is one among the least populated municipalities in the District. It has a higher population growth rate than similar towns in the state and an above-average growth rate compared to the other municipalities in the district. However it has lower population growth rate when compared to the district and the surrounding LSGs and has the highest rate of reduction of growth rate among the municipalities in the district formed prior to 2016. Temporal variations indicate that population growth has slowed down in most of the surrounding region except Mambad. Though Nilambur has a household size higher than the state average; it has a lower value when compared to the district average, other municipalities in the district and nearby LSGs.

Nilambur is the second least dense among municipalities in the district, but one among the densest among similar towns in the state and has far higher density compared to nearby LSGs. The densest ward in the municipality is Veettikkuthu. 1/3rd of the total population in the municipality is concentrated in less than 12% of the municipal area, half the population is concentrated in less than 22% and 2/3rd of the population is concentrated in less than 35% of the total area.

Sex ratio of the municipality is lower than the urban and rural averages of the District, state urban average, and below-average among the municipalities of the District. However, it is much higher than similar towns in the state and shows an average value when compared to nearby LSGs. Nilambur has the least share of 0-6 population among the municipalities in district, and the nearby LSGs, indicating relatively low fertility rates in the municipality. Sex ratio of the age group is higher by around 25 points compared to state and district and one of the highest among municipalities in the District, similar towns in the State, and nearby LSGs, indicating a girl-child friendly social environment in the Municipality. The analysis of age-sex structure indicates declining fertility and mortality rates, relatively higher economic dependency at present, a higher share working age group in the next five years and a reasonable demographic dividend in future.

When compared to the municipalities in the District and similar towns in State, Nilambur has an above-average share of SC population, but when compared to the LSGs in the region, it has one among the lowest share. Nilambur has a higher share of ST population, compared to the State and District, and the highest share among the municipalities in the District. However in the region, Nilambur only has the second lowest share. It is evident from the data that the ST population of the District is concentrated in the forest belt in and around Nilambur.

Though Nilambur is at an advantage when compared to its nearby LSGs in literacy, and similar towns in the state, it has not achieved comparable literacy rates to the other urban areas of the State and the District. The analysis gender gap in literacy reveals a slightly bad situation of female literacy in Nilambur when compared to urban areas of the state and municipalities of the district, while it is better off than the district and the nearby region.

The decline in population growth rates in the District is indicative of the social changes taking place in the local populace like shift from an agrarian economy and rural outlook to a rapidly urbanising economy and society, better access to education and health facilities, empowerment of women and their engagement in paid work etc. Population growth rate reducing at a higher rate when Nilambur has a lower density compared to the other municipalities, and the lower growth rate compared to many of the nearby LSGs indicate that Nilambur is heading towards stagnation in population growth and the nearby LSGs are urbanizing at a relatively faster rate. The low household size, low share of 0-6 age group and age-sex structure in Nilambur also points towards reducing fertility rates. It can be inferred that Nilambur is in the transitional phase of population growth curve. It is also evident that it is the urban services provider for the ST belt of the district.



4 EMPLOYMENT

Employment is a major indicator of financial well-being of an area and its residents. The share of the population engaged in economic activities and the nature of these activities give an insight to economic development and the nature of economy in the region. The analysis of the temporal changes, gender participation, duration of employment etc. reveals the economic welfare of a society.

4.1 WORKERS

Of the 116.19 lakhs workers in the State, Malappuram District has the fourth largest share (10.62 lakhs, 9.14%) of workers, behind Ernakulam (12.49 lakhs, 10.75%), Thiruvananthapuram (12.32 lakhs, 10.60%), and Thrissur (10.96 lakhs, 9.43%).

The total number of workers in Nilambur town as per 2011 census is 13,562. The decadal variation of workers in the town as presented in Table 4-1, indicates a steady increase in total workers.

It can be seen that the percentage decadal increase in number of workers in Malappuram district (21%) is much higher than the State (13%) in the last decade 2001-2011, while that of Nilambur (15%) is slightly higher than that of the State and far less than that of the District. In the previous decade as well, the percentage decadal increase in number of workers was higher in Malappuram District as well as Nilambur, when compared to the State.

Table 4-1: Temporal Variation in number of workers – Comparison with District and State

Workers	1991	2001	2011	% decadal increase	
				1991-2001	2001-2011
Kerala	9305143	10283887	11619063	11	13
Malappuram	770033	874476	1062424	14	21
Nilambur	10498	11844	13562	13	15
Male Workers					
Kerala	6803607	7765645	8451569	14	9
Malappuram	618895	750343	898157	21	20
Nilambur	8011	9485	10704	18	13
Female Workers					
Kerala	2501536	2518242	3167494	1	26
Malappuram	151138	124133	164267	-18	32
Nilambur	2487	2359	2858	-5	21

When the number of male workers and their temporal variations are studied, it can be seen that the decadal improvement in their numbers is much higher than that in the State, in Malappuram District, in the last two decades. This could be due to the characteristic temporary migration of men in the region to Middle East countries for work. The values for Nilambur are also higher than that of the state, though not to the tune of the District average.

When the temporal variations of female workers in the District and Nilambur is considered, it can be seen that while their numbers decreased by 18% and 5% respectively in 1991-2001, it increased by 32% and 21% respectively in 2001-2011. The decline in female workers in 1991-2001 could be attributed to the decline in agricultural sector and the increase in last decade could have resulted from the increased employability of women and opportunities in tertiary sector as well as the social changes in favour of working women. However, unlike the increase in male workers, the percentage decadal increase in women workers in Nilambur is lower than that in the State in both the previous decades, while that of the District has improved fairly well and exceeded the State's values in the last decade.

4.2 WORK PARTICIPATION RATE

Work Participation Rate is the percentage of workers in total population. Malappuram District has the lowest WPR (25.83%) among districts in the State and is the only district in the State having a WPR less than 30%.

The work participation rate in Nilambur Municipality is 29.26%, which is much higher than that of the district (25.83%) and the urban areas of the district (24.72%). This could be due to the better agricultural base of the town. But when compared to the State (34.78%), and urban areas of the State (33.12%), it is very less.

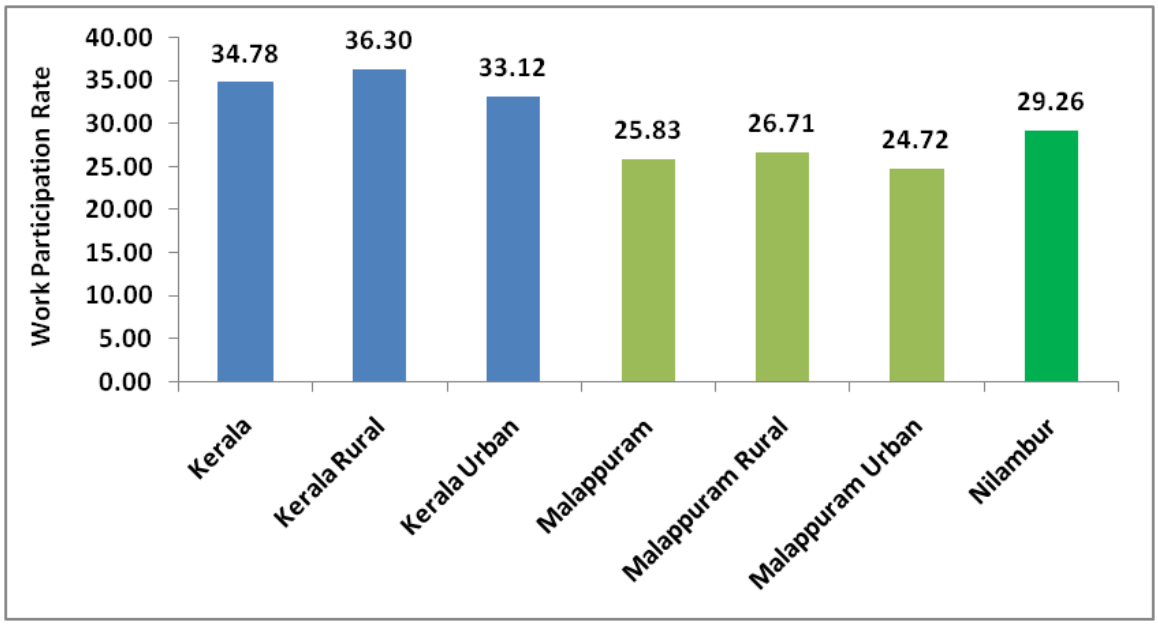


Figure 4-1: WPR Compared to the State and the District (Source: derived from Census 2011)

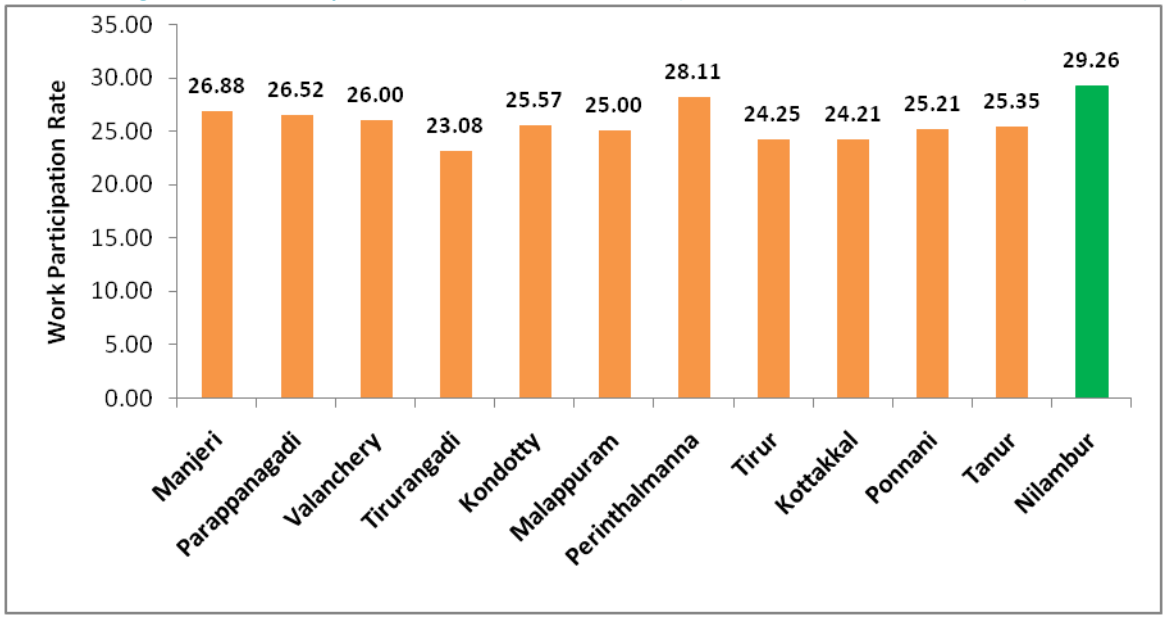


Figure 4-2: WPR Compared to Other Municipalities in the District (Source: derived from Census 2011)

When compared to other municipalities in the District, Nilambur has the highest WPR among them, closely followed by Perinthalmanna. These two municipalities have considerably high agriculture base compared to others.

When compared to similar towns in the State, Nilambur has the lowest work participation rate among them, in similar lines to the trend in the District.

When work participation in the nearby LSGs is compared, Nilambur has the second lowest WPR, next to Mambad. This could be owing to the fact that the surrounding LSGs have better agricultural base compared to Nilambur.

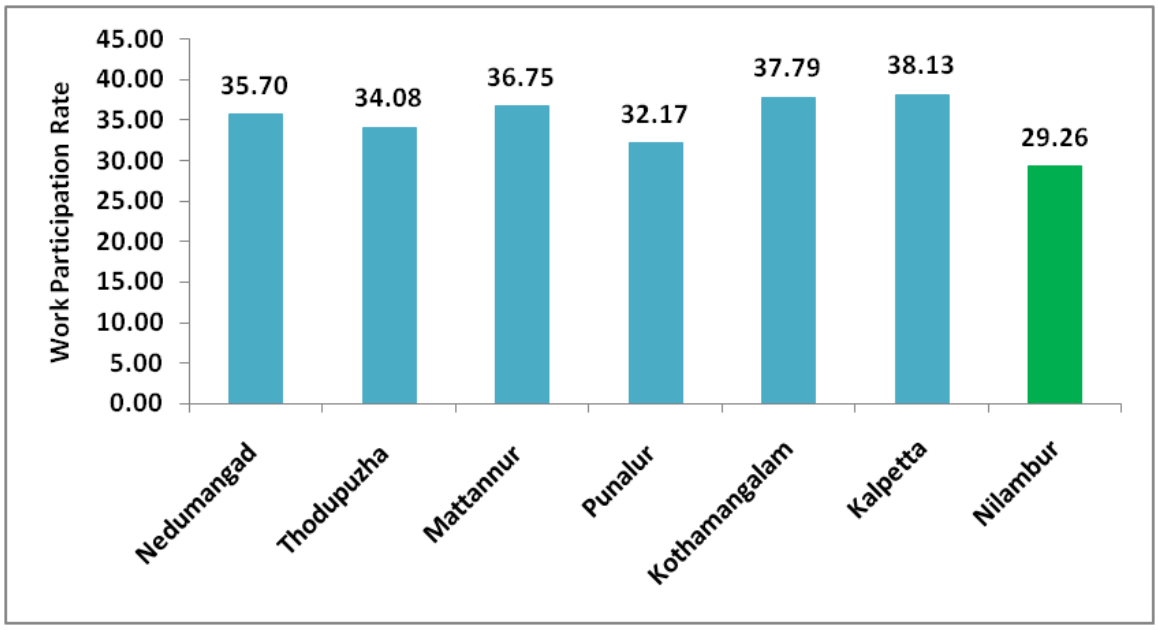


Figure 4-3: WPR Compared to Other Municipalities in the State (Source: derived from Census 2011)

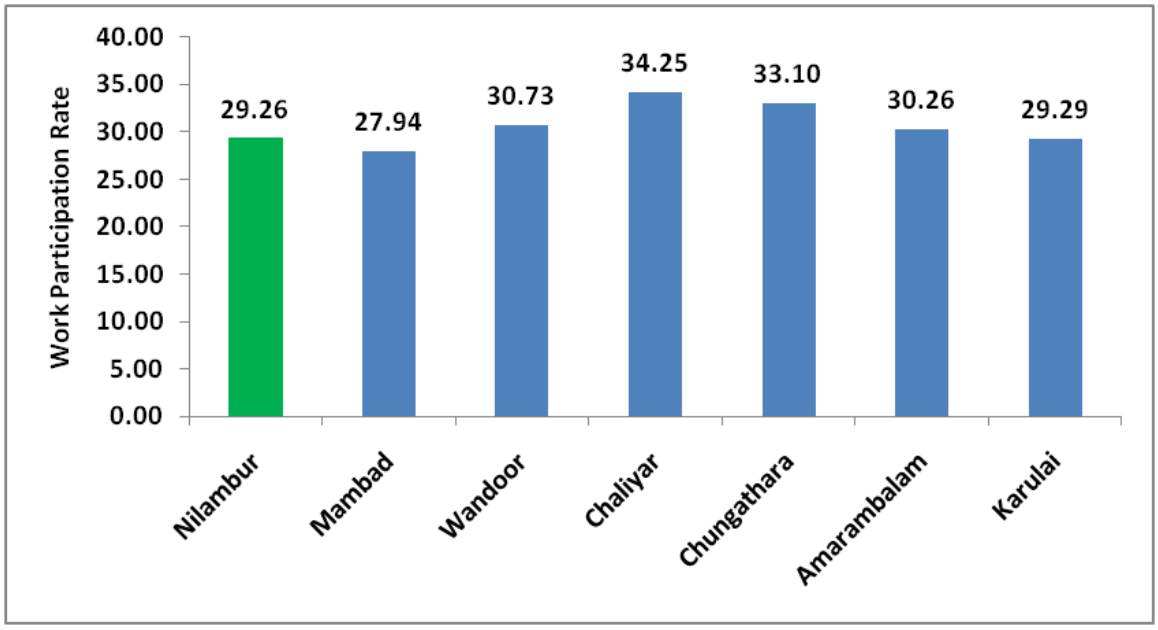


Figure 4-4: WPR Compared to Nearby LSGs (Source: derived from Census 2011)

4.2.1 Male and Female Work Participation

Gender based analysis of work participation provides an overview of the parity of genders in employment.

As in the case of WPR, Malappuram district has the lowest Male and Female WPR among the districts in the State, 45.82 and 7.63 respectively, while the state averages are 52.73 and 18.23 respectively. It is the only District with a MWPR less than 50 and a FWPR less than 12. However, the values for Nilambur are higher, at MWPR of 48.10 and FWPR of 11.86, compared to the District.

When compared to the other municipalities in the District, Nilambur falls among the high MWPR municipalities. Tanur, Parappanangadi, Perinthalmanna and Ponnani are the other towns with high MWPR. These municipalities have a strong base in primary sector activities like

fisheries and agriculture. Nilambur Municipality also has the highest FWPR among its counterparts in the district, followed by Perinthalmanna. The significantly higher FWPR in these LSGs could be owing to the relatively better agriculture base of these towns.

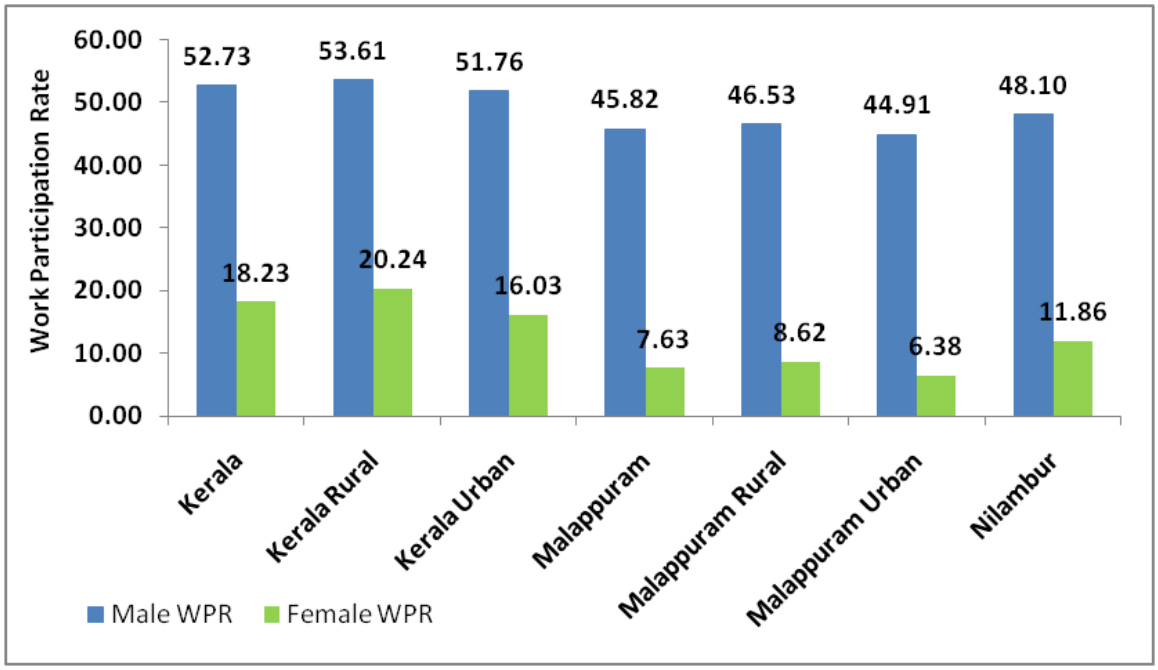


Figure 4-5: Male & Female WPR Compared to the State and the District (Source: derived from Census 2011)

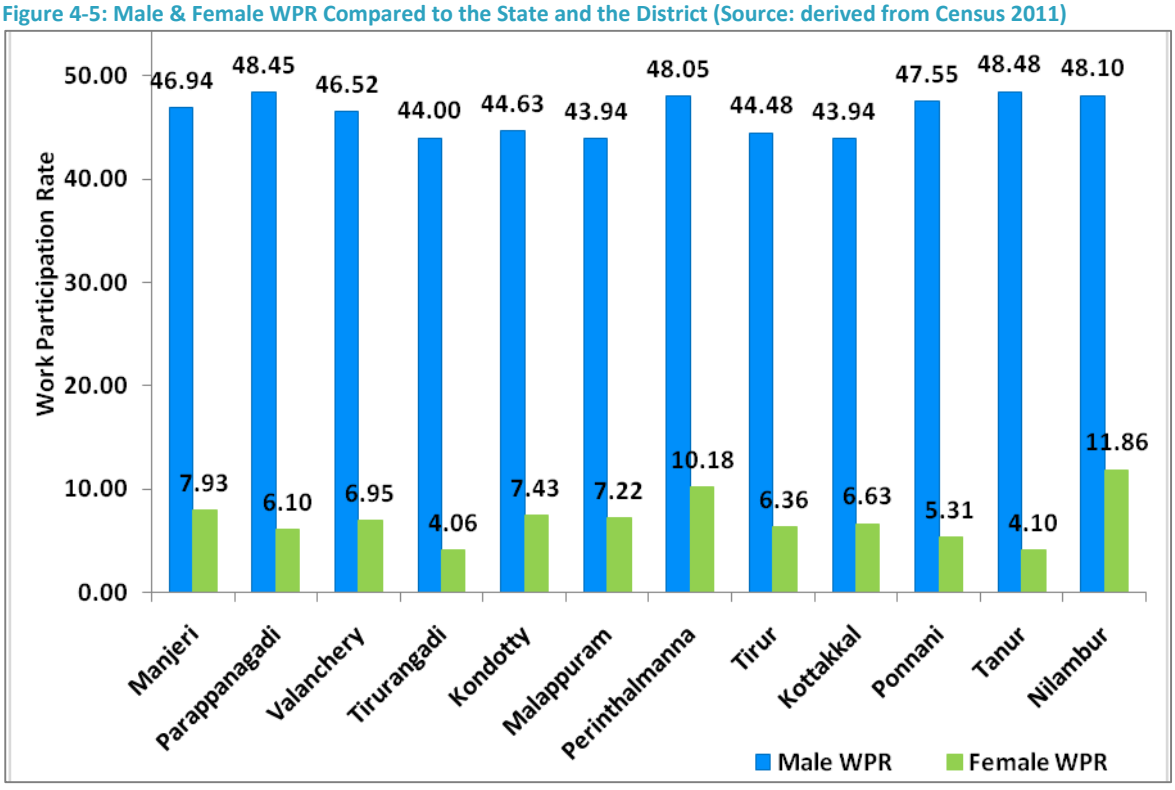


Figure 4-6: Male & Female WPR Compared to Other Municipalities in District (Source: derived from Census 2011)

However when compared to similar towns in the State, both Male and Female work participation is the least among them, in tune with the pattern of WPR of the district.

When compared to the surrounding LSGs, Nilambur has the second least Male and Female work participation rates, only next to Mambad. This again indicates the stronger agricultural base in the nearby LSGs.

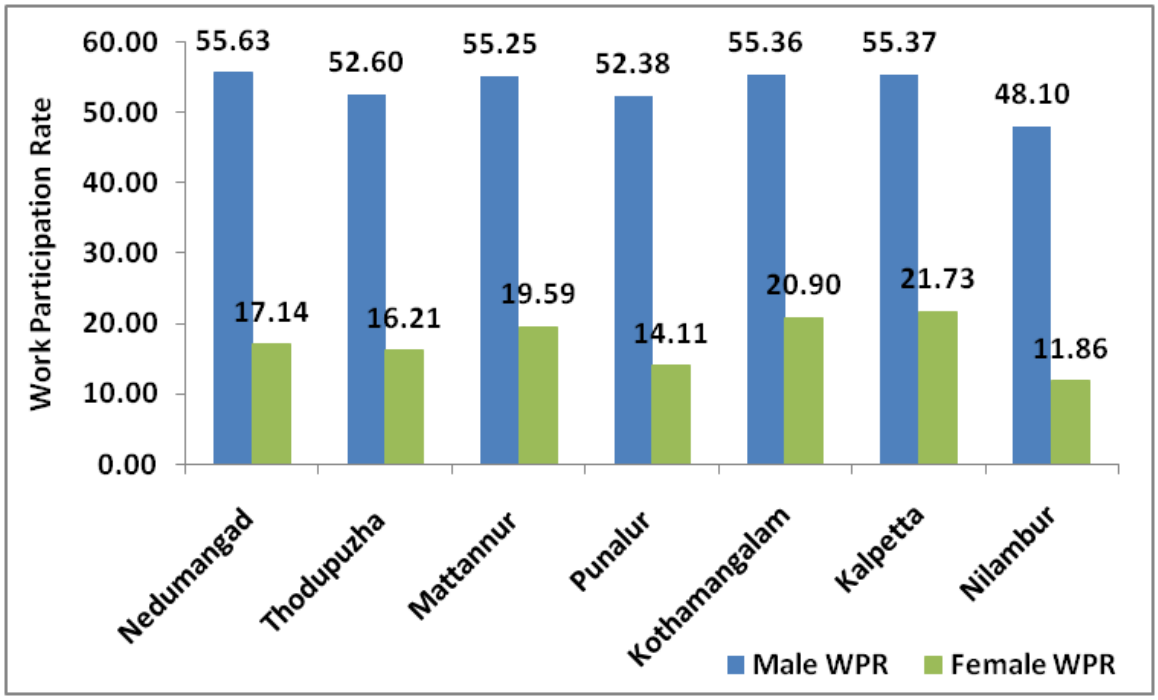


Figure 4-7: Male & Female WPR Compared to Other Municipalities in State (Source: derived from Census 2011)

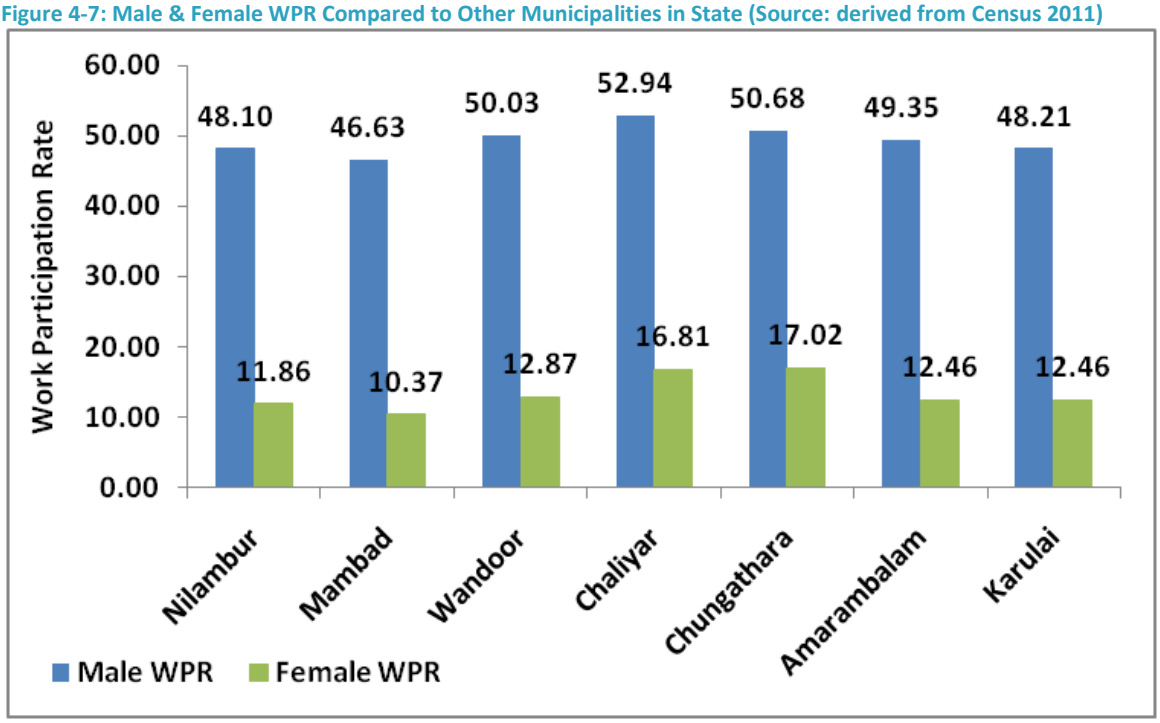


Figure 4-8: Male & Female WPR Compared to Nearby LSGs (Source: derived from Census 2011)

4.2.2 Temporal Variation in Work Participation

A study of the temporal variation in work participation and gender–wise work participation in Nilambur reveals that while the WPR and female WPR registers a net decrease in the period 1991- 2011, MWPR registers a net increase by 1.33 percentage points. The decrease could be attributed to the decline in agricultural sector, as agriculture used to employ a significant share of women workers. However, in the last decade, work participation as well as participation of both genders has improved.

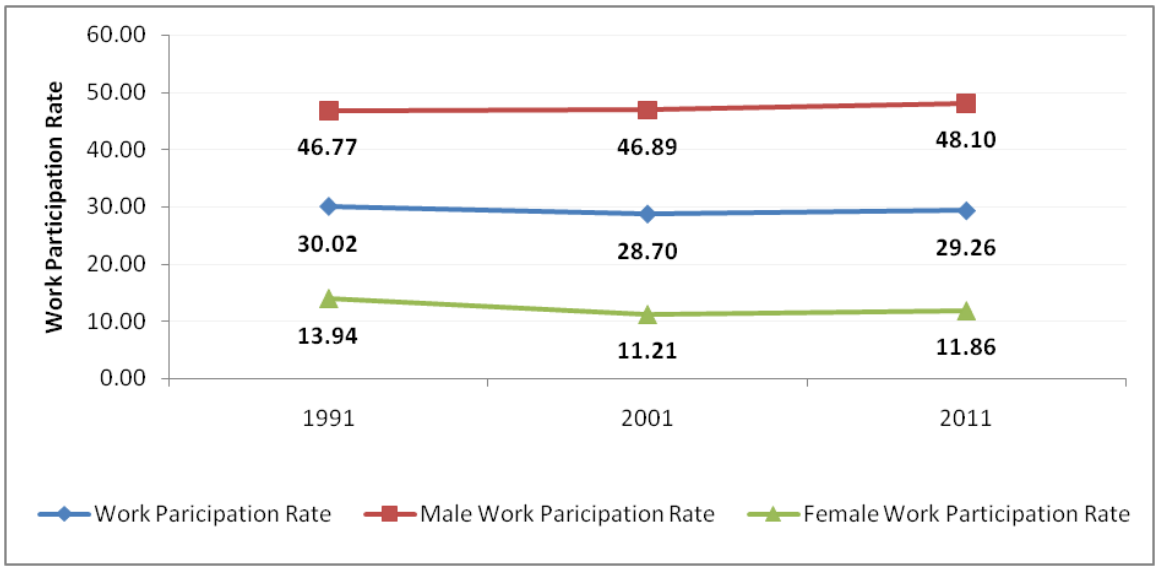


Figure 4-9: Temporal Variation in WPR (Source: Census)

Table 4-2: Temporal Changes in Work Participation

Work Participation	1991	2001	2011	Change in Work Participation	
				1991-2001	2001-2011
Kerala	31.98	32.30	34.78	0.32	2.48
Malappuram	24.87	24.12	25.83	-0.75	1.71
Nilambur	30.02	28.70	29.26	-1.32	0.56
Male Work Participation					
Kerala	47.61	50.20	52.73	2.59	2.53
Malappuram	41.03	42.76	45.82	1.73	3.05
Nilambur	46.77	46.89	48.10	0.12	1.22
Female Work Participation					
Kerala	16.89	15.38	18.23	-1.51	2.85
Malappuram	9.52	6.63	7.63	-2.88	1.00
Nilambur	13.94	11.21	11.86	-2.73	0.65

However, when compared to the temporal changes in State and District in the last decade, the increase in work participation rate in Nilambur is very low. While female work participation has shown better changes than males at the State level, that in Malappuram District as well as Nilambur presents the reverse picture. When male work participation is considered, Malappuram District (3.05) showcases a bigger increase when compared to the State (2.53) in the last decade. Still, the change in Nilambur (1.22) is lower than the State.

4.3 WORKERS BY DURATION OF WORK

Among 13562 workers in Nilambur, 11552 are main workers and 2010 are marginal workers.

When compared to the district, Nilambur has a higher share of Main Workers and a lower share of Marginal Workers. It is a good indicator as a higher share of workers in Nilambur is employed for a longer duration, when compared to the District scenario. However, the share of both main workers and marginal workers is lower than the state average.

When compared to other municipalities in the District, Nilambur has the second highest

share of main workers next to Perinthalmanna, and the third highest share of marginal workers behind Kondotty and Valanchery.

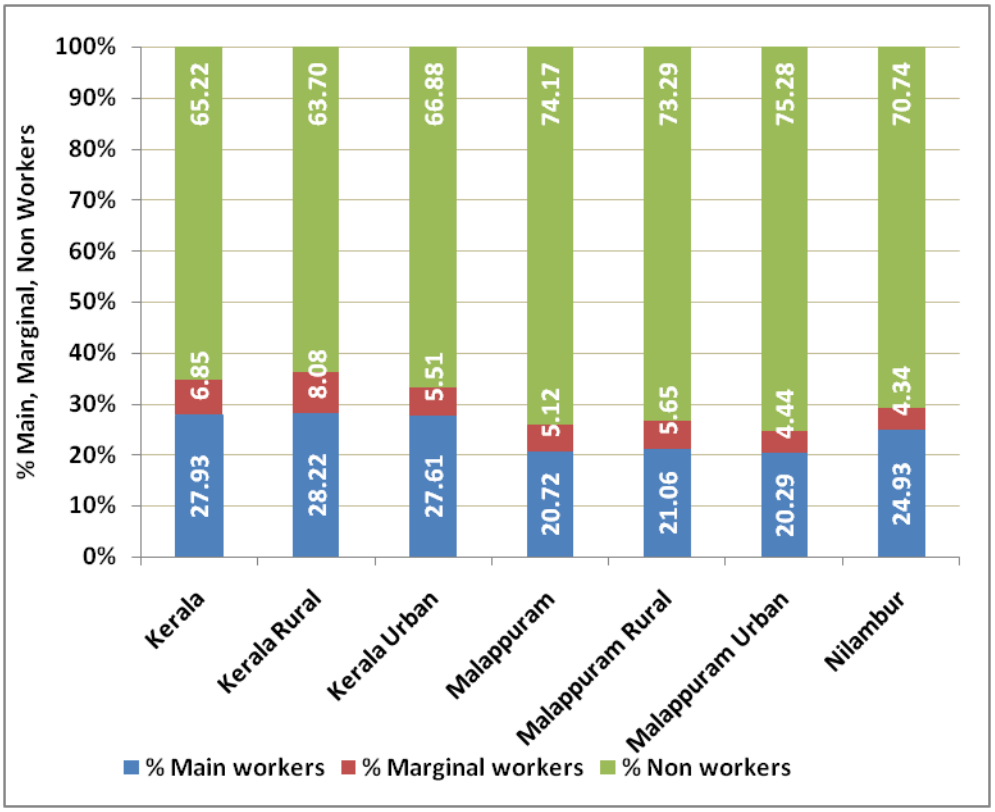


Figure 4-10: Main-Marginal workers Compared to the State and the District (Source: derived from Census 2011)

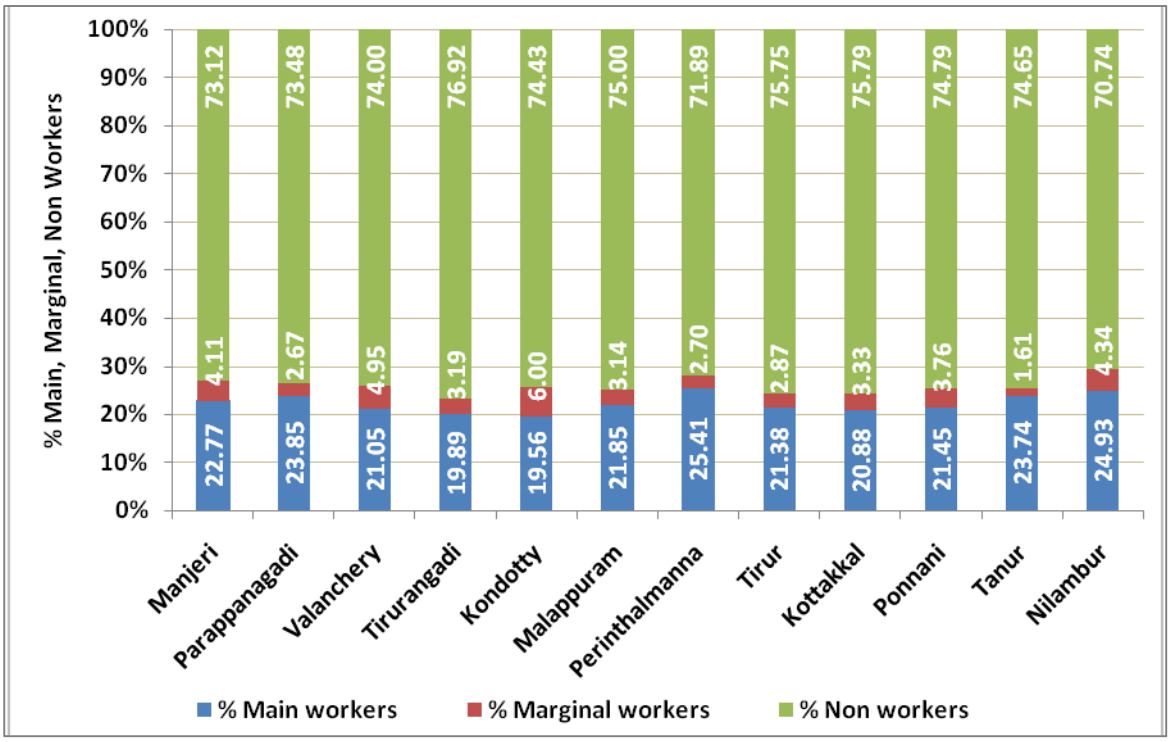


Figure 4-11: Main-Marginal workers Compared to Other Municipalities in District (Source: derived from Census 2011)

When compared to similar towns in the State, Nilambur has the lowest share of main workers and the second lowest share of marginal workers.

When compared to the surrounding LSGs, Nilambur has the second lowest share of main workers next to Mambad and the second highest share of marginal workers next to Chungathara.

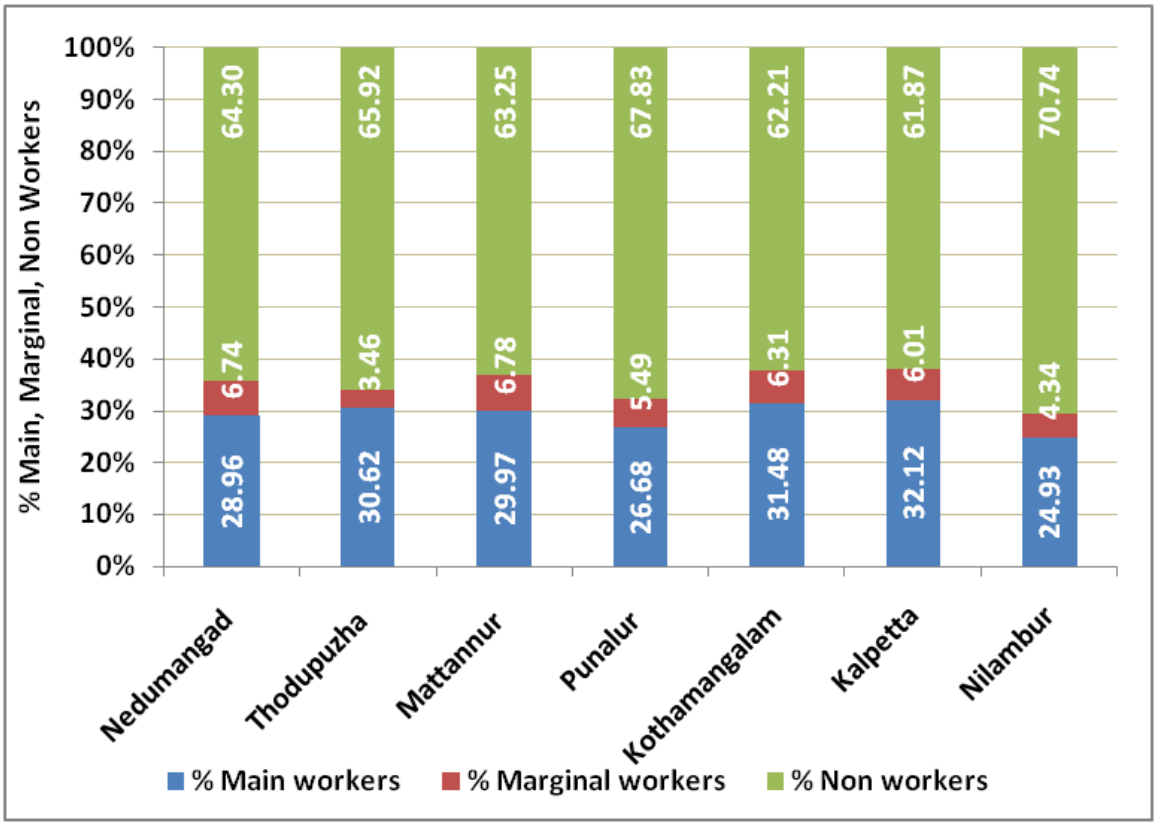


Figure 4-12: Main-Marginal workers Compared to Other Municipalities in the State (Source: derived from Census 2011)

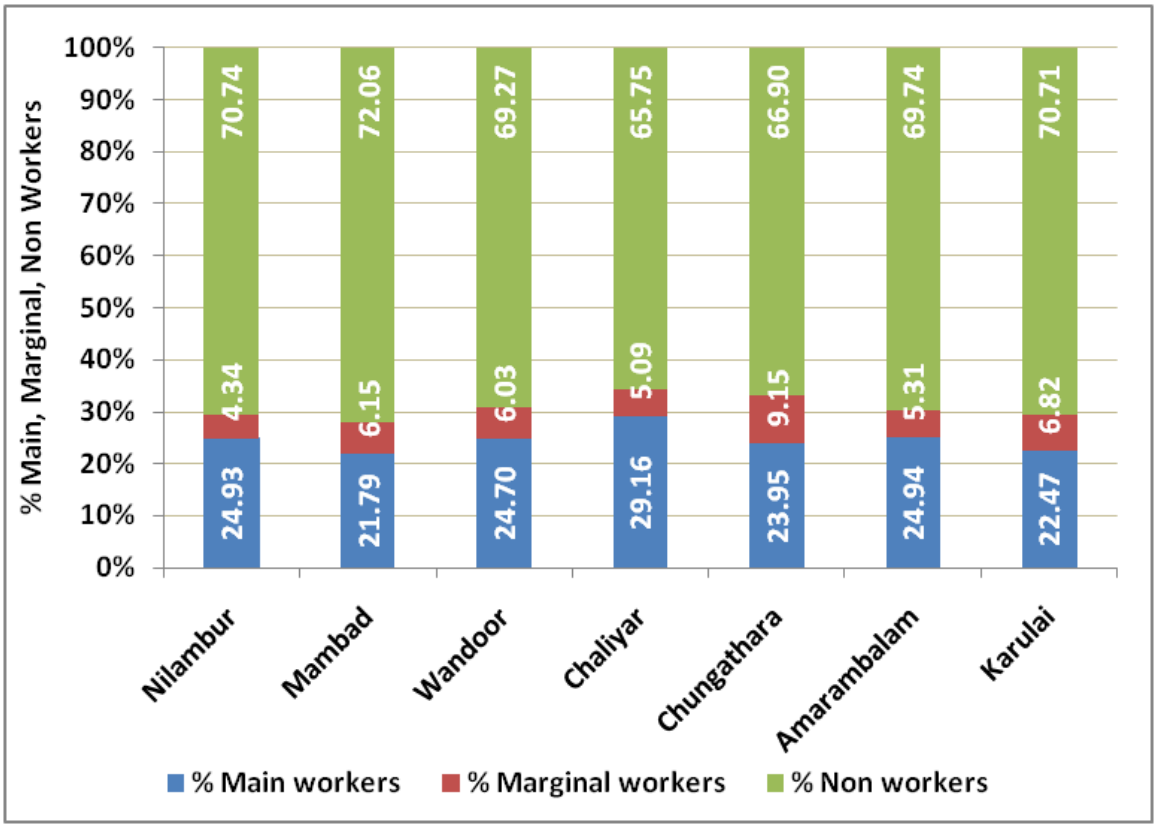


Figure 4-13: Main-Marginal workers Compared to Nearby LSGs (Source: derived from Census 2011)

When the temporal variations in the share of main, marginal and non- workers in Nilambur are studied, it can be seen that main workers registered a net decrease between 1991 and 2011 but a marginal increase between 2001 and 2011.The share of marginal workers registered a continuous increase between 1991 and 2011. The share of non-workers increased between 1991 and 2001 and decreased between 2001 and 2011. However, the share of non-workers registers a net increase between 1991and 2011.

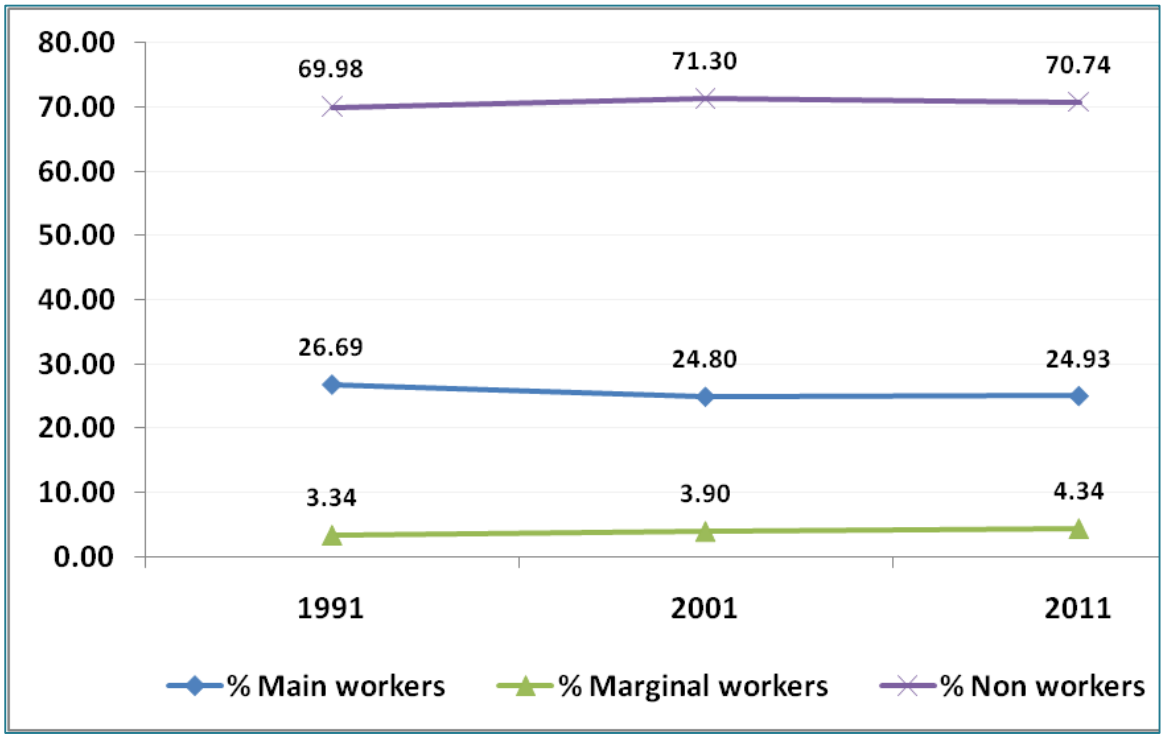


Figure 4-14: Temporal Variation in Main-Marginal workers (Source: derived from Census 2011)

4.4 OCCUPATIONAL STRUCTURE

As per Census 2011, 2.16% of the total workers in Nilambur Municipality are cultivators, 4.13% are agricultural labourers, 1.57% is Household Industry workers and 92.14% are engaged in other sectors of economy.

The share of cultivators, agricultural labourers as well as household industry workers in Nilambur is much lower than the average values for the State as well as the District. However, the share of cultivators is higher than the average for urban areas of the State and share of agricultural labourers is comparable with that of the State. Yet, these values are much lower when compared to the average for urban areas of the District. The share of HHI workers in Nilambur is higher than the average figures for the urban areas of Malappuram, but lower than the State urban average.

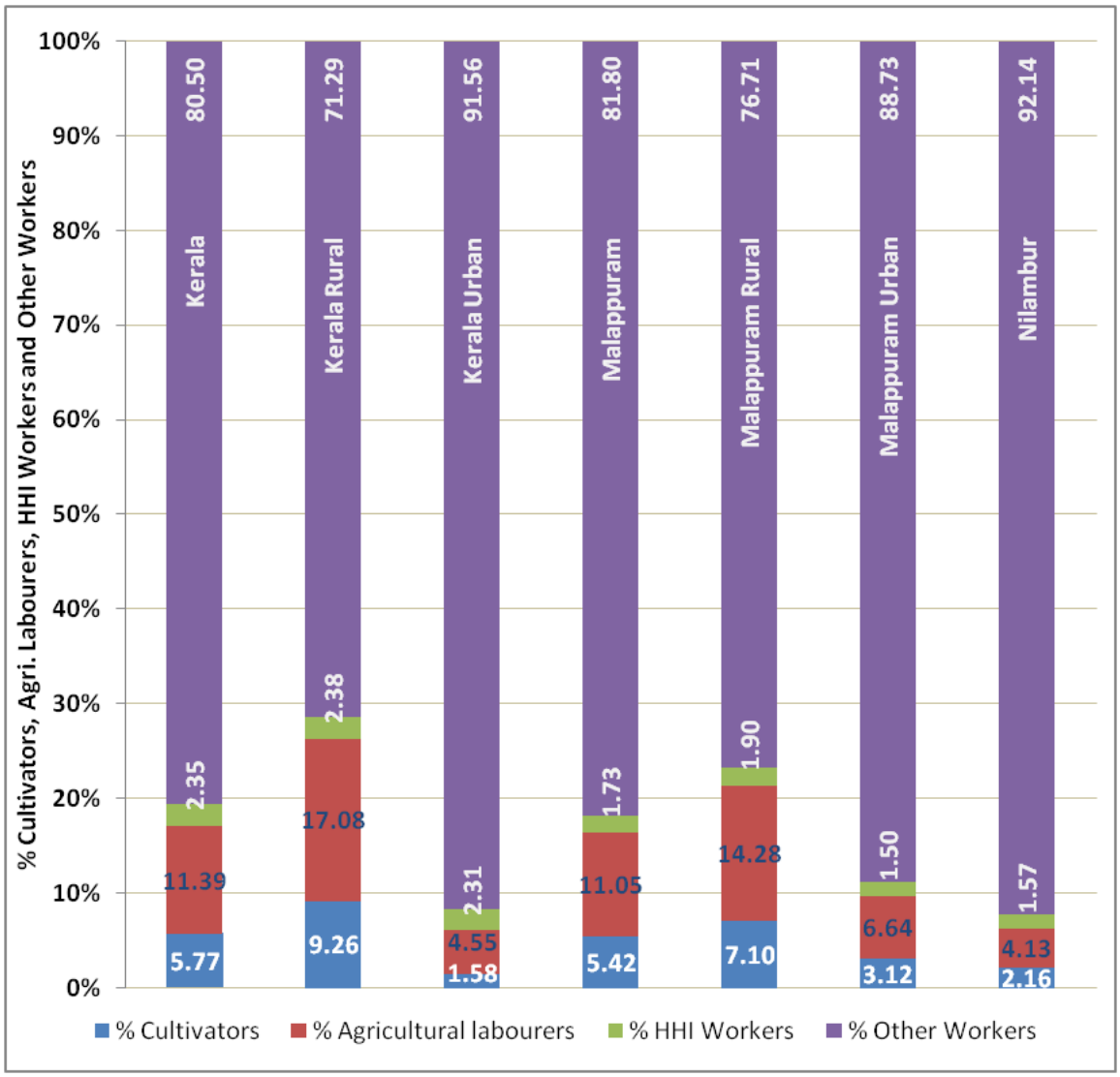


Figure 4-15: Occupational Structure Compared to the State and the District (Source: derived from Census 2011)

When compared to the other municipalities in the District, Nilambur has a below-average share of cultivators as well as agricultural labourers among them. Besides, it has the lowest share of cultivators as well as agricultural labourers among the midland municipalities. Kottakkal and Perinthalmanna have the highest share of cultivators, while Kondotty and Perinthalmanna have the highest share of agricultural labourers among the municipalities in the district. Nilambur has the third highest share of HHI workers among them. When the share of Other Workers is considered, it can be seen that Nilambur has the largest share among midland municipalities, and an above-average share, when all the municipalities are considered.

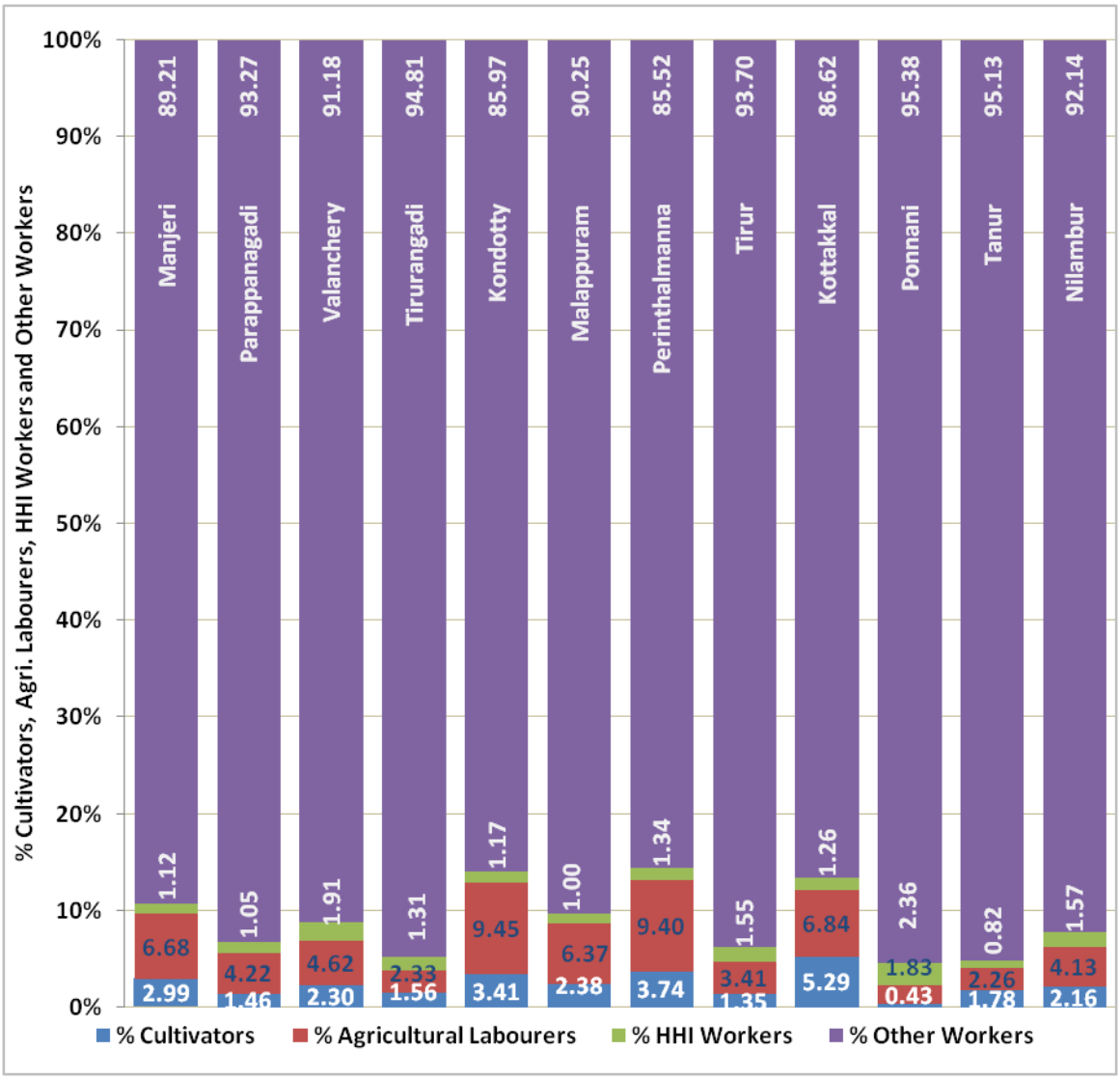


Figure 4-16: Occupational Structure Compared to Municipalities in the District (Source: derived from Census 2011)

When compared to similar towns in the State, Nilambur has the second lowest share of cultivators, next to Kalpetta. The share of agricultural labourers is the least in Nilambur, among these towns. The share of HHI workers is the third least and the share of Other Workers is the highest in Nilambur, compared to these similar towns in the State.

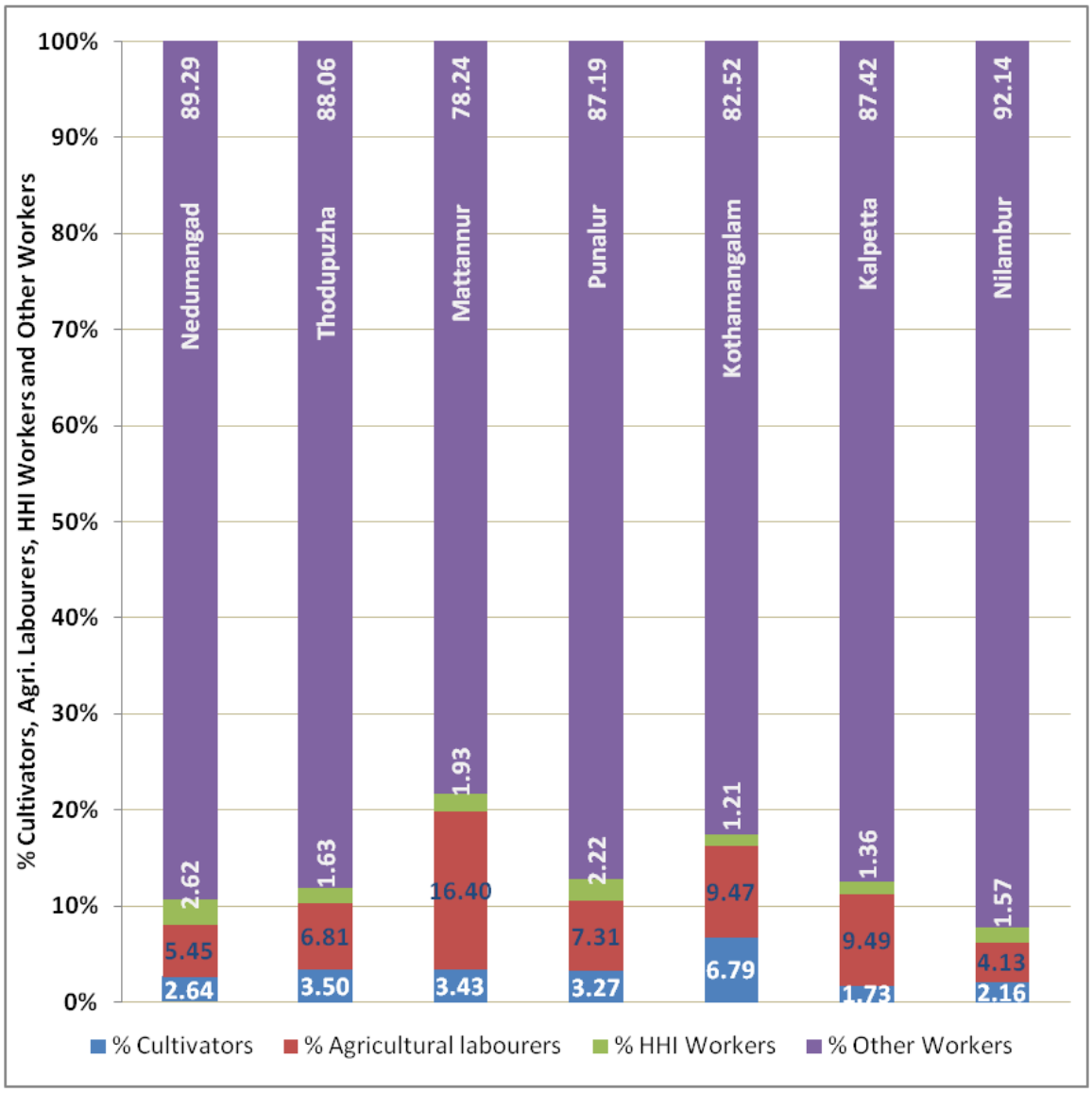


Figure 4-17: Occupational Structure Compared to Municipalities in the State (Source: derived from Census 2011)

When compared to surrounding LSGs, Nilambur has a very low share of cultivators and agricultural labourers. All the nearby LSGs have a share of cultivators more than twice that of Nilambur. In the case of Agricultural labourers, the share of all nearby LSGs is more than twice that of Nilambur. The share of household industrial workers in Nilambur is about the average in the region.

The temporal variations in occupational structure are studied by comparing the share of various categories of workers among the main workers. (Categorisation of marginal workers is not available in 1991 Census. Hence temporal variation of categories in total workers could not be analysed). It is revealed that the share of cultivators has declined from 8.36% in 1991 to 2.22% in 2011. That of agricultural labourers has declined sharply from 31.72% in 1991 to 3.53% in 2011. The share of HHI workers increased between 1991 and 2001 by around 1%, but declined in the last decade to 1.64%. The share of 'Other Workers' sharply increased from 58.19% to 92.61%.

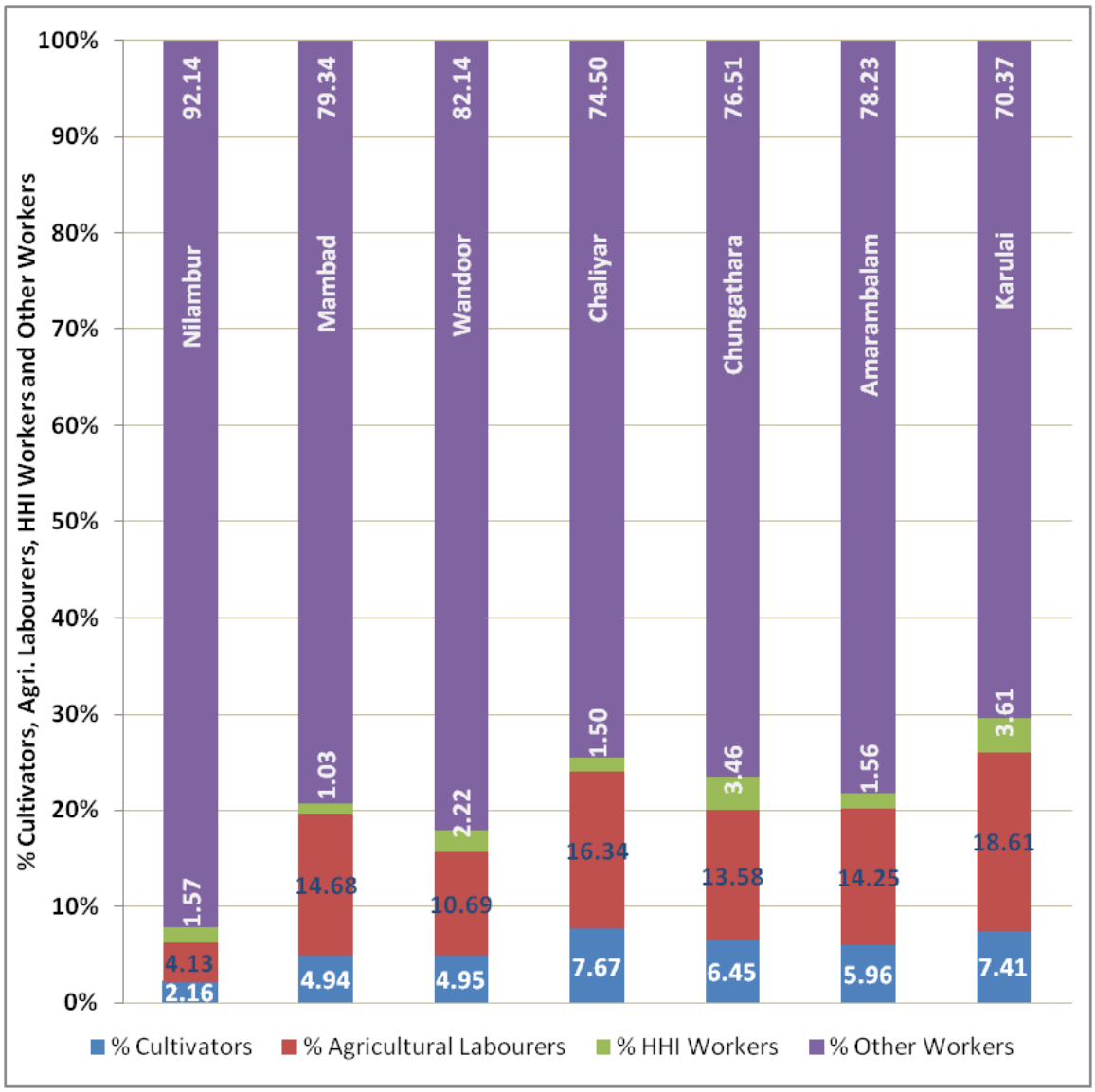


Figure 4-18: Occupational Structure Compared to nearby LSGs (Source: derived from Census 2011)

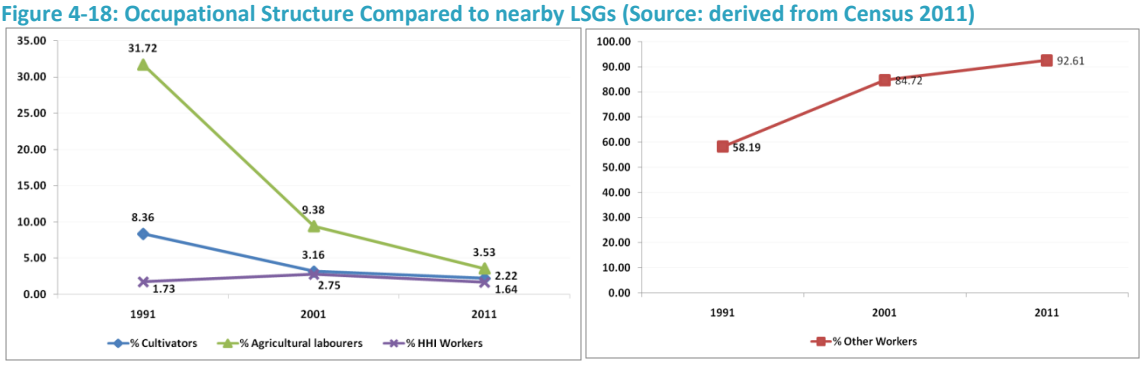


Figure 4-19: Temporal variation in Cultivators, Agricultural Labourers, Household Industry Workers and Other Workers -Main Workers (Source: derived from Census 2011)

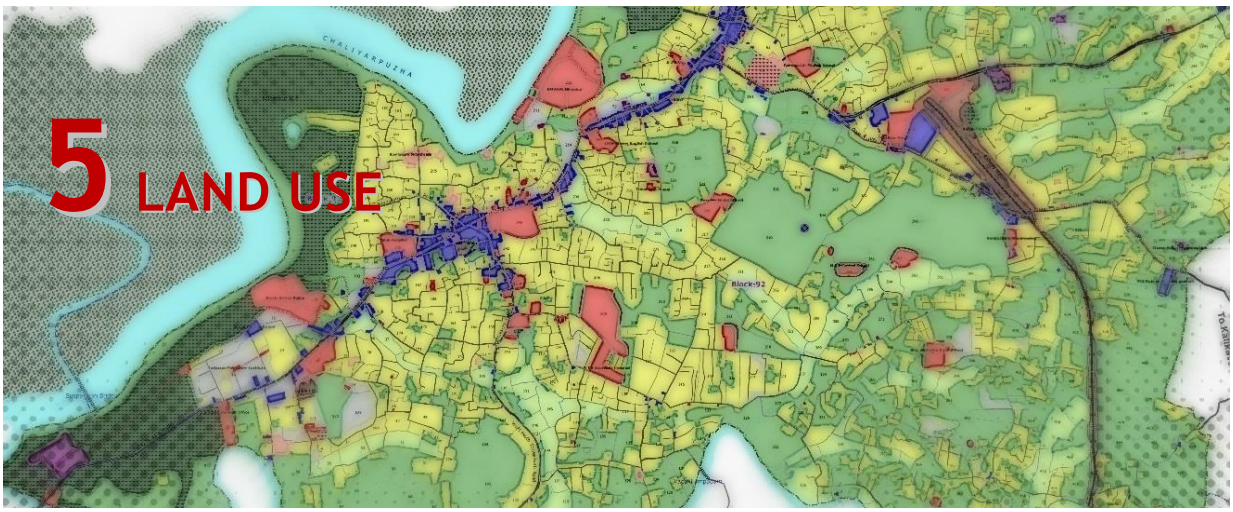
4.5 INFERENCE

The increasing number of workers reflects the increased employability of population of Malappuram District. The significantly high growth of workers in the district in last decade could be mainly attributed to development of tertiary sector, especially trade and commerce, in the district owing to the remittances of migrant workers from the District in the Middle-East.

Improving work participation as well as participation of both genders indicates a positive change in employment opportunities, employability and changing perceptions about female work participation. However, these indicators in Nilambur are weaker when compared to the District.

However, the work participation rate registers a net decline between 1991 and 2011. The lowest work participation rates and the low increase in work participation rate compared to the State indicate that the number of workers in Malappuram as well as Nilambur is not growing in proportion to the growth in population. Besides, the increase in female work participation is not in tandem with the male work participation, and is worse when compared to the State scenario. This indicates a high proportion of dependent population, especially the females. This does not present a good picture in terms of employability, opportunities, empowerment and financial self-reliance of women.

Besides, in Nilambur, the share of main workers registered a net decrease between 1991 and 2011 indicating the decrease in stable employment and the share of non-workers registered a net increase between 1991 and 2011. The decline of agricultural sector coupled with the insufficient generation of employment in secondary and tertiary sectors could have resulted in this scenario.



5.1 GENERAL ANALYSIS OF LAND USE

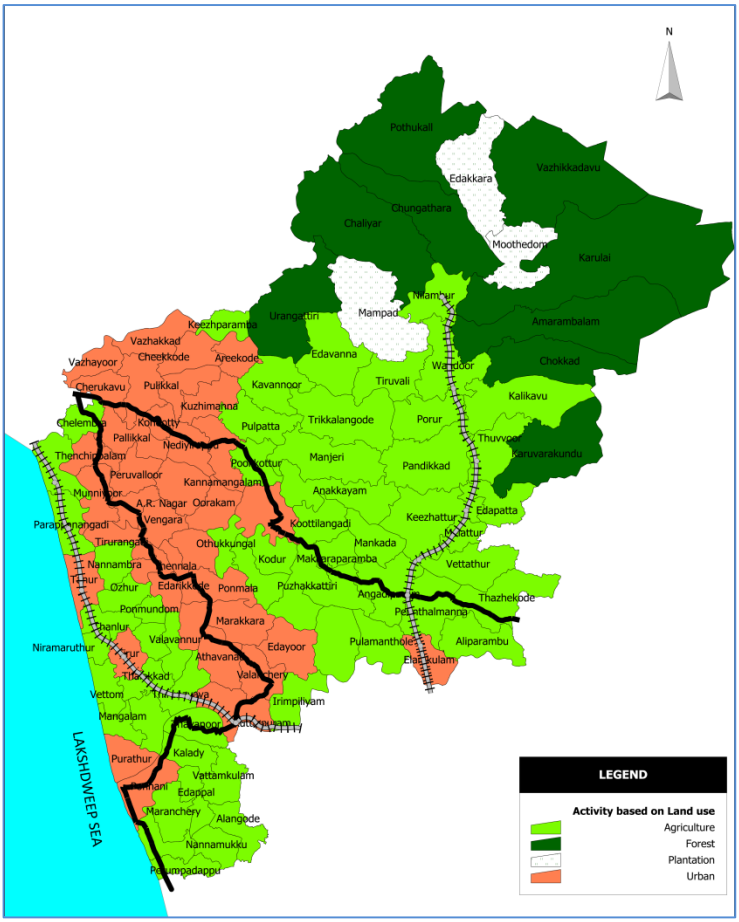


Figure 5-1 Land Use Distribution – Malappuram District
(Source: District Urbanisation Report, 2011)

The land use distribution in an area denotes the spatial representation of the economic and development activities as well as resources in the planning area.

When the land use distribution at the District level is considered, Nilambur Municipal area is identified as an agriculture activity zone like most of the other midland municipalities, as presented in Figure 5-1.

The land use survey undertaken by the Department of Town and Country Planning reveals the land use distribution at municipal level as presented in Figure 5-2, Figure 5-3 and Table 5-1.

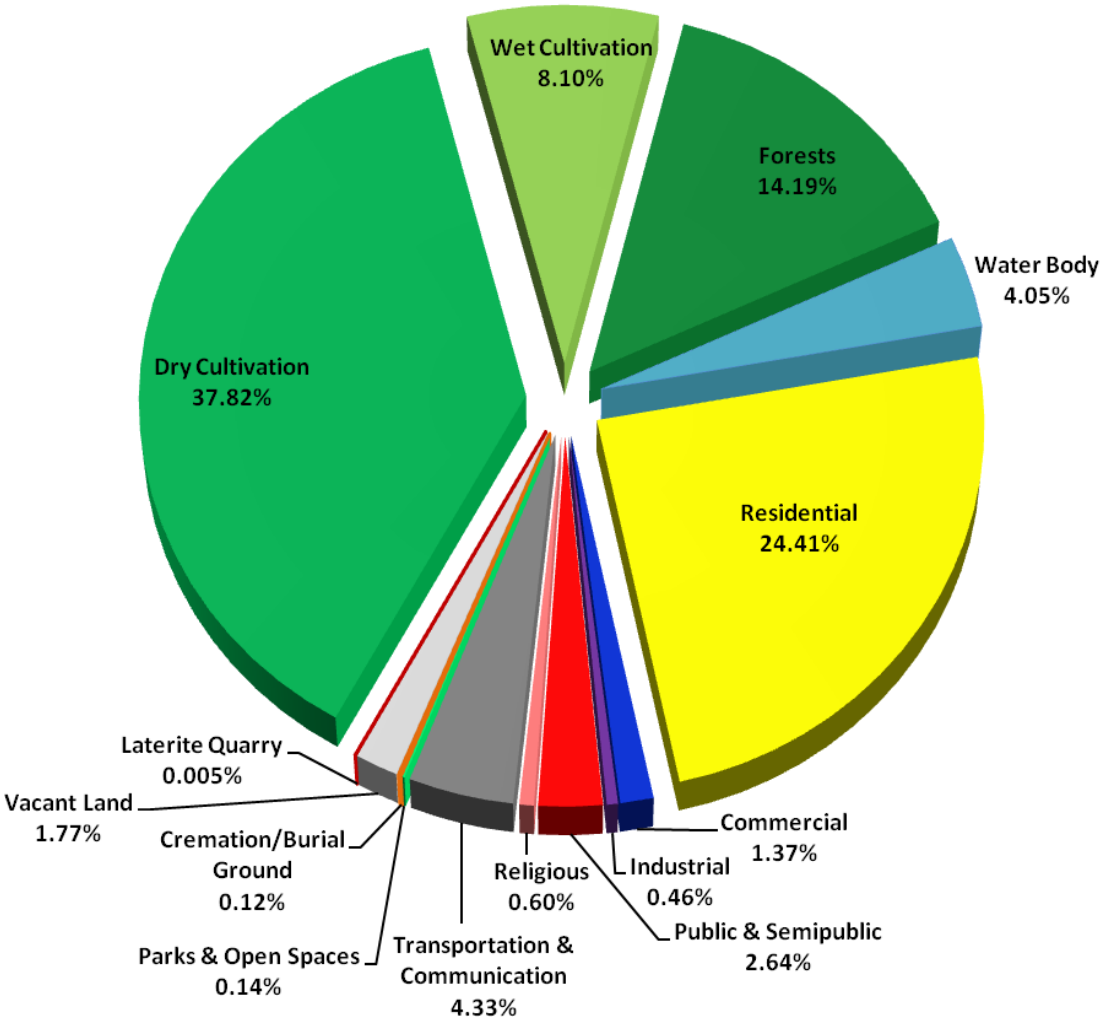


Figure 5-2: Land Use Distribution-Nilambur Municipal Area, 2014 (Source: Land Use Survey, 2014)

Table 5.1: Land Use Distribution-Nilambur Municipal Area, 2014 (Source: Land Use Survey, 2014)

Land Use	Area (Ha)	% of Total Area
Residential	724.87	24.41
Commercial	40.79	1.37
Industrial	13.61	0.46
Public & Semipublic	78.36	2.64
Religious	17.85	0.60
Roads, Transportation & Communication	128.65	4.33
Parks & Open Spaces	4.14	0.14
Cremation/Burial Ground	3.46	0.12
Vacant Land	52.48	1.77
Laterite Quarry	0.15	0.005
Dry Cultivation	1123.10	37.82
Wet Cultivation	240.56	8.10
Forests	421.47	14.19
Water Body	120.30	4.05
Total Area	**2969.78**	**100**

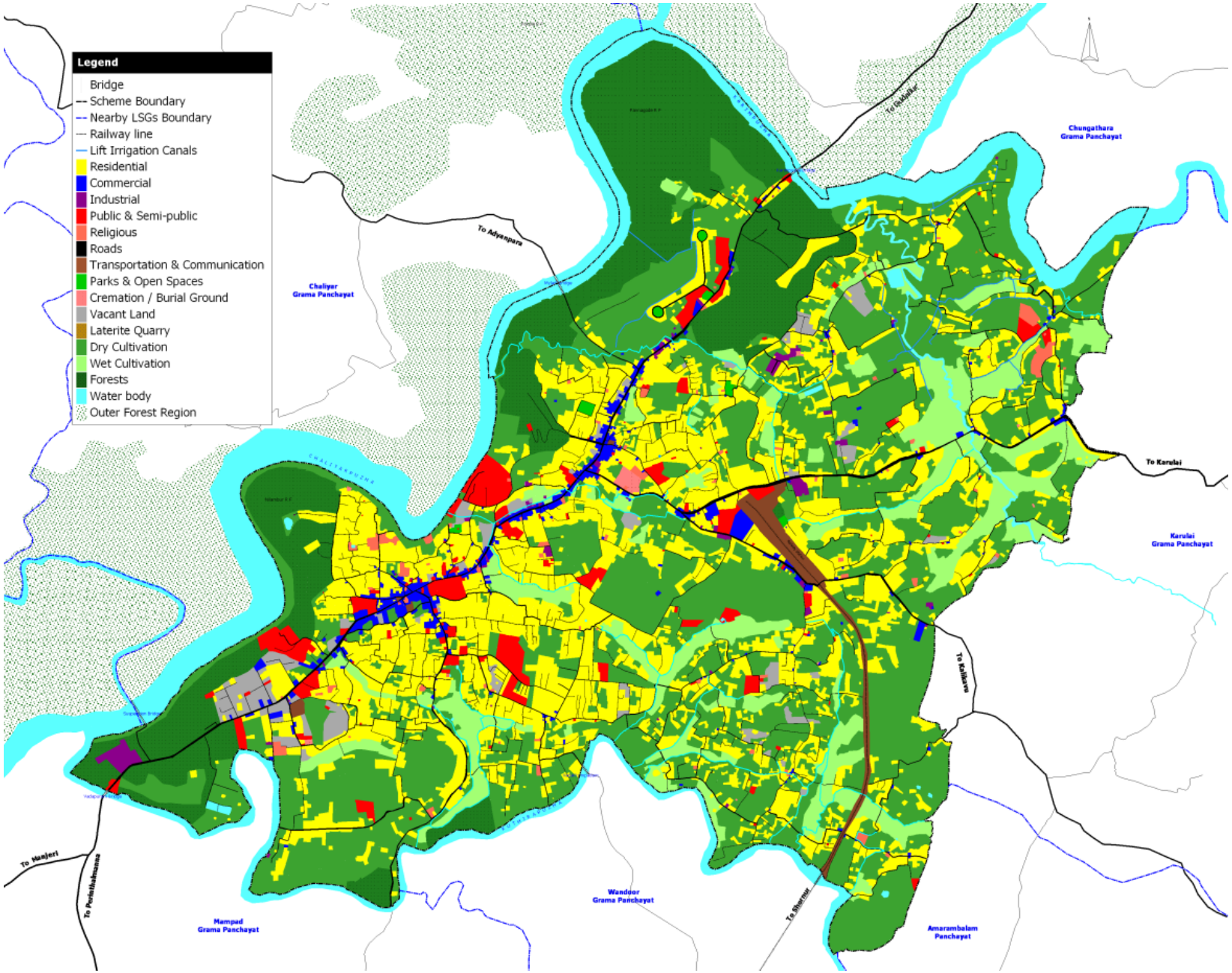


Figure 5-3:Existing Land Use– Nilambur Municipal Area, 2014 (Source: Land Use Survey, 2014)

Nilambur Municipality & Town and Country Planning Department

Table 5.2 Ward wise distribution of Land use (Source: Land Use Survey, 2014)

Ward Number	Ward Name	Residential	Commercial	Industrial	Public & semi public	Religious	Roads	Transportation & Communication	Park & open Space	Cremation & Burial ground	Vaccant Land	Laterite Quarry	Dry Cultivation	Wet Cultivation	Forest	Water Body	Total
1	Asupathirikkunnu	22.77	4.98	4.53	10.83	0.19	5.67	0.10	-	-	15.16	-	25.21	-	93.76	0.52	**183.72**
2	Kovilakathumuri	19.48	0.04	-	0.02	1.20	1.38	-	-	0.11	-	-	2.03	-	0.00	0.07	**24.34**
3	Cheruvathukunnu	21.96	3.42	0.55	4.21	2.23	3.26	-	0.50	-	5.58	-	9.44	2.86	-	-	**54.02**
4	Schoolkunnu	20.34	0.97	0.18	10.72	0.18	2.37	-	0.00	-	0.39	-	19.37	-	25.34	3.28	**83.14**
5	Charamkulam	14.87	2.20	-	0.03	0.18	2.56	-	1.08	-	1.17	-	12.18	-	16.41	5.69	**56.36**
6	Karimpuzha	22.02	1.42	0.70	6.14	1.01	6.45	-	1.41	-	0.00	0.07	71.54	4.29	242.29	42.94	**400.28**
7	Mummulli	24.28	0.18	2.18	0.20	0.10	3.29	-	-	0.17	3.00	-	33.92	4.47	-	0.59	**72.39**
8	Mayyamthanni	16.89	0.47	0.24	1.19	0.55	1.63	-	-	-	0.12	-	13.21	0.58	0.50	-	**35.39**
9	Chanthakkunnu	15.18	2.74	0.32	2.07	0.98	2.10	0.17	-	2.74	-	-	5.45	2.39	-	-	**34.16**
10	Mukkatta	20.47	0.20	0.39	0.25	0.10	1.92	-	-	-	-	-	6.90	1.90	-	-	**32.12**
11	Vallapuzha	24.26	0.03	-	0.11	0.23	2.55	-	0.70	-	0.48	-	19.91	7.17	-	-	**55.44**
12	Mutheeri	21.16	0.78	0.62	0.59	0.42	3.58	-	-	-	5.78	-	63.67	22.93	-	4.08	**123.60**
13	Pathipara	25.56	0.21	0.07	2.25	1.98	5.48	-	-	-	-	0.06	112.04	6.16	0.00	59.37	**213.18**
14	Enanthi	22.32	0.52	0.02	0.65	2.98	4.16	-	-	0.05	-	-	37.71	23.57	-	1.00	**92.99**
15	Payyampalli	32.11	0.67	0.24	0.14	0.70	5.46	-	-	0.05	1.08	-	64.88	43.08	-	2.45	**150.85**
16	Eyyammada	37.61	4.60	1.75	3.97	0.29	5.49	15.49	0.44	0.03	-	-	30.54	8.81	0.78	-	**109.81**
17	Veettichal	27.77	1.34	0.37	0.77	0.06	1.91	3.92	-	0.03	0.34	-	52.83	0.73	-	-	**90.07**
18	Thonnipoyil	19.65	0.14	0.07	0.36	0.08	2.84	0.81	-	0.02	0.54	-	50.16	11.83	-	-	**86.50**
19	Muthukadu	26.85	0.72	0.26	2.41	0.13	3.39		-	-	-	0.02	71.49	17.12	-	0.07	**122.46**
20	Ramamkuthu	22.75	0.33	-	0.44	0.73	3.14	5.69	-	-	-	-	101.47	23.44	-	0.50	**158.49**
21	Thekkumpadam	17.48	0.15	-	1.80	0.42	2.72	-	-	-	4.90	-	37.22	10.70	-	0.01	**75.39**
22	Pottipara	9.39	0.19	-	2.15	-	0.79	-	-	-	-	-	32.51	-	-	-	**45.03**
23	Nedumundakkunnu	21.31	2.98	0.05	0.18	0.31	1.94	-	-	-	1.55	-	29.13	4.12	-	-	**61.58**
24	Padikkunnu	15.54	0.62	0.45	1.77	0.48	1.40	-	-	-	-	-	0.49	0.01	-	-	**20.76**
25	Manalodi	21.24	2.14	0.21	4.45	0.18	2.40	-	-	-	0.26	-	1.47	9.51	-	-	**41.86**
26	Eruthampoyil	35.94	0.38	-	10.13	0.07	3.30	-	-	-	-	-	14.56	0.00	-	0.03	**64.41**
27	Pattarakka	24.75	0.20	-	0.06	-	2.38	-	-	-	0.96	-	15.80	4.30	-		**48.46**
28	Chakkalakuthu	21.69	0.16	0.02	0.05	0.41	3.06	-	-	-	-	-	32.62	9.13	9.01	0.14	**76.29**
29	Thamarakkulam	16.42	0.09	0.06	1.30	0.47	2.54	-	-	-	1.16	-	8.28	10.97	-	-	**41.30**
30	Veetikkuth	9.34	3.35	-	0.45	0.20	1.50	0.36	-	-	0.23	-	1.91	-	-	-	**17.34**
31	Kallempadam	19.16	2.60	0.04	0.27	-	2.29	-	-	-	0.37	-	4.19	0.14	-	-	**29.06**
32	Varedempadam	26.33	0.95	0.08	3.12	0.74	3.25	1.29	-	0.24	5.49	-	28.18	3.47	0.00	-	**73.14**
33	Kulakkandam	27.68	0.92	0.19	3.86	1.04	4.73	-	-	-	3.90	-	111.99	6.78	33.55	1.21	**195.84**
	Total	**724.62**	**40.69**	**13.61**	**76.93**	**18.64**	**100.95**	**27.83**	**4.13**	**3.46**	**52.46**	**0.15**	**1122.30**	**240.45**	**421.62**	**121.94**	**2969.78**

It can be seen that the most dominant land use in the municipal area is Dry Cultivation which covers around 1122 Ha, which is 38% of the area. The next major land use is residential, which has almost a quarter share of the total area.

All the land uses in the municipal area, their characteristics, and distribution are analysed in the following section. The distribution and concentration pattern of each of the land use is analysed with the help of 'Land use Concentration Index (LCI), derived for each ward. The ward wise Land Use Concentration Index indicates the concentration of a particular land use in the ward in comparison to other wards in the municipal area. The value of LCI of a particular land use, if greater than one, indicates that the land use under consideration is relatively more concentrated in that ward, than other wards in the municipality. The LCI of a particular land use is calculated as follows.

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

5.1.1 Residential Land Use

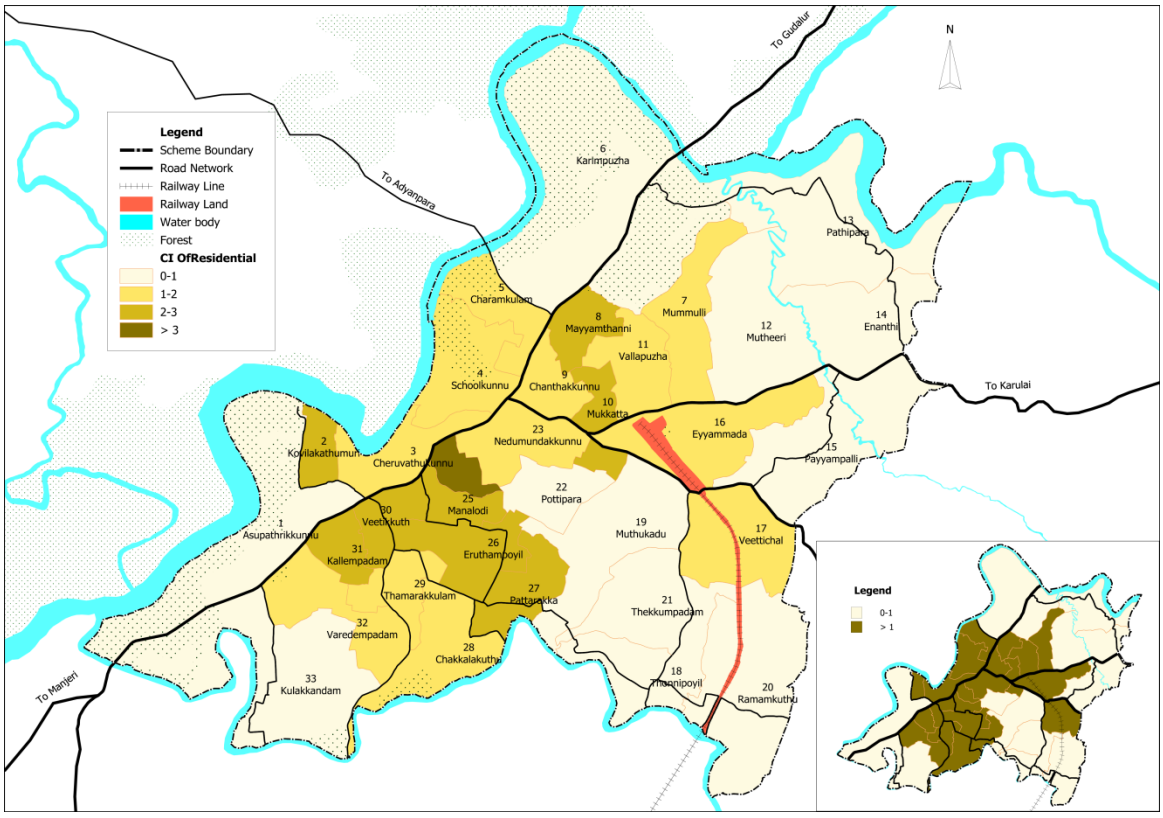


Figure 5-4: Residential Land Use Concentration and Variation in Concentration

Residential land use, the second major land use in the municipality next to Dry Cultivation, occupies about 24% of the municipal area and is present in all its wards. Figure 5-4 depicts the residential land use concentration and variation in concentration in the municipal area. It can be seen that the residential land use is concentrated along the major road network. The highest concentration is seen in ward 24 - Padikkunnu which has a residential share of more than thrice that of the municipality and the lowest concentration in ward 6 - Karimpuzha, dominated by forests. Kovilakathumuri, Mayyamthanni, Mukkatta and wards along Veettikkuth Road have residential concentration more than twice the share in municipality.

The residential land use in the planning area is mostly the homestead type of residential development, i.e., residential agricultural mix. However, these areas may sometimes be purely residential in nature which is urban in nature, and sometimes dominated by agriculture, a rural land use. Therefore, the Residential - Agricultural mixed land use is characterised based on the plot size, (area/ the number of households), and the urban / rural nature of the residential land use is arrived at.

It is found that if the plot size of the mixed land use is greater than or equal to 70 cents 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. If the plot size is between 50-70 cents, 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 with plot size between 25-50 cents indicates a semi urban area. (Source: State Urbanisation Report, 2012).

In Nilambur municipal area, the average residential plot size is 17 cents, indicating a predominantly urban nature of residential land use. The plot sizes varied between 6.5 cents to 33 cents among various wards. Majority of the wards, 29 out of 33, have residential use of urban character while four wards , 16 - Eyyammada, 17-Veettichal, 26-Eruthampoyil and 33-Kulakkandam had plot sizes varying between 25 to 33 cents, indicating a semi-urban nature of residential land use in these wards.

5.1.2 Commercial Land Use

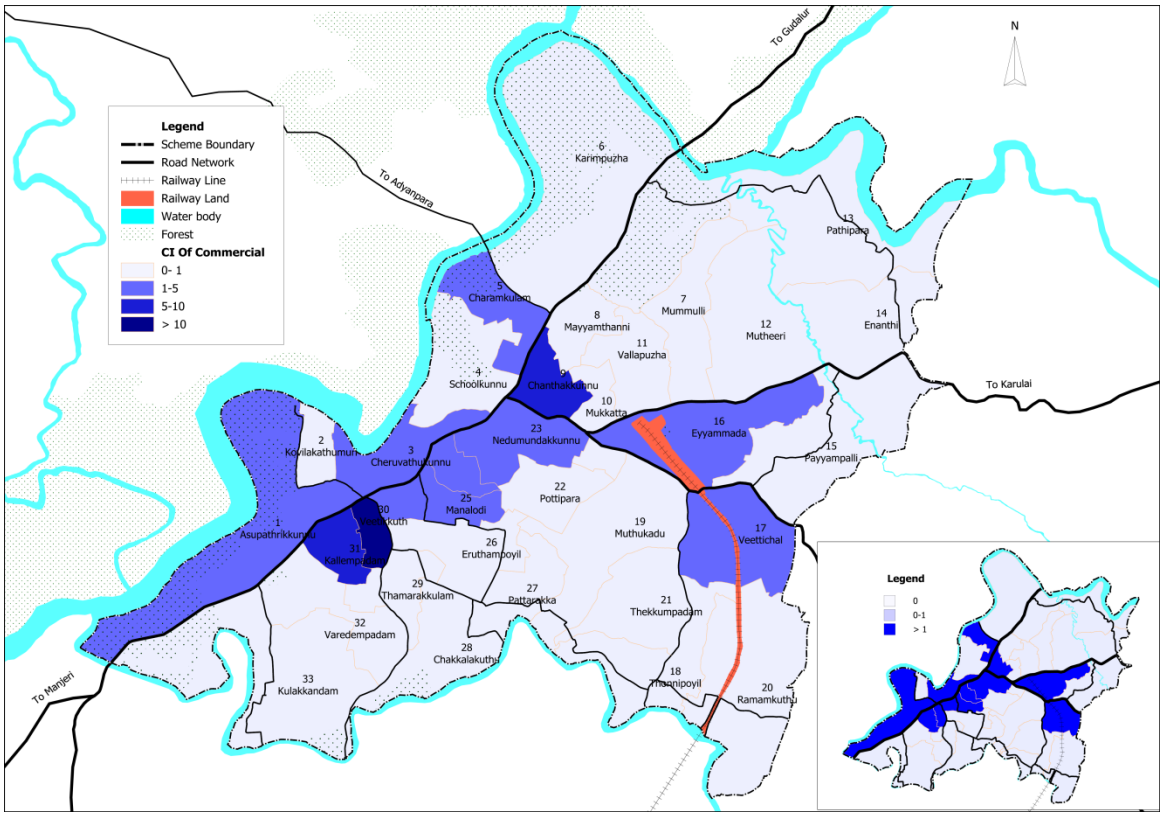


Figure 5-5: Commercial Land Use Concentration and Variation in Concentration

Commercial uses contribute to only 1.37% of the municipal area. The municipal market is located in Ward 25- Manalodi. Major commercial nodes in the town are at Nilambur Junction and Chanthakkunnu area.

As depicted in Figure 5-5, commercial uses are present in all wards, and are concentrated along the major road network, especially the KNG road. The highest concentration is observed at Ward 30 – Veettikkuth, where the commercial land use has 14 times the share of that in the municipality. Ward 31- Kallempadam and Ward 9- Chanthakkunnu also has relatively high concentrations, about 6 times the share of that in the municipality. It can be seen that the highest concentration is witnessed at the important junctions like Nilambur Junction, District Hospital Road Junction, Chanthakkunnu and Mukkatta Junction which are at close proximity to the transport facilities like KSRTC bus terminal, private bus terminal, railway station etc. Least concentration is observed in wards 11-Vallapuzha and 13 – Pathipara.

5.1.3 Industrial Land Use

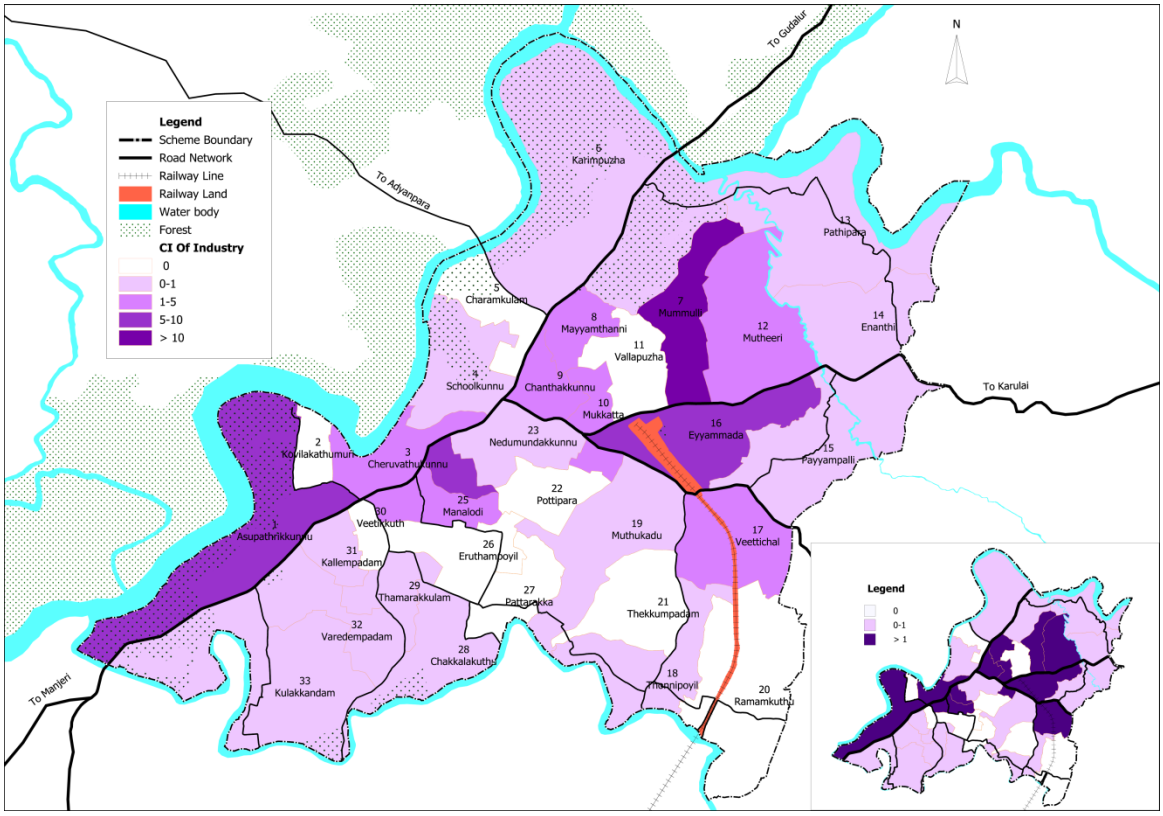


Figure 5-6: Industrial Land Use Concentration and Variation in Concentration

Industrial land use, which constitutes only 0.46% of the municipal area, is also present in most of the wards in the municipality, indicating widespread small scale industrial activity. Ward 7- Mummulli which houses the Rajiv Gandhi Industrial Estate has the highest industrial land use concentration. Ward 24 – Padikkunnu has the next highest share, owing to the presence of Thrimithi Workshop. Ward 16 – Eyyammada which houses the railway station also has an industrial concentration, owing to the presence of Best Brick and Tile works. Nine wards of the municipality do not have any industrial land use. Ward-1 Ashupathrikunnu has high industrial LCI owing to the inactive industrial land under Kerala State Wood Industries Ltd.

5.1.4 Public & Semipublic Land Use

Public and semipublic land use comprises land put to use for activities under government, administration, legal, health, educational and other services and constitute 2.64% of municipal area. It is present in all wards and is most concentrated in ward 26 – Eruthampoyil which houses Pee Vees Public School, ward 25 – Manalodi which houses government offices like Forest office, PWD office etc. and ward 4 – Schoolkkunnu which houses GMVHSS. The land use is least concentrated in ward 5- Charamkulam and ward 28 –Chakkalakuthu. The other major Offices/institutions are the Kerala Armed Police, Municipal Office, Janamaithri Police Station, Fire Station, First Class Magistrate Court, Block Office, Taluk office, District Hospital and the Govt. ITI scattered across the town.

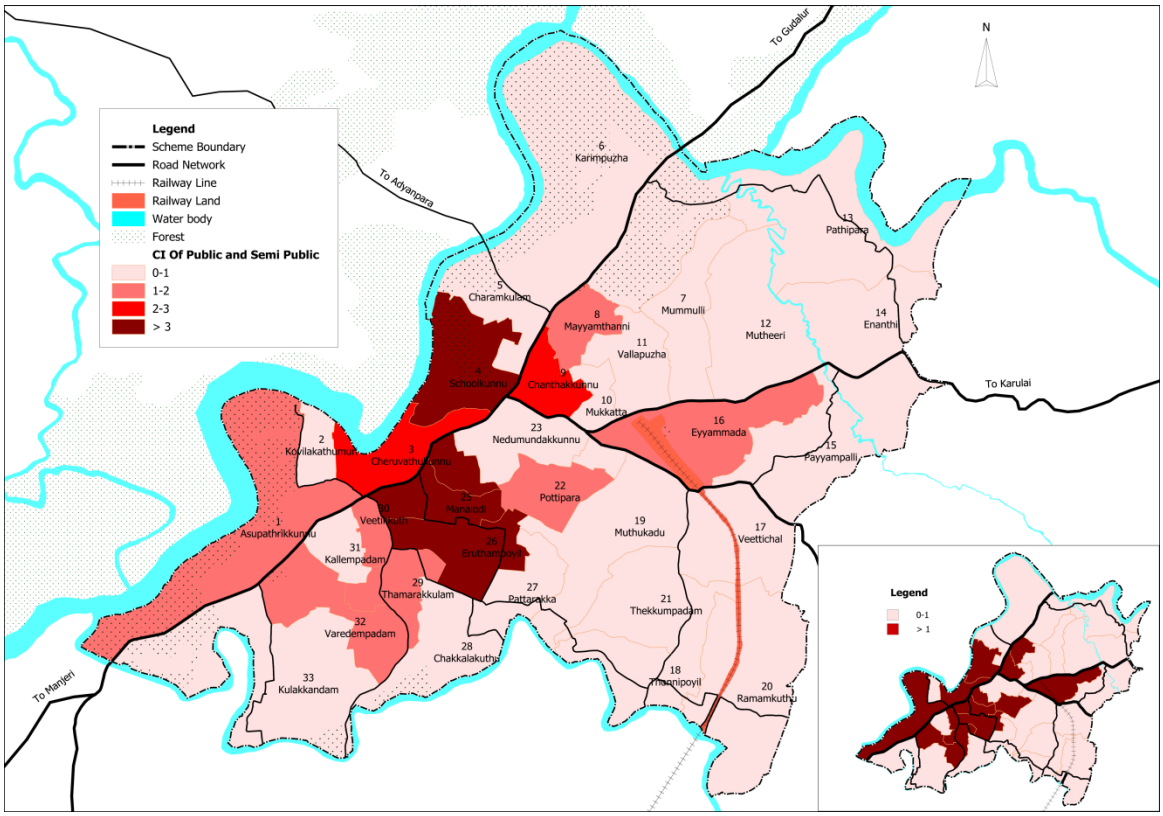


Figure 5-7: Public and Semipublic Land Use Concentration and Variation in Concentration

5.1.5 Religious Use

Religious uses constitute around 0.6% of the municipal area and are present in all except three wards of the municipality. The highest concentration is found in wards 2 – Kovilakathumuri which houses the famous Vettekkorumakan Temple, 3 – Cheruvathukunnu which houses Veeradoor Temple, 9 – Chanthakkunnu and 14 – Enanthi which houses churches and mosques.

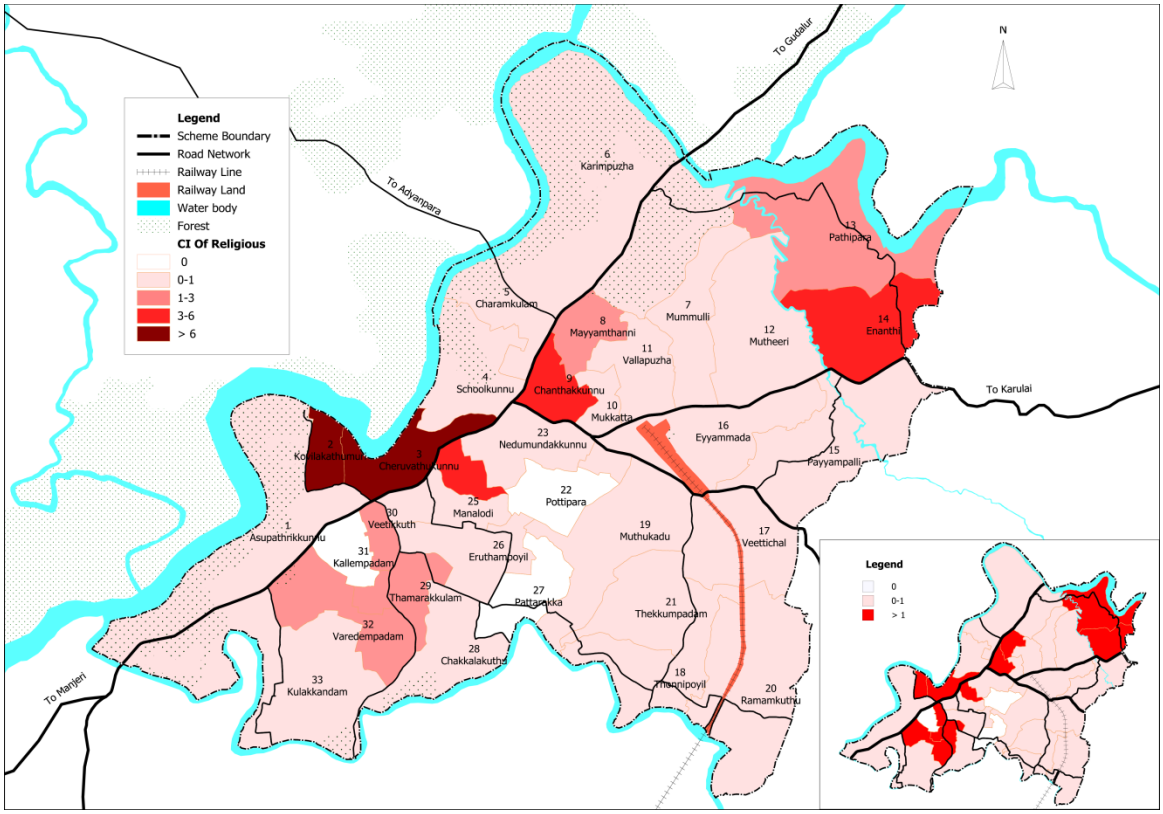


Figure 5-8: Religious Land Use Concentration and Variation in Concentration

5.1.6 Parks & Open Spaces

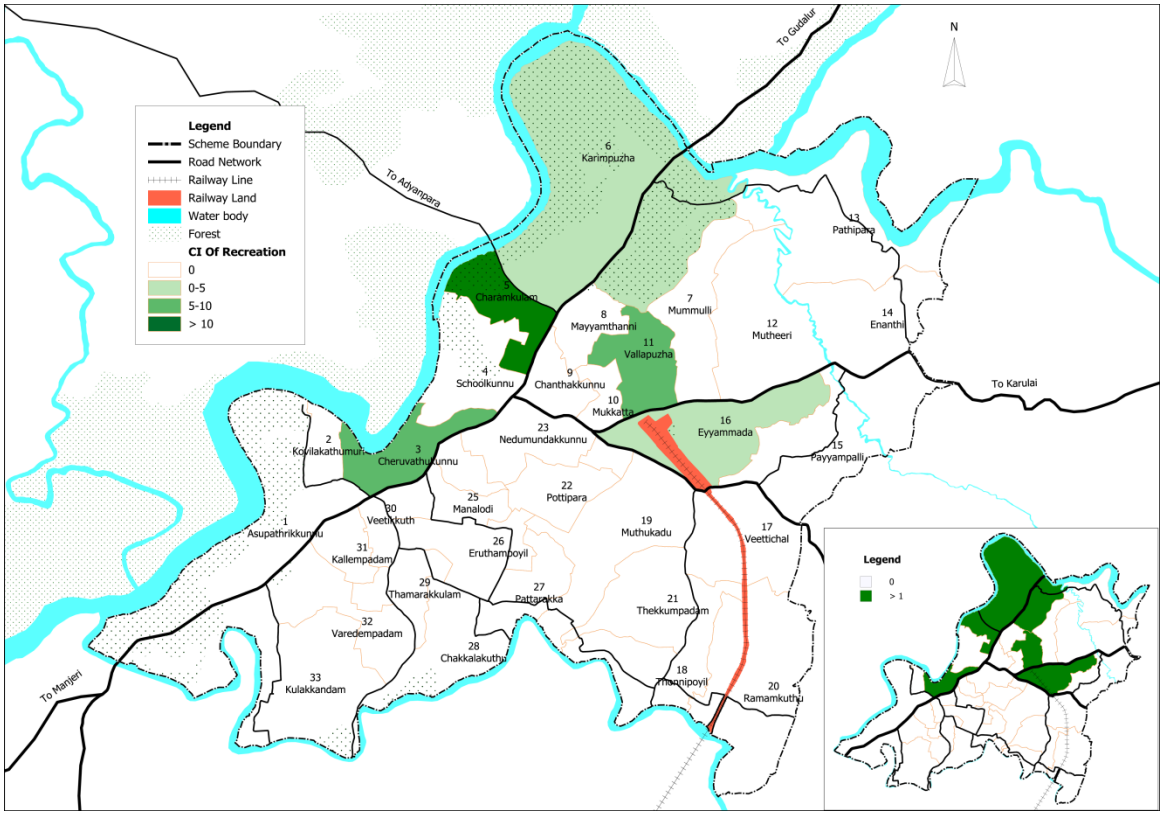


Figure 5-9: Parks & Open Spaces Land Use Concentration and Variation in Concentration

Parks & Open Spaces contribute only a meager 0.14% of the municipal area. From figure 5-9, it can be seen that parks and recreational open spaces are absent in most of the wards in

the municipality. The available parks and open spaces are present in the northern half of the municipality, in wards 3, 5, 6, 11 and 16. The highest concentration is observed in ward 5 - Charamkulam which houses Azad Ground. Other grounds that exist are Kalyani Ground, Mayyanthani Ground, and Recreation Club Ground. The Open ground near the Jawahar Colony is commonly used by the students of the Govt. ITI for their recreation.

5.1.7 Vacant Land

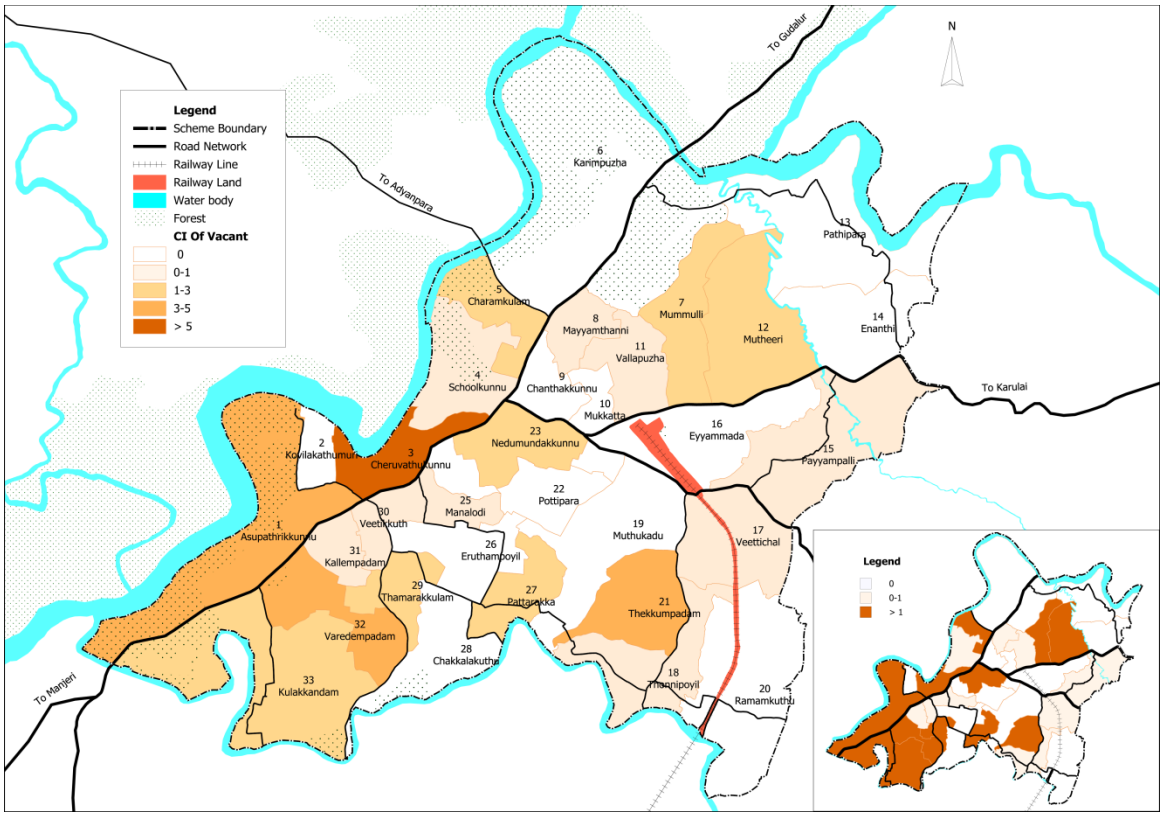


Figure 5-10: Vacant Land Use Concentration and Variation in Concentration

'Vacant land' comprises those areas which were not assigned any specific use at the time of the survey, but indicated land development and conversion to an urban use in the near future, and were under private ownership. Interestingly, vacant lands contributed a significant share, around 1.77% of the municipal area and are present in 20 out of the 33 wards. The highest concentration is found in ward 3 - Cheruvathukunnu and ward 1 – Ashupathrikkunnu. On a detailed analysis, it can be seen that the vacant lands are concentrated in and around the wards having high concentration of urban uses like commercial, public, semi-public, religious, industrial, etc., indicating that these urban uses are likely spread to these vacant lands in near future. Some of the vacant lands were found among developing residential areas, indicating plot development activities for residential purposes. At present, some of the vacant lands near the core business area are used for conducting fairs and carnivals occasionally.

5.1.8 Dry Cultivation

Dry cultivation, the most prominent land use in the municipality, which occupies around 38% of its geographical area, is present in all wards. It indicates the dependency on agriculture as a major economic activity in the municipality. It is the least concentrated in wards 24 and 25, Padikkunnu and Manalodi, which have high concentrations of urban uses. Highest concentration of dry agriculture is seen in wards 20 and 22, Ramamkuthu and Pottipara.

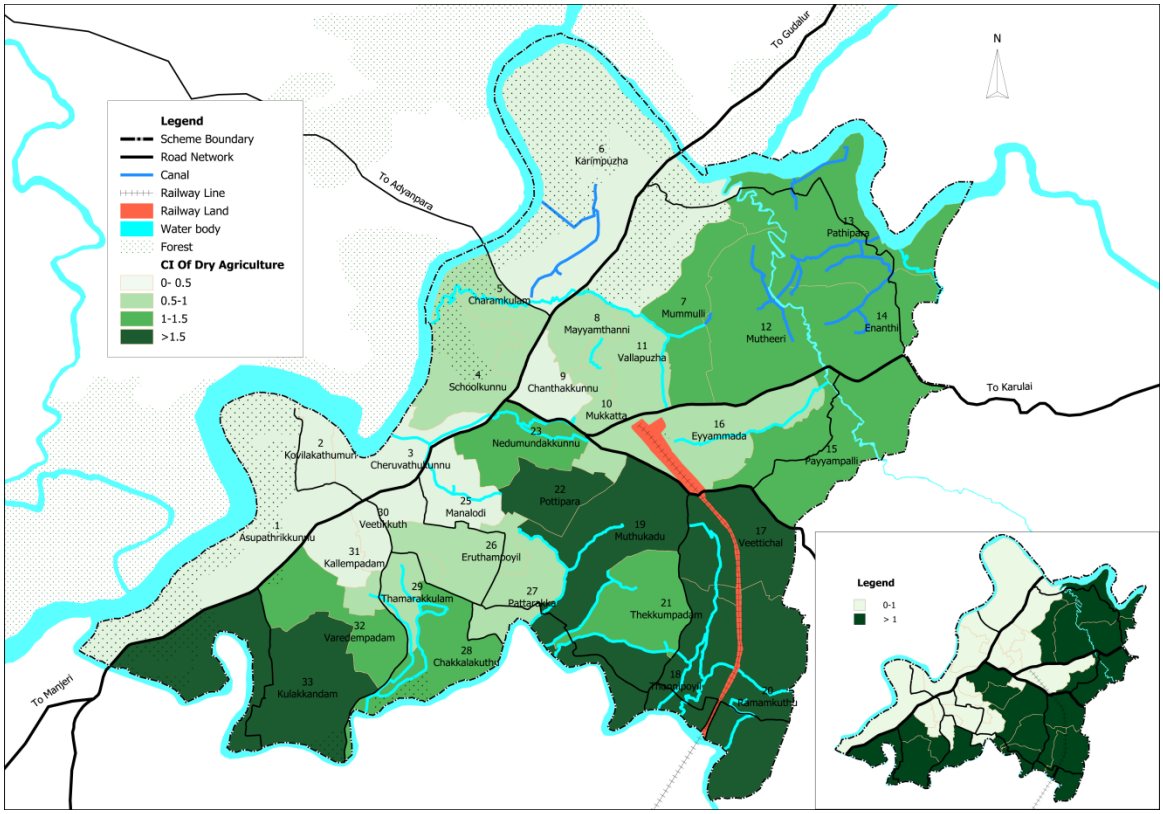


Figure 5-11: Dry Cultivation Concentration and Variation in Concentration

5.1.9 Wet Cultivation

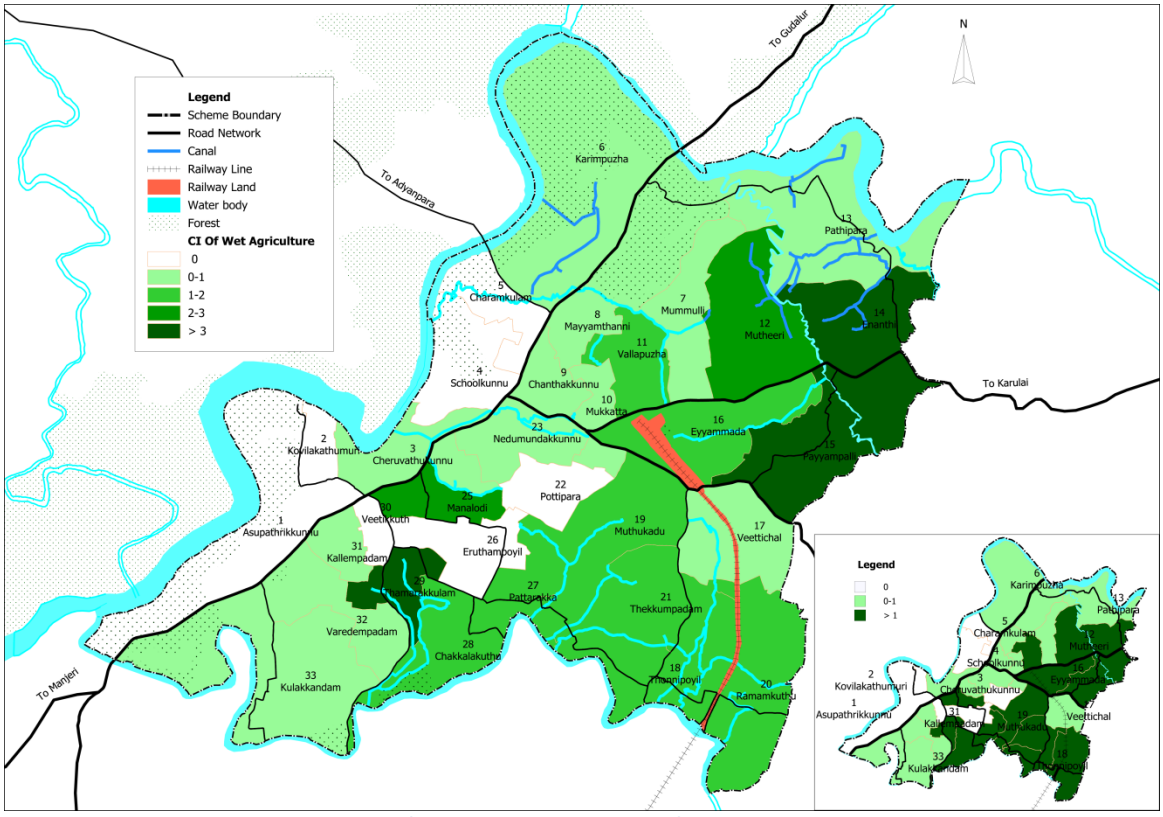


Figure 5-12: Wet Cultivation Concentration and Variation in Concentration

The Wet Cultivation areas also have a significant share of around 8.1% of the municipal area. Wet cultivation, or paddy lands, is present in 26 out of 33 wards in the municipality. It is most concentrated in ward 14-Enanthi, 15-Payyampalli and 29-Thamarakkulam.

5.1.10 Transportation Land Use

Roads and transportation, having a share of 4.33% of the total municipal area, is a major land use of urban nature, in the municipality. This includes the bus terminals, railway station, the land owned by railways and the land under roads. However, only those roads having a width of minimum three meters are included in this share. Apart from these there are around 36 km of roads below three meters width (which could only be incorporated as line features in the map, restricted by the scale of mapping), which if accounted for, would raise the share of land under transportation to at least 4.48%.

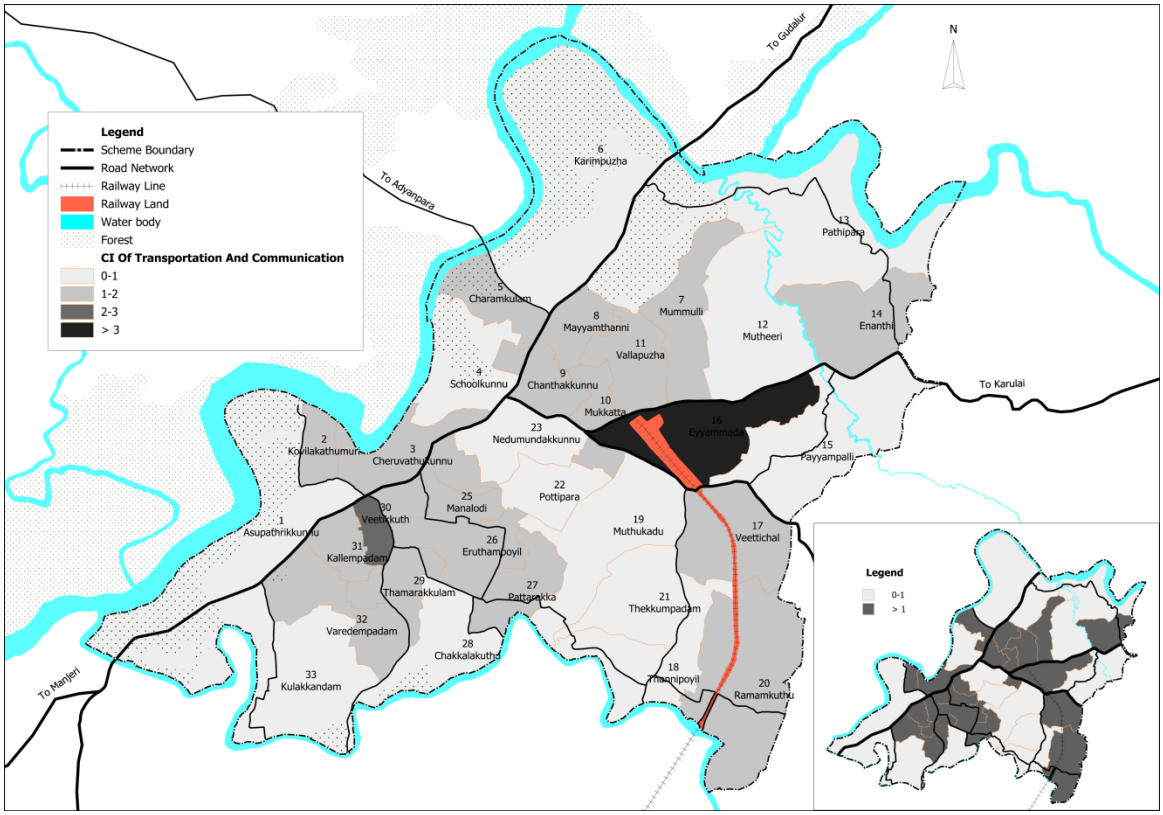


Figure 5-13: Transportation Land Use Concentration and Variation in Concentration

The land use is most concentrated in ward 16 – Eyyammada which houses the railway station, and then in ward 30 – Veettikkuthu which houses KSRTC bus terminal. It is least concentrated in ward 6 – Karimpuzha dominated by forests and ward 22 – Pottipara dominated by dry cultivation. There are two bus terminals, a KSRTC bus terminal at Aruvacode and a private bus terminal at Chanthakkunnu. A new bus terminal is nearing completion at Chettiangadi. KSRTC bus terminal is exclusively used by KSRTC buses and other state government buses such as KSRTC (Karnataka) and TNSTC.

5.1.11 Other Uses

The third prominent share in the municipal area is that of the forests, around 14.19%. The major share of forests are present in wards bordered by Chaliyar, namely 1-Asupathrikunnu, 4- Schoolkkunnu, 5- Charamkulam and 6-Karimpuzha as well as 33 – Kulakkandam borderd by Kuthirpuzha.Wards 8 - Mayyamthanni, 16- Eyyammada, 28 - Chakkalakkuthu and 32 – Varedampadam also has small parcels of forest lands. The municipality, surrounded by water bodies on all sides, has 4.05% of its area covered by water bodies including rivers, streams and ponds.

The uses having least share are Cremation/Burial Grounds occupying 0.12% and Laterite Quarries occupying 0.005% of the municipal area. Cremation/Burial Grounds are present in nine wards while laterite quarrying activities of minor scale are present in wards 6, 13 and 19.

5.2 ACTIVITY ZONES BASED ON LAND USE CONCENTRATION

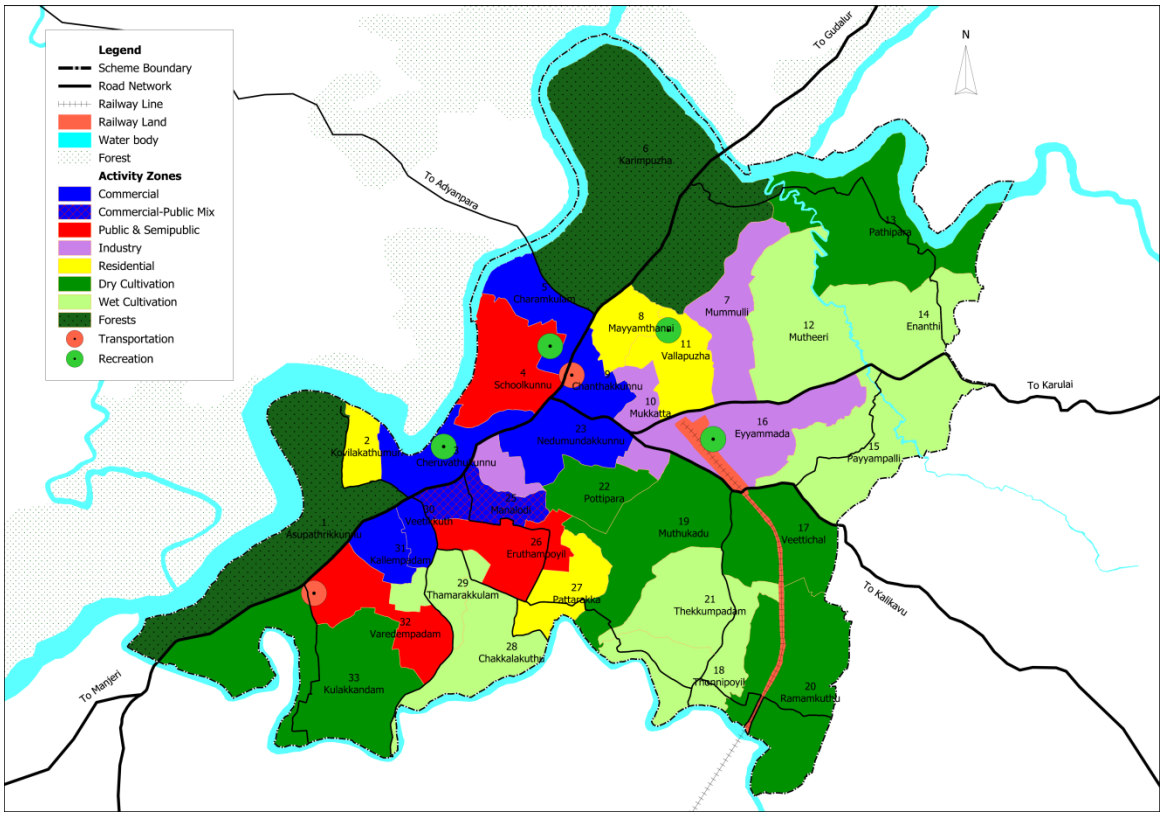


Figure 5-14: Activity Zones based on Land Use Concentration

Activity zones in Nilambur municipality are identified further to the ward wise land use concentration analysis, by overlaying the concentration areas of each land use in the municipality (LCI of the land use under consideration >1), attributing preference to Commercial, Industrial, Public and Semipublic, Residential, Agriculture and Forests in the order, and the relative concentration of various uses in each ward. Important transportation and recreation areas are also overlaid. The activity zones thus derived is presented in Figure 5-13. It can be seen that the commercial and public semipublic uses are concentrated along the state highway and Karulai road, between Jyothipadi, Adyanpara Road Junction and Mukkatta. Industrial activities are concentrated in Mummulli and railway station area. Residential land use is interwoven in these areas and its peripheries. It is more concentrated in the south-west quadrant, but has also spread to the north-east quadrant of the municipality. Forests and agriculture activities envelope these urban activity centres from all directions, further surrounded by the water bodies that outline the municipality.

5.3 INFERENCE

Interestingly, a very high share, more than 64% of the municipal area, is under 'Green-Blue' uses like forests, agriculture, water bodies and parks or play grounds, in Nilambur municipality.

When the urban - rural-neutral share of land uses is analyzed it can be seen that almost 46% of land is under rural uses like agriculture & quarrying and 18% is under neutral uses like forests, water bodies, etc. Less than 10% only is under the purely urban uses like commercial, industrial, public & semi-public, transportation, recreation, ancillary facilities etc. The residential land use in the Municipality is of urban or semi-urban nature. The vacant lands also have an urban nature, and indicated immediate possibilities to get converted to urban uses. Thus the total urban land use share, including residential and currently vacant areas, works out to be 36%.

The land use clearly depicts the abundant natural resources of the municipality like forests and water bodies, existing dependence on agriculture as a major economic activity, the pressure on land due to urbanization, as well as the growing share of the more economically viable urban land uses. Surveillance of natural eco systems and unique bio diversity in the Western Ghat area of the district is essential for conservation. Control on various land uses and conservation of paddy land can be ensured by appropriate zoning regulations.



6 TRADE AND COMMERCE

Nilambur town is one of the most important business centers in the eastern part of the district. It is one among the five third order settlements in the district, as per the District Urbanisation Report 2011. The people from surrounding areas of Chungathara, Chaliyar, Karulai, Amarabalam, Wandoor and Mampad depend on Nilambur for their trading and shopping needs. The agricultural produces from these hinterlands are traded in this town.

6.1 NATURE OF DEVELOPMENT

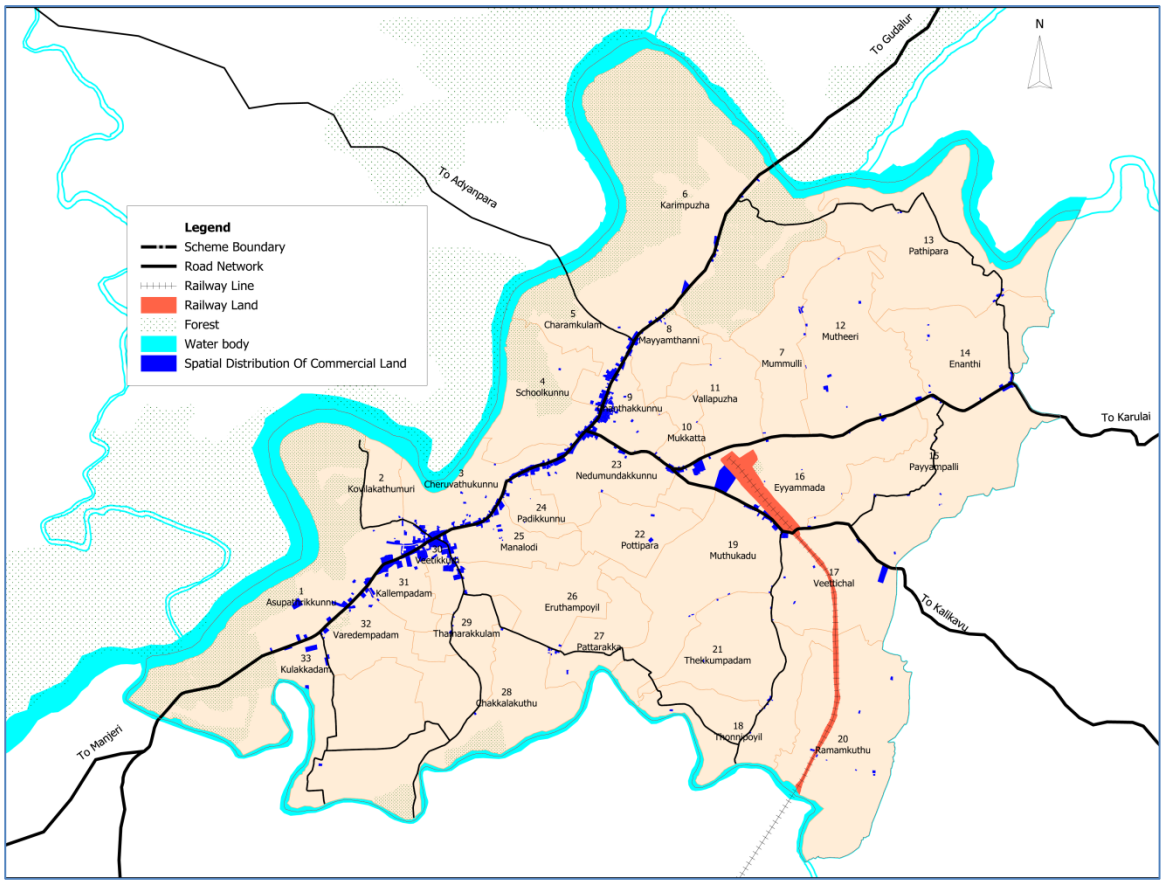


Figure 6-1: Spatial Distribution of Commercial Land use

Figure 6.1 gives the spatial distribution of commercial land use in the town. Commercial land use covers only 1.37% of the total land in the town and the commercial development is

limited to main road junctions and as contiguous ribbon development along the major transport routes. Beyond this, no independent, planned commercial area has come up in the town.

6.2 COMMERCIAL NODES

The commercial development in Nilambur municipal area is characterized by clusters of commercial activity – or commercial nodes- on the junctions and contiguous ribbon development along main roads, like other parts of the State. The existing hierarchy of these commercial nodes is derived from the existing land use on the basis of their share in the commercial land use of the municipality (the percentage area of commercial land use nodes with respect to total commercial area in the municipality) - the higher the share, the higher the order in the hierarchy. Figure 6-2 depicts the order - I, II, III,IV and V - of the existing commercial nodes thus derived.

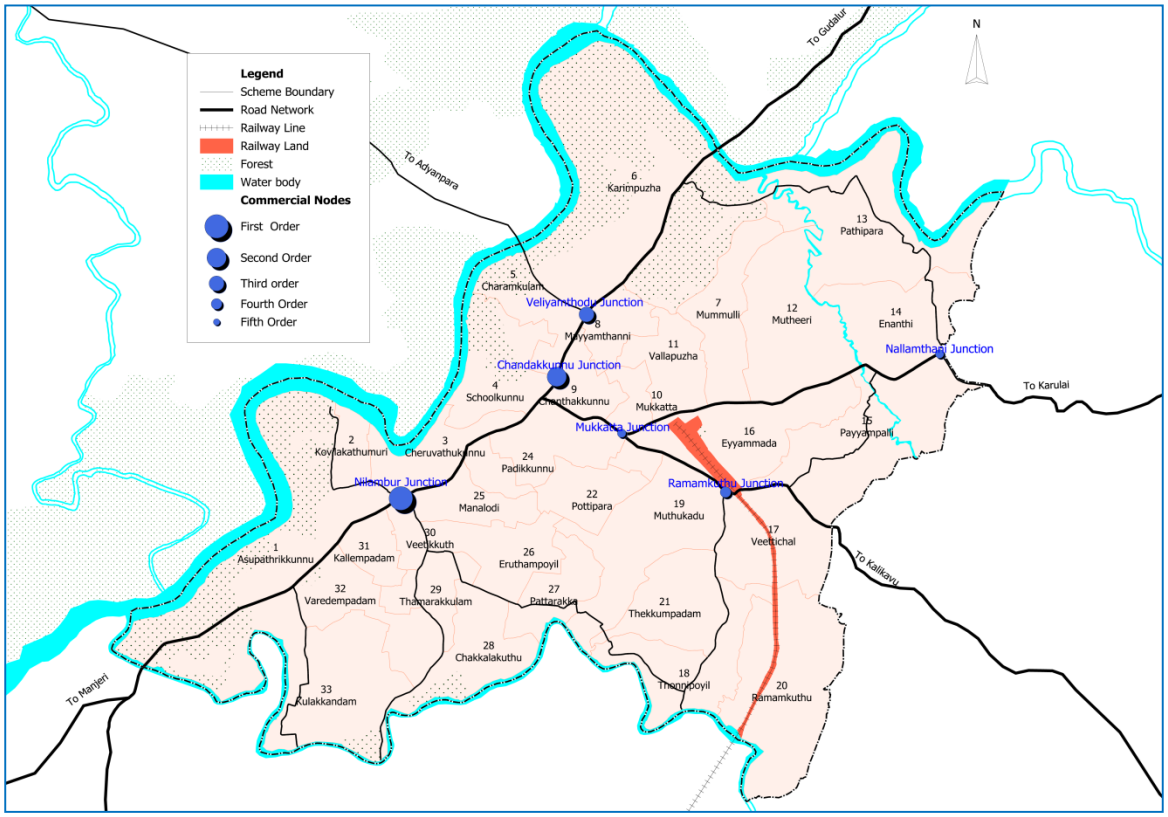


Figure 6-2 Hierarchy of Commercial Nodes

The first three major nodes are along the KNG Road, the main corridor. Nilambur Junction is a first order node, Chandakkunnu Junction is a second order node, Veliyamthodu Junction is a third order node, Ramamkuthu is a fourth order node and Mukkatta and Nalamthanni Junctions are both fifth order nodes in Nilambur Municipal area.

6.3 WHOLESALE AND RETAIL TRADE

A ten per cent stratified sample survey was conducted in the municipality to study the commercial activities of Nilambur.

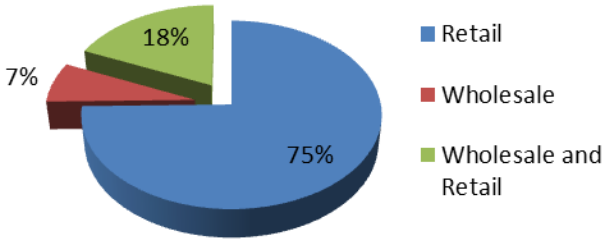


Figure 6-3: Comparison of Wholesale and retail shops in the municipality (Source: Local Enquiry)

It is seen that 75% are retail shops, 7% wholesale shops and 18% deals both retail and wholesale business. The major wholesale activities include allopathic medicines and surgical equipments which are purchased from various places outside the district and even outside the state like Tamil Nadu and Andhra Pradesh, and distributed within the state.

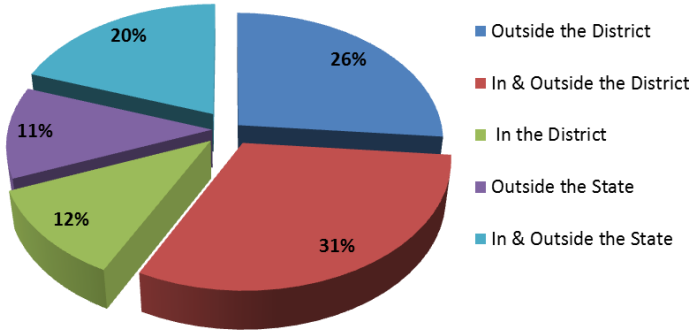


Figure 6-4:Comparison of Regions influencing trade in the municipality (Source: Sample Survey)

A major share of 31% of items for wholesale and retail trade comes from in and outside the District and 20% goods are imported from outside the district or state. The common mode of transportation for trade and business is road. One of the building material establishment transports their goods by ship and road. Parking facilities for the commercial establishments are insufficient, and is available for only 32% of the business institutions including the major textile and jewelry shops.

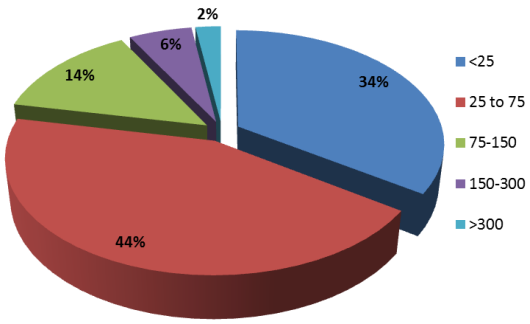


Figure 6-5: Comparison of distribution of floor area for various businesses

The total area of the shops varies in a range of about 2.5m² to 500 m², and the number of employees varies from 1 to 60. Some of the big business institutions of the town are PKP Steel and Cements, Bajaj Two & Three Wheeler Dealers, A M Motors and Maharani Silks.

6.4 MARKETS

The municipality has a fish, meat and vegetable market situated at Chettiyangadi near the New Bus Stand (Under Construction) Premises. There are two other fish markets located at Chanthakunnu and Railway Station Road in the municipality. The area is almost fully covered

with low-rise structures and is very congested. Several unauthorized vendors are seen within the market, which include stationery articles, tea stalls, lotteries, fruits, vegetables etc. There are no parking facilities in the market, adding to chaos in the area.



Views from the Market at Chettiyangadi





6.5 FOREST

Trees of high commercial value like Teak, Rosewood, Mahagony and several species of cane, ratten, reed, creeper, liana, fern, orchid etc., are abundantly found in the forests of Nilambur. Varieties of bamboo are also extensively found in all parts of the forests. Bamboo for pulp factories like Mavoor Gwalior Rayons Ltd was mainly supplied from Nilambur forests via Chaliyar River.

Timber auction is the most important commercial activity in Nilambur, conducted successfully almost every month of the year, as the quality of Nilambur teak is specific to the soil of Nilambur. An average 250 cubic meter of timber is auctioned per month of which 200 cubic meter is Teak and 50 cubic meter are other woods like Irul, Mahagony etc. Teak woods are graded by quality as B2, B3, B4, B5 and sold at average Rs.1,20,000/m^3 for B2 quality, Rs. 80,000/m^3 for B3 quality, Rs. 60,000/$m^3$for B4 quality and Rs. 40,000/m^3 for B5 quality. The rate of I quality Irul wood is Rs. 36,000/m^3 and II quality is Rs. 22,000/m^3. (Source: Forest Department, Nilambur).

Nilambur teak will soon get legal protection for its uniqueness in quality as it is preparing to enter the Geographical Indication (GI) Registry. Nilambur teak will become the first forest resource to get a GI tag in the country. This will boost the economy by providing better returns and world-wide recognition for the wood and products made of it.

6.6 HILL PRODUCTS

Various hill products like rubber, coconut, arecanut, cashew nut and pepper are being traded in the municipality by major agencies linked with other districts and other states. Table 6.1 gives the details of hill products traded here.

Table 6-1: Details of Hill Products traded in the municipality (Source: Local Enquiry)

Sl. No.	Name of Agency	Quantity of Crop (kg/month)					
		Areca nut	Dry Arecanut	Cashew Nut	Coconut	Rubber	Pepper
1	AM Traders	40000	--	42	40000	--	--
2	AK Traders	3000	--	58	--	--	58
3	MJ Traders	7500	--	3000	10500	--	--
4	Iruvetty Traders	10500	--	--	9000	--	--
5	AK Traders	3000	--	--	--	--	--
6	Poovvadi Traders	--	200	3000	300000	--	1500
7	Thodupuzha Rubbers	--	--	--	--	50000	--
8	Nilambur Rubber Traders	--	--	--	--	10000	--
9	Kaithayil Rubber Store	--	--	--	--	15000	--
10	Kripa Agencies	--	--	--	--	1500	--
11	Thunchath Ezhuthachan Rubbers	--	--	--	--	116000	--



It is seen that coconut and rubber are the important products of this area, with around 360 tonnes and 193 tonnes being traded per month respectively. Arecanut is also another important produce and 61 tonnes are traded. Cashewnut, Pepper and Dry Arecanut are the other produce with 6 tonnes, 1.5 tonnes and 0.2 tonnes being traded per month respectively.

Around 54 tonnes of latex and 210 tonnes of rubber sheets are collected and exported to Harrison's Malayalam Ltd, Kochi and Mardec R K Latex, Aluva, Ernakulam. (Source: Rubber Board Nilambur)

6.7 STREET VENDORS

There are about 11 prominent street vending locations in Nilambur Municipality, where there are 71 vending points which employs about 90 men. Majority of vendors sell juices, fruits, vegetables, tea and snacks. Near tourist spots entrance to Canoli Plot and Teak museum, items like caps, goggles, dress for tiny tots etc are also predominant.





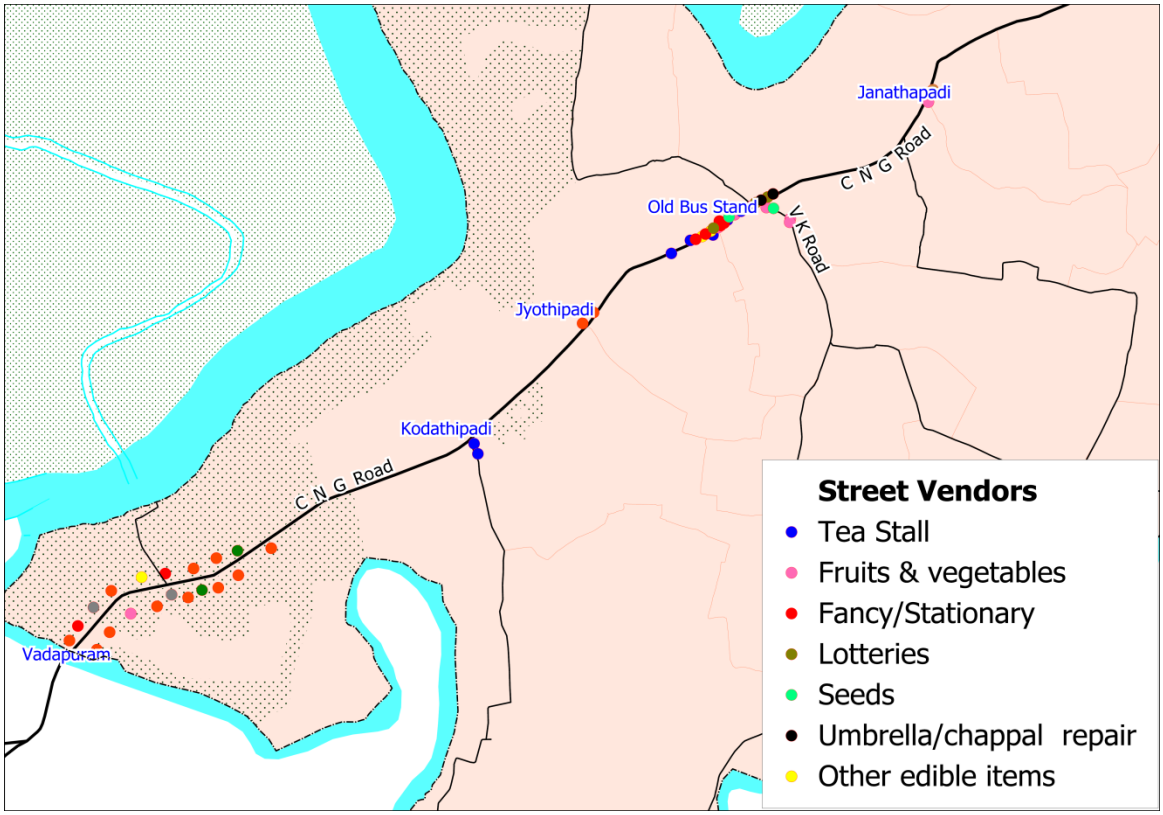


Figure 6-6: Street Vendor Distribution at Vadapuram, Kodathipadi,Jyothipadi,Nilambur Junction, Old Bus Stand, VK Road, Kovilakam Road and Janathapadi

Higher concentration is seen in Vadapuram at the entry point to Canoli Plot, Nilambur Junction, and Old Bus stand. These vendors are not registered with the municipality.

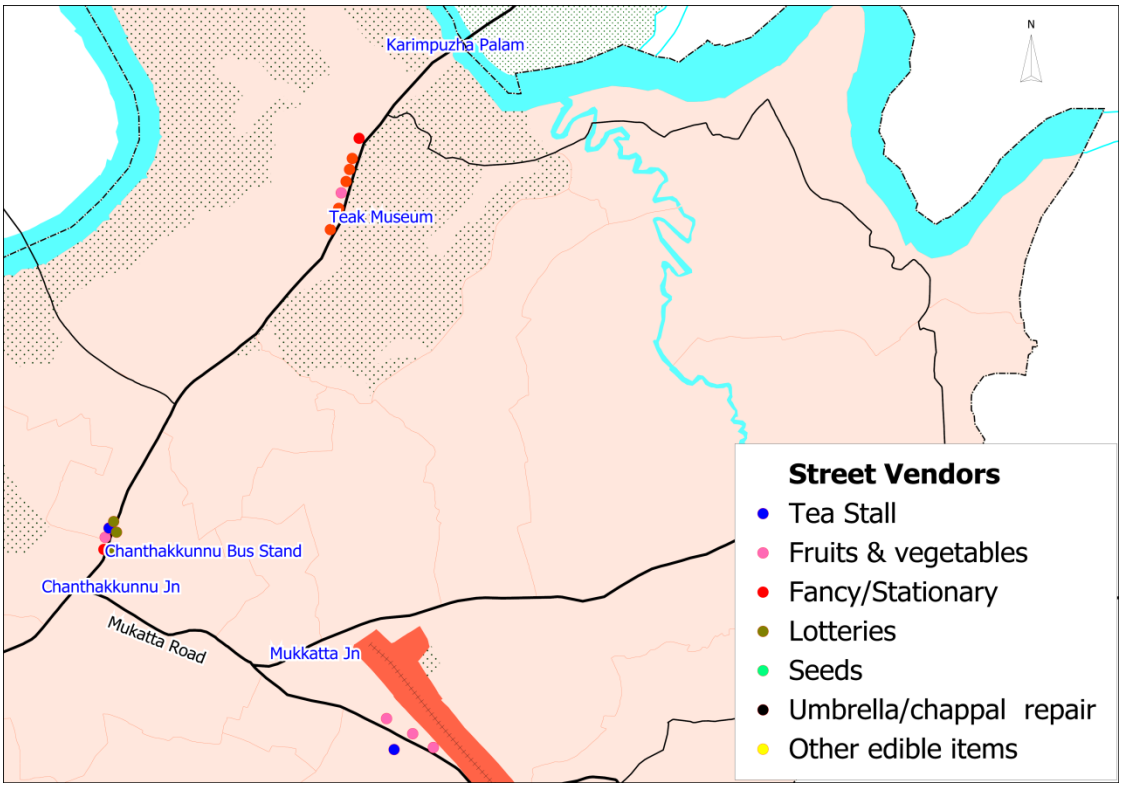


Figure 6-7Street Vendor Distribution at Chanthakkunnu Bus Stand, Railway Station and Teak Museum

Table 6-2: Details of Street Vendors in the municipality area (Source: Local Enquiry)

Sl. No.	Location	Juices	Fruits & vegetables	Tea stall	Other edible items	Fancy/ Stationary	Dress	Hammocks	Lotteries	Seeds	Umbrella/ chappal repair	Timber posts
1	Front of Teak Museum	5	1	-	-	1	-	-	-	-	-	-
2	Vadapuram	11	1	-	1	2	2	2	-	-	-	-
3	Old Bus Stand	-	1	-	2	5	-	-	1	1	-	-
4	Nilambur Junction	-	1	6	-	-	-	-	2	-	2	-
5	Chanthakkunnu Bus stand	-	1	1	-	1	-	-	3	-	-	-
6	VK Road	-	3	-	-	-	3	-	-	1	-	-
7	Janathapadi	-	1	-	-	-	-	-	-	-	-	1
8	Railway station	-	3	1	-	-	-	-	-	-	-	-
9	Jyothipadi	2	-	-	-	-	-	-	-	-	-	-
10	Kovilakam Road	-	1	-	-	-	-	-	-	-	-	-
11	Kodathipadi	-	-	2	-	-	-	-	-	-	-	-

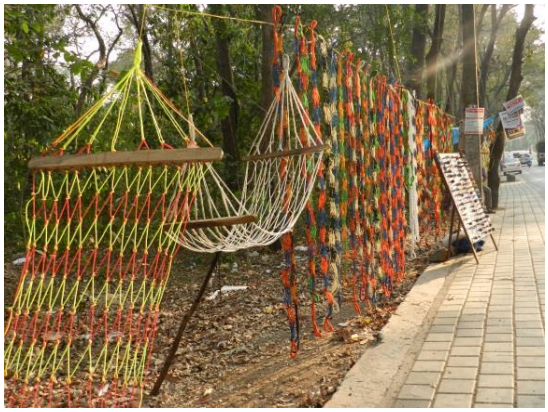




Figure 6-8: Street Vendor Distribution at Teak Museum

6.8 PROBLEMS AND POTENTIALS

Commercial sector in Nilambur has significant potential being a service centre for a vast agrarian–forest belt. The high quality teak wood and other forest woods of Nilambur have immense potential for wood furniture trade throughout the country and abroad, which is not explored currently in an organized manner. The GI registration for Nilambur Teak will ensure that its quality and reputation will have its uniqueness supported by law and ensure better returns for teak growers, furniture industry etc. Similarly, there is underutilized potential in production and trade of value added agricultural products.

Though railway service is available in the town, it potential is not fully utilized at present for trading goods and cargo. The town lacks supporting infrastructure like organized taxi/auto/lorry stands, public comfort stations etc. Concentration of commercial activities in junctions, ribbon development along the main road, less parking facilities and insufficient road widths adversely affects the attractiveness of the trade and commerce sector in the town and hinders the progress of the sector.

6.9 INFERENCE

Weekly markets and marketing facilities for coconut, plantains, arecanut, cashew, tapioca, paddy, vegetable should be promoted. A market in co-operative sector could be established in the municipality. Value added agricultural products from coconut, rubber, pepper etc shall be produced, branded and marketed. Besides, the prospective in production, branding and marketing of unique Nilambur teak wood products as well as the clay products and artefacts made by Kumbharan Community has to be explored to its full potential.



7 INDUSTRY

The industrial sector in the town was quite active from the British period. The existence of Kallayi wood industry was based on the woods of Nilambur forest. The Nilambur-Shornur Broad gauge line was constructed by the British aimed at exploiting the timber resources.

Kerala State Wood Industries Ltd, a public sector undertaking established in 1981 in Nilambur, was a large scale industry with all modern facilities introduced by the Kerala Forest Development Corporation. It employed around 140 people. It had initiated work on projects for the manufacture of plywood and wooden fixtures like doors, windows, wardrobes etc. for sophisticated foreign markets. However, there was no furniture handicraft unit incidental to main industry. Though Government had supplied wood at the lowest price, the industry went to loss and had to close down in 2009.

The Thomson Drugs & Chemicals was the other large scale industry in Nilambur engaging 68 male and 12 female labourers. Their main product was Antimalarial drug, which was mainly supplied to the Government. However this industry also closed down.

7.1 EXISTING INDUSTRIAL BASE

Presently Nilambur Town has a weak industrial base. There is no large scale industry in the municipality. One medium scale industry and 3 small scale units are functioning in the town. 94 micro scale enterprises are working in the municipality. The medium scale industry is a software development unit. The three small scale industries are engaged in manufacturing rubberised coir products, furniture and agricultural equipments respectively.

Figure 7-1 presents the no. of industrial units under various categories in the town. It can be seen that engineering/automobile based industries form the major bulk, followed by “others”. “Others” include steel furniture manufacturing units, tyre retreading units, PVC pipe manufacturing units etc. Agro/Food based industries are also prominent.

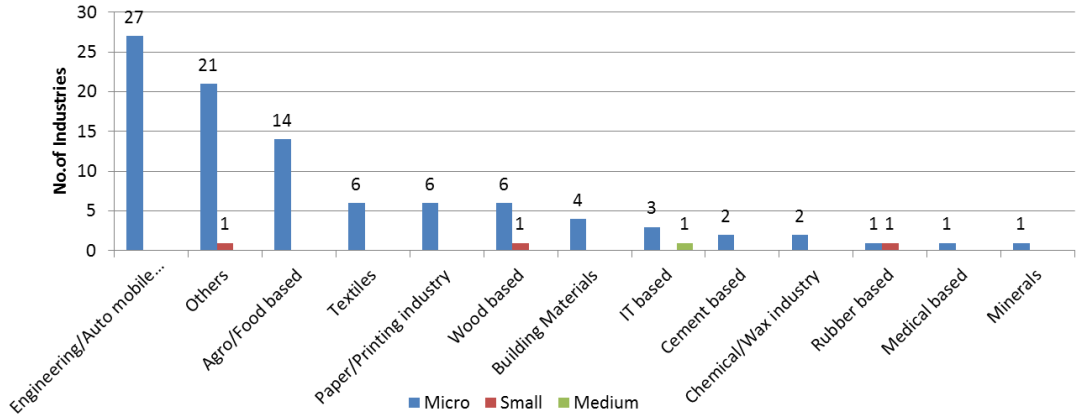


Figure 7.1 Types of Industries (Source: Local Body, Industries Dept.)

Coconut & rubber are the most predominant agricultural output from the agriculture sector. Major part of coconut production is exported to other places. There are only two coconut based industries functioning in this area (Copra unit and oil mill).Only one micro scale and one small scale industry based on rubber are present.

There is an Industrial Estate at Mummulli, the Rajiv Gandhi Vyavasaya Estate, covering an area of about 1 acre which is owned by the Nilambur Block Panchayat. Several small scale industries functioning here are listed in Table 7-1.

Table 7-1 List of Industries in Rajiv Gandhi Industrial Estate (Source: Local Enquiry)

Sl. No.	Name of Industry	Product	No. of workers
1	Shan Sweets	Sweets	8
2	I Sharp Ayurveda	Ayurvedic Products	5
3	Lamino Interiors	Laminated Particle board	6
4	Kairali Aluminium	Aluminium	7
5	Ave Mariya Industries	Rubber	5
6	Thekkars Industries	Ceiling fans	6
7	Thekkars Industries	Alker soap	3
8	Power Max	Mixi motor assembling	10
9	Angel Pavers	Interlock tiles	10
10	Mundukottakkal Ring works	Concrete rings	
11	Furniture Industries	Steel furniture	2
12	Mayuri Bakery Products	Bakery items	
13	NannusMinnus Flour mill	Flour	
14	Plasma Polymers	Wire, Pipe and fittings	
15	MSM Gum	Glue	2
16	Neenu foods	Flour	2
17	Amrutha Agro Industries	Wheel barrow	4
18	The Nilambur Implements	Knives	10



Figure 7.3 Hi-Sleep coir mattress industry



Figure 7.2Entrace of the Industrial Estate

The industries in the town together employ around 511 persons, as presented in Table 7-2.

Table 7-2 Employment in Industries
(Source: Local Body, Industries Dept.)

Type of Industry	No.of Employees
Engineering/Auto mobile industry	124
Others	106
Textiles	54
Wood based	50
Agro/Food based	42
Paper/Printing industry	41
Rubber based	27
Building Materials	23
IT based	18
Cement based	10
Chemical/Wax industry	7
Medical based	6
Minerals	3
Total	**511**

The town, surrounded by rivers, is rich in basic amenities such as bigger plots, traffic facility, raw materials etc. But shortage of electricity is a major problem faced by this sector.

7.2 COTTAGE INDUSTRY

There is a traditional industry unit producing clay products, in the Municipality at Aruvacode. Aruvacode is a small village near Nilambur best known as a hub of art and craftworks. Famed for its fine pottery carried out by a traditional community named Kumbharan, this hamlet attracts hundreds of visitors and tourists. This settlement is as old as the place itself. Today this village is known as Aruvacode Pottery Village.

The Kumbham Handicraft Project revived the tradition of pottery making here in Aruvacode. The story of Aruvacode Pottery Village is truly inspiring for those who are interested in small scale industries. Though



Figure 7.5 The Potter's wheel at Aruvacode



Figure 7.4 Terra-cotta art

traditionally inhabited by skilled potters, the economy of this region had collapsed due to the advent of globalization. Subsequently clay pots and utensils lost their popularity with the introduction of cheaper substitutes. But the potters of the village under the leadership of renowned artist K.B Jinan revived this art form and made a successful return. It has realized the need for the potters to make a niche for themselves in today's competitive market.

Today, the potters of Aruvacode make kitchen and household ware in over 500 designs, garden furniture and landscaping products, murals and architectural accessories. They design and produce beautiful and innovative product by experimenting with terracotta and could find markets for their products in many places within and outside the country. The Kumbham village and the project has thus emerged as a fine example how traditional artistic skills can be redefined to overcome the challenges of globalization.



Figure 7.7 Pottery workers

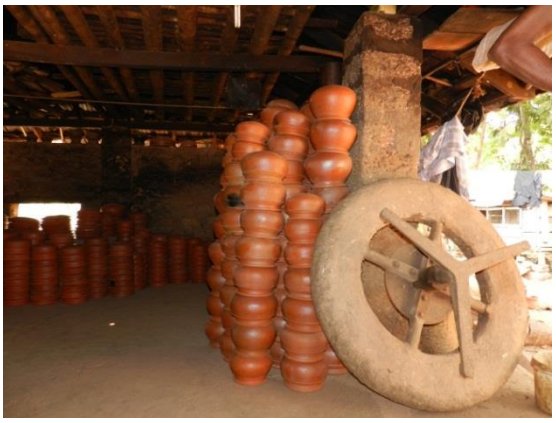


Figure 7.6 Stacked pots in one of the workplace in Kumbham village





7.8 Various Products of the Cottage Industry

7.3 SPATIAL DISTRIBUTION

The total area under industrial land use comes to only 0.46 % of the municipal area. The industrial estate named Rajiv Gandhi Vyavasaya Estate is situated at Mummulli. Most of the units being micro in scale are scattered around interwoven with the residential and commercial land use. The Hi-sleep coir industry, Best Brick and Tile work, Classic Rubber Resoling unit and the Thrimithi work shop are some the small scale industries highlighted in the map.

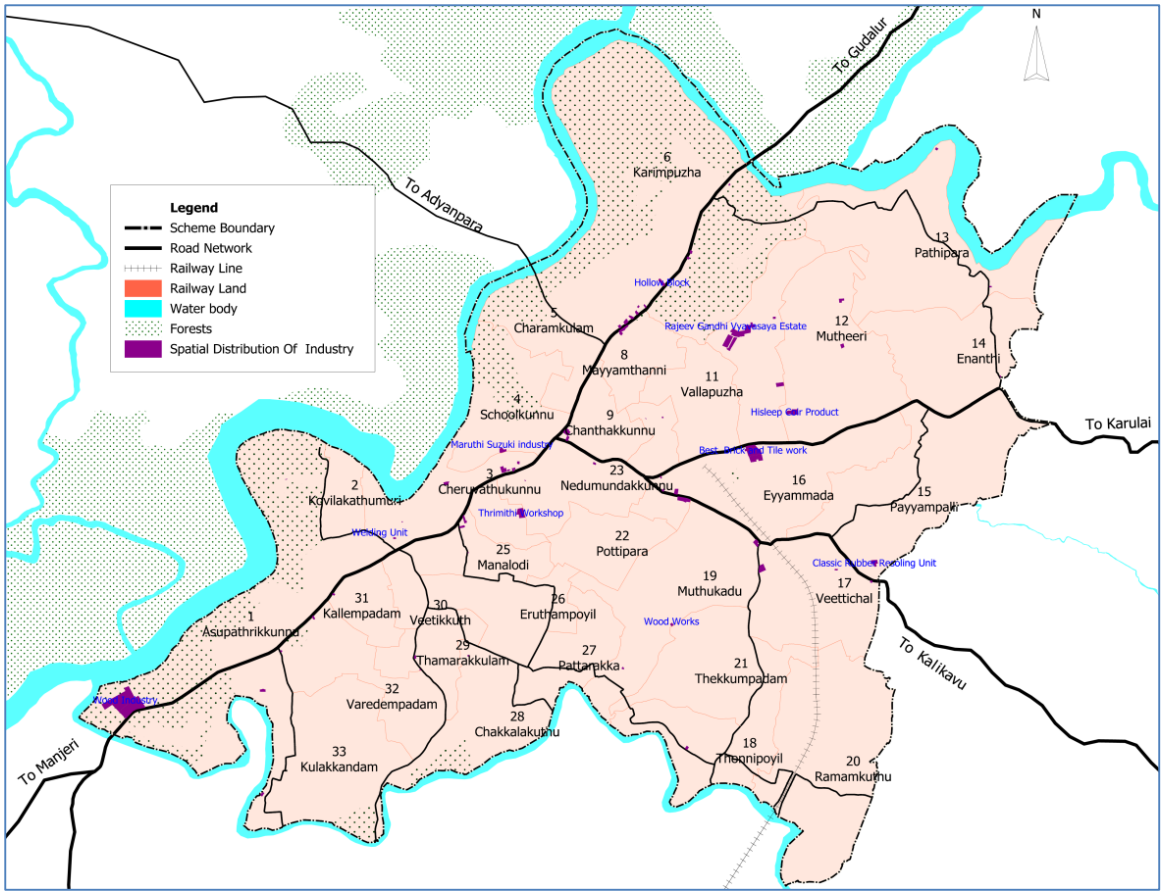


Figure 7.9: Spatial Distribution of Important Industries

7.4 PROBLEMS AND POTENTIALS

Growth of Industrial sector is insignificant mainly due to poor exposure to latest technology and lack of technical consultants. Tremendous hike in land value also restricts the development of large enterprises.

Presence of railway helps easy movement of raw material and finished goods. The presence of forest land indicates scope for wood based industries. There is also scope for agriculture products' value addition industries. The Kumbham Cottage industry has helped to promote traditional skills and explore the use of terra-cotta for manufacturing various interesting house-hold products. There is scope for more industrial estates since large parcels of land are available for such development.

Huge quantity of rubber wood is obtained from rubber plantations. Hence there is opportunity to establish rubber wood treatment plants and manufacturing unit for making furniture, door, window etc. Wood carving unit, another industry based on forest wood, also has got good possibilities. Expense for installation of different types of machinery hampers the improvement of wood carving units. Soft wood like Mahagoni, Manjakadambu, Vella Akil etc are very useful for manufacture of sports goods. Hence there is scope for production of sports goods.

7.5 INFERENCE

The potential of the town is its forest reserve that offers a large quantity of wood which can be used for various types of industries, thus increasing income and employment of the

residents of Nilambur. Utilizing the available infrastructure of Kerala State Wood Industries will ensure progress of this sector. Rubber based and agro-based industries also have got good potential in the town. Aruvacode is an ideal shopping spot for handicraft loving travelers (especially the Kumbham products). Institutions like the KSEB, Single Window Clearance Board, Banks etc, must provide proper guidance and assistance to the Entrepreneurs for promoting various industries in the Town. Promotion of non-pollution industries and micro level industrial units are required to improve this sector.



8 AGRICULTURE, ANIMAL HUSBANDRY AND FISHERIES

8.1 AGRICULTURE

A survey conducted by Agriculture Department found that the banks of Chaliyar in Nilambur had the most fertile soil in Kerala (Source: Vikasana Rekha). Floods occurring in Chaliyar River deposited fertile alluvial soils along its coasts, thus making Nilambur fertile. World's first teak plantation was done in 1842-1844 in Nilambur by the then Collector of Malabar, Mr. H.V Connolly. History of cultivation of rubber in India date back to 1878, when rubber was cultivated as a forest crop in Nilambur using planting material brought from Ceylon (Sri Lanka). (Source: *Biodiversity in Horticultural Crops, Chapter 18- Rubber (Heveabrasiliensis), Y Annamma Varghese and Saji T. Abraham, Rubber Research Institute of India*)

In the past when most of the land was owned by the Nilambur Kovilakam, the landlords, paddy was the main cultivation. But after the Land Reforms Act 1967, the land ownership was transferred to the farmers. During these days short term crops like paddy, banana, vegetables etc were extensively cultivated and the produce were marketed in Kaladi and Kozhikode, which were then the major market centers. Presently farmers are shifting to other long-term crops like rubber, arecanut, coconut etc. Moreover, change in the family structure increased the demand for residential plots and initiated conversion of paddy as well as dry agriculture lands.

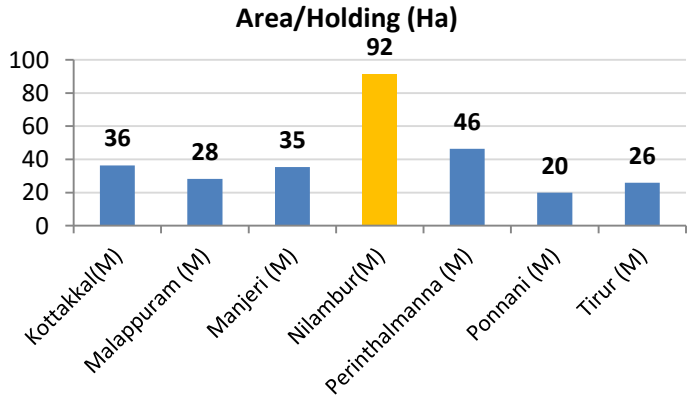


Figure 8-1 Comparison of size of Operational Holdings with all other Municipalities (Source: Panchayat Level Statistics 2011, Dept. of Economics and Statistics)

In the context of the strategy for agricultural development after independence, knowledge of the detailed structure and characteristics of agricultural holdings became essential for efficient planning and implementation of programs. For this purpose, it became imperative to have information by operational holdings as distinct from ownership holdings. As such, operational holding defined as "all land which is used wholly or partly

for agricultural production and is operated as one technical unit by one person alone or with others without regard to title, legal form, size or location" is taken as statistical unit for data collection in Agriculture Census. A technical unit is defined as the unit which is under the same management and has the same means of production such as labour force, machinery and animals etc. When compared to other municipalities in the District it is seen that Nilambur has the highest range of Operational holdings, altogether (Figure 8.1).

8.1.1 Major Crops

Agricultural land use covers nearly 46% of land in the town. Paddy, arecanut, coconut, rubber etc are the major crops cultivated here. Pepper, banana and other vegetables are cultivated as mixed crop.

Teak and Rubber are the major plantations in the municipality. Mr. H.V. Connolly, then Malabar collector started Teak plantation in the year 1844. Now the teak plantations have spread to more than 10000 hectare of forest land in and around the Municipality. In 1902 the Vaniyamkulam Rubber company started Rubber plantations in the municipality which is now widely been spread to about 12000 hector land as in the case of Teak. Arecanut is cultivated in 400 ha, coconut in 350 ha, paddy and rubber are cultivated in 100 ha in the municipality.

Table 8.1 Major Crops, area and productivity
(Source: Local Body, Agriculture Dept. 2012)

Sl No	Type of crops	Area (Ha)	Production (Ton/yr)
1	Coconut	350	490-653
2	Areacanut	400	363.6
3	Paddy	100	300
4	Vegetables	10	175
5	Tapioca	60	300-350
6	Pepper	50	150
7	Cashewnut	10	7.6
8	Banana	35	224
9	Rubber	100	3300
10	Pulses	10	30
11	Other Spices	5	Yield not recorded
12	Other crops (Mango, Coconut, Jackfruit & Minor fruits)	128	Yield not recorded

8.1.2 Spatial Distribution

The Figure 8-2 gives the spatial distribution of agricultural land in the town. From the figure it is evident that the agricultural activity is spread towards the southern and eastern parts of the municipality. The river banks are seen encompassed with forest land. Paddy land constitutes 8.10% of the municipal area. In many places, the residential land use has encroached upon paddy fields to a large extent. The spatial distribution of the dry agriculture is also given in Figure 8-3.

The dry cultivation (mixed crop, areacanut, coconut, pepper, betel vine etc) constitutes 37.82% of the municipal area. More than 65% of dry cultivation constitutes of rubber cultivation and 15.5% of dry cultivation is mixed cultivation.

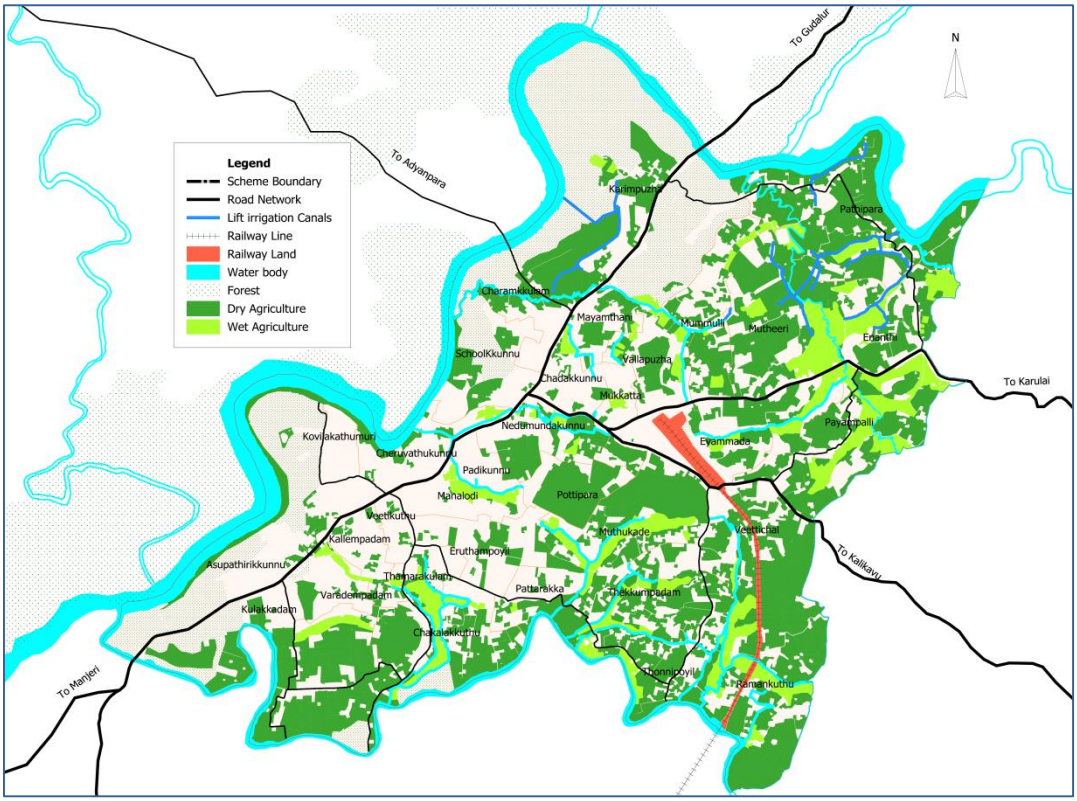


Figure 8-2 Spatial Distribution of agricultural land in the municipality

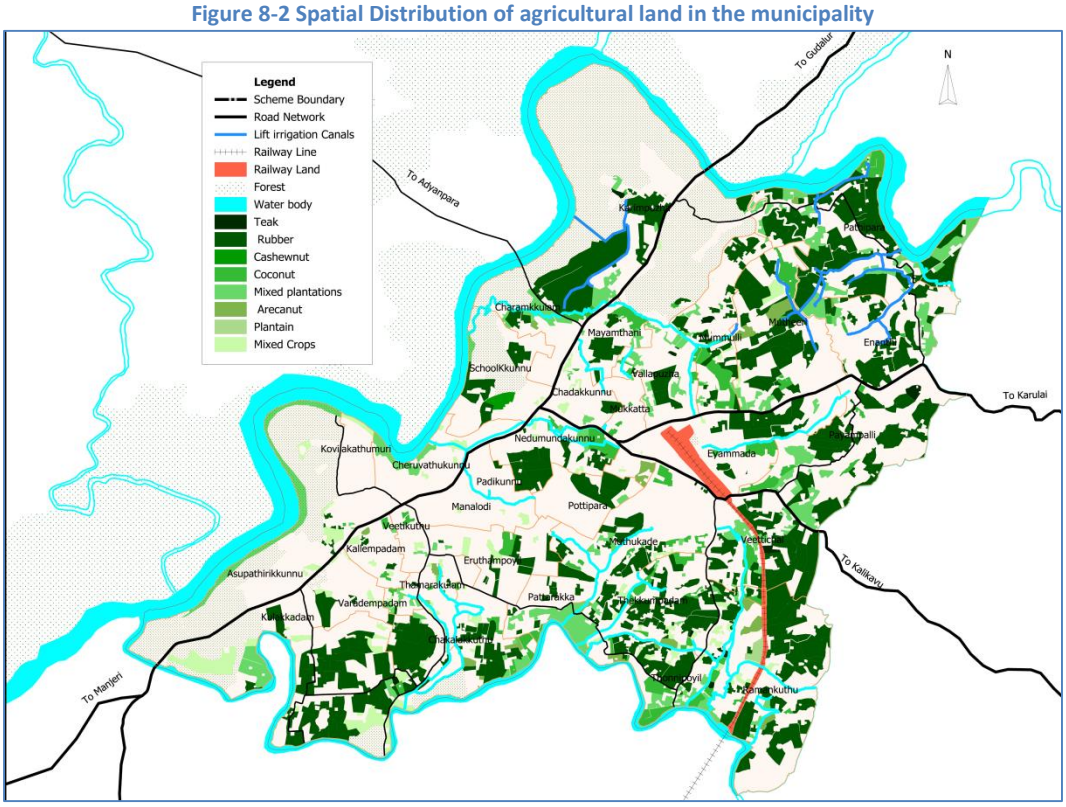


Figure 8-3 Crop-wise Distribution of dry agricultural land in the municipality

8.1.3 Agricultural inputs and marketing facilities

Krishibhavan and Assistant Director of Agriculture (ADA) office supplies agricultural inputs like seeds, saplings, fertilizers etc and Raidco, Hindusthan Enterprises supply agricultural machinery to the farmers. There is also a private fertilizer shop named Janatha Stores located at

Nilambur. The nearest seed farm is at Muttikkadavu in Chungathara Panchayat at a distance of 8km. A Swasraya Karshaka Sangham, a cooperative initiative also functions in the municipality. There is another seed farm at Munderi under the Government, which is the biggest seed farm in Asia. (Source: Anthima Padhathi Rekha, Nilambur Block Panchayat, 2013-14)

The Malappuram District Rubber Growers Marketing Co-operative Society Ltd. started functioning in the year 1965, at Nilambur to supply agricultural inputs. The main objectives of the society are to supply agricultural inputs at the lowest possible price, the supply of garden materials, acids, pesticides, good quality rubber saplings, and all other items required by the rubber growers.

The Thunchathu Ezhuthachan Rubbers Pvt. Ltd, is a joint venture of The Rubber Board (Ministry of Commerce and Industry, Govt. of India) and Rubber Producers Societies (NGOs registered under Charitable Societies Act) of Malappuram District. The Company has been in operation since 1990. This is a village level rubber producer's society, which collect latex from all over the district. The major rubber processors are located at Kalikavu, Mampad, Vadappuram, Karuvarakundu and Wandoor. Around 54tonnes of latex and 210 tonnes of rubber sheets are collected and exported to Harrison's Malayalam Ltd, Kochi and Mardec R K Latex, Aluva, Ernakulam.

Sufficient modern equipments and machineries are available in the town. Nilambur is also a major marketing center for fertilizers and pesticides in Nilambur Taluk. Organic farming is also being promoted to a vast extent throughout the municipality.

Eight nationalised banks in the town offers credit facilities for agricultural purpose, more over Ernad Agricultural Development Bank and two other Co-operative Banks.

8.1.4 Irrigation Schemes

There are three irrigation schemes in Nilambur Municipality, operating mainly during the summer season.

- Kurumthottimanna Lift Irrigation scheme
- Pullancheri Irrigation scheme
- Karimpuzha Irrigation Project

The Kurumthottimanna Lift Irrigation Scheme in the Chaliyar basin lifts water by pumps during summer season and distributes through canal networks. The Scheme is designed for an ayacut area of 135Ha and was completed in 1980 and maintained by the Irrigation Dept. The main canal has a length of 1200m, 0.6m wide and 0.9m depth, with two branch canals of 1470m and 650m. The crops cultivated by the help of this scheme are paddy, coconut, arecanut and vegetables. Three pumps of 75HP of suction head 7.5m and delivery head 14m, works 9hrs/day from September to May. (Source: Integrated River basin Master Plan for Chaliyar, prepared by Minor Irrigation Division Malappuram, February 2013).

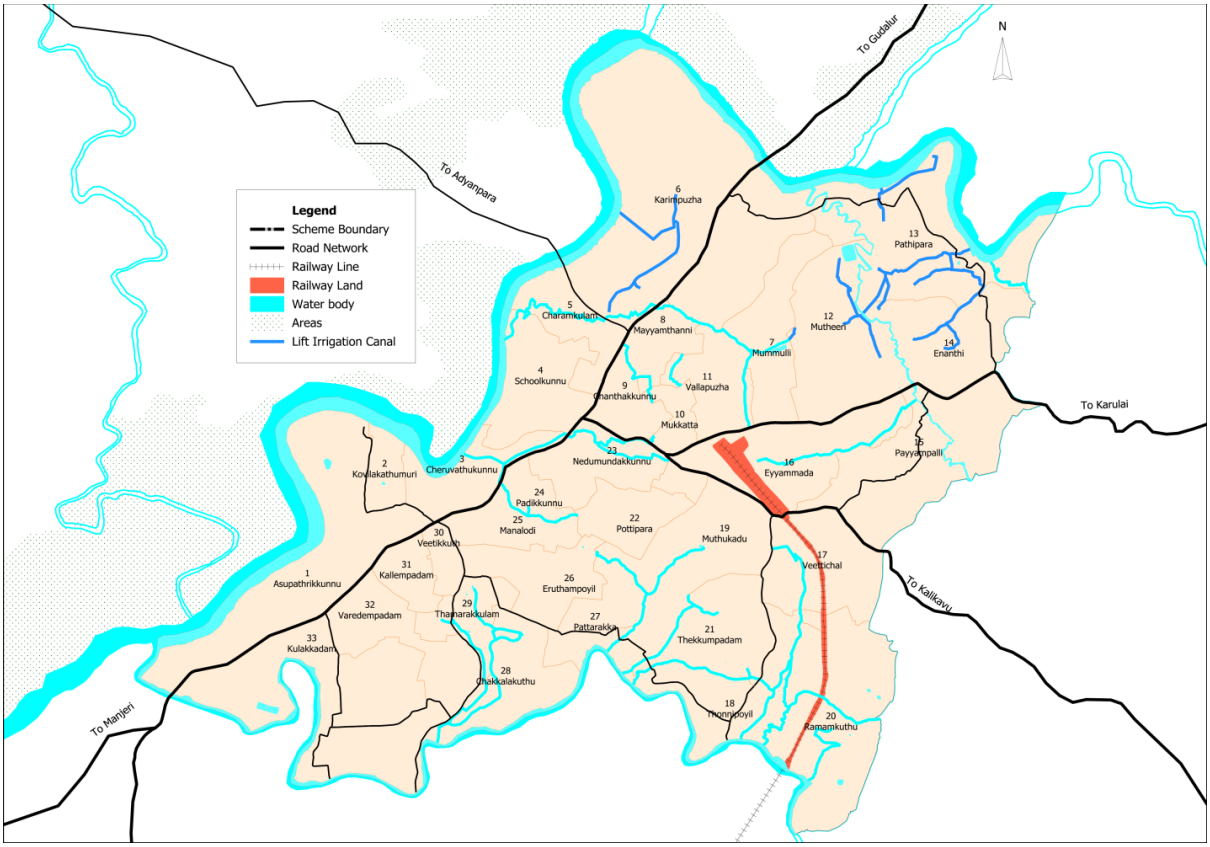


Figure 8-4 Spatial Distribution of the Irrigation Schemes and canals in the municipality

8.1.5 Agricultural Labour

Table 8.2: Agricultural labour to cultivator ratio (Source: Derived from Census data)

Year	% Main cultivators	% Main agricultural labourers	Agricultural labourer to cultivator ratio
1991	8.36	31.72	3.6
2001	3.16	9.38	3.0
2011	2.22	3.53	1.6

The agricultural labour strength in the municipality's work force drastically decreased to less than one-third, in the decade from 1991 to 2001 and is still decreasing. (Figure 8.5).

The availability of labourers per cultivator, as shown in figure 8-6, reduced to half, between 1991 and 2011. Cultivators and labourers reduced almost proportionately in 1991-2001 period, while between 2001 and 2011, the fall in labourers was on the higher side. Non availability of labours and demand for high wages are the main reasons for the reduction in agricultural activities in the town.

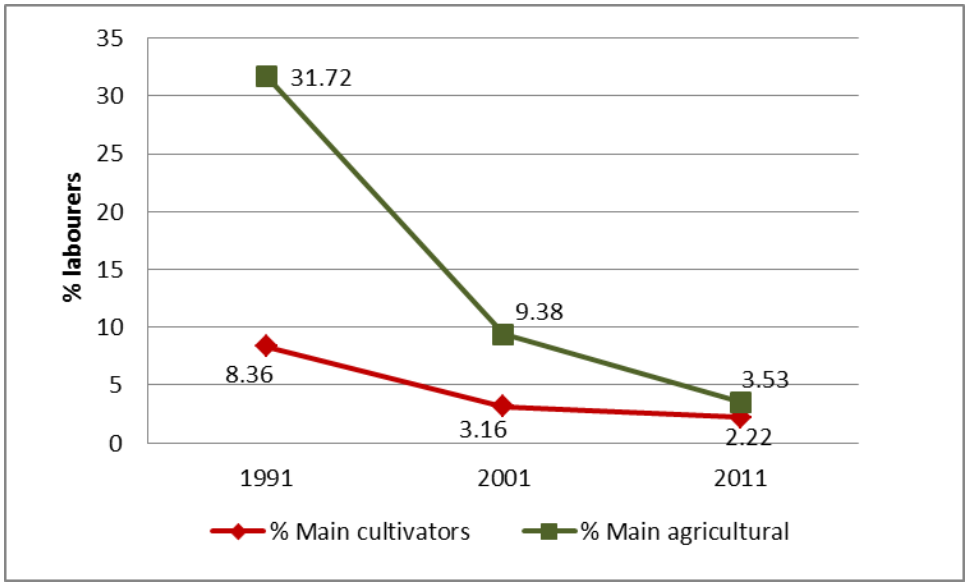


Figure 8-5: Comparison of Temporal variation of Cultivators and Agricultural Labours (Main Workers) (Source: Derived from Census data)

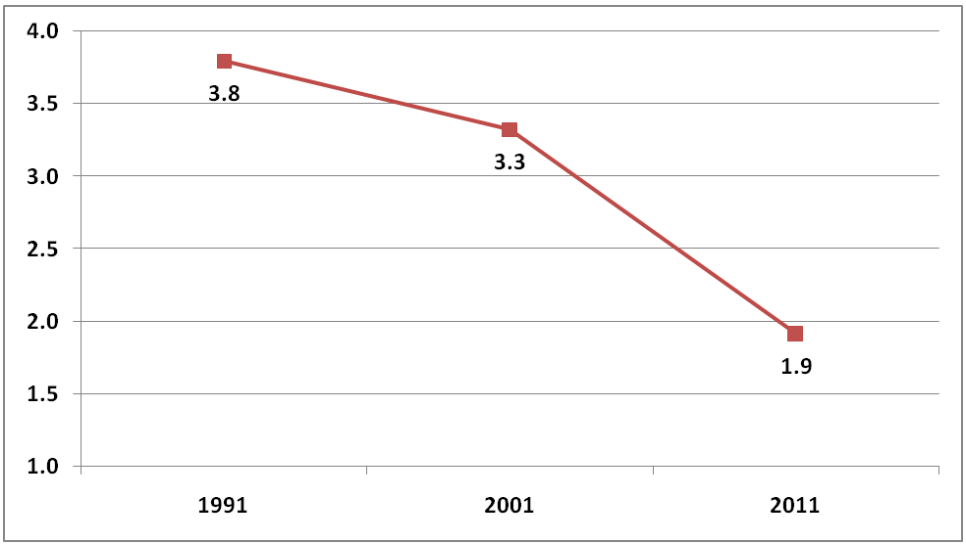


Figure 8-6: Temporal variation of Agricultural labour to cultivator ratio (Source: Derived from Census data)

8.1.6 Problems and Potentials

Various reasons for diminishing paddy cultivation are increase in expense of agricultural production, high labour charges, decrease in income compared to other agricultural labours, less income from agricultural products etc. The climate change and shift of monsoon, also attack of wild animals on cultivated crops adversely affect the production. Hence the uneconomic affairs of paddy lead to land filling and conversion for other long-term cultivations. Vegetable cultivation on paddy land also reduced due to the hike in production cost, non-availability of high-quality seeds, cheap inflow of vegetables from near-by states, losses caused by natural calamity etc. Huge parcels of agricultural land have been broken into small lots for construction purpose. The water shed areas in the town have not been identified, and water shed development programs are not implemented. Lack of processing facilities, marketing networks / facilities and lack of knowledge about scientific and modern crop production technologies are reasons for weakening of this sector.

Paddy cultivation and production of high-quality seeds can be encouraged by promoting

group farming. However, the widespread homestead farming provides hope and shall be encouraged. Kitchen gardens, terrace farming as well as vegetable gardens in schools, vacant public lands etc. can be promoted and has immense potential to improve food security of the region. Organic farming, Floriculture and horticulture have good scope in the planning area. Initiatives like Kudumbasree, NREGA etc. can be effectively linked with farming/horticulture/floriculture initiatives in vacant lands and uncultivated agricultural lands as well as organic farming. Mixed cropping, group farming and mechanisation can be promoted and farmers can be trained in the same for better results. Value addition industries and marketing facilities shall be encouraged in the planning area.

Beekeeping constitutes a resource of sustainable income generation to the rural and tribal farmers. Trainings for farmers and students are to be organized, in order to create awareness on the side effects of usage of fertilizers and pesticides.

8.1.7 Inference

Paddy cultivation and production of high-quality seeds must be widely promoted. Paddy cultivation which is presently in 8.10% land should be upgraded and vegetable production also should be upgraded. Lack of modern techniques, value addition industries and marketing facilities is a major hindrance to the growth of agricultural sector. The agricultural department should educate and equip the farmers and students with some of the modern techniques of farming. Homestead cultivation, kitchen gardens and vegetable gardens in schools should be encouraged. Good quality seeds and fertilizers are to be supplied to the farmers and proper monitoring of the cultivation techniques should be provided. Crop diseases are to be properly attended and marketing facilities for the agricultural produces should be established in the planning area

8.2 ANIMAL HUSBANDRY

In the beginning of the 20th century, as the ownership of most of the area in eastern Ernad was vested in the landlord Nilambur Kovilakam, there used to be vast barren lands which served as pasture for the animals. However, animal husbandry was not practiced for domestic or commercial purposes and there used to be a lot of stray cattle. Gradually people started rearing domestic animals for agricultural purposes, to meet the requirement of milk for domestic uses, to carry agricultural produce from farm to market as well as to transport people. Later on, usage of modern machineries for agricultural purposes and increased transportation facilities reduced the dependence on animals for such purposes and caused decrease in the number of domestic animals. At present, animal husbandry is practiced to gain an additional income. Hence cattle or poultry which has higher production is reared instead of indigenous species. However, these species are less disease-resistant compared to the indigenous varieties and require more protection.

8.2.1 Livestock Population

Currently cow, goat and poultry are reared in Nilambur aiming at better livelihood. Majority of the natives consumes milk, meat and eggs, hence there exists ample demand. Goat, poultry, buffaloes, pig, rabbit etc. are used for meat production. Rabbits, dogs, love birds, dove and fish are also raised by a few people as pets.

Table 8-3 gives the livestock population in the town for 2013. The population of livestock and fowls are decreasing drastically. Around 500 small scale farmers are involved in this sector as per the statistics of the Veterinary Hospital.

As per the assessment by the Veterinary Hospital, Nilambur, around 6.91 lakhs per month is generated as income from animal husbandry activities, 5.7 lakhs from milk, 0.98 lakhs from meat, 0.2 lakhs from egg and 0.03 lakhs from manure.

Table 8.3: Live Stock Population in Nilambur (Source: Local Body, Veterinary Dept.)

Sl. No.	Live Stock	Population (2013)
1	Cow	949
2	Goat	641
3	Hen	13540
4	Duck	473
5	Rabbit	91
6	Others (Turkey+ Quail)	26

8.2.2 Production

There are two Milk Co-operative societies at Kolakandam and Mutheeri with 20 farmers each, in the municipality. Table 8-5 gives details of dairy outlets and collection centres. It is observed that 10200 litres of milk is collected from these milk societies. The milk produced is transported to the MILMA processing plant in Kozhikode district.

Table 8.4 Dairy outlets and collection (Source: Local Enquiry)

Name of Ward/Place	Type of outlets and collection centres	Average Qty collected per Month (Ltrs)
Mutheeri	Milk Co-operative society	4500
Kolakandam	Milk Co-operative society	5700
	Total	10200

There are a few poultry farms in the town, two of them situated in Mutheeri (Ward No.12), producing around 1500 birds/ month. Production of animal meat in organized sector is absent in the town.

8.2.3 Consumption

Most part of the total demand for milk is met by the supply of packed milk through MILMA outlets. Therefore, consumption of milk in the town is approximately assessed by the total monthly sale at the MILMA outlets. Table 8-5 shows the average consumption of milk is 51300 litres per month.

Table 8.5 Consumption of milk per month (Source: Local Enquiry)

Sl No.	Name of Ward/Place	Type of outlets and collection centres	Average Qty sold out per Month (Ltrs)
1	Main road	Milma Booth	22500
2	VK Road	Milma Booth	10800
3	Kovilakam road	Milma Booth	6000
4	VK Road	Milma Booth	12000
		Total	51300

As the production of meat is very less compared to the consumption in the town (table 8.6), poultry and animals for meat production is imported from other states into the town. The consumption of beef is more than chicken and mutton.

Table 8.6 List of Meat stalls(Source: Local Enquiry)

SL NO:	Name of stall (Owner)	Chicken (Qnty in kg/day)	Beef (Qnty in kg/day)	Mutton (Qnty in kg/day)
1	Rooba Chicken Stall	50	--	--
2	Beef Stall (Sudheer Punnappala)	--	30	--
3	Mutton Stall (Kadirsha)	--	--	60
4	Bismi Chicken Stall (Rasheed)	100	--	--
5	Beef Stall (Ibrahim)	--	80	--
6	Beef Stall (Muhammed)	--	60	--
7	Beef Stall (Chandakunnu)	--	40	--
8	Beef Stall (Nilambur)	--	55	--
9	Beef Stall (Shajahan)	--	120	--
10	Mutton Stall (Firoz)	--	--	20
11	Balan Chicken Stall	80	--	--
12	Monoos Mutton stall	--	--	20
13	A.K. Beef (Muhammed Kutty)	--	100	--
14	Babu Chicken Stall	75	--	--
15	Bismi Chicken Stall (Siddhique)	65	--	--
16	Friends Chicken (Ajmal)	20	--	--
17	Daily Fresh Chicken	50	--	--
	Total	13200	14550	3000

.

8.2.4 Physical Infrastructure

Nilambur has a veterinary hospital situated at Veliyamthodu. Besides, an ICDP Sub-centre and Regional AI Centre functions at Enanthi. A Regional Animal Health Centre (RAHC) functioning along with the veterinary hospital conducts training and awareness programmes for the farmers in the region. There are no authorized slaughter houses in the municipality though four unauthorized units are functioning at various locations.

The Ksheera Vikasana Office of Nilambur Block, located in the municipal area, collects milk from 52 societies out of 60 in Nilambur Block. MILMA's Milk Chilling Plant, Procurement and Input Office located at Nilambur collects milk from 124 societies spread in 6 blocks of Malappuram District and sends to MILMA processing plant at Kozhikode. It also distributes Milk (16000 Ltrs/day), Curd (4000 Ltrs/day) and Ghee (Seasonal) in the region.

8.2.5 Ongoing activities

The following projects are being implemented in the municipality by the Animal Husbandry Department.

SLBP–The Special Livestock Breeding Programme started in 1976 – 1977 aims to provide female cross – bred calves below six months of age with good quality feed to ensure health, and insurance coverage, in order to bring the age at puberty down to 14 – 16 months. Thus milk yield of these calves could be increased and an additional six months of lactation achieved per animal.

Calf adoption – Under this scheme calves are adopted and insured in order to encouraging scientific dairy farming. This programme seeks to improve the growth rate of calves

and enhance their milk yield through better feed and care. Dairy farmers, irrespective of financial status, are entitled to a subsidy of Rs.12,500 per calf under the scheme.

APCOS–The Anand Pattern Co-op Societies or "APCOS" is affiliated to the state level apex body-Kerala Co-operative Milk Marketing Federation Ltd (Operating under the trade name MILMA) for the efficient production and marketing of milk products.

8.2.6 Problems and Potentials

Besides being a service provider for the vast agriculture-plantation belt in the Taluk, Nilambur having a reasonably good agricultural base, has got ample potential for allied activities like animal/poultry farming within its jurisdiction itself. However, increase in price of cattle feeds, diminishing pasture lands, lack of fodder and hay, lack of better treatment facility etc. are making cattle farming less- profitable. Lack of better treatment facilities for the livestock, animal produce processing and distribution facilities, awareness in scientific methods of animal husbandry and absence of cattle and poultry feed production industries in the region are other factors hampering the development of animal husbandry sector. Nuisances created by stray dogs/wild animals are also reported. The absence of modern slaughtering facilities is a major drawback of the municipality.

8.2.7 Inference

Break up of land into small parcels has discouraged animal as well as poultry farming at house hold level. This in-turn has promoted importing of animal and poultry products from other states. At least one slaughter house with modern facilities has to come up, to ensure the quality of meat consumed by the people in the municipality and that healthy animals are slaughtered for human consumption. Self-sufficiency in poultry produce can be achieved and poultry imported from other states can be restricted. A model veterinary clinic is to be established in the municipal area.

8.3 FISHERIES



Nilambur Town, being nowhere near a coastal zone, does not have any marine fishing activities. However, majority of the people in this area consume seafood. Inland fish farming is being carried out extensively in Nilambur. Fish farmers produce a variety of fish breeds like Pearl Spot, Katla, Rohu, Mrigal Carp, Grass Carp and River Prawn as part of the programme. Several small and large ponds existing in the municipal area are used for inland fish farming.

One of the famous Aqua farms in Nilambur is the Chemmala Aqua farm, which has also developed into a regional tourism spot. There are a variety of pigeons, hens, rabbits, turkeys and ducks available in the farm for sale. A houseboat has started functioning in the farm, offering a floating dining facility to attract tourists, who will be served with fresh fish caught from the farm.

8.3.1 Physical Infrastructure

There are three fish markets functioning in the municipality as listed in Table 8-7. They procure fish from Tirur, Kozhikode and Mangalore. Waste from the markets is processed at the biogas plant located at Chettiangadi.

Table 8.7 List of Fish Markets functioning in the municipality (Source : Local Body)

Sl. No.	Location	Ownership	Type of market	Working time	No. of labours
1	Nilambur	Public	Retail	8 am to 10 pm	2 nos
2	Chandakunnu	Public	Whole sale	8 am to 10 pm	8 nos
3	R.S Road	Public	Retail	8 am to 10 pm	3 nos

8.3.2 Problems and Potentials

There is ample scope for inland fisheries, including ornamental fishing, in the municipality. Introducing hatchery units in the municipality would ensure that fingerlings or fry could be supplied to inland farmers in the month of June. Markets for inland fishes are to be brought up. Financial aid from institutions, necessary expertise and timely supply of fingerling to the farmers will make this sector profitable.



8.3.3 Inference

With number of ponds and uncultivated paddy, there is scope for promoting more fresh water fish farming in the town with better environment and marketing facilities. This could also be clubbed with the tourism activities in the region and can create better economic synergy.



9 TOURISM AND HERITAGE

The Sculpture of the *Vanadevatha* (Goddess of Forests) at Teak Museum, Nilambur

9.1 MAJOR TOURIST ATTRACTIONS

Situated on the banks of the Chaliyar River, Nilambur region is noted for vast rain forests, tribal settlements, waterfalls and extensive plantations of teakwood, rosewood, mahogany and bamboo. The widely forested land is well known for Connolly's Plot, the world's oldest teak plantation and bamboo woods. This is also the original home of the Cholainaickans, the oldest aboriginal tribe of Kerala.

On the Calicut - Ooty highway, 40 Kms from Malappuram, Nilambur Municipality is an important halting place for tourists on route to Ooty, as it houses a well-designed Teak Museum, the Aruvacode Pottery Village, and the Nilambur Kovilakom and is a trading centre of hill products.



9.1.1 Teak Museum and premises

The Teak museum of Nilambur is the first and only teak museum in the world and traces the history and uses of the wonder wood. The museum, dedicated to history, biology, cultivation and utilization of teak, was established in 1995 on the campus of the sub-centre of Kerala Forest Research Institute (KFRI) because of the historical significance of teak to the area.

The exhibits include comprehensive information on aspects of the use of teak in their exhibits and articles on the subject. The museum provides extensive information of value historically, artistically and scientifically.

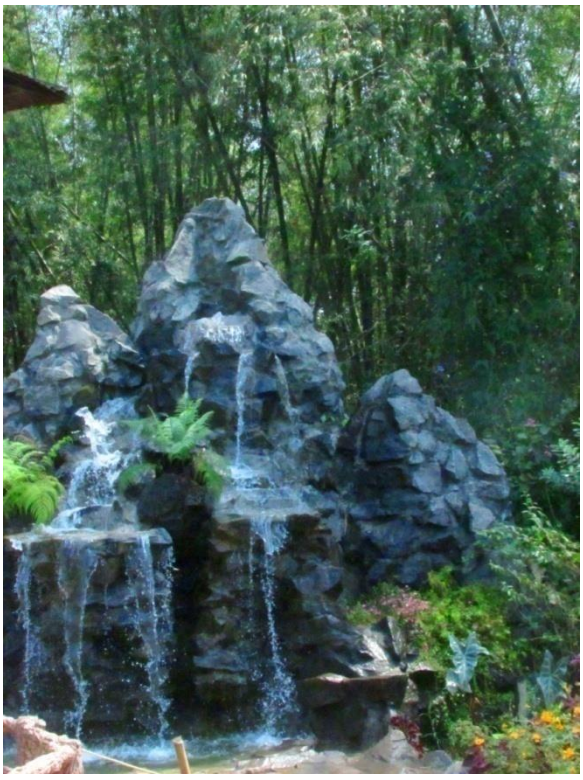
The various exhibits found are, an extensive root system of 55-year-old teak tree, magnificently carved teak door, a translite of one of the oldest naturally growing teak tree - 'Kannimara', a traditional granary made out of teak wood, a miniature model of sailing vessel, Uru, made of teak wood and paintings of 'Kannimara teak' and a sailing ship etc. Various problems encountered such as pests, diseases and physiological disorders in teak plantations



and their remedies are presented next. Natural stands and plantations of teak harbour a large number of insects both useful and harmful, some of which are exhibited. A collection of more than 300 butterflies, moths and insects is displayed next. Adjacent to this is presented the plant and animal associates of teak. A few illustrations depict moods of teak as it passes different phenological phases of flushing, flowering, fruiting, defoliating in different seasons. A mini auditorium having facilities for audio-visual presentations and a library with world literature on Teak is also functioning in the museum.

Bio-resources Nature Trail

Adjacent to the Teak Museum, there is an 800 m long Bio-resources Nature Trail, which is a live mimic of natural ecosystems and the native biodiversity. The Nature Trail depicts habit and habitat of various plants and animals under various themeswhich are arranged beautifully on a trail, which attracts lots of visitors of all genres, from international tourists and researchers to school children, as well as picnic teams from the region.

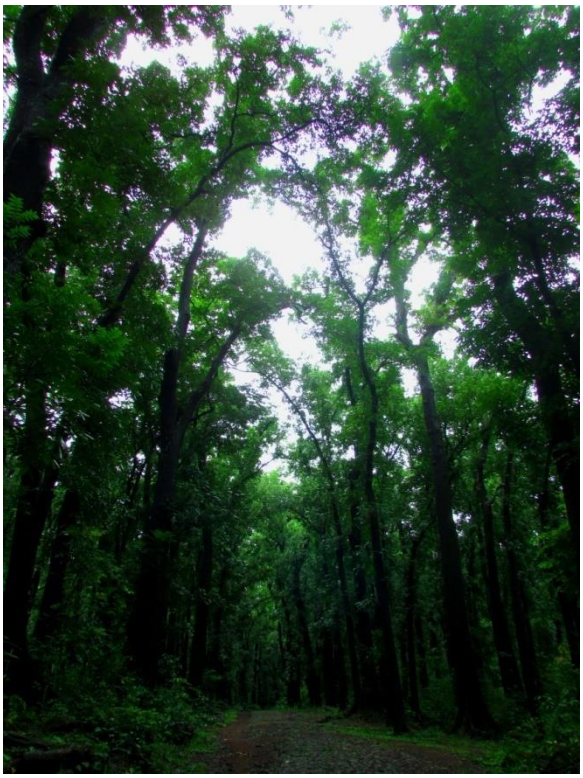




Butterfly Garden is one of the major attractions of this nature trail. The garden is a boon to zoologists and researchers as it accommodates a wide range of butterflies. Besides there is an Orchid House, a Shade House, a Fern House, a Xerophyte House, a Taxonomic Garden, a Star and Rashi Garden, a Hydrophytes garden, a Bamboo House, a Palms and Rattan Garden, a Rock Garden, a Medicinal Plants Garden and a megalithic burial site, all within the premises of the Teak Museum.

9.1.2 Nilambur Forests





Nilambur forests, an integral part of Nilgiri Biosphere Reserve, and a notified Elephant Reserve which contains the existing natural habitats and migratory routes of elephants, present for the tourists the serene nature and wild life in its extensive wooded areas brimming with teak, venteak, bamboos, mahagoni, rosewood, choropin, etc. Nilambur is abode to one of the best wilderness areas in Kerala, a place where nature in the wilds is accessible to all and diverse. A small but gorgeous forest trail takes the tourists to Chaliyarmukku, a place of ethereal beauty, where three rivers Chaliyarpuzha, Kuthirapuzha and Kanjirapuzha converge.

9.1.3 Connolly's Plot

The Connolly's plot extends across 2.31 hectares besides the Chaliyar River, just across the municipal boundary, and has been acclaimed for having the oldest living teak tree. A cable suspension bridge, claimed to be longest steel hanging bridge in Kerala, takes visitors across the river.





The plantation is named in honour of H.V. Connolly, the then British Collector of Malabar who was instrumental in planting teak in the entire Nilambur area with the help of Chanthu Menon, a forest officer under him. This plantation was done around 150 years ago during 1842-1844 and is thus known as the world's first teak plantation. Chanthu Menon was laid to rest in this very teak garden, Connolly's plot, as a mark of honour.

9.1.4 Nilambur Kovilakom







Nilambur town houses a cluster of *kovilakom*s, the palatial residences of the Nilambur Royal Family, erstwhile local rulers or the *Raja*s. These residences of the local rajas were built according to traditional Kerala architecture and boasts of excellent skill and craftsmanship.These structures are famous for their beautiful frescoes and artworks in wood and are of prime interests for heritage & architecture enthusiasts and students. Puthiya Kovilakom, Valiya Kovilakom and Billiard's hall are buildings of high heritage value and needs special mention. Of these the Puthiya Kovilakom is offered to tourists as a heritage-home stay.

9.1.5 Nilambur *Pattulsavam* and the *Vettakkorumakan* Temple



The *Vettakkorumakan* Temple located in the premises of Nilambur Kovilakom was built by the Nilambur rajas nearly 200 years ago. This shrine of the son that Lord Siva had in his *kirata* avatar (that of a tribal), a popular deity among the local community, is famous for the six-day music festival called the Nilambur *Pattulsavam* held here. The *Pattulsavam*, which falls in the month of January, features singing of hymns by the members of the royal family along with the tribals of Nilambur and *Kalampattu* or ritual powder drawing on floor. It is the most important festival in the region.

Associated with the *Ulsavam*, a 15-day-long the annual trade and tourism festival called Nilambur *Mela* is organized by the municipality with lots of cultural events, tribal & folk arts festival, shopping fairs, arts & crafts exhibitions etc. which attracts people from all over the region.

9.1.6 Aruvacode pottery/ Kumbham Handicrafts Village



Aruvacode is the village of potters of the Kumbharan community, who were invited from Andhra and settled by the erstwhile Rajas, for meeting the demand for pottery items for household needs in the region. The community which used to make a decent living out of selling pottery items nearly lost not only their livelihoods, but also their traditional skills, down to the invasion of cheap industrial substitutes. A small movement led by activist-designer K. B. Jinan who explored the possibilities of intertwining terra-cotta suited for the modern context with traditional pottery, and *Kumbham* was born. The villagers revived their traditional craft through the *Kumbham* Handicraft project. Kumbham is hailed as a rare instance of a traditional artisan community rehabilitating itself through the very craft they have been estranged from. Many distinguished products by their form and function have reached the markets from Aruvacode. *Kumbham* products have found wide acceptance in households, corporate offices, hotels and resorts, within and outside the State.

9.1.7 Central Forest Nursery

This is one of the four central forest nurseries in Kerala and was established during the year 1997, at Valluvassery by the Kerala Forest Department. With a view to meet the requirements of good quality planting stock of important plantation species like teak, eucalypts, acacias, etc., the nursery is fully equipped to produce root trainer seedlings and rooted cuttings of these species in required quantities. The average annual production of the nursery during the past three years was 150000 teak root-trainer seedlings, 120000 eucalypt seedlings, 50000 seedlings of acacias, and 90000 seedlings of miscellaneous species.



9.1.8 Bungalow Hill and the DFO Bungalow

Banglavu Kunnu (Bungalow Hill) is famous for its meandering road bordered by ayurvedic herb gardens. The old DFO Bungalow situated at the hilltop near forest rest house is an ideal location for conducting nature camps. The refreshing view from this hill opens up the beauty of the lush green forests along River Chaliyar.



9.1.9 Manavedan School

The Manavedan School established in 1940, by the then ruler Sri Manavedan Raja of Nilambur Kovilakam, is a symbol of the benevolence and progressive attitude of the erstwhile rules of the region. The school paved the way for higher education and progress in Nilambur region. This school which has now become a Vocational Higher

Secondary School is blessed with 17 acres of land, two acres of agricultural land and buildings including quarters for teachers, bestowed by the Kovilakam, in its name. The building and the premises are of significant heritage and cultural value.

9.1.10 Chemmala Fish Farm & Boating



Chemmala Fish farm, pioneered by the late Chemmala Aboobacker, a fore-runner, self-taught expert, and revered guide in inland aquaculture of ornamental and edible fishes, is the most famous among the aqua farms in Nilambur. A place of interest for students as well as entrepreneurs in this field, it has also developed into a regional tourism attraction and is a very good example of a tourism initiative from the natives. An indigenously developed houseboat operates in the artificial lake created for the farm, offering a floating dining facility for tourists, who will be served with delicious dishes made of fresh fish caught from the farm. Many rare varieties of pet animals like ornamental fishes, pigeons, hens, rabbits, turkeys, ducks etc are also reared in the farm and are available on sale.

9.1.11Adyanpara Waterfalls



Located in the Kurumbalangode Village of Nilambur Taluk, 15 km from Nilambur Municipality, Adyanpara cascade waterfalls has a height of around 300 feet, is a spectacle of unrivalled grandeur. The region is also famous for the splendour of its lush evergreen jungles and is home to a wide variety of birds and wildlife. The wild beauty of this place is a rare treat for the eyes and heart of the travelers.

9.1.12 Nedumkayam Rainforest





Nedumkayam Rainforests, 15km from Nilambur, is one of the most beautiful and dense forests in Kerala with a splendid variety of flora and fauna. An integral part of the Nilgiri Biosphere Reserve, this area is ideal for trekking. The wooden rest house built here by the British offers a panoramic view of the elephants and deers grazing in the nearby forest. Heavy

restrictions are imposed as a measure to save the existing forest land. An elephant taming centre run by the forest department is also here, where elephants poached from the forests were trained. Huge wooden cages can still be seen, though poaching has been banned.

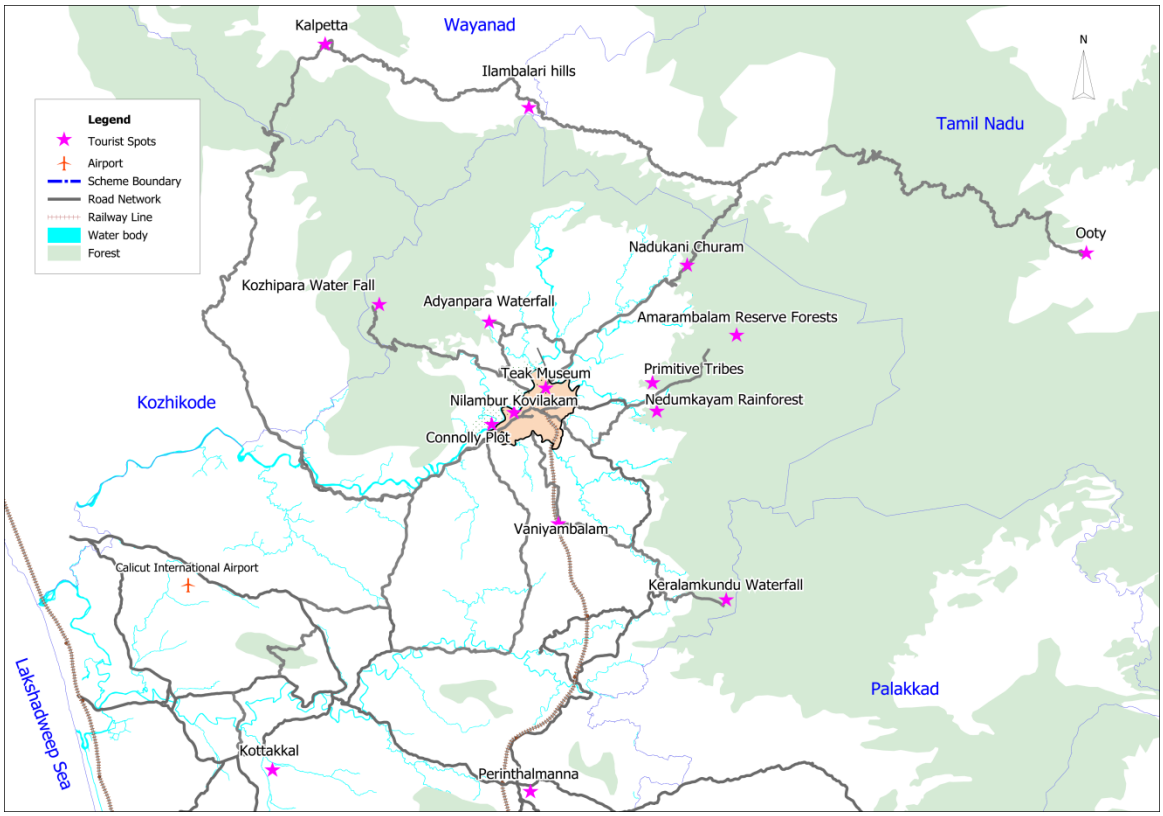


Figure 9-1: Map of Tourist Destinations in and around Nilambur Municipality

9.1.13 New Amarambalam Reserve Forests& Wildlife Sanctuary

New Amarambalam Reserved Forest & Wildlife sanctuary is a protected area in the Western Ghats and is at a distance of around 25 Km from Nilambur town. It adjoins Silent Valley National Park and the Mukurthi National Park (Tamil Nadu State), and forms the core area of the Nilgiri Biosphere Reserve- an international biosphere reserve in the Western Ghats hotspot. It is an Important Bird Area (IBA) (Bird Life International 2009) and also houses threatened and endemic mammals such as the Nilgiri Tahr. It is an ideal spot for trekking.

9.1.14 Valamthodu/Kozhipara Waterfalls



Valamthodu/Kozhipara Waterfalls is acclaimed as the best-kept secret of Nilambur Eco-tourism. The fall located in Valamthodu (Kakkadampoyil) of Chaliyar Panchayat, about 24 kms away from Nilambur, are tallest waterfalls in Nilambur and in Malappuram district as well. This waterfall with sublime beauty is an ideal picnic spot for those who love trekking and hiking. Its location close to the proposed hill highway that connects Thiruvananthapuram to Kasaragod ensures better prospects for this spot in future.

9.1.15 Keralamkundu Waterfalls

Nutmeg Valley waterfalls at Keralamkundu situated near to the Silent Valley buffer zone, in Karuvarakundu area, around 40 km from Nilambur Town is a small impressive cascade which attracts mostly youngsters who enjoy jumping into the large pool below. Nutmeg valley tourism project is intended to improve the infrastructure in this region and thus boost tourism.

9.1.16 Primitive Tribes - the *Cholanaickens*.

Manjeeri Colony situated in the dense forests around 18km from Nilambur and reachable only through trekking, is the home of the Cholanaikens, a primitive tribe. It is a colony built by the government for the Cholanaiken, an indigenous forest-dwelling ethnicity. T.K.Colony, situated a few kilometers away from Pookkottumpadam, is another noted tribal settlement in the wilderness of the Amarambalam Reserve forests. Yet another tribal settlement of this region is on the hilltops of Valamthode. The municipal area also houses various tribal colonies, the prominent among these tribes being the *Paniyas*. The other prominent tribes in the region include *Aranadan, Kuruman, Malamuthan*, and *Malanaikkan*.

9.1.17 The Ilambalari hills :

Ilambalari Hills in Nilgiri district of Tamilnadu (+2066 m msl), where the river Chaliyar originates, is clothed in dense forests and bamboo woods. It is situated on the border of Kerala and Tamilnadu. The region fascinates the tourists with its forests, valleys, mountains, and cultivated plains being ideal for nature lovers, botanists or naturalists. Rare and exotic animals like elephants, tigers, monkeys, rabbits, bisons, bears, deers, wild cats etc and numerous varieties of birds and reptiles are found in the forest.

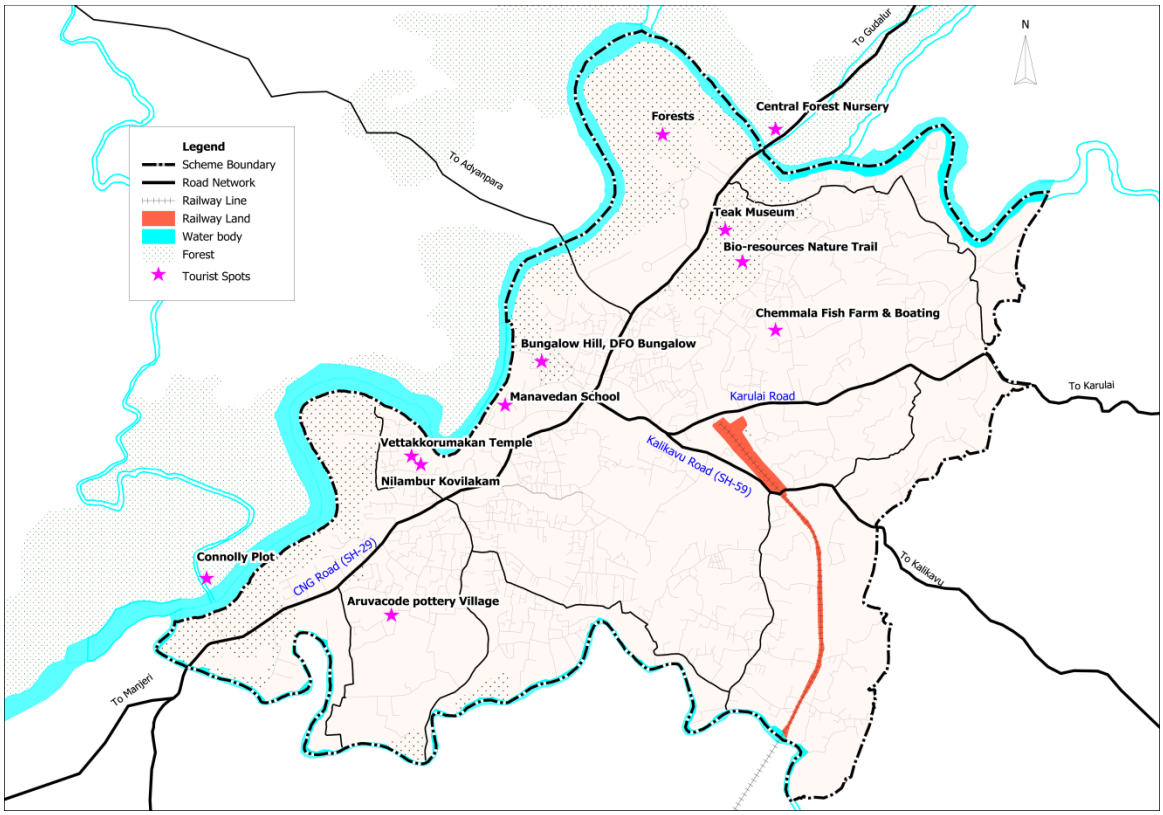


Figure 9-2 Important Tourist Spots inside Nilambur Municipality

9.1.18 Vaniyambalam

Vaniyambalam, 12 km from Nilambur, houses a famous temple of the Banasura, situated on a huge rock covering 40 acres land and with proportional height, beside the Shoranur-Nilambur Railway Line.

9.1.19 Nadukani *Churam* (Pass)

Nadukani *Churam* is the gateway from Nilambur to Ooty and Mysore via Gudalur. It starts from Vazhikkadavu, located on the KNG (Calicut-Nilambur-Gudalur) road 20 km north-east of Nilambur town, and runs through western ghats and forests, meets the Kerala-Tamil Nadu border at about 10 km from Vazhikkadavu, further leading to Nadukani (20 km away) in Nilgiris district of Tamil Nadu. The road impresses tourists with its scenic beauty, the road condition is pretty good and the journey itself is a refreshing experience.

9.2 TOURIST STATISTICS

As presented in table below, Malappuram District ranks sixth in the state in the no. of international tourists and ninth in the no. of domestic tourists. Only 6% of international tourists and 27% of domestic tourists visits the northern districts from Kasaragod to Palakkad. Of this Malappuram hosts 3% of international tourists and 4% of domestic tourists.

As per the Kerala Tourism Statistics, 2010, a total of 375 international tourists and 33956 domestic tourists visited Nilambur in the year 2010. The peak season for international tourists is October, July and December and that of Domestic tourists is December, October, January and May. Although temporal data is not available, the Kerala Tourism Statistics, 2013 prepared by Research and Statistics Division, Department of Tourism reveals that 2182 international tourists and 53722 domestic tourist visited Nilambur in 2013.

Table 9-1: District-wise Tourist Inflow (Jan-Dec 2010) (Source: Kerala Tourism Statistics, 2010)

Sl. No	District	International Tourists	Domestic Tourists
1	Alappuzha	41,977	1,83,416
2	Eranakulam	2,77,675	1,987,743
3	Idukki	48,295	464,123
4	Kannur	5,886	455,822
5	Kasargode	1,679	1,60,539
6	Kollam	8,211	1,96,773
7	Kottayam	32,561	3,01,599
8	Kozhikode	9,017	6,12,316
9	Malappuram	16,915	3,47,311
10	Palakkad	1,270	3,59,961
11	Pathanamthitta	829	82,470
12	Trivandrum	2,04,049	1,160,640
13	Thrissur	4,326	1,874,211
14	Wayanad	6,575	4,08,151
Total		**6,59,265**	**8,595,075**

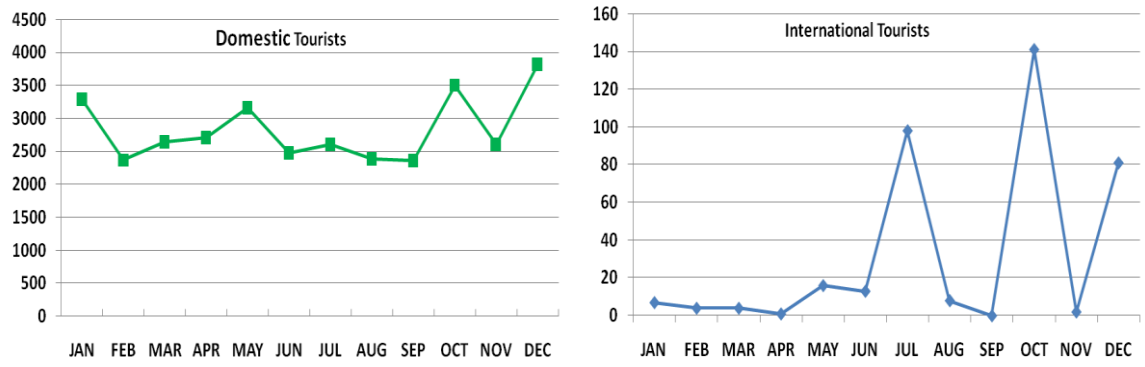


Figure 9-3: Monthly Variations in Regional and International Tourist Inflow at Nilambur (Jan - Dec 2010) (Source: Kerala Tourism Statistics 2010)

9.3 TOURISM INFRASTRUCTURE

Tourist facilities available in the municipality are listed below:

Table 9-2: Tourism Infrastructure available in Nilambur Municipality

3 star/2star Hotels	3 (Hotel Redfort G.D. International, Peevees Nilambur Manor, Rose International)
Economy Hotel	1 (KTDC Tamarind Easy Hotel)
Home Stays	2 (Private) 1. Eadens Hermitage Home Stay 2. Puthiya Kovilakam Home Stay
Lodge only	4
Bar Restaurant	3
Restaurants	10
Others	PWD Rest House Forest Inspector Bungalow DFO Bungalow dormitory Forest Rest House and Dormitory KFRI Guest House.

It can be seen that though Nilambur is fast developing as a tourism hub, the infrastructure facilities for tourists available in the municipality, whether in the expensive or the affordable category, are minimal. No five-star quality hotel is present in the municipality.

9.4 ONGOING PROJECTS

1) Nilambur Ecotourism Project (Work in progress) undertaken by the Director, Ecotourism

The proposed developments envisaged in Nilambur region under this project Amenity centres at Nedumkayam, Adyanpara (upper level), Adyanpara (lower level), Keralakundu, Connolly plot, Chokkad and T.K. Colony, renovation of existing quarters converted into Information Centre, improvement of guest house at DFO's Bungalow, Re-construction of existing *Anapanthy* at Nedumkayam, *Kadathu Toni* (Country boats for inland navigation), walkway access to Connolly plot & Manavedan School, improvement of Connolly plot picnic area, tree top house at Nedumkayam and trekking accessories at Nedumkayam, Keralakund, Adyanpara, parking area development at Nedumkayam and improved transportation, sanitation and lighting using solar energy at different areas.

2) Tourism Master Plan for Nilambur Region (Work in progress)

Department of Tourism has initiated the preparation of a 'Comprehensive Tourism Master Plan for the Sustainable Development of Nilambur Region' in 2014, which shall act as a guide for future tourism development in the region. This region under study includes Nilambur Municipality, and nearby panchayats of Chungathara, Pookkottumpadam and Edakkara.

3) Nilambur Tourist Hub – An Ecowalk (Work in progress)

This project is an endeavor by the DTPC to reinforce the uniqueness of Nilambur, as a tourist hub with an aesthetic rendering and design. The project proposes to build an entrance gate at Vadapuram, an information centre, a 650 m long elevated walkway abutting Chaliyar River , watch tower and a water sports complex .

4) 'Eastern Corridor' eco-tourism development programmes (Work in progress)

The project intends to link forest areas of Thusharagiri to Perinthalmanna with the adjacent tourist spots thus giving leverage the tourism potential of the district by adding a tinge of greenery to the tourist itineraries. The construction of entry gate near Vadapuram Bridge, renovation of guest house, conversion of Wood industry cottages to tourist cottages, construction of walkways on the both sides of KNG road to Connolly plot, construction of modern toilets, and cafeteria at tourism spots are included in development works. The core committee of the Eastern corridor project has chalked out a blue print for the project. The project which brings together the tourist spots in Nilambur is being implemented in association with the forest department.

9.5 PROBLEMS & POTENTIALS

Nilambur region is blessed with the presence of tourist attractions of various kinds like forest & wildlife, extensive water front, rivers& waterfalls, natural & manmade heritage, cultural festivals, handicrafts, farm lands etc. It is enroute major tourist hubs like Ooty and Mysore, connected by the KNG road. Its location at the entrance of Western Ghats with the added advantage of railway connectivity and easy access to the international airport at a distance of 45 km, strengthens the scope for regional and international tourism. The proximity to Kottakkal, an established centre of Ayurveda based international health tourism hub, and Perinthalmanna, a flourishing centre of modern medicine based health tourism, and excellent connectivity between these towns is another advantage. With its serene and clean environment, and mostly rural setting, it has immense potential to be developed as a major tourist hub of the District and the State, with an international significance. The increasing number of international as well as domestic tourists substantiates this potential. The completion of the Hill Highway and the implementation of Nilambur-Nanjangud railway line would provide a boost for regional tourism.

Though the town in itself houses many tourist attractions and forms the focal point of access to important tourist places, the infrastructural facilities for the tourists are insufficient. The town has a long way to go in other sectors like drainage, sewerage, waste management, roads, urban design, recreation and entertainment facilities etc to create a better appeal in tourism sector. Besides, though tourism circuits and various projects for infrastructure augmentation are conceptualized and implemented for the region, comprehensive development of tourism sector so as to tap the full potential of this region needs coordinated and urgent efforts from various quarters.



10 TRAFFIC AND TRANSPORTATION

Being an important node on SH 28 and the terminal station on Shoranur-Nilambur Railway line, Nilambur is the focal point of transportation in the region and connects its rural hinterland to the other important urban centres in the region and the State.

As part of the various studies conducted for this master plan, a traffic and transportation study for the town was conducted by the Town & Country Planning Department. The study included the following surveys, compilation of data, interpretation of data, forecasting of traffic demand in the plan period and preparation of short term and long term proposals for improvement of traffic and transportation infrastructure of the town.

- Road Inventory Survey
- Speed and Delay Survey
- Link and Outer Cordon Traffic Volume Survey
- Intersection Turning Movement Survey
- Parking Survey
- Pedestrian Survey, and
- Origin Destination Survey

10.1 EXISTING ROAD NETWORK

The existing road network of municipality is shown in Figure 10-1. SH 28 from Kozhikode, traverse the municipality and proceeds to Gudalur in Tamil Nadu. The other major roads in the municipality, the Karulai Road and Kalikavu road (SH 39) meet at Mukkatta junction.

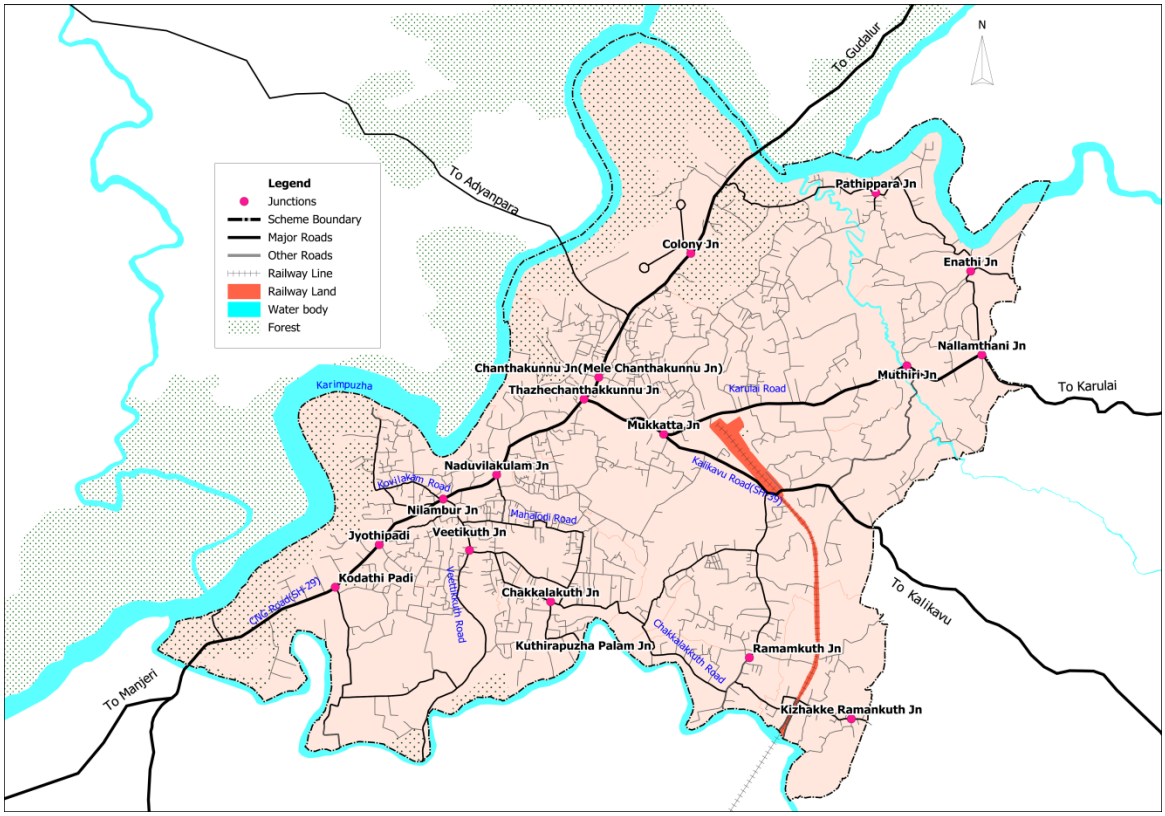


Figure 10-1: Existing Road Network and Major Junctions

The major roads in the municipal area are:-

- KNG (Calicut–Nilambur-Gudalur) Road (SH 28)
- Nilambur – Mukkatta - Karulai Road
- Nilambur - Mukkatta– Kalikavu Road (SH 39)
- Kovilakam Road
- Veettikkuth Road
- Keerthipadi – Chakkalakuth Road
- Akampadam Road

The major junctions in the municipal area are:-

- Nilambur Junction
- Veettikkuth road (near PG Hospital)
- Thazhe Chanthakkunnu
- Chanthakkunnu
- Kovilakam road
- Keerthipadi
- Near District Hospital
- Chanthakkunnu Bus Terminal
- Veettikuth road (near Rajiv Gandhi Mini-Bye pass)

Table 10-1: Category wise road lengths

Type of Road	Length (Km)
State Highways	9.97
Major District Roads	3.8
Other Roads	193.68

10.1.1 Road Inventory

An understanding of the extent and quality of road network is very important to formulate plan for the future. A detailed survey of existing road network was carried out to obtain information like road length, cross-section, hierarchical pattern of roads, surface conditions, intersections, street furniture, parking area, bus bays etc. Details of road inventory of major roads in the study area are listed below.

Table 10-2: Road Inventory – Major Roads

Sl. No	Count Location	Roads	Right of Way(m)	Pavement Width(m)	Median Width(m)
1	Akampadam Road Junction	Akampadam Road	30.5	18.5	NIL
2	Thazhe Chanthakkunnu	KNGRoad (SH28)	11	6.1	NIL
3	Ayyarpoyil Road Junction	Nilambur – Mukkatta - Kalikavu Road (SH39)	13	6.4	NIL
4	Mukkatta	Nilambur – Mukkatta - Kalikavu Road (SH39)	14.8	5.5	NIL
5	Forest Office	Nilambur – MukkattaKarulai Road	20.1	5.8	NIL
6	Vadapuram Bridge	KNG Road (SH28)	13.3	7.1	NIL
7	Kodathippadi	KNG Road (SH28)	13.3	7	NIL
8	Nilambur Police Station	KNG Road (SH28)	12.6	7.8	NIL
9	Janathapadi	KNG Road (SH28)	13.1	7.8	NIL
10	Minarvappadi	KNG Road (SH28)	11	7.1	NIL
11	Indane Gas office	KNG Road (SH28)	10.4	7	NIL
12	VeliyamThodu	KNG Road (SH28)	12.5	7.5	NIL
13	Jawahar colony	KNG Road (SH28)	13.1	7.1	NIL
14	Teak Museum	KNG Road (SH28)	13.2	7.2	NIL
15	Karimpuzha	KNG Road (SH28)	16.9	7	NIL
16	Karimpuzha bridge	KNG Road (SH28)	12	7.2	NIL
17	Chaliyar Hospital	Nilambur – Mukkatta - Kalikavu Road (SH39)	14.4	5.8	NIL
18	Railway Station	Nilambur – Mukkatta - Kalikavu Road (SH39)	11.2	5.1	NIL

The KNG Road (SH 28) has nearly 7.6km of length within the municipality. This road has a Right of way width which varies from 10.4 m to 16.9 m and the pavement width is almost uniform 7.00to 7.80m. The terrain condition is plain and rolling, and has mixed land use characteristics. The median is not provided at any place. Inadequate provision of proper footpath was noted during the inventory survey of this road section. The road section was maintained in a good condition.

The Nilambur-Mukkatta -Kalikavu road (SH 39) has nearly 3.2 km of length within the study area and it takes off from Mukkatta junction and crosses the municipal boundary near Athirthi. This road has a Right of way width which varies from 8.6 to 14.4 m and the pavement width varies from 5.1 to 7.30m. This section is provided with shoulder along the entire section. But footpath is not provided anywhere. This road has mixed terrain types. The road section was maintained in a good condition.

The Nilambur – Mukkatta -Karulai road begins at Thazhe Chanthakkunnu Junction and crosses the municipal boundary near Vallapuzha. The terrain condition was mainly of plain and rolling type. This road has a Right of Way width which varies from 11 to 20.1 m and the pavement width varies from 5.5 to 6.4m. This section is provided with shoulder along the entire section. This section has open drains and covered drains. The terrain condition was mainly of plain and the road section was maintained in a good condition.

The Akampadam road has nearly 1 km length with 6 to 8.5 m pavement width in the municipal boundary. The Right of way width of this section varies from 13 to 30.5m. The terrain condition was mainly plain and the road section was maintained in a good condition.

10.2 OTHER MODES OF TRANSPORTATION

Kozhikode international airport at Karipur, the nearest airport to the town, is at a distance of 45 km. The municipality, being a highland town, doesn't have any coastal or inland water way connectivity. Proposed Ponnani cargo port is 87km away from Nilambur. Beypore port in Kozhikode district is at a distance of 62 km from the town.

Nilambur Road Railway Station lies within the municipality, towards the East, as presented in Figure 10.1. The train route is from Nilambur to Shoranur, Palaghat and Thiruvananthapuram. Only three route trains start from here, but Nilambur-Shoranur and Shoranur-Nilambur trains have six trips each. The major railway stations along the route to Shoranur are Vaniyambalam and Angadippuram. The people from Gudalur, Nilambur, Manjeri and Perinthalmanna depend on this railway line for long distance travel.

Table 10-3 presents the details of passengers at the station during 2011-2014. The data shows a decline in the number of passengers in the last year.

Table 10-3: Railway Passenger Details (Source: Nilambur Road Railway Station)

Month	Number of passengers		
	2011-2012	2012-2013	2013-2014
April	90275	101657	90816
May	91278	107894	93614
June	73604	83074	72720
July	77638	84042	58233
August	74299	89150	69610
September	97083	90252	62517
October	92442	94130	34767
November	92807	84231	58370
December	100611	93362	65644
January	96910	87648	66727
February	83818	72218	61811
March	90005	80191	66754
Total	1060770	1067849	801583
Monthly Average	88398	88987	66798
Daily Average	2906	2926	2196

10.3 TRANSPORT TERMINALS AND OTHER TRANSPORTATION INFRASTRUCTURE

Nilambur has three bus terminals, a KSRTC bus terminal at Aruvacode, a private bus terminal at Chanthakkunnu and a new bus terminal called the Jawaharlal Nehru Municipal Bus Terminal at Chettiangadi.

The KSRTC bus terminal is exclusively used by KSRTC buses and other state government buses such as KSRTC (Karnataka) and TNSTC. It is located at close proximity to KNG Road (State Highway 28), along the Kodathippadi road, very near the Municipal boundary at Vadapuram.



Private Bus Terminal, Chanthakkunnu



KSRTC bus terminal, Aruvacode



Jawaharlal Nehru Municipal Bus Terminal, Chettiyangadi

The KSRTC terminal mainly caters to the inter-state, inter-district and intra-district services. There are plenty of K.S.R.T.C. buses available to Kozhikode, Thrissur, Malappuram, Perinthalmanna, Manjeri and Gudalur. K.S.R.T.C operates long route buses to Sultan Battery, Kalpetta, Mananthavadi, Bangalore, Mysore, Coimbatore and south of Kerala. The traffic movement around the KSRTC stand is not affected by the presence of this stand, as the access does not directly open to the KNG road.

From the old private bus terminal situated at Chanthakkunnu, private buses operate mainly to Kozhikode, Manjeri, Perinthalmanna, Malappuram, Tirur, Vazhikkadavu etc. This terminal serves as the depot for buses which originate or terminate at Nilambur, or has a significant halt at Nilambur. The entry and exit to this bus terminal is directly from the KNG Road. Besides, the road stretch in front of this bus terminal is crowded by auto parking. Hence there is significant congestion at this point.

The Jawaharlal Nehru Municipal Bus Stand has recently started functioning in an extent of about 60 cents at Chettiangadi. Though this terminal also caters to all private buses entering the municipality, buses don't halt here for long duration or originate or terminate from here. The buses from Manjeri and Vazhikadavu enter the stand from two different roads, but moves out from a common exit. The exit of the stand is in such a way that the buses are directed into the main stream traffic on KNG road. This adds to the traffic congestion experienced at this stretch.

The municipality has two authorized taxi parking locations with parking shelters, near police station and near Chanthakkunnu bus stand. The passenger autos operate from many locations as listed below, and sometimes cause traffic congestion and other traffic problems.

- Nilambur Junction
- Veettikkuth road (near PG Hospital)
- Thazhe Chanthakkunnu
- Chanthakkunnu
- Kovilakam road
- Keerthipadi
- Near District Hospital
- Chanthakkunnu Bus Terminal
- Veettikuth road(near Rajiv Gandhi Mini-Bye pass)

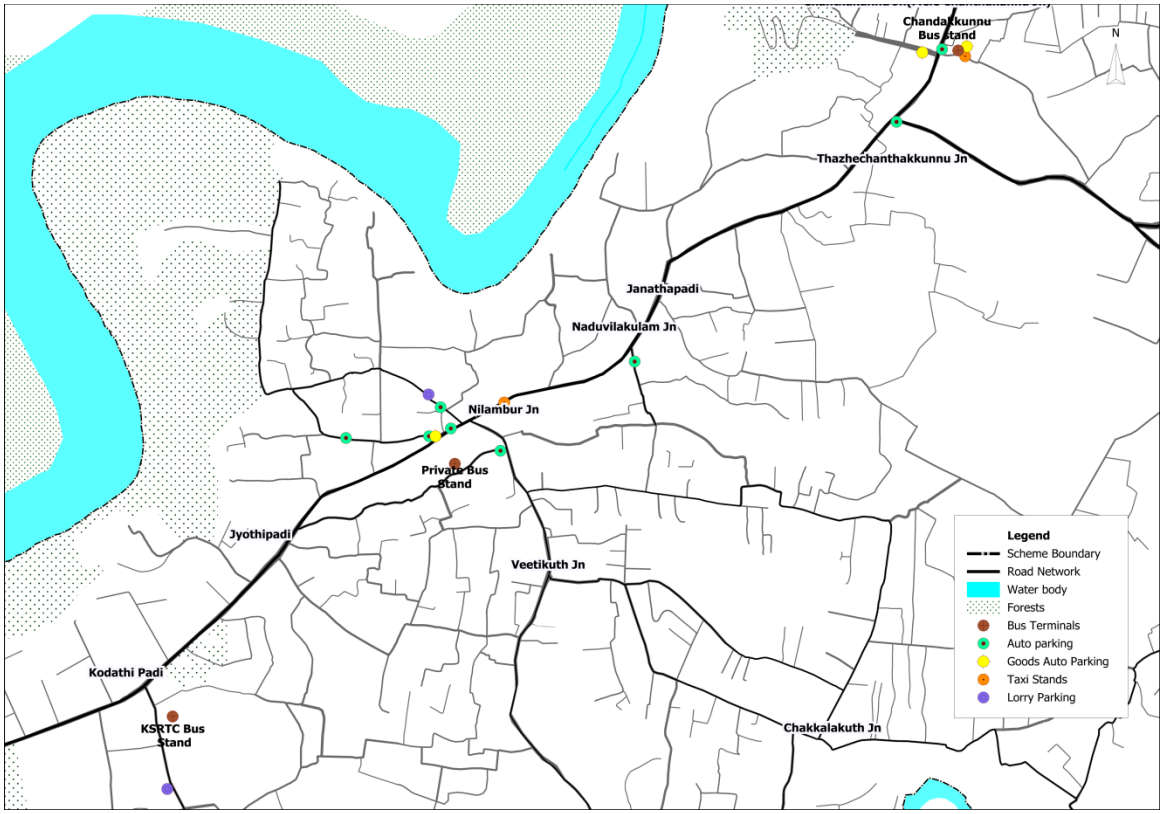


Figure 10-2 Maps of bus terminals and auto, taxi, lorry parking locations

Goods carrying auto rickshaw is also popular in Nilambur town catering to the goods movement in small quantities. They have parking facilities at Chanthakkunnu and Melechanthakkunnu.

There are no truck/lorry terminals in the municipality. The trucks and other goods vehicles usually park at the currently vacant plots near Viradapuri temple along Kovilakam road and Kodathipadi.

Facilities for parking of private vehicles as well as public carriers are vital for the smooth functioning of the traffic system of any town. In Nilambur town there are no designated parking spaces for private vehicles. The vehicles coming for various activities in the town are forced to park along the roads on a first-come-first basis creating chaos and gravely reducing the carrying capacity of these roads, even as these roads have inadequate width and shoulder. This leads to traffic congestion.

Figure 10-2 presents the location of bus terminals, taxi stands as well as other un-designated parking areas. It can be seen that their concentration is high at Nilambur Junction and Chanthakkunnu Junction.

10.4 EXISTING TRAFFIC CHARACTERISTICS

10.4.1 Speed and Delay Characteristics

The speed and delay study was carried out using the Moving-Car-Observer method, for the identified stretches of Nilambur town. The speed and flow was obtained by travelling in a car against and with the flow, and noting down the journey time, the number of vehicles met with from the opposite direction, and number of vehicles overtaking the test vehicle. Based on the test runs made during the peak and off-peak period during the day, the average travel speed of traffic with and without delay were worked out. The results of the speed and delay study are

presented in detail in table below.

On KNG Road (SH-28), the maximum of 41.92 km per hour was noted between Vadapuram bridge to KSRTC on a normal working day. The lowest journey speed experienced along the KNG Road (SH-28) 17.04 km per hour was along Nilambur Jn to Janathapadi stretch. The main reason behind this variation in the journey speed could be due to the inadequate width of the pavement, the dangerous driving behaviour of bus and auto drivers and the halting of buses at unauthorized stops. The heavy lateral and cross pedestrian movements could also have led to the interference with the smooth flow of traffic and also the presence of traffic signal could have caused a part of the delay.

Table 10-4: Speed and Delay Characteristics

Sl. No	Road	Stretch	Distance (km)	Journey Time (s)	Delay time (s)	Actual running time (s)	Speed km/h	
							Journey speed	Running speed
1	SH 28	Chanthakkunnu bus stop to Karimpuzha bridge	2.64	227	0	227	41.87	41.87
2		Thazhe Chanthakkunnu to Chanthakkunnu bus stop	0.3	36	0	36	30.00	30.00
3		Janathapadi to Thazhe Chanthakkunnu	0.94	107	3	104	31.63	32.54
4		NilamburJn to Janatapadi	0.8	169	22	147	17.04	19.59
5		Jyotipadi to Nilambur Jn	0.75	105	6	99	25.71	27.27
6		KSRTC Stand to Jyotipadi	0.6	62	0	62	34.84	34.84
7		Vadapuram bridge to KSRTC	1.7	146	0	146	41.92	41.92
8	Karulai Road	Thazhe Chanthakkunnu to Mukkatta Jn	0.87	86	0	86	36.42	36.42
9		Mukkatta Jn to Vallapuzha	2.11	284	0	284	26.75	26.75
10	SH 39	Mukkatta Jn to Athirthi	2.28	248	0	248	33.10	33.10

The sections along the SH-28, Thazhe Chanthakkunnu and Kodathipadi Junction were found to have a v/c ratio greater than 1 (Refer section 10.4.2), indicating utilization greater than its capacity. The average journey speed observed along the KNG Road (SH-28) was 32.56 km per hour.

A maximum speed of 36.42 km per hour was noted between Thazhe Chanthakkunnu to Mukkatta Jn on Karulai Road on a normal working day. The lowest journey speed experienced along the Nilambur - Mukkatta - Kalikavu Road (SH 39) is 33.10 km per hour was along the Mukkatta Jn to Athirthi stretch. The main reason behind this variation in the journey speed could be the dangerous turns in this section and the lack of proper sight distances. The average journey speed observed along these stretches was 34.7 km per hour. The journey speed along the sub-arterial Mukkatta Jn to Vallapuzha was 26.75 km per hour.

From the analysis of the speed and delay studies, the main reasons for delay along the identified stretches in Nilambur Municipality were noted as the traffic congestion, buses and autorickshaws alighting passengers on the carriage way and heavy pedestrian movement. The

highest delay observed along the section was that of 22 sec along the Nilambur Jn to Janathapadi and followed by a delay of 6sec along the Jyotipadi to Nilambur Jn stretch.

Comparatively, the delay observed along the various stretches was low. The hindrance to the free flow of traffic could be generalized as the lack of roadway capacity, presence of pedestrians along carriage way, lack of allocation of bus bays, unsafe driving behaviour of the auto drivers, delay due to the acceleration and deceleration of vehicles etc.

10.4.2 Link Volumes and Capacity Utilization

Knowledge of the traffic volume operating on a road network is important to understand the efficiency at which the system works and the general quality of service offered to road users. Classified traffic volume counts were carried out at mid blocks on important corridors, outer cordon points and important intersections.

Data pertaining to traffic volume and its composition was collected for all major roads through link volume survey. The survey was conducted from 7 am to 10 pm. Capacity Utilization of road stretches was measured by volume-to-capacity ratio (V/C ratio), the ratio of volume of traffic plying on the road section to the capacity of the road stretch.

For working out the capacity of different road sections, the information compiled during the road inventory survey was compared with the specifications of IRC-106- 1990 (guidelines for capacity on urban roads). While working out the capacities, due consideration was given to carriageway width, junctions, parking, lateral clearance, shoulders, surface conditions etc.

The traffic volumes observed at different road stretches were compared with the capacity of road sections, to calculate the volume-capacity ratio (V/C ratio) of these road sections within the study area, as presented in Table 10-5.

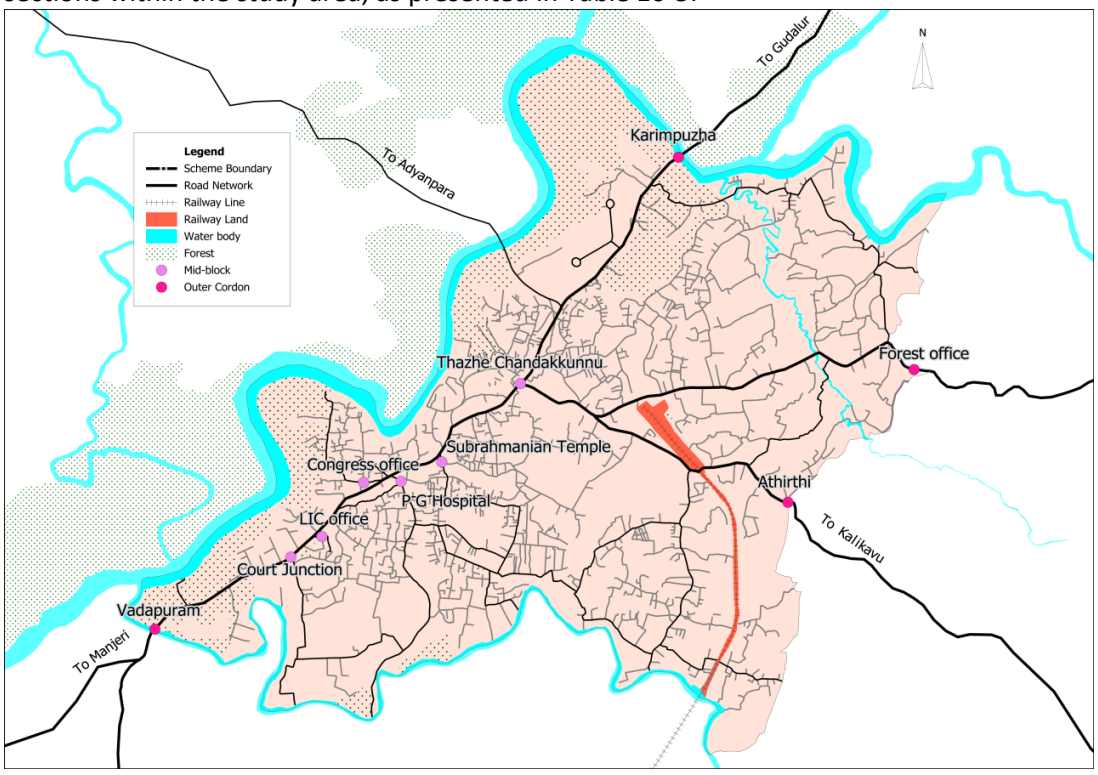


Figure 10-3: Mid-block and Outer Cordon Stations

On KNG Road (SH 28), two midblock sections were found to be over utilized. The capacity utilization in Thazhe Chanthakkunnu and Kodathipadi Junction is found 2.04 and 1.10

respectively. The outer cordon v/c values are in a safe limit.

Table 10-5: Volume Capacity Ratio of Major Road Sections and Outer Cordons

Sl. No	Road	Count Location	Capacity (PCU/H)	Volume (PCU/H)	V/C ratio
Mid-Block Stations					
1	KNG Road (SH 28)	Kodathippadi Junction	1500	1653	1.10
2	KNG Road (SH 28)	Thazhe Chanthakkunnu	1500	3054	2.04
3	Veettikkuth Road	PG hospital	900	1058.5	1.18
4	LIC Road	LIC office	900	214.5	0.24
5	Ashupathrikunnu road	Congress Office	900	446.5	0.50
6	Keerthipadi-Chakkalakuthuroad	Subrahmanian Temple	900	405.5	0.45
Outer Cordon Stations					
7	KNG Road (SH 28)	Vadapuram	1500	1134.5	0.76
8	KNG Road (SH 28)	Karimpuzha	1500	847	0.56
9	Nilambur - Mukkatta - Kalikavu road (SH 39)	Athirthi	1200	351.5	0.29
10	Nilambur - Mukkatta Karulai Road	Forest office	1200	373.5	0.31

The volume-capacity ratio in Nilambur - Mukkatta - Karulai Road at Forest Office is found to be 0.31 and it is within the capacity. The capacity utilization (v/c) of the rest of the selected sections was found to be almost within the capacity limit except for Vettikkuth road section, which had the v/c ratio of 1.18.

Among the six selected mid-block sections, Thazhe Chanthakkunnu section constituted the highest v/c ratio of 2.04, indicating inevitable traffic congestion and delay. From the obtained v/c ratios of the selected 4 outer cordon locations, it is clear that the service volume is below the capacity of the sections.

10.4.3 Traffic Volume at Major Intersections

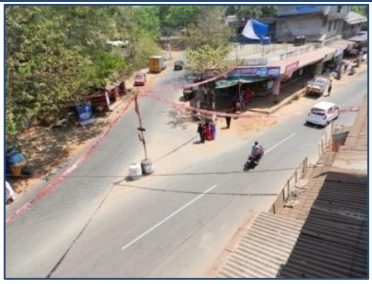
The capacity of urban roads depends on capacity of intersections to a great extent. Thus the intersections have an important role to play in efficient and smooth traffic flow in the network. The traffic flow at 3 major intersections of the town, Nilambur Junction, Mukkatta Junction and Thazhe Chanthakkunnu Junction, were measured and compared with their capacities. The table below gives the summary of traffic characteristics at these Junctions.

Table 10-6: Peak hour Volume at Major Intersections

Sl.No.	Intersection	Peakhour Volume(PCU/hr)	Peak hour
1	Nilambur Junction	3493.5	12pm – 1 pm
2	Mukkatta Junction	1393.5	11am – 12 pm
3	ThazheChanthakkunnu Junction	3636	5pm – 6 pm



Nilambur Junction



Mukkatta Junction



Thazhe Chanthakkunnu Junction

Nilambur Junction is a 4 arm junction on the KNG Road (SH-28).The arms are connected to Manjeri, Vazhikadavu, Kovilakam and Veettikkth road (towards Wandoor) routes. The peak hour traffic observed at this junction was 3493.5 PCU/hrduring 12pm - 1 pm. The major directional traffic was along SH-28.

Mukkatta Junction, a 3 arm junction from where the Nilambur - Mukkatta - Kalikavu road(SH39) begins, carries a moderate traffic of 1393.5 PCU/hr during 11am – 12 pm. Thazhe Chanthakkunnu Junction is a 3 arm junction, where the routes from Karulai and Kalikavu meets the KNG Road (SH-28)., and carries heavy traffic. The peak hour traffic observed at this junction was 3636 PCU/hr during 5pm – 6 pm.

10.4.4 Parking Characteristics

To assess the parking demand, parking accumulation survey was carried out at selected locations where the intensity of parking was found to be high. The survey was carried out for duration of 12 hours ranging from 8.00 am to 8.00pm to ascertain the morning and evening peak hour traffic demands.



Autorickshaw Parking along KNG road at Nilambur Junction

Along the KNG Road (SH-28), count location near the Persian jewelry had a total of 195 vehicles parked in between 5:00pm to 5:30pm. At this peak parking time, two wheelers constituted the maximum of parked vehicles, with a volume of 103 vehicles. Passenger auto and four wheelers are also in a significant volume, which are 54 and 31 respectively. The least parking was found between 8:00am to 8:00am.

The parking survey along Chanthakkunnu KNG Road (SH28) to DFO Bungalow Road found a maximum parking of two wheelers in between 5:30pm to 6:00pm. The four wheelers in the same section were noted as 38 in between 10:30am to 11:00am. Passenger auto and goods auto were found maximum, 18 and 15 respectively, in between 4:00pm to 4:30pm. Bus and mini truck were found in small numbers.

Along the District Hospital road, maximum of 122 two wheelers were found between 10:30am to 11:00am. Maximum four wheelers (37) and passenger auto (73) were found between 5:00pm to 5:30pm and 10:00am to 10:30am respectively.

The parking survey carried out along the Kovilakom road registered maximum four wheelers and two wheelers, 50 each, between 6:30pm to 7:00pm. The passenger auto was found 34 in number between 4:30pm to 5:00pm through KNG road (SH28) to Veettikuth road. The maximum parking of truck/bus, 16, was found from 4:00pm to 5:00pm and it is the location

where maximum heavy vehicle parking is found in the town.

Along the Rajiv Gandhi bypass, the parking survey registers 43 four wheelers between 4:30pm to 5:00pm. The maximum no. of two wheelers and passenger auto, 89 and 37 respectively, were found between 6:30pm to 7:00pm.

Table 10-7: Peak Parking Accumulations at Different Road Sections

Road Section	Peak Parking Time	Car/Jeep	Two Wheelers	Passenger Auto	Goods Auto	Bus	Van	Mini Truck/ LCV	Lorry/Truck	Others	Total
KNG Road(SH28)-Persian Jewellery	5.00-5.30	31	103	54	0	0	0	5	0	2	195
Chanthakkunnu to DFO Bungalow Road	5.00-5.30	28	116	15	14	2	0	4	0	7	186
District Hospital Road	10.00-10.30	23	103	73	12	0	2	0	0	0	213
Kovilakom Road	6.30-7.00	50	50	18	1	2	2	3	11	0	137
Rajeev Gandhi Bypass	6.30-7.00	42	89	37	4	0	0	1	2	0	175

10.4.5 Pedestrian Volume

Pedestrian volume survey was carried out at important locations in Nilambur municipality where the lateral and the crossing movements of pedestrians are relatively high, as listed below, to ascertain the morning and evening peak hour lateral and cross movement demands.

- Elamkulam hospital
- Nilambur Junction (near Maharani Gold)
- Nilambur Junction (near Persian Jewelry)
- Chanthakkunnu Junction
- Mukkatta Junction
- Police Station
- Thazhe Chanthakkunnu Junction

At Elamkulam hospital, lateral movement peak volume in the morning peak interval of 10.45 to 11.00a.m was 150 pedestrians/15 minutes. The pedestrian volume showed a variation of around 50-150 pedestrians/15 minutes (average). Lateral movement peak volume in the evening peak interval of 5.30 to 5.45 pm was 128 pedestrians/15 minutes and the pedestrian volume showed a variation of around 75-130 pedestrians/15m (average). Lateral movement in the morning showed a greater demand for pedestrian movement when compared to the lateral movement in the evening. Since the lateral movement in the evening is comparatively uniform over a longer duration of time ranging from 4.00 to 5.45 pm, it is a continuum. Cross movement peak volume in the morning peak interval of 10.00 to 10.15am was 53 pedestrians/15 minutes and that in the evening peak interval of 4.15 to 4.30pm was 33 pedestrians/15 minutes. The cross moving pedestrian volume showed an intermediate variation at specified intervals of time during both morning and evening.

Near Maharani Gold at Nilambur Junction, lateral movement in the morning peak interval of 10.15 to 10.30am was 50 pedestrians/15 minutes The pedestrian volume was comparatively less. The peak volume of lateral movement in the evening peak interval of 4.45 to

5.00 pm was 132 pedestrians/15 minutes, much higher than the morning. The pedestrian volume showed a variation of around 75-130 pedestrians/15 minutes (average). Cross movement peak volume in the morning peak interval of 10.30 to 10.45am was 53 pedestrians/15 minutes and that in the evening peak interval of 5.30 to 5.45 pm was 70 pedestrians/15 minutes. The cross moving pedestrian volume showed an intermediate variation at specified intervals of time, during both morning and evening.

Table 10-8: Pedestrian Peak Hour Volumes

SL.No	Location	Lateral Movement (pedestrians/15 minutes)		Cross Movement (pedestrians/15 minutes)	
		Morning	Evening	Morning	Evening
1	Elamkulam Hospital	150	128	53	33
2	Nilambur Junction(Near Maharani Gold)	50	132	53	70
3	Nilambur Junction(Near Persian Jewelry)	188	294	103	90
4	Chanthakkunnu	161	186	86	135
5	Mukkatta	47	57	28	68
6	Near Police Station	117	79	22	35
7	Thazhe Chanthakkunnu	186	311	125	31

At Nilambur Junction (Near Persian Jewelry), lateral movement in the morning peak interval of 10.15 to 10.30 a.m. was 188 pedestrians/15 minutes. The pedestrian volume showed a rise mainly around the school time. Lateral movement in the evening peak interval of 6.45 to 7.00 p.m. was 294 pedestrians/15 minutes. The lateral movement at evening showed a marked increase compared to the morning. The cross movement in the morning peak interval of 10.15 to 10.30 am was 103 pedestrians/15 minutes. The pedestrian volume showed a sudden rise at the peak interval. The cross movement in the evening peak interval of 6.45 to 7.00 pm was 90 pedestrians/15 minutes. Both lateral and cross pedestrian movements had the same peak time.

At Chanthakkunnu Junction, lateral movement in the morning peak interval of 9.15 to 9.30 a.m. was 161 pedestrians/15 minutes and the lateral movement in the evening peak interval of 4.30 to 4.45 pm was 186 pedestrians/15 minutes. The pedestrian volume was comparatively less. Cross moving pedestrian volume in the morning peak interval of 9.00 to 9.15 a.m. was 86 pedestrians/15 minutes and that in the evening peak interval of 6.00 to 6.15 p.m. was 135 pedestrians/15 minutes. The pedestrian volume shows an intermediate variation at specified intervals of time.

At Mukkatta Junction, lateral movement in the morning peak interval from 9.45 to 10.00 am was 47pedestrians/15 minutes. The pedestrian volume showed a variation from 13-47 pedestrians/15 minutes (average). Lateral movement in the evening peak interval from 4.00 to 4.15 pm comprised of a peak volume of 57 pedestrians/15 minutes. The pedestrian volume showed a variation from 13 to 57 pedestrians/15 minutes (average). The volume of pedestrians in cross movement peaked at 28 pedestrians/15 minutes between 10.45 to 11.00 am in the morning and at 68 pedestrians/15 minutes between 5.15 to 5.30 pm in the evening and showed an intermediate variation at specified intervals of time. Cross movement in the evening shows a slightly increased demand for pedestrian movement when compared to the cross movement in the morning.

At Police Station the lateral pedestrian movement was the highest between 10.45 to 11.00 a.m. at a volume of 117 pedestrians/15minutes. The pedestrian volume was comparatively more due to the commencement of office hours. In the evening, the peak interval was 6.15 to 6.30 pm with a volume of 79 pedestrians/15minutes. Cross movement was at peak

at a pedestrian volume of 22 pedestrians/15 minutes between 9.15 to 9.30 a.m. in the morning and at 35 pedestrians/15 minutes in between 4.30 to 4.45pm and 5.00 – 5.15pm in the evening. Lateral movement shows a variation in the pedestrian volume of 22 to 117 pedestrians/15 min. Cross movement at evening is slightly greater than cross movement at morning. However, the demand is less (maximum range 2 to 35 pedestrians/15 minutes).

At Thazhe Chanthakkunnu, the pedestrian lateral movement peaked between 9.00 to 9.15 a.m. at 186 pedestrians/15 minutes in the morning. The pedestrian volume is comparatively higher and lies above 90 pedestrians/15 minutes (average) for a longer duration from 8.00 to 10.15 am. The evening peak interval from 4.30 to 4.45 pm had a higher peak volume of 311 pedestrians/15 minutes, when compared to the morning. The pedestrian volume greatly varied with a hike at specified intervals and then showed a steady decrease in demand. The cross movement of pedestrians was at peak between 9.45 to 10.00 a.m. with a volume of 125 pedestrians/15 minutes in the morning and between 6.30 to 6.45 pm with 31 pedestrians /15 minutes in the evening.

Thus, among the locations of high pedestrian foot fall in Nilambur Municipality, Nilambur Junction (Near Persian Jewelry), Thazhe Chanthakkunnu and Chanthakkunnu have the highest lateral pedestrian movements in the mornings and evenings and cross movements in the mornings. Cross movements in the evenings are the highest at Chanthakkunnu, Nilambur Junction (Near Persian Jewelry) and Nilambur Junction (Near Maharani Gold). Evenings appeared to have more lateral pedestrian movements compared to mornings.

10.4.6 Origin - Destination Survey

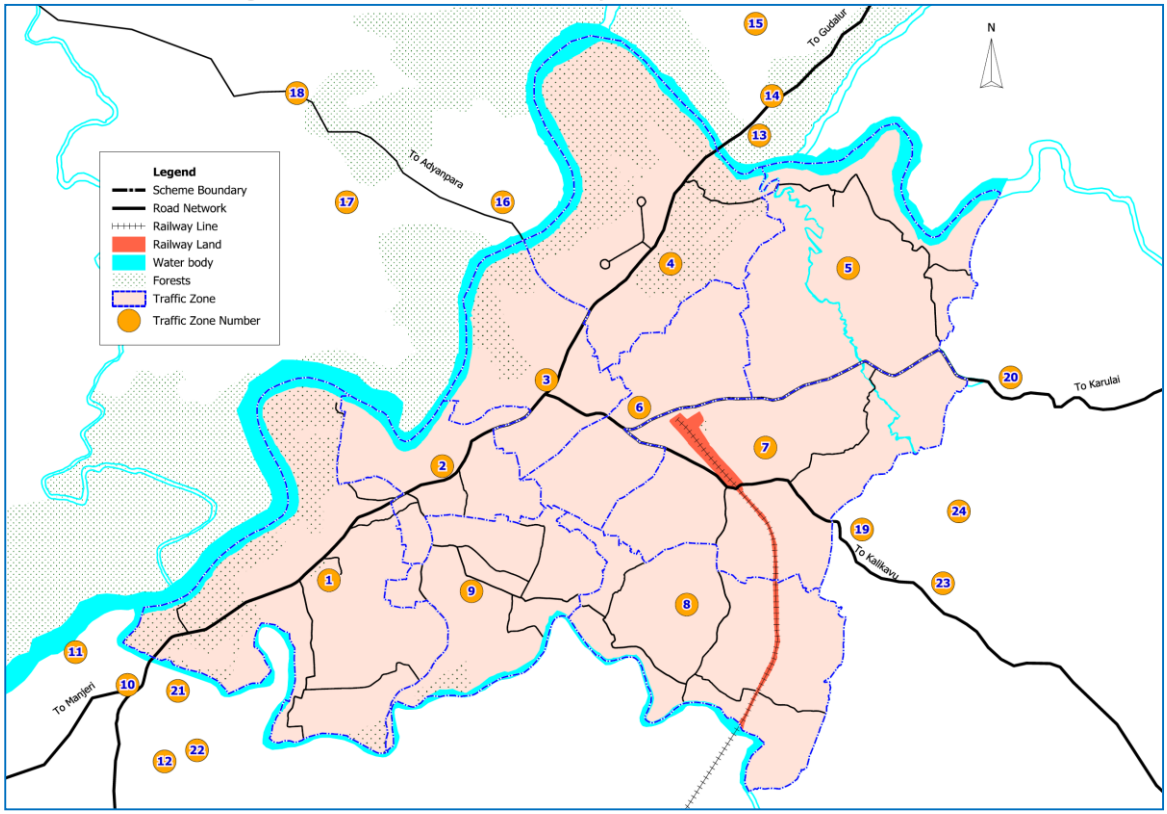


Figure 10-4: Traffic Zones - Nilambur Municipality

The objective of this survey is to determine the origin and destination details of through-traffic, inter-city and intra-regional passenger and goods movement across the external cordons and those obtained from the household survey. An analysis of the traffic movements will provide the proportion of bye-passable traffic along with the major external interaction areas. Survey methods included Home interview survey and Road side interview survey.

For a meaningful analysis of O-D survey data, the study region was divided into nine traffic zones and outside study region was divided into fifteen traffic zones is shown in figure 10-4 and table 10-10, which included the immediate surrounding areas within the District, adjoining Districts and neighboring States. Base year inter-city travel characteristics of passenger and goods movements were obtained by conducting origin-destination survey of a sample number of motor vehicles passing through all major outer cordon locations in Nilambur town.

Table 10-9: Zoning Details of Origin-Destination Survey

Inner Zones	
1	Asupathrikkunnu, Kulakkandam, Varedam Padam, Kallembadam
2	Kovilakathumuri, Cheruvathkunnu, Veettikuthu, Manalodi, Padikkunnu
3	Schoolkunnu, Charamkulam, Nedumundakunnu, Chanthakkunnu
4	Karimbuzha, Mayyanthani
5	Mummulli, Pathippara, Mutheeri, Enanthi
6	Mukkatta, Vallappuzha, Pottippara
7	Payyamballi, Eyyammmada, Muthukadu, Veettichal, Thekkumbadam
8	Thonnipoyil, Pattarakka, Ramamkuthu
9	Eruthampoyil, Chakkalakuth, Thamarakulam
Outer Zones	
10	Towards Manjeri within the district
11	Towards Manjeri outside the district
12	Towards Manjeri outside the state
13	Towards Vazhikkadavu within the district
14	Towards Vazhikkadavu outside the district
15	Towards Vazhikkadavu outside the state
16	Towards Adyanpara within the district
17	Towards Adyanpara outside the district
18	Towards Adyanpara outside the state
19	Towards Pookkottukulam within the district
20	Towards Karulai within the district
21	Towards Wandoor within the district
22	Towards Wandoor outside the district
23	Towards Kalikavu within the district
24	Towards Kalikavu outside the district

The desire line diagram for passenger transport is presented in figure 10-5.The maximum daily traffic volume generated using car, two-wheelers, three-wheelers, passenger LCV and bus as the mode of travel was observed at zone 1.The maximum traffic attracted while using the passenger modes were to the zone 10 – towards Manjeri and within Malappuram District.

The desire line diagram for goods transport is presented in figure 10-6. The maximum daily traffic volume generated using goods LCV as the mode of goods transportation was observed at zone 10 and the maximum traffic attracted were to the zone 13. The maximum trip generated for goods auto was from zone 10 and maximum trip attracted was to zone 1.Whereas

for the truck the maximum trip was generated from the zone 10 and maximum trip attracted were also to zone 13.

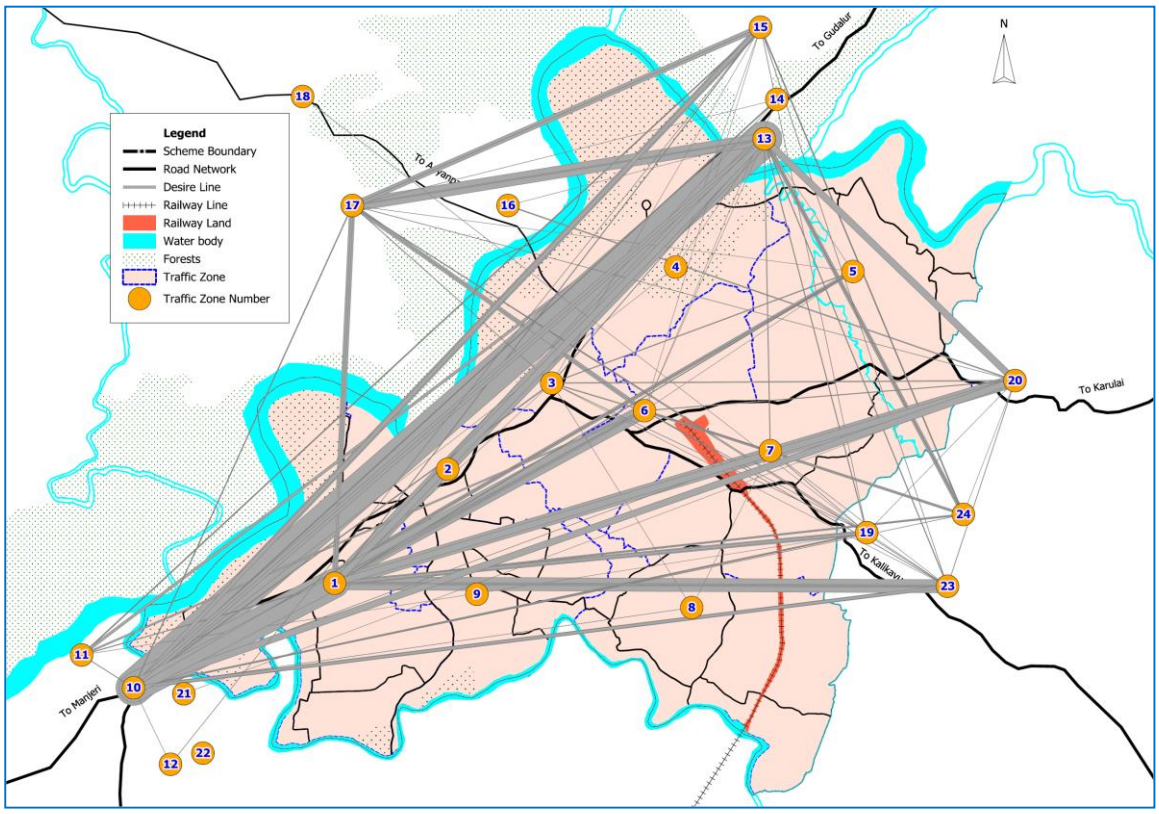


Figure 10-5: Desire Line Diagram for passenger Transport

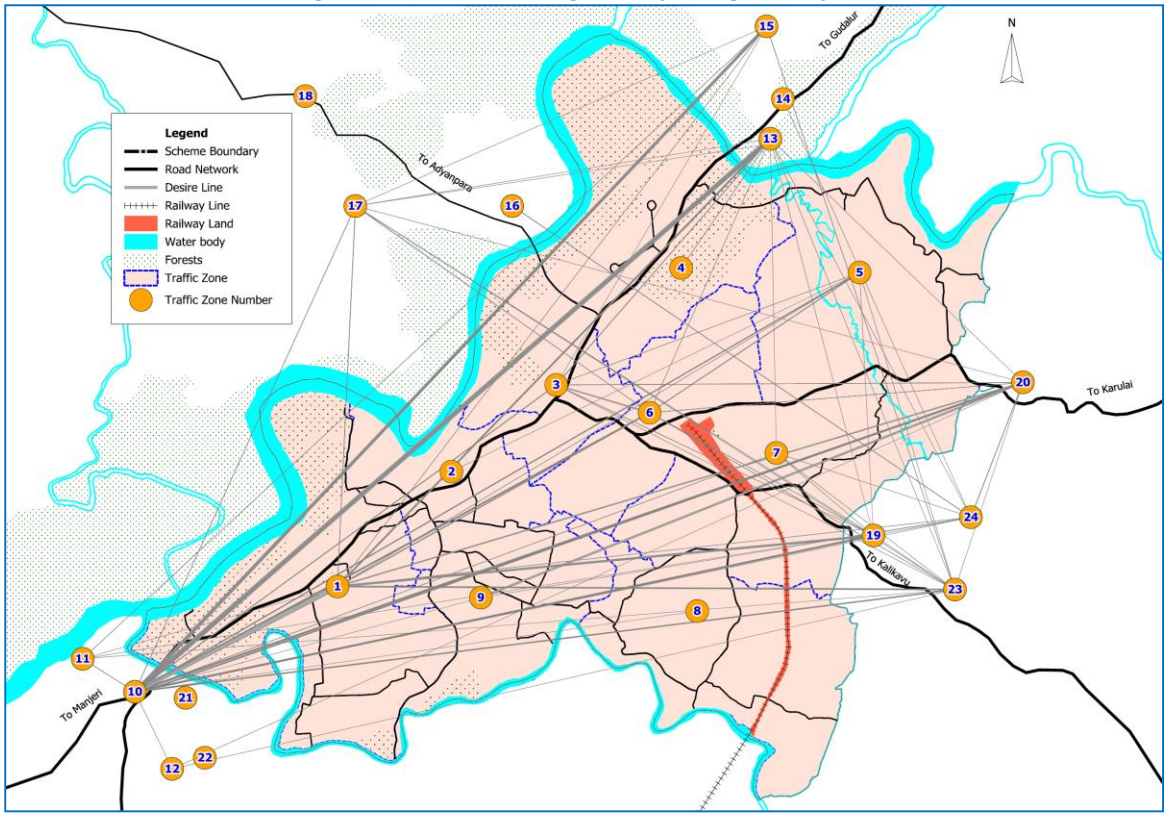


Figure 10-6: Desire Line Diagram of Goods

As per the results of household survey, the maximum number of trips were generated from the zone 1 (407 trips), whereas the maximum number of trips were attracted to the zone 3

(282 trips). The desire line diagram derived from household survey data is presented in figure 10-7.

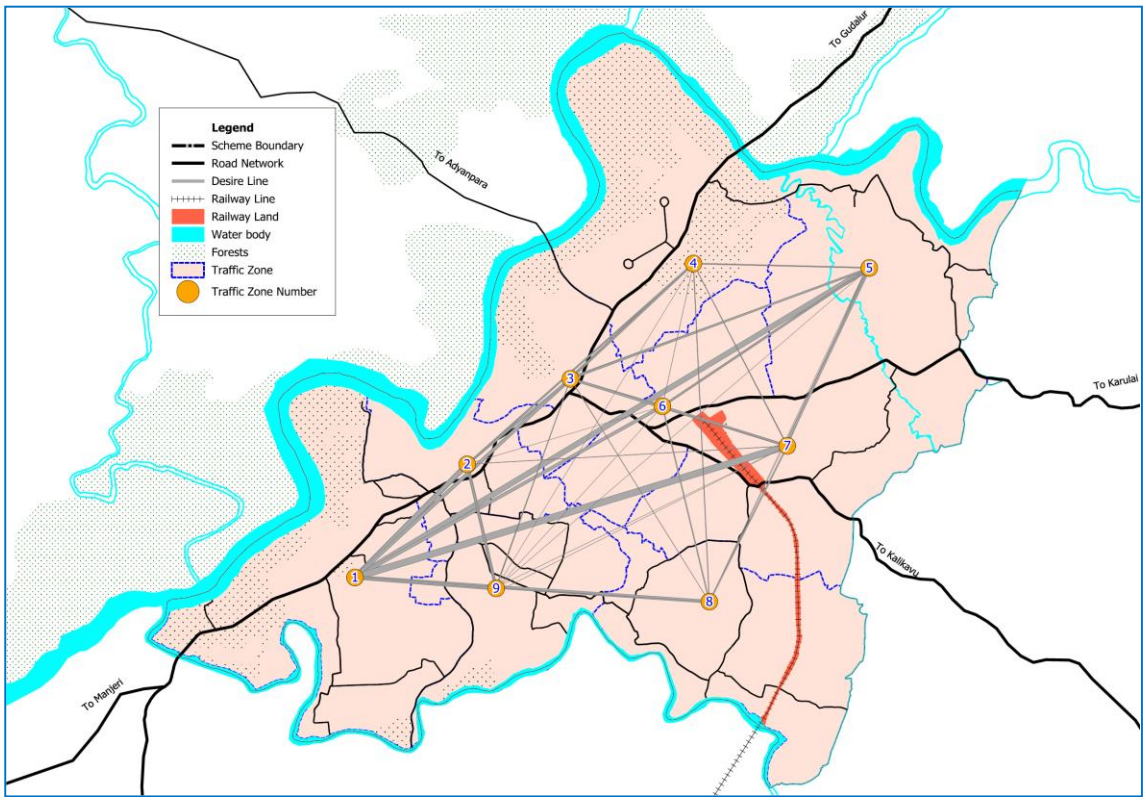


Figure 10-7: Desire Line from House Hold Survey

10.5 ACCESSIBILITY OF RESIDENTIAL AREAS

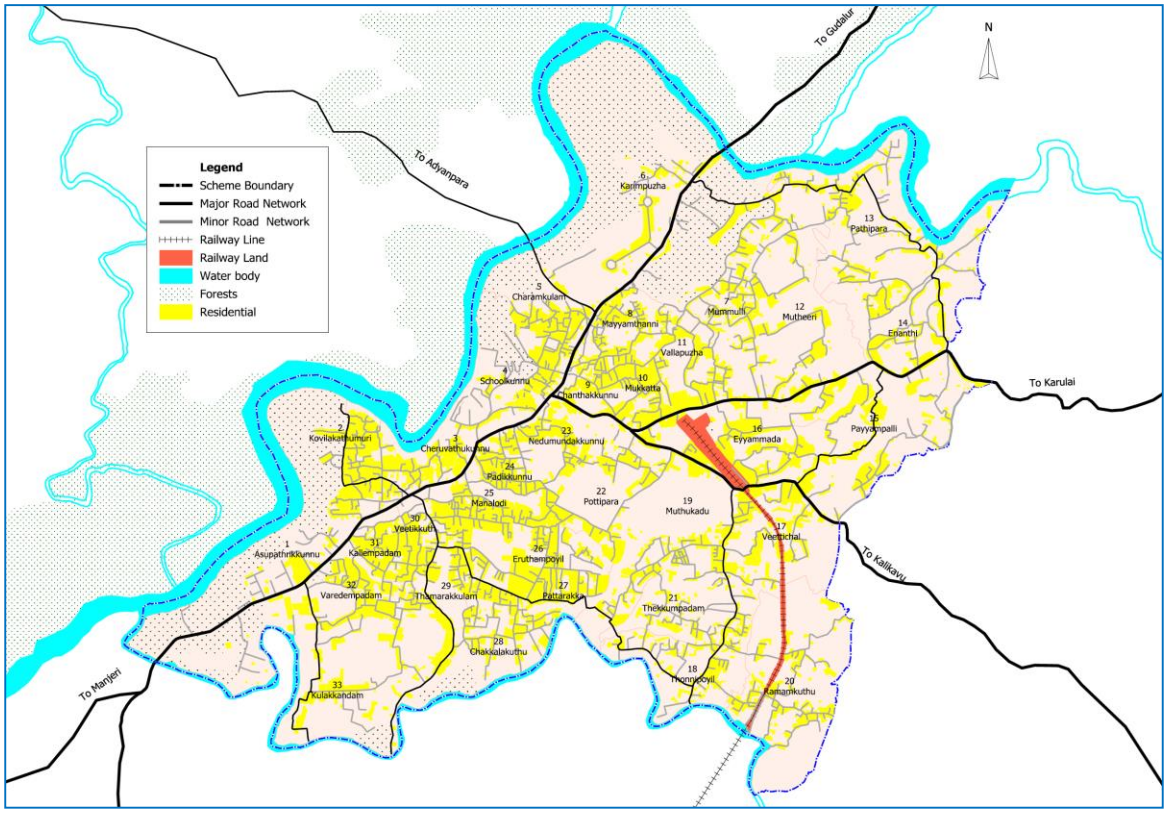


Figure 10-8: Residential areas over laid with existing road network, contour details

The connectivity to residential areas in the municipality is analysed by overlaying

residential areas with road network as presented in figure 10-8. It can be seen that all the residential areas in the municipal area are well – connected, either by major roads or by minor roads.

10.6 ACCIDENT DETAILS

The details about road accidents that happened in the municipality in the period from 2011 to 2014 years is presented in Table 10-10 below. Though the total number of accidents, fatality and injuries has marginally reduced in the period, the pattern is fluctuating and doesn't represent any significant betterment and the occurrence is still high.

Table 10-10: Details of Accidents in the Municipality (Source: Police Station, Nilambur)

Year	Fatal Accidents		Grievous accidents		Property Damage	Total Cases
	Cases	Deaths	Cases	Injured	Cases	
2011	92	10	79	86	92	263
2012	126	20	97	106	126	349
2013	87	10	66	77	87	240
2014	93	6	51	80	93	237

Table 10-11: Identification of Black Spots in the Town

Location	No. of accidents				
	2010	2011	2012	2013	2014
Janathapadi	5	4	3	4	2
In front of Wood Complex	8	6	1	2	5

The black spots in the municipality, where the maximum no. of accidents happened, are identified as Janathapadi, and in front of wood complex, Vadapuram. The reasons for repeated accidents in these spots are identified as topography and road geometry, both the spots being at sharp curves and gradient. However, the number of accidents at these spots has registered a decline over the last three years.

10.7 ONGOING / PROPOSED PROJECTS

The Nilambur bypass, 6 km long (from Opposite OCK Auditorium to Veliyanthodu via Mukkatta) has been sanctioned and is expected to solve the traffic congestion in the city to a great extent. The Kozhikode – Malappuram stretch of Hill Highway (SH 59) which extends from Nandarapadavu in Kasaragod district to Parassala in Thiruvananthapuram, passes through the Town, making use of Akampadam Road and SH 39.

The Nanjangod-Nilambur Railway line connecting Mysore with Kerala via Nilgiri district of Tamilnadu was in active consideration and discussion for more than a century. This rail road was proposed first in the budget of Mysore peoples' council as early as in 1881 itself as the shortest rail route to connect Mysore and Bangalore to Nilgiris and Kerala. By the beginning of this century two Engineering cum traffic surveys were conducted for this railway and found that this railway having a length of 238 kms starting from Nanjangod near Mysore and passing through Madhur in Chamaraj Nagar district of Karnataka, Sulthan Bathery in Wayanad district of Kerala, Gudalur and Devala in Nilgiri District of Tamilnadu and ending at Nilambur in Kerala is technically feasible. This broad gauge line would join the existing railhead at Nilambur and lead to Cochin. This proposal, though actively pursued by the state government, is not sanctioned yet.

10.8 INFERENCES

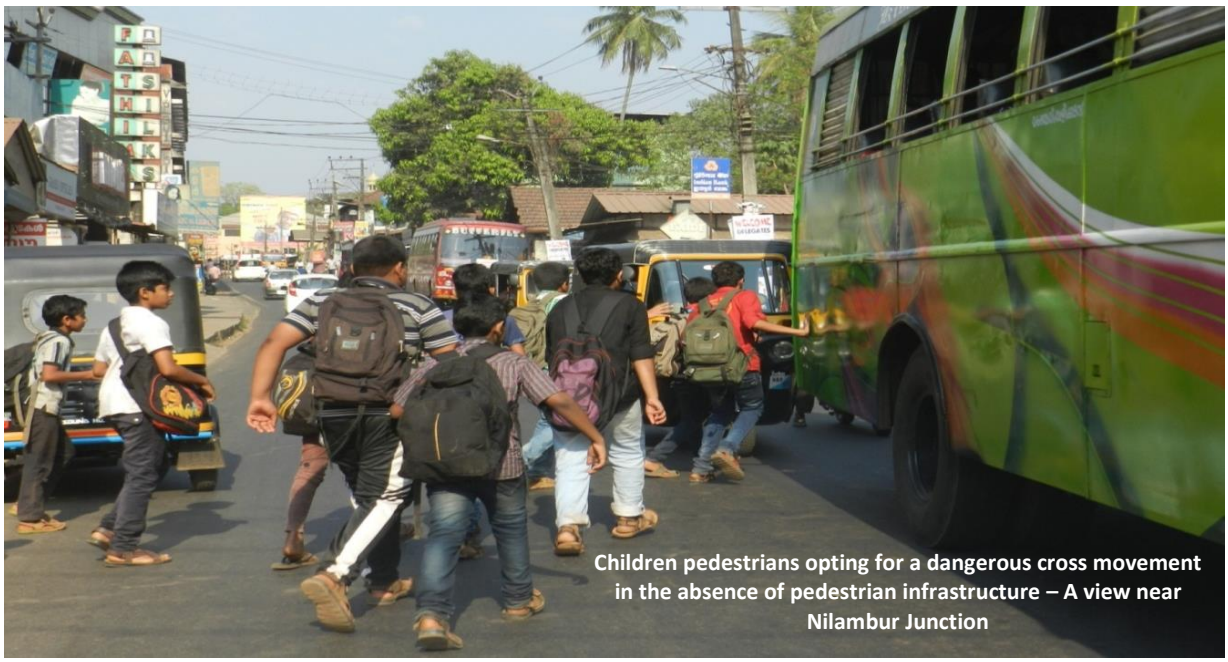
Nilambur Municipality has good road and rail connectivity, owing to the presence of state highways and railways. It is an important transportation node in the region and facilitates long distance travel for the population of the vast agriculture/plantation based rural hinterland in the eastern region of Malappuram District and a few localities of Tamil Nadu across the state border.

Nilambur, also being an upcoming tourist destination, ensuring the provision of good quality transportation infrastructure is of utmost importance.

Inadequate provision of proper footpaths and median, absence of designated parking spaces for private vehicles, autorickshaws, trucks, etc, inadequate width of the pavement, dangerous driving behaviour of drivers, absence of designated bus bays as well as dangerous curves and lack of proper sight distances in certain reaches of roads were identified as the problem areas in the transportation infrastructure of Nilambur Municipality.

The heart of the town is very congested because of the inadequate road capacity and on-street parking. The major bottleneck in the road network of Nilambur Municipality is Nilambur Junction to Thazhe Chanthakkunnu stretch on KNG road (SH 28). Presence of commercial establishments, lack of pedestrian facility such as sidewalks or foot over bridges, and lack of adequate space for parking are the main problems. Width of the major arterial and sub arterial roads are inadequate to meet the current traffic volume.KNG road (SH 28), especially at Thazhe Chandakkunnu, and Veettikkuth Road were found to be utilised beyond their capacities. Pedestrian volumes were found to be the highest at Nilambur Junction, Thazhe Chanthakkunnu and Chanthakkunnu and invites measures for pedestrian safety.

The road network in the town faces lack of bypasses connecting major arterials. The inter city traffic and railway station passengers trips through KNG road (SH 28) needs to be diverted from the heart of the city as far as possible to make the city congestion free. Some missing links in the road network of Nilambur municipality are identified based on the desire line diagram developed from the socio economic survey in the municipal area. It was identified that there was a high demand for traffic movement between two zones, such as, Zone 01 to Zone 07, but since there was no direct link between these zones, this constitutes as an important missing link in the municipality.



Children pedestrians opting for a dangerous cross movement in the absence of pedestrian infrastructure – A view near Nilambur Junction



11 HOUSING

The draft housing policy 2011 of the Government of Kerala states that "the international covenant of United Nations on economic, social and cultural rights, to which India is a signatory, upholds the right to adequate housing as a human right. Article 21 of the constitution of India, which defines the protection of life and personal property encompasses the right to shelter and right to livelihood also which are integral to the dignified living of the individual." The draft housing policy upholds the need for adequate and affordable housing for all.

11.1 HOUSING DEMAND

Nilambur municipality has 9830 houses spread over in its 33 wards. The number of households as per Census 2011 is 10219, with a household size of 4.54. The household size of the town is less when compared to District but slightly higher when compared to the state.

Table 11-1 Number of Households and Houses in Nilambur Municipality

Year	No. of Households	No. of Houses
1991	6198	-
2001	8009	-
2011	10219	9830

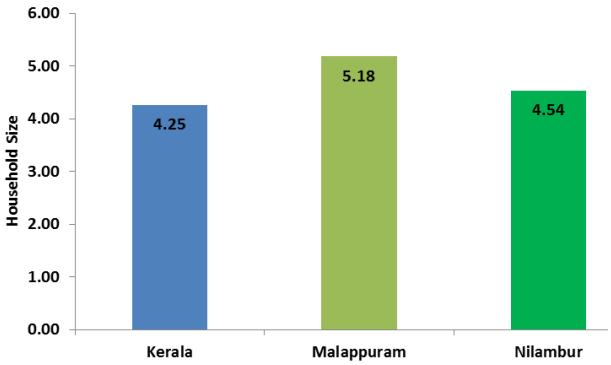


Figure 11.1: Comparison of HH Size with District & State

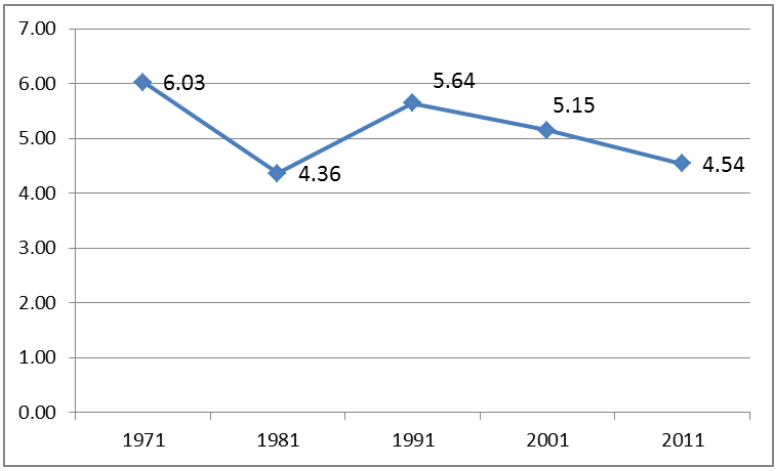


Figure 11.2: Temporal variation of Household size of Nilambur

But the Household size of Nilambur town has reduced from 5.15 to 4.54 in the last decade. Such decrease in household size is to be anticipated since the present household size is higher than the state average.

11.2 EXISTING HOUSING CONDITION

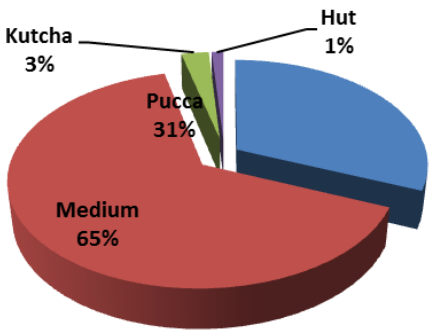


Figure 11.3: Housing Typology in the Municipality (Source: Socio-economic survey 2013)

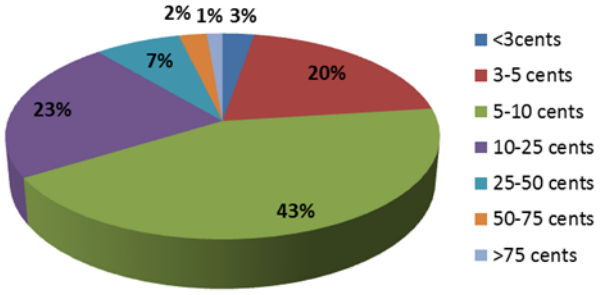


Figure 11.4: Residential plot size (Source: Socio Economic Survey 2013)

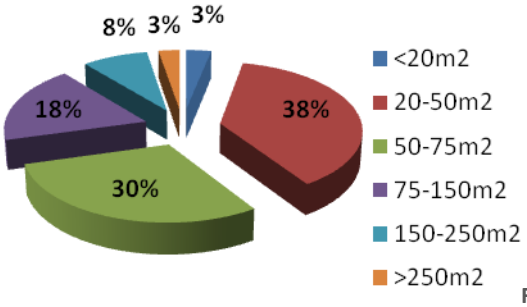


Figure 11.5: Houses by built up area (Source: Socio-economic survey 2013)

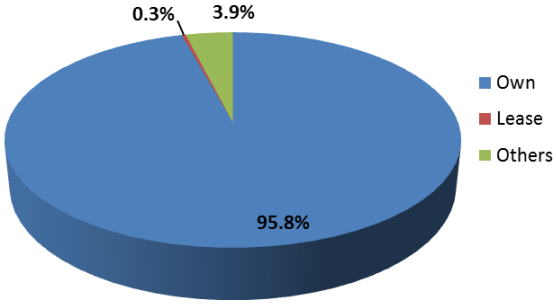


Figure 11.6 Nature of residential ownership (Source: Socio Economic Survey 2013)

Socio Economic survey conducted by the Town and Country Planning Department reveals that 31% of the houses in the municipality are of pucca nature and 65% are of moderate nature. There are 3% kutcha houses and 1% huts also in the municipality (Figure 11-3).

43%of the houses are built in plots of 5 to 10 cents, 23% stand on 10 – 25 cent plots. Only 2% and 1% houses are built in plot of sizes 50-75 cents and more than 75 cents respectively(Figure 11-4).

The Figure 11-5 gives the percentage of houses by built up area. Majority of the houses are between 20-50m², whereas 8% houses is between 150-250m² and only 3% is above 250m². This articulates the existence of several housing colonies that comprises of houses of area less than 50%. The nature of land ownership was analysed and seen that around 96% houses are self-owned and only 0.3% are leased (Figure 11-6).



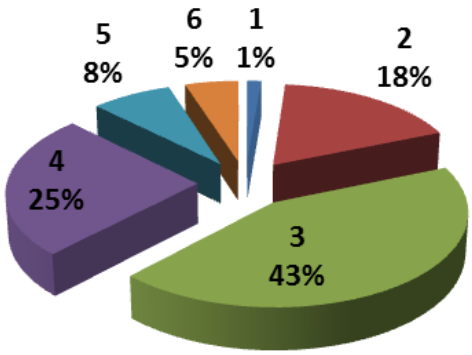


Figure 11.7: Percentage of houses by number of habitable rooms (Source: Socio Economic Survey 2013)

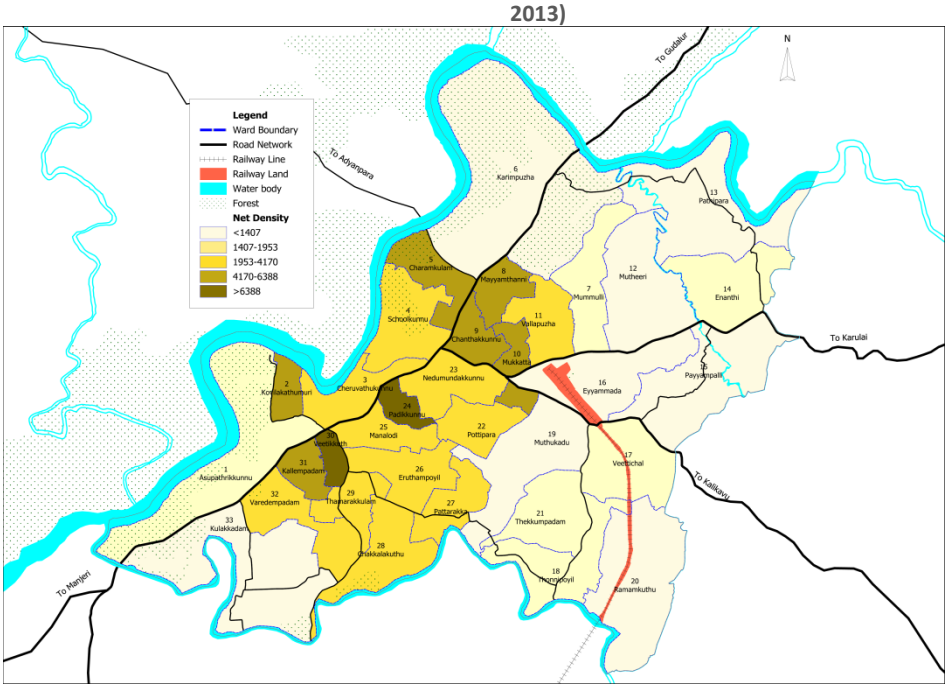


Figure 11.8 Wardwise Net Population Density of the Town

Another analysis of the status of houses showed that a majority of 43% houses have three habitable rooms whereas 25% houses have four rooms. 18% of houses have only two habitable rooms which are commonly seen in the low-income group housing in the town.

The study of ward wise net population density (Figure 11-8) shows that ward 30-Veetikkuthu and 22- Padikunnu have the highest population density compared to other wards. Both these wards are along the KNG road comprising less ward area, and includes the busiest regions of the town. The concentration of Residential landuse also reveals that ward 22-Padikunnu has the highest concentration.

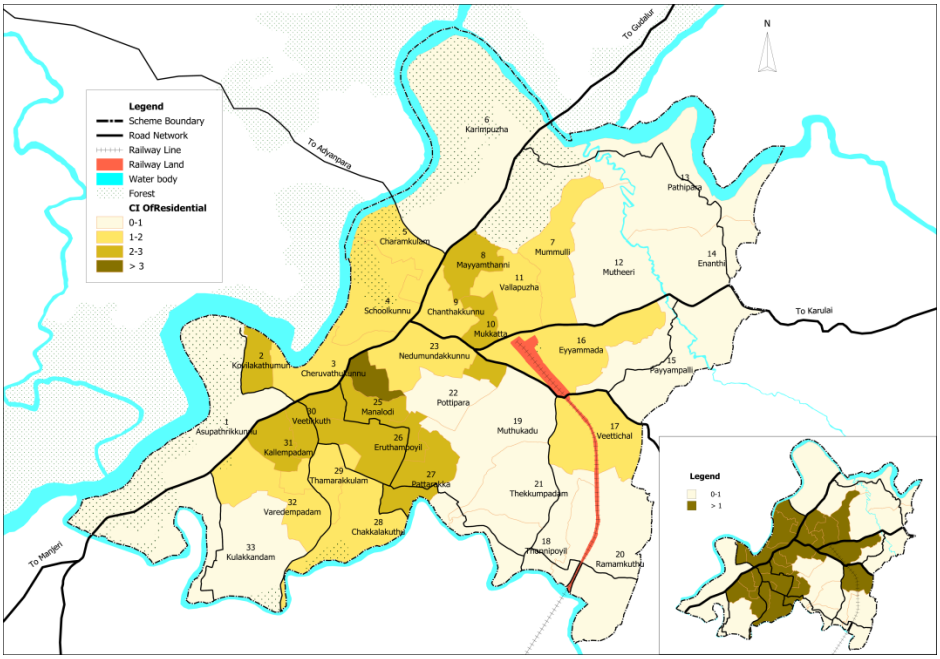


Figure 11.9 CI of Residential Landuse

11.3 SUB-STANDARD HOUSING CLUSTERS

In Nilambur muncipality, slums do not exist. But there are 23 housing clusters, where the housing and infrastructural conditions were not upto the mark. These were identified as substandard housing clusters with the help of the Municipality and ITDP, and a detailed survey was conducted by the Town & Counry Planning Department to assess the housing and infrastructural conditions. These clusters are scattered all over the planning area, containing more than 800 houses (Figure 11-10).

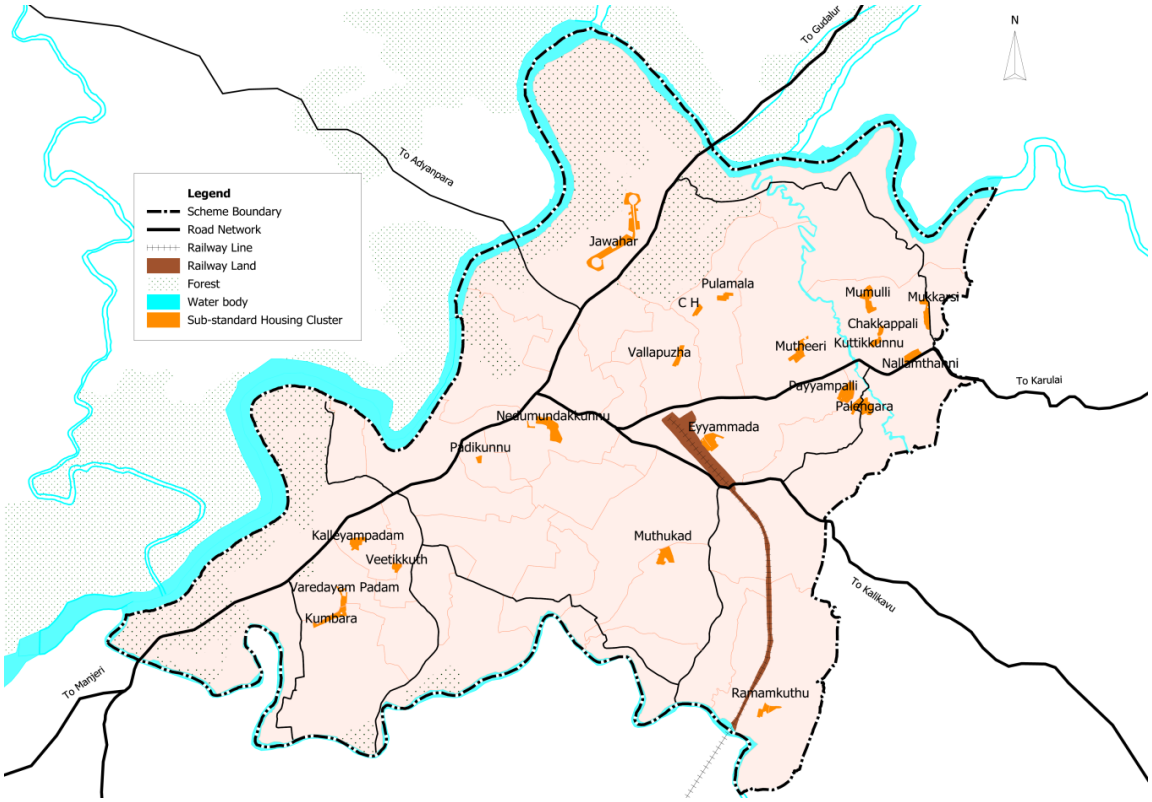


Figure 11.10 Spatial Location of colonies and clustered houses in the municipality

Table 11-2: Details of Housing Clusters in Nilambur Municipality (Source: Survey of Backward Housing Clusters, 2015)

Sl No	Name of Cluster	Ward No.	Total No. of Houses	Category of houses in the Cluster				Structural Condition of houses		
				ST	SC	OBC	Others	Kutcha	Semi-pucca	Pucca
1	Chakapali (ST)	13	9	9	--	--	--	1	8	--
2	Nallamthanni (ST)	14	24	24	--	--	--	3	19	2
3	Mukharshi (ST)	14	16	16	--	--	--	--	16	--
4	Mutheeri (SC&ST)	12	16	8	8	--	--	--	16	--
5	Vallappuzha (ST)	11	28	28	--	--	--	2	26	--
6	Eyyamada (SC&ST)	16	13	4	9	--	--	--	13	--
7	Padikkunnu colony (SC)	24	29	--	29	--	--	15	7	7
8	Varedampadam (ST)	33	14	14	--	--	--	1	13	--
9	Kallayampadam (ST)	31	4	4	--	--	--	--	4	--
10	Payyampalli (SC&ST)	15	20	2	18	--	--	3	17	--
11	Palenkara Colony (SC)	15	21	--	21	--	--	2	19	--
12	Nedumundakunu (SC)	23	38	--	38		--	2	30	6
13	Ramamkuth (SC)	20	17	--	17	--	--	1	12	4
14	Veettikuth (SC&ST)	29	11	2	9	--	--	1	9	1
15	Varedampadam (SC)	33	3	--	3	--	--	--	2	1
16	Kallayampadam (SC)	31	12	--	12	--	--	1	10	1
17	Kuttikunnu (SC)	14	31	--	31	--	--	1	27	3
18	Muthukad	21	70	2	18	50	--	4	58	8
19	CH Colony	7	70	1	2	67	--	--	47	23
20	Jawahar Colony (SC)	6	170	--	170	--	--	6	142	23
21	Poolamala Colony (SC)	7	6	--	6	--	--	--	4	2
22	Mummulli (SC)	12	35	--	35	--	--	--	35	--
23	Kumbara Colony	32, 33	145	--	30	3	112	--	143	2

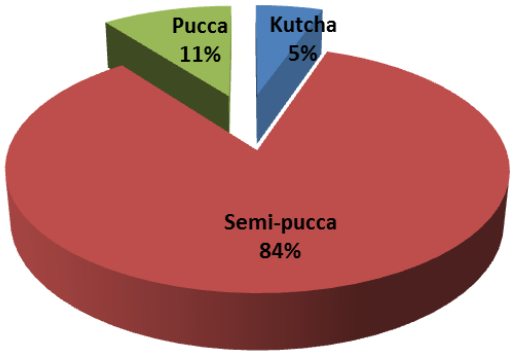


Figure 11.11 Comparison of Structural Condition of houses in the clusters

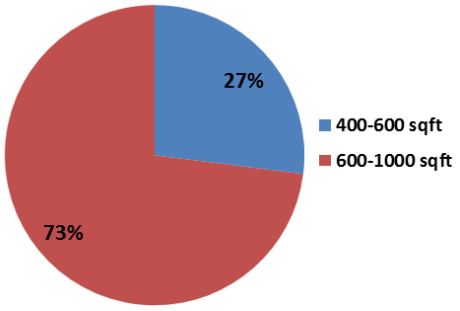


Figure 11.12 Comparison of Built-up area of houses

Table 11-2 gives the details of social category and housing condition of all these clusters.These clusters were mainly occupied by scheduled tribes, and some settlements at Padikkunnu, Palenkara, Nedumundakunu, Ramamkuth, Varedampadam, Kallayampadam, Kuttikunnu, Jawahar Colony, Poolamanna Colony and Mummulli included only SC families.It is observed that 84% houses in these clusters are semi-pucca, 11% are pucca and only 5% houses are kutcha, considering all the clusters together, as shown in Figure 11-11. When compared to the housing typology in the Municipality, it can be seen that the share of pucca houses is significantly less and that of semi-pucca (medium quality) is high, in these clusters. 73% of houses have built-up area between 600 and 1000 sqft and remaining 27% have 400-600 sqft area (Figure 11-12).




A few houses in Kumbara colony are also used for commercial activities for trading pottery products, whereas houses in all other clusters are purely residential.

11.3.1 Infrastructural Facilities

- **Road Connectivity**

Of the 23 clusters, 19 clusters are accessible by tar road and clusters at Ramamkuth and Poolamanna have concrete roads.Chakapali ST colony is mainly accessed by mud road and Varedampadam SCcolony has WBM road as main access.




- **Water Supply**



It is noted that seven clusters have to depend on a single source of water which are commonly public deep wells (bore wells), for drinking as well as other household needs. Open well is the main source of water for colonies like Chakapali and Vallappuzha.

The municipality drinking water supply is distributed to Mutheeri, Eyyammada, Payyampalli, Kuttikunnu, Muthukad and Mummulli colonies among the 23 other clusters. Overhead tanks of 5 lakh litres are installed in these clusters to supply water in pipes. Kerala Water Authority also contributes to the public water supply. Public wells are found in 8 clusters; 19 clusters have public deep wells; 8 clusters have private open wells and 12 clusters have private deep wells. Chakapali, Kallayampadam ST, Ramamkuth, Kallayampadam SC, Jawahar Colony and Kumbara

Colony also depend on river or canal for water for other household needs. Survey data reveals that 13 clusters still experience water scarcity during the summer season.

- **Energy, Communication**

In the 23 clusters there are 570 SC/ST houses, of which 400 are electrifies at present (Table 11-3).Two clusters namely Padikkunnu colony and Poolamanna Colony are cent percent electrified. Voltage problems were reported in the following clusters – Nallamthanni, Mukharshi, Kallayampadam ST, Kallayampadam SC and Poolamala Colony. Telephone lines were not common at present, however most of people in every cluster use mobile phones for communication.

Table 11-3 Details of Electrification of SC/ST houses in clusters

Sl No	Category of Clusters	No. of SC/ST Houses	No. of Electrified Houses
1	SC	362	279
2	ST	95	22
3	SC & ST	60	52
4	SC , ST and Others	53	47
	Total	570	400

- **Sanitation**

Many of the houses in the clusters are provided with individual toilets. Common toilets are also found in 19 clusters in addition to individual toilets for few houses in these clusters. The most common method of disposal of solid waste is by burning them with in the cluster. Chakapali, Nallamthanni and Varedampadam clusters segregate their waste in bins, while Mukharshi and Vallappuzha (ST) cluster simply dispose openly within the cluster. Storm water drains are found only in clusters at Kallayampadam and Veettikuth, whereas in clusters at Mutheeri and Vallappuzha absence of drainages cause water logging and creates problems in day to day activities during heavy rains.

- **Compound wall, Street Lighting**

A very few clusters like Vallappuzha, Varedampadam, Payyampalli, Ramamkuth and Jawahar Colony are enclosed with firm compound walls. The families of Kallayampadam cluster has raised the demand for constructing compund wall for the security of the colony residents whereas the other clusters do not have compund walls around them. Among the 23 clusters, although almost all the clusters have street lights installed only 17 of them have the purpose served.

11.4 LOW INCOME GROUP HOUSING INITIATIVES

Earlier, schemes like the EMS Bhavana Padhathi were intiated within the Municipality focussing on the Low Income Group, but were not able to complete.The Sampoorna Bhavana Padhathi is supporting the weaker section of Nilambur in all wards by providing financial assistance for construction of houses.

11.5 HOUSING SHORTAGE

The total number of households in the planning area is 10219. The total number of occupied houses is 9830. The difference between houses and households is 389. The kucha houses existing in the town, which is 4% of the total houses is to be replaced compulsorily. Therefore the present net housing shortage in the development area becomes 782 (389+393).

11.6 VERTICAL AND ORGANISED PLOTTED DEVELOPMENTS



Plotted development is slowly attaining pace in the town. The two major builders engaged in construction of villas in Nilambur are Vintage Builders and Symphony Builders. A ten villa project of the Vintage Builders is in progress at Chakkalakuthu near Vadakkumpadam Bridge. Symphony builders are coming up with two villa projects, one near Malabar Club at Kodathipady and the other near Ramamkuthu. It is seen that these projects are perfectly located on the river banks or forests, away from the hustle and bustle of the city life and yet within easy reach of all amenities. River front projects and developments indicate that Nilambur is a preferred location for luxury housing and the advancing standard of living of the people of Nilambur. Apartments and high rise residential flats are not very common in the town.

11.7 PROBLEMS AND POTENTIALS

The infrastructural facilities for the sub-standard housing clusters need to be improved. The migrant labour getting accumulated in the town has to be addressed while considering the overall housing situation in the municipality. They should be provided with necessary accommodation and sanitation facilities to ensure hygienic environment in the town. Finances available from Rural Cooperative Housing Society, Nilambur Urban Cooperative Bank and other Nationalized & private sector banksare facilitating the improvement of this sector.

11.8 INFERENCE

The existing housing conditions in the municipality are not very bad.Although no slums exist in the town there are identified sub-standard housing clusters scattered in the area. Real estate initiatives like Villa projects are spreading across the municipality, and high rise housing has not been initiated. Sampoorna Bhavana Padhathi is helping the financially weaker section of the municipality in housing sector.



12 WATER SUPPLY, ENERGY



Women fetching water from nearby private wells – a sight from Aruvacode area, January 2015

12.1 WATER SUPPLY

Being a mostly rural settlement, majority of the population depends on open wells for drinking and domestic water needs, in Nilambur. The Kerala Water Authority also supplies piped water in the municipal area. Though engulfed by freshwater bodies on three sides, many areas in Nilambur, especially those at higher altitudes, face shortage of potable and domestic water.

12.1.1 Water Sources

Socio economic survey of Town and Country Planning Department indicates that majority of the people in the town depend on their private open wells as the key source of drinking & domestic water. As presented in Figure 12.1, while 75.9% of the population depends on private wells as their primary source, only 8% depends on water supply by KWA. Chaliyar River is the main source of water supplied by the Kerala Water Authority to the town.

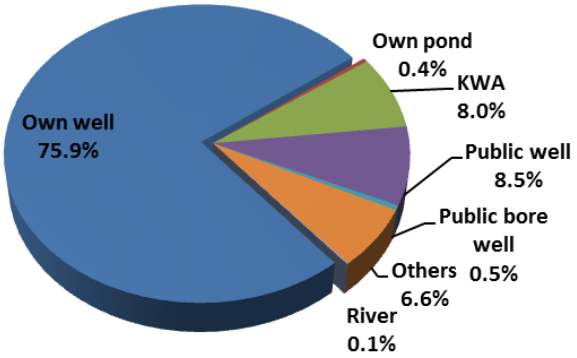


Figure 12-1: Details of Primary Source of Water (Source: Socio-Economic Survey, Town & Country Planning Department, 2013).

There are 154 public wells in the municipality. 8.5% of the municipal population depends on public well and 0.5% depends on public bore wells as their primary water source (Source: Nilambur Municipality). 0.1% of the population depends on river also. The water supply system is distributed among 92% domestic connections and 8% non-domestic connections.

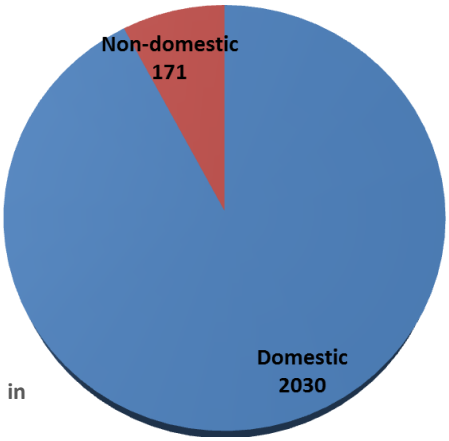


Figure 12-2 Water Consumption break-up in the Town

12.1.2 Water Supply Schemes

The Kalathinkadavu water supply scheme is the major scheme in the town, which was commissioned by the KWA in 1984 under the Accelerated Rural Water Supply Scheme. Under this scheme, KWA supplies 1.8 million liters of chlorinated piped water per day to the municipality area which has been divided into two phases. Water is pumped from sump wells in Chaliyar River to a tank of 6 lakh litres capacity at Bunglavinkunnu, and supplied to both Phase I and Phase II areas.

Table 12-1 Details of Distribution Network (Source: KWA, Nilambur)

Area of coverage (wards)	Number of houses covered	Capacity of OH tank	Total Quantity supplied /day	Quality of water
25	2389	6,00,000 litres	18,00,000 litres	Chlorinated

The scheme caters 25 wards of the Municipal area and covers 2389 houses and 254 public stand posts, with a total length of 110 km. This covers 24% of the total houses in the municipality. Two motors of 75 HP & 90 HP are installed but only one can function at a time due to voltage problems and load shedding. Frequency of supply is once in two days. Another tank of 5 lakh litres is being constructed to enhance the water supply spatially throughout the municipality.

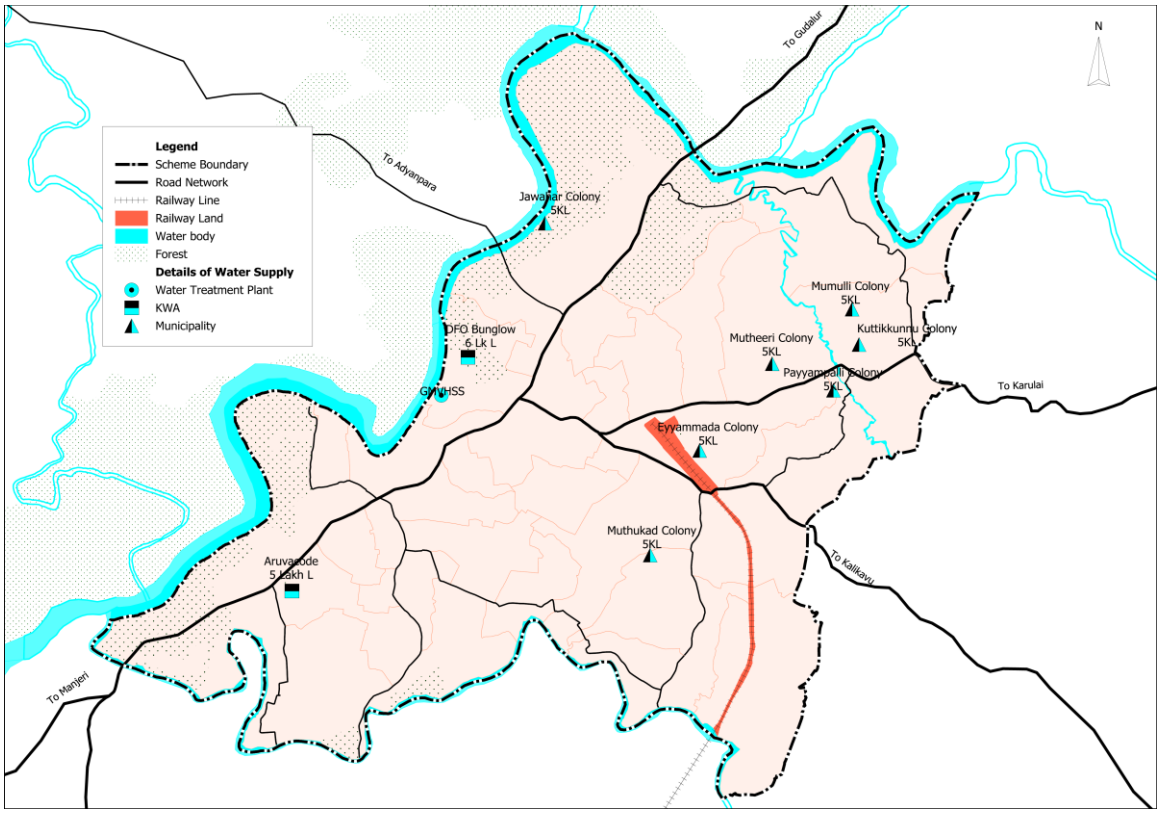


Figure 12-3: Location of Water Tanks owned by KWA and Municipality

There are also a few minor water supply schemes owned and operated by the Municipality which focus on the SC/ST colonies. Figure 12.3 show the location of water supply tanks of 5000 liters capacity constructed in these colonies. The Water Supply Scheme for Jawahar Harijan Colony implemented in 1980 by the KWA also has been handed over to the municipality. The quality of water supplied by the Water Authority and the available well water are found to be healthy.

12.1.3 Scarcity

The town doesn't face acute shortage of water as majority of the people depend on own wells for water. Around 72% of the houses reported no scarcity of water during the Socio-economic Survey, while 9% faced water scarcity for more than 6 months of the year (Figure 12.4).

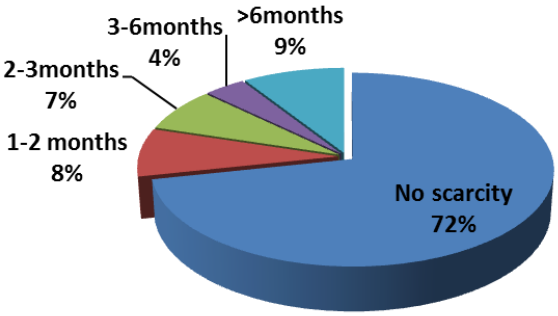


Figure 12-4 Scarcity of water (Source: Socio-Economic Survey, Town & Country Planning Department, 2013).

The areas which face water scarcity for atleast some part of the year are Aruvacode, Pattarakka, Ramamkuth, Padikunnu, Vallappuzha, Kallempadam and Veettikukuth, especially the SC/ST colony areas (Figure 12-5). A few wells in these areas get dry during acute summer season.

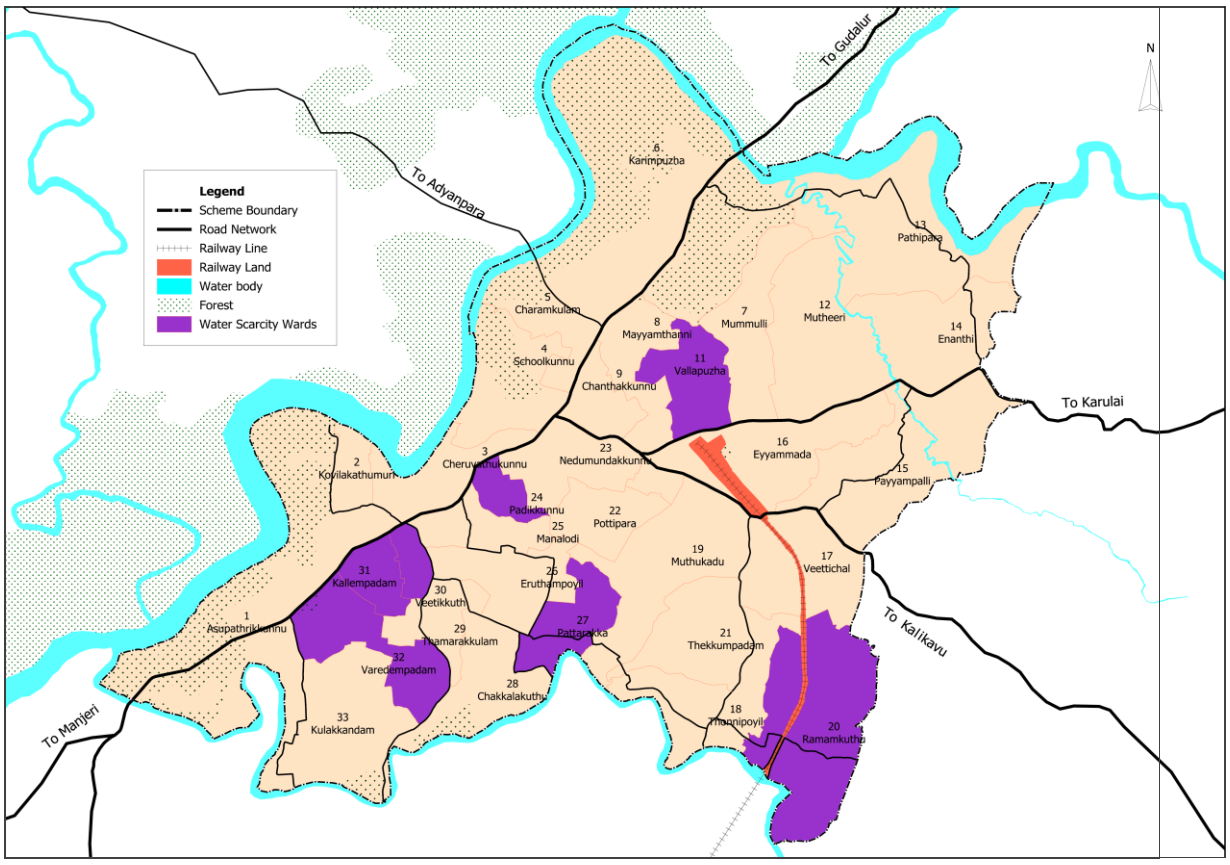


Figure 12-5 Spatial Distribution of wards experiencing scarcity during certain parts of the year (Source: Socio-economic survey)

12.1.4 Existing Demand and Gap

Treated water to all must be the target, since the ground water cannot be treated as potable in areas without proper sewerage disposal system. The present water demand in the municipality is estimated at 6.26 MLD (Population of 46,400 @ Per capita requirement for domestic purposes = 135 lpcd Ref: CPHEEO Manual). If we presume a 75-25 split between piped water and well, the actual demand for piped water supply is calculated to be 4.69 MLD, and the current quantity of supply is only 1.8 MLD. Hence the present gap in supplied water is 2.89 MLD.

Almost all the existing cement pipes in the network that have been damaged through years, are replaced by ductile iron pipes.

12.1.5 Ongoing Projects

Works of a new, 4MLD water treatment plant, 240 HP motor and 6 lakh litre tank (ground level) capacity is in progress, in the Govt. Manavedan Higher Secondary School compound. Besides, as part of the Augmented Distribution, an OHT of capacity 5 lakh litres is being constructed at Aruvacode to pump and store the treated water and enhance the water supply in the town. With the commissioning of this supply, Phase I region will be catered by Bunglavinkunnu tank and Phase II regions will be catered by the new tank supply. It is proposed to pump in three shifts so as to supply 15 lakh litres thus helping to overcome scarcity issues.

12.1.6 Potentials & Problems

Nilambur has abundant fresh water resources in the form of rivers, streams and ponds. Besides, there are ample opportunities for rainwater harvesting and ground water recharge.

Piped water supply projects does not cover majority of the settlements. Even the covered settlements are not ensured 24x7 water supplies or full coverage. There is no permanent solution yet ever after implementation of various projects.

The threat of water scarcity arising out of source depletion and contamination has to be given serious attention by all concerned. Considering the increase in contamination of well water and population growth, the piped water supply will have to be increased in quantity and coverage.

12.1.7 Inference

Majority of the people depend on private open wells to meet their domestic and drinking water needs at present. However, this is not a dependable source as the density is rising and the town lacks a scientific sewerage system. The commissioning of the treatment plant and the water supply tank at Aruvacode the total supply will come up to 3.3MLD. In order to meet the immediate need for piped water supply of the present population in the municipal area at a satisfactory level of service, the Kerala Water Authority has to further increase capacity by 40%. Ensuring future water security is possible only through a multi-pronged strategy consisting of conservation of water resources, rain water harvesting, ground water recharging, reducing wastage and prevention of water pollution incorporating scientific disposal.

12.2 ENERGY

Nilambur traditionally depended on its rich forest resources for energy and firewood was the domestic fuel till the introduction of electricity in 1952, which was distributed from Paikkara generating station in Tamil Nadu. Now while electricity is the main source of energy, firewood & LPG are the main domestic fuels in use.

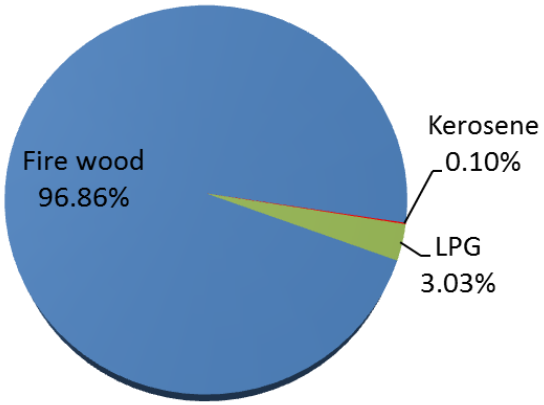


Figure 12-6 Domestic fuel (Source: Socio-Economic Survey, Town & Country Planning Department, 2013).

The socio-economic survey revealed that fire wood is still the singularly important domestic fuel (Figure 12-7) in the municipality, compared to

kerosene and LPG. Around 97% of the households use fire wood which signifies the rural lifestyle in the municipality.

12.2.1 Electricity Distribution Network

Nilambur has a Mini Vydhyuthi Bhavan catering to the power supply required to the town. Currently the electricity for the municipality in distributed from the 110 KV substation at Malappuram through the 66 KV sub-station in Nilambur, located at Veliyamthodu. There are 107 transformers altogether in the municipality, connected to various feeders namely, Nilambur, Karulai, Kalikavu, Wandoor and Chungathara feeders. The 11 KV feeder line extends for 53.15 km inside the municipality connecting various transformers. Electricity is distributed throughout the municipality with 159.86 km of 3 phase lines and 102.2 km of single phase line. The socio economic survey conducted here reveals that 99% of the households are electrified in the municipality.



Figure 12-7 Mini Vydhyuthi Bhavan in Nilambur

12.2.2 Electricity Consumption

Out of a total of 13916 electricity connections in the Municipality area, 60% is domestic and 38% is commercial connections (Figure 12-8). Total consumption of power is divided as per Figure 12-9, 48% for domestic use, 33% for commercial use, 14% for industrial use and 5% for agricultural use.

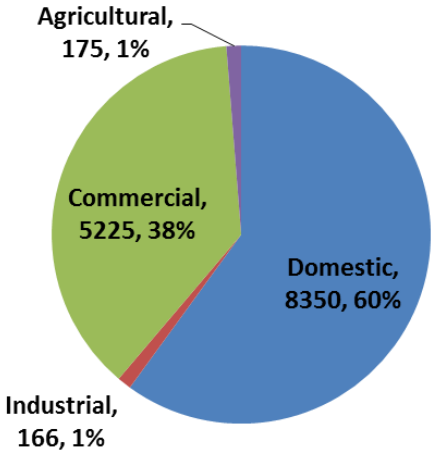


Figure 12-9 Percentage of split up of electricity connections in the Town (Source: Local Body, KSEB)

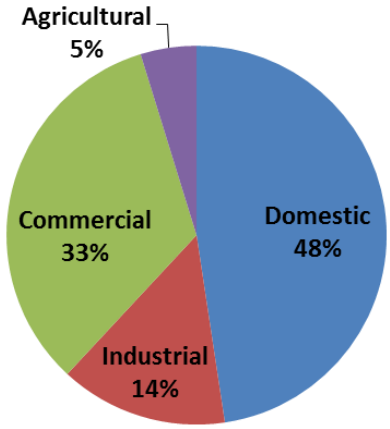


Figure 12-8 Percentage of split up of electricity consumption in the Town (Source: Local Body, KSEB)

12.2.3 Adyanpara hydro-electric power project

The Adyanpara hydro-electric power project, located in Chaliyar grama panchayath, is the first hydropower project in the district and is to be commissioned soon. The launching of this hydro-electric project will benefit Nilambur municipality to a great extent. The estimated cost of

the eco-friendly power project with 3.5MW capacity is Rs 27.09 crore. Electricity would be generated at the power house only during rainy season and the water used in the power house would be recycled to the waterfalls region. Three generators of 1.5MW capacity will be installed in the power house. A check dam of 5.56m height and 57.5m length will be constructed at Adyanpara waterfalls region which is a major tourist attraction in the district. Water from the dam would reach the power house through a 975-m long tunnel. The commissioning of the Adyanpara project would resolve the issue of power shortage in Nilambur to a certain extent. A total of 18.15 acres, including 3.96 acres of forest land, has been acquired for the project.

12.2.4 Use of Fossil Fuel

Like any other town the most commonly used fuels are petrol, diesel and LPG gas.

Table 12-2: List of Fuel Filling Stations in the Town (Source : Local Enquiry)

Facility	Location	Sales (litres /day)		
		Petrol	Diesel	Gas
Bhoj Petrols	Chandakunnu	4000	9000	
Vee Pee Petroleum HP	Chandakunnu	4000	10000	250
PTC Bharath Petrol Pump		2000	7000	
Auto Gas Energy				1000
Reliance Pump	Main Road	4500	12000	--
Mammi Haji Sons Petrol Pump	Nilambur	1300	3200	--
Nilambur Auto Fuels	Nilambur	2000	4500	--

As per Table 12.2, 17800 KL of petrol and 45700 KL of diesel are sold in the town annually. The consumption of diesel is much higher than that of petrol. Since there are a number of fuel filling stations in the nearby LSGs, the sale can be taken as almost equal to consumption in the town.

12.2.5 Problems and Potentials

The municipality is almost cent percent electrified, and only very few places experience low voltage. High T&D losses have been observed in electric energy distribution sector. Promotion of renewable sources - Solar, Wind, Biogas etc, is to be ensured. There is scope for making more firewood by improving social forestry. House hold and other appliances using solar energy and efficient working methods using firewood are to be introduced. Unnecessary telephone and electric posts are to be removed or shifted for efficient traffic and pedestrian movement. Certain areas in the town lack proper street lighting.

12.2.6 Inference

The use of non-conventional sources of energy is very much limited. The town has a relatively strong electricity distribution network. Consumption of electricity is mostly for domestic (i.e. Non-productive) purposes. The town has high consumption level of fossil fuels also.



13 SANITATION

Nilambur town has weak sanitation infrastructure, however, it is progressing fast towards achieving scientific disposal of solid and liquid waste. Nilambur Grama Panchayat won the Nirmal Grama Puraskar awarded by the then President of India in the year 2008.

13.1 SEWAGE DISPOSAL

In the town, like its counterparts in the district and state, leach pit latrines are the most prevalent method of human waste disposal. At present at least 450 households doesn't have toilets (Padhathirekha, 2014-15). Socio-Economic survey conducted by Office of the Town Planner, Malappuram, revealed that only 15% of the households in the town use septic tanks, whereas the rest 79% use pit latrines while 6% does not have toilet facilities at all. There is just one public toilet in the town, an e-toilet near old bus stand, which is inoperative at present.

There is no scientific sewerage network existing in the town. The existing system of waste water disposal is mainly onsite sanitation methods like leach pit, septic tank etc. At present, the household system treats the night soil from the latrines mainly though leach pits or septic tanks and the other household waste water (grey water) are let into the open drain. The septic tank however may not be functioning properly and most of the households don't have facility for treating septic tank effluent through dispersion trench or other methods and the effluent finds its way to the nearest storm water drains. There is no organized facility for scientific treatment of septage either.

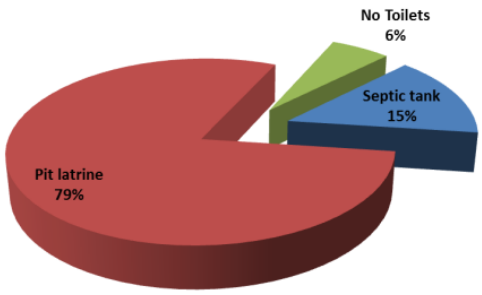


Figure 13-1 Proportion of usage of Septic tanks in the town (Source: Socio Economic Survey, 2013)

13.2 SOLID WASTE DISPOSAL

The existing solid waste management infrastructure includes a Biogas plant at Chettiyangadi fish-meat market, one tractor and 9 personnel are employed by the municipality. There are two portable incinerators owned by the municipality. Although the municipality acquired 220 cents of land in Survey No. 383 in Muthukad area for the establishment of a solid

waste treatment plant, the project could not be implemented due to public protest.

Table 13-1 Details of Solid waste collection in the town

Type of the System (Centralized , Partially centralized, community level)	Total quantity of solid waste generated (T)	Total quantity of solid waste treated (T)	Coverage Area/ wards	Collection details			
				Location of Collection points	Workers employed	Frequency of collection	Vehicle used
Partially	8 Ton per day	3 Ton per day	Total 16 wards	various places in town	9	Daily	1 Trailer Tractor

8 tonnes of solid waste is generated per day in the town (Source: Kerala State Pollution Control Board). However the Municipality is insisting hotels, auditoriums, hospitals & commercial establishment to go for their own waste treatment and disposal system and hence the quantity of waste collected by the Municipality is very less. Approximately 3 tonnes of wastes are collected from 16 wards of the Municipality on daily basis, from street sweeping, markets etc, and disposed randomly and burnt open. The bio-degradable wastes from vegetable, fish-meat market and slaughter waste are disposed in the Bio-gas plant at Chettiangadi. Bio-medical wastes from the almost all hospitals are collected and disposed by IMAGE.

According to the socio-economic survey conducted, majority of households are disposing solid waste in their own compound by segregating bio-degradable waste into pipes to produce compost and burning other waste. Types of solid waste disposal in the town are presented in Table 13-2 below.



Figure 13-2 Biogas plant at Chettiyangadi



Figure 13-3 Disposal of waste by burning

Table 13-2 Types of household solid waste disposal in the town
(Source: Socio Economic Survey, 2013)

Place of Disposal	% of sample
Own Compound	99.46
Garbage bin	0.22
Open space	0.33

At present there are no arrangements for treatment of e-waste in the town.

13.3 STORM WATER DRAINAGE

The major drainage channels in the town are the Chaliyar which forms the North boundary, the Karimpuzha which forms the East boundary and the Punnappuzha which forms the South boundary. Besides, the important streams namely the Valiyathodu, Veliyamthodu and Chakkacheenithodu drains a major portion of the town.

Manmade drainage exists in the town, a total of 27.22 km, in the heavily developed areas, as presented in Figure 13-4 below. Of this 5.77 km is covered drains and 21.45 km is open drains.

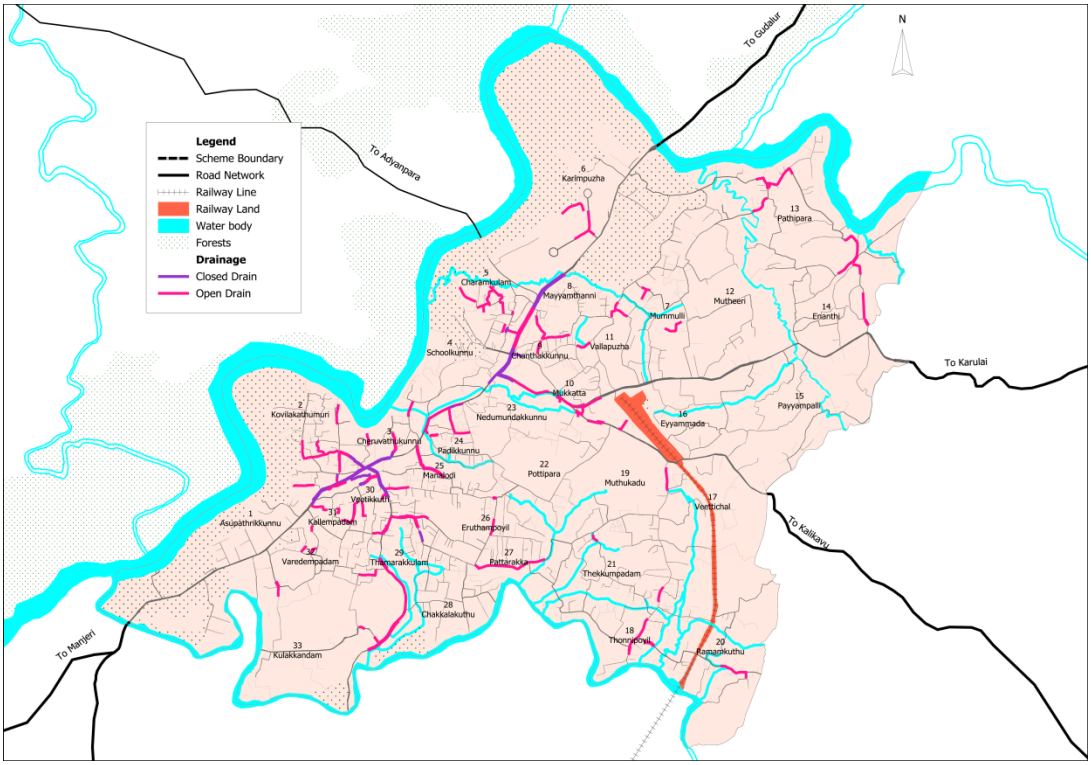


Figure 13-4: Man-made& Natural drainage in the Town

As evident from the figure above, the existing drainage system is found fragmented, and addresses the drainage issues at the local level and fails to form a continuous and comprehensive drainage network for the town.





Figure 13-5 Drainage work in progress at various stretches of roads

Occasional flooding occurs in the town during the monsoons, at Janathapadi, Jyothipadi and Veliyamthodu area. At Janathapadi and Veliyamthodu flooding occurs when the storm water rushes through the natural streams, and gets blocked at the cross-drainage points. At Jyothipadi, flooding occurs when the adjacent paddy fields get water-logged and overflow. This suggests the insufficiency of existing drainage facilities.

13.4 PROBLEMS & POTENTIALS

The town has improved considerably in sanitation, from its past status of only 60% housing having toilets in 1997 (Source: Vikasanarekha) to 94% having toilets (Source: Socio Economic Survey, 2013). However absence of proper solid & liquid waste management infrastructure and insufficient drainage network shows that the sanitation infrastructure development in the town is disorganised. Existing system of decentralized household-level waste disposal reduces the pressure on public infrastructure; but needs to be guided scientifically in segregation and disposal methods to ensure environmental safety.

13.5 INFERENCE

The drainage system needs total revamping to form efficient, effective and clean storm water drainage. The rising density calls for a sewerage system in order to protect the water resources. Segregation and collection of non-biodegradable household waste should be ensured. Implementation of 100% decentralized bio-degradable waste management can be enforced. Awareness programmes for appropriate disposal of plastic waste and provision of bins to collect plastic waste should be promoted. The town also requires plastic waste and e-waste recycling facilities. Strict regulations should be imposed for reducing waste generation (Reduce- Reuse - Recycle). Awareness should be created on other infectious household sanitary waste. Measures for common disposal of sanitary wastes in large residential complexes or projects using sophisticated techniques should be promoted.



14 EDUCATION

The history of formal education in Nilambur town starts with the establishment of Lovely Bird Hindu Lower Elementary school in 1903, which later became the Govt. Model Upper Primary School. Nilambur Mappila LP School and Veettikuth GLP School established in 1914 and 1928 respectively, widened the access of common public to formal education. However the establishment of Manavedan School in 1940, by the then ruler Sri Manavedan Raja of Nilambur Kovilakam, paved the way for widespread education and progress in this sector in Nilambur. This school which has now become a Vocational Higher Secondary School is blessed with 17 acres of land, two acres of agricultural land and buildings including quarters for teachers, bestowed by the Kovilakam, in its name.

Nilambur is the first Gramapanchayat in India to achieve 100% primary education, equivalent education up to fourth standard, under the flagship project 'Jyothirgamaya' in the year 2005. As per Census 2011 the literacy rate in the Municipality is 94.9%.

14.1 EXISTING EDUCATIONAL INFRASTRUCTURE

Presently there are seven Government schools, seven Aided schools and eleven Private schools function within the municipal limits, of these 23 schools offer classes in the lower primary section, 16 Schools in the upper primary section, 10 Schools in high school section and 6 in higher secondary section. The details of schools are tabulated in Table 14-1.

Table 14-1: Details of various levels of education available in Nilambur (Source: Local Body, Education Dept.)

Sl No	Type of Institutions	No: of Institutions			Total
		Government	Aided	Unaided	
1	Pre-Primary	3	2	9	14
2	L P School	6	6	11	23
3	U P School	2	4	10	16
4	High School	1	3	6	10
5	Higher Secondary School	1	1	4	6
6	Arts & Science College	-	-	2	2
7	Polytechnic/ITI/ITC	1	-	1	1

The details of no. of students and no. of teachers in these schools are presented in Table 14-2. The total number of students studying in the schools in the town is 14927 and the number of teachers is 655. The teacher-student ratio varies from 8 to 35. All UP schools have a ratio less then 1:35. Out of 16 UP Schools, GUP School Nilambur has highest teacher-student ratio of 29. In the same manner all high schools and higher secondary schools have a ratio less than 1:30 except GMVHSS Nilambur which has a ratio 31. Among the high schools, Peevees Public School Chakkalakkuth, has lowest teacher-student ratio (8).

The infrastructure facilities available in these schools are presented in Table 14-3. It can be seen that all schools are self-sufficient with their own source of water supply, except ALP School, Chettiyangadi which depends on Municipal water supply. All schools are properly accessible with well motorable roads and 82% of schools have play-ground facilities and computer labs. Every school in Nilambur provides separate toilets for girls indicating special concern to the female students. Around 69% schools provide internet facilities to the students.

Table 14-2 Details of student teacher ratio in Nilambur (Source : Local Body, Derived data)

Sl No.	Name of Institution	No. of Students	No. of Teachers	Student Teacher ratio
1	NSS, Nilambur	1363	61	22
2	GMVHSS, NBR	2600	83	31
3	Fatimagiri School, Chandakunnu	1035	40	26
4	Little flower English School, NBR	1294	53	24
5	Peevees Model School, NBR	1977	88	22
6	Peevees Public School, Chakkalakkuth	376	46	8
7	IGMR School, Veliyamthodu	419	15	28
8	Buds School, Vallappuzha	120	6	20
9	Majama School, High School Road	523	25	21
10	Good Hope English Medium School, Kolakkandam	546	29	19
11	Vidyabharathi English Medium School, Veettikkuth	155	10	16
12	GUP School, NBR	845	29	29
13	BMAUP School, Muthukadu	896	32	28
14	PMSAUP School, Ramamkuth	308	14	22
15	SDA English School, Mayanthani	96	12	8
16	MES Central School, Pattaraka	165	15	11
17	Al Falah U P School	125	8	16
18	GLP School, Veettikkuth	215	10	22
19	ALP School , Chettiyangadi	112	5	22
20	Govt. LP School, Makkuth	158	6	26
21	Govt. LP School, Thazhechandakkunnu	594	17	35
22	GMLP School, Karimpuzha	132	6	22
23	GLP School, Mukkatta	143	8	18
24	AUP School, Chandakkunnu	590	22	27
25	St. Thomas LP School	140	15	9

14.2 SPATIAL DISTRIBUTION OF EDUCATIONAL INFRASTRUCTURE

Figure 14-1 shows the spatial distribution of LP Schools. Only 15 wards are facilitated with LP schools. The wards on the northern and western sides are covered with forest land; hence only a few educational institutions are located here.

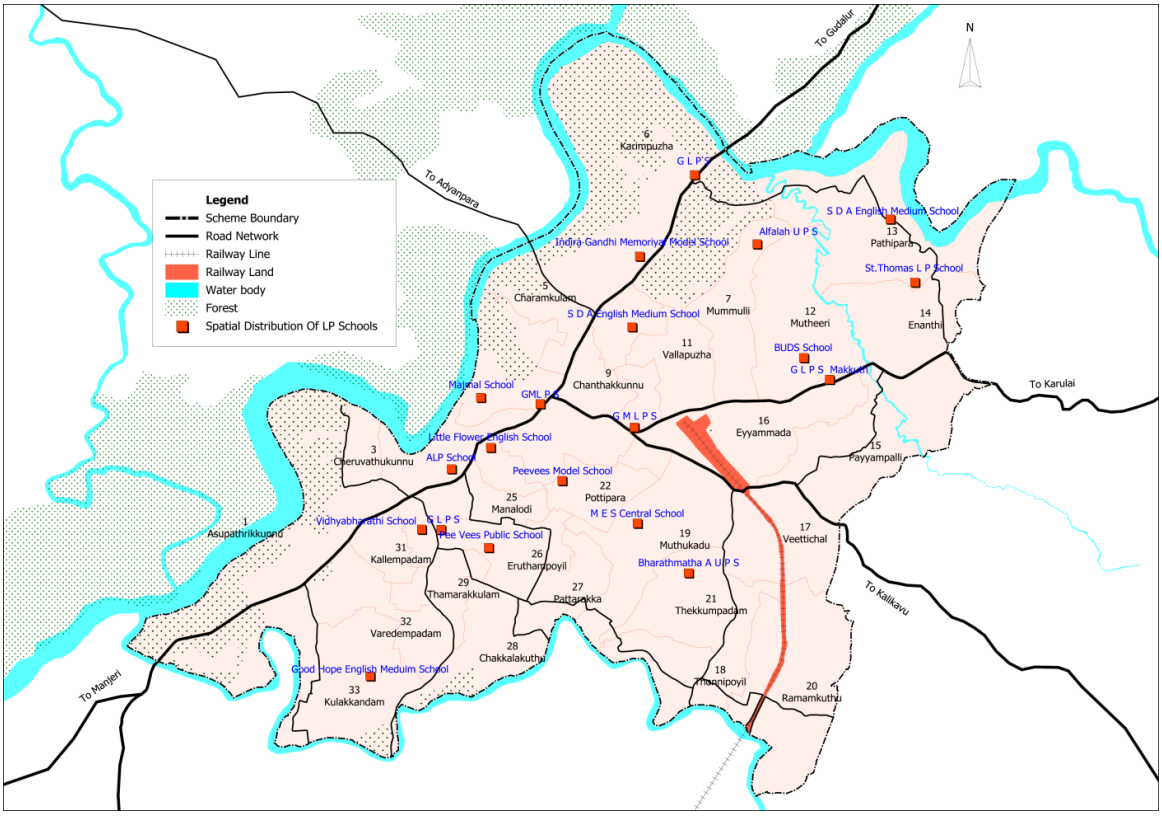


Figure 14-1: Spatial distribution of LP Schools

Figure 14-2, 14-3 and 14-4 shows the spatial distribution of UP Schools, High Schools and Higher Secondary Schools respectively. They are also reasonably well-distributed in the municipality.

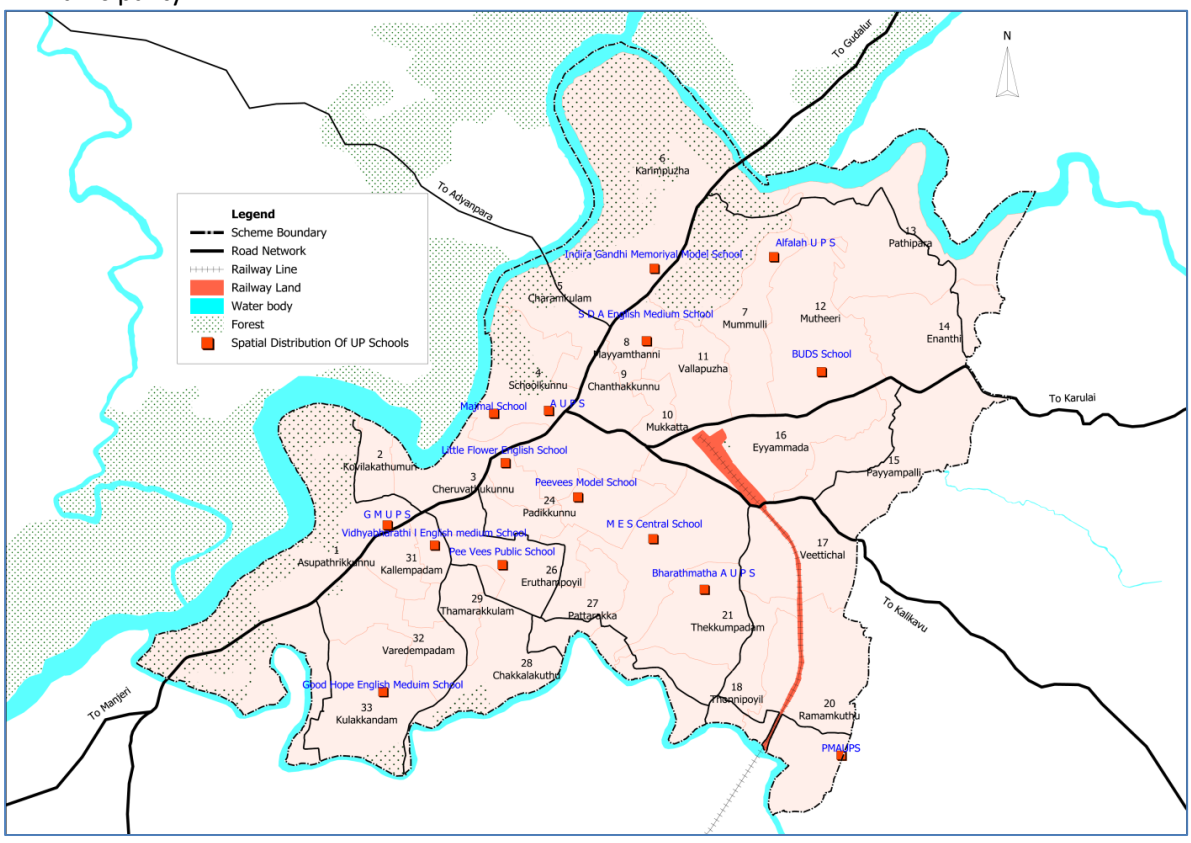


Figure 14-2: Spatial distribution of UP Schools

Table 14-3 Details of infrastructural facilities available in schools (Source : Local Body, Education Dept.)

Sl. No	Name of the school	Play ground	Separate toilets for girl students	Computer lab	Internet	Water Availability	Source of Water	Connectivity with motorable road
1	NSS, Nilambur	Yes	Yes	Yes	Yes	Yes	Well	Yes
2	GMVHSS, NBR	Yes	Yes	Yes	Yes	Yes	Well	Yes
3	Fatimagiri School, Chandakunnu	Yes	Yes	Yes	Yes	Yes	Well	Yes
4	Little flower English School, NBR	Yes	Yes	Yes	Yes	Yes	Well	Yes
5	Peevees Model School, NBR	Yes	Yes	Yes	Yes	Yes	Well & orewell	Yes
6	Peevees Public School, Chakkalakkuth	Yes	Yes	Yes	Yes	Yes	Well &Borewell	Yes
7	IGMR School, Veliyamthodu	Yes	Yes	Yes	Yes	Yes	Well	Yes
8	Buds School, Vallappuzha	Yes	Yes	Yes	Yes	Yes	Well	Yes
9	Majama School, High School Road	Yes	Yes	Yes	Yes	Yes	Well	Yes
10	Good Hope English Meduim School, Kolakkandam	Yes	Yes	Yes	Yes	Yes	Well & Borewell	Yes
11	Vidyabharathi English Medium School, Veettikkuth	Yes	Yes	Yes	Yes	Yes	Well	Yes
12	GUP School, NBR	Yes	Yes	Yes	Yes	Yes	Well	Yes
13	BMAUP School, Muthukadu	Yes	Yes	Yes	Yes	Yes	Well	Yes
14	PMSAUP School, Ramamkuth	Yes	Yes	Yes	No	Yes	Well	Yes
15	SDA English School, Mayanthani	Yes	Yes	Yes	Yes	Yes	Well	Yes
16	MES Central School, Pattaraka	Yes	Yes	Yes	No	Yes	Well	Yes
17	Al Falah U P School	Yes	Yes	Yes	Yes	Yes	Well	Yes
18	GLP School, Veettikkuth	Yes	Yes	Yes	Yes	Yes	Well	Yes
19	ALP School , Chettiyangadi	No	Yes	Yes	No	Yes	Municipality	Yes
20	Govt. LP School, Makkuth	Yes	Yes	No	No	Yes	Well	Yes
21	Govt. LP School, Thazhechandakkunnu	Yes	Yes	No	No	Yes	Well	Yes
22	GMLP School, Karimpuzha	No	Yes	No	No	Yes	Well	Yes
23	GLP School, Mukkatta	No	Yes	No	No	Yes	Well	Yes
24	AUP School, Chandakkunnu	No	Yes	Yes	No	Yes	Well	Yes
25	St. Thomas LP School	No	Yes	Yes	No	Yes	Well	Yes

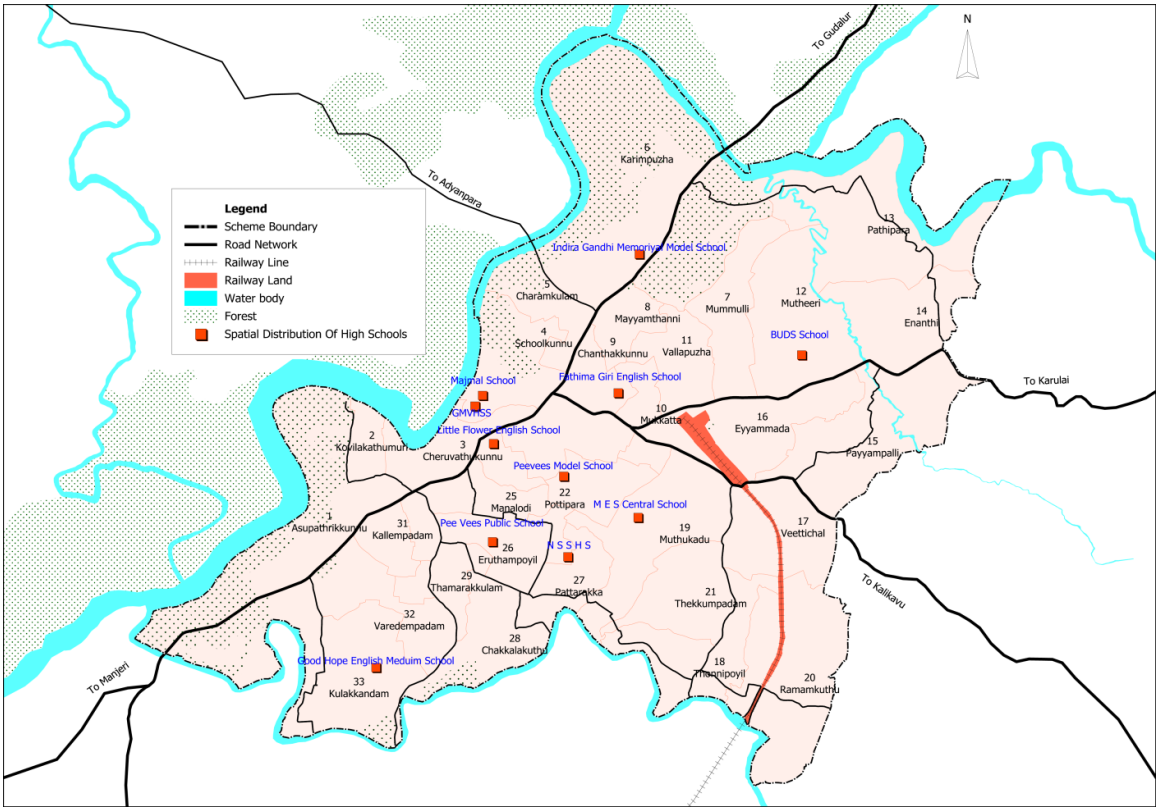


Figure 14-3: Spatial distribution of High Schools

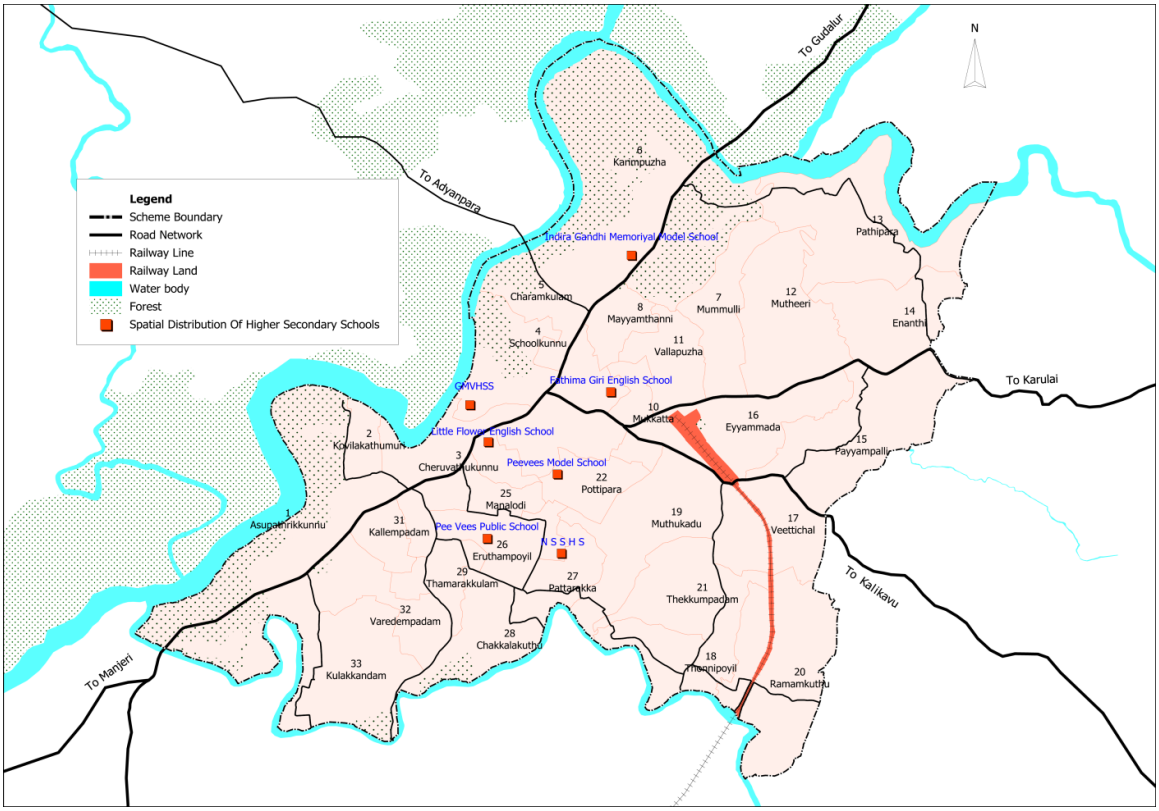


Figure 14-4: Spatial distribution of Higher Secondary Schools

14.3 EDUCATION FOR THE PHYSICALLY CHALLENGED/SPECIALLY SKILLED

The BUDS school for HI, established by the Ernad Charitable Society in 1993 offers education for the blind & deaf children from various parts of the district, and has modern infrastructure intended for specific learning of these children. This is located at Mutheeri.



Figure 14-5 BUDS School, Nilambur

14.4 DROPOUT PATTERN FROM SCHOOLS

In Nilambur, students from the SC/ST communities & Kumbhara community exhibit a tendency to discontinue formal education. The reason for discontinuing may be lack of parental support and interest, inability to understand the medium of instruction due to mother tongue inhibition, engagement in household work, learning disability, illness, migration of parents and other socio-cultural factor. Data of drop-out students during the latest three years has been compared in Table 14-4.The data shows that the number of drop-outs is decreasing except in GLPS Veettikkuthu, GMVHSS Nilambur and BMAUPS Muthukadu.

Table 14-4 Drop-out details of schools in Nilambur Municipality

Sl No.	Name of School	2012-13	2013-14	2014-15
1	GLPS Mankuthu	2	0	0
2	GMLPS Mukkatta	0	0	1
3	GMLPS Nilambur	6	0	0
4	GLPS Veettikkuthu	4	1	4
5	ALPS Chettiyangadi	1	21	5
6	IGMRS Nilambur	24	11	8
7	GMVHSS Nilambur	21	6	14
8	AUPS Chandakkunu	5	2	1
9	BMAUPS Muthukadu	7	2	6
10	PMSAUPS Ramamkuth	7	0	0
11	BUDS School , Vallappuzha	2	0	0
12	NSSHS Chakkalakuthu	12	9	7

14.5 TECHNICAL & HIGHER EDUCATION

The first institute which offered higher education came to existence in 1952, the Kumar Commercial Institute.

Now, there are two major institutions offering graduation/post-graduation courses in Arts & Science, but no Engineering/Medical/Management or other Professional colleges are present. The students from the municipality avail higher education from Mambad MES College situated at a distance of 9 km, Chungathara Marthoma College at a distance of 10 km, Amal College at

distance of 3.1km etc. located in the nearby panchayats or depend on higher educational institutions in Kozhikode, Malappuram etc.

Table 14-5 List of Higher Educational Institutions in the Municiaplity (Source: Local Body)

Sl. No	Name of College	Location	Number of students course wise (UG)			Number of students course wise (PG)			Govt. / Aided/ Unaided
			BA	B.Sc	B.Com	MA	M.Sc	M.Com	
1	Classic college	Kallepadam	385	96	710	11	3	56	Unaided
2	Nilambur Taluk Co-Operative College	MSP Camp Road, Nilambur	322	-	184	-	-	-	Co-Operative

Besides around 14 other institutes offering various software/hardware computer courses as well as other certificate courses are available in the municipality, details of which are listed in Table 14-6 below. There is a nursing institute, though with a minimal intake of 15 students.

Table 14-6 List of Technical/Professional Educational Institutions in the Municiaplity (Source: Local Body)

Sl. No	Name of College	Location	Ownership	Courses offered	No. of students
1	Govt. ITI, Nilambur	V.K. Road, Nilambur	Govt.	ITI Fitter, Electronics	-
2	Induscan Petroleum Institute	Court Road Jn area	Private	QC Engineer	150
3	Majma ITC	High School Road	Private	ITC Civil, Architecture, sanitary Inspector	-
4	Data Soft School of Information	Kovilakam Road	Private	Computer courses	60
5	Kumar Commercial Institute	Hospital Road	Private	KGTE courses	25
6	ACES Computer Institute	Nilambur	Private	Computer courses	60
7	Alphatech Computer Center	Classic College road	Private	Computer courses	58
8	Campane Computer Center	VK Road	Private	Computer courses	75
9	G-Tec Computer Education	Nilambur	Private	Computer courses	65
10	Data Pro Computer Campus Nilambur	Nilambur	Private	Computer courses	104
11	IT Kerala sub center	Nilambur	Private	Computer courses	26
12	IT Campus	Kovilakam Road	Private	Computer courses	65
13	Team Round Infostream Office	Nilambur	Private	Computer courses	23
14	Relent Cyber college of Computer	Nilambur	Private	Computer courses	7
15	St. Mary's Nursing Institute	Nilambur	Private	MLT, Diploma in Nursing	15

The only institute in Government sector in technical education in the municipality is the Government ITI which was established in 1996. 80% of the seats in this institute are reserved for SC/ST students.

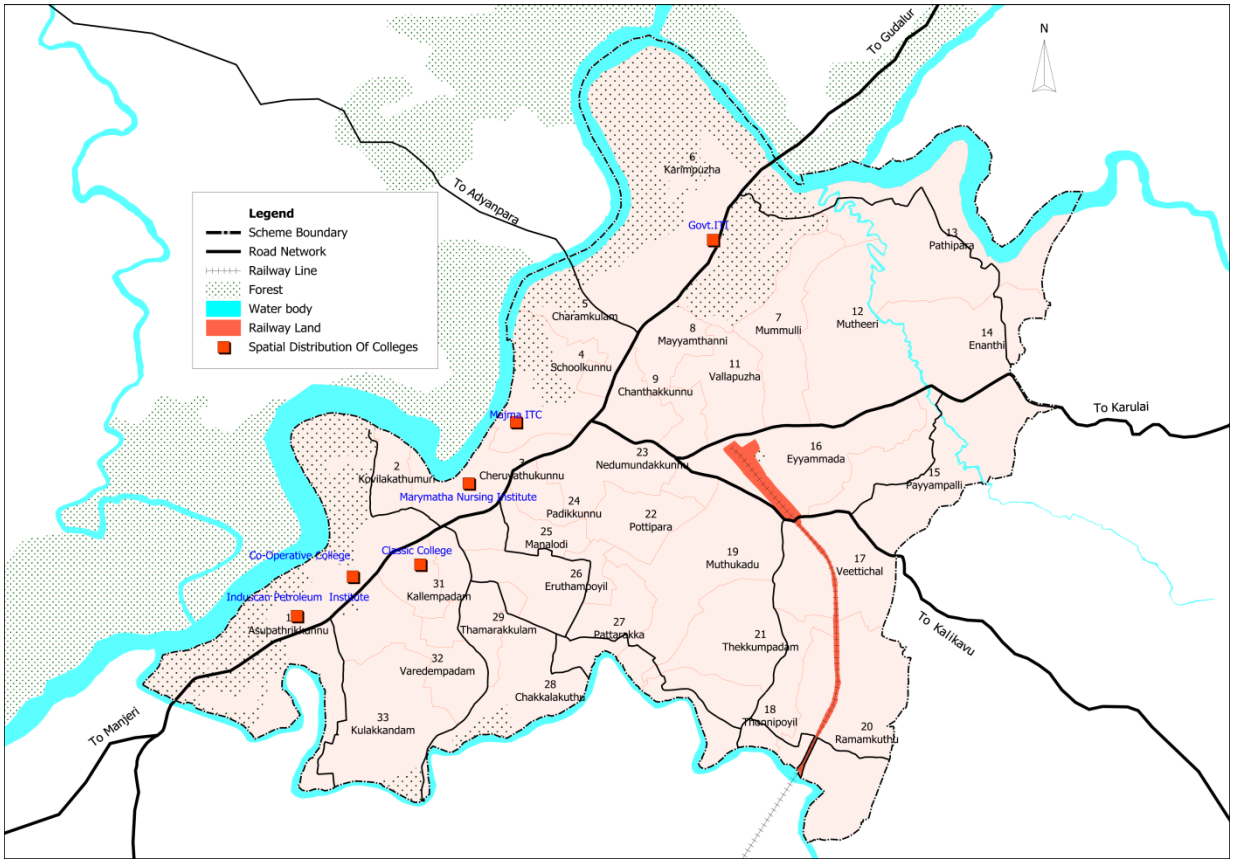


Figure 14-6 Spatial Distribution of Important Higher Education Institutions

14.6 COMPARISON WITH STANDARDS

Sl. No.	Pattern	Strength	Standard
1	H.S	700	1 HS for 14,000 ppn
2	H.S.S	400	1 HSS for 18,000 ppn
3	Arts and Science college	500	1 Arts & Science college for 80,000 ppn
4	Professional College	250	1 Professional college for 3,00,000 ppn
5	Polytechnic college	150	1 Polythchnic for 37,000 ppn
6	I.T.I/I.T.C	300	1 I.T.I/ I.T.C for 37,000ppn
7	T.T.C	120	1 T.T.C for 1,30,0000 ppn

The student strength of HS specified is 700; all High schools except NSS, and GMVHSS are having student strength more than the standards. Considering Higher Secondary schools, only one school namely GMVHSS, has more than 500 students. The higher educational facilities in the town are insufficient. As per standards, 2 ITI/ITC are required, but there is only one Government run ITI in Nilambur Municipality.

14.7 PROBLEMS & POTENTIALS

The Literacy rate of the town is much higher when compared to the district literacy rate. Also, the gender gap in literacy is lower than the district. However, gender gap in literacy is higher than the State urban average values.

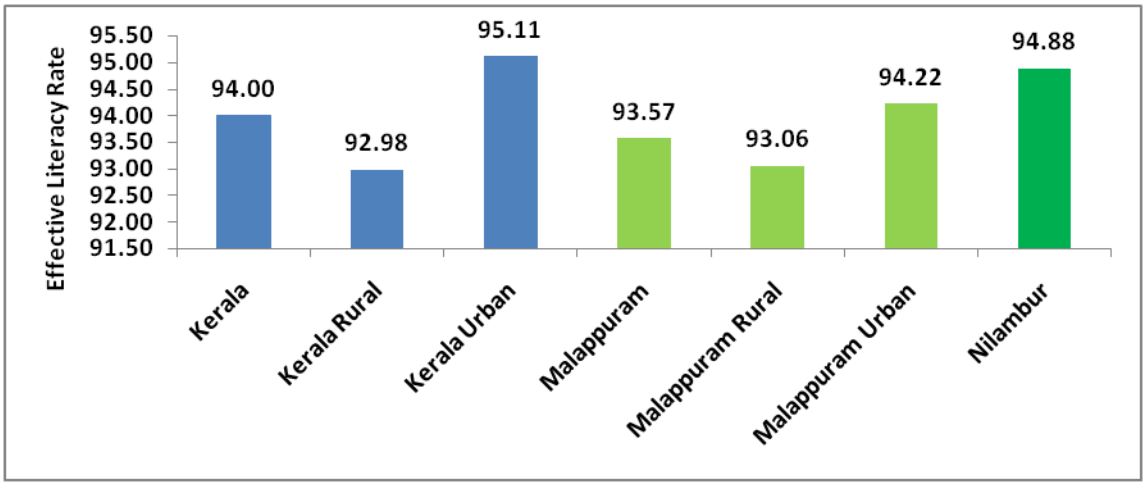


Figure 14-7 Comparison of Literacy rate of Nilambur with State and District (Source: Derived from Census data)

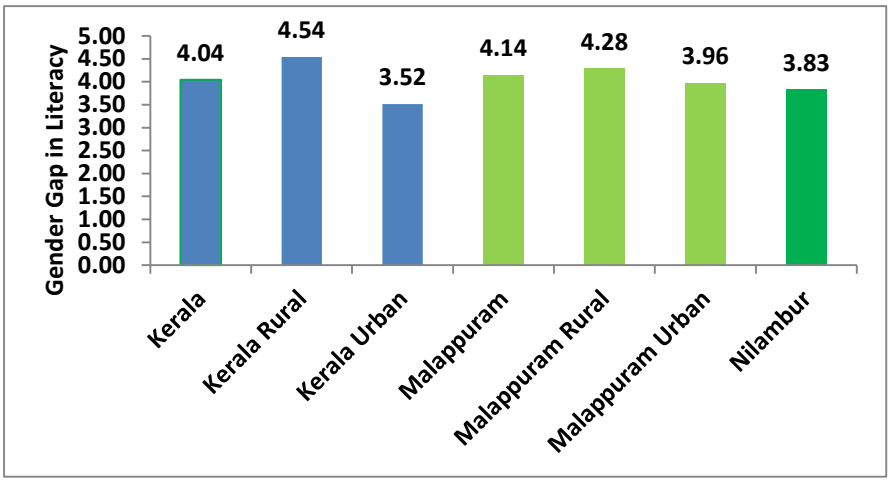


Figure 14-8 Comparison of Gender gap in Literacy of Nilambur with State and District (Source: Derived from Census data)

Increased awareness about necessity of education and willingness to study is the main cause for higher female literacy rate. Another advantage in this sector is the availability of under utilised government land for establishing infrastructure in the Manavedan School compound.

Some of the institutions are still functioning in rented buildings. There is shortage of institutions for higher education.

14.8 INFERENCE

The literacy rate of Nilambur municipality is high compared to the district. The teacher-student ratio is less than 1:40 in all schools. Schools are found distributed across the municipality area. Higher education sector is weak in the municipality and most of the colleges are offering only conventional courses. The nearest colleges for higher studies in arts and science is at MES College, Mampad situated at a distance of 9 km, Chungathara Marthoma College at a distance of 10 km, Amal College at distance of 3.1km and Government College, Malappuram. The nearest Government Medical College is at Manjeri and nearest engineering college is at Perinthalmanna. Hence there is scope to develop institutions to provide professional educational courses to the people of the town.



15 HEALTH

15.1 GENERAL

Health is a sector in which the state of Kerala has achieved remarkable progress, comparable to that of developed countries. However, at micro level certain problems like quality of services, reach and affordability do exist.

Nilambur town depended on traditional medicine & ayurveda for health affairs, like other parts of Kerala, till the establishment of a modern medicine clinic by the Kovilakam. The clinic which started in 1936, with a single doctor and a nurse in order to control Malaria, later developed as the Govt. Hospital, which was raised to the Government Taluk hospital in 1996 with the formation of the Taluk, and upgraded to a District Hospital in 2014.

15.2 EXISTING FACILITIES

15.2.1 Allopathic Medicine

Table 15-1: Details of Allopathic Hospitals in Nilambur (Source :Local Body, Health Dept.)

Sl. No	Name of Hospital & Location	No. of Beds	No. of Doctors	No. of Staff	IP/ day	OP/ day	Govt/ Private/ Co-op society
1	Prema Hospital, Chandakunnu	0	1	6	0	75	Private
2	Elamkulam Hospital , Hospital road	77	3	21	77	60	Private
3	PG Medical Trust, V K Road	50	5	25	50	80	Private
4	Devi Nursing Home, KalathilKadavu Rd	30	3	8	25	50	Private
5	B M Hospital, V K Road	16	1	8	10	80	Private
6	Anugraha Hospital, Chandakunnu	15	2	6	10	40	Private
7	Chaliyar Hospital, Kalikavu Road	150	2	10	5	5	Private
8	E S I Hospital, V K Road	0	1	5	0	35	Govt
9	Taluk Hospital, Hospital road	142	21	97	45	938	Govt
	Total	480	39	186			

The District Hospital is the only Govt. hospital in modern medicine in not only the municipality, but the whole of Nilambur Block Panchayath & Taluk. There are two government health centres and three sub centers and an ESI Hospital, scattered in the municipality. The availability of the hospitals and doctors in the private sector is helpful to a great extent, at least for the section of the society which can afford the expenses. Besides, a considerable population

depends on private hospitals in Perinthalmanna & District Govt. Hospital (Medical College) in Manjeri for specialized health care services.

The existing infrastructure in allopathic medicine, in government and private sector is listed in Table 15-1.The data exhibits the dependency of the major population on Government services. The total number of beds available in the municipality for in-patient treatment is only 480.

Existing infrastructure and personnel in the District Hospital includes 142 beds, 21 Doctors and 108 associated personnel. The existing specialties are ENT, Dermatology, Ophthalmology, Orthopedics, Gynecology and Dentistry. There is a Leprosy control unit functioning in the District Hospital, which had started along with the beginning of the hospital itself. Although there was a large number of staff in this unit, at present there are only two staffs handling this section including the Superintendent of the District Hospital, who holds the charge of the unit and a Leprosy Inspector. Scanning and X-ray facilities are available in the hospital.

The District Hospital is strangled by infrastructure deficiencies which impedes the level of services. The recent upgrade of the hospital to a District Hospital has unleashed hopes about better infrastructure, treatment facilities and services, though no initiatives have been implemented on this front. However, under the NRHM scheme, a new building is being constructed for the hospital.

The number of patients visiting the District hospital in the last three years has been analysed. Figure 15-1 shows the temporal variation of IP and OP in the hospital. This shows that the Out-patients are increasing due to the affordable charges and free medicines, while in-patients gradually decreasing probably due to the poor facilities and unavailability of specialty services.

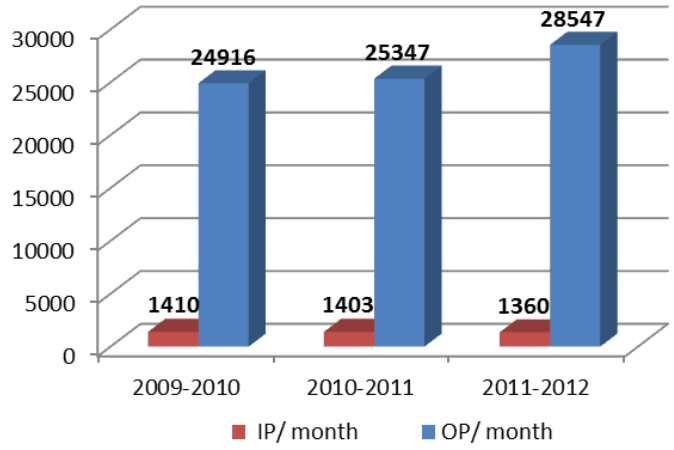


Figure 15-1 Temporal variation in number of patients per month
(Source: Local Body, Health Dept.)

There are Public Health Sub-centers at Pathipara and Vallapuzha under the CHC Karulai Health Block and at Ramankuthu, Velliyanthondu and Aruvacode under the CHC Chungathara Health Block. These function only during the daytime, with a Junior Public Health Nurse, mainly intended for the general vaccination programmes for the children in the surroundings.

15.2.2 Ayurvedic Medicine



There are a few Ayurvedic clinics in the municipality including a Government Dispensary, at Chandakkunnu, functioning in its own building. Details of IP, OP and facilities available in these clinics are given in Table 15-2.

Table 15-2: Details of Ayurvedic Hospitals in Nilambur

(Source : Local Body, Health Dept.)

Name of Hospital	Location	No. of Beds	No. of Doctors	No. of Staff	OP/ day	Govt/Private/ Cooperative society
Ayurveda Dispensery	Chandakkunnu	0	3	1	110	Government
Nilambur Vaidyasala	Nilambur	2	2	3	30	Private
Kairali Ayurveda Hospital	Opp.Forest office, Main Road	15	6	4	30	Private
Kottakkal Aryavaidyasala	Main Road, Nilambur	0	3	3	60	Private
Malabar Ayurveda Hospital	Chandakkunnu	0	5	3	8	Private
Bhavi Marma Chikitsalayam		0	1	1	10	Private
Coimbatore Ayurveda Pharmacy	Hospital Road, Nilambur	**0**	1	1	5	Private

15.2.3 Homeopathic Medicine

Table 15-3: Details of Homeopathic Hospitals in Nilambur(Source : Local Body, Health Dept

Name of Hospital	Location	No. of Beds	No. of Doctors	OP/day	Govt/Private/ Cooperative society
Adithya Homeo Clinic	Kovilakam Road	1	1	10	Private
Homeo Clinic (Dr.Vasudevan N)	Kovilakam Road	1	1	10	Private
Dania Homeo Clinic	Hospital Road	1	1	10	Private
Droupathy Homeo Clinic	Chandakkunnu	1	1	15	Private
Life Line Homeo Hospital	Chandakkunnu	3	2	16	Private
Shifa Homeo Clinic	Hospital Road	1	2	30	Private



The Municipality has six homeopathy clinics in the town, details of which are listed in Table 15-3.

15.2.4 Other medical infrastructure

Six dental clinics, two specialty laboratories, one eye hospital and a Unani Hospital, functions in Nilambur. There are also about 40 allopathic, 20 ayurvedic and 1 homeopathic medical shops in the town.

15.3 SPATIAL DISTRIBUTION OF HEALTH CARE FACILITIES

The spatial distribution of the major health care facilties shows that they are not well distributed throughout the municipality (Figure 15-2).

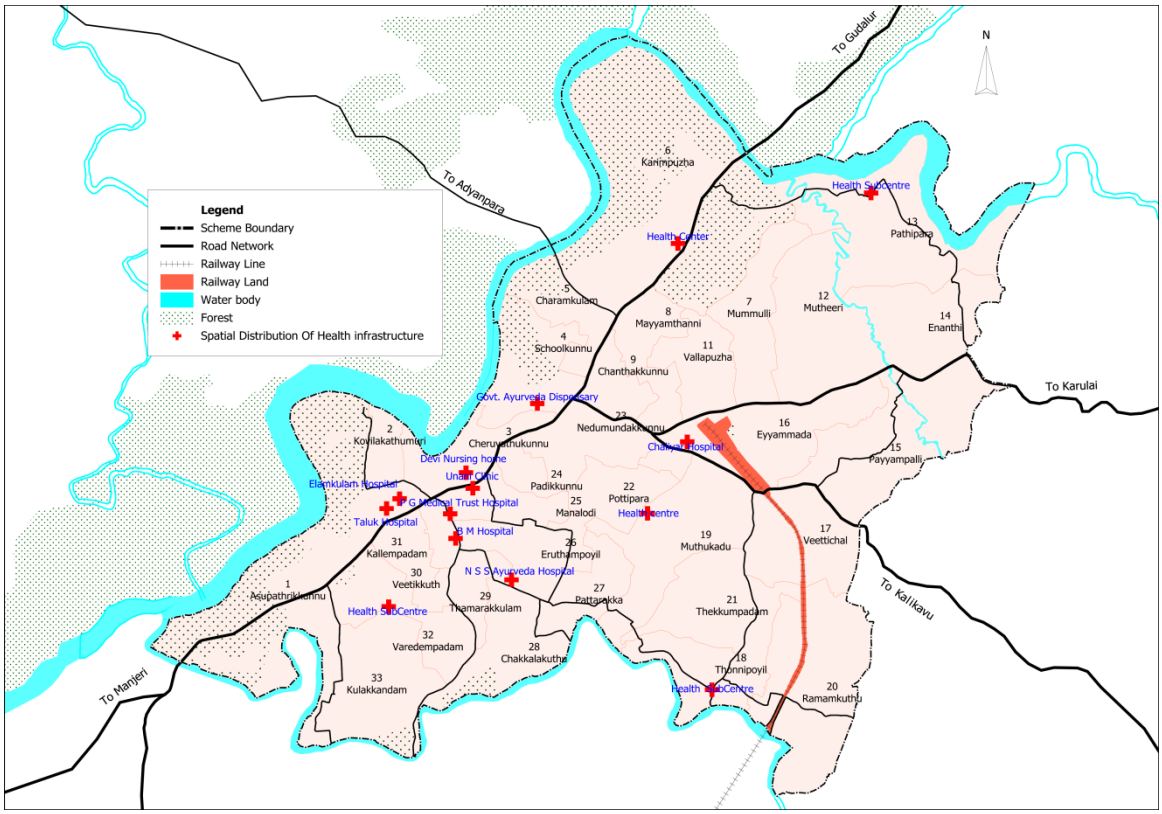


Figure 15-2 Spatial Distribution of Major Healthcare Facilities in the Municipality

15.4 INCIDENCE OF EPIDEMICS

Table 15-4 : Details of Incidence of Epidemics reported in District Hospital (Source: NRHM, Malappuram)

Sl. No	PHC	2013				2014					
		Leptospirosis	Dengue	Malaria	Hep A	Leptospirosis	Dengue	Malaria	Hep A	Typhoid	H1N1
1	Nilambur	0	1*	1	1	0	2*	0	2, 2*	0	0
2	Chungathara	3*	10*,10	3	58*,10	8*	12*,1	2	60*,5	4	0
3	Chaliyar	4*	1*,1,1#	0	13*,2	4*	5*	1	26*,4	2	0
4	Edakkara	2*	2*,2	0	7*	2*	3*,1	2*	19*,2	0	2
5	Moothedam	0	2*,2	0	2*	0	5*,1	2	8*,6	0	1,1#
6	Amarambalam	2*	5*,5	2	11*	1*	4*	1	12*,3	1	0
7	Karulai	1*	5*,5	0	12*	1*	2*	0	18*,1	2	0
8	Kurumbalangode	0	0	0	2*	1*	0	0	9*,1	1	0
9	Vazhikadavu	1*,1	6*,6	2	74*,20	1*	3*	1	4*,10	5	0
10	Pothukal	2*,1	2*,2	7	18*,15	2*	8*,1	1	60*,22	4	0
Suspected *, Death #											

Few cases of dengue fever and one case of Malaria has been reported in the past two years in Nilambur Municipality. However, Leptospirosis, Dengue, Malaria, Hepatitis A, Typhoid, H1N1etc are reported in the region as presented in Table 15-4.

There has been a death case reported in 2014, due to swine flu (H1N1) in Moothedam. The total number of suspected cases of Hepatitis A is very high all over the area, but no death has been reported due to this disease. Data shows that Pothukal had 22 cases of Hepatitis A treated in the year 2014. No case of death due to Leptospirosis, Dengue, Malaria, Hepatitis A and Typhoid has been reported in 2014. It can be seen that the rodent-spread, mosquito borne and water-borne epidemics are the common ones in the region indicating the need for more stringent sanitation measures in the region.

15.5 COMPARISON WITH STANDARDS

The District Hospital at Nilambur serves the health care needs of the total Taluk population which is 5,74,059 including Nilambur municipality, and following Grama panchayats; Karuvarakundu, Mambad, Porur, Thiruvali, Thuvvur, Wandoor, Amarambalam, Chaliyar, Chokkade, Chungathara, Edakkara, Kalikavu, Karulai, Moothedam, Pothukal and Vazhikkadavu. As per the URDPFI Standards for a population more than 5 lakhs, there is need for two General Hospitals. The present District Hospital having 142 beds acts as a Multi-Speciality Hospital for the town's population. However there is need for more health care facilities in the town.

Table 15-5 Standard classification of Health care facilities (URDPFI Guidelines)

Sl No.	Category	No. of beds	Population served per unit
1	Dispensary		15000
2	Nursing home, child welfare and maternity centre	25 to 30 beds	45000 to 1 lakh
3	Polyclinic	Some observation beds	1 lakh
4	Intermediate Hospital (Category B)	80 beds -Initially maybe for 50 beds including 20 maternity beds	1 lakh
5	Intermediate Hospital (Category A)	200 beds- Initially the provision may be for 100 beds	1 lakh
6	Multi-Speciality Hospital	200 beds - Initially the provision may be for 100 beds	1 lakh
7	Speciality Hospital	200 beds - Initially the provision may be for 100 beds	1 lakh
8	General Hospital	500 beds - Initially the provision may be for 300 beds	2.5lakhs
9	Family Welfare Centre	As per requirement	50,000

15.6 PROBLEMS & POTENTIALS

Infrastructure at District Hospital is inadequate for the people of Nilambur. The government health services provision need large-scale improvements, both in quality and quantity. Lack of adequate infrastructure and medical facilities in public health centres is a matter of concern. Absence of specialty clinics/specialized health care hampers the good health conditions in the town. Epidemics are still found spreading/resurfaced. There are no private hospitals of superior quality and people have to move to Perinthalmanna for better health care facilities.

15.7 INFERENCE

The health care sector in Nilambur municipality has basic facilities but need more specialties and improved quality of services. The diversity in health care sector (Allopathy, Ayurveda, Homeo & Unani) also exists. The Government hospital needs to be improved for providing better quality services to the poor.

At present Allopathy section has bed strength of 480 and 39 doctors, including private hospitals. In Ayurveda bed strength of 17 and 21 doctors and in Homeopathy bed strength of 8 and 8 doctors are available in the town. The expensive treatment in the private hospital stands a big problem for the poor. There is requirement for an additional General Hospital in the region to serve the present population of the Taluk.



16 RECREATION, CULTURE & OTHER CIVIC AMENITIES

16.1 ARTS & CULTURE

Nilambur enjoys a unique culture due to its peculiar geographical position. Nilambur *Kovilakom*, the royal kingdom which ruled the town prior to the advent of British were great patrons of art and culture, and various classical and contemporary art forms flourished under the royal rule. The administrative changes carried out under Madras Presidency also gave Nilambur distinct cultural traits.

This scenic town is famed for an art form named Nilambur *Vettaikkorumakan* (*Vettekaran*) *Paattu* (more popularly known as Nilambur *Paattu*). This art form is performed annually at the Nilambur Kovilakam Temple, for two weeks in the first weeks of January (in the Malayalam Month of Dhanu).



A View from Nilambur Pattulsavam

Considering it as one of the royal duties, in Nilambur Kovilakam records, the name of this festival is accorded as *Pattu Adiyanthiram*. The festival features the singing of hymns in praise of the Lord, by the royal family and the tribals. The event is also marked by a ritual powder drawing known as *Kalampattu*. The legends behind this cultural fest say that every year the tribal people, who live in and around the Nilambur forests, come to pay homage to the royal family of the Nilambur Kovilakam.

Now, *Nilambur Pattu* has become a festival and celebration time more than a cultural event. People from various caste and religion participate in this festival as it has now turned into

the festival of Nilambur. Nilambur Kovilakam which played a vital role in the history of Northern Kerala, especially the *Eranad* area, lost its erstwhile importance since the independence. Nilambur *Pattu Utsavam* also gives people the opportunity to reminiscence the past and honor the Nilambur Kovilakam. Along with the *Pattulsavam*, a two weeks long trade and tourism festival called the Nilambur *Mela* is conducted by the municipality annually when cultural events, tribal & folk arts festival, shopping fairs, arts & crafts exhibitions etc. are organized which attracts people from the whole region.

The Yuvajana library and the Yuvajana cultural society started in the middle of the 19th century influenced a lot in developing the cultures of the Malabar as well as Eranad. The drama writers like E.K. Ayamu, Dr. M. Usman, the actor cum director Nilambur Balan, the poet K.G. Unneen, Nilambur Ayisha, the first women who fought against lot of objections from the community during her performing period. Drama actors like Manu Mohammed and Kunjalan were the famous personalities who influenced the common people by the dramas. The dramas like '*Ijjoru nalla mansanakan nokku*' & *Mathilukal* of E.K. Ayamu and Dr. M. Usman's '*Ee Duniyavil njanottakkanu'*, K.T. Mohammed's '*Ithu bhoomiyanu*' were the famous dramas played in and around more than 1000 stages including North India which has been the main contributions by the Nilambur Kala Samithi. The organisers of the Nilambur Kala Samithi, T.M. Mohammed and Ramanan Embranthiri should be specially remembered for their contribution in developing the drama field in Nilambur.

Some fine-arts institutions like Jyothi Dance Center and Sangeetha Natya Bhavan are functioning in Nilambur and have contributed some great artists to Nilambur. The names of the famous cinema playback singers like Krishna Chandran, S.A. Jameel, Nilambur Shaji, drama personalities like Nilambur Mani and famous film actor Sreenath deem special mention while discussing about the arts field of Nilambur.

Nilambur is also dubbed as the land of magic. Magician Prof. R.K. Malayath who popularized magic and used it for awareness creation about various social issues is a resident and active presence in the social arena of Nilambur. All in the family of Prof. Malayath are magicians and performs stage shows together; a rare feat that could be claimed by few. The famous magician Gopinath Muthukad, a disciple of Prof. Malayath is also from the land of teaks. Muthukad founded the first magic academy of Asia at Thiruvananthapuram. He won the Kerala Sangeetha Nataka Academy award in 1995. He is also a winner of the International Merlin Award instituted by the International Magicians' Society.

16.2 SPORTS

Nilambur has contributed considerably in the field of sports and has contributed players in the field of cricket and football to university level as well as to the state club teams. A lot of players from Nilambur participate in football matches held in Malabar region. There is no major improvement in the field of Volleyball, Basketball and Cricket. The arts and sports fields in the school level are also passive. Although there are four Play grounds existing in the city ie, Azad Ground, Mayyanthani Ground, Kalyani Ground, Recreation Club Ground, they donot serve the purpose of a proper venue or a stadium to conduct major sports events.



Recreation Club Ground



Azad Ground



Mayyanthani Ground



Kalyani Ground

16.3 CHILDREN'S PARK

There are absolutely no public parks in the town at present. As part of the neighborhood needs as well as from tourism point of view, it is imperative to have a children's park to increase the entertainment facilities for the children of Nilambur and to ensure safety.

16.4 LIBRARY

Nilambur has several reading rooms and few clubs with efficient libraries. Good quality libraries are a must to encourage, create awareness and steer the youth from the marginalized and socially backward communities towards better education and social upliftment. The list of existing Clubs with reading facilities and reading rooms are given below.

Table 16-1 List of Libraries and Reading rooms (Source : Local Enquiry)

Sl No.	Name of Library/ Reading room	Place	No. of Books
1	United Club	Kovilakathumuri	11215
2	Sarc Club	Chakkalakuth	3424
3	Dr.Usman Sahib Memorial Library	Kalathinkadavu	5807
4	EMS Nagarasabha Samskarika Vayanasala	Nilambur Bus stand	5118
5	Veettikuth Samskarika Vayanasala	Veettikuth	5784
6	Nallanthanni Vayanasala	Nallathanni	4176
7	Sadgamaya Vayanasala	Chandakunnu	3256



The Recreation Club



Dr. Usman Sahib Memorial Public Library

16.5 THEATRES AND AUDITORIA

There are three Cinema theatres in the town, namely Fairyland at Chandakunnu, Rajeswari at V.K.Road, Jyothi near LIC Office. Nilambur has five auditoriums scattered in the area, as shown in Figure 16-1 and list given below. However, the town lacks a town hall.

- Aiswarya Auditorium
- Green Art Auditorium
- IMA Hall
- Molykutty Hall
- O C K Auditorium
- Vyapari Bhavan Auditorium

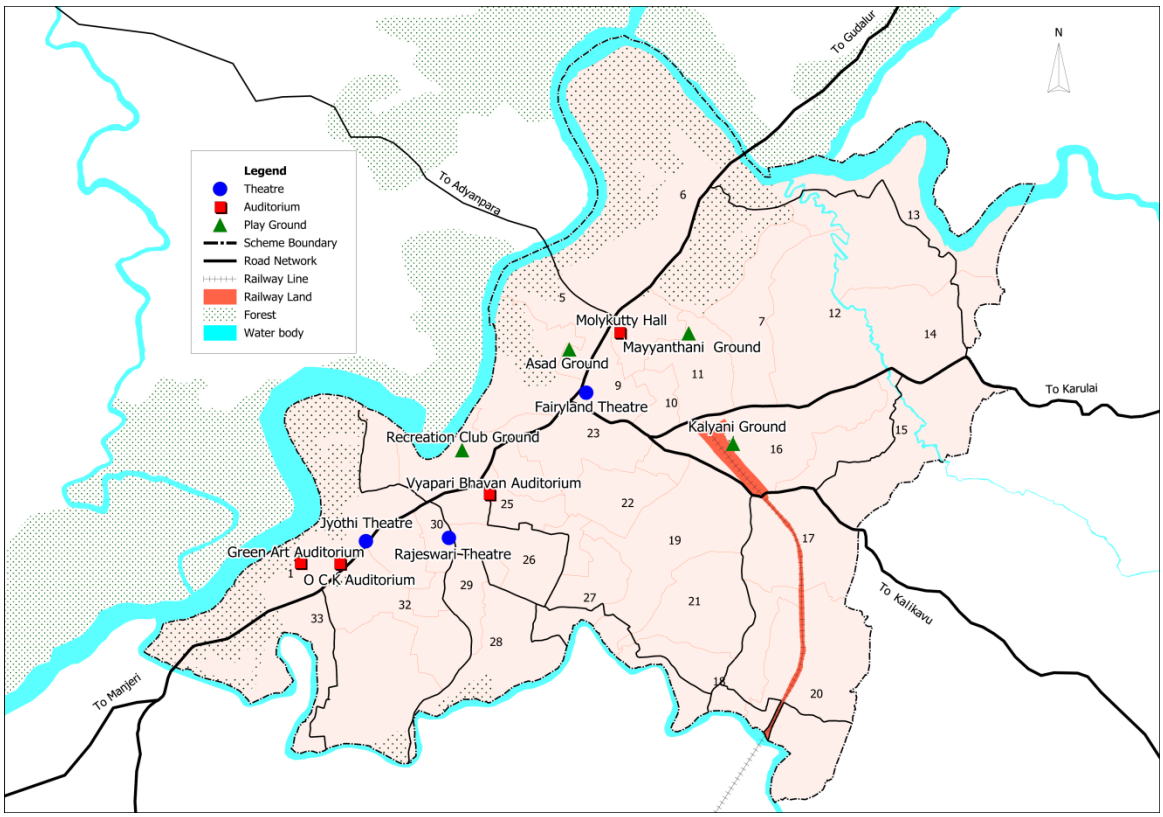


Figure 16-1 Spatial distribution of Recreational Facilities in the town

16.6 OTHER CIVIC AMENITIES

16.6.1 Crematoria and Burial Ground



There are a number of burial grounds attached to the mosques and churches in the town. The Municipality owns a few cremation grounds and a gas crematorium at Aruvacode. The public cremation grounds are found at Kovilakathumuri, Nallamthanni, Ramankuthu and one near Rajiv Gandhi Industrial Estate.

16.6.2 Police, Rescue, Law and Order



The town has a police station, operating since 1895, presently named as Janamythri Police Station located in the town center. Besides, the Office of the Circle Inspector of Police, is also located in the municipality, with the charge of Edakkara, Pothukallu, Vazhikadavu and Nilambur stations. The Nilambur Police Station functions with four SIs, four ASIs, nine Senior civil police officers , one woman senior civil officer, thirty civil police officers and five women civil police officers.

The municipality also has a Fire and Rescue Station since 2005, which serves areas in Mampad Panchayat along Manjeri direction and Vazhikadavu along Chungathara direction. It also serves Karulai Panchayat, Chaliyar panchayat and Pullangode, Kallamoola and Chokkad areas in Kalikavu direction. The farthest point reached is about 23km away from the station. Although these places are well connected by roads, the lack of sufficient width causes delay in reaching the affected spots in time. There are around 16 personnel working in this office including a Station officer, Assistant officer, leading firemen, fireman driver, firemen etc. The fire station currently functions in a building owned by the municipality.



The spatial location of these institutions, and the range of service of the fire and rescue station, is given in Figure 16-2.

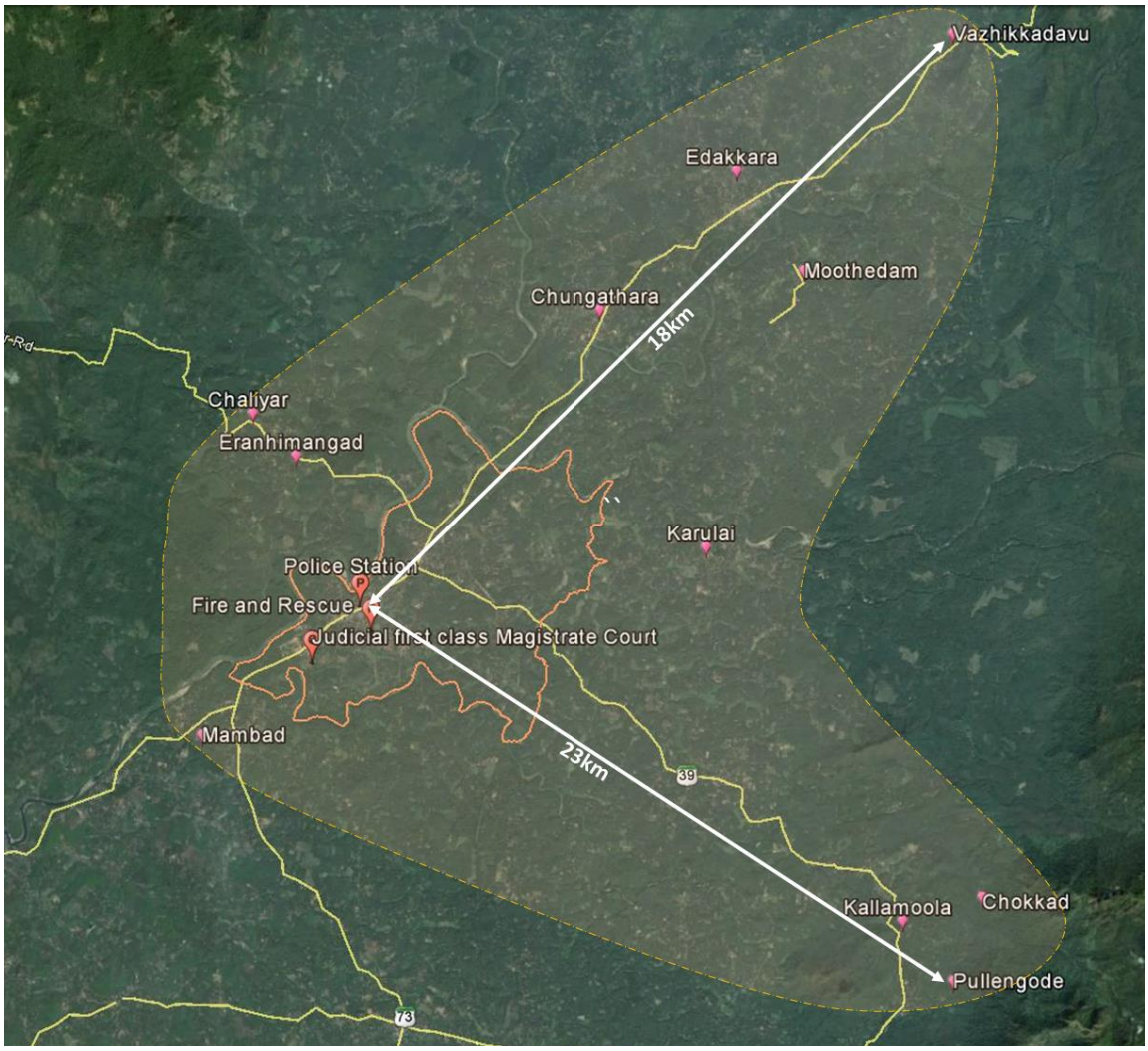


Figure 16-2 Spatial distribution of Police Station, Magistrate Court, Fire Station and the range of service of the Fire and Rescue station

The Judicial First Class Magistrate Court is located in an isolated but easily accessible area near the KSRTC Bus stand at Aruvacode.



16.6.3 Banking Facilities

The planning area has a total of 33 banks, together in nationalised and co-operative sectors. Table16-2 gives the list of banks functioning in the town.

Table 16-2 List of Banking facilities available in the municipality(Source: District Credit Plan 2014-15)

Sl No.	Name of Bank	Locations	No of Branches/ ATM
1	HDFC	Thamarakullam	3
		Veettikkuthu	
		Kaleampadam	
2	Canara Bank	Charamkullam	3
		Mayyamthanni	
		Chandakunnu	
3	Federal Bank	Cheruvathkunnu	3
		Mukkatta	
		Vallapuzha	
4	ICICI	Muthiri	3
		Pathippara	
		Eyanandi	
5	Indian Bank	Karimpuzha	3
		Mummully	
		Kullakandam	
6	Punjab National Bank	Payyampally	3
		Eyyammada	
		Veettichal	
7	South Indian Bank	Thonnipoyil	2
		Muthukadu	
8	CSB	Ramamkuthu	1
9	SBI	Thekumpadam	3
		Pottippara	
		Nedumundakkunu	
10	SBT	Ashupathrikunnu	3
		Eruthampoyil	
		Varedampadam	
11	Union Bank of India	Kovilakathumuri	3
		Padikkunnu	
		Manalodi	
12	SMGB	Schoolkunnu	3
		Pattarakka	
		Chakkalakuthu	

16.6.4 Other Distribution Facilities

There are around seven petrol pumps and two LPG gas godowns at present in the planning area. The MC Gas Agency and the EIF Gas together, supply to 45294 connections in the town. Twenty ration shops cater to the essential supplies of the people of Nilambur. Figure 16-2 shows the location of these facilities in the town.

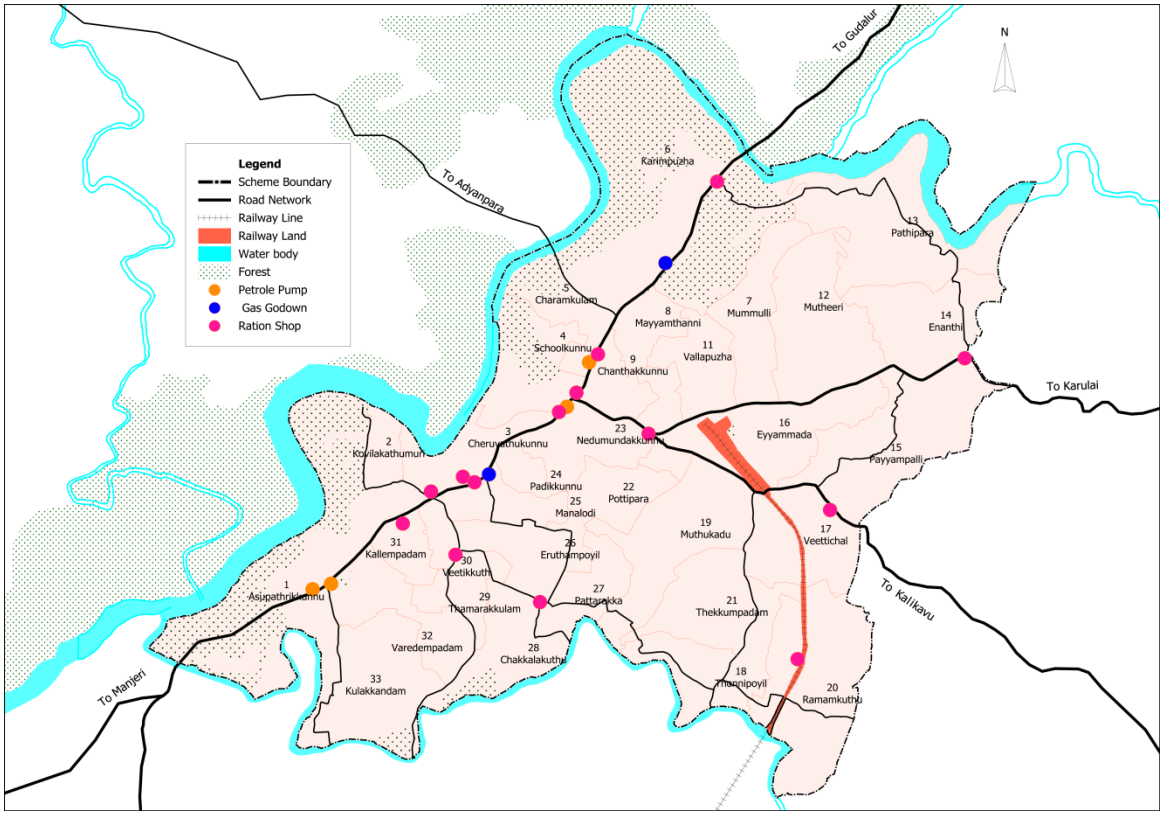


Figure 16-3 Spatial distribution of Distribution Facilities in the town

16.7 PROBLEMS AND POTENTIALS

The existing recreational facilities in the town are thoroughly inadequate even for the present population. The high cost of land hampers the development of recreational facilities in the town. However considering the growing no. of tourists in and around the town there is high demand for recreational facilities in the town and scope for development of recreational facilities in the town. There are no major institutions to foster art forms like drama, music, tribal & folk arts etc. There are no children's parks in the municipal area. The senior citizens of the town also lack an open space to gather during their leisure time.

The municipality does not have a stadium for the sports activities of the younger generation. There is scope for constructing a new stadium for the promotion of sports activities.

There is scope to start a mobile library for the people of Nilambur. Tourists should be aided with an information center having the modern facilities, to guide them. Venues should be spotted to conduct film screening for creating awareness among people. Radio and T.V rooms should be provided to every ward to promote public gatherings. Arts and sports fests should be conducted at town level.

16.8 INFERENCE

The civic amenities in the town are not commensurate with the present population and demand from tourists, especially the recreational facilities. Serious efforts are needed from the municipality to ensure adequate civic amenities during the plan period.



The poverty level and social backwardness need to be assessed for understanding the ground realities in the town and devising measures for inclusiveness.

17.1 BELOW-POVERTY-LINE POPULATION

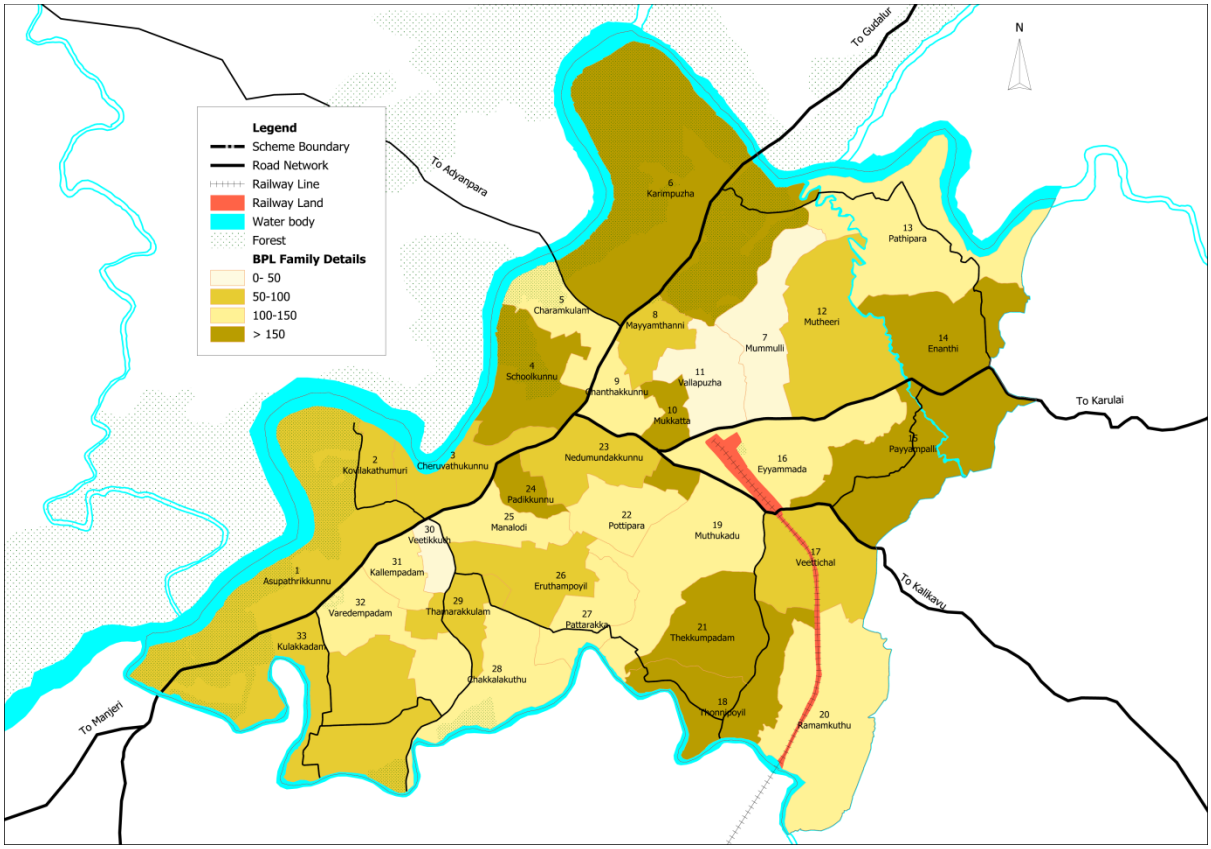


Figure 17-1: Ward wise Distribution of BPL families

In the State, families were assessed to perceive the prevalence of poverty by the BPL Survey (2009), using nine parameters like housing, employment and education status, female headed households, incidence of grave diseases, infant mortality, presence of senior citizens,

etc. A family which is characterised by four or more parameters out of this nine is considered 'Below-Poverty-Line'. According to this survey there are 3659 families classified as BPL in the town, which implies that35.81%of the families in Nilambur Municipality are classified as BPL.

BPL households in wards Schoolkunnu, Karimpuzha, Mukkatta, Enanthi, Thonnipoyil, Thekkumpadam and Padikunnu are greater than 150, in wards Chanthakunnu, Pathipara, Payyampalli, Eyyamada, Muthukadu, Ramamkuthu, Pottipara, Manalodi, Pattarakka, Chakkalakuthu and Varedampadam are between 100 and 150. Figure 17-1 shows the distribution of BPL families in different wards of the municipality.

According to the socio economic survey, the average monthly income per worker is analysed as shown in Figure 17-2. Major proportion (79%), is low income group with less than Rs.1000 per month and only 6% of population earns greater than Rs.8000 per month.

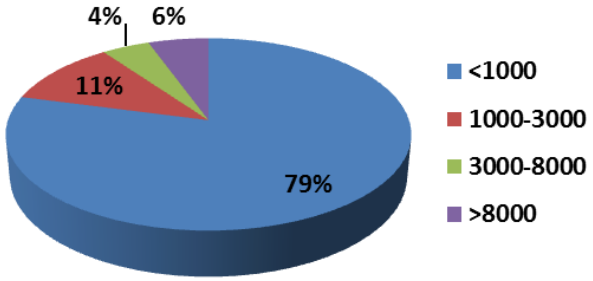


Figure 17-2: Monthly Income Profile of workers of Nilambur (Source: Socio economic survey 2013)

17.2 SCHEDULED CASTES AND TRIBES

The total population of SC and ST communities in the municipality as per 2011 census are 3470 and 945 respectively. According to this the SC population in the town 7.49% and ST population is 2.04% of the total population of planning area. Table 17-1 elaborates the characteristics of the SC and ST population as per Census 2011.

The Household size of the ST population is 7.16, which is much higher than that of the District ST household size of ST population (4.02). The sex ratio of ST community is 93 points higher than the District sex ratio of the ST population and 50 points higher than the general sex ratio of the population of Nilambur. Sex ratio of 0-6 years of ST community is also much higher than that of District ST population and that of the 0-6 years of the Municipality. Whereas sex ratio of 0-6 years of SC community is 938, which is 30 points less than that of sex ratio of 0-6 years SC population of the District.

The Literacy rate is of both SC (89.18%) and ST (87.85%) population of Nilambur Municipality are foundconsiderably less than the general literacy rate of the Municipality (94.88%). Female literacy rate of both SC and ST are found less than that of the general population. The gender gap of both SC (8.61) and ST (8.3) are very high compared to general population of Nilambur (3.83), which confirms the lack of awareness, disinterest, social stigma or financial constraints which results in lack of education among the female population.

WPR for the ST population is lesser than the WPR of general population of the Municipality, which are both lesser than WPR of SC population. The SC population, especially the females, are traditionally engaged with the agricultural sector, which results in the high FWPR among them. Higher sex ratio of SC cultivators and agricultural labours substantiate high FWPR.

The ST female population has been recently engaged in agricultural activities as well as Household industries. The share of tertiary workers in this group is weak compared to the general population.

Table 17-1 Comparison of Characteristics of SC/ST Population of Nilambur Town with Malappuram District, Nilambur Taluk and Total Population of Nilambur Municipality (Source: Derived from Census 2011)

Sl. No.	Description	Scheduled Tribes			Scheduled Castes			General
		Malappuram District	Nilambur Taluk	Nilambur Municipality	Malappuram District	Nilambur Taluk	Nilambur Municipality	Nilambur Municipality
1	Population	22990	13638	945	308266	55217	3470	46345
2	HH Size	4.02	4.33	7.16	4.81	4.61	4.41	4.54
3	Sex Ratio	1040	1068	1133	1034	1067	1094	1083
4	% 0-6 population	14.42	15.42	12.06	10.64	11.32	10.78	11.94
5	0-6 Sex Ratio	952	944	1073	968	978	938	989
6	Effective literacy	76.28	68.69	87.85	88.07	83.63	89.18	94.88
7	Male literacy	80.15	73.92	92.27	92.36	89.12	93.72	96.88
8	Female literacy	72.62	63.89	83.97	83.95	78.54	85.11	93.06
9	Gender gap in literacy	7.54	10.03	8.30	8.41	10.57	8.61	3.83
10	WPR	38.12	41.17	23.49	38.70	40.64	37.09	29.26
11	Male WPR	52.01	52.80	34.31	56.48	56.09	53.35	48.10
12	Female WPR	24.75	30.28	13.94	21.50	26.16	22.23	11.86
13	Main worker (in %)	25.68	27.02	21.27	29.09	31.34	29.60	24.93
14	Marginal worker (in %)	12.44	14.15	2.22	9.61	9.30	7.49	4.34
15	Non worker (in %)	61.88	58.83	76.51	61.30	59.36	62.91	70.74
16	Cultivator (in %)	2.78	1.25	1.80	1.47	1.80	0.23	2.16
17	Agricultural labour (in %)	30.10	37.76	30.18	21.57	29.39	13.91	4.13
18	HHI (in %)	3.00	3.62	0.00	1.25	1.33	1.01	1.57
19	Others (in %)	64.11	57.38	68.02	75.71	67.48	84.85	92.14
20	Sex ratio of cultivators	179	321	333	423	525	500	131
21	Sex ratio of agri labour	643	695	675	533	663	904	478
22	Sex ratio of HHI	765	897	-	666	790	857	383
23	Sex ratio of OT	440	555	385	354	430	398	261

There are 10 SC clusters, 6 ST clusters, 4 Mixed SC/ST clusters and 3 clusters containing SC/ST and other backward communities too. Jawahar Colony in Nilambur is the one model SC colony. This colony was built-up in 1976 by Kerala Government. Different welfare schemes are implemented by Government and other agencies, although qualities of these schemes are not reflected in them. Lack of participation of colony members in various schemes, lack of awareness about schemes, inefficiency of implementing authority etc lead to the above state.

The Integrated Tribal Development Project (ITDP) Nilambur is the main institution working for the welfare of the Schedule tribes. The Indira Gandhi Memorial Model Residential School (IGMMRS), initiated by ITDP focuses on the essence of the drop-out children's voices and those of their parents, friends and social functionaries of the forest dwelling Particularly

Vulnerable Tribal Groups (PTGs). This was established in 1993 at Manjeri, which was shifted to Nilambur in 2006. It is significant to note that even after providing all infrastructural facilities and educational inputs drop out of children from these schools is also significant.

17.3 WOMEN AND CHILDREN

The total female population of Nilambur Municipality as per 2011 Census is 24093, which is 52% of the total population. Child population, 5532 in number, accounts to 11.94% of the total population of the municipality.

Anganwadis are the most important service providers in the Municipality which focus on woman and child welfare. There are 42 anganwadis in the municipality which work for the welfare of 0-6 age group children, adolescent females, pregnant women and nursing mothers. The important objective of the anganwadis are to reduce malnutrition especially among women and children by implementing the flagship programme of ICDS (Integrated Child Development Services) and to ensure protection of women and children through empowerment and legal and institutional support. Pre-school activities and health awareness programmes are organised and nutrition are supplied to young females and mothers.

Table 17-2 gives the list of anganwadis and details of services rendered by them. Figure 17-3 gives the location of the anganwadis present in the town. Considering net area of the municipality, 23.73 sqkm, area served by each anganwadi is calculated as 0.565 sqkm, with a radial distance of 0.85 km, which is walkable. According to standards prescribed (Source: Municipal Pouravakasha Rekha, 2013-14), 1 anganvadi is necessary for 1000 people, which implies a requirement of a total of 47 anganvadis in the municipality. During 2013-2014, 251 pregnant women, 145 nursing mothers, 1163 adolescent females and 2296 children below 6 years were served by these anganwadis, as per Municipal Pouravakasha Rekha, 2013-14.

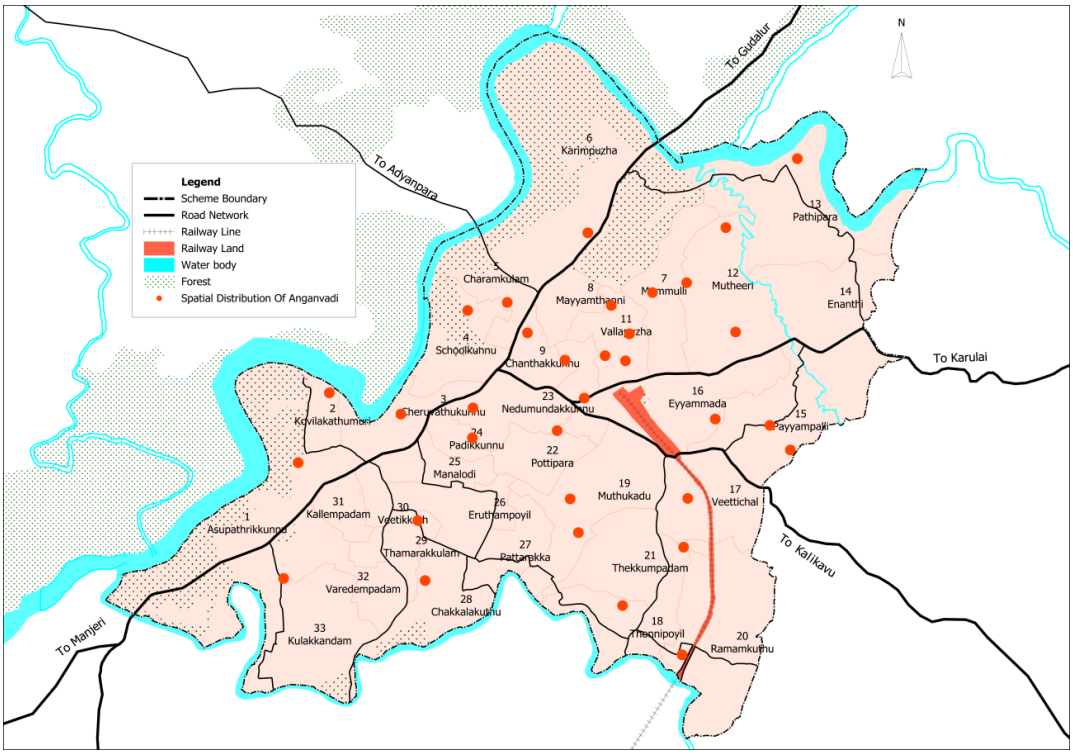


Figure 17-3: Spatial Distribution of Anganwadis in the Town

Table 17-2: List of Anganwadis and their services (Source: Municipal Pouravakasha Rekha, 2013-14)

Sl. No.	Center No.	Name of Anganwadi	Beneficiaries				
			Age 6 months to 3 Yrs	Age 3 - 6 yrs	Pregnant women	Nursing Mothers	Adolescent Girls
1	56	Chanthakkunnu	49	18	3	3	28
2	57	Varambumpotti	23	23	2	1	30
3	58	Muthukadu	29	10	2	2	33
4	59	Padikkunnu	36	27	10	3	20
5	60	Aruvakkode	34	15	4	2	30
6	61	Veettichal	36	16	4	-	39
7	62	Thekkumpadam	32	23	4	2	23
8	63	Vrindavanam	37	25	6	4	40
9	64	Kuttikkunnu	39	13	2	2	20
10	65	Ramamkuthu Colony	32	12	2	2	19
11	66	Manalodi	42	28	5	5	45
12	67	Beeran Colony	66	56	13	15	60
13	68	Payyamballi	47	20	2	5	45
14	69	Nedumundakkunnu	20	23	4	5	35
15	70	Kalathakkadavu	31	14	4	4	20
16	71	Pathippara	44	10	3	2	40
17	72	Karimpuzha	38	18	6	2	35
18	73	Mutheeri	41	25	7	2	32
19	74	Ayyarpoyil	31	23	3	2	40
20	75	Chakkalakuthu	24	21	4	3	46
21	97	Cheeppanamkuzhi	12	13	1	-	20
22	76	Ashupathrikunnu	29	12	1	6	26
23	77	Pattarakka	38	14	5	11	18
24	78	Kallembadam	53	17	6	10	74
25	79	Cheramkulam	86	21	22	18	50
26	80	Mummulli	29	20	8	6	16
27	81	Vattappadam	34	18	11	12	40
28	82	Vallappuzha	58	20	8	15	19
29	83	Cholasserikkunnu	52	23	9	6	18
30	84	Naduvilakkaulam	37	4	4	7	17
31	85	Valavu	33	16	12	7	19
32	86	Veeradoorkunnu	11	8	5	2	6
33	87	Koolikkunnu	16	12	8	3	12
34	88	Mukkatta	71	27	9	6	30
35	89	Velliyampadam	41	21	12	7	15
36	90	Alungal	22	14	9	4	14
37	91	C.H. Colony	34	21	10	5	18
38	92	Kizhakkekkara	29	26	5	7	23
39	93	Thamarakkulam	17	11	2	2	10
40	94	Mayyamthani	26	18	8	6	16
41	95	Nallamthanni	18	12	4	4	12
42	96	Padikkunnu (Mini)	41	10	2	1	10

There was a community Polytechnic established at Varambumpotti, which offered vocational courses, especially tailoring for women, but is not functioning at present.

Dowry has been one of the biggest social evils prevalent in India since age old times. While the Indian government has tried to eradicate this practice, the root of the problem had to be targeted by the society itself. Nilambur has taken a stand against dowry in a unique way. It has become the first place in India to declare itself a dowry-free zone in 2009. They started several projects, mainly sensitization programmes, to wean the people away from the practice of dowry. Workshops were held to enlighten the parents and youths about the findings of the survey. Young men and women too joined in with great zeal. Public meetings in all villages, door-to-door campaigns, street plays and motivation classes were organized on a mass scale. With the efforts of the people of Nilambur, the movement has been very successful and has created a profound impact on the lives of the people.

Table 17-3 Details of Crime against Women and Children (Source: Police Station, Nilambur)

Year	No. of crimes against women and children
2011	48
2012	58
2013	41
2014	30

Crimes against women are increasing alarmingly at local, regional, national and global levels. Kerala, one of the highly developed states in terms of literacy, and low infant and maternal mortality rate has been witnessing an increase in the rate of crime against women over a period of time.

Nilambur exhibits a temporal decrease in crimes against women and children, since 2012 as presented in Table 17-3.

17.4 ELDERLY

The age-sex pyramid of Nilambur town (as referred in section 3.6 of Chapter 3) displays 13.57% of total population in +60 years age group, the 'senior citizens'. The ageing population in the planning area calls for an elderly-friendly infrastructure and society. It is suggested that social-interaction and day care facilities for the elderly may be provided in every neighbourhood, preferably with the anganwadis. Regular health check-ups and specialised medical attention shall be arranged for them. Initiatives for involving the interested senior citizens in various service initiatives by the local governments and institutions have to be formed.

17.5 PAIN AND PALLIATIVE CARE

Palliative care focuses on bedridden or terminally ill patients, and those who need regular medical attention, nursing care or rehabilitative support, as well as those who need assistance for activities of daily living. The idea behind palliative care is to 'add life to their days and not days to their life' by providing relief from pain and other distressing symptoms and integrates psychological and spiritual aspects of patient care. In Nilambur Municipality, there functions a palliative care clinic at Chanthakkunnu. Table 17-4 lists the different types of patients under the care of this organisation.

The Palliative care unit takes care of cancer affected patients and also patients suffering from other incurable physical incapability. Active volunteers visit these patients and distribute

medicines and other required assistance as a helping hand, on homecare basis.

Table 17-4: Details of patients served by the Palliative Care unit in Nilambur

Sl no.	Type of Disability	No. of patients
1	Cancer	31
2	Cerebral Vascular Accident (CVA)	25
3	Psychiatric problem	34
4	Peripheral Vascular Disease	4
5	Kidney related	42
6	Muscular problems	20
7	Paraplegia	5
8	Others	54

17.6 DIFFERENTLY-ABLED AND SPECIALLY-SKILLED

The BUDS School with primary and upper primary sections was established in the year 1993 for hearing impaired students in Nilambur. There are 53 students, 6 teachers and 3 non-teaching staff in this residential and co-educational school.

It is suggested that day care centres for the differently-abled and specially-skilled children may also be established along with the anganwadis, with specialised personnel. Training and financial support also needs to be provided to the families of such persons, to ensure their welfare.

There is no due regard in the existing planning and design contexts favouring this group. The pedestrianized segments, cycle/two wheeler lanes, junctions and pedestrian crossings, public buildings, etc. should have friendly infrastructure for this group.

17.7 INFERENCE

BPL population is about 35.81% and SC/ST population constitute about 9.53% of the planning area population. The SC and ST population is socially backward in general when we compare literacy, poverty, housing conditions etc. The infrastructure & facilities in the planning area need to be customised to address the needs of the marginalised, like the elderly, women, specially-skilled, differently-abled etc. Safety and security of women and girls are to be ensured and toilets for women and girls are to be provided in schools, public institutions, commercial centres etc. The women in the area shall be empowered and made more employable, and better opportunities shall be created in the planning area.

18 ENVIRONMENT

The general elevation of Nilambur town is between 40-60 m above the sea level. Numerous mounds and ridges are enclosed in small flat land patches in between (mostly paddy fields). The Municipality includes hilly terrains and low-lying areas along the river banks. Benglavin Kunnu, Aruvacode Kunnu and Veettikuthu are the elevated areas in the town. Susceptibility to weathering and denudational processes controls the topography to a great extent.

The low-lying strips in the area is composed of schist and gneises, which are more susceptible to weathering; whereas banded magnetite quartzite, basic intrusive being less susceptible to weathering stand out as mounds and prominent hills. The flanks of these mounds and hills are highly lateritised.

18.1 SENSITIVE / FRAGILE AREAS

18.1.1 Forests

Nilambur is famous for its teak forests. The area is also blessed with the presence of all types of forests like Tropical forests, Evergreen forests, Bamboo forests and Grass Lands and all these areas are rich in bio-diversity both in terms of Flora and Fauna. It is for this reason that the Western Ghats (which includes the Nilambur region) has been declared as one of the 18 mega bio-diversity hotspots by IUCN (International Union for Conservation of Nature). There exists a long history of scientific forest management here for more than a century, with the oldest teak plantation in the world- at the Conolly's Plot.



The area forms a valley surrounded by hills. On the western side is the Wayanad forest, the eastern side touches the Silent Valley National Park and on the northern side lays the Mukkuruthi Wild Life Sanctuary and Muthumulai Forest Area. Nilambur forest acts as buffer zone for the Silent Valley National Park and is connected to the Muthumala Wildlife Sanctuary.

18.1.2 Biodiversity



Figure 18-1 The Cable Suspension bridge leading to Canoli Plot

The Nilambur valley is rich with varied flora and fauna. The flora of this region is characteristically tropical due to heavy rainfall, moderate temperature and mountainous tracts. The Nilambur valley is well known for teak plantations. Trees of high commercial value like rosewood, choropin, mahogany and several species of cane, rattan, reed, creepers, lianas, ferns, orchids etc., are abundantly found in the forests of the Valley. Different varieties of bamboo species can be seen extensively in all parts of the forests.

Nilambur has a vast emporium of ethno medicinal and folklore wealth. The traditional knowledge of tribal communities of Nilambur has high ethnobotanical importance. They utilize numerous plants and their various parts viz., roots, leaves, bark, rhizome etc. for various ailments in their daily life. The traditional medicinal knowledge of plants and their use by indigenous culture are not only useful for conservation of cultural tradition, but also for community health care and drug development in the present and future. The Arnadan tribe of Nilambur area reveals that, a total of 30 species of medicinal plants belonging to 28 families have been collected. Both internal and external applications were involved in the treatment of various ailments. In addition to the medicinal value of some species like *Asparagus racemosus Willd*., *Centellaasiatica*(L.) Urb., *Dioscoreapubera* Bl., *Polygonumchinense* L., *Spondiaspinnata* (L.f.) Kurz. is cooked and eaten for maintaining dietary equilibrium of tribal people of the area. (Source: Ethnobotanical observations on tribe Arnatans of Nilambur Forest, Western Ghats region of Kerala, India)

Indian Bird Conservation Network (IBCN) has identified 212 species of birds from Nilambur and Amarambalam reserve forests. Several species of woodpeckers, barbets, bulbuls, babblers and flycatchers are seen in this IBA (Important Bird Area). This shows that the habitat, at least for birds, is still intact in this site.

1419 sqkm of Nilambur reserve forest has been notified as Elephant Reserve, vide Order No. G.O (P) No. 19/2002/F&WLD dated 02-04-2002, under the Project Elephant scheme, launched by the Government of India in 1991 for better conservation of elephant through protection and management of their habitat. The programme envisages ecological restoration of the existing natural habitats and migratory routes of elephants, scientific and planned

management of elephant habitats and viable population, mitigation of human-elephant conflicts in prone areas and promoting research on elephants, their habitats and management. Periodic population estimation of elephants are conducted on Elephant Reserve basis.

18.1.3 Water Bodies

Nilambur Town is surrounded by rivers on three sides namely, Chaliyarpuzha, Karimpuzha and Kuthirapuzha. The Chaliyar River, one of the major rivers of the State, originates from the Ilambalari Hills in Nilgiri district of Tamilnadu (+2066 m msl). The river flows along the northern boundary of Malappuram district through Nilambur, Mambad, Edavanna, Areakode and Feroke. It joins the Lakshadweep sea near Beypore. The river is 169 km long with a drainage area of 2535 sq. km.The area around the Nilambur Town is drained by Chaliyar river and its tributaries, where the main river is flowing from north to south. Six major streams Chaliyarpuzha, Punnapuzha, Kanjirapuzha, Karimpuzha, Iruvahnipuzha and Cherupuzha constitute the Chaliyar River drainage system. Other important tributaries are Kurumanpuzha, Pandipuzha, Maradipuzha, Kuthirapuzha and Karakkodupuzha.

Karimpuzha is the largest tributary of Chaliyar river and originates from western slopes between Mukurthi peak and Avalanche Dam in Nilgiris district of Tamil Nadu. Karimpuzha joins with Chaliyar at Chaliyarmukku, near Nilambur and carries Punnappuzha and its tributaries. Punnappuzha joins Karimpuzha near Karimpuzha bridge. Most of these rivers have their origin in the Nilgiri hills in the east and Wayanad hills in the north, where they form a number of rapids and waterfalls. The lower reaches of the Chaliyar River is blessed with fertile alluvial soil and is densely populated and cultivated by the farming community.



Figure 18-2 View of Kuthirapuzha river



Figure 18-3 View of Karimpuzha river

Table 18-1: List of ponds owned by Local Body (Source : District Fisheries Resource Data Book)

Sl No.	Name and Location of Water Body/ Pond	Area		Present use
		Acre	Cent	
1	Karadikulam	-	10	Irrigation
2	Mudhirikulam	-	10	Agriculture
3	Panhokodekulam	-	20	Agriculture
4	Maniyancodekulam	-	10	Agriculture
5	Manalodikulam	-	15	Agriculture
6	Veetikuthkulam	-	20	Agriculture
7	Choorakulam	-	50	Irrigation
8	Thekkumpadam Kulam	-	25	Agriculture

Other than the Chaliyar, Karimpuzha and Kuthirapuzha rivers there are a few natural drains or *thodu* namely Veliyamthodu, Chakkacheeni Thodu and Mudhiri Thodu (Valiyathodu), flowing across the town. There are several ponds scattered in the municipality area used for irrigation and agricultural purposes. Table 18-1 lists the ponds existing in the town.

18.1.4 Gold Deposits

Nilambur forms the eastern extension of Wayanad gold belt. There are many abandoned gold workings in laterites near Nilambur town. Illegal mining activities are still prevalent in these areas. The main old workings are confined to the regions south of Nilambur town. A few occurrences are located to the north. Gold dust, grains and even nuggets are known to be present in the lateritic cover resting on the auriferous rocks of the Wayanad belt in the Nilambur valley. Intensive panning is still going on even during the summer months in the Nilambur valley.

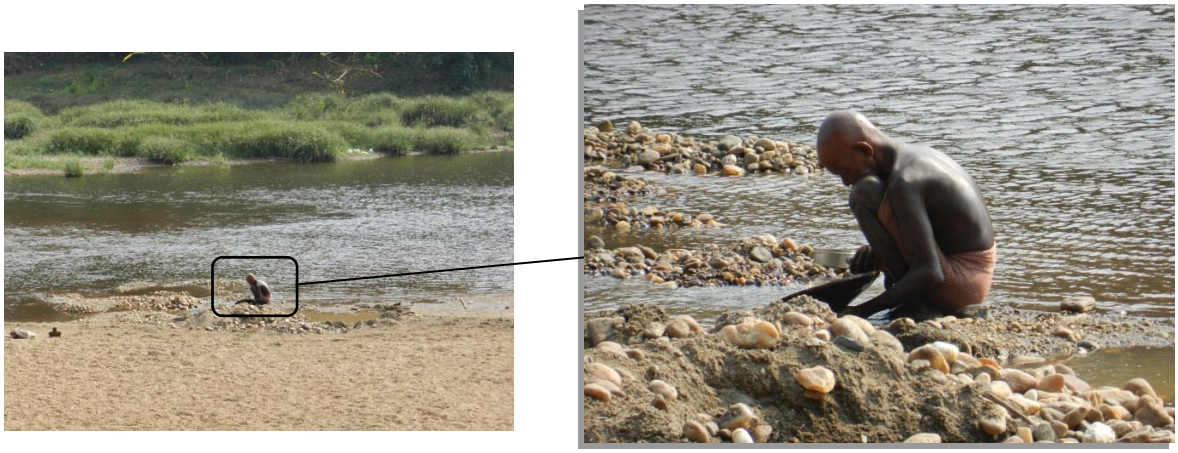


Figure 18-4 Traditional method of Illegal gold mining

18.1.5 Wet Cultivation Areas

According to the Data Bank prepared by the Agricultural Department of Nilambur, 377.43 hectares of the municipality land was recorded wet land till the year 2008. Vast areas of wet land and paddy fields are being converted for constructions, especially those parcels adjacent to main roads. The record states that only 197.67 hectares are still paddy land and 179.76 hectares are converted at present. The existing land use survey conducted by the Town and Country Planning Department in 2014 reveals that 235.95 hectares of land is under wet agriculture.

18.1.6 Primitive Tribes

There are seven Scheduled Tribes in Malappuram district with a total population of 14410, mainly distributed in the hill ranges of Nilambur and Eranad Taluks. Cholanaickens, Kattunaickens, Malamuthans, Paniyans, Aranadans and Kurumans are the major scheduled tribe communities in the District. Cholanaikkans are the most primitive and vanishing tribes of Kerala. This tribe is said to have migrated from the neighbouring forest of Mysore. They are only seen in the Karulai and Chungathara forest ranges in Nilambur. They are one of the last remaining hunter-gatherer tribes of South India, still preferring to live in rock shelters or crude huts beside brooks. They are the worshipers of trees and are the major information providers with regard to ethnobotanical knowledge. Kattupaniyans/Kurinhipaniyans are different from the other Paniyans of the State and also have primitive habits. Majority of the other tribal groups in the area are freely mingling with the local people and following a modern lifestyle.

18.2 ENVIRONMENTAL CONCERNS

It is found that during the last thirty years, large tracts of forest land were converted into teak plantations and this resulted in the upsetting of the ecological equilibrium. The plain land is covered with cash crops like rubber, paddy, arecanut, coconut, banana, pepper plantations etc. Rubber has become the major plantation crop of the area. Jack-fruit tree, arecanut and coconut trees are the other major crop in the homestead plots of the people of the area. (Source: Seetha Kakkoth, "Three tribes of Nilambur valley: A study in interrelationship between habitat, economy, society and culture", Thesis, Centre for Anthropological Studies, University of Calicut, 2001)

The tribal communities can be considered as the natives of the area. The forest ecosystem of the valley has a decisive role in the cultural identity of these communities.

Nilambur area is rich in valuable teak. Due to economic depression in the area these forests have been subject to poaching. The pressures of large populations and extreme poverty have led to people illegally felling timber resulting in losses of crores of rupees and damaging the ecology of the area. As per a Central Government directive, the people along with other stake holders have been organized into different Vana Samrakshana Samithies, to arrest the timber smugglers. And these VSS units are organized under a nodal agency called the Nilambur North Forest Development Agency. This body will act as a resource mobilization unit tapping both the Government and private sectors for funds for the conservation and development of forests with the participation of local stakeholders.

Nilambur region is rich in black granite. The black granite, known locally as `krishnasila,' is believed as sacred stone used for construction in temples and fetch a good value abroad. Granite rocks of similar quality are rarely found in the country. The mining of granite rocks in the Nilambur forest has raised serious environmental concerns. Although the Forest Department has intervened and stopped mining, the issue has brought to surface many questions related to environment. As the Nilambur forest acts as buffer zone for the Silent Valley National Park, any mining activity here is viewed as a threat to the flora and fauna of the valley. On the other side, Nilambur forest is connected to the Muthumala Wildlife Sanctuary. Environmentalists are worried about the ecological damage that mining in Nilambur can bring about to the adjoining areas.

There are about seven authorized sand mining spots in and around the Nilambur municipality. They are Kalathinkadavu, Ayravallikadavu, High School kadavu, Kaimbinkadavu, Modavannakadavu, Kuzhikkayumkadavu and Chakkeeryamkadavu. Tokens or pass are issued to the beneficiaries, to impose control in mining. More than 1250 tokens have been issued during the last season (including three months), for which around 3800 tonnes (@ 3tonnes per pass) were mined for construction purpose. Mining at some points have lowered the river bed, which thus reduces water-logging at some of the road sections during heavy rains.



Figure 18-5 Sand mining at Kalathinkadavu, on the banks of Chaliyar river

The fragile ecology along the river banks, water bodies, wetlands etc are under constant threat of encroachment and pollution. The undulated terrain is under threat of erosion. The rivers and the other tributaries of this river, especially natural drains in the planning area are losing their wholesomeness by discharge of untreated effluent, dumping other solid wastes into the river, encroachment of the river banks for construction purposes, illegal constructions and sand mining etc. Domestic sewage and sanitary wastes, plastic wastes, slaughter waste etc are also sometimes disposed into the river, which contain disease-causing microbes. All these have serious effect on the bio diversity of the rivers like interfering with the establishment of aquatic plants, affecting the reproductive behavior of fish and other animals, and depleting the water of dissolved oxygen. The paddy fields are slowly converted hampering the drainage pattern, food security and ecosystem of the planning area.

18.3 CONSERVATION EFFORTS

The Parliament enacted Forest (Conservation) Act, 1980 (FC Act) with a view to prevent large scale forest depletion and to protect the forest resources. In 1995, T. N. Godavarman Thirumulpad of Nilambur Kovilakam filed a writ petition with the Supreme Court of India to protect the Nilgiris forest land from deforestation by illegal timber operations. The Supreme Court expanded the Godavarman case from a matter of ceasing illegal operations in one forest into a reformation of the entire country's forest policy. In its first order on the Godavarman case, the Court suspended tree felling across the entire country, paralyzing wood-based industries. In the process of hearing over 800 interlocutory applications since 1996, the Court has assumed the roles of policymaker, administrator of policy, and interpreter of law.



Figure 18-6 Entrance of the KFRI Campus

A Sub Centre of the Kerala Forest Research Institute was establishedat Nilambur (43.36ha), to undertake research in areas of forestry, biodiversity and conservation. The Institute successfully runs a museum

dedicated to the wonder wood Teak and a bio-resources trail in its campus. The initiatives of KFRI in the region is creating awareness not only about teak cultivation, but also in environment and forest conservation among young generation, general public as well as enthusiasts and researchers.

Nilambur teak will soon get legal protection for its uniqueness with the tree preparing to enter the Geographical Indication (GI) Registry. Kerala Agricultural University (KAU) and the Nilambur municipality have joined hands to place Nilambur teak in the registry. As the quality of Nilambur teak is specific to the soil of Nilambur, The GI registration will ensure that Nilambur Teak will have its uniqueness supported by law. Nilambur teak will become the first forest resource to get a GI tag in the country.



Figure 18-7 Tribal School at Nilambur

The Supreme Court has made it mandatory to get a no-objection certificate (NOC) from the Forest Department before starting any mining activity within five km of reserved forest area. The Forest Department has also put a ban on mining by establishing check-posts. It was mandatory for the Forest Department to protect this buffer zone of the Silent Valley.

An Integrated Tribal Development Project (ITDP) area has been carved out in 1983 with Nilambur as its head-quarters. ITDP has implemented various schemes such as housing, drinking water, digging trenches around forest hamlets for protection from wildlife etc. It provides grants to students, financial support for attending interviews, agricultural implements, training for females in tailoring and males in autorickshaw driving etc. ITDP conducts regular medical camps among the tribal communities of the area.

Sand mining activities are carried out generally after the monsoons and only with citation of order by the Government. Issue of pass for purchase of sand has regulated the activity to a large extent.

18.4 INFERENCE

The biodiversity of forests and water bodies are highly threatened with anthropogenic activities. Sand mining though detrimental while concerned to environment has indirectly helped stop water logging at a few points. The authorities are trying to control large scale mining and have enforced penalty against illegal mining. Environment and biodiversity conservation initiatives have to be promoted with proper policy formulation, awareness creation and financial support. Surveillance of natural eco systems should be assured and unique bio diversity in the Western Ghat area of the district must be protected. Paddy lands are to be conserved, which act not only as food granaries but also as the reservoirs of water and quintessential elements of natural drainage pattern in the area. Flora, fauna, water and soil are to be protected through traditional methods.

Need-based and location specific package programmes for the benefits of the tribal groups are to be formulated and implemented with special emphasis on education, health and economic development programmes.

Water bodies and natural drainage networks are to be conserved. Abatement of water, air and noise pollution is to be monitored. The use of non-conventional energy sources like the solar energy and wind energy are to be enhanced. Eco friendly, sustainable and judicial symbiosis of natural resources and environmental wealth of the district for local economic growth through responsible eco-tourism are to be promoted.



19.1 DEVELOPMENT ADMINISTRATION

Nilambur attained the status of a Municipality in 2010. The Municipality is responsible for development activities like construction & maintenance of municipal roads, public health, water supply, sewage disposal, poverty alleviation, street lighting etc. Besides these traditional municipal functions, the activities of the various line departments of the state government at the municipal level are coordinated by the municipality. State plan schemes of these departments are channeled through the municipality.

19.2 MUNICIPAL FINANCE

The financial position of urban local self-governments is very precarious throughout the nation except for a few very large urban centers. Most of the urban local self-governments in the state especially the smaller ones like Nilambur are not financially self-sustaining. These municipalities depend on grants from central and State governments for funding their day to day affairs and fulfilling their constitutional obligations. The major source of income for urban local self-governments is the property tax levied on the buildings in the municipality.

The municipal budgets from 2010-11 to 2013-14 are presented in Table19-1 and Table 19-2 respectively. Major sources of revenue income for Nilambur municipality are grants from the state government, municipal rates and taxes and municipal fees. The Municipality has majority of its income under the head 'Grants and aid from the Government'. The share of grant from state government is 20.25% of the revenue income during 2013-14. Municipal rates and taxes (building tax, license tax etc) is the next major source, income from which is comparable to the grants and aid from government. The municipal rates and taxes contribute 20% of the revenue income. The income from municipal fees comes to 6% while that from properties comes to only 3%. In the capital account 80% of the funds are provided by the state plan schemes.

Table 19-1: Municipal budgets - Revenue Account (Source: Revenue Section, Local Body)

Sl. No.	Item	Amount in lakhs			
		2010-2011	2011-2012	2012-2013	2013-2014
	Income				
1	Municipal taxes & rates	80.62	99.37	118.94	131.34
2	Income from other legislations	5.27	8.93	8.42	9.69
3	Income from municipal property	19.15	20.01	21.49	19.59
4	Municipal fees	32.05	25.84	31.93	41.96
5	Grants and aid from the Govt.	41.70	259.36	73.16	133.05
6	Non plan allocations to transferred institutions	-	199.66	246.98	225.41
7	Pensions	-	-	-	-
8	Miscellaneous	72.01	-	52.41	96.09
9	**Total**	**250.80**	**613.18**	**553.33**	**657.13**
	EXPENDITURE				
1	Tax collection expenses	3.95	17.53	38.58	59.71
2	Public works	18.23	42.36	47.32	73.84
3	Town planning	-	-	-	-
4	Education	0.62	2.28	2.32	6.00
5	Water supply & drainage	11.23	19.28	2.33	23.82
6	Public health	0.93	1.88	2.28	4.06
7	Street lighting	16.54	23.87	4.87	4.41
8	Property maintenance	-	-	-	-
9	Transferred institutions	90.38	228.96	246.98	225.41
10	Pensions	-	-	-	-
11	Municipal development activities (transfer to capital A/c)	48.36	73.02	136.34	242.11
12	Poverty alleviation	-	-	5.88	0.95
13	Miscellaneous	-	-	-	-
14	**Total**	**190.22**	**409.20**	**486.91**	**640.30**
15	**Surplus/(deficit)**	**60.57**	**203.98**	**66.42**	**16.83**

The analysis of the budget shows over dependence of the municipality on state funds. This indicates the need to concentrate on optimum utilization of its own resources, like, efficient collection of rates and taxes and enhancing income from properties, for ensuring the financial health of the municipality. It can also be observed that there is no expenditure under the head 'Town planning' as well as 'Property maintenance' in the budget between 2010 and 2014.

Table 19-2: Municipal budget - Capital Account (Source: Revenue Section, Local Body)

Sl. No.	Item	Amount in lakhs			
		2010-2011	2011-2012	2012-2013	2013-2014
	Income				
1	Grant from government	179.06	440.05	532.53	826.34
2	Loan from government	-	-	-	-
3	Loan from financial institutions	-	-	-	-
4	Grant: Decentralised planning	54.77	121.82	255.64	226.53
5	MLA/MP fund	-	5.00	8.95	14.85
6	Transfer from revenue	-	73.02	136.34	242.11
7	Poverty alleviation (transfer from revenue A/c)	-	-	-	-
8	**Total**	**233.83**	**639.89**	**933.45**	**1309.83**
	Expenditure				
1	Management	3.38	0.80	1.27	14.85
2	Public works-municipal development	76.53	138.35	172.36	242.11
3	Public health & welfare	11.65	26.28	24.38	25.25
4	Poverty alleviation	-	-	5.88	50.70
5	Street light	-	-	-	-
6	Endowment	-	-	-	-
7	Plan scheme of transferred institutions	54.77	34.40	6.81	56.29
8	Decentralized planning	-	33.49	610.15	295.86
9	Water supply & drainage	1.43	15.76	9.53	32.24
10	Other plan schemes	35.69	224.52	-	247.41
11	Education	13.21	56.28	63.61	60.00
	Total	**197.68**	**529.89**	**893.98**	**1024.71**

19.3 URBAN GOVERNANCE

74th Amendment Act has paved the way for independent functioning of local bodies. This Act made the election mandatory and greater administrative and financial power to local bodies. Following is the existing system of Governance in Nilambur Municipality.

Council:

The elected council constitutes 33 members, out of which the Chairman, Vice Chairman and four Standing Committees chairmen are elected. The four Standing Committees are for Finance, Public Works, Development and Health. They assist council in their respective areas.

Administration:

The General administration section is headed by the Chairperson and consists of Establishments, Accounts and Revenue. Municipal accounting system has started using IT enabled solutions. However, the management of spatial data for governance and fine tuning of revenue stream, which is not possible without the use of IT solutions, is lacking in this town also, as elsewhere in the State.

19.4 PROBLEMS AND POTENTIALS

The municipality faces paucity of funds for development activities. Municipal rates and taxes, the biggest own source of income in Nilambur municipality, has immense potential, but is not being tapped to the full extent at present. The problem faced in revenue generation through property tax are irrational rates, reductions given due to various (non-financial) reasons, tax avoidance and evasion, leakages in collection system and improper record keeping and monitoring. Almost all these handicaps can be overcome by digitizing the data base and managing this spatial information in a GIS platform with stake holder interface. The timely detection of unauthorized construction, bringing the evaders to the tax net and ensuring compliance of regulations, also can be effectively carried out using remote sensing applications once the GIS data base is in position and regularly updated.

Urban land is a major resource for wealth generation. The Municipality has a few developable plots, the development (through PPP mode or otherwise) of which can boost its financial resources. Municipality has to take suitable steps in this direction to make it a resource for future generations.

Tourism is another major avenue, which the municipality has to explore, for improving its financial situation. Blessed with a serene environment and plenty of water front, the municipality can develop many recreational and tourist spots with minimal infrastructure creation and financial inputs, the user fees from which can enrich the revenue stream of the municipality to a significant extent.

The municipality can also increase its revenue by starting initiatives to produce value-added products from the raw materials available in the town like teak, forest woods, rubber wood, agro-based products, animal produces etc. Initiatives based on 'Waste-to-Wealth' concept, to produce manure, compost etc from bio-degradable waste, slaughter waste processing to produce marketable by-products like tallow, grease and MBM (meat and bone meals), upcycling of wood wastes, packaging wastes etc., recycling of plastic wastes, etc. can be taken up.

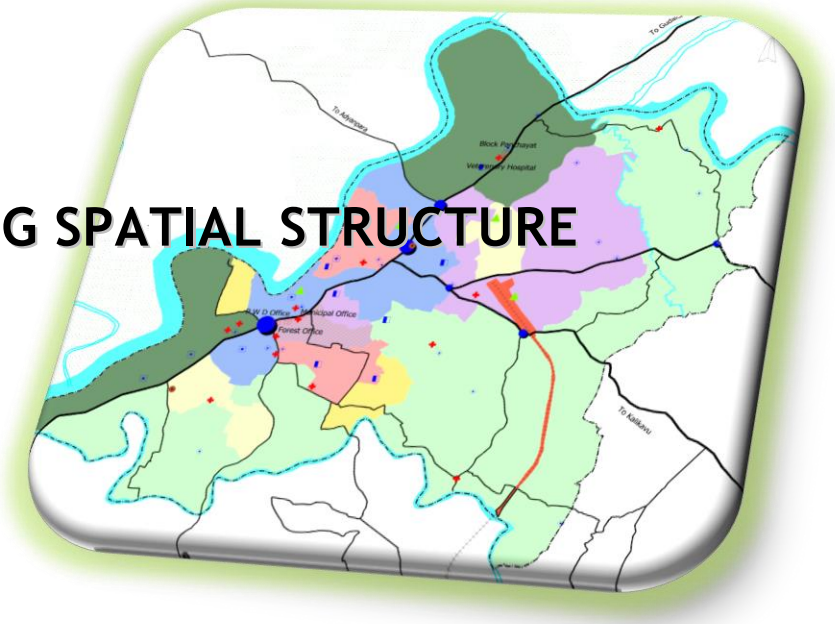
Majority of the properties and assets owned by Nilambur Municipality were handed over by the Rajas of the Kovilakam to the State Government and further to the Municipality subsequent to decentralisation. Several commercial buildings rented by the municipality are a few decades old, and the Municipal office itself is located amidst many inadequacies, in an unorganised and unplanned manner. There is scope for a Mini-Civil Station at Nilambur, for shifting some of the important government institutions into a better campus and surroundings.



19.5 INFERENCE

The financial position of the municipality is not very strong. The municipality has the potential for development of financially remunerative projects for sourcing funds for urban development.

20 EXISTING SPATIAL STRUCTURE



20.1 FUNCTIONAL CHARACTER

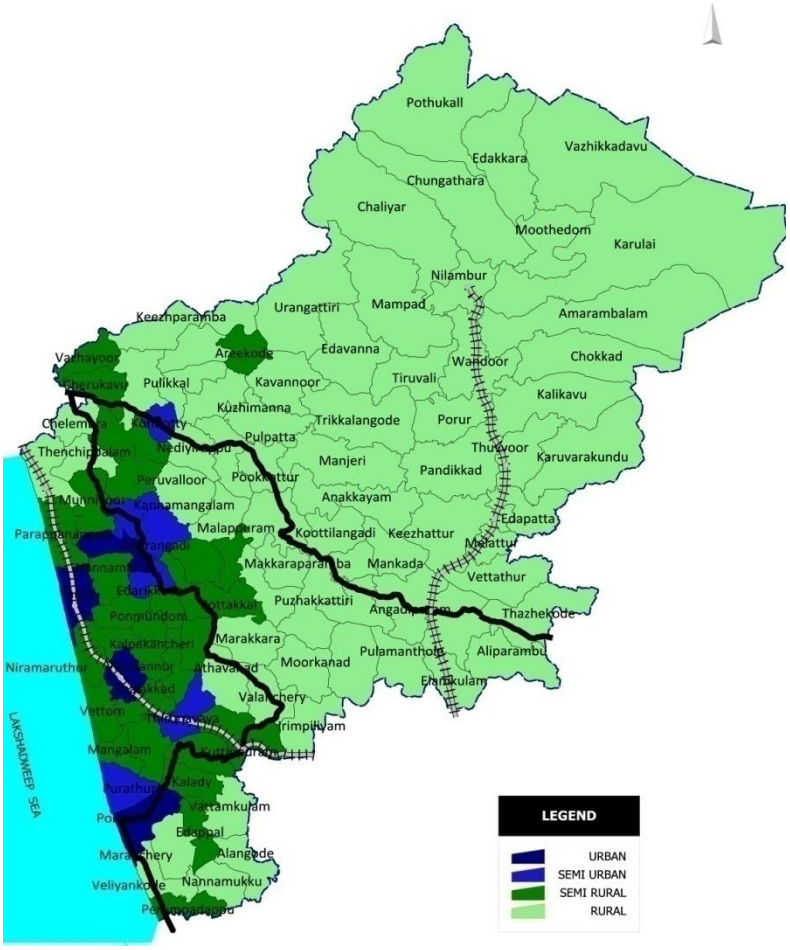


Figure 20-1: Functional Character of Nilambur Municipality and other LSGIs in Malappuram Dt. (Source: District Urbanisation Report, 2011)

In the context of Kerala, due to the scattered settlement pattern and development characterized by urban-rural continuum, it is difficult to designate an area as Urban or Rural. Hence, the concept of Functional Character is used to identify the character of the area. The Functional Character of an area denotes the character of the major economic activity within the area, whether urban, rural or a mix of both. The functional character of an area can be Pucca Rural (Agriculture and allied activities), Pucca Urban (secondary sector and tertiary sector activities) or a combination of both (Semi Rural and Semi Urban).The criteria taken for identification of the functional character of a settlement are land use, population distribution and the average plot size within the area. Nilambur municipality is characterized as a rural settlement, at the district level analysis (Source: District Urbanisation Report, 2011), as presented in figure 20-1.

The ward level analysis of functional character reveals that while 14 wards of the municipality shows urban character and one ward show semi-urban character, three wards show semi-rural character and 15 wards show rural character, as presented in Figure 20-2 below. Thus the predominantly rural nature of the municipality is evident. The wards of urban character are concentrated along the KNG road and railway station.

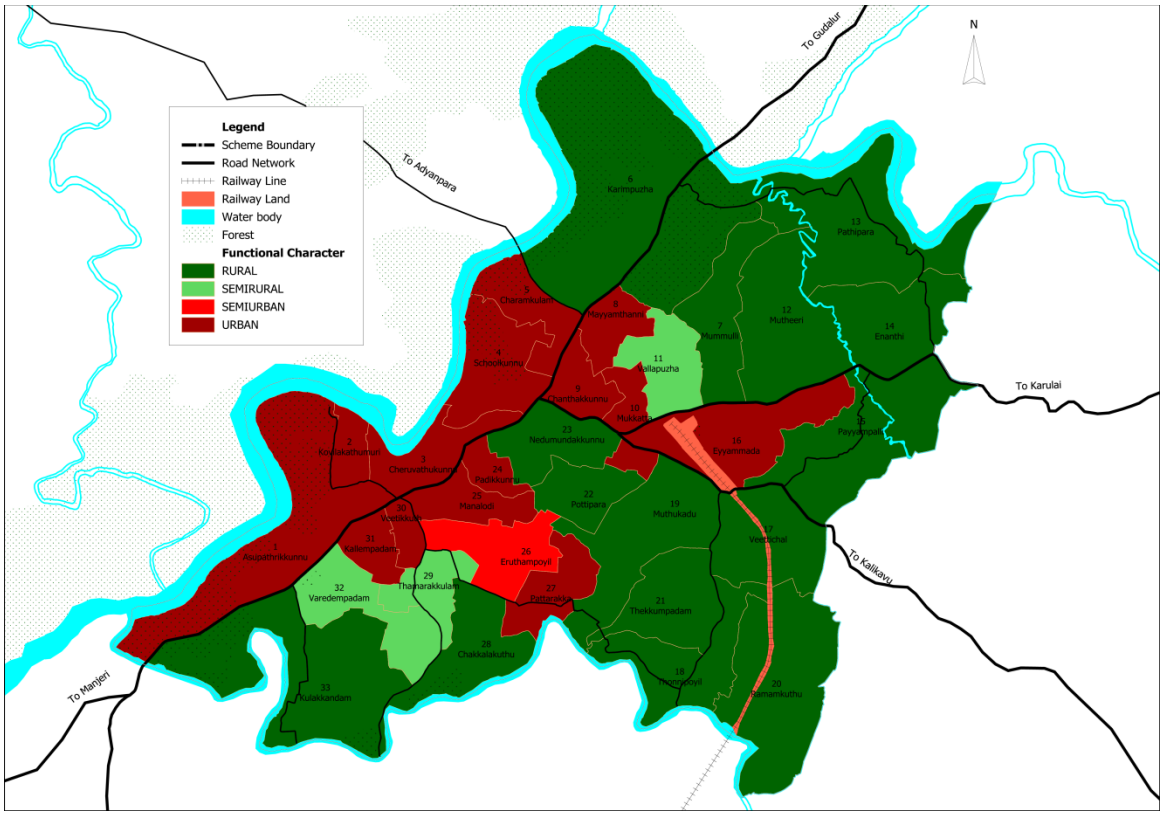


Figure 20-2: Functional Character of wards in Nilambur Municipality

20.2 ACTIVITY PATTERN

The term activity pattern is used to indicate the major economic activity of a place or that can be brought there in future. It may be primary, secondary, tertiary activities or a combination of these (like agriculture, animal husbandry and small scale industries).The activity pattern of Nilambur municipality is Primary (Plantation), as revealed by the District Urbanisation Report, 2011, as presented in Figure 20-3.

The activity pattern at ward level can be derived through the overlay analysis of the land use concentration pattern and functional character. The activity zones based on land use concentration is discussed earlier in section 5.2 of this report. This was overlaid with the functional character as presented in figure 20-2 to derive the activity pattern as presented in figure 20-4 below. The nature of tertiary activity is detailed into the following: commercial, industrial, public and semipublic uses, and residential activity or urban or rural nature.

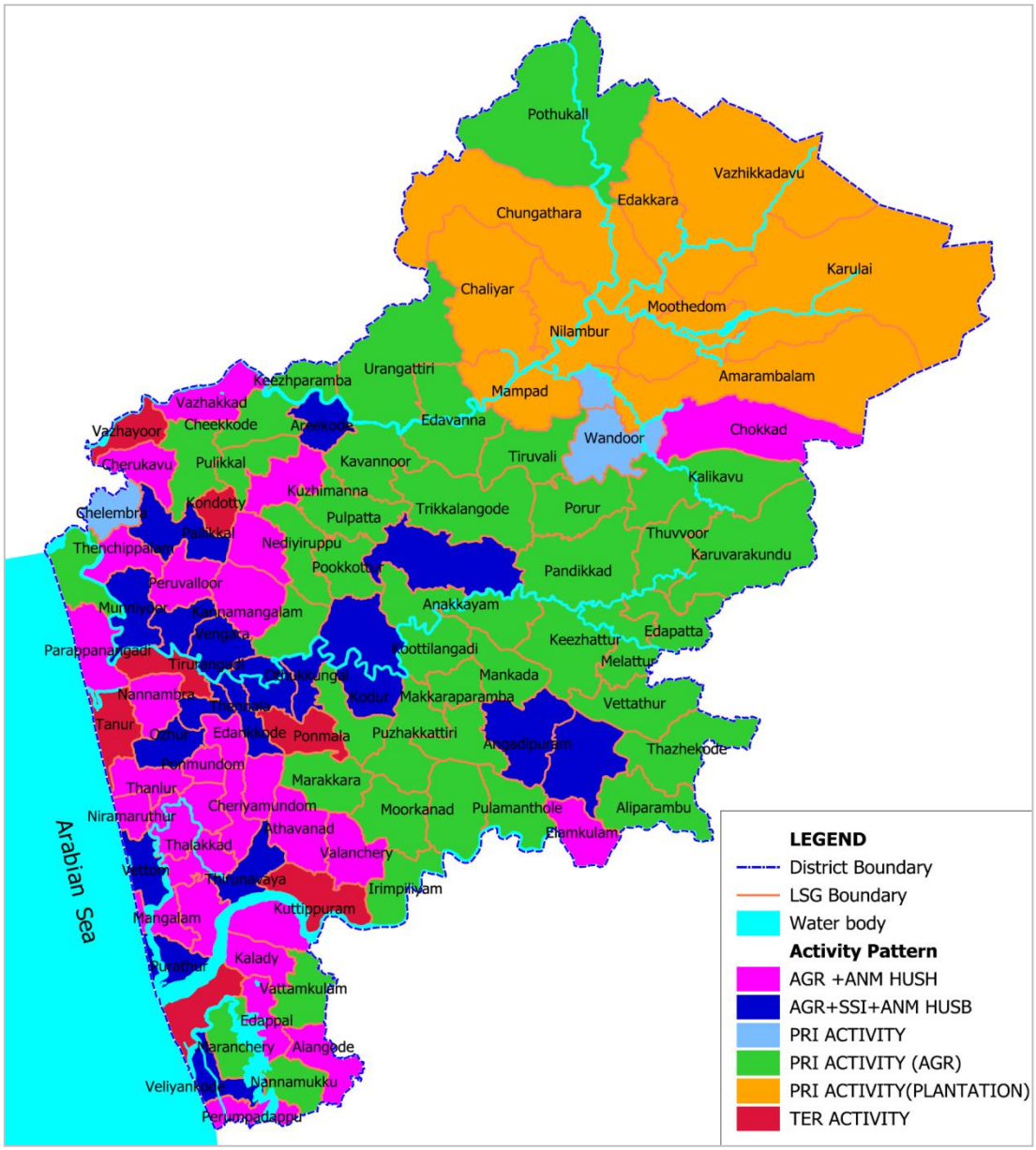


Figure 20-3: Activity pattern of Nilambur Municipality and other LSGIs in Malappuram (Source: District Urbanisation Report, 2011)

It is evident from the activity pattern that tertiary, secondary and primary sectors of economy have significant presence and importance in Nilambur. While 16 wards can be attributed primary activity pattern (Agriculture, Forests, Rural Residential), 6 wards can be attributed secondary activity pattern (small scale industrial) and remaining 11 wards can be attributed tertiary activity pattern (commercial, public semipublic, mixed urban activities, urban residential). It can also be observed from figure 20-4 that the tertiary activities are concentrated along the main road, KNG road while secondary sector activities are concentrated around the railway station and Mummulli industrial estate. Primary sector activities are concentrated along the sides of water bodies and towards the peripheries of the Municipality.

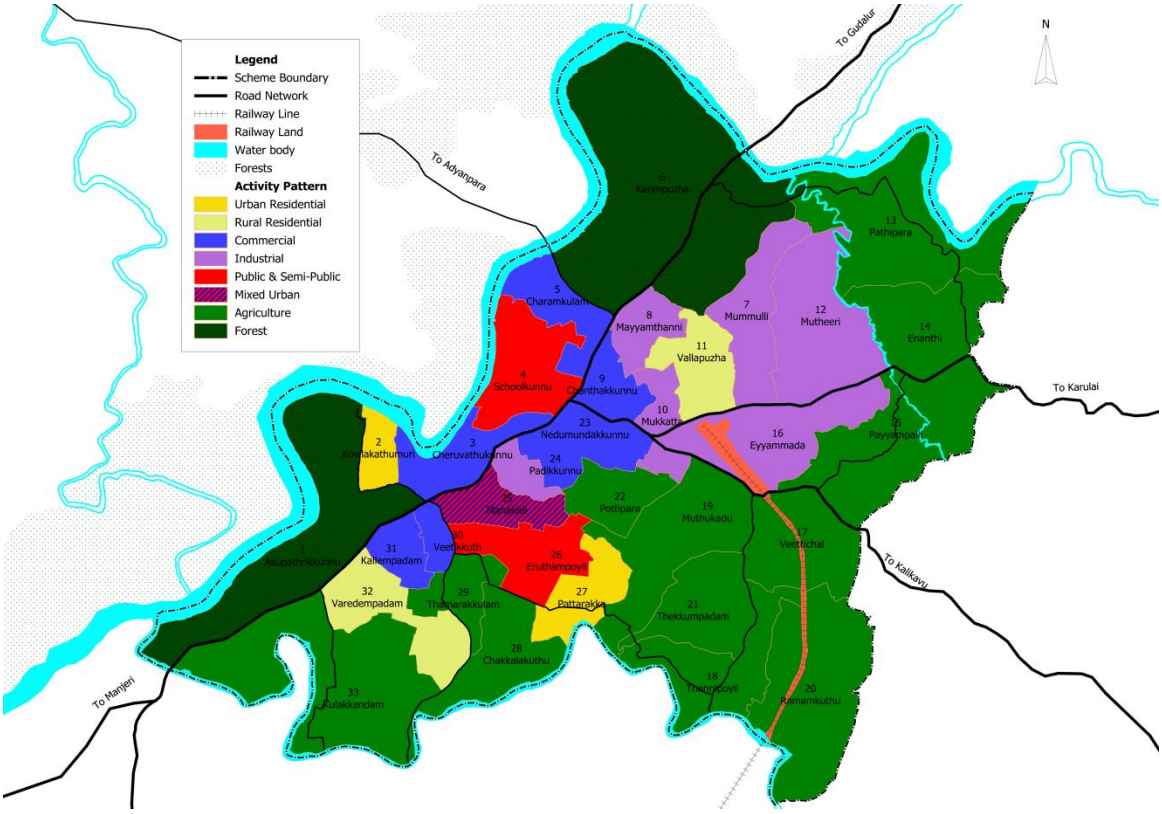


Figure 20-4: Activity Pattern of wards in Nilambur Municipality

20.3 CONNECTIVITY PATTERN

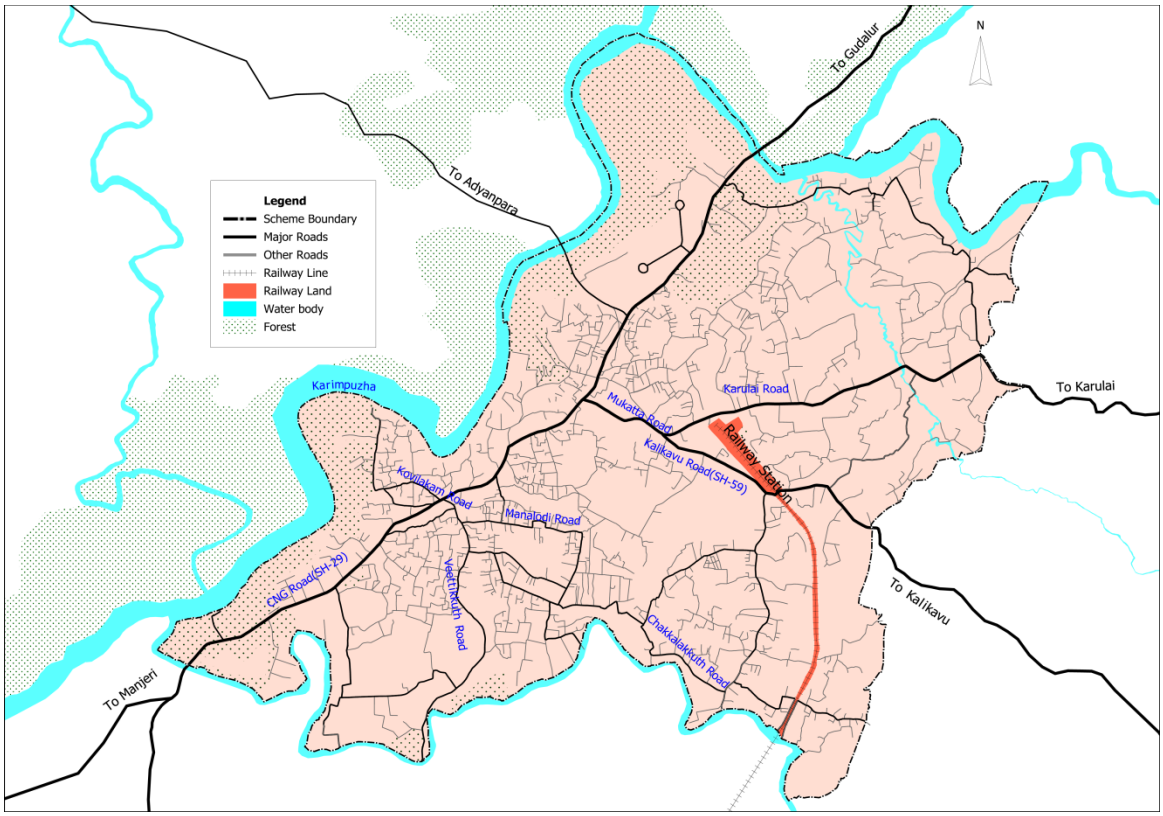


Figure 20-5: Connectivity Pattern- Nilambur Municipality

Nilambur Municipality is well-connected by roads and railways as discussed earlier in

section 10 of this report. The SH-28 KNG road provides interstate connectivity to Gudalur and intra-district connectivity to other major urban centres of the district. It is the most important artery of this region. The Kalikavu and Karulai roads connect the Municipality to nearby panchayats. The Kalikavu road, part of the Hill Highway will also provide inter-district connectivity once fully implemented. A minor road, the Keerthipadi –Chakkalakuth – Vadakkumpadom road connects to Wandoor, the nearby panchayat, through Vadakkumpadom Bridge. Among other minor roads, the Veettikuth - Thrikkaikuth road which can offer connectivity to adjacent Mampad Panchayat is restricted by the absence of bridge across the Kuthirapuzha, the Ramamkuth – Koottampara road and Ramamkuth – Thondivalavu roads that can link the town to adjacent Amarambalam and Karulai panchayats respectively are constrained for the want of railway crossings. Besides, the pending implementation of Nanjangud Railway line proposal has denied better connectivity and immense development possibilities not only for Nilambur, but Eranad and Wayanad Region in whole.

20.4 HIERARCHY OF NODES

Commercial nodes in Nilambur town are identified on important junctions considering the concentration of commercial activities along with contiguous linear development along the road sides, as presented in section 6.2. The hierarchy of nodes is shown in Figure 20-6.

Nilambur Junction is a first order node, Chanthakkunnu Junction is a second order node, Veliyamthodu Junction is a third order node, Ramamkuthu is a fourth order node and Mukkatta and Nalamthanni Junctions are both fifth order nodes in Nilambur Municipal area. It can be seen that the three higher order nodes have developed along the main artery, the KNG road and the remaining has developed along the other important corridors, Karulai and Kalikavu roads.

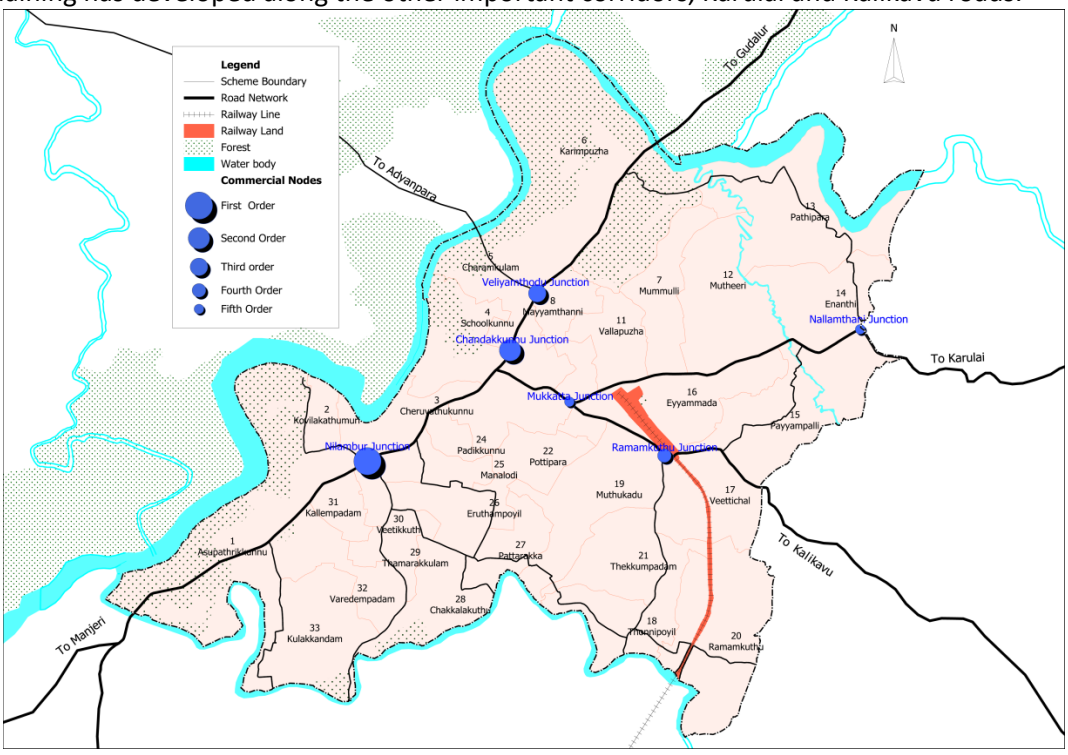


Figure 20-6 Hierarchy of Commercial Nodes

20.5 IMPORTANT FACILITIES

The distribution of the most important facilities in the municipality like transportation terminals, health infrastructure, primary/secondary schools, higher secondary schools, higher education facilities, public offices and recreational facilities are shown in Figure 20-7. The

important facilities are mainly concentrated around Nilambur Junction and Chanthakkunnu.

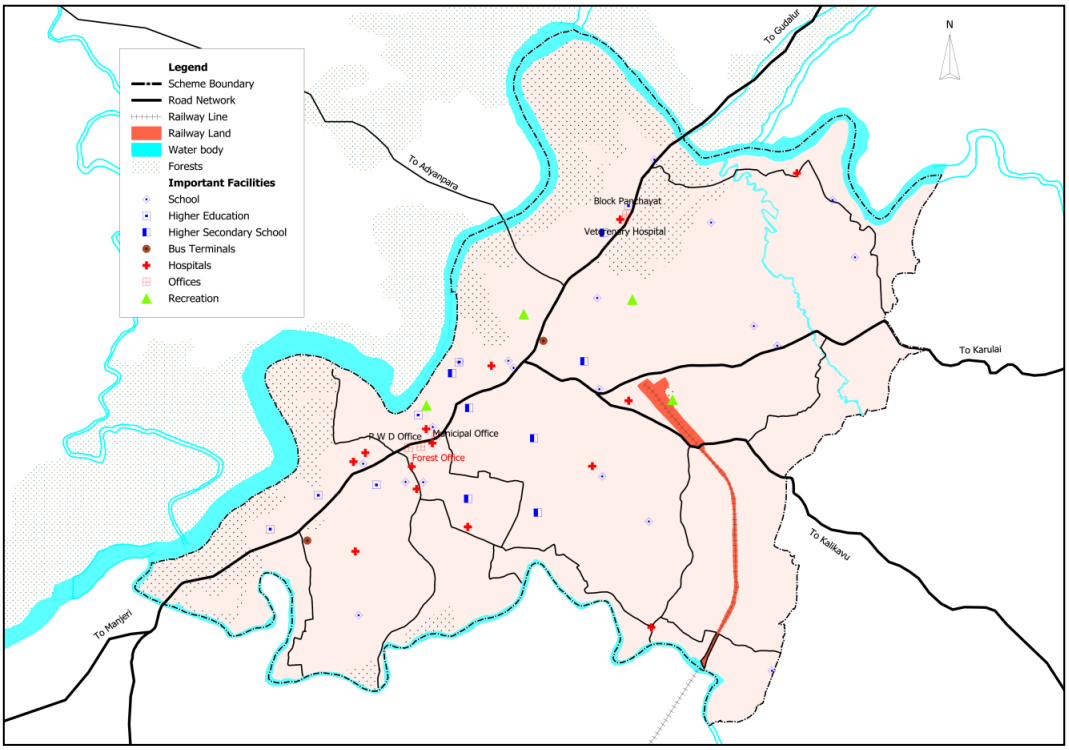


Figure 20-7: Spatial Distribution of Important Facilities

20.6 EXISTING SPATIAL STRUCTURE

The town is only a fourth order settlement in the District (Source: District Urbanisation Report, 2011), but plays the role of an important transportation hub for the people of highlands and midlands as it houses the Nilambur Road Railway Station. Being the headquarters of Nilambur taluk and the only urban centre adjacent to the forest-covered highlands and the tribal settlements, it has an important role to play in providing the services and amenities for them. (Section 2-1, figure 2-2). While Nilambur is already on the international tourism map as a preferred eco-tourism destination, it serves as the most important picnic spot for the whole of the district as well as the nearby districts.

The activity pattern, connectivity, hierarchy of nodes and location of important facilities are considered together to formulate the spatial structure of the town. The spatial structure obtained by overlaying these maps is shown in Figure 20-8.

The town has developed along the oldest and the most important connectivity that serves the town, the KNG road. The railway station also has attracted development in its surroundings.

The urban facilities have developed along the KNG road and the road links to it, except schools which are more-or-less fairly distributed throughout the municipal area. Kovilakathumuri area, adjacent to Chaliyar River on the West of KNG road, houses the oldest residential pockets and the settlements of heritage value. Residential development is interlaced with the urban facilities at the town centre, and has started spreading towards the rich agriculture-plantation belt along the eastern periphery of the town.

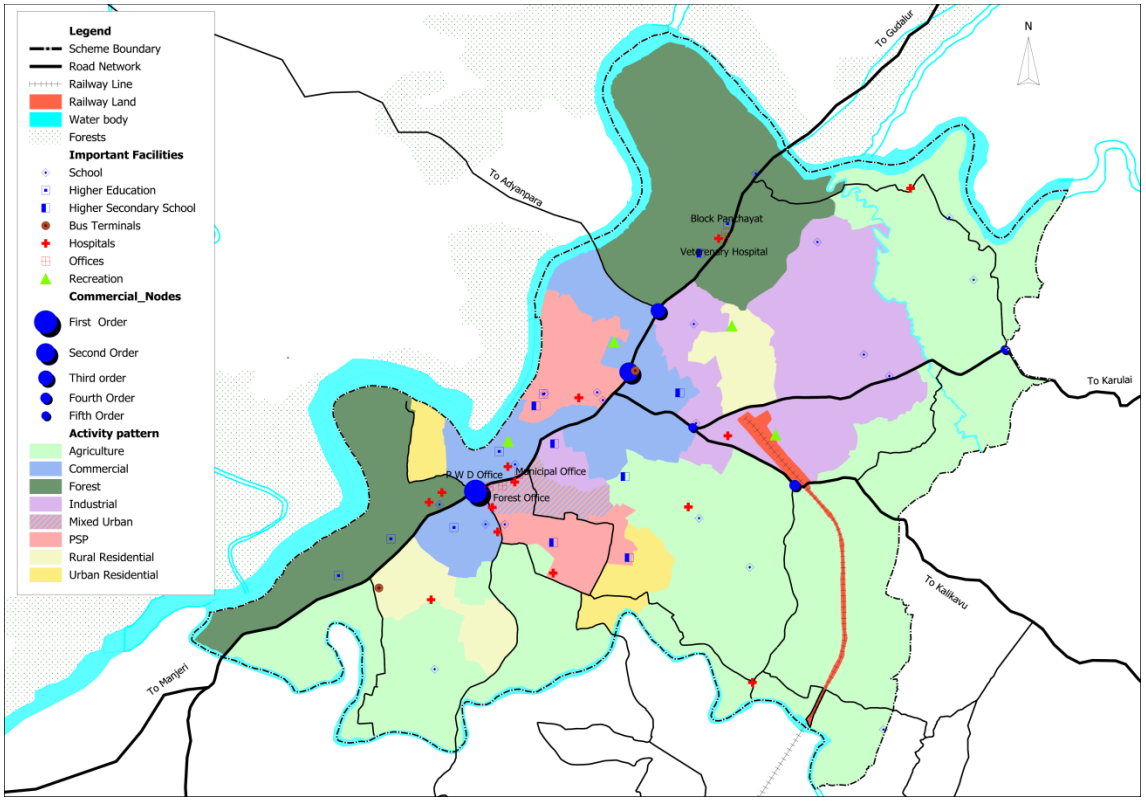
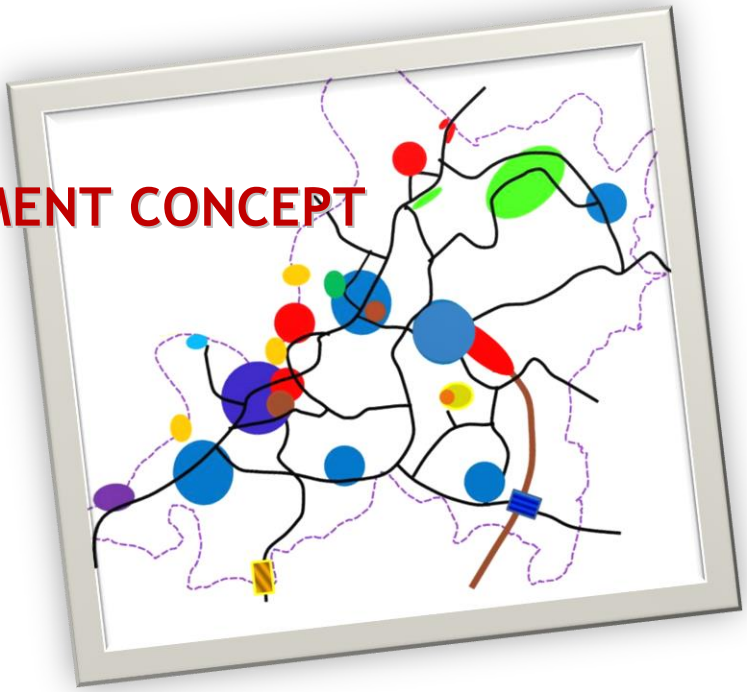


Figure 20-8: Existing Spatial Structure

The developments to the west of KNG road are restricted by the forests and river and the road connectivity of the town has been restricted by the rivers on three sides. This has caused developments to head towards the fourth direction, the east, along various minor and major roads originating from the KNG road, only to be restricted by the railway line for most part. The north –east quarter between the KNG road and Karulai road, which is neither restricted by railways or by rivers is covered by paddy fields, again constrained the development. However these restrictions acted as a boon in protecting large stretches of cultivable agricultural lands within the municipal area, when compared to its counterparts in the district.

21 DEVELOPMENT CONCEPT



21.1 SWOT ANALYSIS

Strengths

- ☆ Taluk head-quarters and urban services' provider for a vast agrarian –forest belt
- ☆ Presence of railway for easy movement of goods and services
- ☆ Presence of tourist attractions in various categories like forest & wildlife, rivers& waterfalls, heritage, cultural festivals etc.
- ☆ Enroute major tourist hubs like Ooty and Mysore, connected by the KNG road.
- ☆ Largely rural settings, serene environment and related advantages
- ☆ Large operational holdings of agriculture, easy availability of agricultural inputs from within the municipality and hinterland, making agriculture relatively more viable
- ☆ Good demographic dividend

Weakness

- ☆ Low FWPR, high gender gap in literacy
- ☆ Backwardness of SC/ST communities in education and employment
- ☆ Commercial concentration and ribbon development along the main road
- ☆ Connectivity to adjacent panchayats restricted by river, forest, railway line etc.
- ☆ Insufficient road widths
- ☆ Lacks supporting infrastructure like organised taxi/auto/lorry stands, public comfort stations etc.
- ☆ Though the town forms the focal point of access to important tourist places like Ooty and Mysore, the infrastructural facilities for the tourists are insufficient.
- ☆ The town has a long way to go in other sectors like drainage, sewerage, waste management, roads, urban design, recreation and entertainment facilities etc to create a better appeal in tourism sector.
- ☆ Shortage of agricultural labourers
- ☆ Reduction in cultivable land due to filling up of paddy fields

☆ Govt. Taluk hospital, recently upgraded to District Hospital, is overcrowded and need more planned infrastructure facilities.

Opportunities

☆ Proposed Nanjangud railway will extend connectivity to other northern and eastern areas

☆ Proposed Hill Highway

☆ Proposed Adyanpara hydroelectric power project

☆ Proposed Eastern tourism corridor development

☆ Can be developed into the most vibrant Tourist hub of the region and the District – utilizing the potential of railway connectivity, International airport at a distance of 45 km.

☆ Ready market for agricultural produce

☆ Potential for inland fisheries, including ornamental fishing

☆ Being an upcoming tourist destination, Ayurveda can be promoted along with tourism.

☆ Potential for wood furniture trade

☆ Potential for GI registration of Nilambur Teak

☆ Scope for wood based industries

☆ Scope for agriculture products value addition industries

Threats

☆ High inflow of migrant labourers thus increasing demand for housing, sanitation and other social infrastructure

☆ High wages of skilled and unskilled labourers

☆ Various Diseases & Infections affecting crops & animals

21.2 VISION

The development vision for Nilambur Town is formulated as stated below, so as to create a launch pad for the town founded on its strengths and fortified by productive utilization of the opportunities for the comprehensive development of the municipality as well as the region, while strengthening the weak sides and preventing the threats.

"Develop Nilambur into a largely self-reliant local self-government institution which thrives on symbiotic progress of tourism, agriculture and small scale industrial sectors ; and as an efficient urban services provider for the Taluk; by effectively binding together its urban and rural characters to benefit from each other and form something better than each."

21.3 GOALS

- ☆ **More efficient service delivery as an urban services provider for Nilambur Taluk**
- ☆ **Development in to a widely preferred tourism destination in North Kerala**
- ☆ **Development of agriculture and small-scale industrial sectors and strong integration with tourism.**
- ☆ **Organized spatial development to ensure sustainable development and enhance quality of living of the region**
- ☆ **Interventions for human resources development and improvement of quality of manpower**

21.4 OBJECTIVES

☆ **More efficient service delivery as an urban services provider for Nilambur Taluk**

- ❖ Enhance the health services by introducing better infrastructure and specialty services
- ❖ Develop the educational sector by introducing higher education facilities
- ❖ Improve the regional and internal connectivity with better transportation infrastructure
- ❖ Advance the role as a centre of welfare activities for tribal population
- ❖ Initiate decentralized and hierarchical development of organized commercial precincts and facilities
- ❖ Improve the civic infrastructure with state-of-art facilities
- ❖ Enhance the efficiency and urban character of existing urban areas

☆ **Development in to a widely preferred tourism destination in North Kerala**

- ❖ Augment the tourism potential of Nilambur with supporting infrastructure
- ❖ Enrich existing tourism attractions with variety options like water based tourism, adventure tourism, cultural tourism, heritage tourism, educational tourism, farm tourism etc.

☆ **Development of agriculture and small scale industrial sectors and strong integration with tourism.**

- ❖ Promote organic agriculture and aquaculture and integrate with farm tourism
- ❖ Promote small scale non-polluting industries for production of value added agricultural and forest products, export oriented wood furniture etc.
- ❖ Promote cottage industries like kumbham handicrafts, cane/bamboo furniture, mats (panambu/pulppaya) etc and integrate with tourism

☆ **Organized spatial development to ensure sustainable development and enhance quality of living in the region**

- ❖ Formulation and implementation of a scientific land-use plan
- ❖ Provision of necessary sanitation infrastructure
- ❖ Enhance housing and infrastructural quality of low-income-groups'/socially backward communities' housing clusters

☆ **Interventions for human resources development and improvement of quality of manpower**

- ❖ Inclusive social development of socially backward population, migrant labourers etc.
- ❖ Enhance skills and employability of population, especially women

21.5 POLICIES AND STRATEGIES

Policies and strategies are framed as a measure to ensure that the development goals are achieved without conflicts of interests among various sectors. The policies and strategies are intended to bring in synergy to the development process by considering various aspects of the development potential, development demands and the need to conserve certain values and features. The following policies and strategies are considered to be essential from this view point.

- ❖ Strict conservation and rational utilization of existing natural resources like forests, water bodies, agricultural lands etc. Environmentally fragile areas including paddy fields, ponds, streams and natural drains etc. are to be preserved/protected/restored. Various measures for eco restoration of environmentally fragile areas are to be adopted.
- ❖ Nilambur being a developing tourism destination, its possibilities shall be linked strongly with health tourism potentials in Kottakkal and Perinthalmanna municipalities
- ❖ Plan shall address creation of attractive urban infrastructure to provide economic opportunity to artisan communities, weaker sections in the society and migrant workers by infrastructural provisions for showcasing and sale of rural an traditional artefacts
- ❖ The development activities are required to be in an environmentally, economically and socially sustainable manner.
- ❖ Enhance the efficiency and urban character of existing urban areas and preserve the serenity of rural areas
- ❖ Ensure development that enhances the scenic beauty and serene environment of the town
- ❖ Densification of urban land uses and prevention of urban sprawl
- ❖ Ensure availability of land for development of land-intensive institutional/non-polluting industrial activities
- ❖ Ensure availability of land for affordable housing activities
- ❖ Focus on human resources development with special attention on the ethnic communities in the region
- ❖ Transportation infrastructure facilities to be improved to ensure seamless connectivity by providing/developing ring roads, fly overs, scientifically designed junctions, widened roads, parking plazas, diverting through traffic from the core town through bypass roads etc. Facilities and safety requirements of pedestrians also should be addressed.
- ❖ Higher order facilities for recreational, amusement and leisure activities to be provided.
- ❖ Policy provisions are to be framed to facilitate expansion of the existing public/semipublic facilities.
- ❖ Public-private partnership has to be encouraged in the development activities.
- ❖ The plan should address inclusive growth, taking into consideration of the needs of all people of the society especially of the economically weaker and socially backward groups.

21.6 DEVELOPMENT CONCEPT

21.6.1 Projected Population

The population projection for 2011, 2021 and 2031 of the municipality are made by assuming that same trend in the population growth continues. The population is projected by three methods and the average of the three is taken to arrive at the population figures in 2021 and 2031.

The following methods were used.
a. Arithmetical method
b. Geometrical increase method
c. Decreasing rate method

a) Arithmetical method

This method is based on the assumption that the increase in population is constant. In this method, the average increase of population for the last three or four decades is worked out and then for each successive future decade, this average is added. This method gives low results, as such is applied for old and large cities. The population at the end of 'n' years or decades is calculated by the equation.

$$Pn = P + ni$$

Where, Pn = Population at the end of 'n' years or decades
P = Present population
i = Average increase per year or decade.

b) Geometrical Increase method

In this method the percentage increase in population from decade to decade remains constant. From the available census records, this percentage is fixed and then population of each future successive decade is worked out. This method gives high values and is applied to young and rapidly growing cities. Thus the population at the end of 'n' years or decades is given as,

$$Pn = P (1+r/100) n$$

Where r = average percentage increase per decade

c) Decreasing Rate method

In this method, the average decrease in the percentage increase is worked out and is then subtracted from the latest percentage increase for each successive decade.

Table 21-1 Projected Population

Method of Population Projection	2021	2031
Arithmetical Increase Method	50389	54434
Geometrical Increase Method	51812	57923
Decreasing Rate Method	50246	53138
Average	**50816**	**55165**

Average of the projected populations using the above three methods, i.e., a population of 50,816 in the year 2021, and 55,165 in the year 2031,is taken as the projected population for Nilambur in the plan period. A population of 55200 persons can be considered as the population at the end of plan period.

21.6.2 Suggested Spatial Structure

☆ **Suggested City Form and Direction of Development**

Nilambur town is an important transportation hub for the people of highlands and midlands as it houses the Nilambur Road Railway Station. Being the headquarters of Nilambur taluk and the only urban centre adjacent to the forest-covered highlands and the tribal settlements, it has an important role to play in providing the services and amenities for them.

The town has developed along the oldest and the most important connectivity that serves the town, the KNG road. The railway station also has attracted development in its surroundings. Kovilakathumuri area, adjacent to Chaliyar river on the West of KNG road, houses the oldest residential pockets and the settlements of heritage value. Residential development is interlaced with the urban facilities at the town centre, and has started spreading towards the rich agriculture-plantation belt along the eastern periphery of the town. The built-up areas in the existing residential zone are to be densified, to conserve the agricultural lands including paddy land.

The developments to the west of KNG road are restricted by the forests and river and the road connectivity of the town has been restricted here. The town thus is growing towards the eastern and south eastern side naturally. This is proposed to be enhanced with better road and rail connectivity.

☆ **Suggested Hierarchy of Nodes**

The existing spatial structure reveals that Nilambur Junction is a first order node, Chanthakkunnu Junction is a second order node, Veliyamthodu Junction is a third order node, Ramamkuthu is a fourth order node and Mukkatta and Nalamthanni Junctions are both fifth order nodes in Nilambur Municipal area. It can be seen that the three higher order nodes have developed along the KNG road which is the main transportation corridor as clusters and contiguous ribbon development around major junctions.

Nilambur being the Taluk head quarter and an important commercial center for the eastern plantation- forest based LSGs of Malappuram district, it is suggested that transit-oriented commercial nodes are to be developed. Nilambur Junction which is served by the newly operational Jawaharlal Nehru Nilambur Municipal Bus Terminal will remain the first order commercial node including the major shopping centers, market centers and other economic activities. This nodeis suggested to be of pure commercial character and enhanced to a circular area of radius 500m, which is considered easily walkable and accessible by road connectivity. The second order nodes are suggested to be of Resi-commercial mixed character and comprise the other major transit nodes, which are Kodathipadi that includes the KSRTC bus stand, Melechanthakkunnu that includes the Private bus stand, and Mukkatta that leads to the Railway station. Third order nodes are proposed to be developed to serve the residential areas along the other roads connecting the near-by LSGs, namely, Ramamkuthu, Chakkalakkuthu and Enanthi.

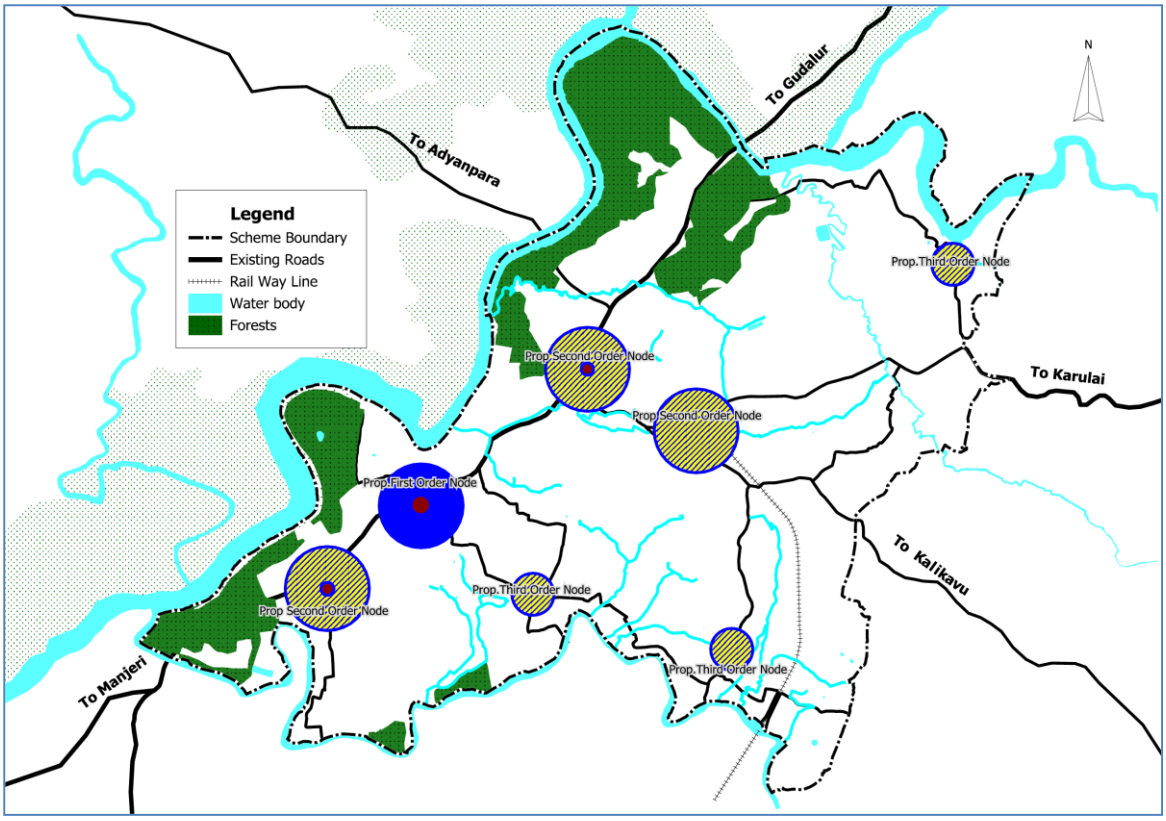


Figure 21-1 Development Concept - Commercial

☆ Suggested Settlement Pattern

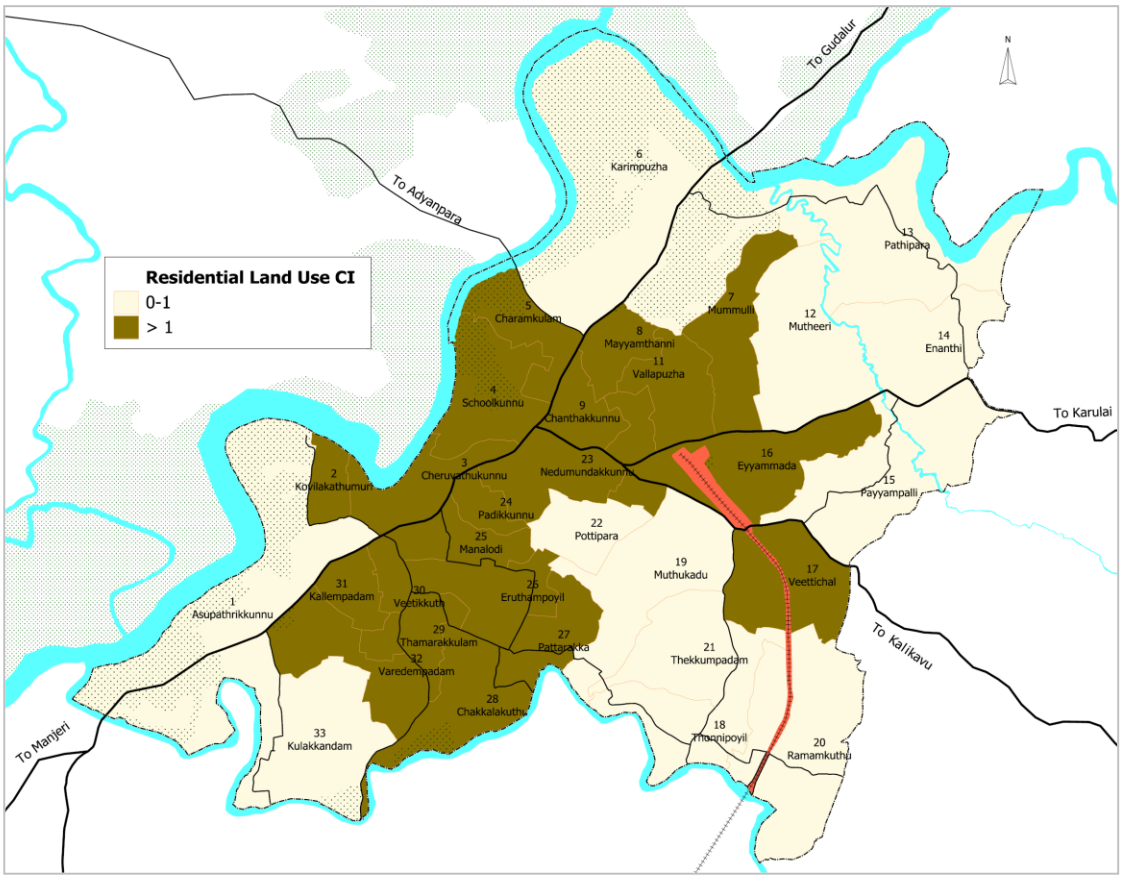


Figure 21-2 Development Concept – Settlement Pattern

The prime residential areas in the planning region are derived from residential land use concentration index map. The map shows that the concentration of residential use is prominent around the major transport corridor. The trend of residential development is mainly seen around the major nodes. Veettikkuthu and Padikkunnu remain the densest wards while Veettikkuthu and Pottippara have the densest residential pockets. The proposed new by-pass, connecting Jyothipadi to Veliyamthodu on KNG road, via, Chakkalakuthu and Mukkatta, forms an included area between the by-pass and KNG road, which has the major residential built-up. Higher order residential facilities are suggested in the same region in order to avoid urban sprawl and destruction of environmental harmony in the town.

☆ **Suggested Blue-Green Network**

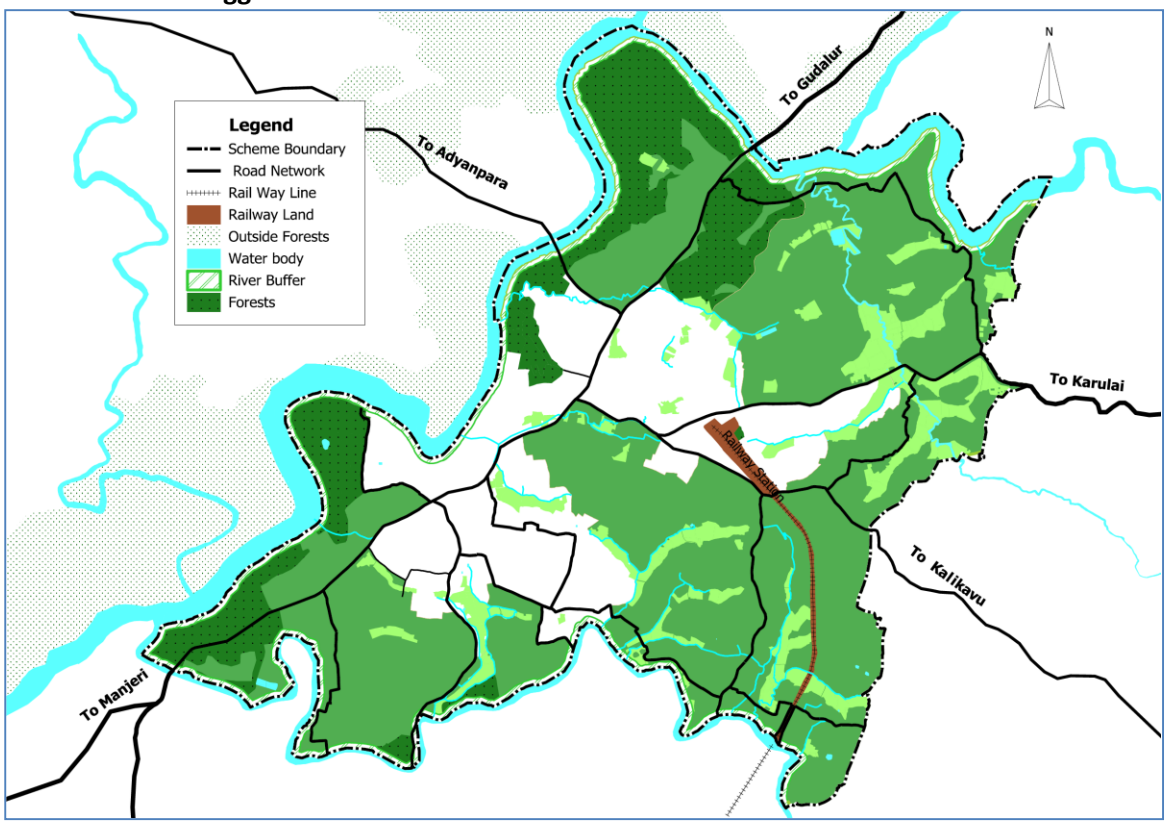


Figure 21-3 Development Concept- Blue - Green Network

Analysis of Existing Land use reveals that 64% of Nilambur Municipality area is covered by Blue-Green uses like water bodies, forest, dry and wet agriculture. The future development of the town has to go hand in hand with environmental conservation, owing to the presence of the river on three sides and the reserve forest. Being envisioned as a city where Agriculture, Tourism and SSI having equal importance, it is imperative to conserve the natural resources like forests, water bodies and fertile agricultural lands. The rivers shall be protected through green buffers along the side. A few areas at Jyothipadi, Janathapadi and Veliyamthodu, prone to flooding during the monsoons, are to be properly drained by revitalizing the natural drainage network.

The blue grid – the water bodies including rivers, streams and ponds - that could form attractions for tourists are to be developed to full potential by introducing water sports, inland fishing, aqua parks etc. While the green grid in typical urban areas usually include only parks and open spaces, Nilambur has a variety of components which can add unique value to its green grid, like forests, agriculture farms, paddy fields, plantations etc. These Blue Grids and Green Grids are envisaged to be linked with each other with the help of tree-lined avenues, footpaths, cycle paths, foot over bridges etc. to form a network of parks, recreational spots, farms, forest areas, water fronts etc. Vacant lots, wasteland, etc can be upgraded to forms these links.

☆ **Suggested Distribution of Facilities**

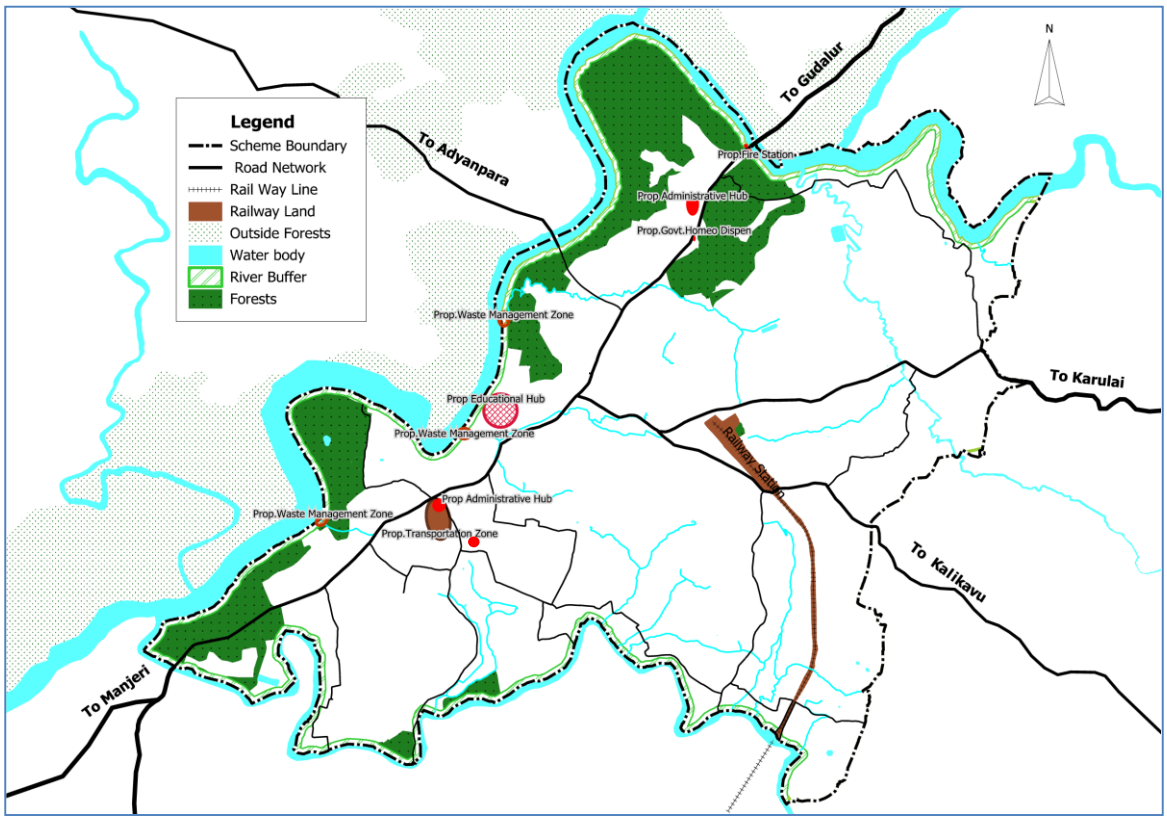


Figure 21-4 Development Concept - Public Activity centers& Public Utilities

The drawback in educational sector is the lack of higher educational institutions. The Govt. Manavedan HS School has a vast campus accommodating several school buildings, play-ground, basketball court etc. There is scope for utilizing the infrastructure available with this institution for other higher educational courses. Additional infrastructure creation can be made possible if the surrounding private land, which is currently vacant or under Dry agriculture, is made available for such public use.

The administrative institutions of the town are presently scattered along the KNG road, with very limited facilities. The concept formulates two administrative areas, one near the New Bus Stand, one near the location of proposed Municipal Office and the third near Jawahar Colony where the Mini Civil Station and Town Hall are proposed. The plan also envisages improving the environmental quality by a comprehensive solid waste, sewerage and drainage plan and improvement of urban aesthetics.

Recreational facilities are suggested to be enhanced by the development of a mini stadium at Azad Ground, developing a childrens park in the government land near Jawahar Colony Junction, developing the existing open ground near Jawahar Colony, developing a park near Vadapuram, developing aquaculture zones clubbed with recreational facilities etc.

To facilitate conduct of cultural events that would also add on to tourism, a performing art theatre aiming at conduct of tribal, folklore, classical art and drama is envisaged near the Mini Civil Station. A Convention Centre is also envisaged at this 2 acre campus.

- **Suggested Development of Productive Sectors**

The potential of agriculture, industry and tourism sectors in the planning area is proposed to

be explored optimally and in synergy with each other, to develop the economy of the planning area in a sustainable way. The potential agricultural lands are to be conserved and organic cultivation methods are to be promoted in the plan period, to lead to environmental as well as economic sustainability. Diversification of agricultural sector, by enhancing bee culture, aquaculture, sericulture, animal & poultry rearing etc is to be practiced to ensure better returns. The agriculture & allied sectors are to be effectively utilized as a launch pad for various tourism products like experience tourism, farm tourism etc.

Tourism sector in Nilambur, though has many attractions, lacks a flavour of adventure that can attract youth and children. Hence water sports, kayaking, boating, fishing, etc are proposed to be introduced in the planning area, utilizing the existing river fronts, as well as by rejuvenating the Muthiri Pond. A water sports complex is also proposed to promote water sports as a part of providing a wide array of portfolio for recreational facilities. Besides, the sector has to improve its offerings to the tourists, in terms of infrastructure including refreshment, stay and travel facilities as well as quality tourism products. The cultural, environmental and built heritage of the town is to be optimally utilized for enhancing the attractiveness of this sector to various categories of tourists.

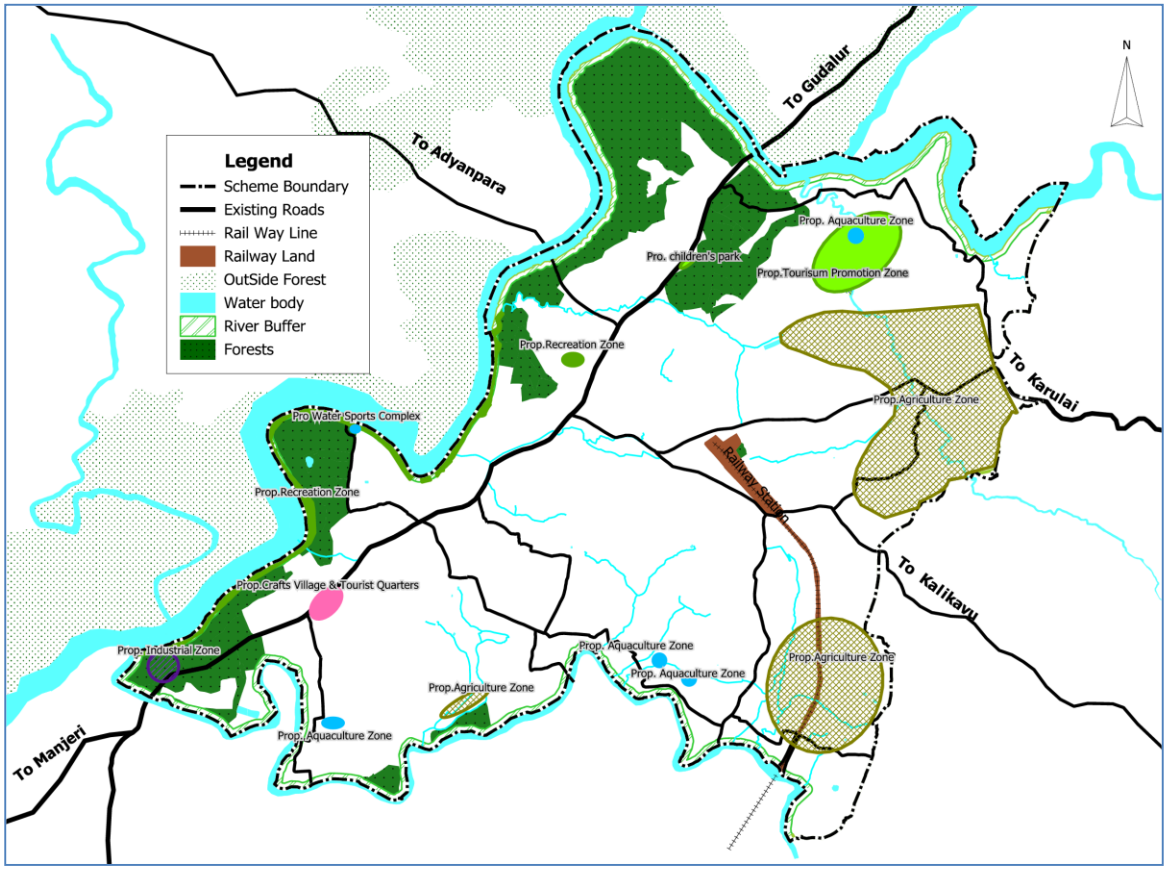


Figure 21-5 Development Concept –Productive Sectors- Industry, Tourism, Agriculture

Small, non-polluting industries are proposed to be promoted in the town which should ideally focus on value addition of resources available in the region including wood, forest products and agricultural produces. The indigenous cottage industries of Kumbharan community is to be promoted with financial, entrepreneurial, technological and infrastructural assistance and is to be firmly integrated with tourism sector to ensure better returns to the artisans as well as mainstreaming this community. The unutilized infrastructure of Kerala State Wood Industries at Vadapuram is to be revitalized to promote export oriented wood furniture manufacturing.

☆ **Suggested Connectivity**

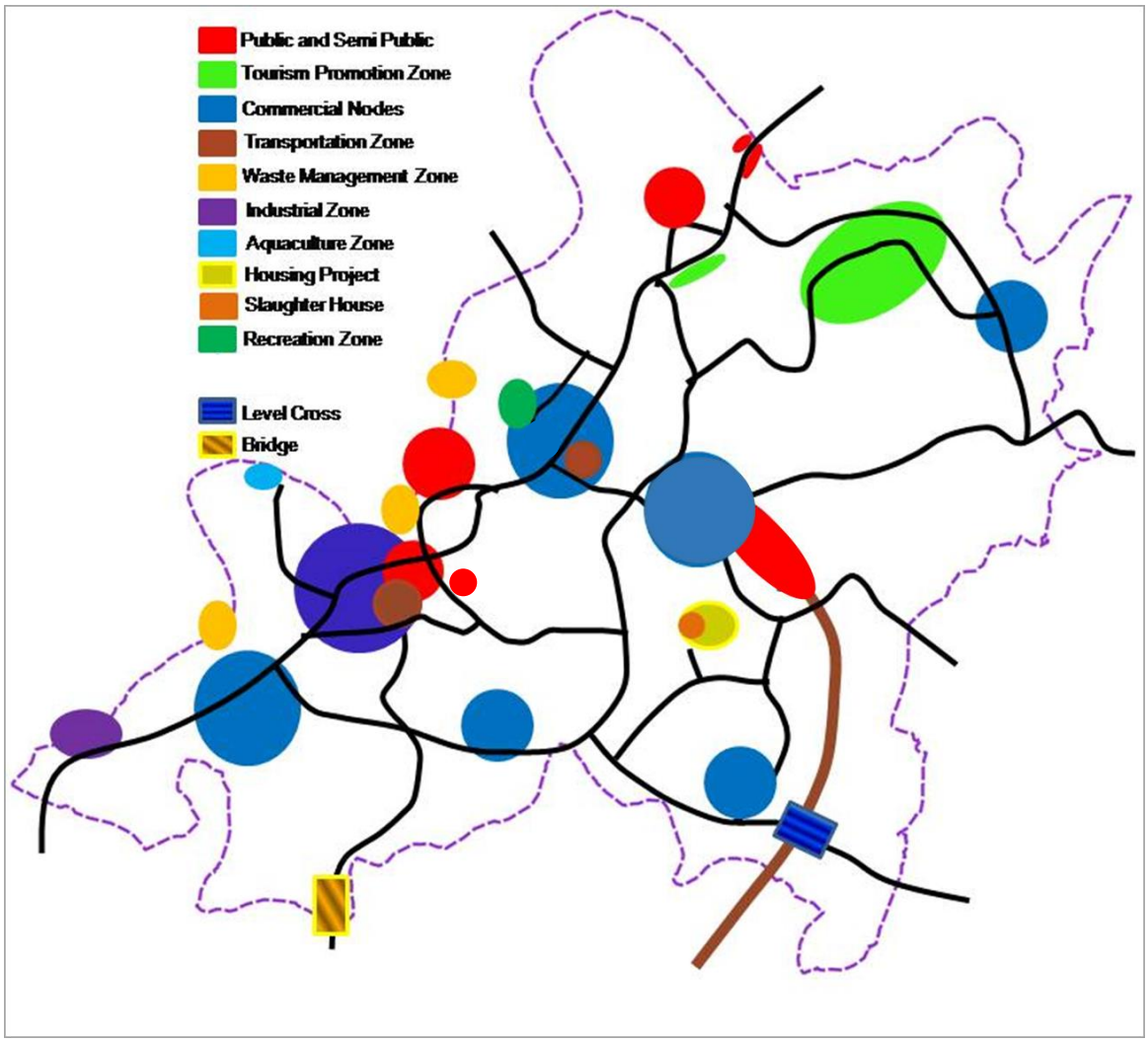


Figure 21-6 Connectivity between Functional Activities

The major roads in the town are the SH 28 (Calicut- Nilambur- Gudalur), SH 39 (Nilambur – Kalikavu Road), Nilambur – Karulai Road and the Adyanpara- Akampadam Road, which connect the town to the major urban settlements in the region and near-by LSGs. The Nilambur Road Railway Station also connects the town to Shoranur, Palaghat and Thiruvananthapuram. There are three bus terminals, a private terminal at Chanthakkunnu, the recently inaugurated Jawaharlal Nehru Nilambur Municipal Bus Terminal at Chettiangadi and the KSRTC stand at Aruvacode. The heart of the town is congested due to the inadequate road capacity and on-street parking. The town lacks bypasses or ring roads connecting major arterials. There are missing links in undeveloped areas and broken links due to the railway crossing the roads as well as river courses. The dependence on personal transport is increasing due to the inefficient and poor quality public transport as well as life style changes.

Hence the development concept in Traffic and transportation sector is to improve the transport network by introducing by-passes, widening of existing roads, completing broken links, junction improvement, introducing parking facility, organizing the public transport system efficiently by proper scheduling of routes. The proper connectivity of all tourist spots should be ensured. A bypass road beginning from Jyothipadi (Opposite OCK Auditorium) to Veliyanthodu via Mukkatta has been sanctioned, and is to be implemented. The Nanjangod- Nilambur Railway line connecting Mysore to Kerala via Niligiri district of Tamilnadu is under active consideration

and discussion for the implementation. It is observed that the proposed Nanjangud-Wayanad-Nilambur rail line project would act as a catalyst for the overall development of the region and it would also function as a connecting link among the major IT cities of Kochi, Hyderabad and Bangalore. Proper regulatory and informatory measures for the improvement of traffic condition at various junctions in Nilambur municipality shall be implemented. These developments eventually will serve to enhance the connectivity between the new nodes. A bridge across the Kuthirapuza River would help easy and direct traffic movement to Mampad Grama Panchayat. A Railway level crossing is also proposed at Ramamkuthu for easy access to the LSGs on the southern side of the municipality.

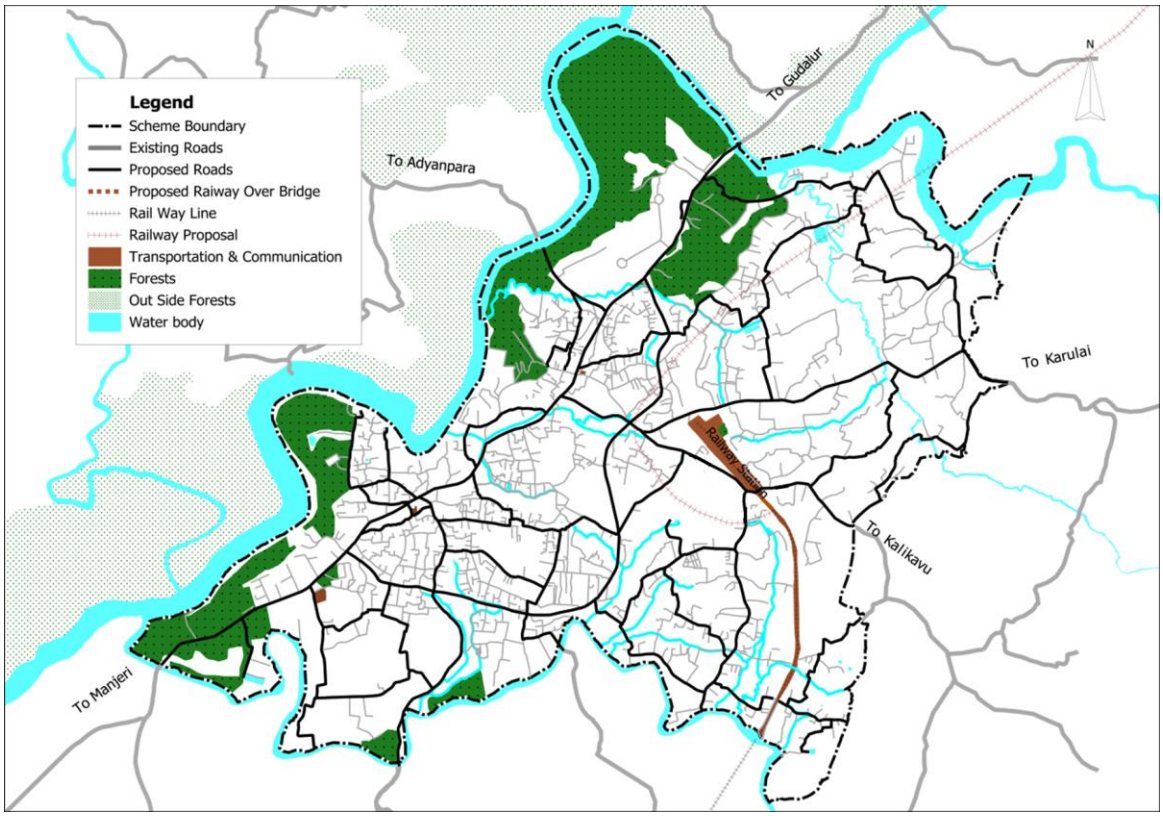


Figure 21-7 Development Concept - Connectivity

☆ **The City Development Concept – 2031**

Based on the vision goals and objectives setup and the above suggestions the Development Concept for the town is formulated. The major features are as follows.

- Hierarchical and decentralized commercial development is envisioned. Nilambur Town Junction remains the purely commercial node, while three second order nodes and three third order nodes are to be developed
- Administrative and Civic services to be improved by establishing New Municipal Office, Mini Civil Station, Town Hall, Convention center, recreational facilities and Library are the major public administrative projects proposed to be initiated
- Agriculture, Tourism and Small Scale industries to be focused and developed as the major contributors to the economy. Tourism Promotion zone, Aqua culture and Eco-tourism, forest and river trailing, recreation places, tourist infrastructure, industries etc are located

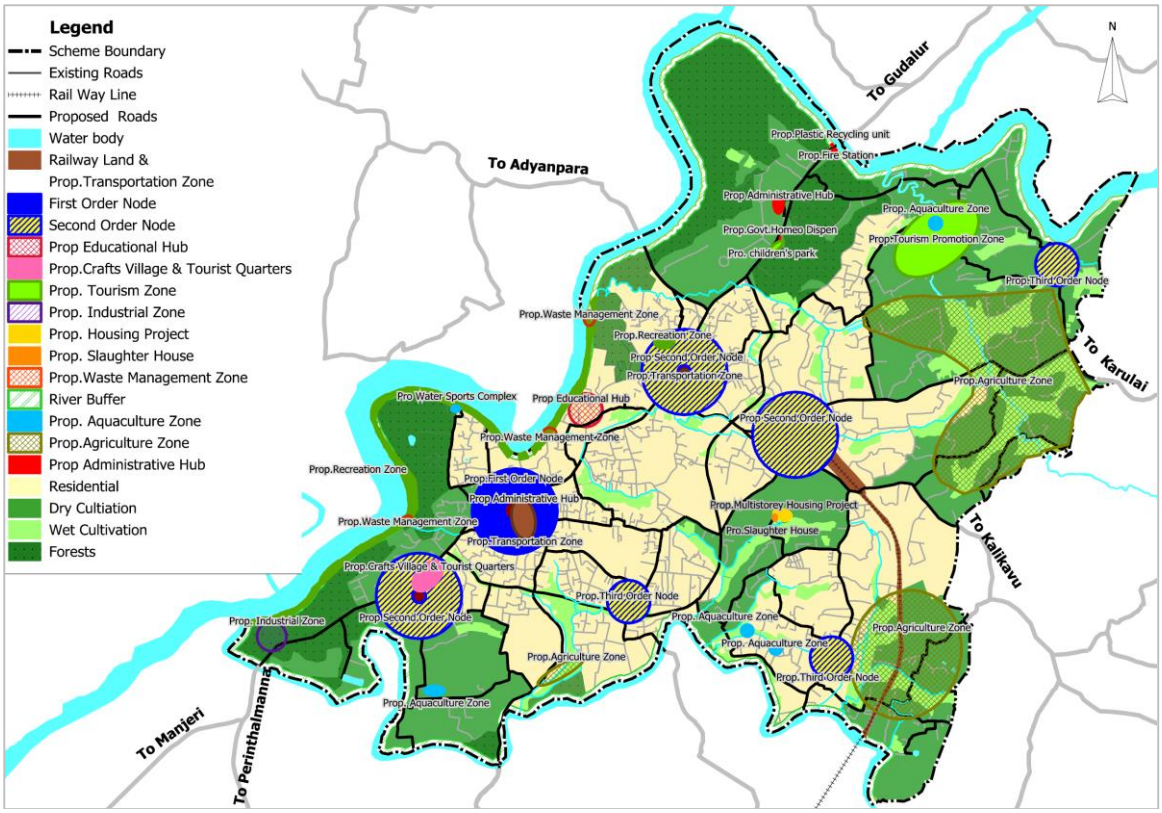


Figure 21-8 Development Concept

- Sanitation Measures including decentralized solid waste management and sewage treatment measures proposed.
- Higher educational facilities are proposed in the Government Manavedan School campus.
- Health care facilities in modern and traditional streams of medicine proposed to be improved.
- Transportation networks are proposed to be improved by introducing bypass road and the hitches caused by the railway line are dealt with by proposing a level crossing. and a Bridge to ensure better connectivity to nearby Panchayat is also proposed.
- Measures to ensure inclusive development of socially and financially backward communities are inbuilt.

21.6.3 Strategies for making Nilambur a 'Smart City'

Cities become smart while achieving smart economy, smart environment, smart mobility, smart living and smart governance by smart people. It is a combination of sustainable habitat and environmentally sensitive development and practice. Treated potable water, clean environment with less waste and proper waste management, energy efficient systems, healthy environment, smart planning and good governance are all components of a smart city.

While formulating the development concept and deciding the future proposals, the smart city indicators were considered. Smart city can be possible through the smart economy of the city. Nilambur is known for the best of nature and wild life that has in store for the tourist and manifested in a variety of ways in its extensive forests swarming with teak, venteak, bamboos, mahagoni, rosewood, choropin, etc. Nilambur is well-known for the tribal settlements in the forest area and also houses the world's first Teak Museum, vast rain forests and ancient

residences of maharajas called as Kovilakoms. The urban facilities and services for all these activities are to be developed.

The potential of the city as a tourist destination in the presence of forests, rivers, the oldest teak plantation in the world- "Conolly's Plot", the Teak museum, the *kovilakoms*- the palatial residences of the Nilambur Royal Family, is to be developed by improving connectivity and promoting ancillary health care facilities and institutions. The potential of the city to attract tourists with its serene nature and wild life in its extensive wooded forest areas are preserved. As the International Airport is only 45 km and the city is frequented by foreign tourists, it is felt that improving the recreational facilities and preserving the environmental quality of the town would attract more international tourists and enhance the tourism economy of the town and projects aiming at this are proposed.

Smart mobility is envisaged to be achieved through strengthening of existing corridors, developing bypasses, by providing Level crossing to ensure hindrance-free connectivity in the presence of the railway line and a bridge is also proposed to ensure better connectivity with neighbouring LSG. The Airport is also reachable within reasonable distance. Public transport is proposed to be enhanced keeping in mind its benefits to the economy, environment and quality of life of the common public.

Smart living can be achieved while feeling safety in movement, healthy environment and overall satisfaction in living conditions. Allocation of land uses were made to bring about balance in land utilization by providing ample green space, recreational open space, neighborhood parks, healthcare facilities and other amenities reachable to all. Quality of environment must be ensured by providing proper sanitation facilities including solid and liquid waste management.

Implementing a scientific drainage and sewerage plan is imperative for Nilambur, to prevent mixing of sewage with the natural streams, ensure the intactness and connectivity of natural drainage channel and prevent flooding during monsoons.

Green building technologies and use of renewable energies has to be promoted to ensure sustainability and just use of scarce resources. Incentives shall be given for green energy and green buildings in the form of additional buildable areas, tax waivers etc. However policy decisions and government interventions are necessary for this, in the absence of a defined framework in the state.

Inclusive development of all classes of inhabitants is taken care while zoning the land use. Affordable land for housing can be made available to the economically weaker sections, in dry cultivation areas, where they can utilize the land without disturbing the character of that area.

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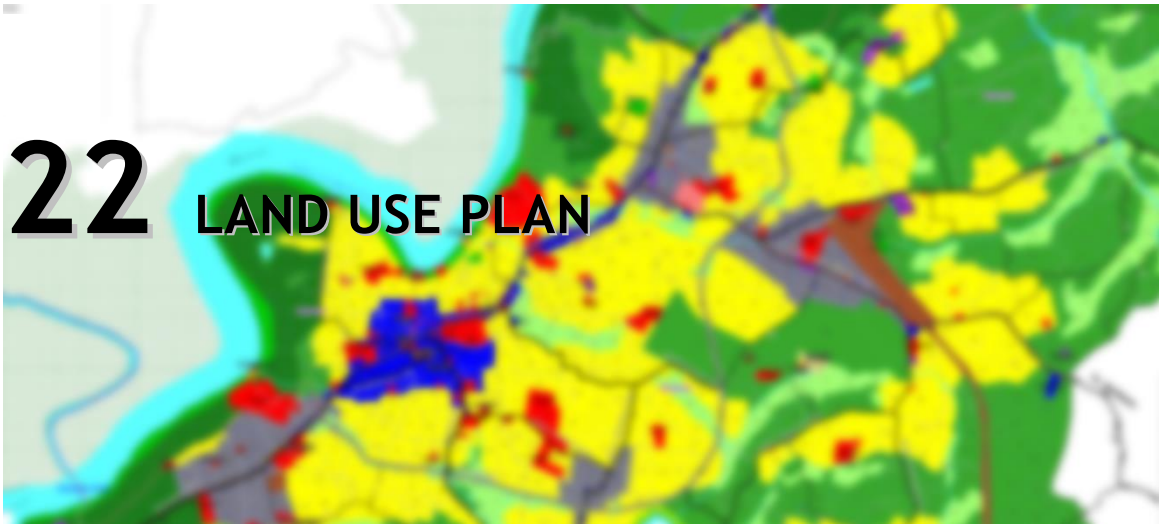


22 LAND USE PLAN

The land use plan is formulated considering the spatial structure of the town, inter linkages between various human activities on land, efficiency of transport network, trip generation characteristics of various land uses and the anticipated demand for land for various economic activities during the plan period. As per the landuse plan, the municipal area is divided into various zones of specific nature and purpose.

The physical infrastructure is concentrated in the central business area and hence with marginal investment in infrastructure this area can contain more people and economic activities. The other surrounding junctions are developed in orderto decentralise commercial and social activities, which in turn help to reduce traffic problems and increase the efficiency of the existing infrastructure.

This chapter defines each zone in detail, explains the purpose of the zone and the total extent of each zone.








Table 22-1 and Figure 22-1 represents the proposed distribution of various land uses in the municipal area. Around 40% of the Municipal area is proposed to be utilised for urban purposes including residential, commercial, industrial, transportation & communication, public

& semi-public facilities, parks, recreational spaces, tourism activities and ancilliary facilties and utilities.

Table 22.1: Proposed Land Use 2034

Land Use	Area (Ha)	% of Total Area
Residential Zone + Housing Project	656.09	22.10
Commercial Zone	44.80	1.51
Mixed Use (Residential cum Commercial) Zone	129.71	4.37
Industrial Zone	12.01	0.40
Public & Semi public Zone	84.36	2.84
Traffic & Transportation Zone	163.99	5.52
Park & Open Spaces Zone	33.15	1.12
Dry Cultivation Zone	994.66	33.50
Wet Cultivation Zone	233.53	7.87
Tourism Promotion Zone	15.35	0.52
Environmentally Sensitive Zone	56.66	1.91
Water body	120.20	4.05
Forests	419.92	14.14
Hazardous Zone	1.15	0.04
Crematoriums/ Burial Ground	3.43	0.12
Total Area	2969	100.00

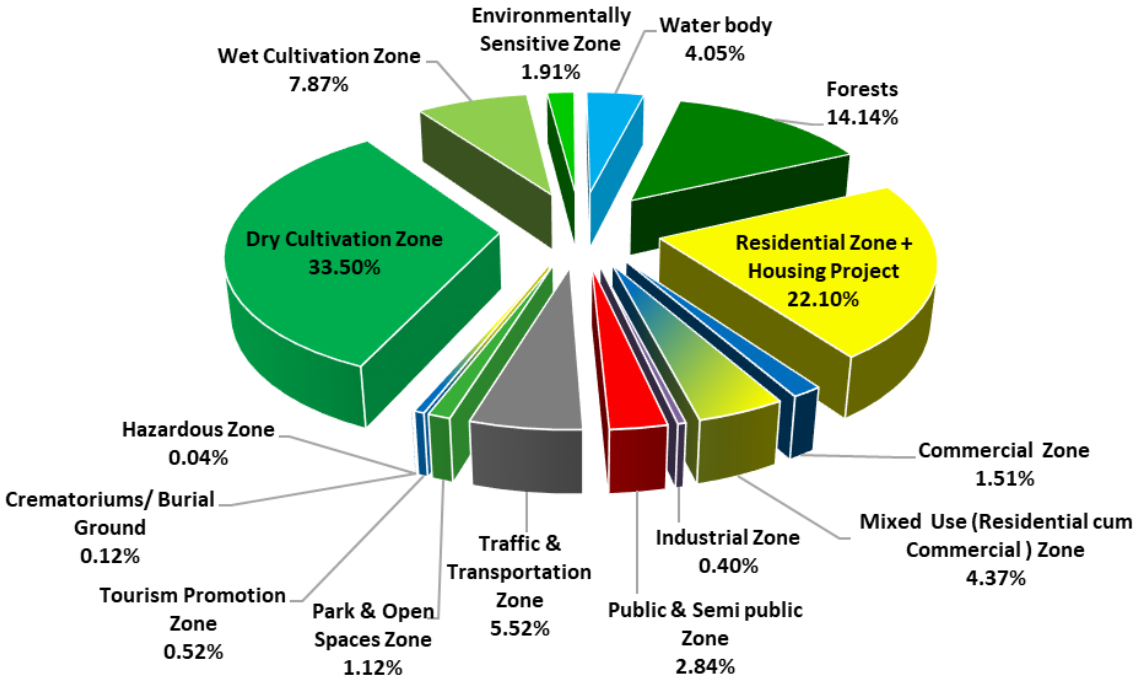


Figure 22-1 Proposed Land Use break-up 2034

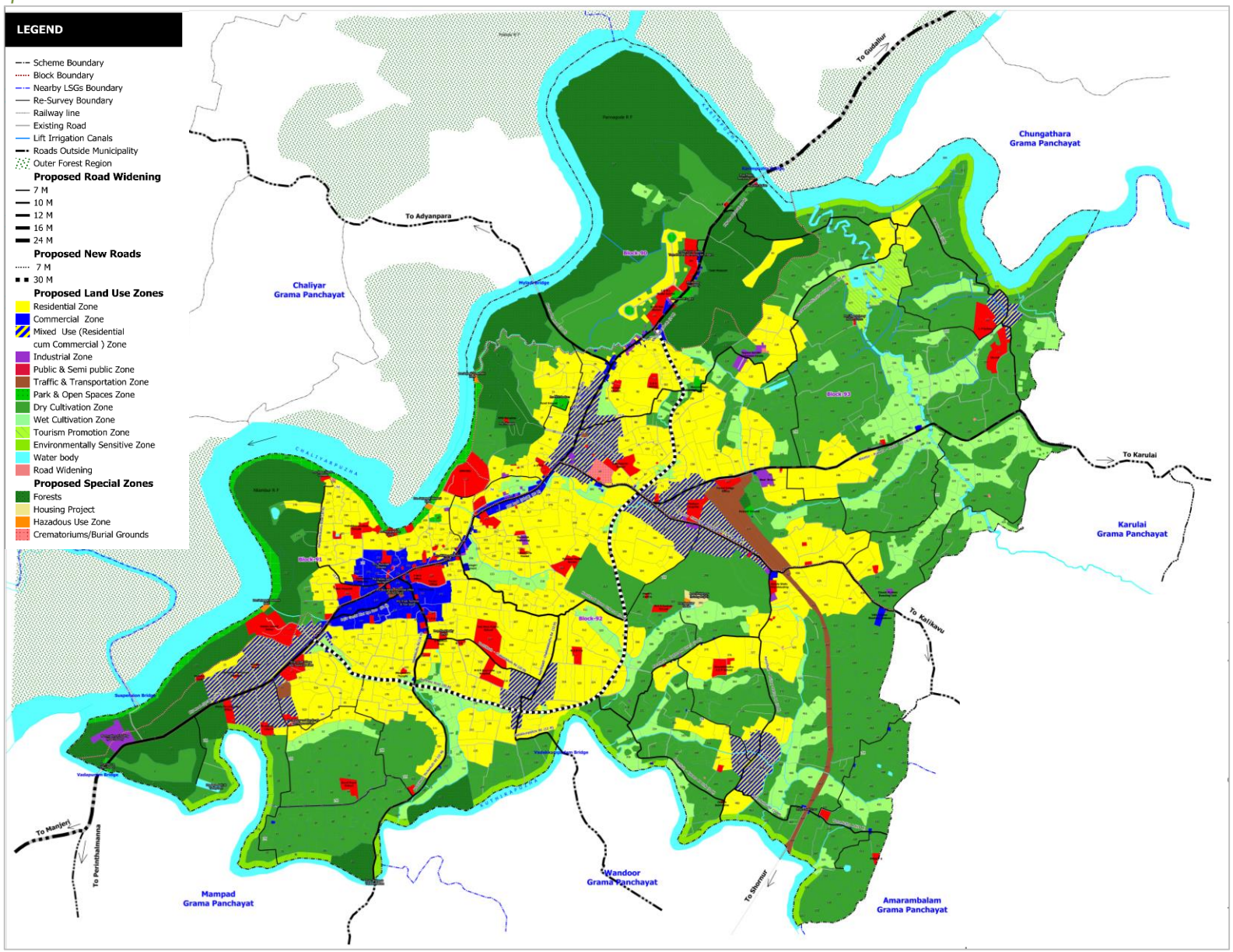


Figure 22-2 Proposed Land Use 2034

22.1 Residential Zone

The proposed residential zone spreads over 656.09 Ha of municipal area, besides half of Mixed Zone is considered as residential use. Thus the total area under residential land use comprises around 24% of the total municipal area. In addition to this, low density residential activity is permissible in commercial zone, dry cultivation area, river buffer and Tourism Promotion zone. The land required for housing needs shall be adequate and the net residential density shall remain below the values stipulated for a medium town throughout the plan period. The residential use is provided in a continuous manner except for natural barriers like water ways, roads etc in order to ensure compactness and this easy provision for basic amenities and infrastructure.

22.2 Commercial Zone

The concept in commercial development is to increase the land under commercial activities in a hierarchical commercial development pattern. Commercial zone is proposed around the proposed 1st order node, Nilambur Junction. Besides, half the area under Residential Mix Zone is also considered commercial. Proposed share of commercial area in medium towns as per URDPFI Guidelines is 4-5% of developed area. The proposed commercial area in Nilambur is 3.7% of total municipal area and 4.6% of developed area [ie, Total municipal area-(area of Forest + Water body)].

22.3 Mixed Use(Residential cum Commercial) Zone

Mixed Use Zones are allocated at regions around the following junctions namely, Kodathipadi, Mele Chanthakkunnu, Railway station, Ramamkuthu, Chakkalakuthu and Enanthi which are proposed to be developed as 2nd order and 3rd order commercial nodes. An extent of 129.71 Ha is zoned for mixed residential and commercial land use. The identified areas are ideal for both the use and the share of each use in this area shall be determined by the dynamics of development and this offers maximum flexibility in land use regulation. This shall cover the demand for commercial development in the town. This constitutes 4.37% of the planning area.

22.4 Industrial Zone

The Kerala Wood Industries that is to be revamped for export oriented furniture manufacturing, and the existing major industrial areas are marked as industrial zone. The practice of zoning land under private ownership without solid acquisition proposals is found to be counterproductive since this necessarily doesn't attract industrial investment, but freezes the use of valuable urban land. Hence, no new industrial area is marked in the land use plan. Besides, the existing minor industrial areas are merged with the major adjacent use. However, developments, as permitted by the Kerala Municipality Building Rules in force, shall be allowed in such industrial areas irrespective of the zones they fall in. The need for industrial land use is also addressed by allowing small scale industries of non-polluting nature in residential, mixed use and commercial areas. Besides, all types of industries are allowed in dry agriculture area subject to certain regulations. These steps shall be adequate to ensure the availability of sufficient land for industrial development in the municipality.

22.5 Public & Semi Public Zone

The study of existing land use reveals that the Public and Semi Public Uses in the planning area do not sum up to even half of the requirement as per standards. Being the Taluk Headquarters and the most important service centre of Eastern LSGs of Malappuram, it is

imperative to save the existing land as well as to pool more land under this use to meet the future needs. Hence, the Public and Semi Public Zone is proposed so as to retain the existing public and semi-public uses, including religious uses. Only incidental uses to the main use are proposed to be additionally permitted in this zone. Provisions are in-built in development controls to allow expansion of Public and Semi-public uses to adjacent land. Major proposals in existing Public and Semi-public land are Mini Civil Station, Town Hall, Performing Arts Theatre, Crafts Village and Museum. This zone constitutes 84.36 Ha, around 2.84% of the planning area.

22.6 Traffic and Transportation Zone

An extent of 163.99 Ha is coming under the traffic and transportation zone. The major share of this extent is area covered byroads. The municipal road network has a fair coverage. Hence no major new roads are proposed. Widening of existing roads and providing a few missing links only are attempted, besides the implementation of the sanctioned bypass for KNG Road. The land under this zone also covers bus stands, Bus bays, Taxi stands, railway land etc. It is proposed to extend the new bus stand at Chettiangadi.

22.7 Park & Open Spaces

Parks and recreational open space occupy 33.15 Ha of land. In this case also, only the land under public ownership is considered. The proposed facilities include Mini Stadium; Parks at Vadapuram and Jawahar Colony junction, tourism oriented infrastructure in government land along Chaliyar River etc.

22.8 Dry Cultivation Zone

The proposed dry cultivation zone has an extent of 994.66 Ha, 33.50% of the municipal area. Preservation of agricultural areas is essential for Nilambur as it forms the back bone of local economy. Lower order residential aimed at affordable housing, commercial, industrial, and public and semi-public uses are also proposed in this zone.

22.9 Wet Cultivation Zone

The paddy fields in the planning area are proposed to be preserved. However, the pressure on paddy fields for conversion to other urban land uses is tremendous, especially on those which fall along major transportation corridors or are contiguous with urban uses. So, conservation of paddy is proposed in all possible areas for maintaining environmental quality and the land use in these areas are to be strictly regulated. No construction or land development activities are permitted in this zone, other than that permitted by the Paddy land & Wet land Act 2008.Around 7.87% of the planning area falls in this zone.

22.10 Tourism Promotion Zone

An area of 15.35ha is earmarked for this zone at Mutheeri, around a water body which is proposed to be revitalised. Farm Tourism, Home stays, Single family residential and Cottage industries will be permitted in this zone. All uses permitted in Park and Open spaces Zone are also acceptable. It is assured that only low density residential structures will be permitted here.

22.11 Environmentally Sensitive Zone

50m buffer along the river is earmarked as environmentally sensitive areas and assigned special developmental controls, in view of protecting the bio-diversity, natural drainage, and prevent encroachment of river banks and water bodies. Developmental and construction

activities are not envisaged in this area other than those structures required for water supply and irrigation, embankment protection, activities for biodiversity and environment conservation, agriculture, horticulture, aquaculture, fisheries related infrastructure like Fish landing centres and boat jetties. These areas are also expected to serve as a recreational open space for the locality. All uses permitted in 'Water bodies' and Cottage Industries, Single family residential buildings are also permitted.

22.12 Water Bodies

Water bodies in the planning area are preserved under this zone. Fisheries, inland navigation, water supply related infrastructure and water sports related infrastructure as well as aquaculture activities are permitted in this zone, which covers approximately 4.05%of the planning area.

22.13 Special Zones

22.13.1 Forest

An extent of 419.92 Ha is covered by forest land, which is 14% of the municipal area. Only those activities permitted by the Forest Department are proposed to be permitted in the zone.

22.13.2 Housing Project

Housing for Economically weaker sections is envisaged in Resurvey No. 383,396 of Block No.92 at Muthukad and will be implemented as per the DPR prepared by the Municipality.

22.13.3 Hazardous Use Zone

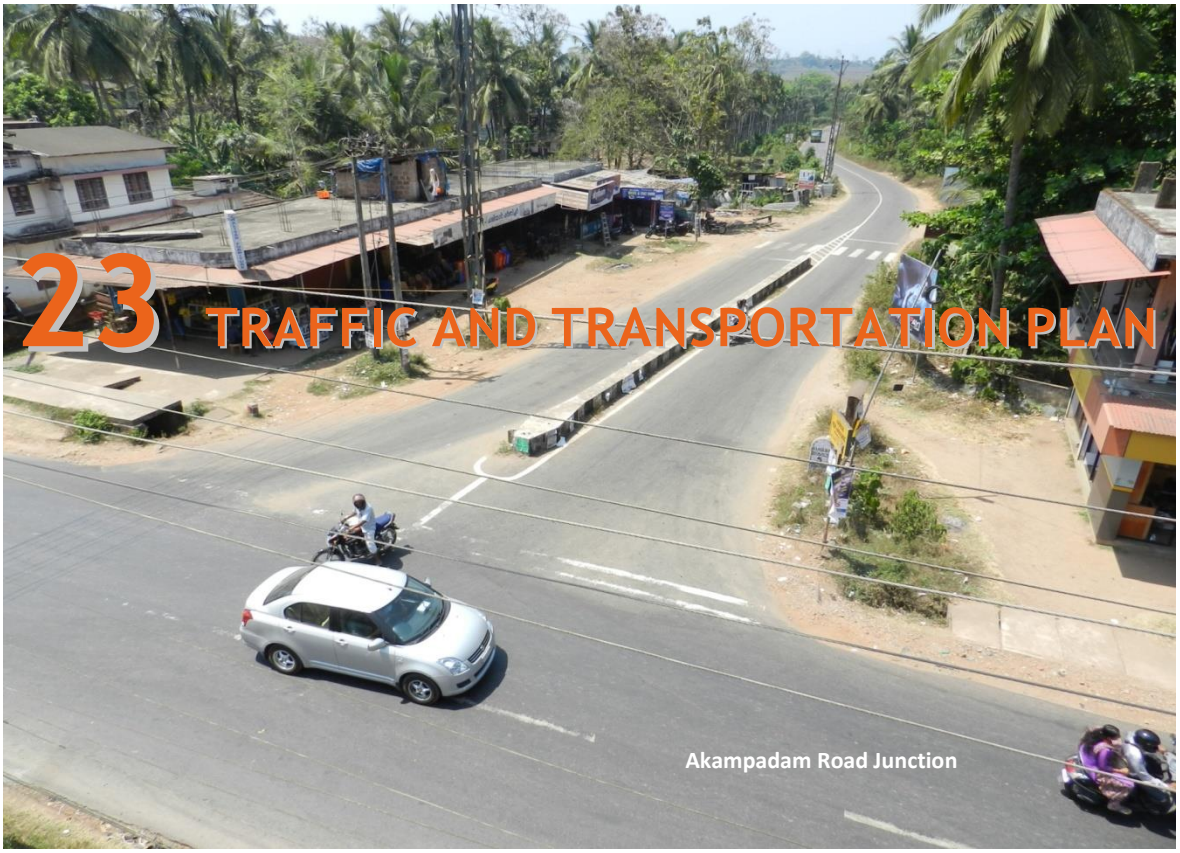
Decentralized sewage treatment plants (3 no.s) and ancillary facilities are proposed at the govt. land in Resurvey No. 242, Block No.91 along Chaliyar River, at the joining of Veliyamthodu, thodu near AR camp and thodu near Manavedan School.

A plastic recycling unit where, e-waste processing and plastic waste processing are permitted is proposed near Karimpuzha Bridge in Resurvey. No 78 of Block No. 90.

A modern hi-tech abattoir is proposed in the land owned by municipality at Muthukad in Resurvey No. 396 of Block No.92.

22.13.4 Crematoriums/ Burial Ground

Existing burial grounds/cemeteries/ crematoriums are included in this zone and modernisation/reconstruction/addition to the existing facilities are permitted in these areas, complying with the provisions of the Kerala Municipality Building Rules in force. This zone constitutes an area of 3.43Ha, which is 0.12%.



23 TRAFFIC AND TRANSPORTATION PLAN

23.1 TRAFFIC PROJECTION

A long-term transportation plan serving the region in the future is a fundamental requirement of any master plan. Thus, it becomes necessary to forecast the future travel pattern for the horizon year. Traffic projection helps in evaluating the inadequacies in the road network and further help to plan the road improvements, augment the facilities such as, providing new roads, developing missing links, bypass road etc.

In the case of the Nilambur municipality, traffic projection was carried out using the average growth rate method. It is a simple version of the trend extension method and is the application of the historical rate to future growth.



Traffic in Kerala has been growing at a rate of 10-12% every year. As In the absence of the past traffic data for the Nilambur Municipality and Nilambur being a medium class town, it is assumed that the traffic is growing at the rate of 11% every year, which is an average traffic growth rate of the medium sized towns in Kerala.

Table 23-1: Projected Volume and V/C Ratio of Major Corridors of Nilambur on 2020 and 2030.

Sl. No	Road	Count Location	Capacity (PCU/hr)	Projection 2020		Projection 2030	
				Volume (pcu/hr)	V/C	Volume (pcu/hr)	V/C
1	KNG Road (SH 28)	Kodathipadi	1500	2925.81	1.95	6144.20	4.10
2	KNG Road (SH 28)	Thazhe Chanthakkunnu	1500	5405.58	3.60	11351.72	7.57
3	Veettikkuthu Rd	PG hospital	900	1873.55	2.08	3934.45	4.37
4	LIC road	LIC Office	900	379.67	0.42	797.30	0.89
5	District Hospital Rd	Congress Office	900	790.31	0.88	1659.64	1.84
6	Keerthipadi–Chakkalakuthu Rd	Subrahmanian Temple	900	717.74	0.80	1507.24	1.67
7	KNG Road (SH 28)	Vadapuram	1500	2008.07	1.34	4216.94	2.81
8	KNG Road (SH 28)	Karimpuzha	1500	1499.19	1.00	3148.30	2.10
9	Nilambur-Mukkatta-Kalikavu Road (SH 39)	Athirthi	1200	622.16	0.52	1306.53	1.09
10	Nilambur-Mukkatta- Karulai Road	Forest office	1200	661.10	0.55	1388.30	1.16

The projections indicate that all the road sections under consideration except the LIC road will need improved capacities to cater to the increased traffic volume by 2030, KNG Road (SH 28) and Veettikkuthu road inviting the most urgent attention.

23.2 MAJOR ROAD PROPOSALS

The major road in Nilambur, the KNG Road (SH-28) has been analysed in Three stretches as given in Table 23-2.

A 30m wide by-pass connecting all four major roads in the town, from southern end of KNG road (SH28) to northern end, crossing Nilambur- Mukkatta- Karulai Road and Nilambur - Mukkatta- Kalikavu (SH 39) road has already been sanctioned by the state government. This will help to divert the traffic from the CBD and reduce traffic congestion. The railway station passenger trips can also be catered away from the main commercial areas with this measure. While it is observed that the functioning of the 30m wide new by-pass from Jyothipadi to Veliyamthodu will distribute the traffic flowing into the town from Vadapuram through KNG Road, additional width is required in the commercial areas (SH28, SH39) for provision of service lanes and parking facilities on both sides. Besides, the implementation of Nanjangod railway line will generate additional traffic in all major roads. Hence, the beginning and the end stretch of CNG Road is proposed with a width of 32 m by 2034, and the width for the Jyothipadi - Chanthakkunnu stretch which will be supported by the new by-pass of 30m width, is fixed to 21m. Thus, the required 45m along CNG Road (SH 28) from Jyothipadi to Chanthakkunnu will be sufficiently achieved by parallel functioning of both CNG Road (SH 28) and By-pass road.

However, considering the objections and suggestions received by special committee on the Published Draft Master Plan, following changes are made for the KNG Road. The Jyothipadi-Karimpuzha Palam stretch has been proposed as 16m Road as this particular stretch is heavily developed with commercial buildings on both sides from Jyothipadi to Chanthakunnu. The

Pathipara- Karimpuzha Palam Stretch is having residential built up consisting of economically weaker sections. The Road widening proposal of KNG Road(SH 28) were divided into two stretches considering the wide protest from the public as well as the ongoing work of Nadukani-Parappanangadi State highway project were the acquisition is already under progress and construction of road is going on for 12m widening of the road.

Table 23-2 : Proposals for State Highways

Road	Count Stretch	Design Services Volume 2024 (@70%)	Proposal	Proposed width (M) 2024	Design ServiceVolume2034 (@70%)	Proposal	Proposed width (M) 2034
SH 28	Vadapuram to Jyothipadi	1406	2 lane two way arterial	12	2952	4 lane divided two way subarterial	32
	Jyothipadi to Chanthakkunnu	3784	6 lane divided two way subarterial	21m + 30m new By-Pass	7946	8 lane divided two way arterial	21m + 30m new By-Pass
	Chanthakkunnu to Karimpuzha	1049	Nil	-	2204	4 lane undivided two way subarterial	32
SH 39	Nilambur – Mukkatta-Kalikavu Road	436	Nil	-	915	2 lane two way collector street	16

The 24/30m wide road would suffice a 6 Lane Divided Two Way arterial road as presented in Figure 23-1 & 23-2 along with a 16m arterial road. (Figure 23-3)

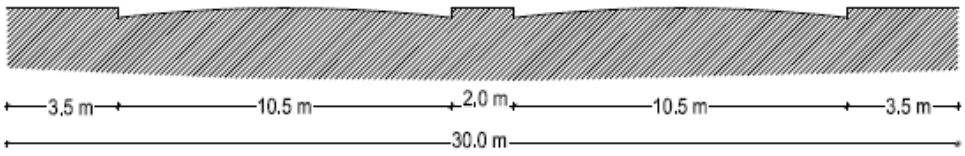


Figure 23-1Cross-section of 30m wide road

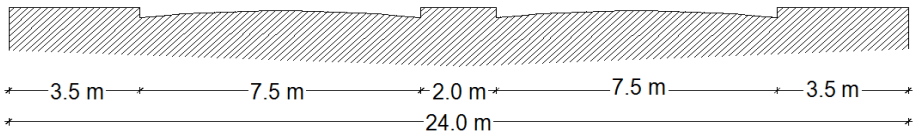


Figure 23-2Cross-section of 24 m wide road

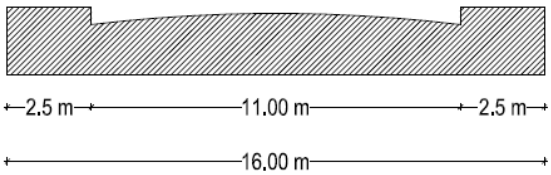


Figure 23-3 Cross section of 16 m wide road

The Nilambur - Mukkatta - Kalikavu (SH39) road is proposed to be widened to 16m throughout the stretch (Figure 23-3). Considering the proposed and existing commercial areas, as well as the additional traffic generated with the implementation of Nanjangod railway and hill highway projects, additional widening than that required as per normal traffic projections, is proposed for this road.

23.2.1 Important Collector Streets

The important roads connecting the town to the near-by LSGs, Nilambur–Mukkatta-Karulai Road and Akampadam Road, are proposed to be widened to 16m. The Veettikkuthu Road is proposed to have a width of 16m from Nilambur Junction till proposed Bypass road followed by 12m wide Veettikkuthu – Thrikaikuthu Road till Mampad. A new bridge is proposed across Kuthirapuzha at Varedampadam, leading to Mampad Grama Panchayat. Vadakumpadam road to Wandoor is proposed with a width of 12m.

23.2.2 Link Roads

The town has a few link roads. These roads need strengthening. Besides, a number of link roads have to be built in order to divert the projected volume of traffic from the arterial routes and town centre. This shall ensure easing of the traffic in the town.

The roads forming networks between the bus stands and linking the collector roads are to be widened for smooth movement of the projected traffic., Rajiv Gandhi mini- bypass and the Keerthipadi-Chakkalakuthu roads are proposed to have 12m width. Asupathrikkunnu Road is proposed to have 10m road width.

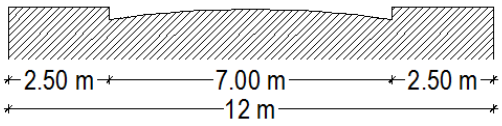


Figure 23-4Cross section of 12 m wide road

Several other links as shown in the Table 23-3 are proposed to be widened to 10m. These include the Veettikkuthu - Chakkalakuthu Rd, Ramamkuthu – Railway Station Rd, Ramamkuthu By-pass Link 1, Ramamkuthu By-pass Link 2, Ramamkuthu Road and Chanthakkunnu – Mummuli – Pathippara Road. A level crossing is proposed at Ramamkuthu, to facilitate transportation along the proposed Ramamkuthu Road, connecting to Amarambalam Panchayath.

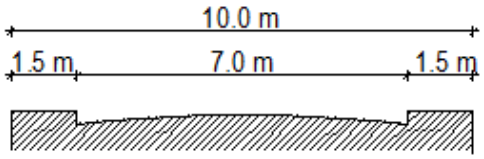


Figure 23-5 Cross-section of 10m road

Table 23-3: Major Road Proposals

Sl No	Name of Road	Existing Width	New/ Widening	Prop Width Mts	Length in Mts
1	KNG Road (SH-28) (Vadapuram - Jyothipadi)	14.4	Widening	24	2093
2	KNG Road (SH-28) (Jyothipadi – Karimpuzha Palam)	11.5	Widening	16	5516
3	By Pass Road	0	New	30	5934
4	Veettikkuthu Rd	11.8	Widening	16	1006
5	Nilambur - Mukatta - Karulai Rd	12.5	Widening	16	3883
6	Nilambur – Mukkatta- Kalikavu Road (SH 39)	10.6	Widening	16	3223
7	Akampadom Rd	7.5	Widening	16	884
8	Veettikkuth -Thrikaikuth Rd	8.9	Widening	12	2004
9	Vadakkumpadom Rd	8	Widening	12	725
10	Rajiv Gandhi Mini Bye Pass	8.4	Widening	12	748
11	Keerthipadi - Chakkalakkuthu Rd	6	Widening	12	1854
12	Classic College Rd	5.5	Widening	12	62
13	Asupathrikkunnu Road	7	Widening	10	1330
14	Chanthakkunnu-Mumuli-Pathippara Rd	7.6	Widening	10	4189
15	Enanthi Road	6.8	Widening	10	4229
16	Ramamkuthu - Railway Station Rd	4	Widening	10	2286
17	Ramamkuthu Rd	7	Widening	10	1488
18	Veettikkuth - Chakkalakkuth Rd	7.5	Widening	10	1063
19	Ramamkuthu - Byepass Rd Link 1	8	Widening	10	1607
20	Ramamkuthu - Byepass Rd Link 2	6.2	Widening	10	1460
21	Keerthipadi Bypass Link Rd	6	Widening	10	280

Table 23-3 above lists out the proposals for increasing capacity of major roads in Nilambur, by providing six/four lane roads in the major arteries and upgrading some collector streets to two lane arterials. All other collector roads are proposed to be widened to 7m.

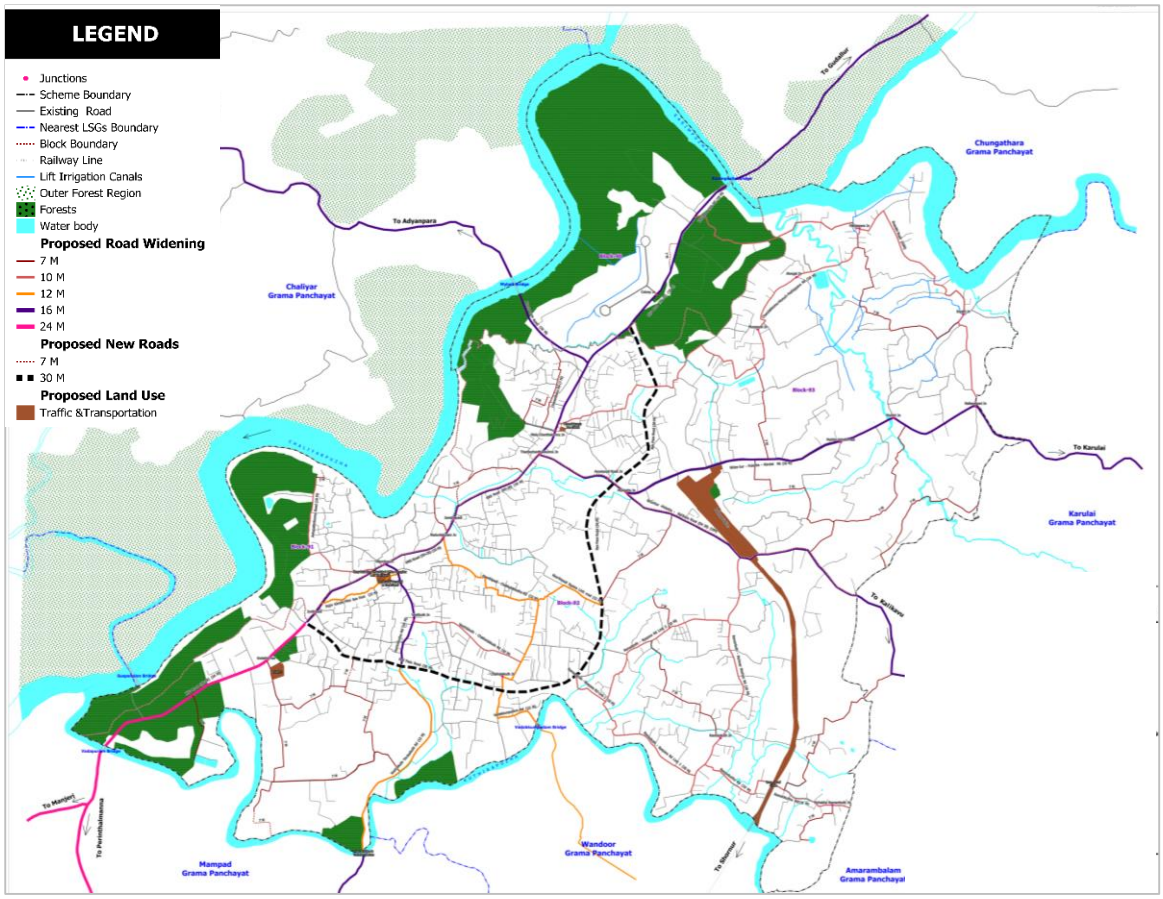


Figure 23-6: Proposed Road Network and transport terminals

23.2.3 General proposals for improvement of traffic network

1. The use of public transport should be encouraged in municipal area. This can be done by means of introducing an effective public transport system such as low floor buses to the nearest towns or as city services. This will reduce the volume of private vehicles on the entire road stretch.
2. To enhance connectivity within the Taluk, bus services shall be introduced on Veettikuth – Thrikkaikuth -Mampad, Keerthipadi –Ramamkuth -Koottampara and Keerthipadi - Ramamkuth – Thondivalavu routes.
3. The width of all local and municipal road stretches should be increased to at least 7m to increase the capacity and ensure a smooth traffic flow.

23.3 JUNCTION IMPROVEMENT PLANS

Nilambur municipality lacked proper placement of traffic signs which helps to promote road user safety. Also, traffic signals are provided without necessary junction improvements. In Thazhe Chanthakkunnu signalized intersection the vehicles from the Chanthakkunnu to Mukkatta are designed as free left but there is no separate lane for this measure for the smooth flow of the vehicles in this location. Such unscientific measures should be corrected to improve the traffic flow. Proper regulatory and informatory measures for the improvement of traffic condition at various junctions in Nilambur municipality shall be implemented. It is recommended to provide proper signals at the junctions for effective regulation of both vehicles as well as the pedestrians.

Besides, it is recommended to provide a Round-about at Mukkatta junction to improve safety at this junction.

The efficient designing of the junction plays an important role in the efficient and smooth flow on road network. Proper road markings such as zebra crossing, carriageway lines etc. are vital for the safety of the road users. Provision of hand rails along the legs of the junction ensures pedestrian safety and handrail openings shall be provided at the zebra crossings. The vehicle must be stop before the stop line in the junctions as well as the other locations, which will improve pedestrians' safety and traffic culture of the road users.

The vehicle speeds shall be calmed to below 50 km/h in order to reduce accidents and pollution and thus making the area more pleasant for people.

23.4 PEDESTRIAN SAFETY

The absence of adequate foot paths for the pedestrians is an important problem in transportation infrastructure of the town, besides pedestrian markings were absent or faded. Hence proper measures should be adopted for the safety of pedestrians. At Elamkulam hospital, it is recommended to provide additional physical infrastructure such as railing barriers, sign boards, streetlights etc. Since there is only an intermediate rise in the cross-moving pedestrian volume, there is no need for providing additional physical infrastructure for cross movement. It is advisable to provide safety measures such as zebra crossing and proper handrails for the safe movement of pedestrians.

At Nilambur Junction Near Maharani Gold it is recommended to provide additional physical infrastructure such as railing barriers, sign boards, streetlights etc. It is advisable to continue the existing safety measures such as zebra crossing, police control etc.

Table 23-4: Indian Pedestrian Capacity Values

Width of side walk(meter)	Capacity in number of persons per hour	
	All in one direction	In both directions
1.5	1200	800
2	2400	1600
2.5	3600	2400
3	4800	3200
4	6000	4000

At Nilambur Junction (Near Persian Jewelry) it is advisable to provide standardized sign boards indicating speed limit etc to facilitate lateral movement of pedestrians. Adequate street lighting facilities should also be provided. Segregation of pedestrians and vehicles by the provision of raised footways can decrease pedestrian accidents. In the case of cross movements, it is advisable to continue the existing safety measures such as zebra crossings. As it is the main city center, this junction needs special patrol or guides for crossing the street. Medians and other refuge islands can also be provided.

At Mele Chanthakkunnu Junction, the pedestrian volumes are within capacity range provided by IRC. Hence we can continue the existing facilities.

At Mukkatta Junction, since there is only an intermediate rise in the pedestrian volume, there is no need for providing additional physical infrastructure. Even though the existing facility may satisfy the present pedestrian needs, lighting facilities should be provided along the major intersection legs. Also it is recommended to provide suitable traffic calming measures along the minor roads.

In front of the Police Station, since the pedestrian volumes are within capacity range provided by IRC (300 pedestrians/15mts one direction) and comparatively less, the existing facilities are sufficient. Road safety programs can be organized for safe crossing.

At Thazhe Chanthakkunnu, the pedestrian demand can be satisfied by providing adequate side walk of 1.5 m width; suitable railing barriers could be provided for controlling the lateral movement. The safety measures such as signs, lighting etc is recommended.

23.5 TRANSPORT TERMINALS

Nilambur is world famous for “Nilambur teak” and many people cultivating rubber as cash crop. Though the town is a centre of trade for wood and hill products there is no facility for truck parking in the town. In view of the proposed developments in industrial, tourism and agriculture sectors a truck terminal is imperative. Hence, a truck terminal is proposed along with Taxi stand near the New Jawaharlal Nehru Municipal Bus Terminal at Chettiangadi, with stay and refreshment facilities for the drivers and helpers.

23.6 PARKING

In most of our towns commercial buildings have come up without adequate parking facilities due to various reasons. The vehicles coming to these commercial centers are forced to park on the public roads seriously reducing the carrying capacity of these roads. The Draft Transport Policy for the State states that “For existing buildings and commercial complexes built without providing adequate parking space, such parking facilities will be built off-street by the local bodies at suitable locations and costs recovered from the building owners.” Further the policy outlines the initiatives required by the government by saying “Open and multi-storied parking facilities will be constructed by the government at important transport terminals, market centers, and multi-modal logistic centers to promote inter-modal transportation”. Facilities for parking of private vehicles as well as public carriers are vital for the smooth functioning of the traffic system of any town.

It is evident from the road inventory and analysis of parking data that most of the parking problems arise due to the shortage of parking space. The presence of unauthorized parking at many locations within the town becomes a catalyst to the parking problems in the town. Locations of auto rickshaw stands within the junctions and parking of vehicles on the curb space are a few of the causative factors of traffic chaos in the Nilambur municipality. Besides, the right of way of roads is encroached by commercial establishments for private parking, as well as by street vendors. Hence designated parking areas are proposed to be provided near Jawaharlal Nehru Municipal Bus terminal.

24 SECTORAL PROPOSALS



24.1 AGRICULTURE

- Homestead cultivation, kitchen gardens, terrace gardens and vegetable gardens in schools are proposed to be widely encouraged.
- Honey bee culture has promising potential in the town with the presence of forest and vast rubber plantations in and around the planning area and honey produced in Nilambur region already has a good market base. Hence honey bee culture is proposed to be promoted on a commercial basis through organized ventures.
- Value addition, branding and marketing of forest and agricultural produce including honey would ensure better returns to the farmers and hence are proposed to be taken up by the municipality.
- Agricultural processing and ware-housing facility should be improved. The land under the Kerala State Warehousing Corporation near Railway station, at Resurvey No.407 in Block No.92 with an extent of 150 cents, can be utilized for this.
- Nilambur is proposed to be transformed into complete organic agricultural zone by the end of the plan period. Certification, branding and marketing, initiatives for organic products have to be taken up, which will boost the farmer's income multifold.

24.2 ANIMAL HUSBANDRY

- Nilambur having a reasonably good agricultural base has got ample potential for allied activities like animal/poultry farming within its jurisdiction itself. Fodder is very essential for effective and profitable milk production, and can be easily promoted in the fallow agricultural lands. Cattle feed production is to be promoted, by building awareness, providing financial aid and seeds among the farmers to supply fodder at subsidy rate.
- Poultry farming, aiming at both meat as well as egg production, should be promoted in co-operative sector and with the help of Kudumbasree/Ayalkkoottam instead of importing from other states.
- A modern hi-tech abattoir is proposed in the land owned by municipality at Muthukad in Resurvey No. 396 of Block No.92.
- A model veterinary clinic is proposed to be established in the municipal area, land for which has to be identified.
- Jawahar Colony is proposed to be developed as a Model Farming Village with coordinated efforts from the Municipality and line departments. Suitable agriculture, horticulture, aquaculture, fodder cultivation and animal and poultry farming practices are to be identified and implemented.

24.3 FISHERIES

There is scope for more inland fisheries, including ornamental fishing. Eight locations listed below have been identified for development of aqua culture fields in the municipality. They are Mummulli, Payyampalli, Mayyanthani, Chandakkunnu, Vallappuzha, Patthippara, Ramamkuth and Enanthi. These could be developed as small scale water front recreation spaces as well, ensuring the farmers better income.

24.4 TOURISM



- Farm Tourism and Experience Tourism has ample potential in the study area and can be promoted in the agricultural farms in the municipality. There is possibility of converting potential cropped areas with minimum intervention to transfer the benefits of tourism directly to the farmers.



- Caravan tourism is proposed in Nilambur town, to meet the growing demand of accommodation at tourist destinations, especially in remote areas and in certain cases at places where a permanent construction may neither be permissible nor feasible. Caravans are a unique tourism product, which promotes family oriented tours even in circuits / destinations and will meet the present growing demand for eco, adventure, wildlife and pilgrimage tourism. Caravan tourism can effectively link the health tourism- consumers visiting Kottakkal and Perinthalmanna to Nilambur region.
- Tourism facilitation centers are to be constructed for providing appropriate facilities and infrastructure for tourists /campers. Efforts shall be made to facilitate hassle free movement of tourists inside the planning area.
- The architecture of the new upcoming buildings in hilly and ecologically fragile areas should incorporate creative architecture keeping in mind sustainability and energy efficiency and as far as possible in conformity with local art and architecture with use of local materials.

- **Tourism Promotion Zone**

An area of 15.42 hectares at Muthiri in Resurvey Nos 274,277,288,323, 329,330,331,338 of Block No.93 is earmarked as Tourism Promotion Zone to promote farm tourism, experience tourism, caravan tourism, home stays etc.

The water body in Muthiri area in Resurvey Nos 288 of Block No.93 in the proposed tourism promotion zone is proposed to be replenished by storm water run-off and rain water harvesting and thus made a perennial water body. Besides, the Veliyamthodu can be deepened and connected to this pond, so as to recharge it, availing water from Chaliyar. Aqua culture shall also be promoted here. Water sports and adventure are proposed to be launched in this water body, similar to the Karlad Lake Tourism Centre in Wayanad District, developed by DTPC. Modern adventure tourism facilities like zip line aerial rope slide, floating balls, kayaking, floating dining facilities, boating, fishing etc. are proposed to be introduced here.



- Unutilised ponds, at Vadapuram and Ramamkuth are proposed to be developed into Aqua parks, to create natural water body surroundings and thus promoting tourism. Aquaculture, Lotus farming etc can also be taken up at these ponds, to add on to the attractiveness of the project.
- River front developments by setting up bamboo parks, river trails, forest trails are also proposed especially in Resurvey No. 242 of Block No.91.
- Various water sports, Bamboo rafting etc. should be promoted through the Chaliyar river and tourist walk ways are proposed to be developed along the bank of the river.
- A Craft Village along with Tourist Cottages at affordable rates is to be constructed in forest land near KNG road in Resurvey No. 32 of Block No.92, with easy access and assistance of the forest office to the incoming tourists. The craft village is envisaged to showcase Kumbam, other traditional handicrafts of Kerala, cane furniture and handicrafts, bamboo products etc.
- The DFO Bungalow which is also maintained by the Forest Department is proposed to be developed into Art/Culture & Folklore Museum.
- A water sports complex is proposed in approximately 1 acre of land in Resurvey No. 242 of Block No.91 at Kovilakathumuri, almost 50m away from the Chaliyar river .



24.5 TRADE AND COMMERCE

- Nilambur Junction which is the major commercial centre in the town is proposed to be developed as a purely commercial zone. Other locations with prominent commercial activities are Kodathipadi, Chanthakkunu and Mukkatta Junctions and are proposed to be developed as mixed residential-commercial zone to strengthen the commercial network in the municipality.
- Three new commercial nodes are proposed, with mixed residential-commercial uses, at Chakkalakuthu, Ramamkuthu and Enanthi, to cater to the residential areas.
- The importance of Street vending as a livelihood option for the urban poor should be recognized. The tourism oriented commercial development has accumulated plenty of street vendors at various spots. Urban infrastructure and beautification schemes should protect street vendors and alternate viable trading sites should be sought. The Vadapuram Bridge having completed design life is being substituted by a new bridge which is under construction. The old bridge will remain free from vehicle traffic and will not be dismantled. In view of relocating the street vendors who are placed along the road sides at Vadapuram and near entrance of the Canolly plot, it is proposed to assemble these vendors on the old bridge, allowing only pedestrian movement over it.



24.6 INDUSTRY

- Utilizing the available infrastructure of Kerala State Wood Industries, an Export oriented furniture making industry is proposed to optimally utilize the available potential forest timber.
- Rubber based and agro-based industries including value addition of agricultural produces, animal produces, raw materials available in the town like teak, forest woods, rubber wood, etc are to be promoted in the municipality to ensure better returns for the farmer community.
- The ground breaking 'Kumbham Handicraft Project' shall be developed as an iconic cottage industry of Nilambur.
- A Pottery and Handicraft Development Unit is proposed near Kumbhara Colony in Resurvey No 522 of Block No. 92 at the currently unutilized building site of Mahila Samajam, specially aiming at mainstreaming the marginalized women of Kumbhara community.
- MSME units focusing on women-friendly manufacturing/ assembling/processing are to be promoted aiming women empowerment.
- A plastic recycling unit where, e-waste processing and plastic waste processing are permitted, is proposed near Karimpuzha Bridge in Resurvey. No 78 of Block No. 90.

24.7 HOUSING

THE projected demand for housing during the plan period indicates the need for public intervention in providing affordable housing and further densification of residential land use. The projected housing shortage is worked out by adding the difference between the number of households and number of houses to the number of houses that need replacement. So, the projected shortage is worked out as 4146 housing units, considering the service life of a normal residential building to be 40 years, it is presumed that 25% of the housing stock shall need replacement in a decade. The existing household size of 4.54 is assumed to reduce to 4 in the plan period.

Table 24-1 Housing Demand & Housing Shortage (Source: Derived from Census Data 2011, Local Body)

Year	Population	HH Size	No. of Households	No. of Houses	Diff. b/n houses and households	Replace-ment	Total Shortage
1991	34966	5.64	6198	-	-	-	-
2001	41264	5.15	8009	-	-	-	-
2011	46345	4.54	10219	9830	389	393	782
2021	50816	4.16	12208	10219	1989	2458	4447
2031	55200	4.00	13800	12208	1592	2555	4146

- It is proposed to establish a housing scheme to cater to the landless households of the municipality at Muthukad, in the 220 cents of municipal land in Resurvey No. 383,396 of Block No.92.
- A comprehensive plan for improving the quality of living at substandard housing clusters has to be drawn up. The settlements are proposed to be redesigned to ensure land for public amenities and recreational open spaces for the residents.
- Sampoorna Bhavana Padhathi which is helping the financially weaker section of the municipality in housing sector is proposed to be taken forward to ensure better housing infrastructure in the Municipality.
- The housing needs of middle and low income groups can be solved to certain extent through ensuring availability of affordable land in certain peripheral areas.
- Housing of migrant labour is a policy matter that has to be addressed immediately at State level.

24.8 WATER SUPPLY

The projected demand of water supply in the town is estimated at 7.45 MLD (Population of 55,200 @ Per capita requirement for domestic purposes = 135 lpcd Ref: CPHEEO Manual). Assuming 75% piped water, the actual demand is calculated to be 5.60 MLD. With the commissioning of the Kerala Water Authority Water treatment plant at Nilambur and the OHT at Aruvacode, 3.3 MLD piped water will be available to the residents of Nilambur. This will help to extend water to almost all the scarcity areas in the town.

- The Kuthirapuzha river on the Eastern side of the Municipality has a potential for a new water supply scheme, to cover the remaining requirement of the town, which has to be taken up by the municipality.
- Rain water harvesting, recycling of waste water, reducing losses, protection of potential water sources like tanks/ponds and conception of water supply projects using them, ground water recharge measures, strict enforcement of mandatory rainwater harvesting requirements in large projects etc. needs serious consideration.
- Regular maintenance of damaged pipelines and assessment of water quality must be

ensured.

- Integrated drainage system should be designed and implemented in the town subsequently, to avoid contamination of water resources.
- Financial assistance should be provided for the construction and maintenance of public wells.

24.9 ENERGY

- The existing 66 KV sub-station is to be upgraded to 110 KV under the routine expansion programme of KSEB and to cover the increased energy demand, in the same compound. Several new transformers are to be installed and a few existing transformers are to be enhanced.
- In the context of promoting tourism in the town, from the urban aesthetics approach, the overhead electric lines are proposed to be converted to underground cables, so as to remove the obstruction in view.
- To promote use of non-conventional sources of energy it is proposed to use solar panels for street lighting in the town.
- Also, incentives may be provided for solar powered buildings and green buildings as per government policies from time to time.

24.10 SANITATION

Of the 8 tonnes of solid waste generated in the town, only 3 tonnes are being collected and disposed. Though it was proposed to establish a solid waste treatment plant at the municipal land in Muthukad, it could not be implemented due to acute public protest. Hence waste disposal at source, and decentralized treatment options are identified as viable options for the municipality.

- A Solid Waste Management Plan is to be prepared and enforced to ensure efficient collection, scientific treatment and disposal of the biodegradable and non-biodegradable solid wastes generated in the municipality. Strict regulations must be enforced to reduce waste generation based on Reduce- Reuse - Recycle principle. The plan should have detailed guidelines to implement scientific disposal of biodegradable waste at source, such as installation of Bio-gas plants, Pipe compost, Thumburmuzhi Model waste processing units etc. (For example, in plots with area >10 cents, pipe composting/ biogas plants should be installed and in plots with area <10 cents like housing colonies/plotted developments etc or residential apartments, use of local level biogas plant/ Thumburmuzhi Model units should be ensured).

  Thumburmuzhy Model Aerobic Composting Technique (TMACT) is a cost-effective and eco-friendly waste management system ideal to deal with garbage in Kerala, where biodegradable waste contains high moisture content and the best option is composting or turning it into biogas. The system is getting widely implemented in the State recently, owing to its benefits. The plant can be implemented on individual house as well as community basis. The plant with a cement floor and wall with gaps in between should have a roof to prevent the waste from getting wet. After laying wet cow dung up to 6 inches on the cement floor, a layer of biodegradable waste, including livestock waste, can be laid which again should be topped with cow dung. The layering process should continue till the plant gets completely filled. Where cow dung availability is low, sprays to induce the same effect has been developed and implemented successfully. The energy produced due to bacterial growth creates a 75^0C environment inside the plant that prevent flies from laying eggs. Since the moisture content is only 60%, the composting process will not

create any odour.

- Modern tools, equipment and machineries shall be provided for the collection, treatment and disposal of the wastes, including machineries and arrangements for street sweeping.
- It is proposed to install an incinerator at the municipal land at Resurvey no 5 , block no 92 near Kuthirapuzha.
- Segregation and collection of plastic wastes is to be enforced. A plastic recycling unit is proposed near Karimpuzha Bridge in Resurvey. No 78 of Block No. 90.
- Recycling/up-cycling industries based on 'Waste-to-Wealth' concept, to produce manure, compost etc from bio-degradable waste, slaughter waste processing to produce marketable by-products like tallow, grease and MBM (meat and bone meals), upcycling of wood wastes, packaging wastes etc., recycling of plastic wastes, etc. shall be taken up by the municipality.
- An option for centralised waste disposal facility for multiple panchayaths, in the land owned by Forest Department in neighbouring Chaliyar Panchayath, is being worked out in the region. Hence the residual wastes after primary treatment are proposed to be dumped here.

With a projected population of 55200, around 6.6MLD of sewerage waste is expected.

- A proper sewerage system is to be designed for the highly dense areas as a measure to protect the water bodies in the town. Hence it is proposed that a comprehensive Sewerage Management Plan has to be prepared and implemented.
- Decentralized sewage treatment plants (3 no.s) are proposed to be located at the govt. land in Resurvey. No. 242, Block No.91 along Chaliyar River, at the joining of Veliyamthodu, thodu near AR camp and thodu near Manavedan School.

'Take-a-rest' toilet, a new scheme under the Kerala Tourism Department, plans to construct toilet complexes with rest rooms and food court, for the benefit of travelers and tourists. Nilambur can potentially utilize the benefits of this scheme to provide facilities for tourists. Take-a-rest toilets are proposed at the proposed Park at Vadapuram, Proposed Museum at DFO Bungalow and near Jawaharlal Nehru Bus Stand.



Huge flex boards should be prohibited, as they destroy the beauty of the town and are detrimental to the environment.

24.11 EDUCATION

The literacy rate of the municipality is high compared to the district. Schools are found distributed across the municipality area but Higher education sector is weak in the municipality. There is scope for a Government Polytechnic and Engineering college for improving the educational status of the town.

- The existing Govt. ITI campus is proposed to be upgraded for the beginning of a Polytechnic and the ITI is proposed to be enhanced by increasing the number of courses and increasing the number of merit seats.
- The extensive campus of the Govt. Manavedan VHSS campus can be utilized for starting an

Arts and Science college in Govt. sector.

- Besides management courses in travel and tourism, hospitality, hotel management etc. shall be introduced in the region.
- The gender gap analysis reveals a slightly bad situation of female literacy in Nilambur when compared to urban areas of the state, which points to the lack of basic education for the female community. Schools exclusively for girls could be established to encourage female education.
- Special courses to offer equivalent education for the drop outs along with job oriented training classes is proposed to be taken up. Besides awareness creation and empowerment activities are to be strengthened to ensure zero drop-out rates.

24.12 HEALTH

- The Govt. District Hospital infrastructure if utilized for Super specialty services will bring about qualitative changes in the sector, especially for the poor. The existing specialties are limited to ENT, Dermatology, Ophthalmology, Orthopedics, Gynecology and Dentistry. The state-of-art infrastructure is to be established for the existing operation theaters, X-ray room, scanning, and lab facilities in the District Hospital. The in-patients are gradually decreasing probably due to the poor facilities and unavailability of many specialties. Round the clock water supply and uninterrupted power supply are to be ensured for the efficient functioning and development of the District Hospital. Allopathic treatment should be promoted by starting new private hospitals also.
- There is need for more PHCs at Mutheeri, Vrindavan Colony, Mummulli, as found out during people's aspiration studies as part of preparation of this Master Plan. Out of these, an Urban Primary Health Centre (U-PHC) is proposed to be located at Mummulli, utilizing the available infrastructure of the Tailoring Institute at Resurvey No 274 in Block no 93, which is currently not functional. Under the scheme of National Urban Health Mission (NUHM), a new sub-mission under the National Health Mission (NHM), funds are available for setting up Urban Primary Health Centre (U-PHC) in 75:25 Centre-state funding pattern. The following proposals under this scheme are also proposed to be implemented:
    - One Auxiliary Nursing Midwives (ANM) for 10,000 population.
    - One Accredited Social Health Activist ASHA (community link worker) for 200 to 500 households.
- A homeo dispensary is proposed at the government land along KNG Road at Jawahar colony Junction, in Resurvey No. 82 in Block 90.

24.13 RECREATION AND OTHER CIVIC AMENITIES

- As the municipality lacks a facility to conduct sports events, a mini stadium is proposed at Azad ground at Resurvey No. 18 in Block 93, covering an area of 2.5 acres.
- The play ground near Jawahar Colony at Resurvey No 85 in Block 90. is proposed to be retained as a recreational space for the students of the ITI as well the local population.
- Parks are to be introduced at Vadapuram at Resurvey no. 2 in Block 92 and along Chaliyar River at Resurvey no. 242 in Block 91.
- A Children's Park is proposed at the govt. land along KNG Road Resurvey No. 82 in Block 90 at Jawahar colony junction.
- A Mini Civil Station is proposed in an extent of 1 acre next to the ITI campus, at Karimpuzha at Resurvey no. 85 in Block 90 near Jawahar Colony, to accommodate various Government department offices.
- The adjacent 2 acres land at Resurvey no. 85 in Block 90 is proposed to be utilized for constructing a Town Hall, a Performing Arts Theater, a cultural institution to promote

tribal art forms and a Convention Center for conducting major programmes.

- It is proposed to shift the Municipal Office into the existing location of fire station and Krishi Bhavan in Resurvey no. 203 in Block 92.
- A Municipal Building Complex is proposed at the govt. land in front of Viradoor Temple at Resurvey no. 234 in Block 91, which is envisaged to be rented out to enhance the revenue of the municipality.
- The fire station is proposed to be relocated with state-of-the-art facilities to the government land in Resurvey nos. 78, 79 in 90 near Karimpuzha Bridge.
- A full-fledged library and a mini assembly hall are proposed at the old bus stand building at Nilambur junction in Resurvey no. 237 in Block 91.
- It is proposed to establish a mobile library to promote inclusive social development with the help of Kudumbasree/ Ayalkoottam.

24.14 SPECIAL CONCERN AREA

- A Rehabilitation Center to provide skills and livelihood training as well as relief and help to the physically challenged/specially skilled and ensure their inclusive development is proposed at the Municipal land near Kovilakathumuri in Resurvey no. 242 in Block 91. This will enable them to secure suitable employment and empower them financially, ultimately integrating or re-integrating them in the society.
- A Geriatric care facility (Pakal veedu) is also proposed to be initiated in the same center, to take care of the elderly and others facing physical and/or mental challenges, to meet their long term care needs, improve their quality of life, and maintain their independence for as long as possible. The existing anganwadi infrastructure is also proposed to be extended for this purpose, to provide decentralized 'pakal veedu' services.
- It is proposed to extend the Anganwadi infrastructure to facilitate Radio/TV kiosks and reading rooms to encourage social interactions and community building, especially aiming at the youth belonging to marginalized sections, with the help of Kudumbasree/ Ayalkoottam.
- A Skill development center for women and children is proposed in the present location of the municipal office at Resurvey No.220 in Block No.91, which will be shifted to the existing location of fire station in Resurvey no. 203 in Block 92. ASAP (Additional Skill Acquisition Programme) model centres to improve the employability of higher secondary and college graduates are also proposed to be promoted here. The centre would have modern facilities and admissions would be open for all sections, irrespective of age and gender.
- Digital literacy trainings are proposed to be conducted for women in the municipality. Digital literacy training opens the door to other essential skills needed to operate in a broadband environment, including financial literacy skills, as well as career training and ICT-enabled career training. Such training enables women to set up online businesses, or to use broadband services, such as social networking sites, to enhance their ongoing livelihood and economic activity.

24.15 ENVIRONMENT

Surveillance of natural eco systems and unique biodiversity in the western Ghat area of the district is essential for conservation. Protection of flora, fauna, water and soil should be ensured through traditional methods. Appropriate zoning regulations are formulated for the conservation of paddy lands, control of various land uses and thus, protection of the environment. Appropriate measures are to be taken to reduce water, air and noise pollution.

Promotion of green buildings and renewable sources of energy are also put forward. Use of non-conventional energy like solar energy and wind energy, are to be enhanced. Construction free zones are earmarked along all water bodies to check encroachment.

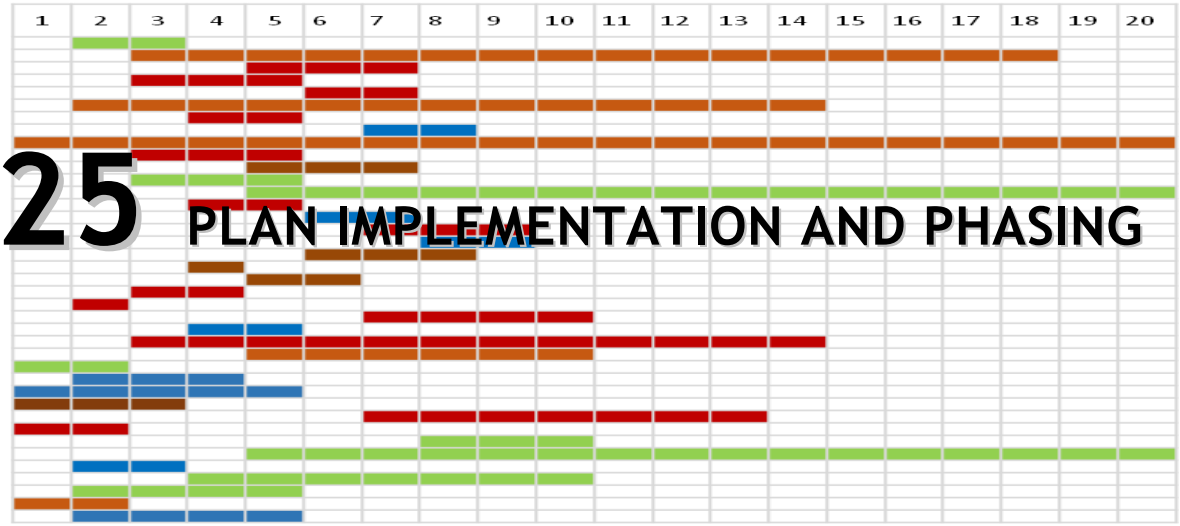
Eco friendly, sustainable and judicial symbiosis of natural resources and environmental wealth of the district for local economic growth through responsible eco-tourism are to be promoted.

24.16 GOVERNANCE

Digitizing the property tax data base and managing this spatial information in a GIS platform with stake holder interface, is proposed to be taken up, to ensure timely detection of unauthorized construction, bringing the evaders to the tax net and ensuring compliance of regulations. This would help to enhance a major revenue stream of the Municipality and would assist the Municipality to reduce its dependence on external aid.

The proposed projects in sectors like tourism, industries, trade and commerce, community infrastructure, recycling of wastes etc are also expected to boost the financial health of the municipality.

Income from advertisements is a promising stream of revenue in any municipality, especially so for Nilambur, being proposed to be developed as a tourist destination. Hence it is proposed that this stream may be explored optimally, after formulating an Advertisement Policy for the municipal area with detailed specifications for the kind of advertisements that could be installed, so as to ensure no harm to the scenic beauty of the place.



25 PLAN IMPLEMENTATION AND PHASING

25.1 FINANCIAL RESOURCES & PHASING

The development plan details out land use regulations and development activities to be taken up by various agencies and stake holders. Hence projects are proposed to be taken up by various agencies and municipality is not the only agency responsible for the implementation of the plan. The projects coming under the scope of the municipality itself may be financed by other schemes/ agencies etc. Table 25-1 gives broad phasing and approximate costs at 2015 prices of the proposed projects and indicate the implementation agencies. The source of funds for projects indicated as external are various plan schemes of central/state governments, borrowing from lending agencies etc. This will be taken up by the municipality on a case to case basis.

Table 25-1 Source of funds

Sl No.	Source	Rupees in Lakhs
1	External(Source yet to be identified)	10500
3	State	4000
4	Own	15160
5	PPP	1200
6	PWD	13301
7	Railway	50
8	Forest	100
9	KSEB	1000
	Total	45311

Out of the total Rs.45311 lakhs required, Rs.15371 lakhs (34 %) is for road development. Out of this, Rs.12401 lakhs (81%) is to be met by PWD. The municipality needs to invest approximately Rs.758 lakhs per annum for the implementation of this development plan. The municipal financial resources are to be augmented to meet this demand. The cost of projects under various source of fund can thus be summarized as given in Table 25.2.

Table 25-2 Sectoral Proposals (Phasing & Costing)

Sl No	Project	Approx. cost Rs. (Lakhs)	Duration (years)	Source of funds	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Park at Vadapuram	80	2	Own																				
2	Cycle path, Pedestrian Lanes	300	16	State																				
3	Mini Civil Station	1500	3	Own																				
4	Municipal Town Hall	800	3	Own																				
5	Performing Art Theatre	50	2	Own																				
6	Municipal Waste Incinerator	2500	4	Own																				
7	Slaughter House	100	2	Own																				
8	Plastic Recycling Unit	200	3	Own																				
9	Sewage Treatment Plants (3 Nos)	6000	20	Ext																				
10	Municipal Office Complex	500	3	Own																				
11	New Bus Stand Extension	400	3	Own																				
12	Mini Stadium –Azad Ground	2000	3	Ext																				
13	Tourism Promotion Zone	300	16	State																				
14	Museum at DFO Bunglow	100	2	Forest																				
15	Export Quality Wood Industries	200	2	State																				
16	Craft Village & Tourist Quarters	500	3	State																				
17	Taxi Stand and Truck Terminal	1200	2	PPP																				
18	Bridge at Varadempadam	300	3	PWD																				
19	Level Crossing at Ramamkuthu	50	1	Railway																				
20	Library and Mini Hall at Nilambur Junction	50	2	Own																				
21	Youth and Women Skill Development Centre	20	1	Own																				
22	Upgrading 66KV Sub-Station to 110 KV	1000	4	KSEB																				

Sl No	Project	Approx. cost Rs. (Lakhs)	Duration (years)	Source of funds	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
23	Agriculture ware house	200	2	State																				
24	Junction Improvement	300	12	PWD																				
25	Development of District Hospital	2500	6	Ext																				
26	Proposed children's park at Jawahar colony Jn	50	2	Own																				
27	Homeo Dispensary	60	3	Own																				
28	Rehabilitation Center	80	3	Own																				
29	Municipal Bldg Complex Viradoor	2000	6	Own																				
30	Fire Station	200	2	State																				
31	Model Farming village	200	16	Own																				
32	Model veterinary clinic	100	2	Own																				
33	Inland fisheries and aqua culture	1000	7	Own																				
34	Water sports complex	2000	4	State																				
35	Solar panels for street lighting	300	2	PWD																				
36	Primary Health Centre (2 PHC, 1 UPHC)	300	4	State																				
37	Housing Project for EWS	2500	5	Own																				

Table 25-3 Road Proposals (Phasing & Costing)

Sl No	Name of Road	Existing Width	New/ Widening	Prop Width Mts	Length in Mts	Approx cost in lakhs	Source of Funds	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	KNG Road (SH-28) (Vadapuram - Jyothipadi)	14.4	Widening	24	2093	929	PWD																				
2	KNG Road (SH-28) (Jyothipadi - Karimpuzha Palam)	11.5	Widening	16	5516	1345	PWD																				
3	By Pass Road	0	New	30	5934	8011	PWD																				
4	Veettikkuthu Rd	11.8	Widening	16	1006	195	PWD																				
5	Nilambur - Mukatta - Karulai Rd	12.5	Widening	16	3883	704	PWD																				
6	Nilambur – Mukkatta- Kalikavu Road (SH 39)	10.6	Widening	16	3223	691	PWD																				
7	Akampadom Rd	7.5	Widening	16	884	238	PWD																				
8	Veettikkuth -Thrikaikuth Rd	8.9	Widening	12	2004	289	PWD																				
9	Vadakkumpadom Rd	8	Widening	12	725	116	Own																				
10	Rajiv Gandhi Mini Bye Pass	8.4	Widening	12	748	114	Own																				
11	Keerthipadi - Chakkalakkuthu Rd	6	Widening	12	1854	362	Own																				
12	Classic College Rd	5.5	Widening	12	62	13	Own																				
13	Asupathrikkunnu Road	7	Widening	10	1330	170	Own																				
14	Chanthakkunnu-Mumuli-Pathippara Rd	7.6	Widening	10	4189	490	Own																				
15	Enanthi Road	6.8	Widening	10	4229	554	Own																				
16	Ramamkuth - Railway Station Rd	4	Widening	10	2286	411	Own																				
17	Ramamkuthu Rd	7	Widening	10	1488	190	Own																				
18	Veettikkuth - Chakkalakkuth Rd	7.5	Widening	10	1063	126	Own																				
19	Ramamkuth - Byepass Rd Link 1	8	Widening	10	1607	177	Own																				
20	Ramamkuth - Byepass Rd Link 2	6.2	Widening	10	1460	207	Own																				
21	Keerthipadi Bypass Link Rd	6	Widening	10	280	41	Own																				

25.2 MONITORING AND REVIEW

Implementation of the master plan is as important as the preparation of the master plan. In order to ensure timely implementation of the master plan, a permanent system for monitoring and review is envisaged. The sanctioned master plan shall be monitored and reviewed and special committees shall be constituted for these purposes as per the provisions of the Kerala Town & Country Planning Act, 2016.

The monitoring committee shall meet as and when required. The committee shall also scrutinize the annual plan proposals of the municipality for compatibility with the master plan and also make suggestions regarding projects listed in the master plan that may be included in the annual plan proposals to the concerned working groups.

The review committee shall review the implementation of the master plan, direction of growth, new major investments that have come up in the municipality, financial position of the municipality, adherence to development regulation etc. and shall advice the council regarding maintaining status quo, making minor variations or revision in toto.

26 ZONING AND ZONING REGULATIONS



1. All future developments shall be in conformity with the provisions of the Master Plan for Nilambur Town.

2. For the implementation and enforcement of the proposals envisaged in this Master Plan, areas have been zoned under various categories such as Residential Zone, Commercial Zone, Mixed Use Zone, Industrial Zone, Public and Semi-Public Zone, Traffic and Transportation Zone, Parks and Open Spaces Zone, Dry Cultivation Zone, Wet Cultivation Zone, Water Body, Tourism Promotion Zone, Environmentally Sensitive Zone, Special Zones, etc. Details regarding the nature of uses 'Permitted', uses 'Restricted' and uses 'Prohibited' in each zone are given in the accompanying sheets. These regulations shall be enforced in conjunction with other specific provisions if any elsewhere in the Plan.

   '**Uses Permitted**' in a zone cover the uses that can be normally accommodated in the relevant zone. Such uses may be permitted by the Secretary, of the Local Body Concerned, hereinafter referred to as Secretary. In some cases it may be possible to permit some other uses also, which are not likely to affect the quality and environment in a zone specified for a particular use. Such cases have to be individually studied based on their performance characteristics and special location factors. Such cases which come under this category are classified as "Uses Restricted".

   Uses Restricted -1 Category deals with the uses that shall be permitted by the Secretary with the concurrence of the Town Planner of the District office of the Department of Town and Country Planning having jurisdiction over the area.

   Uses Restricted -2 Category deals with the uses that shall be permitted by the Secretary with the concurrence of the Chief Town Planner concerned of the Department of Town and Country Planning.

   Uses Prohibited enlists the various objectionable uses in each zone which shall not be permitted under normal circumstances.

3. If any space in a zone is put to a "**Use Prohibited**" as stated in Para 2, before the sanctioning

of the scheme, such use shall be termed as nonconforming use. A non-conforming use may be allowed to continue in its existing location and essential repairs and maintenance for the structure may be permitted by the Secretary, provided that the said use create no adverse environmental influence in the zone. Addition, alteration or reconstruction, if found necessary as part of any mitigation measures may be permitted for such uses by the Secretary with the concurrence of the Chief Town Planner concerned.

4. Existing areas and structures of archaeological importance, agriculture uses and religious uses may be permitted to continue in all the zones and shall not constitute non-conforming uses.

5. Regulation of constructions and/or land developments on the sides of new roads/roads proposed for widening as per the Plan shall be governed by the distance from the centerline of the road, unless otherwise specified in the Plan or in any detailed road alignment approved by the Chief Town Planner concerned.

6. Constructions and/or land developments, if any, in paddy lands and in wet lands, shall be in conformity with the Conservation of Paddy Land and Wet Land Act and other relevant rules and government orders in force in the state.

7. The Government shall have the power to issue clarifications in respect of technical interpretations, if any, required in any of the provisions of the scheme in consultation with the Chief Town Planner concerned.

8. Any use not specified either in the 'uses permitted' or 'uses restricted' category of a particular use zone, but which is of a similar nature to any use permitted or restricted in that particular use zone, can be considered by the Secretary, with the concurrence of the Chief Town Planner concerned.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
9	**Residential Zone**			
9.1	Residential buildings consisting of single or multifamily dwellings, residential flats / apartments, residential quarters, night shelters, orphanages, old age homes, Schools and Buildings such as shelters, Rehabilitation centres, training centres for Physically and Mentally Challenged persons. Cottage Industries including coir, Service Industries of non-nuisance Nature (See Annexe-I), with number of workers limited to 10 without power or 5 workers with power limited to 10 HP Educational institutions essentially serving the needs of residential community such as, Day Care, Crèche, Nursery Schools, Kindergartens and schools offering general education (up to High school level). Utility Installations and Civic Amenities essentially serving the needs of residential community such as post office, ATM, police station, telephone exchange, fire station, Auto and Taxi/Jeep Stands, tot lots, parks, play grounds, water treatment plants. Transmission/Telecommunication Towers and Wireless Stations Plant Nurseries, Pump House, Smoke House, Fish farms, Dairy & Dairy Farm, Poultry Farm, Zoological and Botanical Gardens / Bird Sanctuary, Camping Site, Wells and Irrigation	Farm Tourism, Home stays, Tourist resorts Ashram, Mutt, Madrasa, Places of Worship Public utility areas and Public Utility buildings		Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
	Ponds incidental to community needs. Floor area **limited to 200 m²** Shops, Professional Offices, Commercial Offices, Banks & other Financial Institutions, Restaurants, Canteen, Hotels, Health institutions essentially serving the needs of residential community such as dispensaries, clinics (Out Patient), Diagnostic Centres, Community facilities such as Community Halls, Recreational Clubs, Social Welfare Centres, Gymnasium /Yoga Centers, Swimming Pool, Libraries, Reading Rooms etc. Floor area **limited to 500 m²** Open air theatre and Indoor Stadium Floor area **limited to 1500 m²** Hostels and boarding houses			
9.2	**Provided that the access road has a width of 7m minimum.**			
	Higher Secondary Schools Floor area **limited to 200 m²** Automobile workshops for two/ three wheelers Floor area **limited to 1000 m²** Hospitals, Convention Centres/ Auditorium/ Wedding Halls/ Community halls/ Exhibition Centers and Art Gallery, Shops/Professional Offices, banking and financial institutions, IT Hardware/ Software units			Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
9.3	**Provided that the access road has a width of 10m minimum**			
	Higher educational institutions including medical colleges Floor area **limited to 2000 m²** Hospitals, Shops/ Professional Offices/ Commercial Offices/ Banking and Financial institutions Floor area **limited to 2500 m²** Auditorium / Wedding Halls / Community halls	Parking plazas	Fuel Filling Stations, Saw mills with timber yard	Any other uses not specified in column 2, 3 and 4.
10	**Commercial Zone**			
10.1	All shops including shopping complexes, shopping malls, multiplex, hypermarkets, restaurants, hotels, markets. Professional offices, commercial offices & establishments, ATMs, banking and financial institutions, IT software units, Movie halls, Auditorium, Wedding Halls, Community Halls, Gymnasium/ Yoga centres Godowns / warehouse / storage of Non-hazardous materials, stacking yards. Cottage industries, automobile workshops, automobile service stations, cold storage, service industries of non-nuisance nature with number of workers limited to 19 without power or 9 workers with power limited to 30HP (See Annexe-I), saw mills, weigh bridges, printing press, IT hardware / electronic industries, marble and granite storage / cutting centres.	Public utility areas & Public utility buildings, Renovation/ Expansion of existing places of worship, Renovation/ Expansion of existing educational institutions Parking plaza, Transport terminals	Fuel filling stations , Slaughter Houses	Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
	Renovation/Expansion of existing residential buildings, Single Family Residences, Residential flats/apartments with lower floor(s) for commercial use only, night shelters, orphanages, old age homes, dharmasala, hostels and boarding houses, lodges and guest houses, Ashram, Mutts, Madrasa. Government (Local /State/Central) or Public Sector Offices Day care, Crèche, Nursery/ Kindergarten, Transmission & Telecommunication Towers, Wireless Stations. Social welfare centres, library and reading rooms, exhibition centres, art gallery museum, convention centres Clinics, diagnostic centres Tot lots, Parks & playgrounds, fair grounds, open air theatres Plant nursery, Storage of agricultural produces and seeds, Pump House, Wells and Irrigation Ponds Floor area **limited to 2000 m^2** Hospitals			
10.2	**Provided that the access road has a width of 10m minimum**			
	Hospitals & Health centres, Outdoor games stadium.			Any other uses not

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
				specified in column 2, 3 and 4.
11	**Mixed Use Zone (Residential and Commercial)**			
11.1	All uses that are permitted in Residential and Commercial Zones	All uses that are permitted with the concurrence of Town Planner in Residential and Commercial Zones	All uses that are permitted with the concurrence of Chief Town Planner in Residential and Commercial Zones	Any other uses not specified in column 2, 3 and 4.
12	**Industrial Zone**			
12.1	All industries other than obnoxious and nuisance type industries (Annexure I), Automobile Workshops & Automobile Service Stations, Spray Painting Workshops, Saw Mills, Timber Yard, Ice Factory, Cold Storage, Fish and Meat Processing Units, Printing Press, Water Treatment Plants, Marble and Granite Storage and Cutting Centres, Industrial Estates & Industrial Parks, IT software/Hardware related industries. Godowns/Warehouses/Storage of non- hazardous material, stacking yards, weigh bridge. Dairy and Dairy Farms, Dairy related Industries, Poultry Farms, Piggery Farm, Smoke House. Dry Cleaning Plants, Power Plants, Sub Stations	Public Utility Areas and Public Buildings. Cremation Ground / Crematorium, Burial Ground, Common Vault. Storage of Explosives and Fire Works, Gas Godowns Sewage Treatment Plants, Dumping Yard. Slaughter House Container Terminals if access width more than 16m minimum.	Fuel Filling Stations, obnoxious & nuisance type industries included under Annexure II	Any other uses not specified in column 2, 3 and 4

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
	Government or Public Sector Offices Transport Terminals incidental to industrial use. Transmission & Telecommunication Towers, Wireless Stations. Residential Uses incidental to the Industrial Use, Tot lots, Parks and Play Grounds attached to incidental residential use. Any other activity essentially incidental to Industrial use			
13	**Public & Semi Public Zone**			
13.1	Local/State/Central Government/ Public Sector Offices and Other Related Public Buildings, Additions and alterations to the existing public and semi public buildings including addition of new blocks without altering the use. Residential buildings incidental to public and semi-public use. Education buildings including Day Care, Crèche, Nursery Schools, Kindergartens, Secondary/Higher Secondary Schools Hospitals and Health Centres, Parking plazas Public Utility Areas and Buildings, Community Halls, Recreation club, auditorium etc. New Religious Buildings, Rennovation/Additions and	Higher Educational Institutions IT software/Hardware related industries, Industrial Estate/Industrial Parks, All industries other than obnoxious and nuisance type industries (Annexure I)	Cremation Ground/ Crematorium, Burial Ground, Common Vault.	Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	**2**	**3**	**4**	**5**
	alterations to the existing places of worship Tourism Facilitation Centres and related infrastructure Floor area **limited to 100 m^2** Buildings for incidental uses			
14	**Traffic and Transportation Zone**			
14.1	Transport terminals including constructions that form an integral or essential part of the terminal. Any incidental uses to the transport terminals such as Retail Shops, Restaurants, Canteen etc. Staff Quarters, Offices, Night Shelters, Guest Houses etc incidental to the transport terminals Local/State/Central Government/ Public Sector Offices and Other Related Public Buildings Parking Plazas, Transmission Towers and Wireless Stations.	Public Utility Areas and Buildings Fuel Filling Stations	Container Terminals provided that the access has a minimum width of 16m	Any other uses not specified in column 2, 3 and 4.
15	**Parks & Open Spaces Zone**			
15.1	Any construction/land development essential for the development/ improvement of open air recreational facilities. Fish Landings, Boat Jetties, Guided Boat Rides, Watch Towers, Eco Walk Ways, Water Sports Facilities, Fair Grounds etc., Side protection works of water bodies.	Incidental buildings of floor area up to 100m^2 such as Club, Reading Room, Cafeteria, Retail Shops etc. and Water Treatment Plant, Parking Plazas / parking facilities incidental to the recreational use proposed		Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
	Tot Lots, Park, Play Grounds, Swimming Pools, Open Air Stadium, Open Air Theatre, Zoological & Botanical Garden, Bird Sanctuary, Caravan parks			
	Provided that the access road has a width of 7m minimum.			
	Amusement Parks			
16	**Dry Cultivation Zone**			
16.1	Agriculture, horticulture and fodder cultivation, pastures, grazing ground, and other types of cultivation including social forestry, Dairy/Piggery Farms, Fish farms, Seed farms, Poultry farms, Plant nursery, pump house, wells and irrigation ponds. Tot Lots/Parks/Play Grounds, Zoological and Botanical Gardens / Bird Sanctuary, Camping Site Single Family Residential Buildings, Residential buildings / residential flats / Apartments up to 15 units Orphanages, old age homes, Buildings such as shelters, Rehabilitation centres, training centres for Physically and Mentally Challenged persons., Dharmasala, ashrams, Mutts, Madrasa. Police Post/Police Station, Post and Telegraph office, Fire Post / Fire station, Telephone Exchange, wireless stations and Telecommunication towers. Day Care and Crèche, Anganwadi, Nursery / Kindergarten ,	Farm Tourism, Home stays, Tourist resorts Cremation ground / crematorium, burial ground, common vault Slaughter Houses.	Storage of explosive and fireworks, Gas Go-downs, Dumping Yard.	Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
	All primary educational institutions Cottage industries, Service industries of non-nuisance Nature (See Annexe -I) engaging not more than 20 workers without power or 10 workers with power limited to 50 HP, Agricultural/Forest products' processing and value addition industries, Saw Mills, Weigh Bridge. Automobile workshops for 2/3 Wheelers **Floor area limited to 200 m^2** Clinics(Outpatient) and diagnostic centres, Shops, professional offices, commercial offices and establishments, banking and financial institutions, Gymnasium, Yoga Centres, restaurants, canteens, Library and Reading Rooms, Godowns/ warehouses/ Storage – non hazardous			
16.2	**Provided that the access road has a width of 7m minimum**			
	Hostels and boarding houses, Secondary & Higher Secondary Schools, Service industries of non-nuisance Nature (See Annexure -I), IT Software/Hardware industries, Parking Plazas / parking facilities Residential buildings / residential flats / Apartments up to 25 Floor area **limited to 300 m^2** Clinics(Outpatient) and diagnostic centres, Shops, professional offices, commercial offices and establishments, banking and financial institutions, Gymnasium, Yoga Centres, restaurants, canteens,			Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
	Library and Reading Rooms, Godowns/ warehouses/ Storage – non-hazardous Floor area **limited to 1000 m²** Hospitals & Health Centres, Auditorium/Wedding Halls/Community halls			
16.3	**Provided that the access road has a width of 10m minimum**			
	Residential buildings / residential flats / apartments Floor area **limited to 2000 m²** Hospitals & Health Centres	Stacking yards, Go-downs/ Warehouses/ Storage – non-hazardous materials. Higher Education Institutions including medical colleges. Health Care Facilities	Fuel Filling Stations, Obnoxious and Nuisance Industries (See Annexure – II), industrial estates and industrial parks, Storage of explosive and fireworks, Hazardous storage, Gas Godowns, Dumping Yard.	Any other uses not specified in column 2, 3 and 4.
17	**Wet Cultivation Zone**			
17.1	Paddy cultivation, Agriculture/ Horticulture/Fodder cultivation, Fish Farms/ Seed Farms/ Pump House/ Wells and Irrigation Ponds without any building construction, Structures for the use of water transport Constructions/ land developments in conformity with the Conservation of Paddy Land and Wet Land Act in force in lands designated as paddy land or wet land under the said Act.			Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
18	**Tourism Promotion Zone**			
19.1	Single family residential buildings All uses permitted in Water body and Park and Open spaces Zones Agriculture/ Horticulture/Fodder cultivation, pastures, grazing ground, and other types of cultivation including social forestry, Fish Farms/ Seed Farms/ Pump House/ Wells and Irrigation Ponds, Aquaculture/ Floriculture, Plant nursery.	Farm Tourism, Home stays, Cottage industries, Tourist resorts, Dormitories, hotels, museums, art galleries, libraries, planetariums and tourism infrastructure of the like. Incidental buildings of floor area up to 100m^2 such as Club, Reading Room, Cafeteria, Shops, restaurants etc. and Water Treatment Plant, Parking Plazas / parking facilities incidental to the recreational/tourism use proposed		Any other uses not specified in column 2, 3 and 4.
19	**Environmentally Sensitive Zone**			
19.1	All uses permitted in 'Water bodies' Single family residential buildings Commercial uses up to 100m^2.	Cottage Industries. Farm Tourism, Home stays, Tourist resorts - all limited to two storeys,.		Any other uses not specified in column 2, 3 and 4.
20	**Water body**			
20.1	All existing water bodies shall be conserved. Aquaculture/Floriculture, Water sports, Structures for use of water transport/Irrigation/ water supply/ storm water drainage/ sewage treatment related infrastructure, pump			Any other uses not specified in column 2, 3 and 4.

Para No.	Uses Permitted	Uses Restricted-1	Uses Restricted-2	Uses Prohibited
1	**2**	**3**	**4**	**5**
	house, water landings, Bridges, Side protection walls, Bathing Ghats, Floating jetty etc may be permitted based on community level requirements.			

	Special Zones *(Developments in these zones may be permitted by the Secretary of the LSG with the concurrence of the Chief Town Planner)*	
21	**Forest**	Activities allowed by the Forest Department.
22	**Housing Project**	Housing Project for Economically weaker sections is envisaged in Resurvey No. 383,396 of Block No.92 at Muthukad and will be implemented as per the DPR prepared by the Municipality.
23	**Hazardous Use Zone**	Decentralized sewage treatment plants and ancillary facilities in Resurvey. No. 242 (part), Block No.91 as discussed in Chapter 24 Recycling unit for plastic waste and e-waste processing in Resurvey. No 78 (part) of Block No. 90 as discussed in Chapter 24 Slaughter House in Resurvey No. 396 (part) of Block No.92 as discussed in Chapter 24
24	**Crematoriums/ Burial Grounds**	Modernisation/ reconstruction/ addition to the existing facilities like burial grounds/ cemeteries/ crematoriums/ graveyards/ cremation grounds/ common vaults are permitted in these areas, complying with the provisions of the Kerala Municipality Building Rules in force.

General Guidelines

1) The General Guidelines shall apply to all zones irrespective of the zoning regulations for individual zones.

2) For the purpose of these regulations, floor area means the total floor area of the building on all floors.

3) Subject to zoning regulations of the respective use zones, more than one uses may be combined in a building, provided that the total floor area on all floors of such a building shall not exceed the maximum floor area permitted for major use in that zone.

4) Urban renewal: In pockets where old and dilapidated structures do exist in clusters and which cannot be re-developed in normal course, urban renewal proposals can be considered as per land pooling/plot reorganization techniques, as permitted by the Town Planning legislation in force. The proposals shall be made by all the land owners in the area under consideration jointly.

5) No building shall be constructed (other than that is essential for the bonafide use of the water body under consideration) within 2m from the boundary of any water body having a width of 3m and above, and 1.5m from the boundary of any water body having a width less than 3m.

6) Incentives for Green buildings and utilization of solar power and other renewable energy may be permitted as per government policies from time to time.

7) Addition/ alteration/ reconstruction of lawfully established non-conforming uses may be allowed, provided that the total area shall not exceed 1.5 times the existing floor area.

8) Expansion of educational and health institutions to adjacent plots shall be permissible without any regard to the land use in which such adjacent plot is zoned and the development regulation imposed by such zoning, except in wet cultivation zone.

9) Silence Zone, as prescribed by the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment (Protection) Act, 1986 and its subsequent amendments, shall be applicable to the area under this Master Plan.

10) Large scale development proposals in area not less than 2 ha., exceeding investment of Rs.50 Crores, which provide direct employment (after commissioning) of not less than 500 may be permitted in zones other than wet cultivation zone, subject to the recommendation of committee to be constituted by the Government for this purpose, under the Chairmanship of the Secretary (Urban Affairs/ Local Self Government Department), consisting of the Chief Town Planner (Planning), State Town and Country Planning Department, the Town Planner, District Office of the Kerala State Town and Country

Planning Department being the Convener and the Secretary of Nilambur Municipality and satisfying the following conditions:

(a) The developer shall produce project-cum-feasibility report and Environmental Impact Assessment Report, if required, of the Project to the Convener of the Committee, 15 days in advance of the committee meeting.
(b) The developer shall produce before the committee all required clearances from the State and Central Government agencies concerned.
(c) Adequate provision shall be made for supporting infrastructure such as water supply, sewerage, solid waste management etc. Separate sewage treatment plant and solid waste management measures shall be provided and maintained by the developer at own cost. Adequate Memorandum of Understanding between the developer and the Secretary of the local body concerned shall be undertaken to bring this into effect.
(d) Maximum Floor Area Ratio shall be 2 and Minimum Access Width shall be 12 meter.
(e) The project shall be completed within a period of 3 years, if not specified otherwise.

11) In land up to depth of 100m, on either side of the road from the edge, having an existing or proposed width of 16m or more, uses listed under Commercial Zone, Mixed Use zone(Residential cum Commercial) may be permitted in Residential and Dry Cultivation Zones, if not allowed otherwise by these zoning regulations.

12) In areas designated as Wet Cultivation Zone, if the permissions from the concerned authorities for conversion of the use of the land have been obtained, adjacent land use zone as per the Proposed Land Use Map may be made applicable by the Secretary with the concurrence of the Town Planner, if it is not against the Paddy land and Wet Land Act and other relevant acts, rules and government orders in force in the state.

13) Projects implemented by the LSG/State/Central Govt shall be permissible in all zones irrespective of the development regulation imposed by such zoning if any, and shall be in conformity with the relevant Acts, rules and government orders in force in the state.

14) Procedure for obtaining building permit/layout approval in the planning area shall be as per the provisions of Kerala Municipality Building Rules, 1999 and subsequent amendments, subject to the development control regulations imposed by this master plan.

15) Revenue records shall form the basis for asserting the type of agricultural land, whether paddy land or not. In Wet Cultivation Zone, where the revenue records classify the land otherwise, adjacent land use zone as per the Proposed Land Use Map may be made applicable by the Secretary with the concurrence of the Town Planner, if it is not against the Kerala Conservation of Paddy Land and Wet Land Act and other relevant acts, rules and government orders in force in the state.

16) Some areas that were earlier under paddy, and release of which for urban land use shall be desirable from the development perspective, are included in the appropriate land uses and such developments shall only be permitted with strict measures to ensure environmental quality and intactness of natural drainage, subject to the Kerala Conservation of Paddy Land and Wet Land Act in force, with due permission from the authorities concerned and regulatory bodies.

17) The Secretary shall ensure that all constructions and land developments, if any, in paddy lands and wetlands are in conformity with the provisions of the Conservation of Paddy Land and Wet Land Act in force in the state. The applications for land development or building construction in wet cultivation zone shall be considered in accordance with the provisions of the Conservation of Paddy Land and Wet Land Act in force in the state and other government orders in the matter.

ANNEXURE I

Type of non-obnoxious and non-nuisance type of service or Light industries permissible in residential zones.

1. Production of copra
2. Processing of arecanut
3. Rice and Flour Mills.
4. Production of rice, flour etc., by hand pounding.
5. Processing of Cardamom, ginger, pepper etc.
6. Production of Khandasari for sugar-cane
7. Carrying and preservation of fruits and production of jam, jelly etc.
8. Processing of and preservation of cashew nuts.
9. Bakeries.
10. Production of Dairy Products.
11. Oil mills (vegetables)
12. Extraction of oil by ghani.
13. Manufacture of hydrogenated oil.
14. Manufacture of “aval” (Beaten rice), Pappad.
15. Production of vinegar.
16. Manufacture of soda water, lemonade, mineral water etc.
17. Manufacture of Ice.
18. Manufacture of ice cream.
19. Processing, packing and distribution of tea.
20. Processing, grinding, packing and distribution of coffee.
21. Manufacture of syrup.
22. Manufacture of beedi.
23. Manufacture of Cigar.
24. Manufacture of tobacco snuff.
25. Manufacture of chewing tobacco.
26. Cotton ginning, clearing, pressing etc.
27. Cotton spinning other than in Mills
28. Cotton spinning and weaving in Mills.
29. Cotton weaving in handloom.
30. Cotton weaving in power looms.
31. Handloom weaving.
32. Khadi Weaving in Handloom.
33. Printing of cotton textiles.
34. Manufacture of Cotton thread, rope twine etc.
35. Jute spinning.
36. Manufacture of jute products including repairing of gunny bags.
37. Weaving of silk by Handloom.
38. Manufacture of hosiery goods.
39. Making of embroidery products
40. Tailoring
41. Manufacture of quilts and mattresses.

42. Manufacture of Coir and Coir Products.
43. Manufacture and assembling of umbrellas and production of spare parts of umbrellas.
44. Repairing of umbrellas.
45. Manufacture of wooden furniture and fixtures.
46. Manufacture of structural wooden goods such as doors, beams etc.
47. Manufacture of wooden industrial goods such as parts of handloom ambarcharka, bobbirs etc.
48. Manufacture of wooden utensils, choto frames, toys, etc., and photo framing.
49. Cane industry including baskets, weaving etc.
50. Manufacture of miscellaneous wooden articles such as sticks, sandals, rules etc.
51. Manufacture of paperboard.
52. Making of paper boxes, bags, envelopes etc.
53. Printing and publishing of newspapers and periodicals.
54. Printing and publishing of books.
55. Miscellaneous printing works including type cutting, book binding.
56. Manufacture and repairing of leather shoes and chappals.
57. Manufacture of leather products such as suitcase, bag etc.
58. Vulcanizing and repairing of tyres and tubes.
59. Manufacture of rubber gloves.
60. Manufacture of Rubber products such as rubber sheets, nipples and rubber shoes including smoke-rubber.
61. Manufacture of pharmaceuticals, chemicals, Ayruvedic medicine etc.
62. Manufacture of agarbathi and other cosmetics.
63. Manufacture of plastic products such as nameplates etc.
64. Manufacture of lemongrass oil, candles etc.
65. Manufacture of cement products such as well-keros, tube, closets etc.
66. Manufacture of structural stone goods, stone crushing, stone carving, stone dressing, marble carving etc.
67. Manufacture of stone wares.
68. Manufacture of stone images.
69. Manufacture of chinaware's and crockery.
70. Manufacture of large containers and chinaware.
71. Manufacture of glass and glass products.
72. Manufacture of clay models
73. Manufacture of iron and steel furniture.
74. Manufacture and repairing of brass and bell metal products.
75. Manufacture of aluminum utensils and other products.
76. Manufacture of tin cars and copper vessels.
77. Electroplating, tinplating, welding etc.
78. Manufacture of agricultural implements, screws etc. (blacksmith and foundry)
79. Manufacturing assembling and repairing of machinery such as water pumps, oil mill chuck etc.
80. Manufacture of small machine tools and machine parts.
81. Manufacture of sewing machine parts and assembling and repairing of sewing machine.

82. Manufacture of electrical machinery and repairing of electric motors armature winding etc.
83. Manufacture and repairing of electric fans.
84. Charging and repairing of batteries.
85. Repairing of radios, microphones etc.
86. Manufacture of electric meters, production of electric and allied products, repairing and servicing of electrical appliances.
87. Bodybuilding of motor vehicles.
88. Manufacture and repairing of motor engine parts and accessories.
89. Servicing and repairing of motor vehicle.
90. Manufacture of cycles, parts and accessories.
91. Manufacture and repair of boats and barges.
92. Manufacture and repairing of animal drawn and hand drawn vehicles.
93. Repairing of photographic equipments, spectacles etc.
94. Manufacturing of medical instruments
95. Repairing of watches and clocks.
96. Manufacture of Jewellery.
97. Manufacture, repair and tuning of musical instruments.
98. Manufacture of sports goods, balloons etc.
99. Ivory, carving and ivory works
100. Miscellaneous industries.

ANNEXURE II

List of obnoxious or nuisance industries subject to objectionable odours, fumes, effluents or processes to be located in hazardous zones.

(Grouped under Indian Standard Industrial Classification)

I Manufacture of Food Stuff:

(1) Slaughtering, preservation of meat and fish and canning of fish.

II Manufacture of Beverages:

(2) Production of distilled spirits, wines, liquor etc., from alcoholic malt, fruits and malts in distillery and brewery.

(3) Production of country liquor and indigenous liquor such as toddy, liquor form mahua, palm juice.

III Manufacture of Textiles:

(4) Dyeing and bleaching of cotton

IV Manufacture of Wood and Wooden Products:

(5) Sawing and planning of wood.
(6) Wood seasoning and creosoting
(7) Manufacture of veneer and plywood.
(8) Paper, pulp and straw board.

V Manufacture of Leather and Leather Products:

(9) Currying, tanning and finishing of hides and skims and preparation of finished leather.

VI Manufacture of rubber, petroleum and coal products:

(10) Manufacture of tyres and tubes
(11) Manufacture of Industrial and synthetic rubber.
(12) Reclamation of rubber.
(13) Production of petroleum, kerosene and other petroleum products in refineries.
(14) Production of chemicals and chemical products.

VII Manufacture of chemicals and chemical products:

(15) Manufacture of basic industrial chemicals such as acids, alkali and their salts not elsewhere specified (especially sulphurous, sulphuric, nitiric, hydrochloric etc., acids) ammonia, chorine and bleaching powder manufactures.

(16) Manufacture of dyes, paint, colours and varnishers, printing ink.
(17) Manufacture of fertilizers (Specially from organic materials)
(18) Manufacture of disinfectants and insecticides
(29) Manufacture of ammunition, explosive and fireworks.
(20) Manufacture of matches.

VIII Manufacture of Non-metallic mineral products other than petroleum and coal :

(21) Manufacture of cement and cement products
(22) Manufacture of Lime
(23) Manufacture of Plaster of Paris.

IX Manufacture of basic metals and their products:

(24) Manufacture of iron and steel including smelting, refining, rolling and conversion into basic forms.
(25) Manufacture including smelting, refining etc., of nonferrous metals and alloys in basic forms.
(26) Manufacture of Armaments.

X Manufacture of machinery (other than transport) and electrical equipments:

(27) Manufacture of all kinds of battery

XI Quarrying and stone Crusher

XII Miscellaneous items not covered above

(28) Incineration, reduction or dumping of offal, dead animals' garbage or refuse.
(29) Manufacture of gelatin and glue.
(30) Fat, tallow, grease or lard refining of manufacture.
(31) Bone meal, bone grist and bone powder.
(32) Manufacture of cashew nut shell oil.
(33) Other similar types of nuisance industries.

MASTER PLAN FOR NILAMBUR TOWN - 2034

EXISTING LAND USE- 2014

INDIA



KERALA



MALAPPURAM DISTRICT

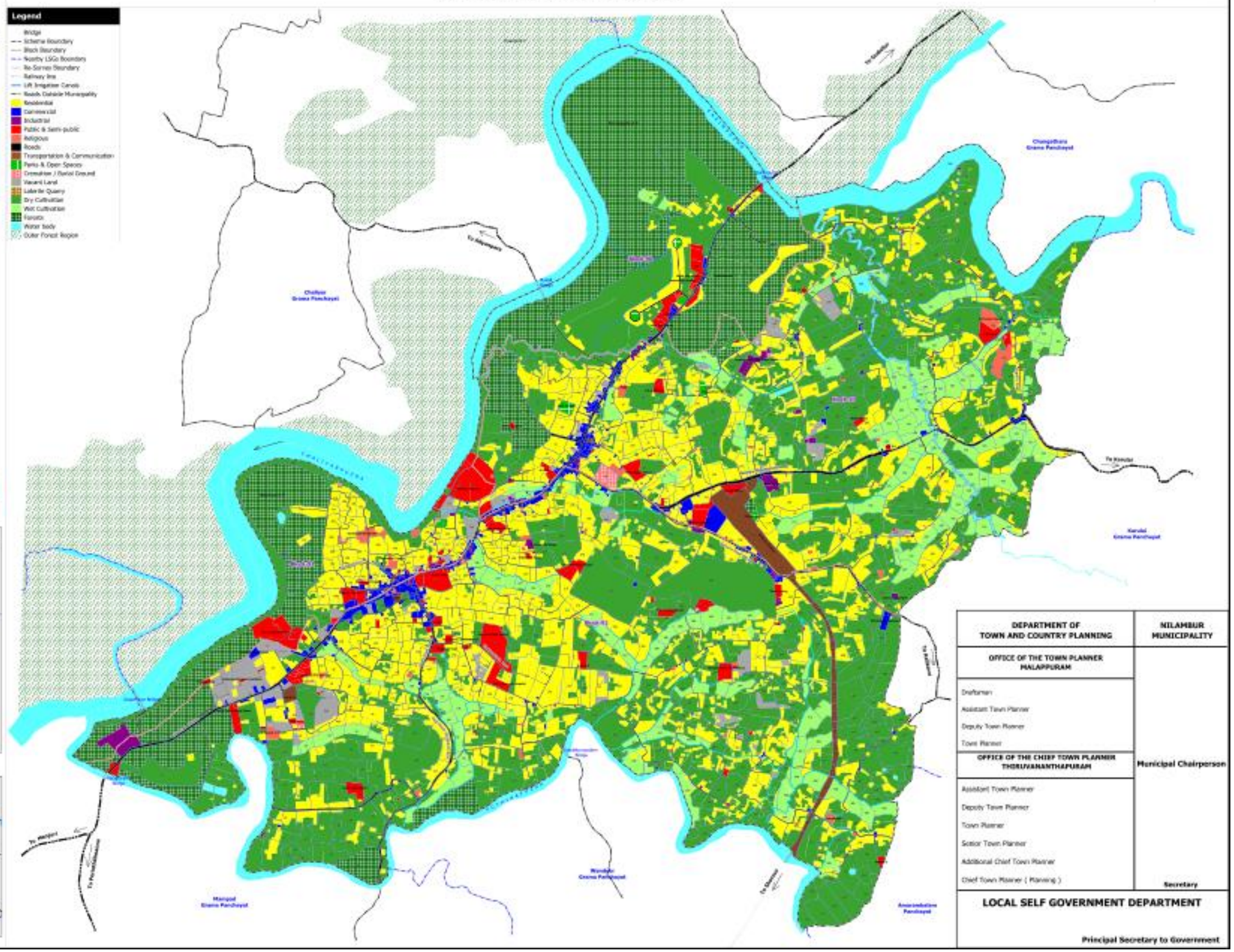


NILAMBUR MUNICIPALITY



Legend

- Bridge
- Scheme Boundary
- Block Boundary
- Nearby LSGs Boundary
- Re-Survey Boundary
- Railway line
- Left Irrigation Canals
- Roads Outside Municipality
- Residential
- Commercial
- Industrial
- Public & Semi-public
- Religious
- Roads
- Transportation & Communication
- Parks & Open Spaces
- Cremation / Burial Ground
- Vacant Land
- Laterite Quarry
- Dry Cultivation
- Wet Cultivation
- Forests
- Water body
- Outer Forest Region



DEPARTMENT OF TOWN AND COUNTRY PLANNING	NILAMBUR MUNICIPALITY
OFFICE OF THE TOWN PLANNER MALAPPURAM	
Draftsmen Assistant Town Planner Deputy Town Planner Town Planner	
OFFICE OF THE CHIEF TOWN PLANNER THIRUVANANTHAPURAM	Municipal Chairperson
Assistant Town Planner Deputy Town Planner Town Planner Senior Town Planner Additional Chief Town Planner Chief Town Planner (Planning)	Secretary

LOCAL SELF GOVERNMENT DEPARTMENT

Principal Secretary to Government

MASTER PLAN FOR NILAMBUR TOWN - 2034

PROPOSED LAND USE- 2034

INDIA



KERALA



MALAPPURAM DISTRICT



NILAMBUR MUNICIPALITY



LEGEND

- Scheme Boundary
- Block Boundary
- Nearby LSGIs Boundary
- Re-Survey Boundary
- Railway line
- Existing Road
- LBI Irrigation Canals
- Roads Outside Municipality
- Dubie Forest Region

Proposed Road Widening

- 7 M
- 10 M
- 12 M
- 16 M
- 24 M

Proposed New Roads

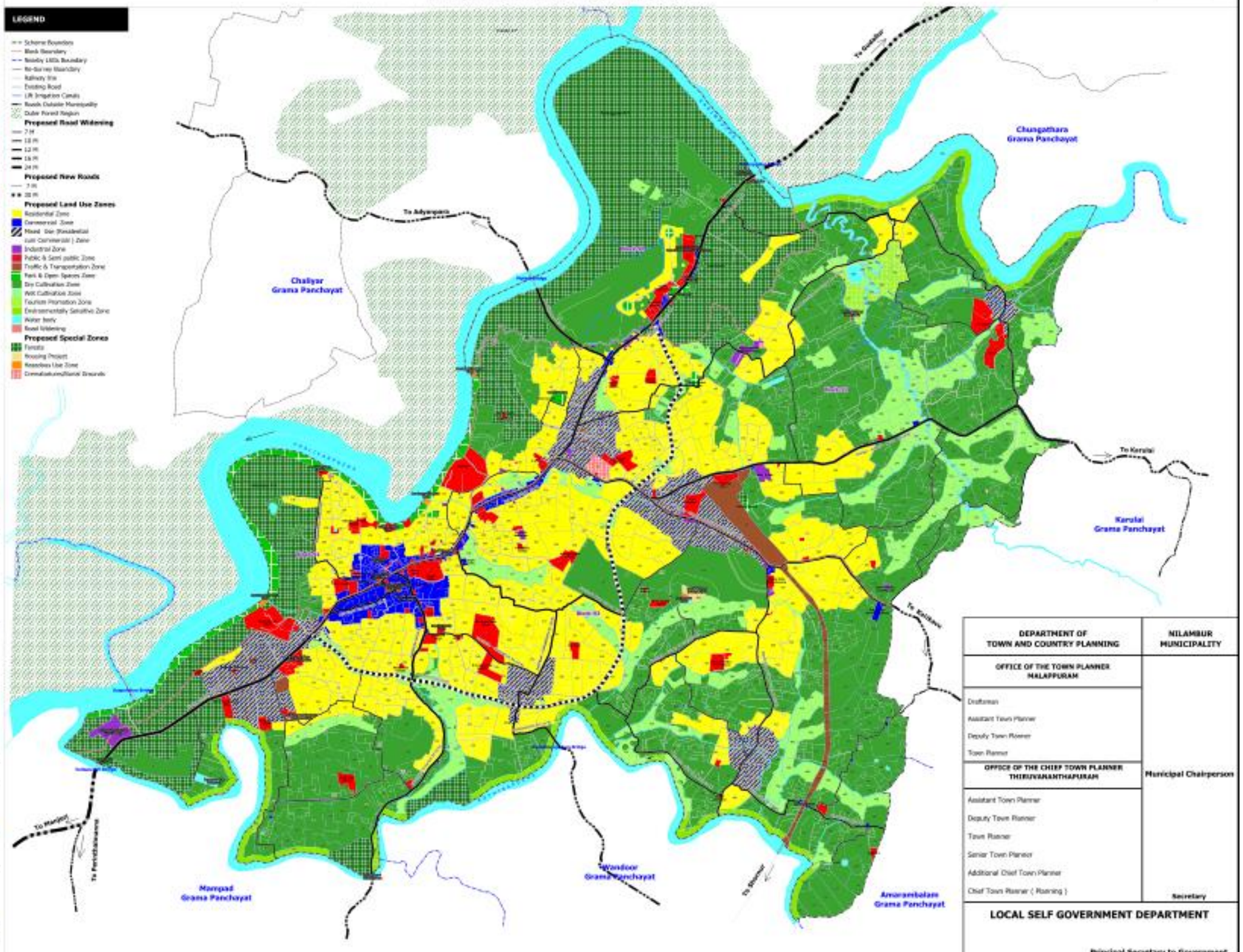
- 7 M
- 10 M

Proposed Land Use Zones

- Residential Zone
- Commercial Zone
- Mixed Use (Residential cum Commercial) Zone
- Industrial Zone
- Public & Semi public Zone
- Traffic & Transportation Zone
- Park & Open Spaces Zone
- Dry Cultivation Zone
- Wet Cultivation Zone
- Tourism Promotion Zone
- Environmentally Sensitive Zone
- Water body
- Road Widening

Proposed Special Zones

- Forests
- Housing Project
- Hazardous Use Zone
- Crematorium/Burial Grounds



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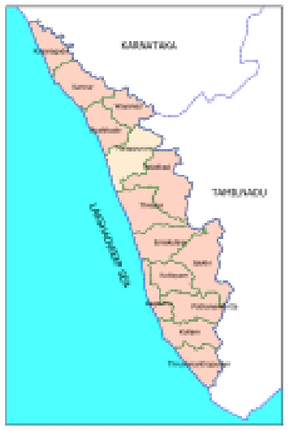
MASTER PLAN FOR NILAMBUR TOWN - 2034

PROPOSED ROAD NETWORK -2034

INDIA



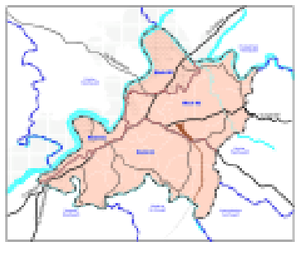
KERALA



MALAPPURAM DISTRICT



NILAMBUR MUNICIPALITY



LEGEND

- Junctions
- Bylanes Boundary
- Existing Road
- Nearest LSGI Boundary
- Block Boundary
- Railway Line
- Lift Irrigation Canals
- Outer Forest Region
- Forests
- Water body

Proposed Road Widening

- 7 M
- 10 M
- 12 M
- 16 M
- 24 M

Proposed New Roads

- 7 M
- 10 M

Proposed Land Use

- Traffic &Transportation

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