
TPB

Perinthalmanna
Masterplan 2033



PERINTHALMANNA 2033

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PERINTHALMANNA MUNICIPALITY &
DEPARTMENT OF TOWN AND COUNTRY PLANNING,
GOVT. OF KERALA

PERINTHALMANNA MASTER PLAN 2033

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PERINTHALMANNA 2033

Perinthalmanna Municipality &
Department of Town and Country Planning
Govt. of Kerala

PERINTHALMANNA
MASTERPLAN 2033



FOREWORD

വികസന രംഗത്ത് പെരിന്തൽമണ്ണ നഗരം നിലനിർത്തിപ്പോരുന്ന കുതിപ്പും, പ്രവേഗവും അത്യന്തം ആശ്ചര്യകരമത്രെ. മലപ്പുറം ജില്ലയിലെ തന്നെ ഏക ഒന്നാം നിര പട്ടണമായി ശാസ്ത്രീയ പഠനങ്ങൾ പെരിന്തൽമണ്ണയെ തെരെഞ്ഞെടുത്തിട്ടുള്ളതും മറ്റൊന്ന് കൊണ്ടല്ല.

വള്ളുവക്കോനാതിരിമാരുടെ പ്രൗഢിയുടേയും, ഗാംഭീര്യത്തിന്റേയും പാരമ്പര്യമുറങ്ങുന്ന ഈ ദേശം പിന്നീട് ബ്രിട്ടീഷ് ഭരണകാലത്ത് വള്ളുവനാടിന്റെ ഭരണ സിരാകേന്ദ്രമായും, ശേഷം മലപ്പുറം താലൂക്ക് ബോർഡിന് കീഴിലും ഭരണം കയ്യാളപ്പെട്ടു. 1933 ൽ പഞ്ചായത്ത് ആയും, പിന്നീട് 1990 ഫെബ്രുവരി 10 ന് മുൻസിപ്പാലിറ്റിയായും പരിവർത്തനം ചെയ്യപ്പെടുകയും, ഹ്രസ്വ കാലത്തെ പ്രത്യേക ഉദ്യോഗസ്ഥ ഭരണത്തിന് ശേഷം ആദ്യ മുനിസിപ്പൽ കൗൺസിൽ ശ്രീമതി. കെ.ടി. പ്രേമലത അവർകളുടെ അധ്യക്ഷതയിൽ 1995 ഒക്ടോബർ 26 ന് നിലവിൽ വരികയും ചെയ്തു.

ദശാബ്ദങ്ങൾക്കു മുൻപെ തന്നെ പ്രമുഖ വ്യാപാരകേന്ദ്രമായി അറിയപ്പെട്ടിരുന്ന പെരിന്തൽമണ്ണ ഇന്ന് ആശുപത്രി-വിദ്യാഭ്യാസ സ്ഥാപനങ്ങളുടെ നഗരമായിട്ടാണ് അറിയപ്പെടുന്നത്. വികസന രംഗത്ത് ഒരു കുതിച്ചു ചാട്ടത്തിന് മുന്നൊരുക്കം നടത്തുന്ന ഈ വേളയിൽത്തന്നെ വികസന പ്രവർത്തനങ്ങൾ കൃത്യവും, കാര്യക്ഷമവും സർവ്വോപരി പാരിസ്ഥിക, സാമൂഹിക സന്തുലനം നിലനിർത്തുന്ന രീതിയിലും ക്രോഡീകരിക്കപ്പെടേണ്ടത് അത്യന്താപേക്ഷിതമാണ്.

നിലവിലുള്ളതും, വരാനിരിക്കുന്നതുമായ വികസന ആവശ്യങ്ങൾ മുന്നിൽ കണ്ടു കൊണ്ട്, ലഭ്യമായ വിഭവങ്ങളുടെ കാര്യക്ഷമമായ വിനിയോഗത്തിലൂന്നിക്കൊണ്ടുള്ള വികസന നയം രൂപപ്പെടുത്തേണ്ടതുണ്ട്. ഇതിലേക്കായി സമഗ്രവും, ശാസ്ത്രീയവുമായ പഠനങ്ങൾ വഴി, വരുന്ന ഇരുപത് വർഷത്തേക്ക് അനിവാര്യമായ വികസന വിശദാംശങ്ങൾ പ്രതിപാദിക്കുന്ന മാസ്റ്റർ പ്ലാൻ തയ്യാറാക്കാനായി 2011 ജനുവരി 24-ാം തീയതി ചേർന്ന മുനിസിപ്പാലിറ്റി യോഗം തീരുമാനിച്ചു. നഗരഗ്രാമാസൂത്രണ വകുപ്പിന്റെ സഹായത്തോടെ തയ്യാറാക്കി മുഖ്യനഗരാസൂത്രകൻ അംഗീകരിച്ച കരട് മാസ്റ്റർ പ്ലാൻ ശ്രീമതി നിഷി അനിൽരാജ് അദ്ധ്യക്ഷയായ നഗരസഭാ കൗൺസിൽ സ്വീകരിച്ച്, പ്രസിദ്ധീകരിക്കുന്നതിനുള്ള അനുമതിക്കായി സർക്കാരിലേക്ക് സമർപ്പിച്ചു. പൊതുജനങ്ങളിൽ നിന്നും ആക്ഷേപങ്ങളും അഭിപ്രായങ്ങളും സ്വീകരിക്കുന്നതിനു വേണ്ടി, സർക്കാർ അനുമതിയോടെ, 2016 സെപ്റ്റംബർ 27-ാം തീയതി കരട് മാസ്റ്റർ പ്ലാൻ പ്രസിദ്ധീകരിച്ചു. ആക്ഷേപങ്ങളും അഭിപ്രായങ്ങളും പരിഗണിച്ച് ആവശ്യമായ മാറ്റങ്ങൾ ഉൾപ്പെടുത്തി മാസ്റ്റർ പ്ലാൻ പരിഷ്ക്കരിച്ചു.

പെരിന്തൽമണ്ണ മുനിസിപ്പാലിറ്റിയും, കേരള നഗരഗ്രാമാസൂത്രണ വകുപ്പും, മറ്റ് വിവിധ മേഖലകളിലുള്ള വിദഗ്ദ്ധരും, ഉദ്യോഗസ്ഥ വൃന്ദവും, സർവ്വോപരി നാളത്തെ പൗരന്മാർ ഉൾപ്പെടുന്ന പൊതുസമൂഹവും പല ഘട്ടങ്ങളിലായി ചേർന്നു കൊണ്ട് തയ്യാറാക്കിയ "പെരിന്തൽമണ്ണ മാസ്റ്റർ പ്ലാൻ 2033" ഇവിടെ യാഥാർത്ഥ്യമാവുകയാണ്. പ്രസ്തുത പ്ലാൻ അതിവേഗം പ്രവർത്തിപഥത്തിൽ എത്തിക്കുന്നതിനായുള്ള യജ്ഞത്തിലും നമുക്കൊരുമിച്ച് കൈകോർക്കേണ്ടതുണ്ട്, നമ്മുടെ നഗരത്തിന്റെ നല്ല നാളേക്കായി .....!

സ്നേഹപൂർവ്വം

ശ്രീ. മുഹമ്മദ് സലീം. എം
ചെയർമാൻ, പെരിന്തൽമണ്ണ നഗരസഭ

PREFACE

Rapid urbanization evident in the state has been the result of unbridled urban sprawl and population explosion rather than enlargement of production base and the related economic development. Anthropogenic threats to the environment due to this trend of widespread urbanization occupying a large percentage of the state's landed resources are not fully comprehended by the civil society. Limiting the ecological and physical foot prints of urbanization to an environmentally sustainable level is crucial for the overall development of the state both in terms of environmental quality and economic sustenance.

The 74th Constitutional Amendment and subsequent state legislations have put forward a paradigm shift in the development planning process. The focus has shifted from physical planning to spatial planning for economic development. The inclusiveness of the development process is another important consideration in the nation at present. The Planning Commission, Government of India, in the Approach to 12th Five Year Plan, articulated this view by saying "Urban planning cannot be limited to spatial allocations and engineering solutions: It must encompass and connect various socio-technical considerations too". The development 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.

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 Master Plan. The office of the Chief Town Planner also played anchor role in this regard, right from conceptualization to completion. I appreciate the consistent efforts of 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, Sri.Poulose C.J, Senior Town Planner (Rtd), Smt.Ushakumari P.R, Smt. Girija K S, Senior Town Planners, Sri.Baiju K, Smt. Asha Ajoy Ghosh Town Planners and other officials of the Office of the Chief Town Planner (Planning).

Certainly the development plan for Perinthalmanna will provide a frame work for development of the town for years to come.

Thiruvananthapuram
Date:

Sri. Shaji Joseph
Chief Town Planner (Planning)
Town & Country Planning Department
Government of Kerala

ACKNOWLEDGEMENTS

The preparation of Development plan for Perinthalmanna town was taken up by the middle 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 development 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. People's participation has been a crucial element in the methodology. The development plan once sanctioned shall give directions to the development process in the municipality for years to come. Suitable provisions for monitoring and review of the development plan is inbuilt.

We have heavily relied on statistical data from various development departments. Their readiness to share the data is gratefully acknowledged. The collection of data and analysis would not have been possible without the active involvement of Spatial Integration Committee under the Chairmanship of the Municipal Chairpersons Smt. Sudha Kumari. K and Smt. Nishi Anilraj. The contributions made by Sri. V. Abdul Razak, Town Planner (Retd) as resource person in the Spatial Integration Committee is also gratefully acknowledged. 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, and 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.

Smt.Athira Ravi,Smt.Leelitty Thomas, Sri.Mohammed Musthafa. K, Deputy Town Planners and and Sri. Shameer.K, Assistant Town Planner have spear-headed office and field activities in the project. The assistance offered by the statistical wing of this office and Kum. Ranjusha.V, Planning Assistant is remarkable. The efforts put in by Sri. Saheer Poovanthodi, Smt. Sini.G.Nair, Town Planning Surveyors and Smt. Sudha.T, Computer Assistant for the preparation of the report needs special mention. Smt. K. Vijayalakshmi, Statistical Assistant of this office has illustrated this report. The gesture, beyond the call of duty is highly appreciated. 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
Town & Country Planning Office
Malappuram

Malappuram
Date:

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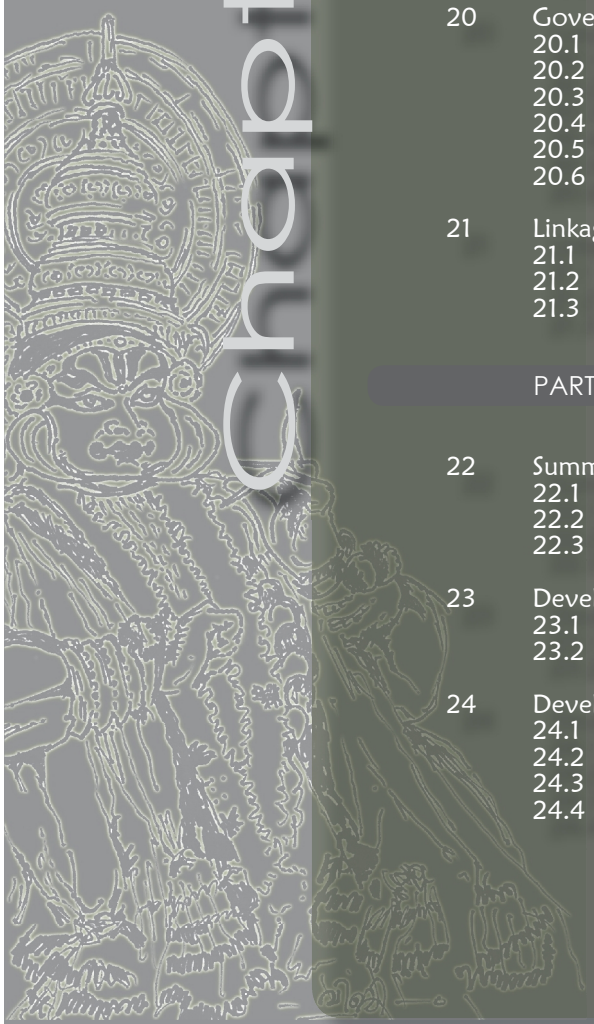

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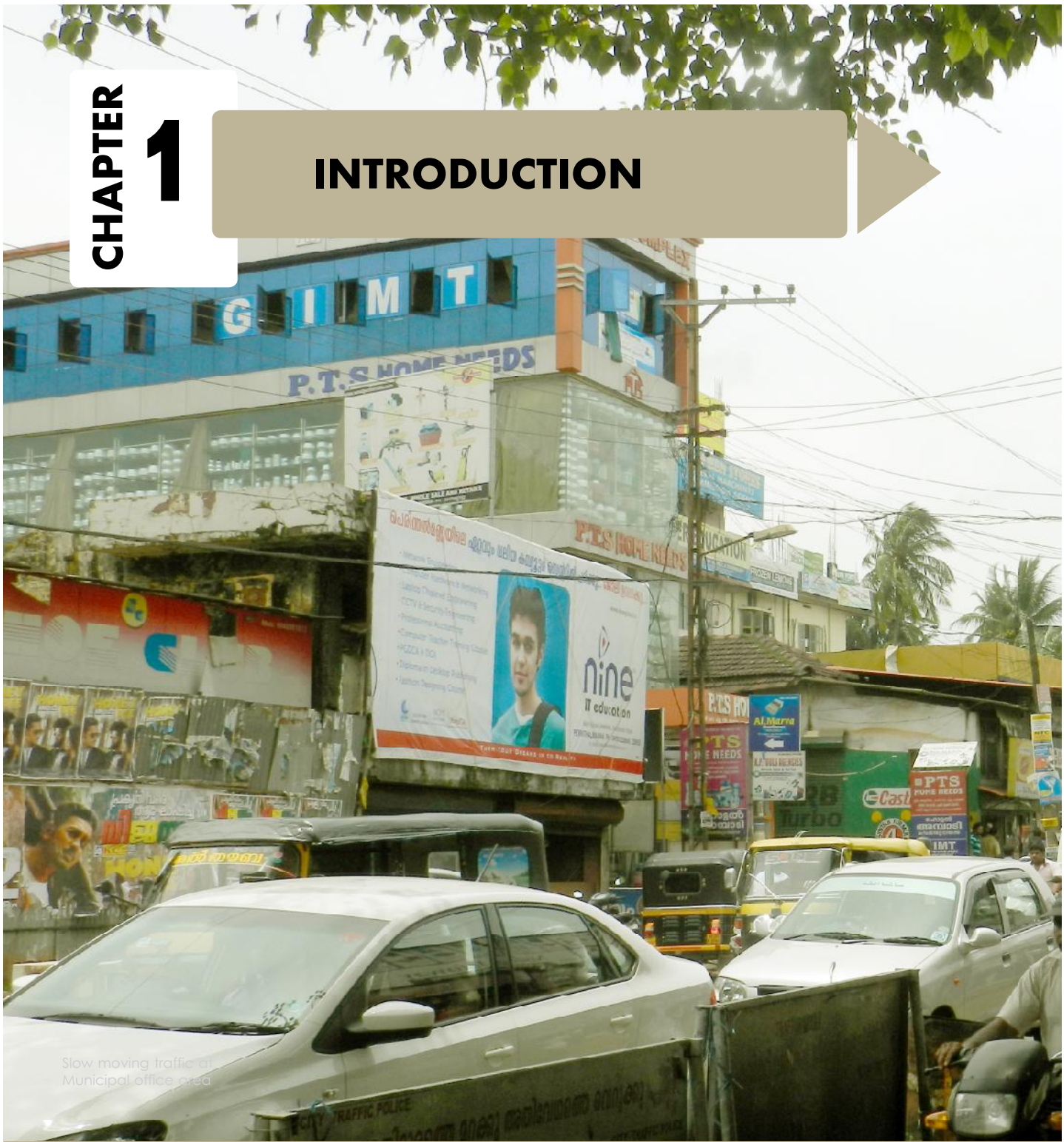
PART – I
STUDY AND ANALYSIS



CHAPTER 1

INTRODUCTION



Slow moving traffic at Municipal office area



1.1 The Town
1.2 Why the Plan?
1.3 Profile of the town
1.4 History
1.5 Bio Diversity
1.6 Earlier planning efforts
1.7 Plan for and by the people

1 INTRODUCTION

1.1 The Town

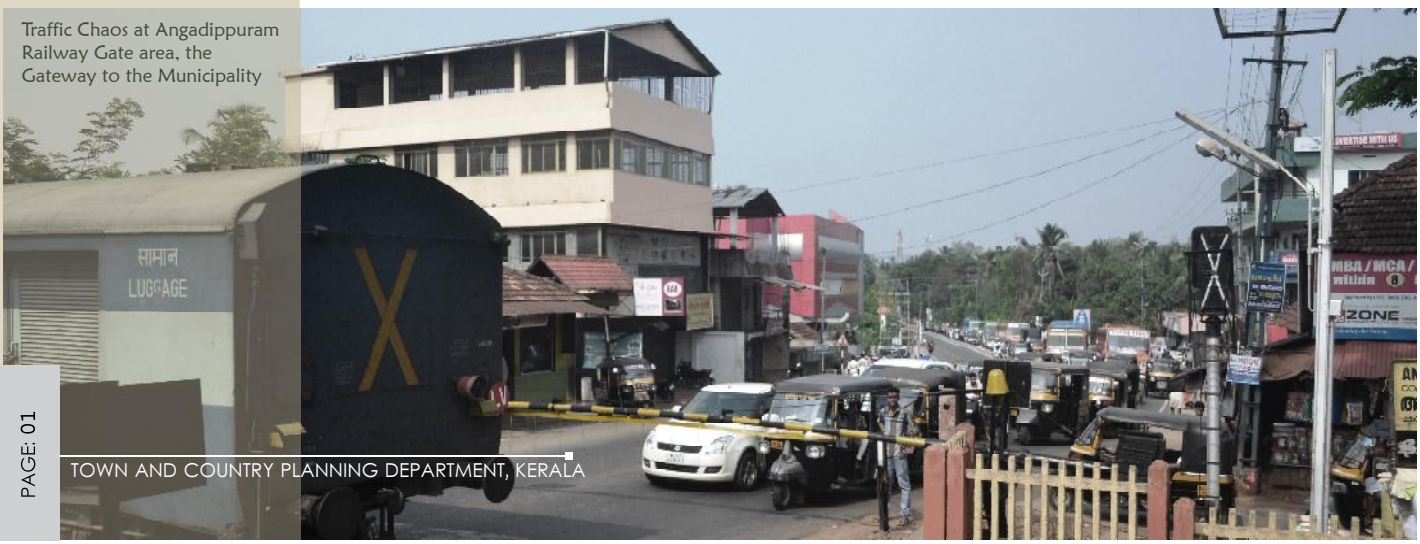
Perinthalmanna is a prominent and fast-developing settlement in the district. The town is equidistant, at approximately 70 Km, from Palakkad, Thrissur and Kozhikkode cities. The Kozhikkode-Palakkad Road (NH 966) and the Perumbilavu-Nilambur Road (SH 39&23) meet at the Main Junction of Perinthalmanna. This geographic positioning and connectivity with all important settlements in the region has been catalystic to the growth of this town. This strong connectivity has attracted higher level facilities to the town. But this also means a heavy volume of through-traffic that adds to the chaos in the town.

1.2 Why the Plan..?

The town caters to a large hinterland as a service center, offering even tertiary level services. For example, the health care sector is flourishing in the town with a couple of super-speciality hospitals. Further investments are expected both in existing units and green field projects in the sector.

A number of large scale institutions have come up in the periphery of the town in all directions. In the south, the off-center campus of Aligargh Muslim University has come up in Elamkulam Panchayath. The MEA Engineering College is in the north of the town in Vettathur Panchayath. In the east, EMS Hospital, which is likely to be medical college soon, is established in Thazhekode Panchayath. The MES Medical College is in Angadippuram, and Puzhakkkattiri Panchayaths, on the west side of the town. All these institutions have come up just outside the town and depends on the town for urban amenities.

The town has witnessed a haphazard growth in the past few decades in the absence of proper development control regulations (the Kerala Municipal Building Rule, 1999, which is general in nature and applicable to all ULBs in the state is the only control on the physical development of the town). Perinthalmanna, originally with a serene environment and water quality due to its vast paddy fields and greenery is turning fast into an environmental nightmare. Besides, the physical growth of the town has been mainly in the commercial sector. Addition to the critical infrastructure like roads and other urban civic amenities had been dismal.



Traffic Chaos at Angadippuram Railway Gate area, the Gateway to the Municipality

The town has to be cautious in reducing the adverse impacts of the economic activities on the environment in order to ensure a reasonable level of quality of life to its inhabitants.

The water bodies in the town have become cesspools due to unbridled letting out of the solid and liquid waste into them.

Thus, the town faces the need for further augmentation of the physical activities for strengthening the back bone of the local economy while restoring its environmental quality. The town also has to be cautious to reduce the adverse impacts of the economic activities on the environment in order to ensure a reasonable quality of life to its inhabitants.

Further the interests of the weak and the poor, like access to social infrastructure, better quality of life and means of livelihood, are to be protected for the development to be truly inclusive. All these indicate the necessity of a well-deliberated development plan for the town, considering its development potentials and resources.

As per the 73rd & 74th constitutional amendments and the subsequent state legislations, it is the responsibility of the LSG to prepare a master plan for its development with focus on scientific spatial planning.

In this context, the Perinthalmanna municipality has resolved to prepare a master plan for Perinthalmanna town vide resolution no: 26, on agenda E2/17353/10 on 24-01-2011 and requested the state government to prepare the plan. In response to this the Chief Town Planner, Town & Country Planning Department, Government of Kerala has directed the Town Planner, Malappuram to initiate preliminary activities for preparing the development plan vide letter no: E2-1633/2011 dated 27-07-2011. The Government of Kerala, vide G.O. No: 1376/2012/LSGD dated 17-05-2012 accorded administrative and financial sanction for the preparation of development plan for Perinthalmanna town to Town & Country Planning Department, Government of Kerala.



1.3 Profile of the town

Perinthalmanna is one of the seven municipal towns in Malappuram district of Kerala. This was the capital of the ancient Valluvanad kingdom and has a rich history of "Malabar Revolution". Etymologically, Perinthalmanna derives its name from the Malayalam word 'Perumthallumannu' which means the land of big, rigorous fights and the original word was replaced by "Perinthalmanna" over time.

1.3.1 Location

Perinthalmanna is located near the southern boundary of Malappuram District, along National Highway 966. The town is well connected by roads to the other important towns in the district like Malappuram, Manjeri, Nilambur, Kottakkal, Pattambi and Shornur and the neighbouring LSGs Angadippuram, Vettathur, Thazhekkode, Alipparamba, Elamkulam and Pulamanthole. Malappuram town, the headquarters of the Malappuram district is at 20 km to the west of the town, along National Highway 966. Manjeri is at a distance of 25 km to the north of the town. Other important places in the district such as Kottakkal-the center of Ayurveda, Nilambur-the tourist spot of the district, Tirur-the trading center, and Ponnani -the Port town, are at 27 km, 40 km, 42 km and 50 km respectively from the town.

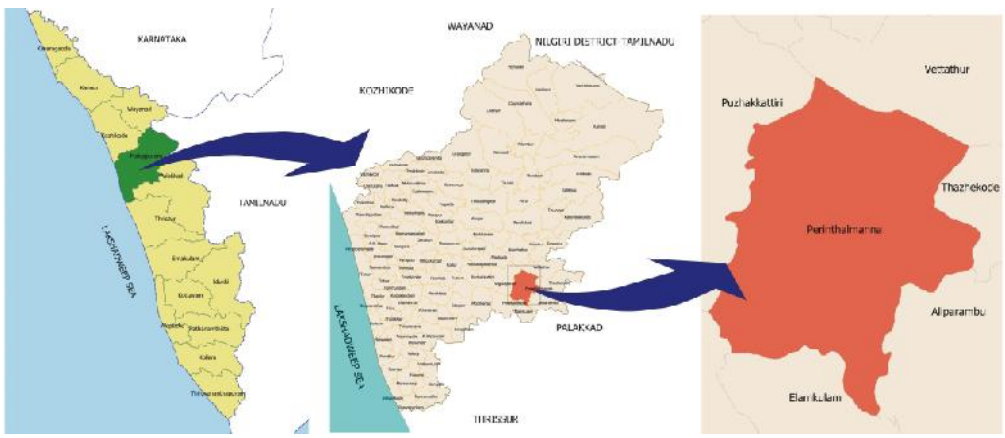


Figure 1.1 Location of Perinthalmanna Municipality

Perinthalmanna derives its name from the Malayalam word 'Perumthallumannu' which means the land of big, rigorous fights

The town is also well connected by road to places like Kozhikode,Thrissur, Palakkad, Coimbatore, Ootty etc and by rail to all important places in the country. Pattambi, Mannarkad and Ottappalm in Palakkad district are at distances of 23 km, 30 km and 35 km respectively from the town. An interesting feature of the town is that it is at an equal distance of 70 km from the major cities of neighbouring districts such as Kozhikode, Palakkad and Thrissur.

Nearest railway station is Angadippuram on Shornur-Nilambur railway line, just 2 km away from the town Centre, and Shornur railway junction is 45 km South of Perinthalmanna. Calicut international airport is at a distance of 43 km from the town.

1.3.2 Area and Population

Perinthalmanna municipality accounts for 0.97% of total geographical area of the district and accommodates 1.21% of the total population. As per 2011 census, the population of the municipality was 49,723 with an area of 34.41 sq. km, spread over 34 electoral wards, showing a density of 1445 persons per sq. km, which is low when compared to other towns in the state. The female population is a little more than the males, with the males constituting 47.3% of the population and females 52.7%, indicating higher sex ratio. Perinthalmanna has an average literacy rate of 95.28%, higher than the national average of 59.5% with the male and female literacy of 93.95% and 93.91% respectively. In Perinthalmanna, 12.92% of the population is under 6 years of age. About 10% of the people belong to SC/ST category.

Perinthalamanna is at an equal distance of 70 km from the major cities of neighbouring districts such as Kozhikode, Palakkad and Thrissur.



Figure 1.2 Regional Connectivity

1.3.3 Climate

The Perinthalmanna Municipality experiences similar climatic conditions as those prevalent elsewhere in the state, viz. dry season from December to February, hot season from march to May and the south west and north east monsoon from June to November. Nearly 75 % of the annual rains are received during the south west monsoon. The climate is generally hot and humid, the range of temperature varies between 20^0 C to 35^0 C. The average rainfall experienced in Perinthalmanna municipality is about 2810 mm, which is lower than that of the State and the District.

1.3.4 Physiography

Similar to the other parts of the state, Malappuram district also consist of the three physiographical divisions, low land, mid land and high land. The low land stretches along the sea coast, the mid land is in the central area and the high land region is towards the eastern and north eastern parts. Perinthalmanna belongs to the mid land region. The municipal area can be divided into 7 parts as per physiography such as raised land, small slope, medium slope, steep slope, level surface, valley and flood prone areas.

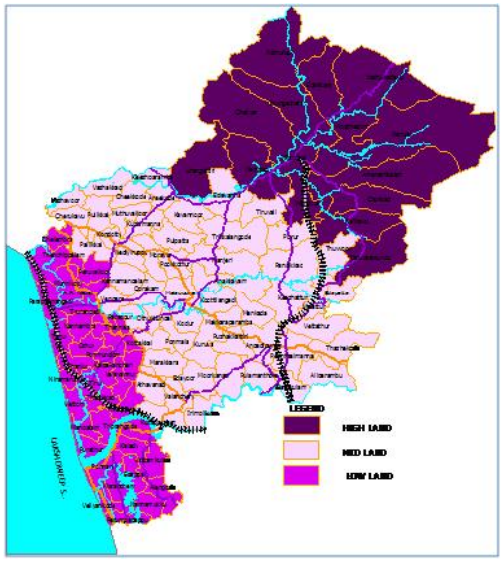
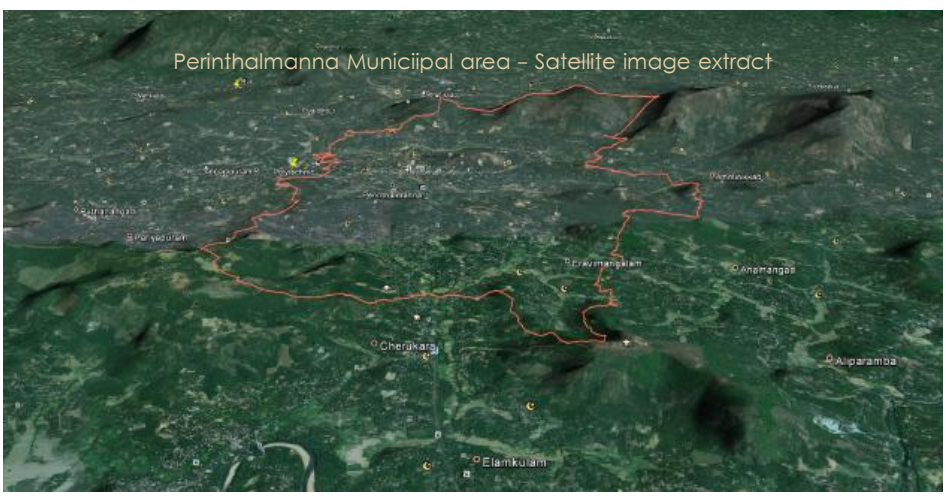


Figure 1.2 Pysiographical details of the district

The town has higher elevation on both north and south boundaries. A valley formed in between these two higher elevation fans out from east to west forming an alluvial plain, vast tracts of paddy fields. The physical development has taken place mostly on the dry lands on the periphery of the paddy fields in the beginning. Gradually the built environment has encroached upon the paddy fields resulting in drastic reduction in their extent.

The built environment has encroached upon the paddy fields resulting in drastic reduction in their extent.





Angadippuram Thirumandhamkunnu temple – an illustration

As it was the land ruled by the Valluvakkonathiri, it came to be known as Valluvanad.

1.4 History

1.4.1 Perinthalamanna in Valluvanadu

In the olden days, Valluvanad was an independent princely state comprising of parts of present Ottappalam, Pattambi, and Perinthalmanna Taluks. In AD 1320, the ruler of Valluvanad was a witness during the offering of the title deed by King Veeraraghava. After the death of Cheraman Perumal (AD 1320-1342), Kerala was divided among the rulers of Thiruvithamcoore, Kochi, Kolothunaadu, Kurumbanadu and Valluvanad states.

The post of the ruler of Valluvanad was known as 'Valluvakkonathiri'. As it was the land ruled by the Valluvakkonathiri, it came to be known as Valluvanad.Valluvakkonathiri was also known by the names like Vellaattiri, Vallabhan, Rayiran Chathan, Chathan Kotha and Arangotte Udayavar. The eldest member of Ayirazhi- Kadannamanna-Aripra Kovilakam became the Valluvakkonathiri. At first, the capital of Valluvanad was Kuruvanad, and later, Angadipuram became the capital. Perinthalmanna was considered to be the main center of Valluvanad. Both Perinthalmanna province and Angadippuram province were together known as Angadippuram.

The tradition associated with this ancient town is that in the olden days, sporting events, including martial activities, were organized under the leadership of Kakooth Nairs, the commander-in-chief of the Valluvakkonathiris. These sporting events were organized before Angadipuram Thirumandhamkunnu Temple festival, which was celebrated after the harvesting of crops in the month of Makara, which corresponds to the months of January/February of the Gregorian calendar. Another main event of the festival was the Aattakalam or the staging of Kathakali.

Later during the Mysore invasion, Valluvanad was confined in area, and the Vellattiri sought asylum in Travancore. On the cessation of Malabar to the British by Tippu Sultan, Vellattiri entered into an agreement with the British, and became a pensioner. There was a military cantonment during Tippu's and British periods in Perinthalmanna.

1.4.2 Perinthalmanna During British Period

From 1835 until late 19th century, violent disturbances surfaced from time to time in different parts of the Malabar region, particularly in Eranad and Valluvanad, and the adjoining areas, which included Perinthalmanna. These disturbances and uprisings were agrarian unrest in nature. Malabar came under the direct administrative control of the British raj, and was made a part of the Madras Presidency.

Malappuram was the venue for many of the Mappila revolts, also known as the Mappila rebellion, between 1792 and 1921. These incidents also affected Valluvanad. There were large-scale violence and riots in different parts of Valluvanad, followed by exodus of people from the affected areas. The looting of the government treasury by the rioters rocked Valluvanad. Rumors surrounding this looting instigated violence in Eranad and many other parts of Valluvanad, but the residents of Perinthalmanna had, to a certain extent, refrained themselves from indulging in violence. The main reason for this was the social and cultural amity that existed in Perinthalmanna. Perinthalmanna is the location where the East India Company established their first high school, first court, first Taluk office, and more after the Malabar treaty. Perinthalmanna vocational higher secondary school is one of the oldest schools in Malabar region; it was started during 1865 as a Right school.

1.4.3 History of Governance

Perinthalmanna was at first under Malappuram Taluk board, and then under the Valluvanad Taluk board. This place became a Panchayath in 1933. The first Panchayath president was P. Achuthan Menon.

Malappuram district was formed in 1969 comprising Ernad and TirurTaluks of former Kozhikode district and Perinthalmanna and Ponnani Taluks of erstwhile Palakkad district.



From Thirumandham kunnu pooram festival

Perinthalmanna became a municipality on 10 February 1990.

The town became a municipality on 10 February 1990. This place was under an advisory board till 1991 and thereafter under a special officer, till the new council took charge on 1995 October 26, and Smt. K.T. Premalatha was the first Municipal Chairperson.



Perinthalmanna municipality is part of the Perinthalmanna electoral constituency (legislative assembly) and Malappuram Parliament constituency.

1.4.4 Socio Cultural History

The district has a rich heritage and was a famous centre for Vedic learning and Islamic philosophy. It contains several examples of Indo-European architecture. Along with historic monuments and diverse natural attractions, Malappuram is also famous for its cultural and ritual arts. The temples and mosques of this district are well known for their spectacular festivals.

Valluvanad played an important role in the Indian national movement. Shri. M.P. Govindhamenon, Shri. M. P. Narayan Menon, Kallingal Kammu Sahib, Vellanjola Kunjayammu, Nechchiyil Moideenkutty Sahib, Chengara Madhavaththarakan, Thevar Tharakan, C.P. Madhava Tharakan, Dr. M.S. Nair, Adv. Mohammed Shafi etc were the renowned persons who participated in the freedom struggle.



There are many renowned personalities from Perinthalmanna who have played an important role in the social and political domain of Kerala like Shri. E.M.S. Namboothiripadu who was an Indian Communist leader, Socialist-Marxist theorist, revolutionary author, historian, social commentator and the first Chief Minister of Kerala state. His native village Elamkulam is very near to the municipality and Perinthalmanna was his arena during the initial stages. Poonthanam the famous devotee of Lord Krishna (Guruvayoorappan) lived in Keezhattoor, close to Perinthalmanna. He is remembered for his masterpiece, 'Jnanappana' which means 'the song of wisdom'. House of Poonthanam known as Poonthanam illam is a famous heritage center in the state. Perinthalmanna was the work place of Cherukad, famous revolutionary writer in Malayalam, & Shri. E.P. Gopalan, who participated in the independence struggle. He was a Socialist and a famous leader of Indian National Congress.

Angadippuram which is around three Kms from Perinthalmanna town is a temple town, and houses seven temples.

Pathaikkara is a scenic Valluvanadan village within the municipality. There are so many temples and mosques situated here. Pathaikkara Mana is one of the well-known Namboothiri illams in Kerala. Pathaikara Sree Mahavishnu Temple is a very famous Vishnu temple in Valluvanad.

Angadippuram which is around 3 kms from Perinthalmanna town is a temple town and houses around 7 temples. The Thirumandhamkunnu Bhagavathy Temple was built by the erstwhile rulers of Valluvanad. The goddess Bhagavathi is the family deity of the Valluvakkonathiris. This temple is a flourishing pilgrim center. There is yet another important pilgrim centre in the village, the Tali temple, which is also near the highway.

1.5 Bio Diversity

Malappuram District is flanked by the Nilgiris on the East and the Arabian Sea on the West, and is rich with evergreen forests, pristine valleys, meandering rivers and breathtaking beaches. The district has four great rivers flowing through, namely, the Chaliyar, the Kadalundi, the Tirur puzha and the Bharathappuzha. The region also has a network of inland waterways. The midland region including Perinthalmanna is fertile with thick coconut groves while the hilly tract has dense forests and extensive Teak plantations apart from the innumerable streams and rivers.



The Municipality has no statutory master plan currently in place.

1.6 Earlier planning efforts

Even though Perinthalmanna became a municipality in 1990, the town as of now has no statutory development plan. However, many efforts to scientifically organise the developments were taken up since its formation. The Town & Country Planning Department prepared Draft Detailed Town planning schemes for the core area of the town as soon as Perinthalmanna became a municipality. In the year 2000, a master plan was prepared for the town by the Town & Country Planning Department on request of the municipality. This plan was prepared through a participatory approach and the draft was prepared based on stake holder discussions and feed backs obtained during a development seminar conducted in January 2000. Another effort was the traffic & transport study conducted for the town in the year 2002 by the Town &Country Planning Department. However, the legal processing of these plans could not be completed.

1.7 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 development plan was also formulated ensuring people's participation at all levels of plan preparation. The Spatial Integration Committee formed at the municipal level and chaired by the Chairperson of the municipality spear-heads the plan making 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. Sri. V. Abdul Razak, Retd. Town Planner was opted as the resource person in the SIC for Perinthalmanna Town.

The voice of children should not be left unheard while preparing a development plan since they are a major group of beneficiaries of the plan.

The voice of children should not be left unheard while preparing a development plan since they are an important group of beneficiaries of the plan. So, their dreams about their own city, where they are going to live as adults, are important. To get an insight of the kids' vision of their own town in the future, their involvement in the thinking process was deepened by conducting competitions for them with the theme, "Future of Perinthalmanna".

While a pencil drawing competition was conducted for the Upper Primary school students, High school students partcipated in an essay writing competition and higher secondary/ college students prepared study reports for the competition.



"My city, in my dreams"
first prize winning drawing in pencil drawing competition.

"With Public opinion towards it, nothing has failed, and with public opinion against it nothing has succeeded..!!"

-Jawaharlal Nehru



Arun. P of Tharakan Higher Secondary School, first prize winner of Pencil drawing competition receives cash prize and certificate

Detailed Focus Group Discussions were conducted with various stakeholders, regarding the problems, their solutions and the development potential of the town.



Master Plan data presentation

The collected data and their analysis was presented in a one day workshop conducted at Municipal town hall on 20-12-2012 for evaluating the collected data. The workshop was attended by the councillors, SIC members, working group members, department officers and representatives of various stakeholder organizations.

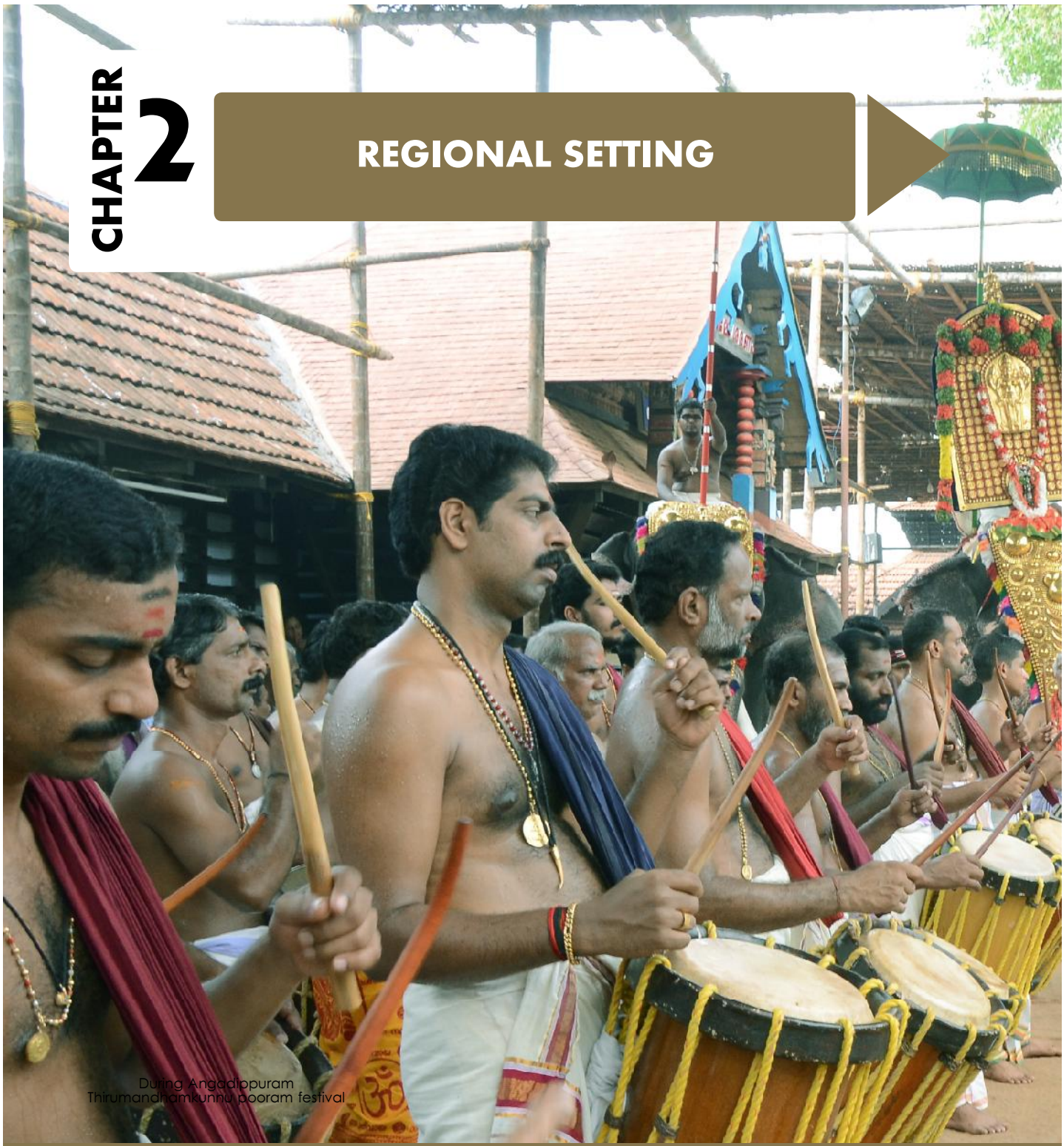
Detailed Focus Group Discussions were conducted with the stakeholders, regarding the problems, their solutions and the development potential of the town. Various views, suggestions and requirements proposed by the direct end-users were discussed in detail and were noted so as to be addressed in the Master Plan. The following stakeholder groups forming a cross section of the society were consulted with.

- Federation of Registered Civil Engineers (Force)
- Licensed Engineers and Supervisors Federation (Lensefed)
- Hospital Management Association
- Oisca International
- Bus Operators Union, Motor/ Taxi Workers Union
- Vyapari Vyavasayai Ekopana Samithi, Vyapari Vyavasayi Samithi, Kerala Small Scale Industries Association
- Heads of Various Educational Institutions
- Various Service Organizations
- Police Officers, Perinthalmanna
- School, Higher Secondary and College Students.

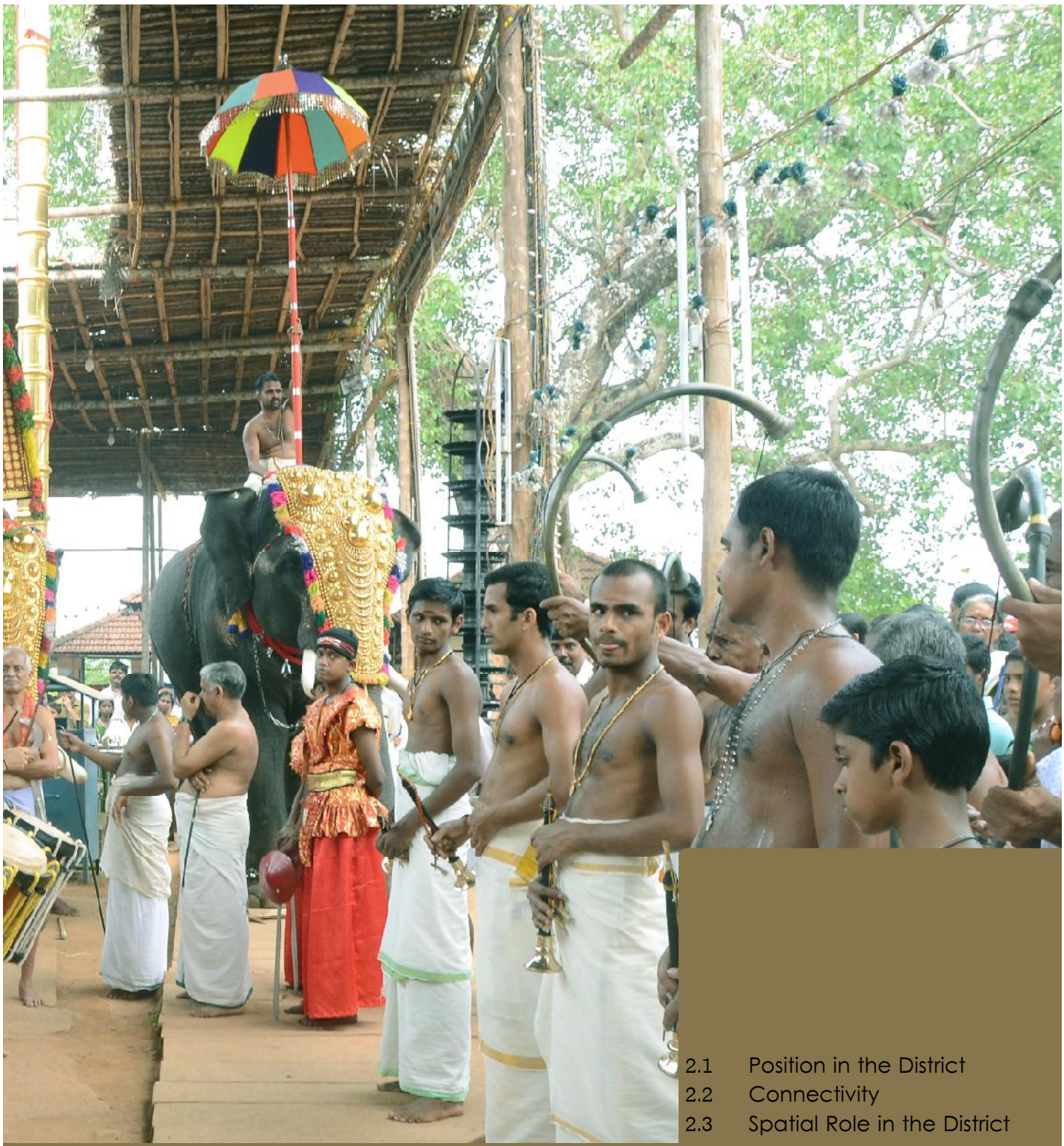
The draft master plan was presented in a seminar to create more awareness among the common public.

CHAPTER 2

REGIONAL SETTING



During Angadippuram Thirumandhamkunnu pooram festival



2.1 Position in the District
2.2 Connectivity
2.3 Spatial Role in the District



2 REGIONAL SETTING

2.1 Position In the District

Perinthalmanna is one of the prominent settlements in the district. The District Urbanization Report 2011 reveals that the town tends to get a slight primacy over other towns in the district due to the availablity of higher order services, especially in health care, although the land use concentration pattern and the functional character of Perinthalmanna is that of a rural class of settlement. This is due to vast tracts of agricultural land and less compact nature of development with a low population density.

Perinthalmanna is one of the prominent settlements, and has a slight primacy over other towns in Malappuram District, due to the availability of higher order services especially in health care.

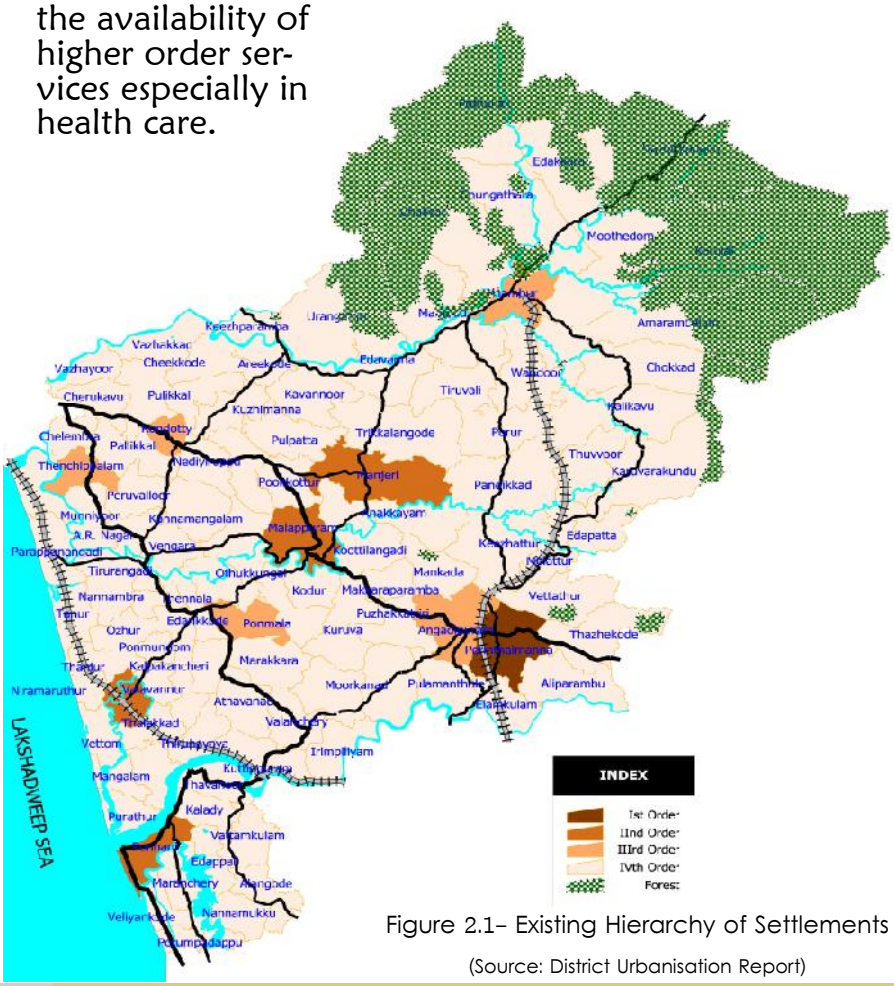


Figure 2.1– Existing Hierarchy of Settlements

(Source: District Urbanisation Report)

2.2 Connectivity

The town is well connected to all the other urban centers in the district. The National Highway and State Highway crossing at the heart of the town, puts the town in a strategic advantage.

2.2.1 Road Network

The National Highway 966 from Kozhikode to Palakkad and the State highway from Perumbilavu to Nilambur, bisects the town and meets at the Main Junction, dividing the town into four quadrants. The State Highway and the National Highway connects the Municipality to all important towns in Kerala and Tamilnadu, across the state border.

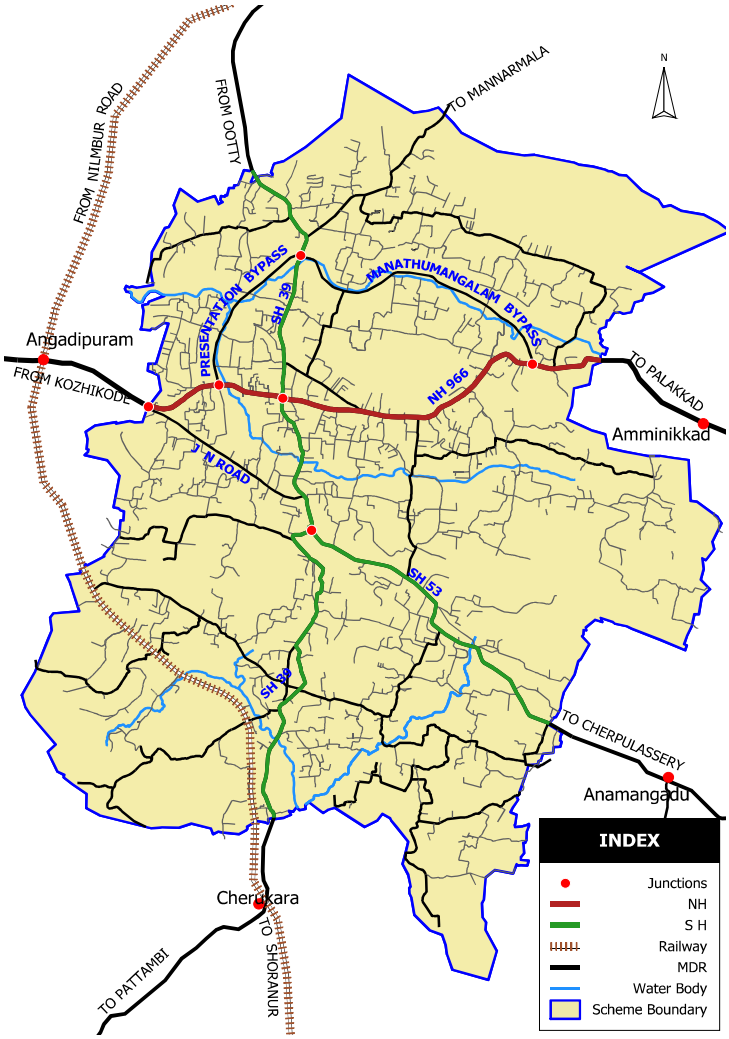


Figure 2.2– Existing Transportation Network

2.2.2. Railway

The Angadippuram railway station in the Nilambur-Shornur line is just 2 km away from the town. Number of passenger services between Nilambur-Shornur-Palakkad-Coimbatore and an express train between Nilambur and Trivandrum run in this route. This railway station provides rail connectivity to the town and is widely used by the people of Perinthalmanna.

2.2.3 Air Transport

The Calicut International Airport which caters to the air tranport needs of the people of Malabar is just 43 km away from this town. Services are operated to the major destinations within the country and in the Middle East from this airport.







2.3 Spatial Role in the district

Figure 2.3 depicts the spatial structure of the district. In the west, the coastal strip is segregated from the rest of the District by railway line running in the north-south direction. This is a constraint on connectivity. The plantation and forest resources are concentrated in the eastern high land region. 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. In addition to Perinthalmanna, there are six more municipalities in the District namely, Malappuram, Tirur, Ponnani, Manjeri, Kottakkal and Nilambur.

Table 2.1 – Municipalities in Malappuram Dt. (Source: Derived from Census Data–2011, Revenue Department)

Sl No	Name of the Town	Area (km^2)	Population	Population density (Persons/Sqkm)
1	Perinthalmanna	34.41	49,723	1445
2	Malappuram	33.60	68,127	2028
3	Tirur	16.55	56,058	3387
4	Ponnani	24.82	90,491	3646
5	Manjeri	53.10	97,102	1829
6	Kottakkal	20.45	44,382	2170
7	Nilambur	29.70	46,366	1561

Of the seven municipalities in the District, Malappuram Municipality is the administrative headquarter of the District. Facilities related to district administration are concentrated in Malappuram Municipality, around the Civil Station, which houses major offices like the District Collectorate, District Treasury, Regional Transport Office, Employment Exchange, Office of the District Town Planner, District Panchayath Office and so on.

Perinthalmanna has become an intermediate service center between cities like Palakkad, Kozhikode,Coimbatore, Madurai, Pollachi etc.

Tirur Municipality is considered as the gateway to the District as it houses the oldest railway line of the State and the major railway station of the District, Tirur Railway station, on the Shoranur - Manglore section of Southern Railways, under Palakkad Railway Division. Tirur also gains importance due to the presence of foreign goods markets which attract customers from allover the region.

Ponnani is the only coastal municipality in the District, and a major fishing harbour. Ponnani, once an important centre for education in the philosophy of Islam and the second capital of Kingdom of Calicut during the reign of Zamorins, is one among the oldest port towns in the State.

Kottakkal Muniicpality is a major transportation node in the District, as the National Highway 66 (Panvel ~ Kochi), and the State highway 71 (Malappuram ~ Tirur) intersects in the town. Kottakkal is a well known center for Ayurveda; the Kottakkal Arya Vaidya Sala attracts patients and health tourists from the worldover.

Manjeri municipality, is the largest municipality in the District in terms of area and population. Manjeri is one of the major and oldest commercial centers of the region and also houses major institutions like the Govt. Medical College.

Nilambur, the forest reserve town well known for Nilambur teak plantations, houses the Nilambur Road Railway Station- last station of the Nilambur–Shoranur railway line, Teak museum and places of cultural and heritage importance.

Perinthalmanna is an imporant healthcare facilities' provider, commercial node and an intermediate service center between various important cities within and outside the state.

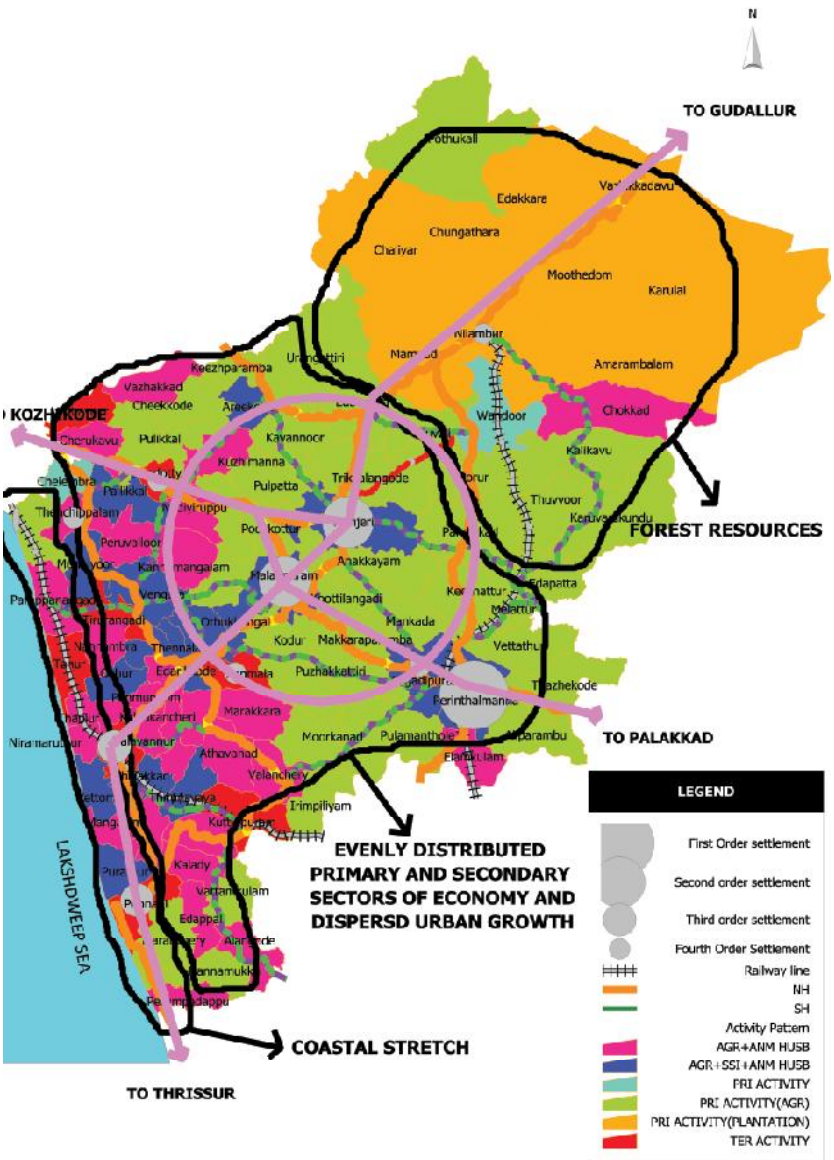


Figure 2.3– Spatial structure of Malappuram Dt.

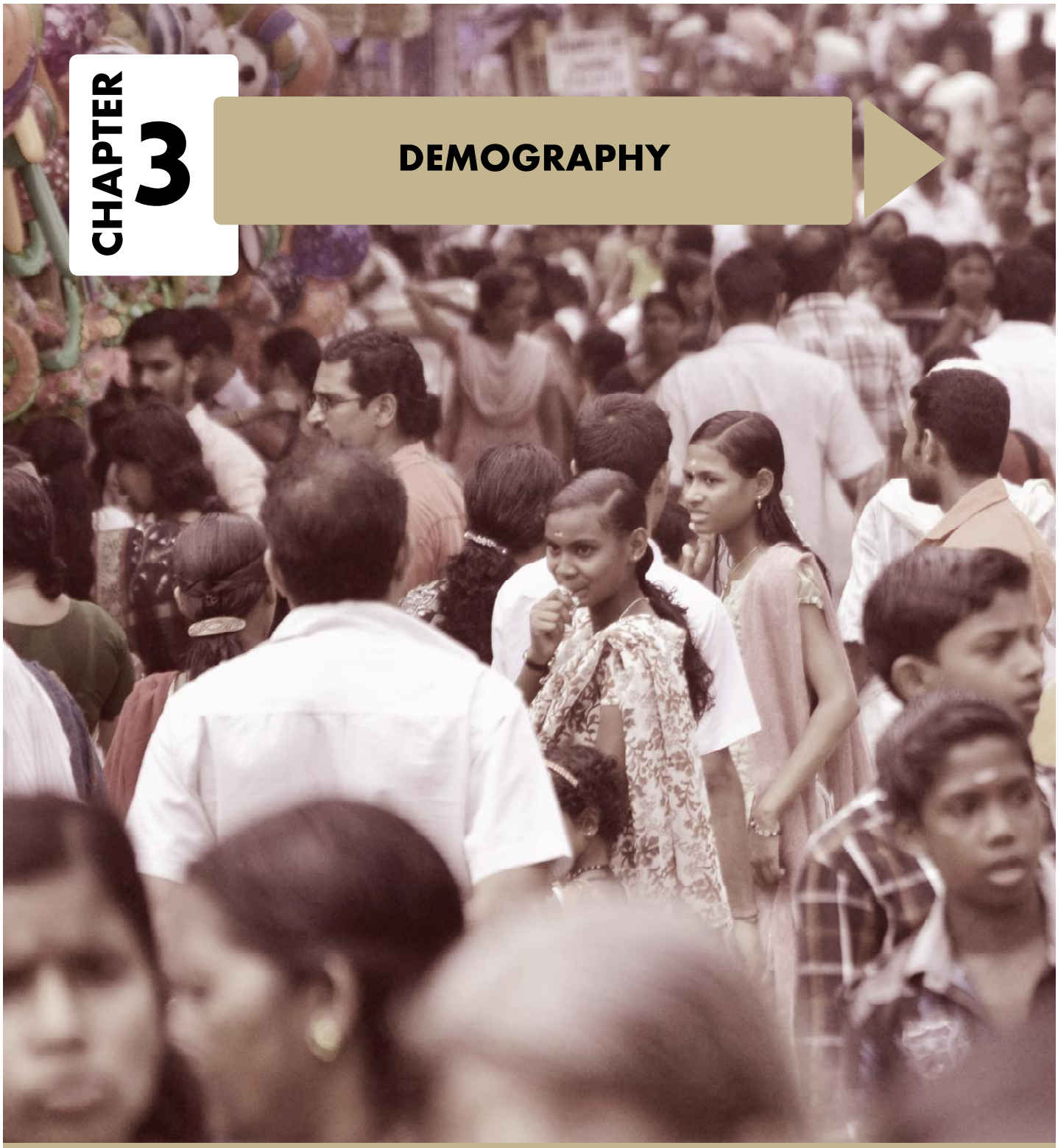
(Source: District Urbanisation Report)

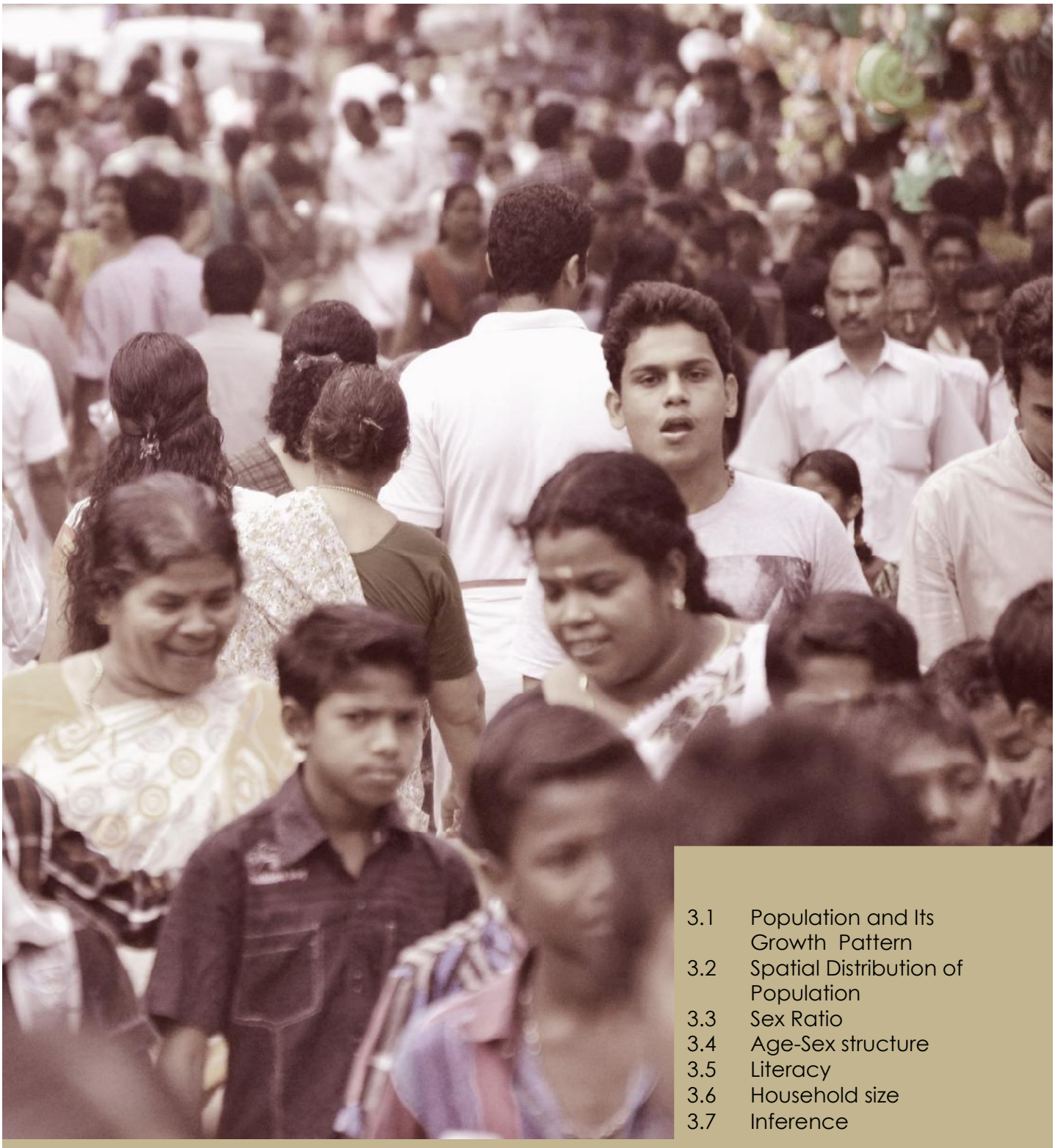
The well developed transport network is in the form of a hub and spoke arrangement with an outer ring strengthening the nature of growth, as presented in figure 2.3. Manjeri, Malappuram and Valluvambram junction come in the vertices of a triangle which forms the hub. The spokes are approximately in the north, south, east and west directions.

Higher order settlements (other than Manjeri and Malappuram) are placed mostly at junctions where these spokes intersect the outer ring. Perinthalmanna is such a higher order settlement. Rest of the District communicates for a variety of economic reasons with the towns in Tamilnadu especially Coimbatore, Madurai and Pollachi through the National Highway 966. The National Highway 966 (a spoke) cuts the outer ring at Perinthalmanna. So, virtually Perinthalmanna has become an intermediate service center between the hub of the spatial structure and cities like Palakkad, Coimbatore, Madurai, Pollachi etc.

CHAPTER 3

DEMOGRAPHY





3.1 Population and Its Growth Pattern
3.2 Spatial Distribution of Population
3.3 Sex Ratio
3.4 Age-Sex structure
3.5 Literacy
3.6 Household size
3.7 Inference

3 DEMOGRAPHY



Malappuram district is known for its highest population growth rate in the state for the last three decades.

3.1 Population and its Growth Pattern

Malappuram district is known for its highest population growth rate in the State for the last three decades. Its population growth rate over the decade 2001-2011 was 13.45%. Majority of the population in the District belongs to the Muslim community, followed by Hindu and Christian communities.

The total population of the District as per Census 2011 is 41.13 lakhs, which was 36.25 lakhs as per Census 2001. 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. Though the population growth rate is declining, it is still very much higher than the State average (13.45 % compared to 4.86 % as per census 2011, Provisional Totals).

As per Census 2011, the total population of Perinthalmanna Municipality is 49,723 which is approximately 1.21% of the total population of the District and 2.74% of the urban population of the District. The municipal population also grows in pace with the district population. The variation of the population from 1971 onwards is shown in Figure 3.2.

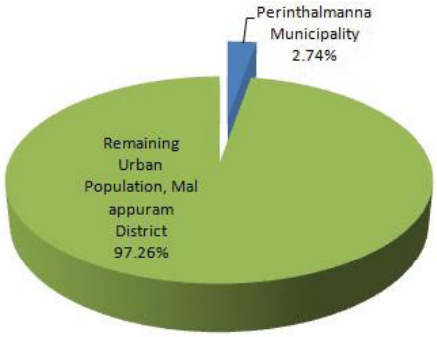


Figure 3.1 Population of Perinthalmanna represented as percentage of district urban population (Source : Census 2011)



> “Almost half of the population of the world lives in rural regions and mostly in a state of poverty. Such inequalities in human development have been one of the primary reasons for unrest and, in some parts of the world, even violence.”
>
> - Dr. A.P.J.Abdul Kalam



Figure 3.2. Temporal variation of total population in Perinthalmanna municipality (Source : Census 2011)

The temporal variation of population growth rate in Perinthalmanna from 1981 to 2011 is shown in Figure 3.3. The growth rate reduced from 14.34% in 2001 to 11.46% in 2011.

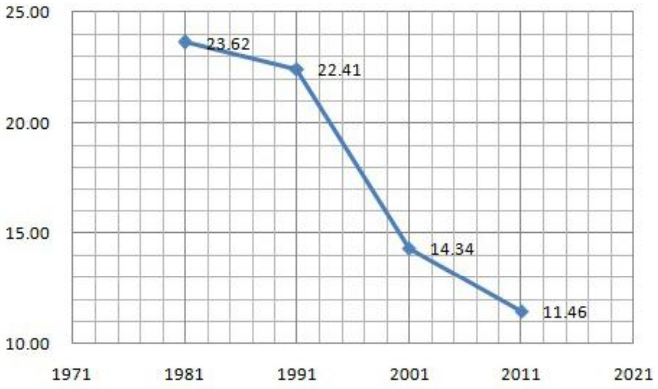


Figure 3.3 Population growth rate of Perinthalmanna municipality –Temporal variation (Source : Census data)

Perinthalmanna has the second highest population growth rate compared with similar towns in the State.

When compared with the nearby LSGs, the growth rate of Perinthalmanna Municipality and Pulamanthole are the lowest with values 11.46 and 11.40 respectively.

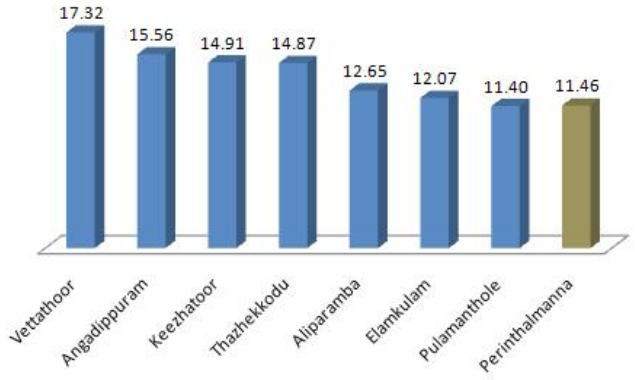


Figure 3.4 Population growth rate – Comparison with nearby LSGs (Source : Census 2011)

Among the seven municipal towns in the District, Perinthalmanna has the fifth position in population growth rate. Ponnani and Tirur have very low population growth rate, while Malappuram has the highest growth rate of 16.47%. This is shown in Figure 3.5.

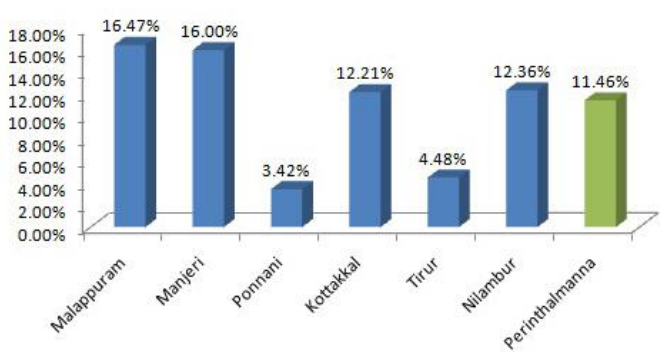


Figure 3.5 Population growth rate– comparison with other towns in the district (Source : Census 2011)

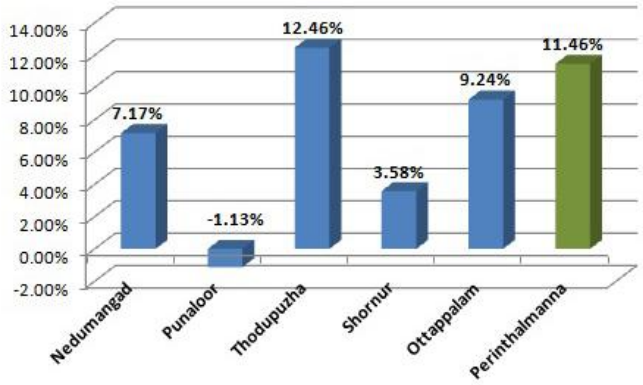


Figure 3.6 Population growth rate– comparison with similar towns (Source : Census 2011)

When compared with the similar towns in the state, as shown in Figure 3.6 , Thodupuzha has the highest growth rate of population and Perinthalmanna stands second. Among these towns Punaloor records a negative growth of -1.13%.

3.2 Spatial Distribution of Population

Malappuram district ranks fifth in population density in the State as per the Census 2011 and Census 2001. The population density of Perinthalmanna Municipality has increased to 1445 persons / sqkm in 2011, from 1297 persons/sqkm in 2001. It is higher than the population density of the District which is 1159 Persons/sq km. The temporal variation of population density is shown in figure 3.7. The population density, of 880 persons/sq km in 1971 has increased to 1445 persons/sq km in 2011.

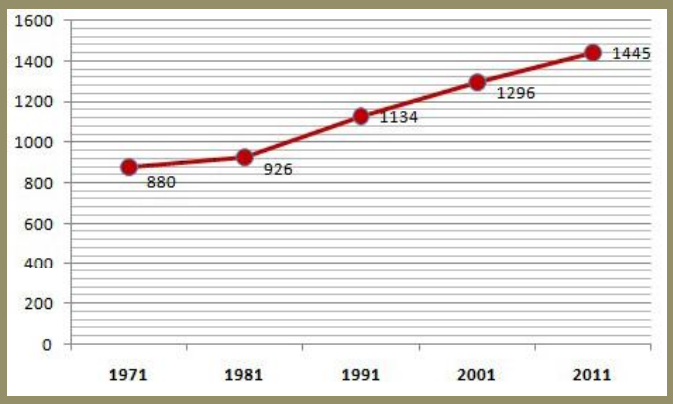


Figure 3.7 Temporal variation of population density in Perinthalmanna municipality (Source : Census data)

Among the seven municipal towns in the District, Ponnani and Tirur have the highest density, Perinthalmanna ranking sixth. Among the nearby LSGs, Aliparamba and Angadippuram panchayaths have higher population density than Perinthalmanna at 2066 and 1537 persons/ sq km respectively. The comparison of population density of Perinthalmanna with other municipal towns in the District and nearby LSGs is shown in Figure 3.8 and 3.9 respectively.

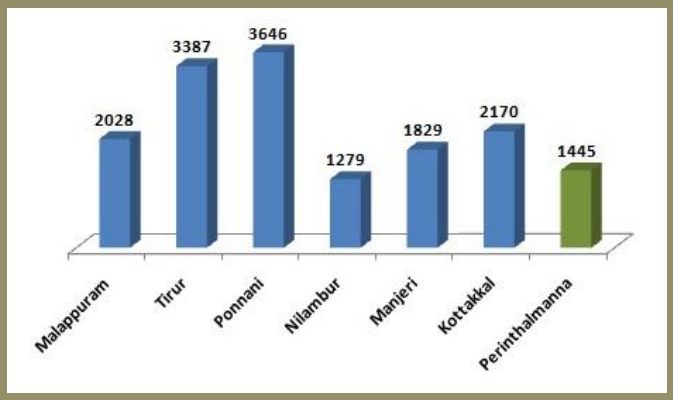


Figure 3.8 population density-comparison with other towns in the district (Source : Census 2011)

Among the seven municipal towns in the district, Ponnani and Tirur have the highest density, Perinthalmanna ranking sixth.

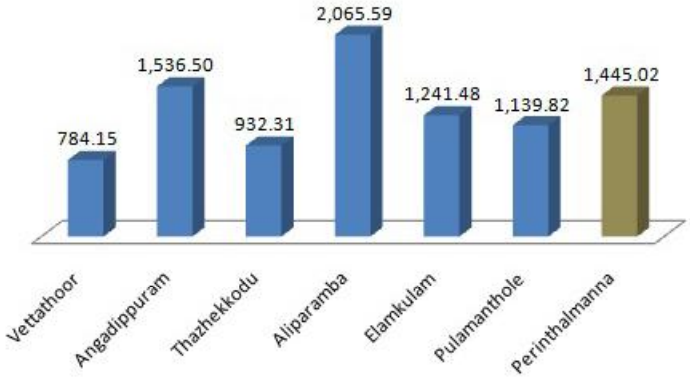


Figure 3.9 Population density–comparison with nearby LSGs (Source : Census 2011)

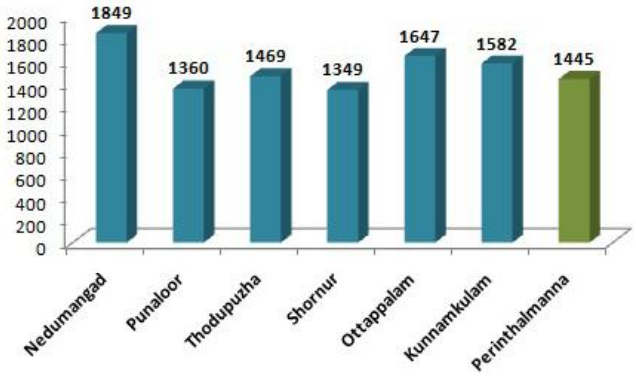


Figure 3.10 Population density–comparison with similar towns (Source : Census 2011)

The municipal area is divided into 34 electoral wards as on 2010. The population density of Perinthalmanna Municipality varies among different wards between 326 and 4442 persons per sqkm. Variation of population density across the District, shown in Figure 3.11, depicts that the municipality is among the LSGs having medium density, like majority of the other midland settlements.

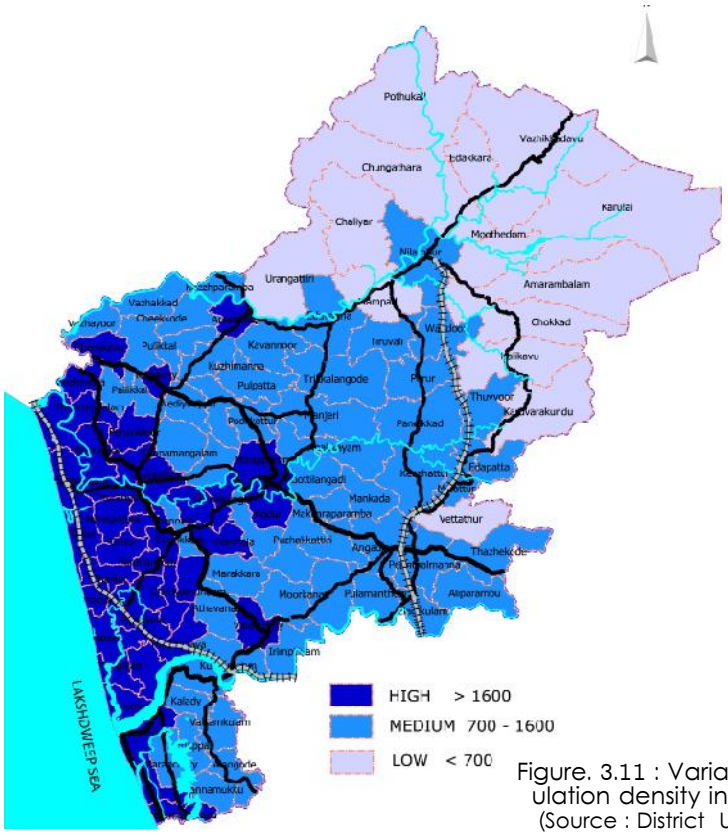


Figure. 3.11 : Variation of population density in the district (Source : District Urbanisation Report 2011)

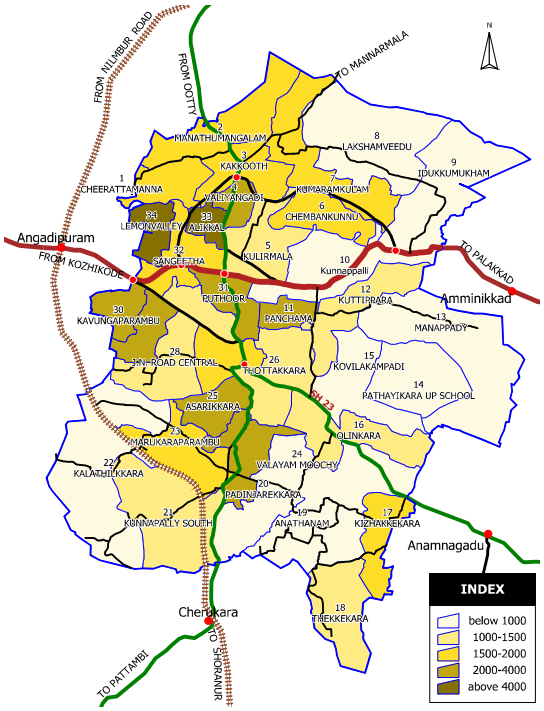


Figure 3.12 Spatial distribution of population density ward wise

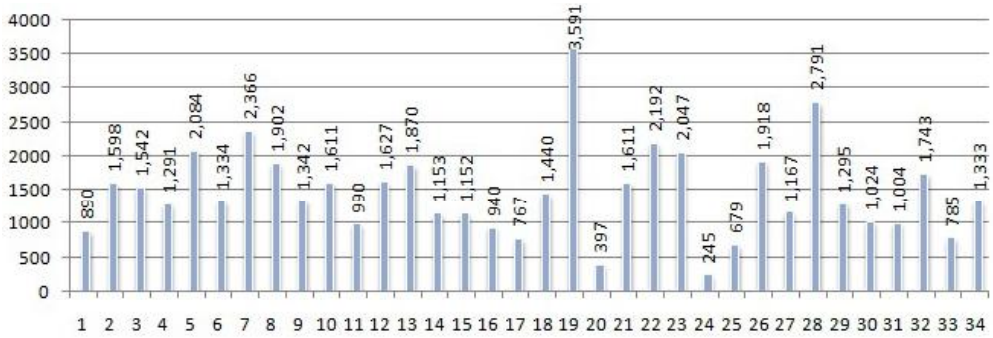


Figure 3.13 Ward wise population in Perinthalmanna municipality (Source: Census 2011)

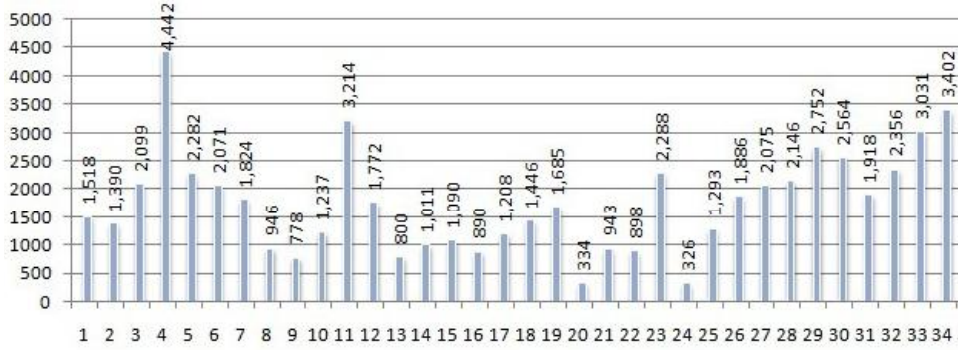


Figure 3.14 Ward wise population density in Perinthalmanna Municipality. (Source: Census 2011)

The variation of ward wise population in Perinthalmanna municipality is shown in Figure 3.12. Ward 4 has the highest density followed by ward 34. Ward 24 has the lowest density. Population and population density details of other towns and near by LSGs are given below.

Table 3.1 Population and Denstity details of Other towns in the district (Source: Derived from Census Data - 2011)

Sl. No	Local Body	Population	Area (km^2)	Density (p/km^2)
1	Malappuram	68,127	33.60	2028
2	Tirur	56,058	16.55	3387
3	Ponnani	90,491	24.82	3646
4	Nilambur	46,366	29.70	1561
5	Manjeri	97,102	53.10	1829
6	Kottakkal	44,382	20.45	2170
7	Perinthalmanna	49,723	34.41	1445

Table 3.2 Population and Density details of Nearby LSGs (Source: Derived from Census Data - 2011)

Sl. No	Local Body	Population	Area (km^2)	Density (p/km^2)
1	Vettathoor	13,040	35.84	364
2	Angadippuram	27,250	36.74	742
3	Keezhattoor	20,457	40.93	500
4	Thazhekkode	23,884	45.03	530
5	Aliparamba	24,859	20.2	1231
6	Elamkulam	26,456	21.31	1241
7	Pulamanthole	27,029	33.15	815
8	Perinthalmanna	49,723	34.41	1445



Population density is an indicator of pressure of population on land which inturn is influenced by factors like accessibility, proximity to facilities etc. The population density is normally distributed throughout the wards. Ward 4 has the highest density of 4442 persons/ sq km followed by ward 34 with a population density of 3402 persons/sq km. Ward 33 has the lowest area when compared to the other wards in the municipality and about 14% of the land use is residential. The presence of closely spaced houses and high rise lodges contributes to higher density in the ward. Al Shifa hospital is located in this ward. Besides, the bypass road and SH 39 passes through this ward. The ward wise distribution of density is shown in Figure 3.13 and Figure 3.14.

3.3. Sex Ratio

The distribution of male and female in the society has direct bearing on the social and economic conditions of a state. It also reflects the status of women in the society. According to 2011 census the sex ratio of Perinthalmanna municipality is 1112 which was 1076 as per 2001 census, whereas the sex ratio of the District as per 2011 Census is 1098.

The distribution of male and female in the society has direct bearing on the social and economic condition of a state.

Sex ratio of Perinthalmanna Municipality is lower than that of Ponnani, Tirur and Kottakkal Municipalities. Sex ratio comparison with other towns in the District is shown in Figure 3.15.

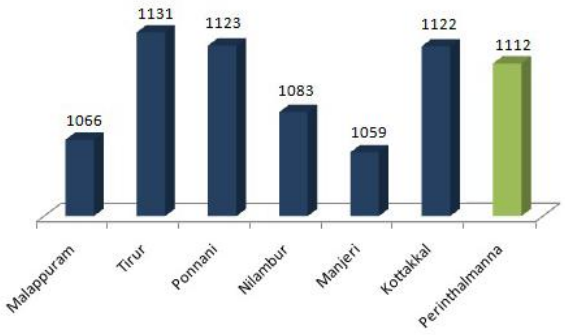


Figure 3.15 Sex ratio–Comparison with other towns (Source : Census 2011)

While comparing the sex ratio with similar towns, Punaloor has the highest value of 1119 follwed by Perinthalmanna with 1112. Thodupuzha has the lowest sex ratio of 1036, in this group. Sex ratio comparison with similar towns is shown in Figure 3.16.

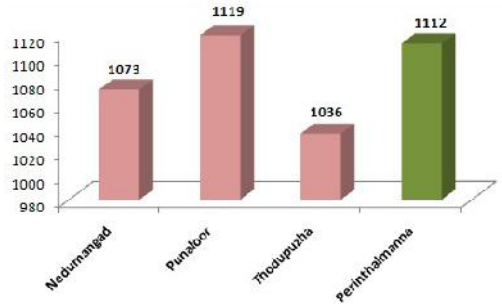
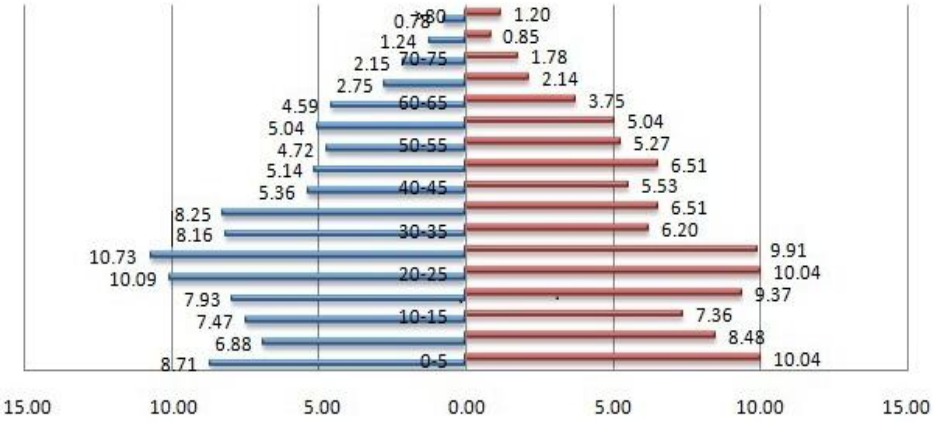


Figure 3.16 Sex ratio comparison with similar towns (Source : Census 2011)

3.4. Age –Sex Structure

From the socio economic survey (10%, stratified random sample), the age-sex structure of people in the Perinthalmanna municipality was obtained. It is found that majority of people are within the age group of 20 to 25. This is an indication of a healthy population. By this, a robust group of people in the working age is ensured for the coming years. The percentage of persons below the age 10 is also predominant showing a strong demographic dividend for the future Perinthalmanna. The age sex pyramid is given in Figure 3.17.



	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	>80
Female	10.0	8.48	7.36	9.37	10.0	9.91	6.20	6.51	5.53	6.51	5.27	5.04	3.75	2.14	1.78	0.85	1.20
Male	8.7	6.8	7.4	7.9	10.	10.	8.1	8.2	5.3	5.1	4.7	5.0	4.5	2.7	2.1	1.2	0.7

Figure 3.17 Age– sex pyramid (Source: Socio Economic Survey 2012, District Town Planning Office)

The age structure shows that the percentage of working population within the age group (20-60) is about 54%.

Figure 3.18 gives an indication on the population in the range of zero to five in the Municipality compared with that of the surrounding local bodies. Thazhekkodu panchayath show the highest value,14.84%, where as for all the local bodies including the Perinthalmanna Municipality the value remain above 12% indicating almost uniform distribution of population under the age of 5.

The percentage of persons below the age 10 is also predominant showing a strong demographic dividend for the future Perinthalmanna

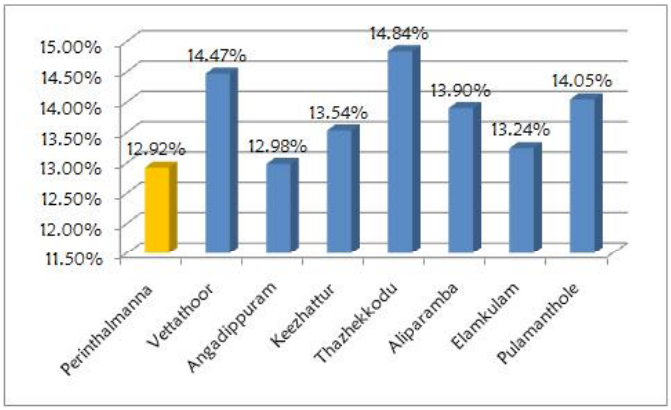


Figure 3.18 Zero to five age population, comparison with nearby LSGs (Source: Census 2011)

3.5. Literacy

The literacy rate of the Municipality in comparison with the State and District is shown in Figure 3.19. The literacy rate of Perinthalmanna municipality is 95.28% as per census 2011 which is higher than the literacy rate of Malappuram district and the State, which is 93.95% and 93.91% respectively.

Comparison of literacy rate of Perinthalmanna town with other towns in the District is shown in Figure 3.20. Perinthalmanna has the fourth highest rate of literacy among the municipal towns in the District. Ponnani municipality has the lowest literacy rate in the District, about 90%.

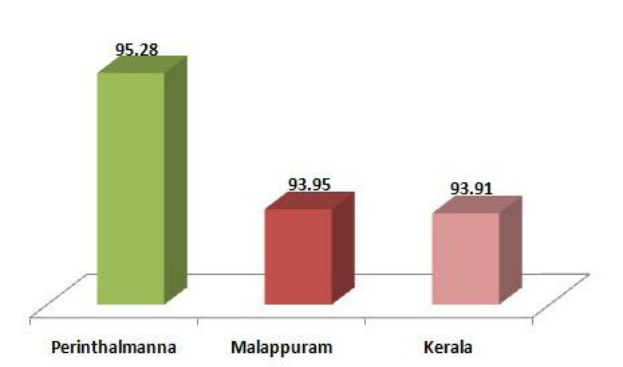


Figure 3.19: Literacy rate – comparison with district and state (Source : Census 2011)

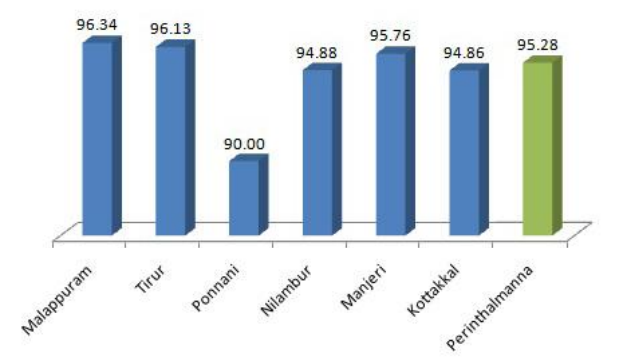


Figure 3.20: Literacy rate comparison with other towns in the district (Source : Census 2011)

3.6 House Hold Size

Total number of households in Perinthalmanna municipality in 2011 is 10,287. The total population being 49,723, the average house hold size is 4.83 as per Census 2011. The variation in household size from 1971 to 2011 can be seen in Figure 3.21. The household size is decreasing temporally, indicating shift from joint families to nuclear families as well as decreasing number of children per family. Also, the household size in Perinthalmanna municipality is lower than the District average of 5.18.

The municipality has a low house hold size compared to nearby LSGs except Angadipuram. The household size comparison with nearby LSGs is shown in Figure 3.22. House hold size of other municipal towns in the district is almost similar to that of Perinthalmanna except for Tirur and Ponnani municipalities, which have a household size of 5.31 and 5.72 respectively. Perinthalmanna municipality has the lowest household size compared to other towns in the District. The household size comparison with other towns is shown in the Figure 3.23.

Household size of Perinthalmanna municipality, even though higher than the State average, is lower than the District average and shows a decreasing trend.

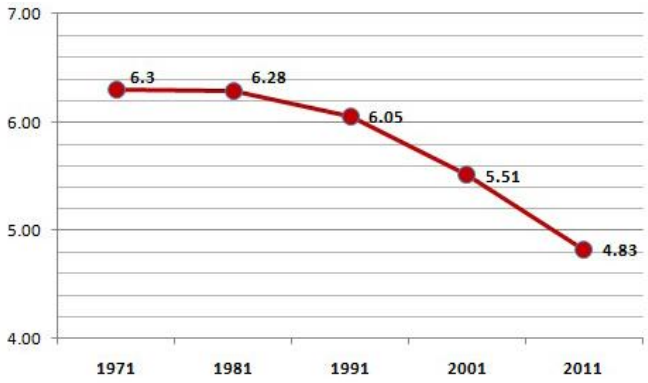


Fig 3.21 Temporal variation in household size of Perinthalmanna Municipality (Source : Census Data)

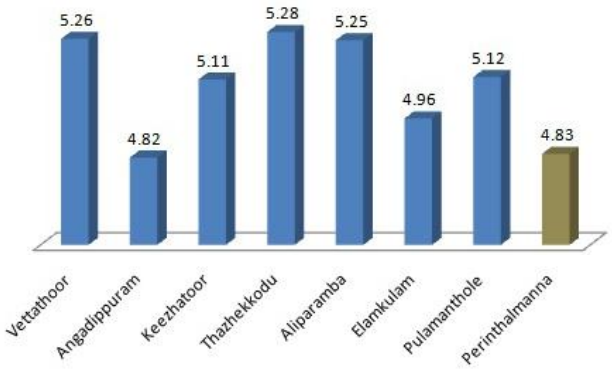


Figure 3.22 Household size comparison with nearby LSGs (Source : Census 2011)

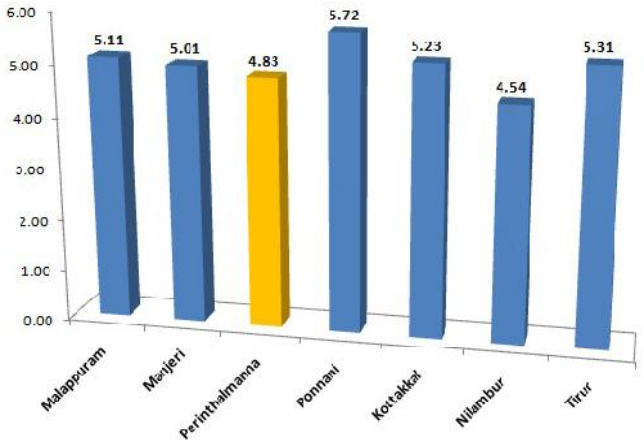


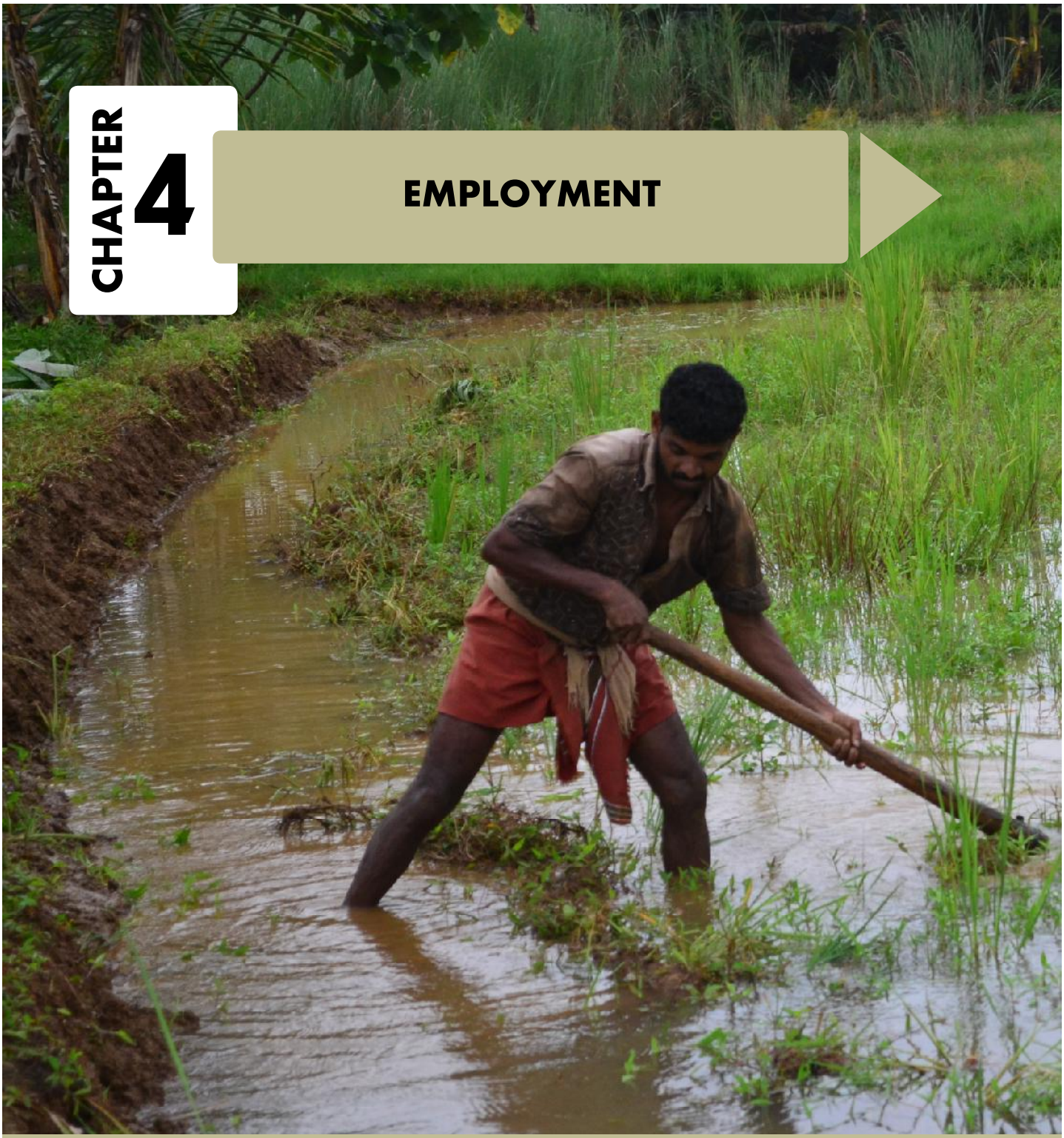
Figure 3.23 Household size comparison with other towns in the District (Source : Census 2011)

3.7 Inference

The town has a lower population growth rate than the District and the surrounding LSGs. The growth rate is more than the similar towns considered, which is characteristically higher in the towns in Malappuram district. However the rate is declining, indicating a trend towards stabilisation. There is a strong demographic dividend due to higher percentage of persons in the below 10 age group. The high percentage of population in the 20-25 years age group indicates a strong work force in future. House hold size, even though higher than the State average, is lower than the District average and shows a decreasing trend. The population density is higher than the district average but lower than those of the other towns in the District, indicating scope for densification of the town.

CHAPTER 4

EMPLOYMENT





4.1 Workers
4.2 Workers Participation Rate
4.3 Comparison of WPR
4.4 Occupational Structure
4.5 Spatial Distribution
4.6 Inference

4 EMPLOYMENT

4.1 Workers

The percentage of the population engaged in economic activities and the nature of these activities give an insight to economic development and urbanization. There is a steady increase in the percentage of workers in the State. But Malappuram district experiences only nominal increase in this percentage. This is mainly due to out-migration of male population to middle east countries in search of employment. Perinthalmanna town also follows this trend of the District in general.

The total number of workers in Perinthalmanna town as per 2011 census is 13,978. Among this 12,633 are main workers and 1345 are marginal workers. The decadal variation of workers in the town indicate a steady increase in total and main workers. These are given in Figure 4.1.

Malappuram is the district with lowest WPR in the State, 25.83% as per Census 2011.



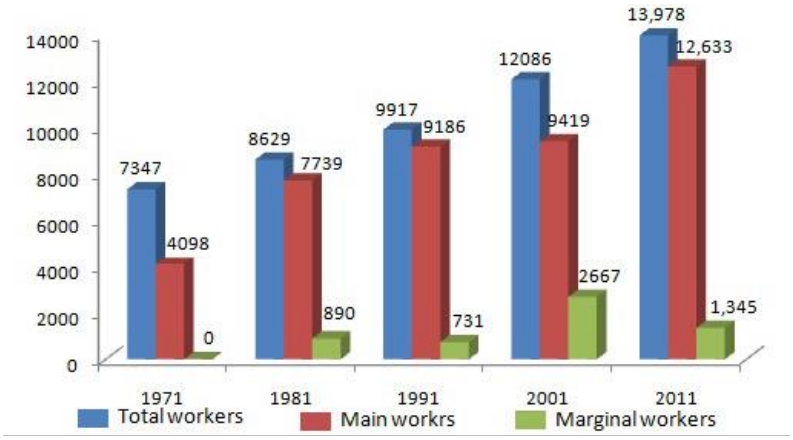


Figure 4.1 Temporal variation of workers

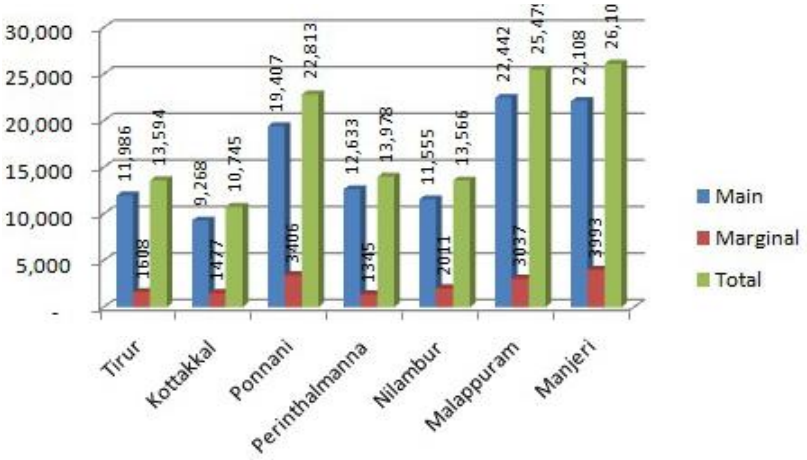


Figure 4.2 Workers details– other towns in the district (Source: Census 2011)

4.2 Workers Participation Rate

Malappuram is the district with lowest WPR in the State 25.83% as per Census 2011. The WPR of the Perinthalmanna Municipality is 28.11 %, a slightly better figure.

The lower WPR value is mainly attributed to the various factors like NRI remittance dependent economy and the weaker activities in the agricultural sector.

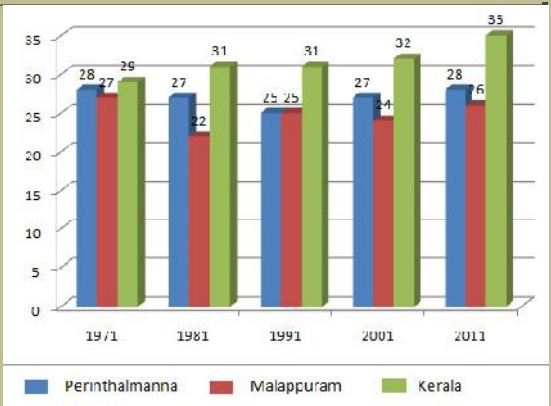


Figure 4.3 Comparison of WPR with district and state (Census data)

The temporal variation of WPR in the municipality is shown in Figure 4.3. The increase over the decade is only nominal, which showed a decreasing trend till 1991.

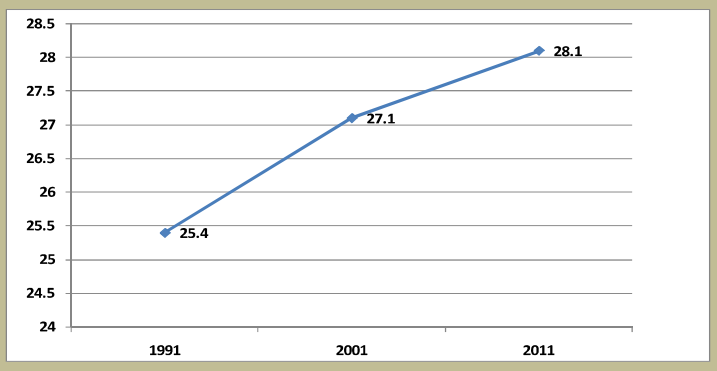


Figure 4.4 WPR in Perinthalmanna Municipality (Source: Census data)

4.3 Comparison of Workers Participation Rate

Figure 4.4 indicates that Perinthalmanna Municipality has the highest WPR when compared to the nearby LSGs as per Census 2001. Thazhecode has the lowest WPR among these LSGs.

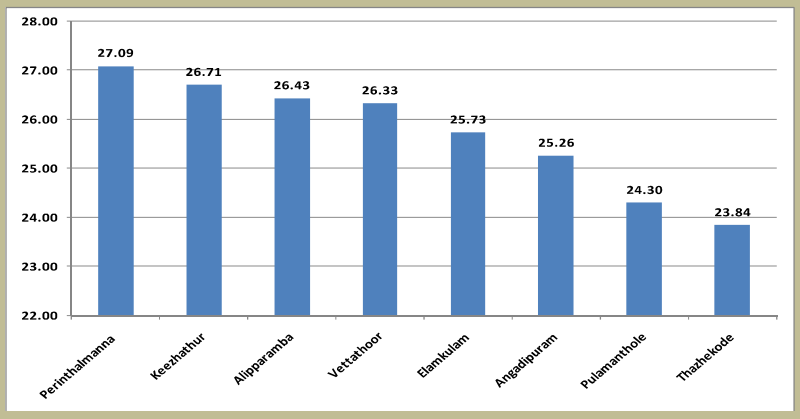


Figure 4.5 WPR– Comparison with nearby LSGs (Source: Census 2001)

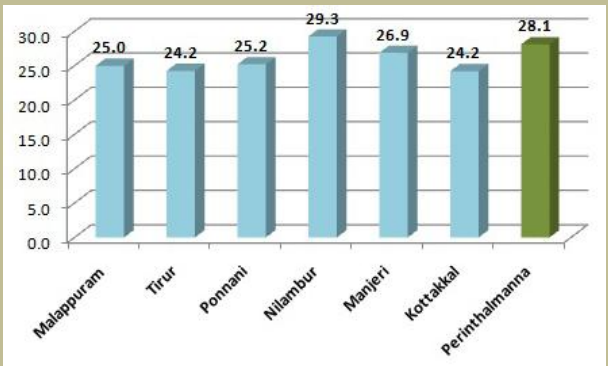


Figure 4.6 WPR – Comparison with other towns in the District (Source: Census 2011)

Perinthalmanna Municipality ranks second in WPR when compared to other towns in the District and this is depicted in Figure 4.5.

When compared with the WPR of similar towns in the State, Perinthalmanna Municipality exhibits the lowest WPR value.

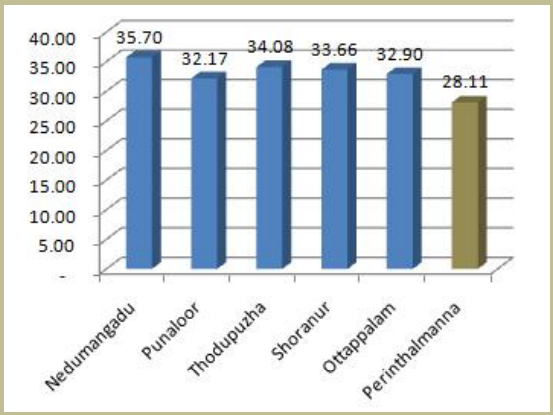


Figure 4.7 WPR – Comparison with Similar Towns (Source: Census 2011)

4.4 Occupational Structure

Majority of the workers are coming under 'Others' category and their number is increasing at a constant rate

As per Census 2011, the main workers are classified into four categories viz. cultivators, agricultural labourers, household industrial workers and other workers. The number of workers in each category and its variation is shown in Figure 4.8. Majority of the workers are coming under 'Others' category and their number is increasing at a constant rate.

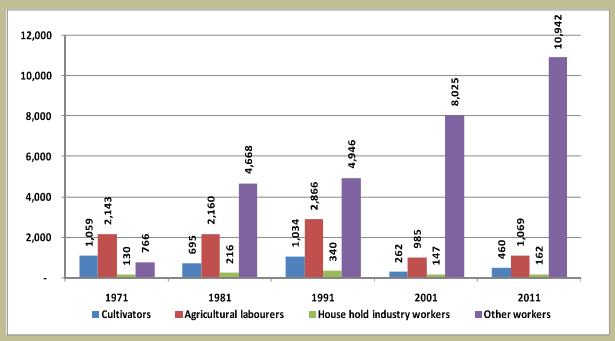


Figure 4.8 Variations in number of main workers (Source: Census)

The number of agricultural labourers is showing a sudden decline after 1991. This is due to the weakening of agricultural sector. Agricultural labourers and cultivators constitute 13.14% of the total workers as per 2011 census, whereas other workers forms about 85.52% of total workers. This shows an inclination of people towards the service sector.

Among the marginal workers also, other workers constitute the majority. Other workers were 1012 in number, whereas cultivators and agricultural labourers were only 63 and 245 respectively.

As per the 2011 census the non workers constitute 72 % the total population.

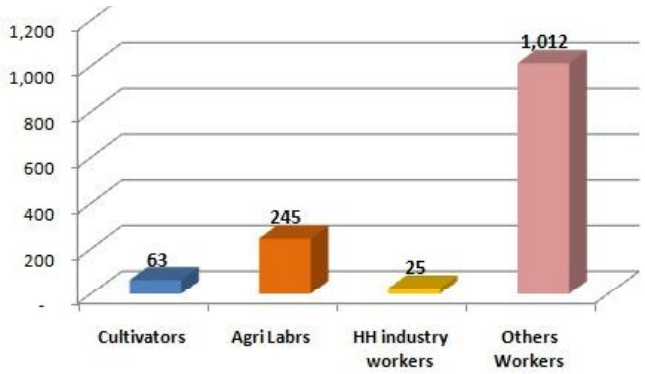


Figure 4.9 Distribution of marginal workers (Source: Census 2011)

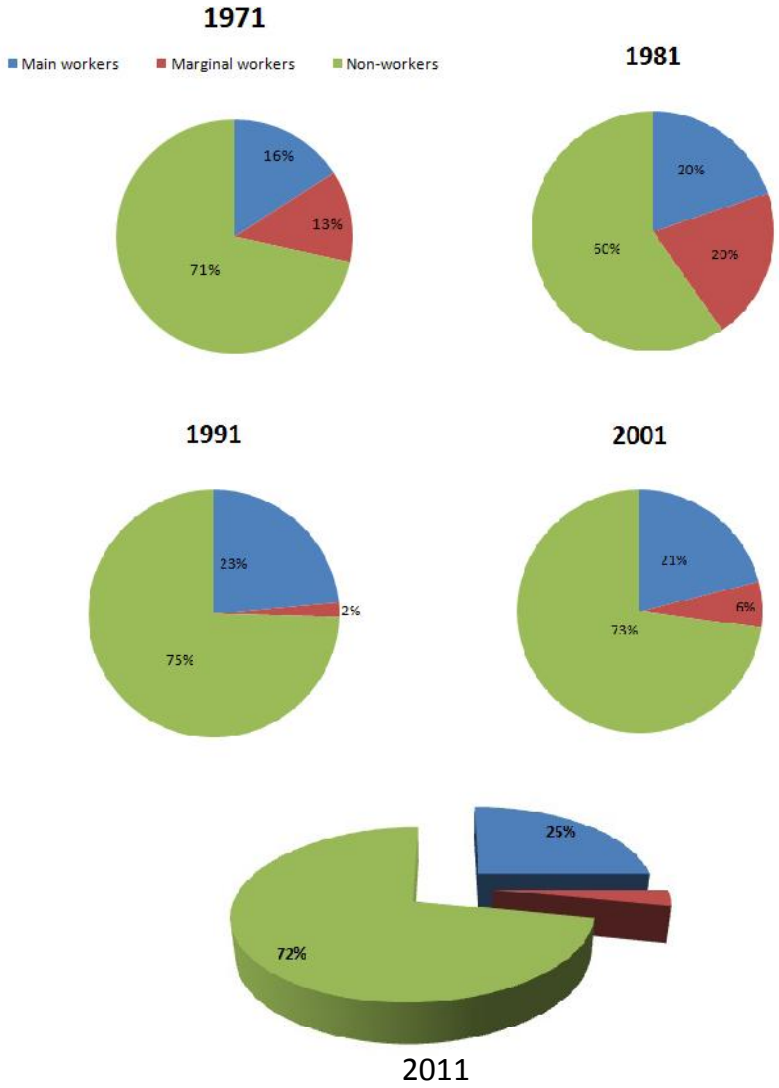


Figure 4.10 Temporal variation in the proportion of main workers, marginal workers and non workers (Source: Census data)



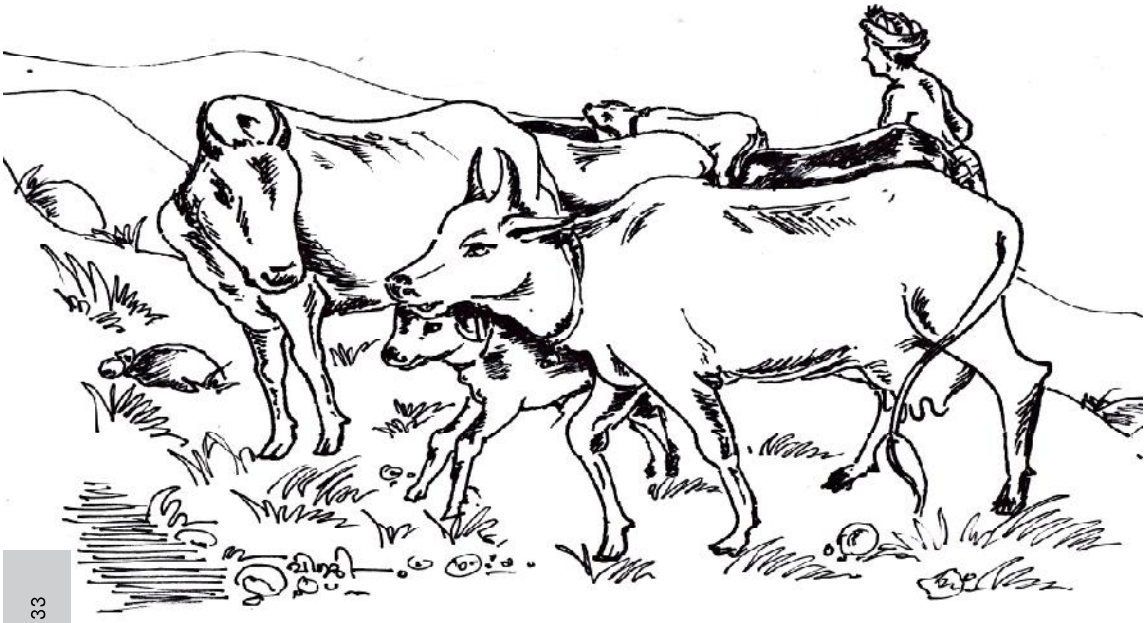
The town depends on the Middle East countries for employment considerably.

As per the 2011 census the non workers constitute the highest among the total population with a percentage of 72 %.

The Socio Economic Survey (based on 10% random stratified sample) undertaken by the department revealed that 14.5 % of the workers in the sample were employed in foreign countries, mainly the Middle East. This indicates the dependence of the people on NRI remittances. 10% were employed in Government services. Construction industry is another major employment provider in the municipality; construction workers and helpers together constituted 10% of the workers. Workers employed in transportation services constituted 7% of the sample. Agriculture and allied activities provided livelihood for 4% of the workers. 4% of the workers in the sample were vegetable vendors. Others included people employed in hospitals, markets, shops (tea, hotels), textiles, mechanical workshops, wiring, plumbing, painting, interior designing, engineers, lawyers, teachers, rubber plantations, quarry workers, merchants etc.

4.5 Spatial Distribution

The ward wise distribution of different category of workers is shown in the following figures. Figure 4.11 & 4.12 gives the ward wise concentration of cultivators and agricultural labourers respectively. The maximum concentration of cultivators is seen in Manappady ward (eastern area of the town) and Kizhakkekkara and Thekkekkara wards (south eastern part).



Agriculture labourers are mostly concentrated in the wards of Lakshamveedu, Kizhakkekkara (north east & south east parts of the town). Figure 4.13 and 4.14 gives the ward wise concentration of industrial labourers and other labourers. The maximum concentration of industrial labourers is seen in Panchama and Lemonvalley wards. Other labourers are concentrated in the Cheerattamanna, Lemonvalley, Sangeetha, Puthoor, and Asarikkara wards.

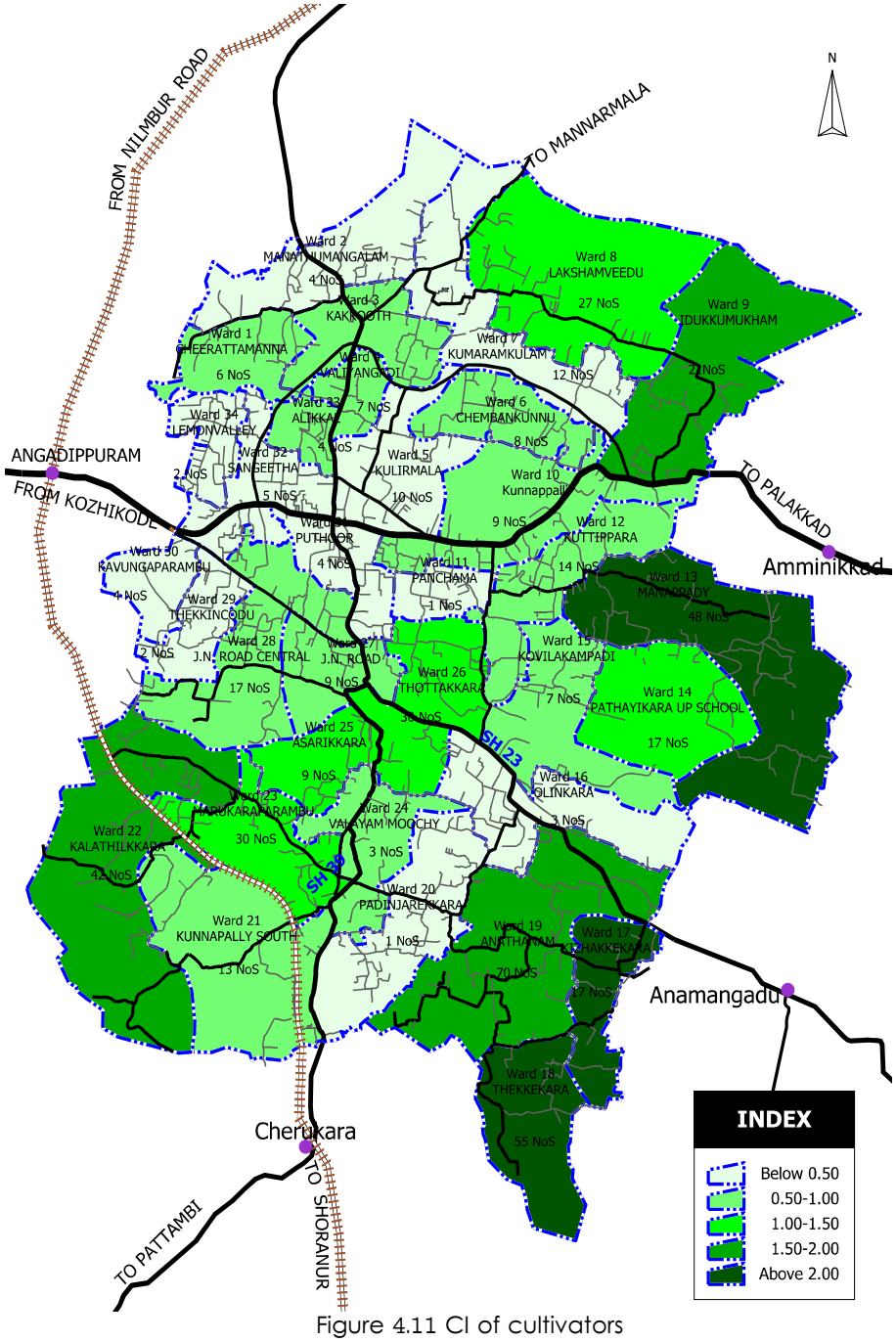


Figure 4.11 CI of cultivators
(Source: derived from Census 2011)

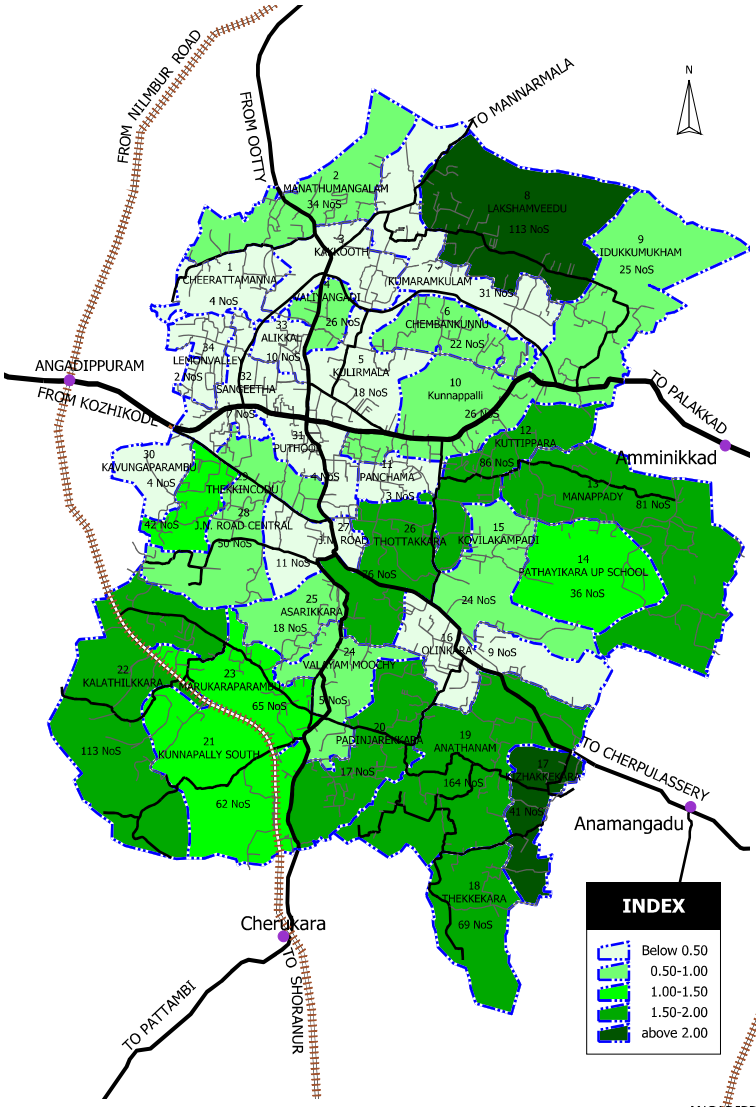


Figure 4.12 CI of Agricultural labourers

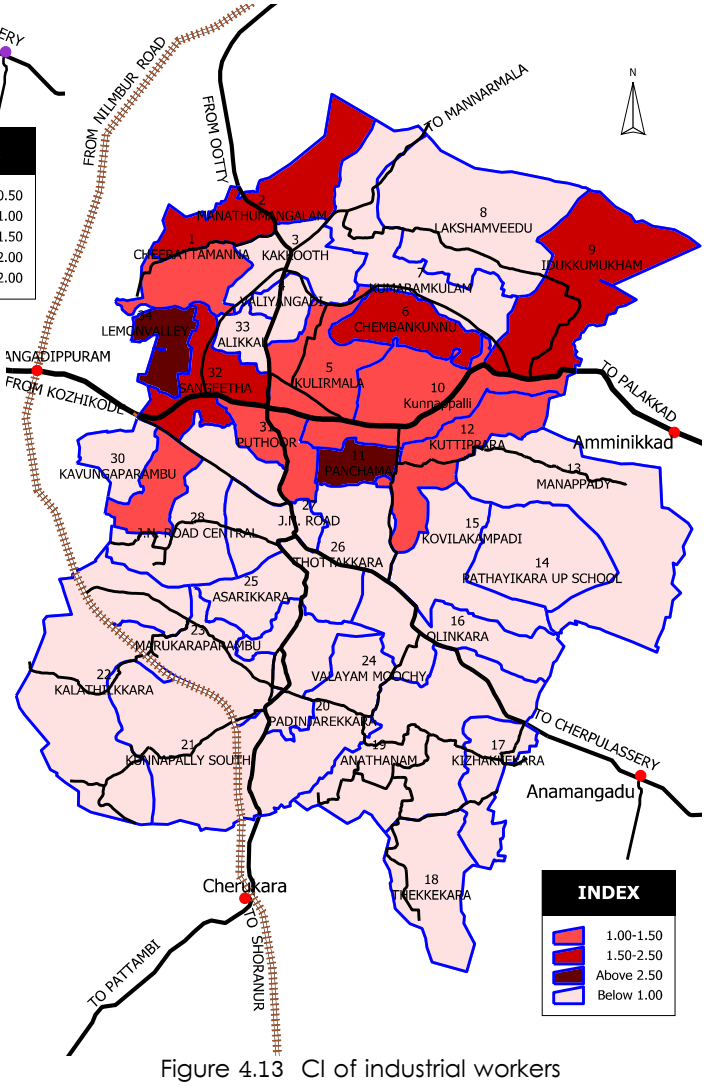


Figure 4.13 CI of industrial workers

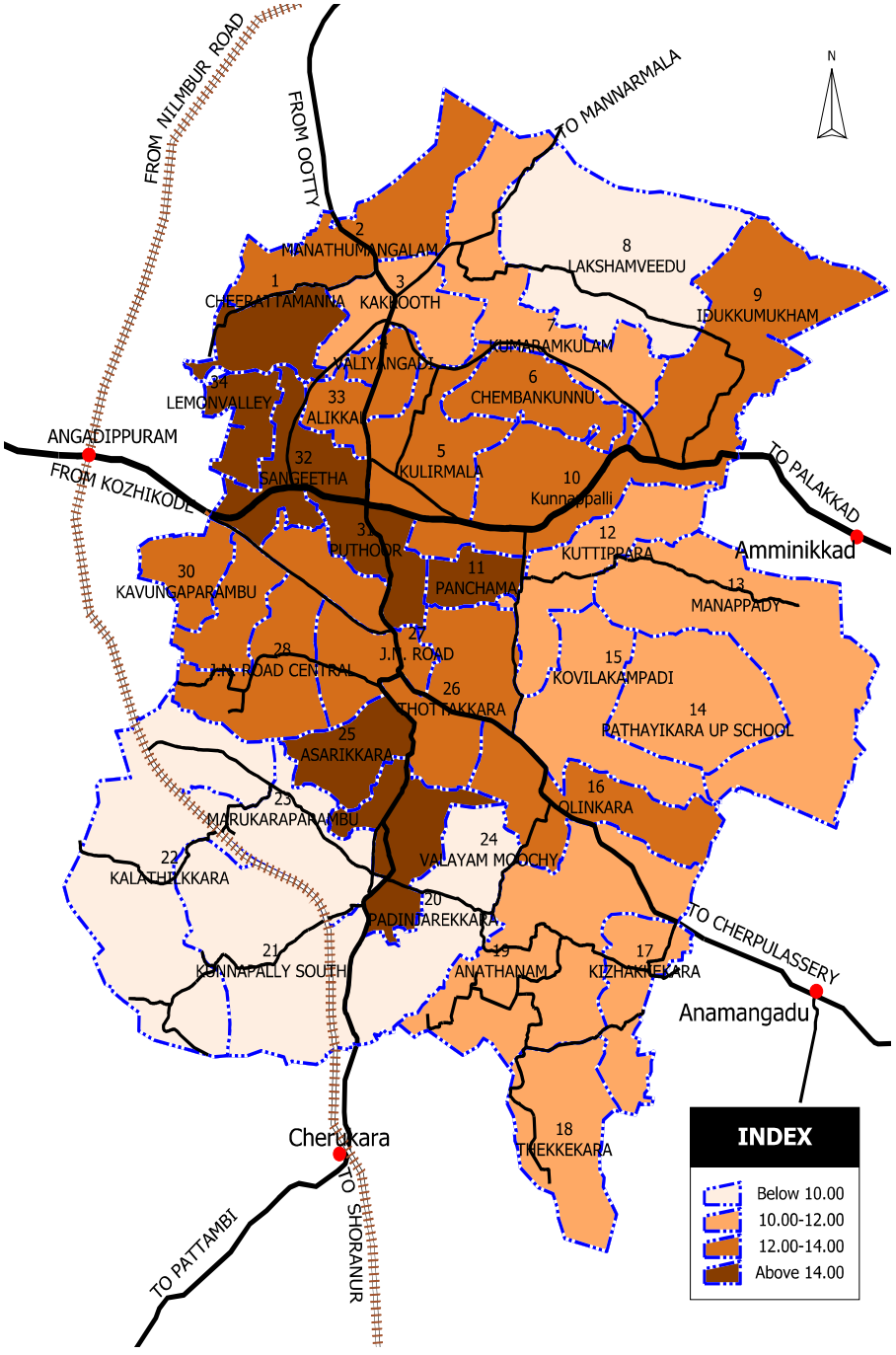


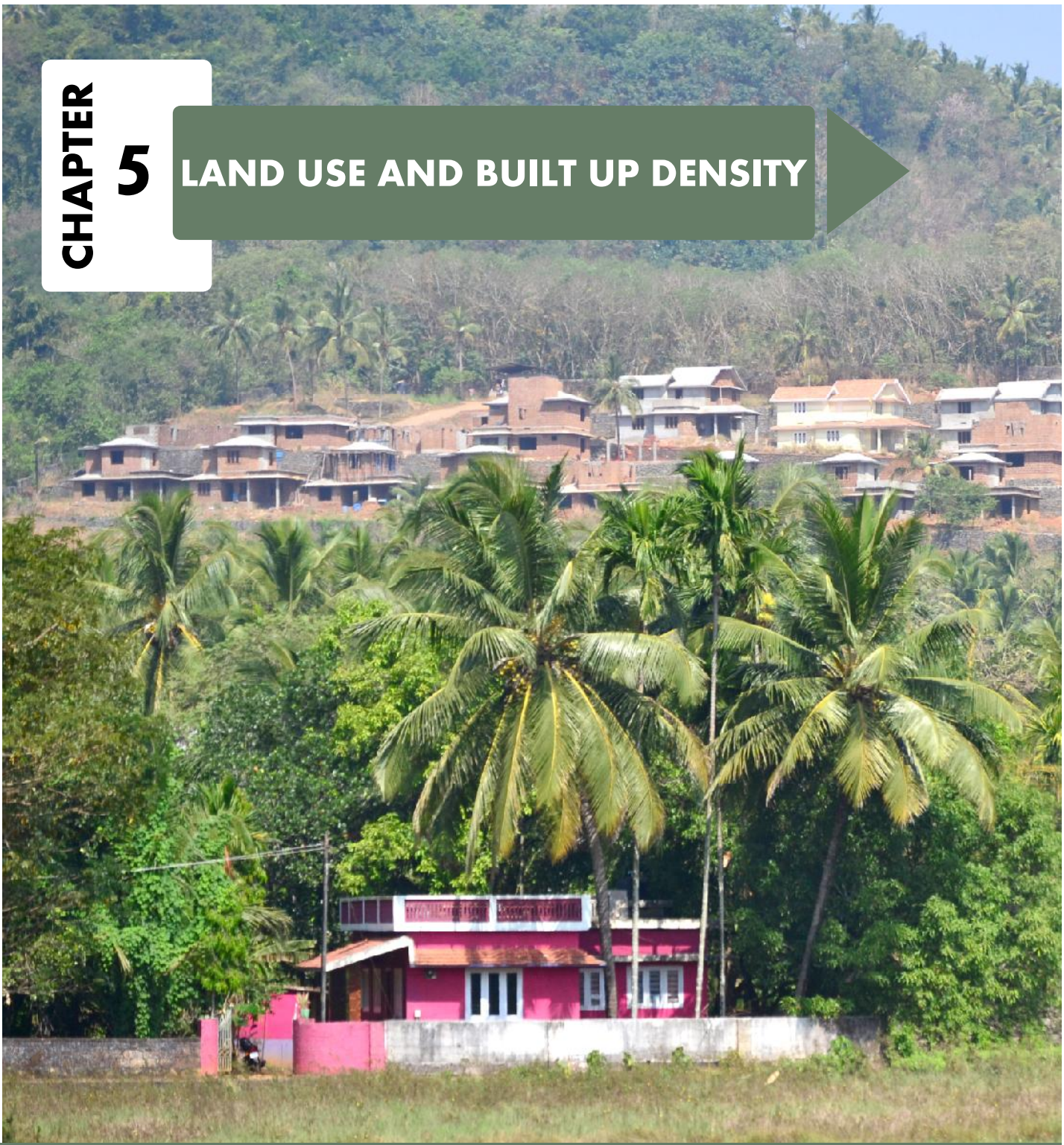
Figure 4.14 CI of other workers

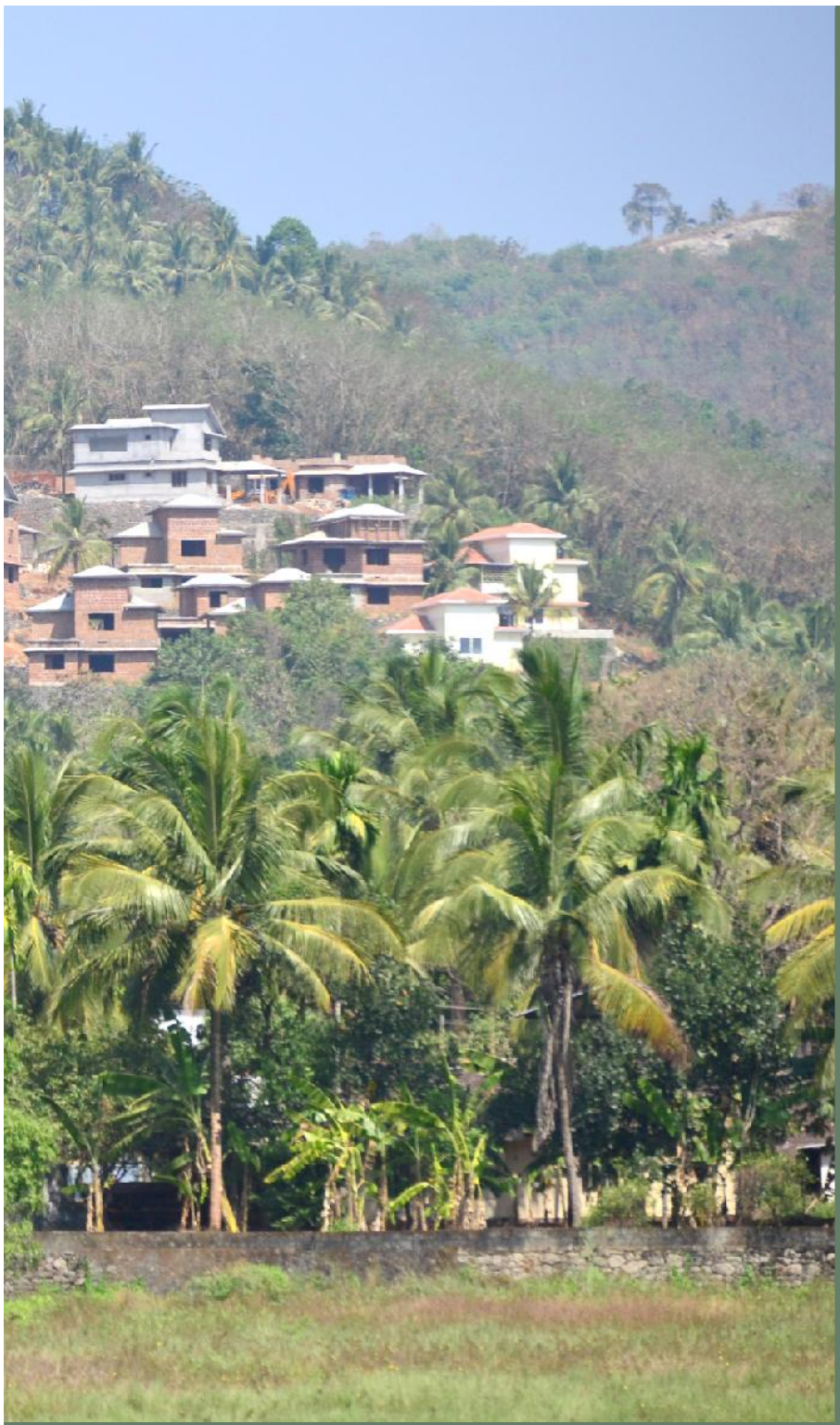
4.6 Inference

Perinthalmanna municipality has a slightly higher WPR when compared to the nearby LSGs and other towns in the District. Most of the people are employed in the 'others' category and there is a decrease in agricultural labourers and cultivators. The town depends on the Middle East countries for employment considerably. The weak agricultural and industrial production base is evident from the low WPR (compared to that of the State) and high percentage of tertiary workers in the occupational structure.

CHAPTER 5

LAND USE AND BUILT UP DENSITY





5.1 General Analysis of Land Use
5.2 Land Use Concentration
5.3 Residential
5.4 Commercial
5.5 Industrial
5.6 Public and Semi Public
5.7 Parks and Open Spaces
5.8 Vacant Land
5.9 Transport and Communication
5.10 Agriculture
5.11 Rocky area
5.12 Built up Area Distribution
5.13 Inference

5 LAND USE AND BUILT UP DENSITY

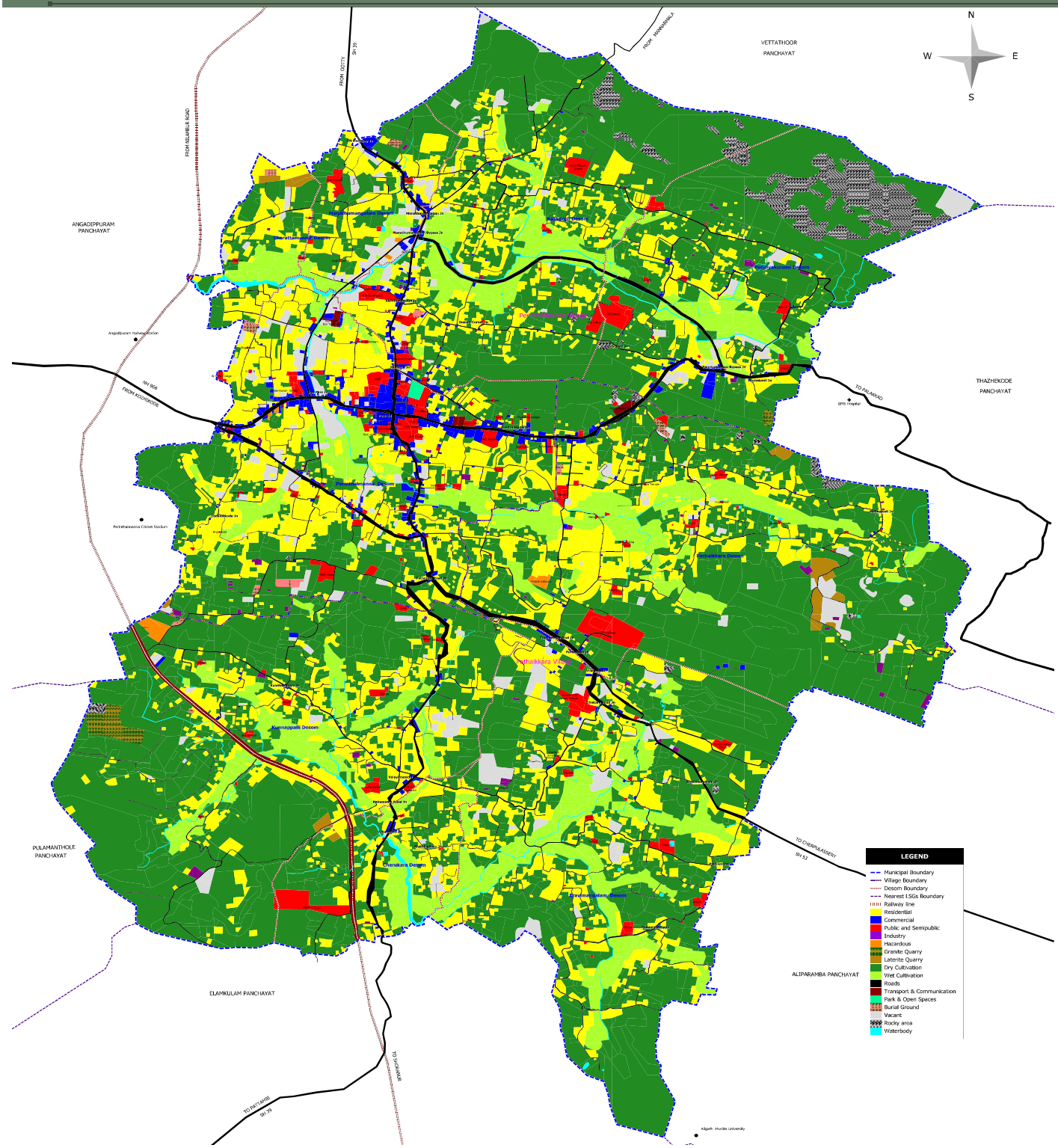


Figure 5.1 Existing Land use 2012

5.1 General Analysis of Land Use

About two third of the total geographical area of the Municipality is covered by cultivation (both farm and homestead cultivation), paddy fields, open spaces and water bodies indicating a higher level of environmental quality. This necessitates proper planning interventions to meet the present and future needs without compromising this quality. The existing land use map of Perinthalmanna town is shown in Figure 5.1. The land use break up in terms of area as well as percentage with respect to the total area is given in Table 5.1 & Figure 5.2

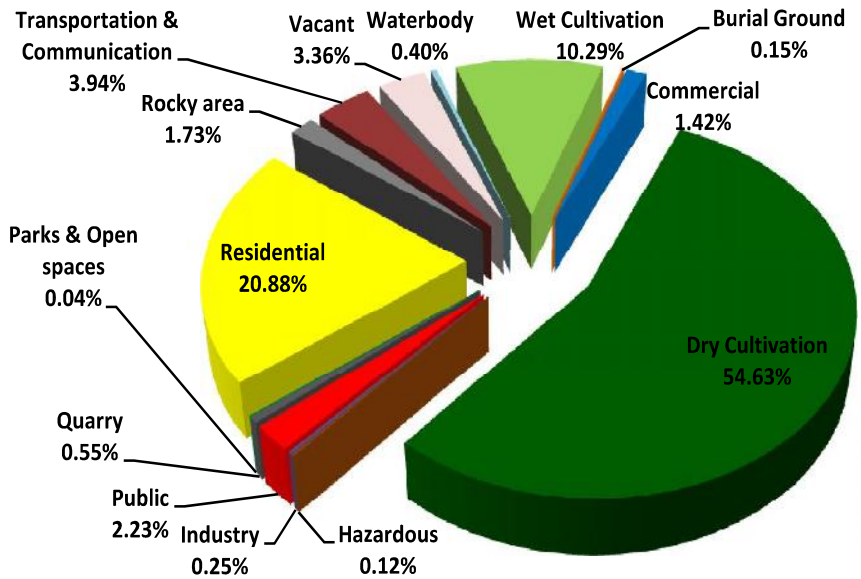


Figure 5.2 Existing Land Use (2012) Break-up

The table and the figure shows that the major land use is dry cultivation which includes coconut, rubber etc. which covers 54.63% of the municipal area followed by residential area covering 20.88% and Paddy spreading about 10.29%. Table 5.2 shows the ward wise distribution of different types of land use. Hazardous use, including the solid waste treatment plant, hazardous industries and petrol pumps constitute 0.12% of the total area.

5.2 Land Use Concentration

Within the municipality, the concentration pattern of land use gives an idea about where that particular land use is concentrated. The concentration pattern of a land use can be ascertained by the concentration index of the land use which is calculated as follows;

Concentration index (C.I) of a particular land use in a ward =

$$\frac{(area\ of\ the\ land\ use\ in\ the\ ward)/(total\ area\ of\ the\ ward)}{(area\ of\ that\ land\ use\ in\ the\ municipality)/(total\ area\ of\ the\ municipality)}$$

"Earth provides enough to satisfy every man's need, but not every man's greed."
- Mahatma Gandhi

Table 5.1. Existing land use breakup 2012 (Source: Land Use Survey 2012)

Landuse	Burial Ground	Commercial	Dry Cultivation	Hazardous	Industry
Area (Ha)	5.19	48.94	1879.95	4.28	8.53
%	0.15	1.42	54.63	0.12	0.25

Table 5.2. Ward wise distribution of land use 2012 (Source: Land Use Survey 2012)

Ward No	Burial Ground		Commercial		Dry Cultivation		Hazardous		Industry		Public & Semi Public	
	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%
1			0.11	0.18	19.53	33.34			0.05	0.09	0.53	0.90
2	0.93	0.81	1.42	1.24	71.35	62.10			0.24	0.21	1.65	1.44
3			2.47	3.37	21.57	29.34	0.33	0.45	0.11	0.14	0.59	0.81
4	0.39	1.34	1.55	5.32	5.25	18.05			0.11	0.36	1.68	5.76
5			5.85	6.45	43.81	48.27			0.23	0.26	5.78	6.37
6			0.10	0.16	38.06	59.32			0.03	0.05	6.02	9.39
7			0.48	0.37	64.25	49.55			0.08	0.06	1.04	0.80
8			0.20	0.10	157.46	78.26			0.60	0.30	3.29	1.64
9			0.40	0.23	86.65	50.25			0.15	0.09	1.73	1.00
10	0.27	0.21	7.81	6.00	80.72	61.99			0.23	0.18	3.30	2.54
11	0.40	1.31	0.05	0.16	9.40	30.52			0.30	0.97	1.48	4.81
12	0.42	0.45	0.46	0.50	41.04	44.69	0.01	0.01	0.26	0.28	0.46	0.50
13			0.31	0.13	162.44	69.49			1.27	0.54	1.68	0.72
14			0.03	0.02	86.81	76.07			0.64	0.56		
15			0.76	0.72	60.12	56.88			0.09	0.09	9.08	8.59
16			1.28	1.22	59.19	55.97			0.19	0.18	4.46	4.22
17			0.04	0.07	34.43	54.17					1.72	2.70
18					69.46	69.73					0.09	0.09
19			0.15	0.07	97.22	45.60			0.24	0.11	2.79	1.31
20			0.19	0.16	49.57	41.68			0.40	0.34	0.33	0.28
21			0.31	0.18	120.82	70.65			0.06	0.03	6.02	3.52
22	0.54	0.22	0.36	0.15	194.43	79.60	2.43	0.99	1.06	0.44	0.36	0.15
23			0.50	0.55	27.08	30.25			0.33	0.37	1.96	2.19
24			0.95	1.26	31.34	41.62			0.09	0.12	0.67	0.89
25			0.04	0.07	31.37	59.67			0.07	0.13	1.73	3.30
26			0.43	0.43	48.55	47.73	1.19	1.17	0.07	0.07	0.10	0.10
27			0.68	1.20	35.93	63.83			0.08	0.14	1.18	2.09
28	1.56	1.20	3.04	2.34	66.43	51.09			0.70	0.54	2.72	2.09
29			0.18	0.39	12.20	25.92			0.29	0.62	0.71	1.51
30			0.60	1.51	28.65	71.71			0.06	0.14	0.02	0.04
31			6.03	11.51	7.98	15.23	0.07	0.13	0.10	0.20	5.65	10.78
32			10.14	13.71	4.66	6.30	0.25	0.34	0.34	0.47	5.19	7.01
33			1.60	6.19	0.88	3.39			0.06	0.23	2.09	8.06
34	0.83	2.11	0.45	1.15	9.67	24.69					0.52	1.34
Grand Total	5.33	0.15	48.98	1.42	1878.33	54.59	4.28	0.12	8.53	0.25	76.63	2.23



The concentration index may be greater than one, equal to one or less than one. Wards with any particular land use concentration index greater than one indicates that the land use under consideration is highly concentrated in that area.

Public	Quarry	Parks & Open spaces	Residential	Rocky area	Transportation & Communication	Vacant	Waterbody	Wet Cultivation	Grand Total
76.62	19.10	1.32	718.49	59.37	135.60	115.75	13.74	354.15	3441
2.23	0.55	0.04	20.88	1.73	3.94	3.36	0.40	10.29	100

Quarry		Park & Open spaces		Residential		Transport and Communication		Rocky area		Vacant		Waterbody		Wet Cultivation		Grand Total
Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	Area(Ha)	%	
				17.92	30.58	1.73	2.96			1.12	1.91	3.16	5.40	14.44	24.65	58.59
2.27	1.97			27.95	24.33	3.32	2.89			5.77	5.02					114.90
				22.74	30.93	4.51	6.13			10.01	13.61	0.86	1.17	10.33	14.05	73.51
				8.39	28.85	2.03	6.99			2.32	7.99	0.40	1.38	6.97	23.96	29.09
		1.24	1.37	18.72	20.63	6.58	7.25			1.38	1.52	0.11	0.12	7.05	7.77	90.75
				13.02	20.28	1.76	2.75	0.36	0.57	0.80	1.24	0.29	0.45	3.71	5.79	64.16
				24.69	19.04	7.01	5.41			2.98	2.30	0.98	0.75	28.17	21.73	129.67
				20.73	10.30	3.64	1.81	12.22	6.07	0.26	0.13			2.80	1.39	201.21
				8.57	4.97	4.67	2.71	40.14	23.27	8.17	4.74	0.56	0.32	21.41	12.41	172.44
				25.97	19.95	8.58	6.59	1.34	1.03	1.94	1.49	0.02	0.01	0.01	0.01	130.20
				12.68	41.19	1.18	3.82			0.11	0.37	0.15	0.49	5.04	16.37	30.79
0.83	0.90			30.89	33.64	2.58	2.81	0.76	0.83	2.53	2.75	0.20	0.22	11.39	12.40	91.83
1.72	0.74			30.62	13.10	5.03	2.15	2.29	0.98	4.24	1.81	0.40	0.17	23.78	10.17	233.77
5.49	4.81			9.01	7.90	1.15	1.01	0.31	0.27	6.45	5.65	0.05	0.04	4.19	3.67	114.12
				18.36	17.37	2.60	2.46	0.42	0.40	0.49	0.46	0.07	0.06	13.71	12.97	105.69
				22.65	21.42	6.10	5.77			7.94	7.51	0.06	0.06	3.88	3.66	105.75
				12.62	19.86	1.63	2.57					0.20	0.32	12.90	20.30	63.56
				13.11	13.16	1.78	1.79			0.28	0.28	0.17	0.17	14.72	14.77	99.61
				46.93	22.01	7.16	3.36	0.30	0.14	8.63	4.05	0.85	0.40	48.95	22.96	213.22
				31.55	26.53	4.00	3.37			7.96	6.69	2.37	1.99	22.57	18.97	118.95
1.59	0.93	0.05	0.03	25.71	15.04	8.01	4.68			0.13	0.07	0.43	0.25	7.87	4.60	171.01
7.20	2.95			16.59	6.79	7.68	3.15	1.08	0.44	3.12	1.28	0.06	0.02	9.37	3.83	244.27
				31.50	35.20	5.05	5.65			1.00	1.11	1.13	1.27	20.95	23.41	89.49
				22.29	29.60	3.91	5.19			3.69	4.90			12.36	16.41	75.31
				12.81	24.37	1.79	3.41			1.23	2.35			3.52	6.70	52.57
				32.58	32.03	6.40	6.29			1.39	1.37	0.09	0.09	10.91	10.73	101.73
				12.40	22.03	3.42	6.07			1.55	2.75			1.06	1.88	56.29
				34.71	26.70	5.59	4.30	0.13	0.10	5.81	4.47	0.18	0.14	9.15	7.04	130.02
				20.30	43.11	1.57	3.33			3.29	6.98	0.02	0.05	8.53	18.11	47.09
				8.58	21.46	0.83	2.08			0.40	1.01			0.82	2.05	39.96
		0.02	0.04	16.98	32.42	3.41	6.51			2.10	4.00	0.38	0.73	9.67	18.45	52.39
				30.91	41.77	7.02	9.48			11.18	15.11	0.55	0.74	3.76	5.08	74.01
				13.10	50.58	1.87	7.23			2.83	10.91	0.19	0.72	3.29	12.69	25.89
				22.45	57.32	1.89	4.82			3.27	8.35	0.04	0.11	0.04	0.11	39.16
19.09	0.55	1.32	0.04	718.03	20.87	135.49	3.94	59.37	1.73	114.35	3.32	13.97	0.41	357.31	10.38	3441

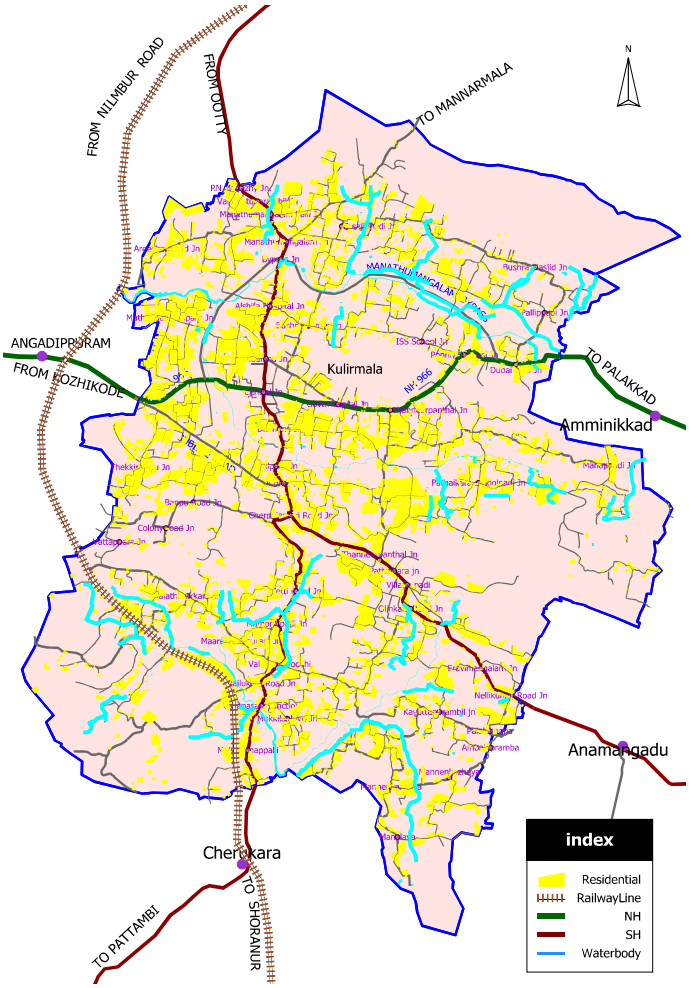


Figure 5.3 Residential land use

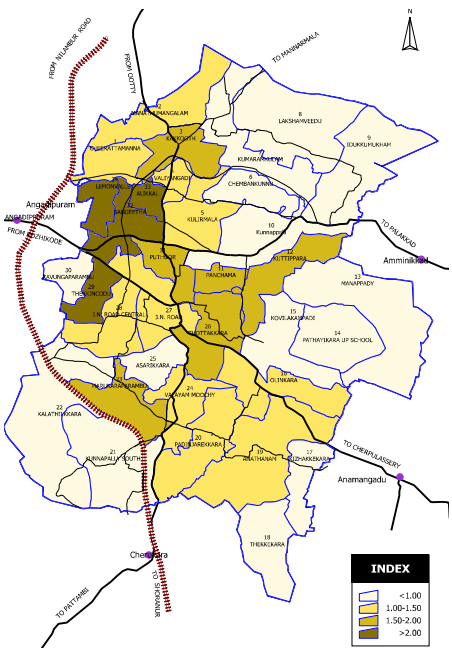


Fig. 5.4 CI of Residential land use

5.3 Residential

The total extent of land occupied by residential land use comes to 20.88% of the Municipal area. Its distribution is shown in Figure 5.3.

The figure shows that the residential areas are developed mostly in places with accessibility and proximity to facilities. The concentration index of the residential land use is shown in Figure 5.4. Higher concentration of residential land use is seen in wards Alikkal and Lemonvalley. In the absence of a development plan and any sort of controls on land use, the residential development has taken place in a scattered manner. This causes inefficient use of resources and makes the provision of various infrastructure and amenities comparatively costlier.

The total extent of land occupied by residential land use comes to 20.88% of the Municipal area, and are developed mostly in places with accessibility and proximity to facilities.

5.4 Commercial

Commercial land use in Perinthalmanna municipality is about 0.49 Sq.Km and it is about 1.42% of the municipal area. Its distribution is shown in Figure 5.5. The main junction forms the centre point for the various commercial developments throughout Perinthalmanna municipality, where the NH 966 meets Nlambur-Perumbilavu state highway. Main junction, Bypass junction, and Hospital junction are the important commercial nodes in the Municipality.

The commercial development has taken place mostly as ribbon development along the major transport routes and centers around road junctions. No large scale commercial development has taken place in the town.

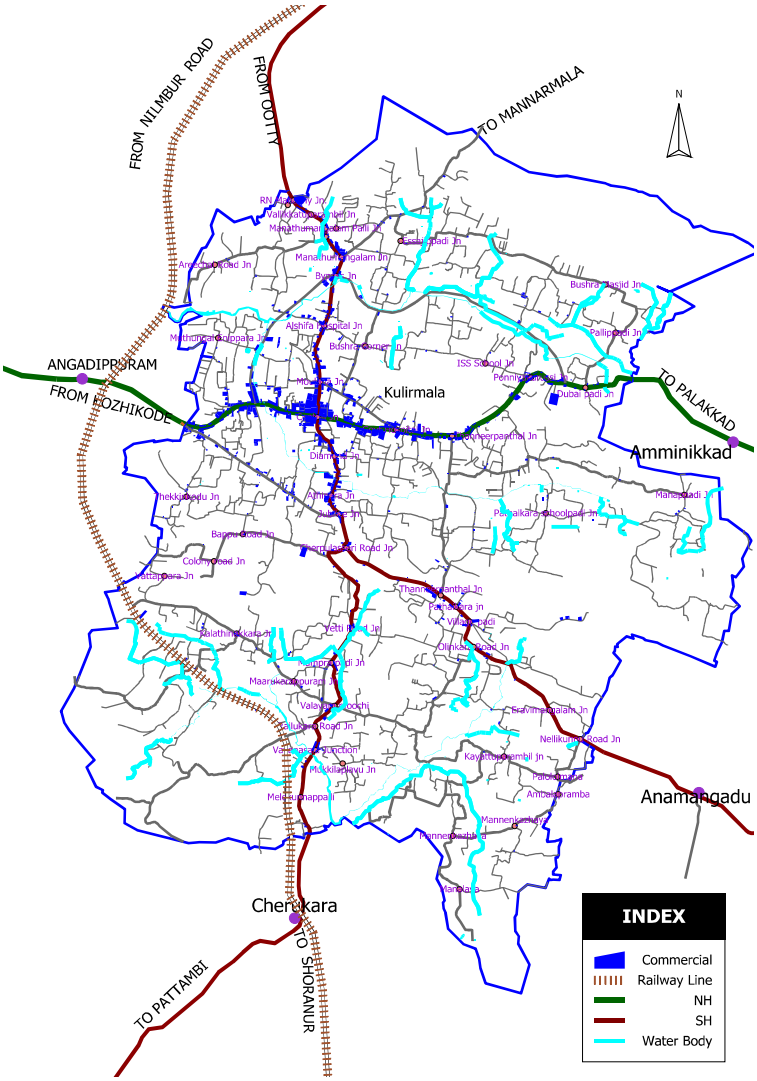


Figure 5.5 Spatial distribution of Commercial land use

Commercial land use in Perinthalmanna municipality is about 0.49 Sq.Km and it is about 1.42% of the municipal area.

There are no large and medium scale industry units in Perinthalmanna Municipality, but there are nine small scale industry units and 155 micro industry units which are scattered around in the residential areas

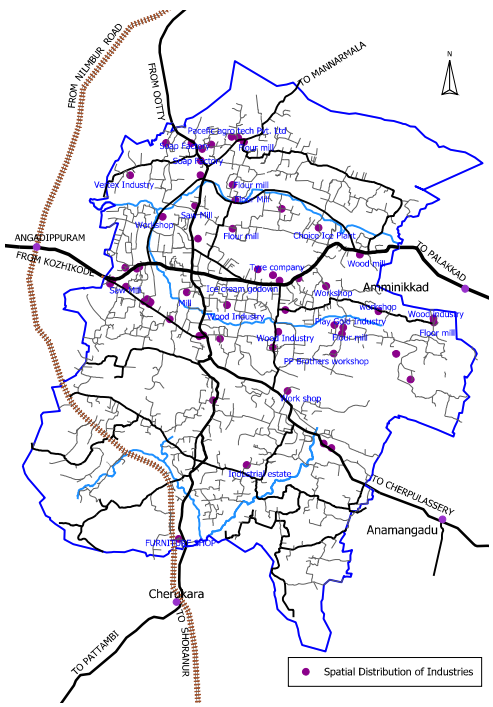


Figure 5.6
Spatial distribution of industrial units

5.5 Industrial

There are no large and medium scale industry units in Perinthalmanna Municipality, but there are nine small scale industry units and 155 micro industry units which are scattered around in the residential areas. Total industrial land use in the municipality is only 8.53 Ha which constitutes only 0.25 % of the municipal area. This indicates that the industries play only a minor role in the economy of Perinthalmanna municipality. The spatial distribution of industrial units are shown in Figure 5.6.

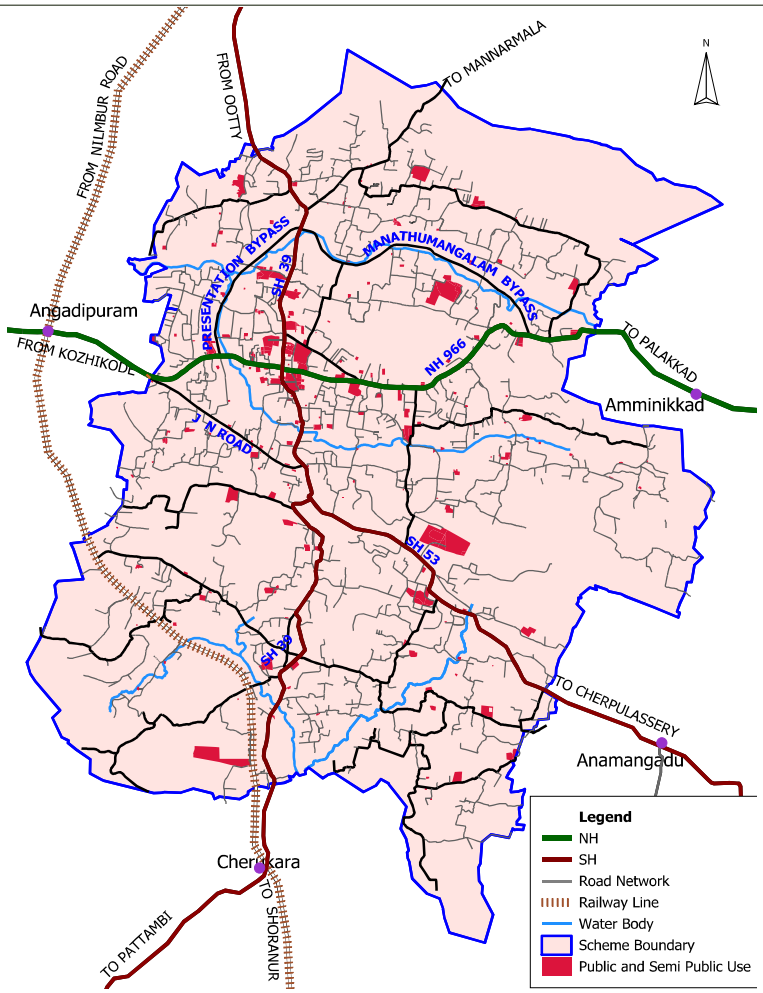


Figure 5.7 Spatial distribution of public & semi public land use

5.6 Public and Semi Public

Public and semi public land use constitutes 2.23%. Offices, educational institutions, hospitals, police station, court, religious and cultural institutions are grouped under this category. Spatial distribution of public land use is shown in Figure 5.7. It is seen that the public and semi public land use is concentrated mostly near the main junction. The Government offices are scattered around in separate small buildings. There is scope for densification thus making land available for other uses. Educational institutions of lower order and religious institutions are spread over the municipality.

5.7 Parks snd Open Spaces

Parks and open spaces include stadium, recreational area etc and it constitutes only 0.04% of the municipal area. The spatial distribution of the park and open spaces land use is shown in Figure 5.8.

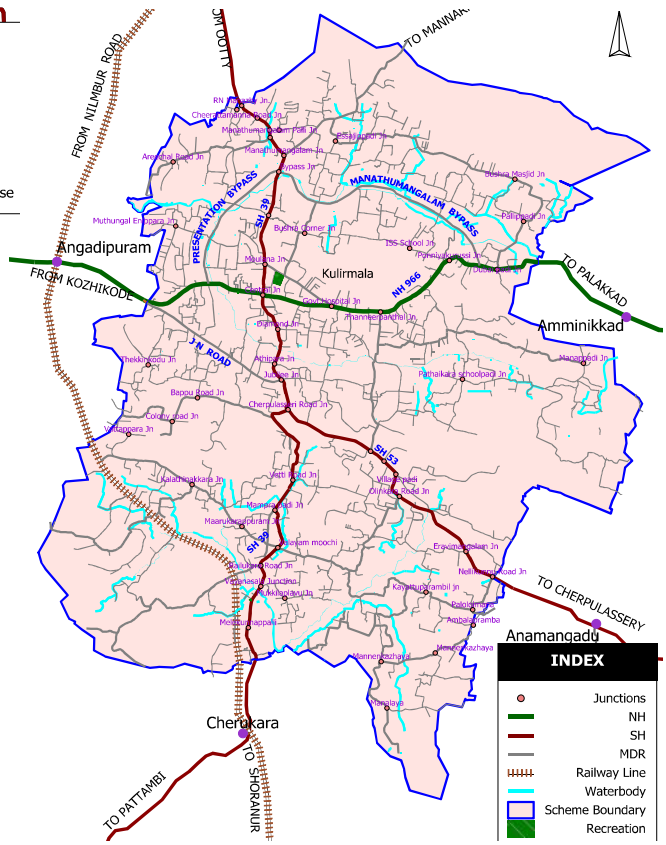


Figure 5.8 Spatial distribution of recre-ational space

Public and semi public land use constitutes 2.23%. Offices, educational institutions, hospitals, police station, court, religious and cultural institutions are grouped under this category.

Parks and open space constitutes 0.04% of the area of the Municipality.

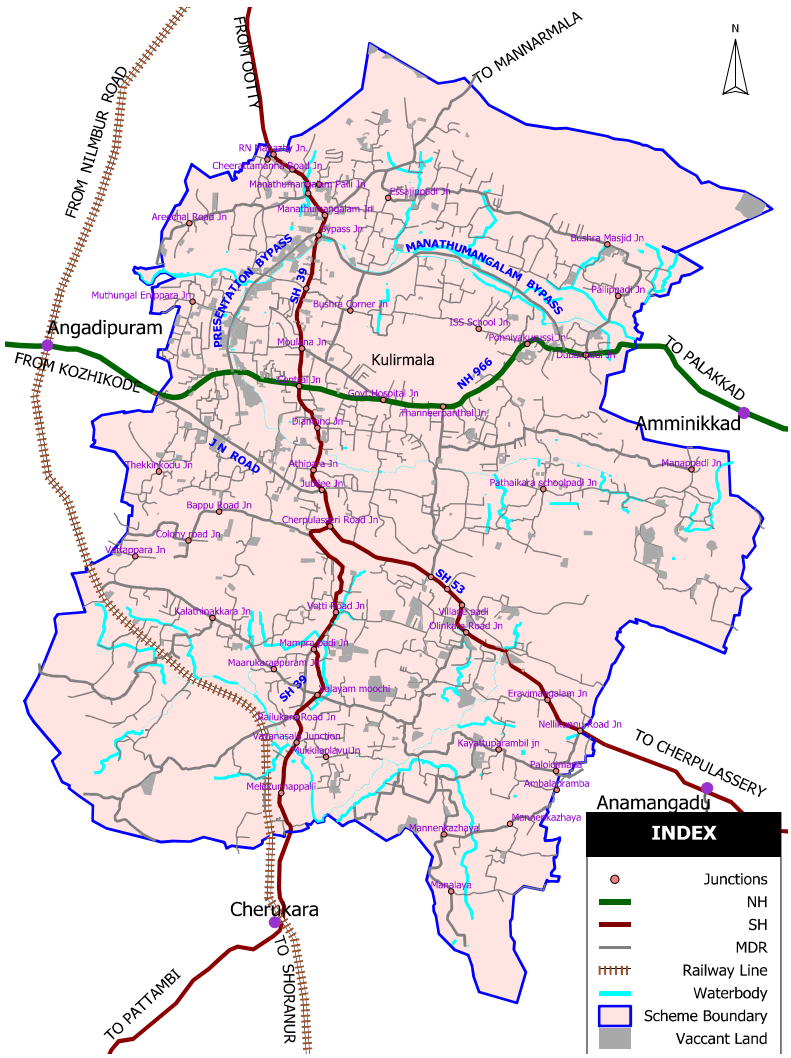


Figure 5.9 Spatial distribution of Vacant Land

5.8 Vacant Land

Vacant land includes those areas which did not have any specific use at the time of the survey, but indicated land development and conversion to an urban use in the near future. This use constituted 3.36% of the municipal area, indicating the fast urbanization of the town. The spatial distribution of vacant land is shown in Figure 5.9. It can be seen that this use is concentrated in and around the important transportation corridors.

5.9 Transport and Communication

Land occupied by road, railway line and bus terminals are grouped under this category. NH 966, SH 23, SH 39 are the important roads passing through the municipality. Shornur-Nilambur railway line also passes through the municipality. KSRTC bus stand, Manazhi bus terminal and the Tharayil bus stand are the existing bus stands. The extent of transportation land use in the Municipality comes to 135.50 Ha which constitute 3.94% of the municipal area. This shows the lack of adequate transportation network in the Municipality. The spatial distribution of transportation facilities is shown in Figure 5.10.

The extent of transportation land use in municipality comes to 1.35 Sq.Km which constitute 3.94% of the municipal area, showing the lack of adequate transportation network in the municipality.

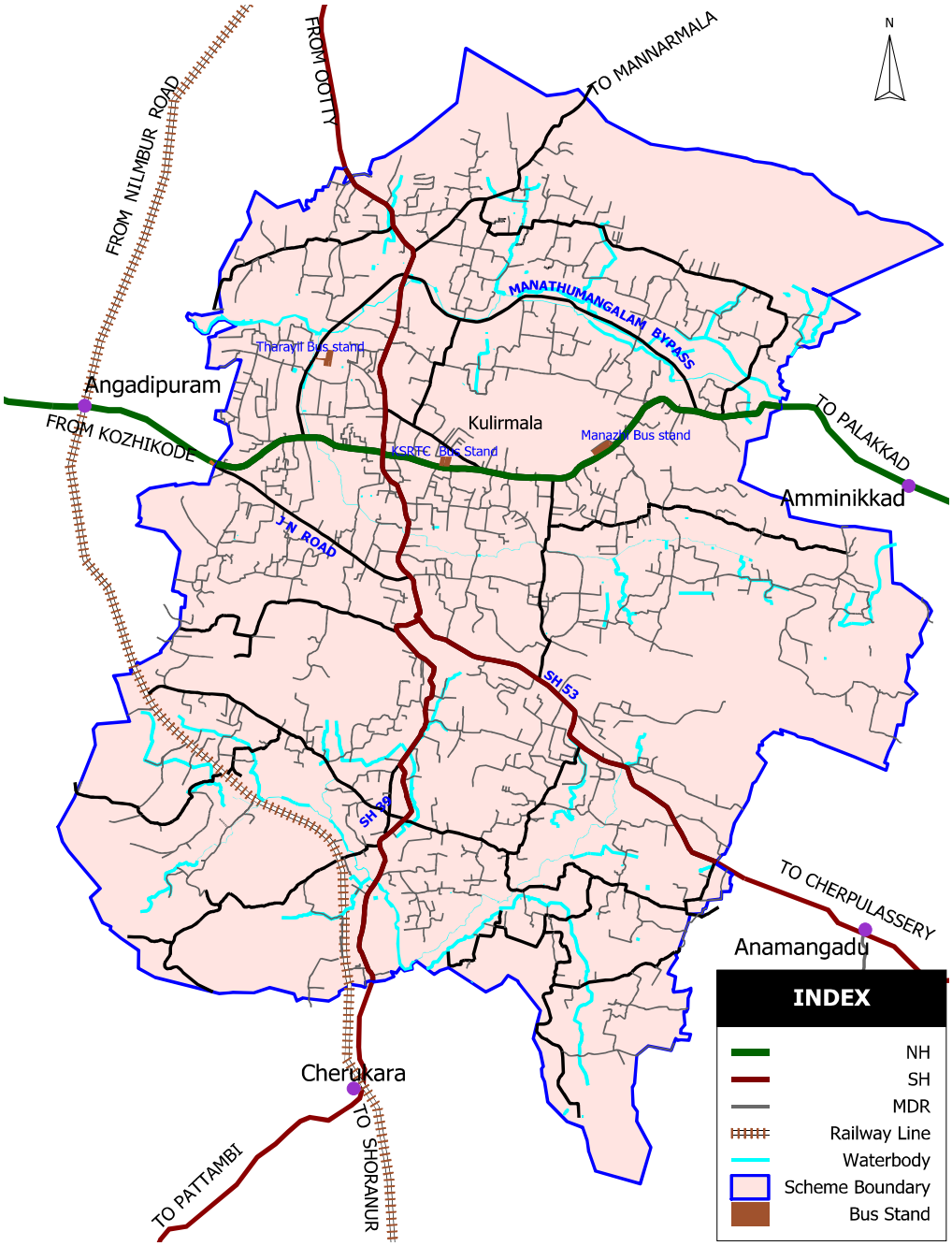


Figure 5.10 Spatial distribution of transport and communication

5.10 Agriculture

Two third of the land in the municipality is occupied by agriculture. The wet and dry agriculture jointly constitute 64.93% of the total municipal area. A considerable portion of agricultural land has been filled up for commercial and residential purpose. The extent of paddy land comes to 354.15 Ha which is 10.29% of the municipal area. Spatial distribution of paddy fields is shown in Figure 5.11.

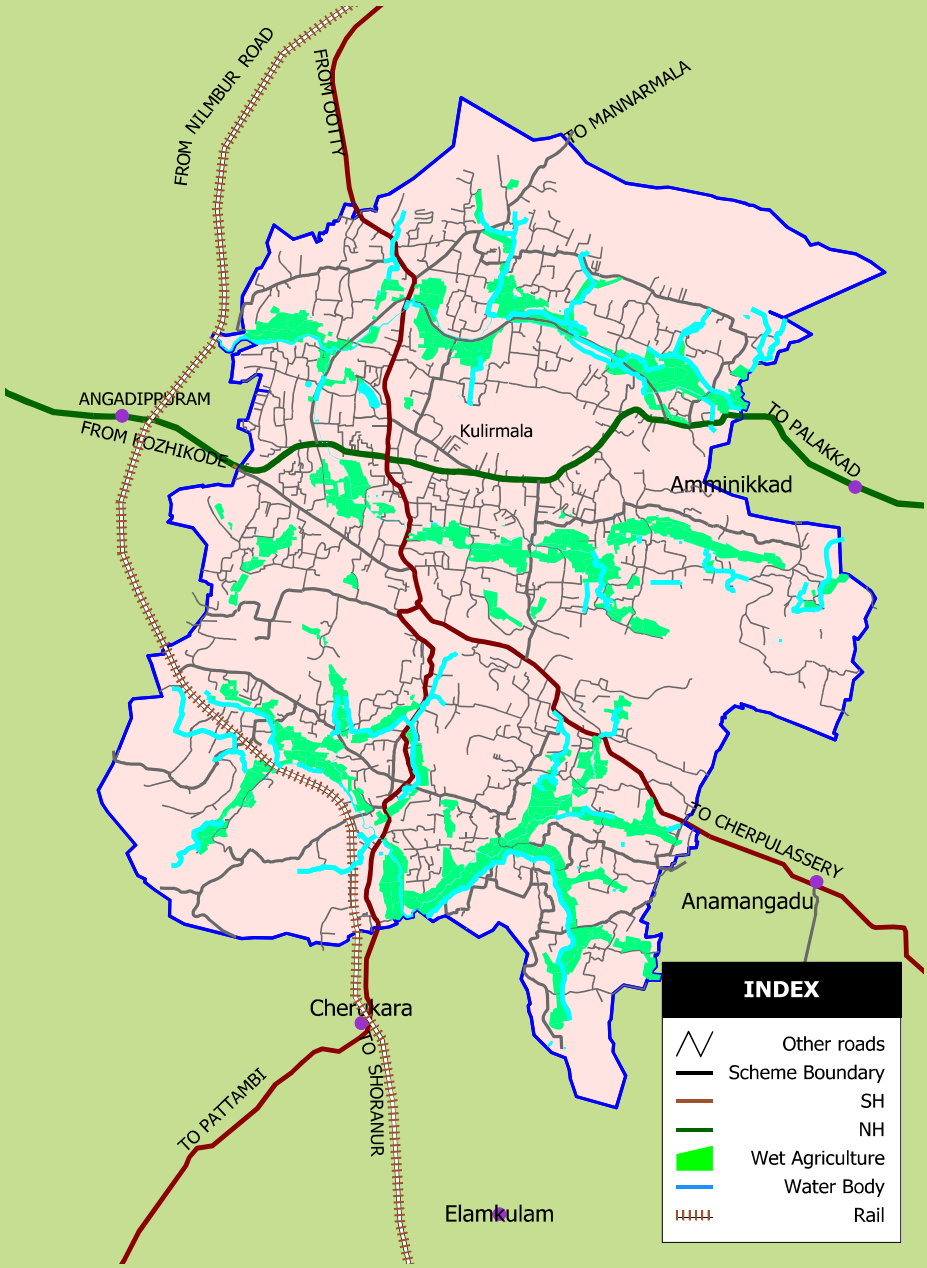


Figure 5.11 Spatial distribution of paddy

Two third of the land in municipality is occupied by agriculture. The wet and dry agriculture jointly constitute 64.93% of the total municipal area.

The dry agriculture is seen distributed in the entire municipal area except at the core of town. The important crop in the municipal area is coconut, followed by rubber. Sugar cane is also cultivated in the municipal area. The dry cultivation constitutes 54.63 % of the total area. The spatial distribution of dry cultivation is shown in Figure 5.12.

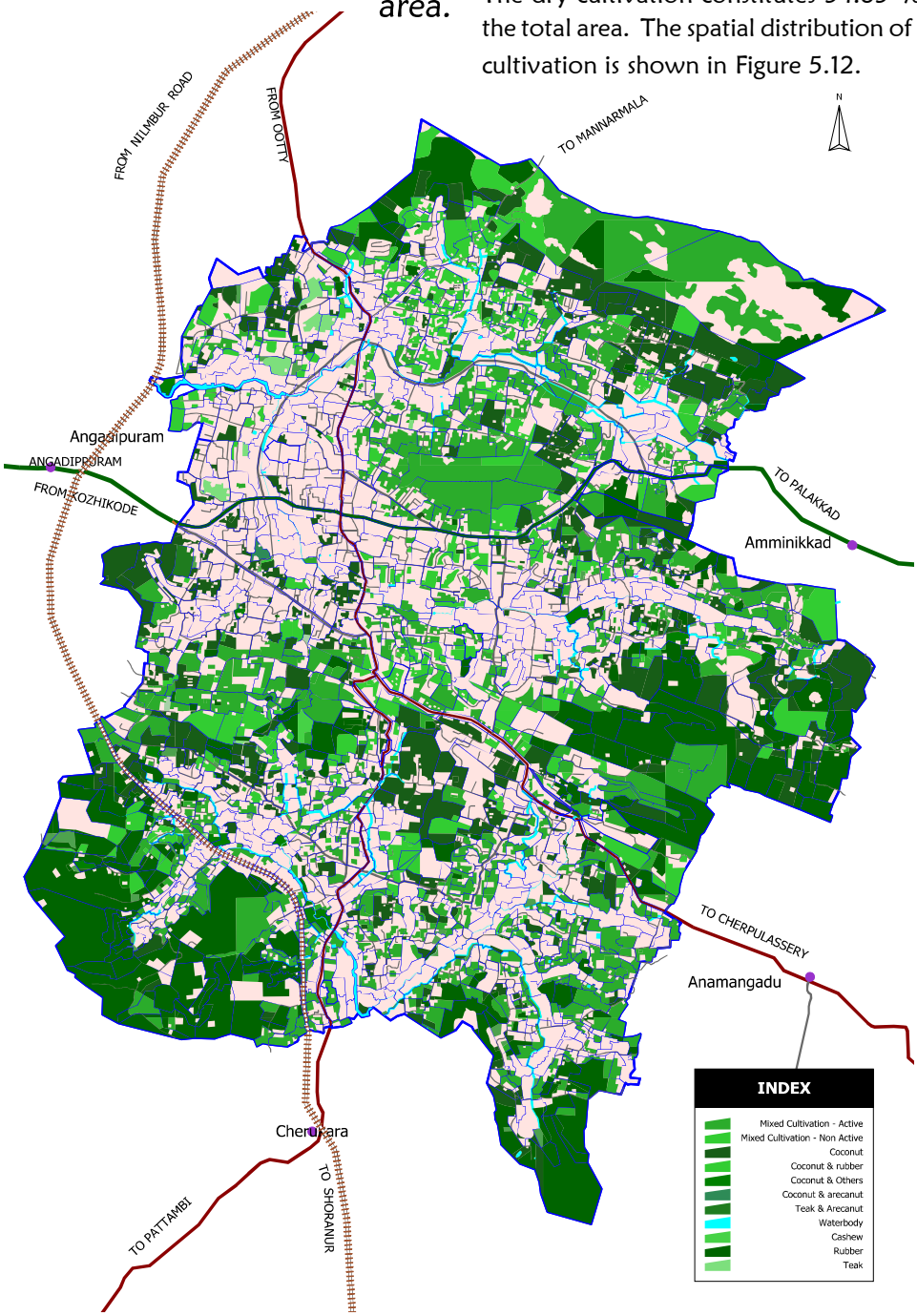


Figure 5.12 Spatial distribution of dry cultivation

5.11 Rocky Area

Rocky area constitute 1.73% of the municipal area. Spatial distribution of the rocky area is shown in Figure 5.13. Ward 09 Idukkumukham area near the north east boundary of the Municipality has got the highest concentration of rocky area.

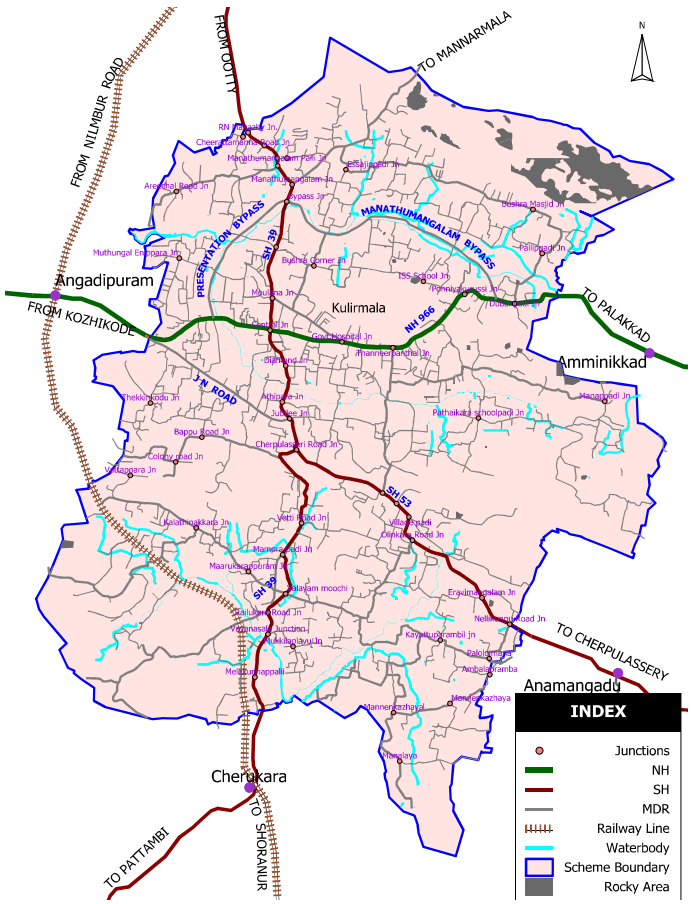


Figure 5.13 Spatial distribution of Rocky area

5.12 Built-Up Area Distribution

Built up density is highest around the Main Junction and along Kozhikode-Palakkad NH.

The built up area distribution in the town is studied from the satellite imagery and land use survey sheets for identifying the intensity of human activities in various parts of the town. A graphical representation of built up area distribution is given in Figure 5.14.

Built up area is highest around the Main Junction and along Kozhikode-Palakkad NH. In the residential front, the North East quadrant show a denser development than other areas. Considering the built up area distribution and the land use pattern, the town can be divided into three areas viz. core area (where the activities are most intense), transition area (where low density residential land use is predominant) and other areas (where the level of activity and density are low).

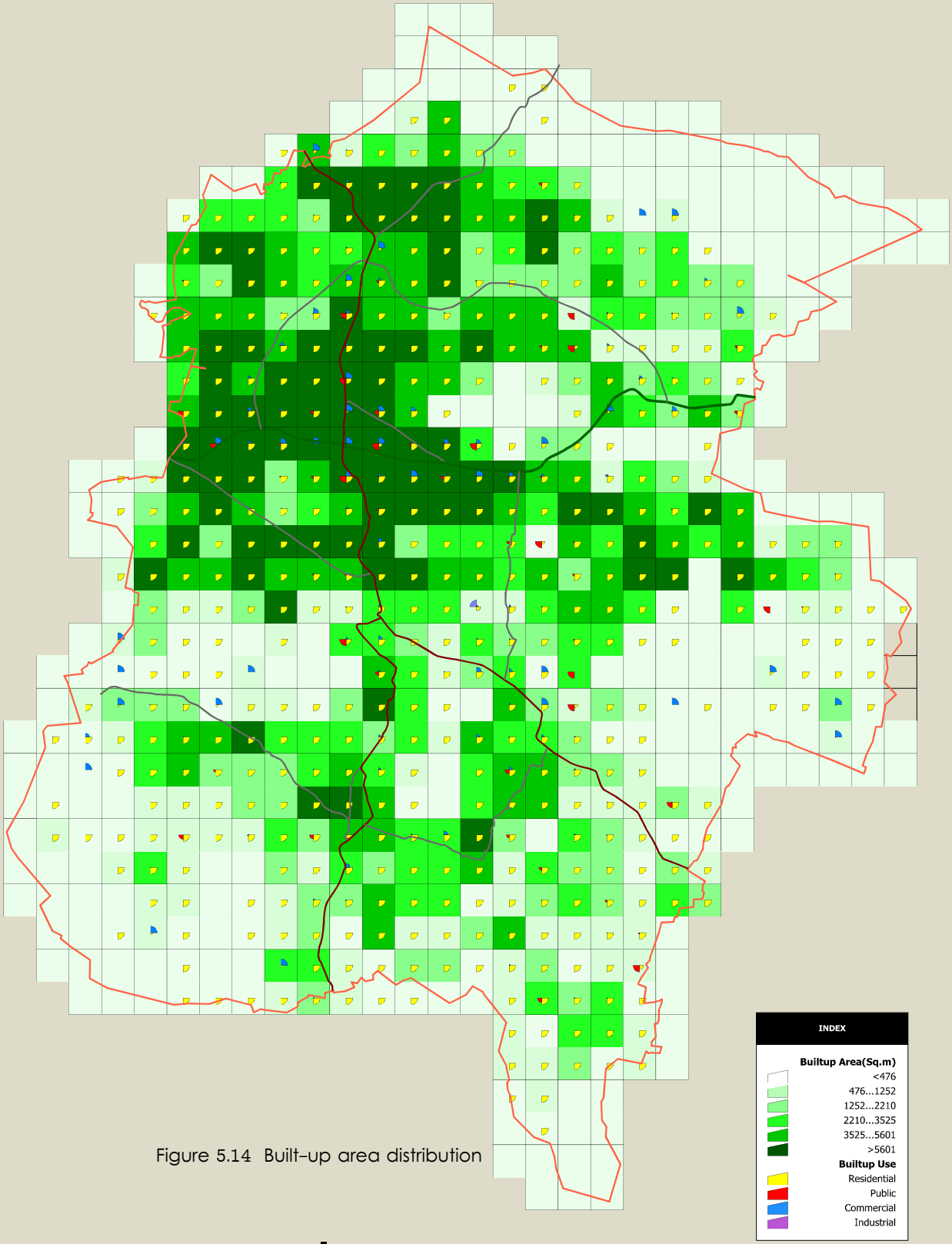


Figure 5.14 Built-up area distribution

5.13 Inference

The town has a scattered residential development which makes civic services costlier. The commercial development is concentrated on the major junctions and as ribbon development along the major transport corridors. Industrial land use is insignificantly low. Space for public recreation is almost non-existent. Public and semi public land use also tends to concentrate towards the main junction. Area under transportation land use is only around 4% which is quite inadequate to cater to the economic activities in the town. The town has 10.29% of the land under paddy (both cultivated and un-cultivated). 1.73% of the land area in the municipality is rocky. Based on the built up area distribution and land use pattern, three distinct areas of development pattern can be found in the municipality, the mixed use, high density urban core, predominantly residential transition area and other areas of low density and agriculture predominance.



CHAPTER 6

TRADE AND COMMERCE





6.1 Nature of development
6.2 Commercial Nodes
6.3 Commercial land use- comparison with similar towns
6.4 Street vendors
6.5 Market
6.6 Wholesale and retail trade
6.7 Inference

6 TRADE AND COMMERCE

Perinthalmanna is a sub-regional node in the district, in trade and commerce.

Perinthalmanna is a sub-regional node in the District, especially in trade and commerce. The inhabitants of surrounding LSGs like Angadippuram, Puzhakkattiri, Mankada, Keezhattur, Melattur, Vettathur, Thazhekkode, Aliparamba and Pulamanthole depend on Perinthalmanna for their trading and shopping needs.

6.1 Nature of Development

The Figure 6.2 gives the spatial distribution of commercial land use in the town. The commercial land use covers only 1.42% of the total land in the town. 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 existing commercial nodes in the town and their order are depicted in Figure 6.3.

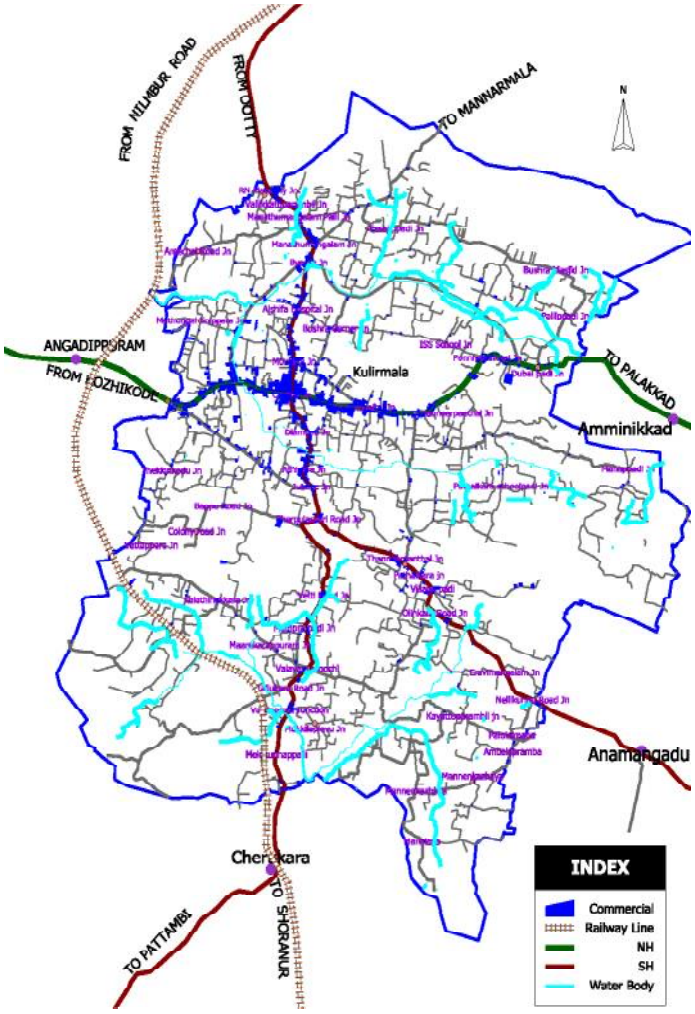


Figure 6.2 Spatial distribution of commercial land use



Figure 6.1 Perinthalmanna and its influence region as a commercial center



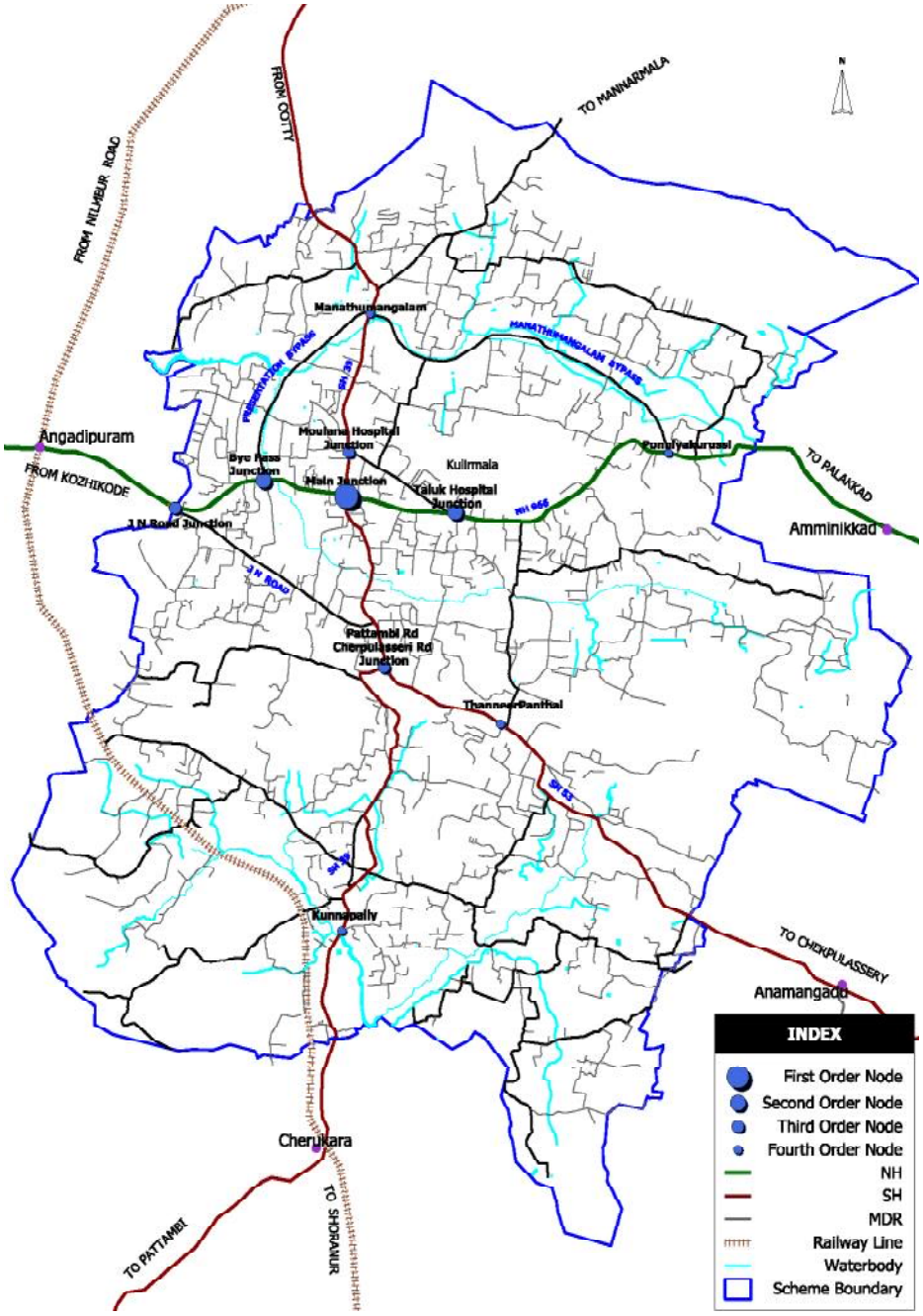


Figure 6.3 Existing commercial nodes



6.3 Commercial land use - Comparison with Similar Towns

The commercial land use pattern of Perinthalmanna exhibits characteristics comparable with that of the towns similar to Perinthalmanna. The percentage land use for commercial activities of similar towns varies from 0.50% to 1.72 %, where as the commercial land use of Perinthalmanna is at 1.42%. The values are compared in Figure 6.4 given below.

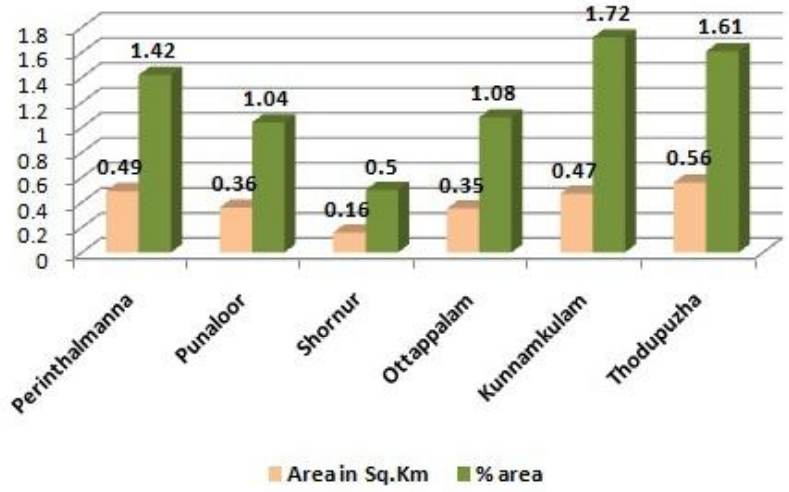


Figure 6.4 Commercial land use– Comparison with Similar Towns

Street vendors are an integral part of the economy and social life of a town and need to be properly accommodated.



6.4 Street Vendors

Street vendors are an integral part of the economy and social life of a town. Like any medium sized town in the state, street vendors are active in Perinthalmanna also. There are around fifty street vendors in the town, mainly concentrated on the way to market and near PWD complex in Pattambi road. Generally, it can be said that street vendors concentrate more where there is a heavy pedestrian traffic. Figure 6.5 gives spatial distribution of street vendors in Perinthalmanna.

6.5 Market

The existing market is in a 3.5 acres plot lying in between the Hi-tech shopping complex and the stadium. The area is almost fully covered with low rise structures and is very congested. According to the municipal records, there are 209 licensed vendors operating from this premises. Number of unauthorized vendors also can be seen within the market. The vendors deal with stationery articles, banana, dry fish, vegetables, fruits, egg, chicken, beef,mutton, grocery, coir, betel leaves, tobacco, milk & milk products, medicines, accessories, tea, electricals and bakery. Even though the market is centrally placed, the low rise and dilapidated structures make

The town has a large hinterland as a commercial center. However commercial development has not taken place commensurate with this potential in the absence of planned commercial development.

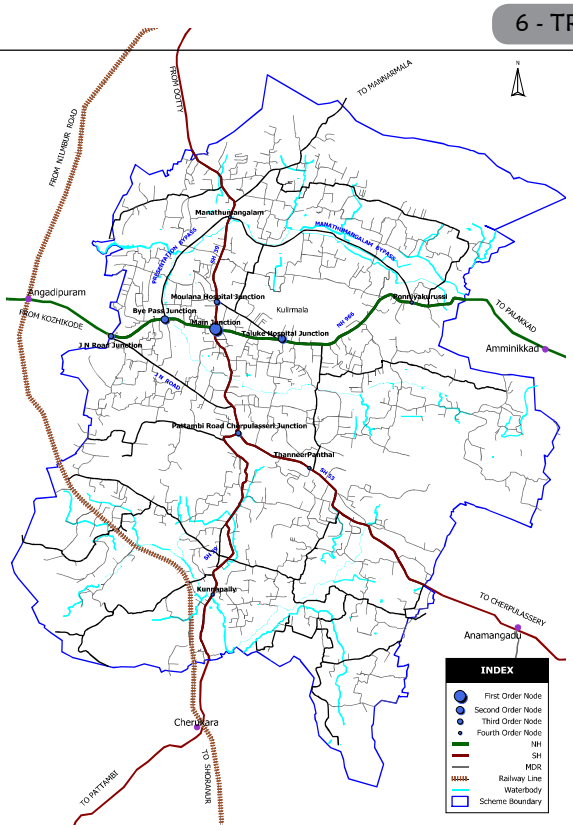


Figure 6.5 Spatial distribution of street vendors

the use highly inefficient and unhealthy. There is no parking facilities in the market adding to chaos. Most of the wholesale vendors do their loading and unloading during the night.

6.6 Wholesale and retail trade

The whole sale activities in the town is scattered along with the retail activities, and is mainly involved in the trading of rice and other grocery items. Also, agricultural produce from the hinterland are traded in the town. These include mainly cashew, ginger, pepper and rubber. MRF procures 30-35 tonnes of rubber per month from the town. 1.5 to 1.8 tonnes of cashew and pepper reach Cochin market in a week from this town. Around 2.5 tonnes of Arecanut is sent to Nagpur Market in a week. Coconut export from the town (mainly to Tamilnadu) comes to 20-25 tonnes per month. The active retail shopping include clothes, jewellery, building materials and food & grocery.

6.7 Inference

The town serves as the commercial center for a large hinterland. However commercial development has not taken place commensurate with this potential in the absence of planned commercial development. Number of auxiliary facilities are also required to be in place. Street vendors and pedestrian traffic go hand in hand and hence facilities for street vending has to be provided considering the pedestrian movement. The market need to be refurbished with cleaner and efficient buildings with facilities for parking, loading and unloading. This valuable centrally placed real property has to be developed to its fullest potential to serve the people well and contribute to the municipal revenue.



CHAPTER 7 INDUSTRY

There are no large or medium size industries in the Municipal area.

7.1 Existing Industrial Base

Perinthalmanna town has a weak industrial base. There are no large or medium scale industries in the municipal area. There are only 9 small scale units in the town. 155 micro scale enterprises are working in the municipality.

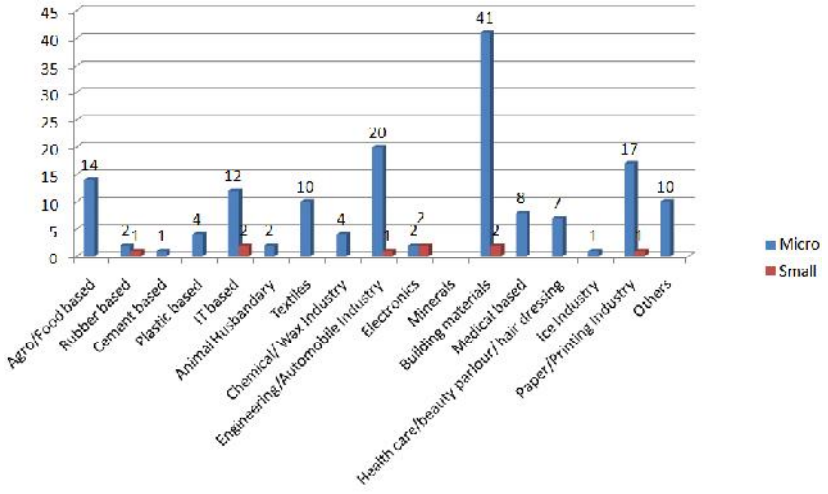


Figure 7.1 Type of industries

The type of industries in the town is shown in Figure 7.1. Maximum number of units are engaged in the manufacture of building materials indicating vigorous construction activity in the influence region. Engineering and automobile workshops come second in number.



Figure 7.2 Spatial Distribution of Industrial units

The industrial units are scattered around, interwoven with the residential and commercial land use.

7.2 Spatial Distribution

The total area under industrial land use comes to only 0.25 % in the municipality. Most of the units being micro in scale are scattered around, interwoven with the residential and commercial land use, towards the north-western and north eastern parts of the municipality.

7.3 Agriculture related industries

The town has good agricultural background and two-third of the land in the Municipality is occupied by agriculture. The wet and dry agriculture jointly constitute 64.97% of the total municipal area with 54.59% of the total land use falling under dry agriculture and 10.38% for paddy cultivation. Major crops produced include coconut, paddy and rubber. Sugarcane also has been cultivated in some parts of the Municipality.

The presence of vast tracts of agricultural land signifies ample scope for agricultural related household industry units in the Municipality. Coconut processing units can be established as the majority of the dry agricultural sector comprises of coconut plantations. Coconut can be processed to produce coconut oil, by making use of relatively less complex machineries and procedures. Coconut oil can find an easy market as it is an indispensable ingredient in the local cuisine.

There are other products as well which can be produced on an industrial basis. "Neera drink" is one among them. This is also called palm nectar or sweet toddy, and is popular on account of its high nutritive value, delicious taste and agreeable flavor. Tender coconut juice is yet another product based on coconut cultivation which can be produced and marketed on large scale basis.

Self Help Groups can play a major role in developing household industries in the Municipality. The Perinthalmanna municipality has got a strong base of well established Kudumbasree units functioning in various sectors. The activities of these groups can be diversified into these potential areas.

7.4 Problems and Potentials

The town has not been able to attract industrial enterprises at large. The municipality has acquired 6.94 acres of land in Sy No. 44 and 158 of Eravimangalam desom, at Paloliparamba for industrial development. But even after several years of acquisition, the venture has not attracted industrial units.

The town has a number of tertiary level hospitals both within the municipal limits and in the periphery. Further investments are anticipated in this sector in the town. So, there is a potential for developing industrial units manufacturing hospital supplies since the internal consumption itself justify the production. Also, the vast tract of land used for coconut cultivation also posses scope for setting up of agro based industries, which can be brought in with the involvement of self help groups and co operative sector.

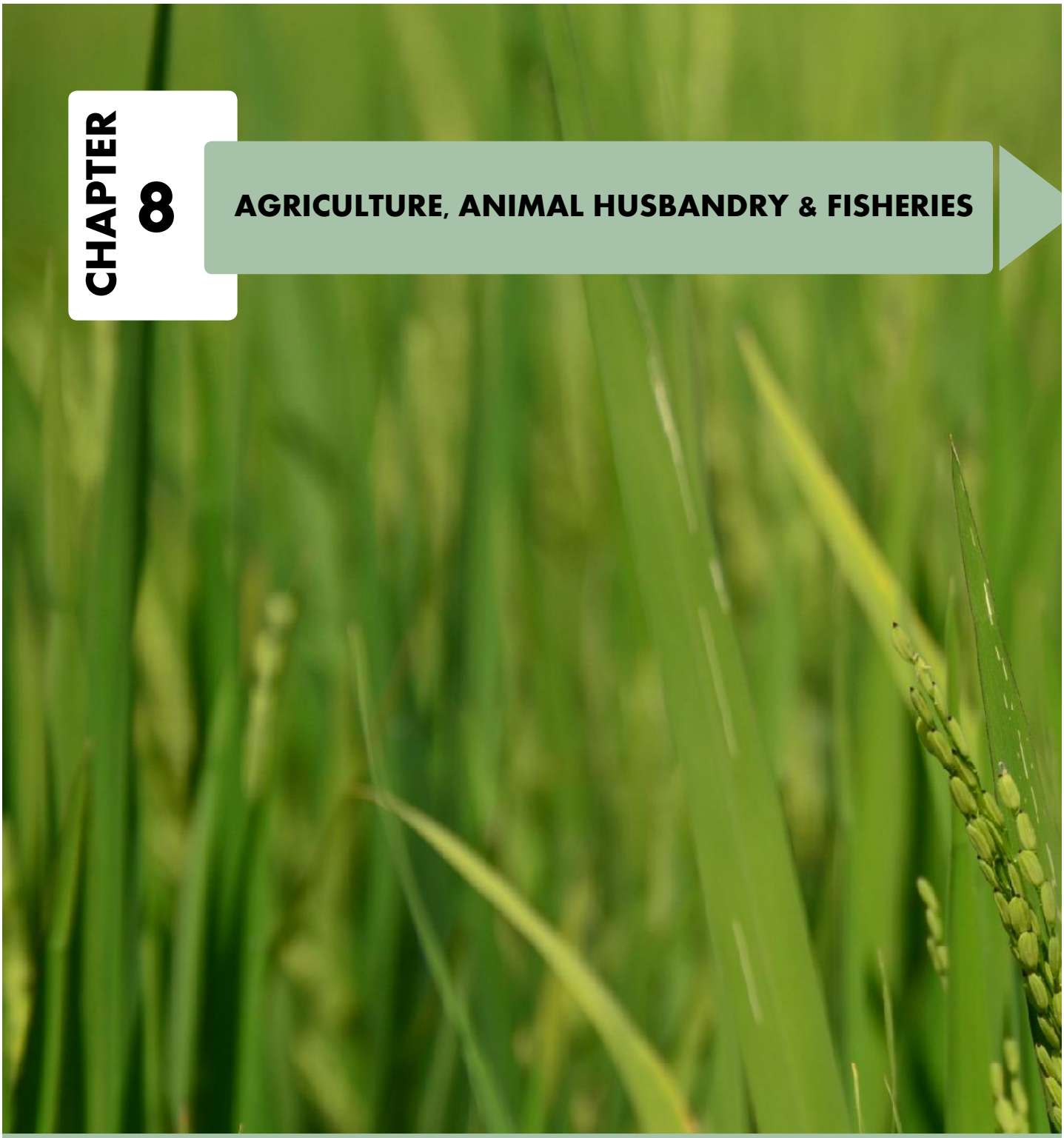
Likewise development of a number of educational institutions around the town, calls for manufacture of educational supplies.

7.5 Inferences

The existing industrial base of the town is weak. With availability of developable land in the peripheral region and growth in health care and educational institutions in the region, non-polluting industries manufacturing supplies for healthcare and education sectors can be promoted in the town. Agrobased industries can also be promoted, as the town itself has a good share of agricultural land and has a vast agricultural hinterland.

CHAPTER 8

AGRICULTURE, ANIMAL HUSBANDRY & FISHERIES





8.1 Agriculture
8.2 Animal Husbandry
8.3 Fisheries



8 AGRICULTURE, ANIMAL HUSBANDRY & FISHERIES

8.1 Agriculture

Agricultural land covers nearly 64.97% of land in the town. The major crop, coconut, is cultivated in 650 Ha. Rubber, cultivated in 350 Ha, is second in coverage. Paddy is being cultivated in 130 ha only, even though the municipality has 352 Ha. of paddy land. Table 8.1 gives major crops, area under cultivation and productivity.

Table 8.1 Major Crops, area and productivity (Source: Agricultural Department)

Sl. No	Type of crops	Area (Ha.)	Production/yr
1	Coconut	650	227500 Nos.
2	Areacanut	100	75 T
3	Banana	175	4262.5 T
4	Paddy	130	252 T
5	Vegetables	25	386 T
6	Tapioca	200	5000 T
7	Pepper	25	2875 Kg.
8	Cashew	40	39.2 T
9	Fruits	190	3800 T
10	Rubber	350	
11	Pulses	10	75 T
12	Tubers	100	
13	Turmeric	5	37.5 T
14	Ginger	5	45 T

8.1.1 Spatial Distribution

The spatial distribution of agricultural land in the town is given in Figure 8.1. From the figure, it is evident that the agricultural activity is spread over the entire municipality except for a lower density in the core area.

Paddy fields constitutes 10.38 % 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 existing paddy is given in Figure 8.2.

The dry cultivation (mixed crop, rubber, coconut etc) constitutes 54.59% of the municipal area. The spatial distribution of dry cultivation area is given in Figure 8.3.

8.1.2 Agricultural Inputs and Marketing Facilities

Out of the various agricultural inputs, fertilizer shops are available in the town. The nearest seed farm is at Anakkayam, at a distance of 20 km. Agricultural machinery and implements are also available in the town. There are number of nationalized banks offering credit facilities for agricultural purposes in the town besides two co-operative banks. There is no organized market for agricultural produces in the town besides the municipal daily market. Table 8.2 gives agricultural inputs available in the town.

Table 8.2 Agricultural inputs available in the town (Source: Agricultural Department)

Sl. No	Facility	No.
1	Fertilizer shop	4
2	Combined Harvester	2
3	Tractor	2
4	Power tiller	1
5	Thresher	5
6	Pump sets	640

“Agriculture not only gives riches to a nation, but the only riches she can call her own.

- Samuel Johnson

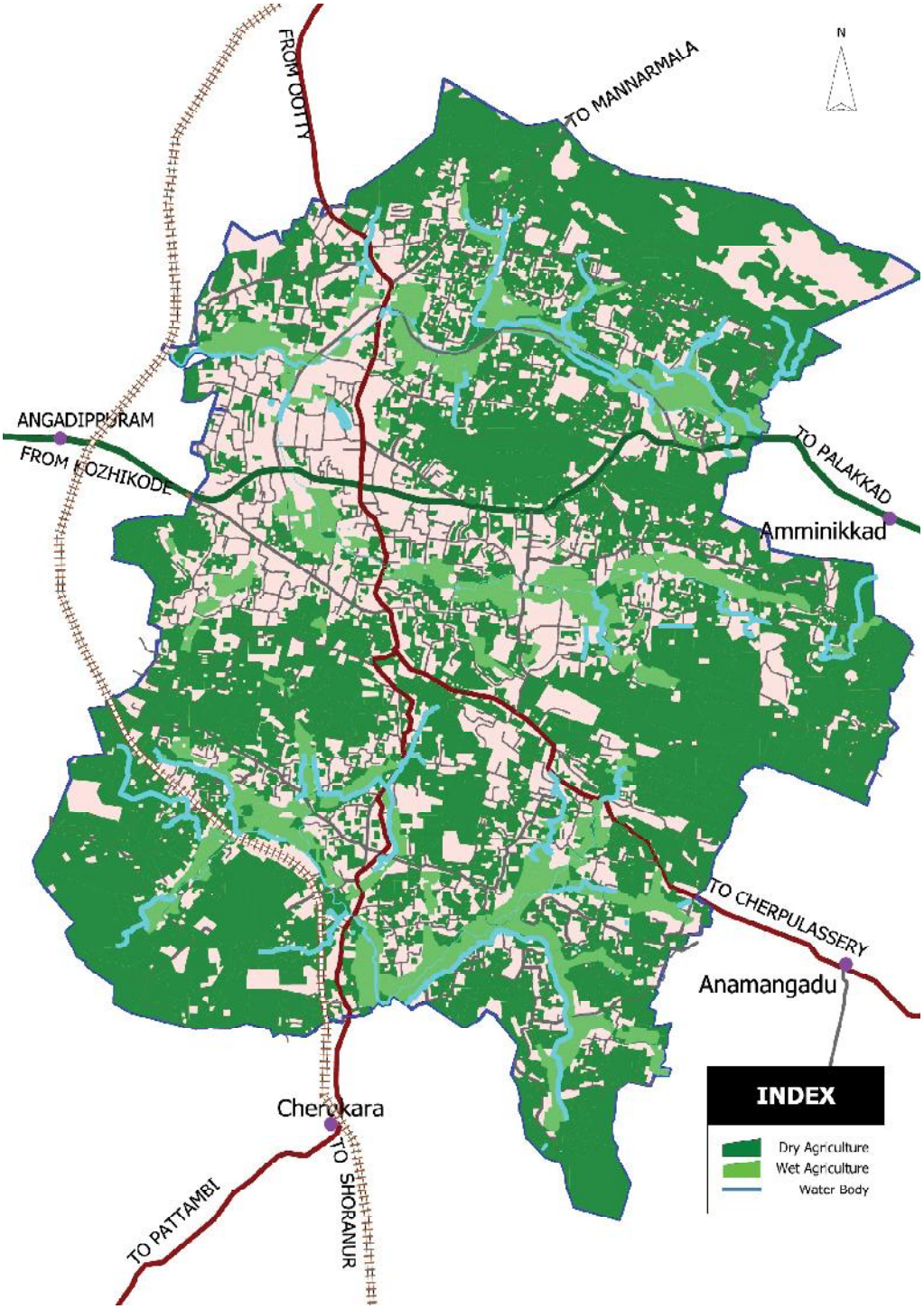


Figure 8.1 Spatial distribution of Agricultural land use

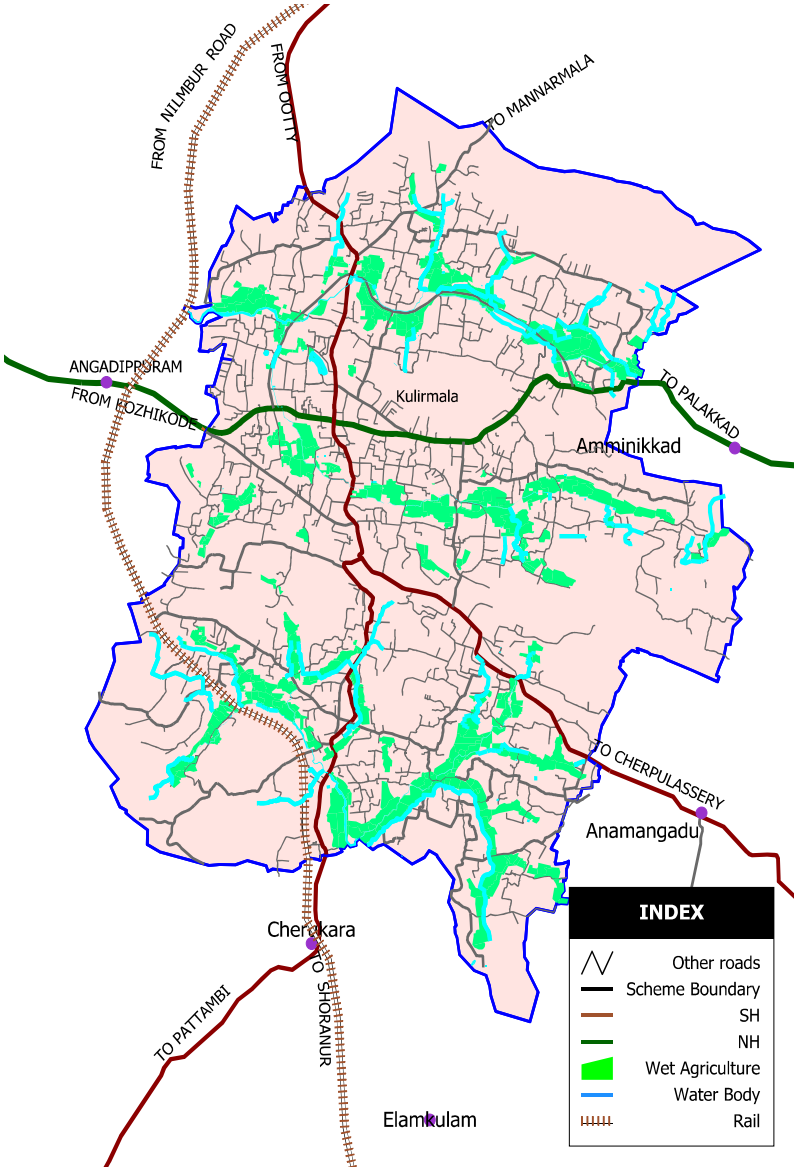


Figure 8.2 Spatial distribution of Paddy area

The area under paddy cultivation in the Municipality is diminishing at a fast pace owing to many reasons of which non-profitability is said to be predominant. Increased wages of the agricultural labourers, uncertainities in production due to dependence on local climate etc. make the people reluctant to invest in paddy cultivation. Besides, once reclaimed, the paddy lands, mostly situated by the side of the major transportation corridors, fetch huge values, encouraging the landowners for conversion. This results in an irreversible loss in the land under paddy cultivation .

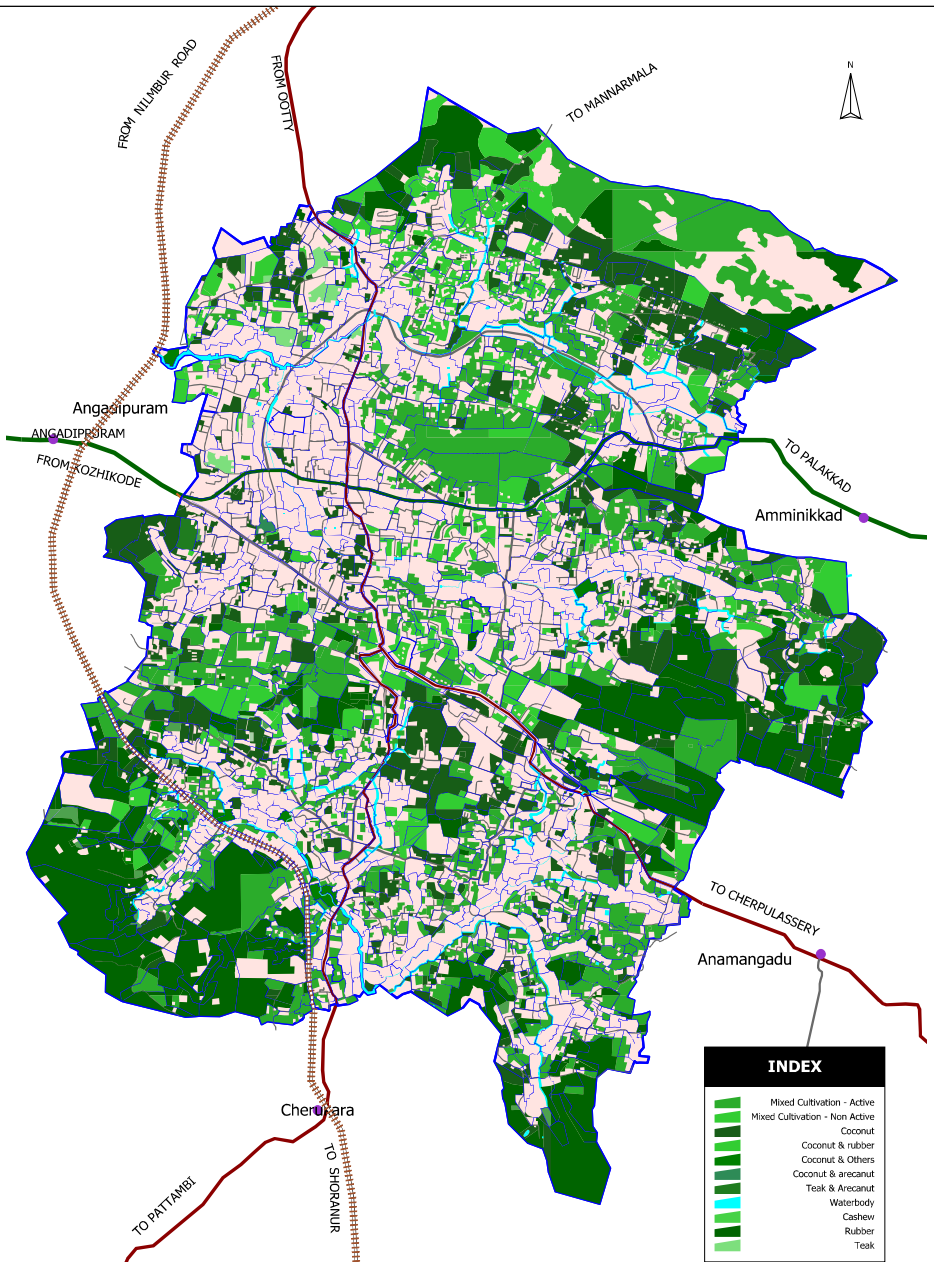


Figure 8.3 Spatial distribution of dry cultivation

The agriculture sector needs to focus more on organic farming there by reducing the usage of pesticides and fertilizers to the extent possible, however awareness about such methods among the farmers is low. Training facilities need to be established in order to educate the farmers on various techniques of organic farming. Various methods of farming can be introduced to the young generation at a tender age itself, as part of their curricular and extracurricular activities, which would help developing a a pro-agricultural attitude in the society.

Major problem faced by the coconut farming sector is that of the low market price of coconut. There is an acute shortage of labor force, especially coconut pluckers, in the sector. This high demand of labor force has led to disproportionate wages being claimed by the laborers. The wages has already crossed Rs. 30 per coconut tree in certain parts of the Municipality. This hurdle can be overcome to a major extent by popularising and distributing coconut climbing machines, and imparting the required training for using them. Coconut climbing machines are available in market at a cost of around Rs. 2500 per unit. These are generally manually operated machines, capable of climbing a coconut tree of 10 meters high in approximately two minutes time.



8.1.3 Cultivators and Agricultural Laborers

Figure 8.4 gives the temporal variation of cultivators and agricultural labourers in the town. There is a net decrease in the number of both cultivators and agricultural labourers in the Municipality over the decades; while the cultivators and agricultural labourers decreased by more than half between 1971 and 2011, the ratio of agricultural labourers to cultivators marginally increased from 2.02 to 2.32.

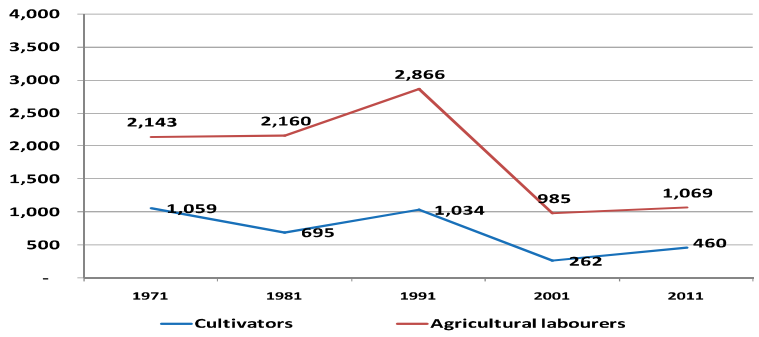


Figure 8.4 Temporal variation of cultivators and agricultural laborers (main workers) (Source: Census)

Agriculture sector, especially paddy cultivation, is steadily getting weaker in the municipality.

8.1.4 Problems and Potentials

Agriculture sector, especially paddy cultivation, is steadily getting weaker in the town. The large extent of uncultivated paddy need to be put to economic use. The town has no centralized agricultural market at present. However, the town has the potential to be the major agricultural facilities provider, processing and trading centre for its vast agrarian hinterland. Value addition industries in agricultural sector can be promoted.

8.1.5 Inference

64.93 % of the land area in the town is agricultural out of which 10.13 % is paddy. Coconut is the most predominant crop followed by rubber and tapioca. The paddy fields are depleting very fast due to conversion. Dry cultivation is mostly concentrated in the peripheral areas at higher elevations. Credit facilities and other inputs for agriculture are available in the town. However the town has no agricultural market even though it is a service center for a vast agrarian hinterland. Promoting value addition industries for agricultural produces in the town like Pepper, Cashew, Ginger, Areacanut, Rubber etc can contribute to economic sustainability of the town.

8.2 Animal Husbandry

8.2.1 Livestock Population

The table 8.1 below gives the live stock population in the town. Around 600 families in the Municipality are associated with this sector.

8.2.2 Production

The town has a number of poultry farms. But the production is only 4000 birds per month. There is one dairy farm at Kunnappalli, with 44 cattle which produces average of 200 litre of milk per day. There are three other other dairy farms on small scale basis, having around 10 cattles each. Table 8.2 gives details of dairy outlets and collection centers.

8.2.3 Consumption

The average consumption of red meat is 25800 kg per month in the town. So, the per capita consumption is not very high. The average consumption of chicken is 37500 kg per month. The consumption of milk is 99050 liters per month.

8.2.4 Physical Infrastructure

The town has a veterinary poly clinic. At present, there is no healthy and hygenic slaughter facilities in the municipality. Besides, there is no centralised facility in the municipality for marketing the animal produce.

Table 8.3 Live stock population (Source: Animal Husbandry Department)

Sl. No.	Livestock	Nos.
1	Cow	973
2	Buffalo	63
3	Goat	1062
4	Hen (domestic)	11466
5	Duck	225
6	Pig	38
7	Rabbit	80

The majority of the population of the town being non-vegetarian, the town has a good consumer base for animal produce.

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

Place	Type of outlets and collection centers	Average Qty collected per Month (Liters)
Kunnappally	Milk Co-op Society	7,500
Al-Riyas	Milk Booth	27,000
Musthafa	Milk Booth	3,000
Habeeb	Milk Booth	15,000
Near Moulana	Milk Booth	2,250
Pattambi Road	Milk Booth	2,400
Pattambi Road	Milk Booth	1,050
Jubilee Junction	Milk Booth	4,500
Kunnappally	Milk Booth	600
Olinkara	Milk Booth	800
Near Police Station	Milk Booth	2,250
Near Market	Milk Booth	22,500
Near KSRTC	Milk Booth	1,500
Near Ramdas Clinic	Milk Booth	2,700
Highway Supermarket	Milk Booth	3,000
Jubilee Road	Milk Booth	3,000
	TOTAL	**99,050**

8.2.5 Ongoing Projects and Schemes

Various projects and schemes are currently in place to enhance the sector. The Dairy Development Department, Govt. of Kerala is currently undertaking the following major projects.

1. Scheme which gives Rs. 10 per liter of milk sold to the milk society. The amount will be directly debited to the bank account of the beneficiary.



2. Milk Shed Development Program: This scheme include the providing subsidy up to an amount of one lakh ten thousand rupees, for purchasing cows up to 5 numbers. The cows under the scheme need to be bought from outside the State.

3. Special component projects for SC/ST group, where in subsidy to the tune of Rs. 18,000 is availed for purchasing one cow and Rs. 13,000 for repairing of cattle shed. This project aims to achieve every house to have at least one cow.

4. Promotion of cattle feed grass farming through providing subsidy of Rs. 50 per cent of the area cultivated, subject to a minimum cultivated area of 20 cents.

5. Providing subsidy of Rs. 125, to buy azolla kit, costing Rs. 375 per kit, which includes tarpaulin sheet, seeds, container and fertilizers.

6. Other need based assistances, including assistance to buy milking machines, cattle shed renovation etc.

8.2.6 Problems and Potentials

Majority of the population of the town being non-vegetarian, the town has a good consumer base for animal products. Even though the municipality has a significant extent of active and non-active agricultural land, the animal husbandry sector has not picked up, owing mainly to the following reasons.

1) Shrinkage in grazing land: The availability of grazing land is diminishing in a rapid pace owing to various factors including filling up of paddy land, rapid urbanization causing building footprints to cover up the green areas, population pressure prompting people to privatize vacant land etc. The reduction in availability of free grazing land force the farmers to opt for readymade cattle feed which in turn shoots up the overall cost of the operations.

2) Diseases: Various diseases are adversely affecting the sector like the Foot and Mouth Disease, a highly infectious and fatal viral disease, which is spread by infected animals through aerosols and through contact with infected farming equipments, vehicles, clothing or feed etc.

3) Shortage in labor force: The availability of skilled laborers is minimal when compared to the demand. Farmers are often forced to make use of less trained people, especially laborers from other states.

4) Lack of awareness: Although various projects and programs have been undertaken by the Govt., awareness among the farmers about such schemes is minimal.

Municipality has initiated programs like “Ksheera fest” where in farmers, veterinary doctors and other experts from the field share their views and knowledge and the information about various aspects of the sector gets discussed in detail. Also, exhibition and sale of various farm products, value added products etc are done as part of the fest.

8.2.7 Inference

The animal husbandry sector is weak in Perinthalmanna town. However, there is a possibility for developing the sector with creation of adequate infrastructure as well as technical and organisational guidance to the farmers. The uncultivated paddy lands can be used for fodder cultivation and grazing in an organised manner, involving Self Help Groups and Milk Co-operatives. Besides, value addition of animal produce and marketing them in an organised way will ensure better income for the farmers. Modern facilities to ensure healthy and hygenic slaughtering and markerting of meat must be put in place on priority basis. Besides production of value added products like pet food shall be promoted. Facilities for proper disposal of the slaughter waste is also an important need at present.

8.3 Fisheries

8.3.1 General

Perinthalmanna being a midland town, there is no significant activity in fisheries sector in the town. However the town has wholesale fish trading activity. The fish is brought from the harbours in the State, Tamilnadu and Karnataka and is sold to retail vendors within the municipality as well as the surrounding panchayats. Within the municipal market there are 17 fishmongers and 27 vendors selling dried fish. In addition to this, a number of vendors sell fish door-to-door in the residential areas. Right now, the wholesale activities (loading, unloading etc) are carried out on the road side. The municipality is cuurently constructing a modern wholesale fish market near bypass junction on the southern arm on BOT basis.





New fish market under construction

Even though there is no significant fisheries activity in the municipality, the town is a wholesale fish trading center.

8.3.2 Problems and Potentials

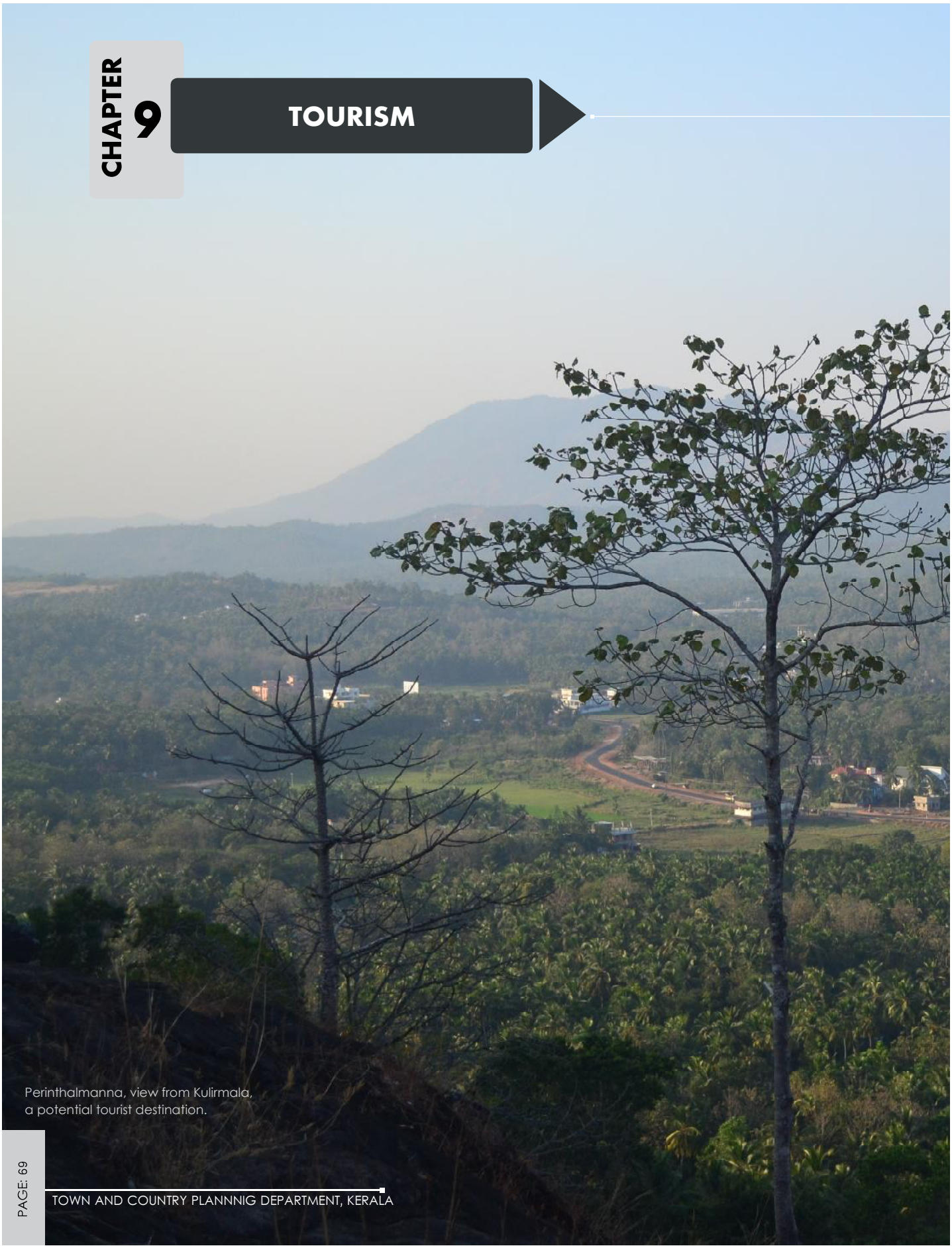
The problems associated with the wholesale trade is expected to be solved once the modern wholesale fish market under construction starts functioning. There are 46 numbers of fresh water ponds in the town. Besides, large extent of paddy is lying uncultivated in the municipality. So, there is scope for promoting fresh water fisheries including ornamental fish farming in the municipality.

8.3.3 Inference

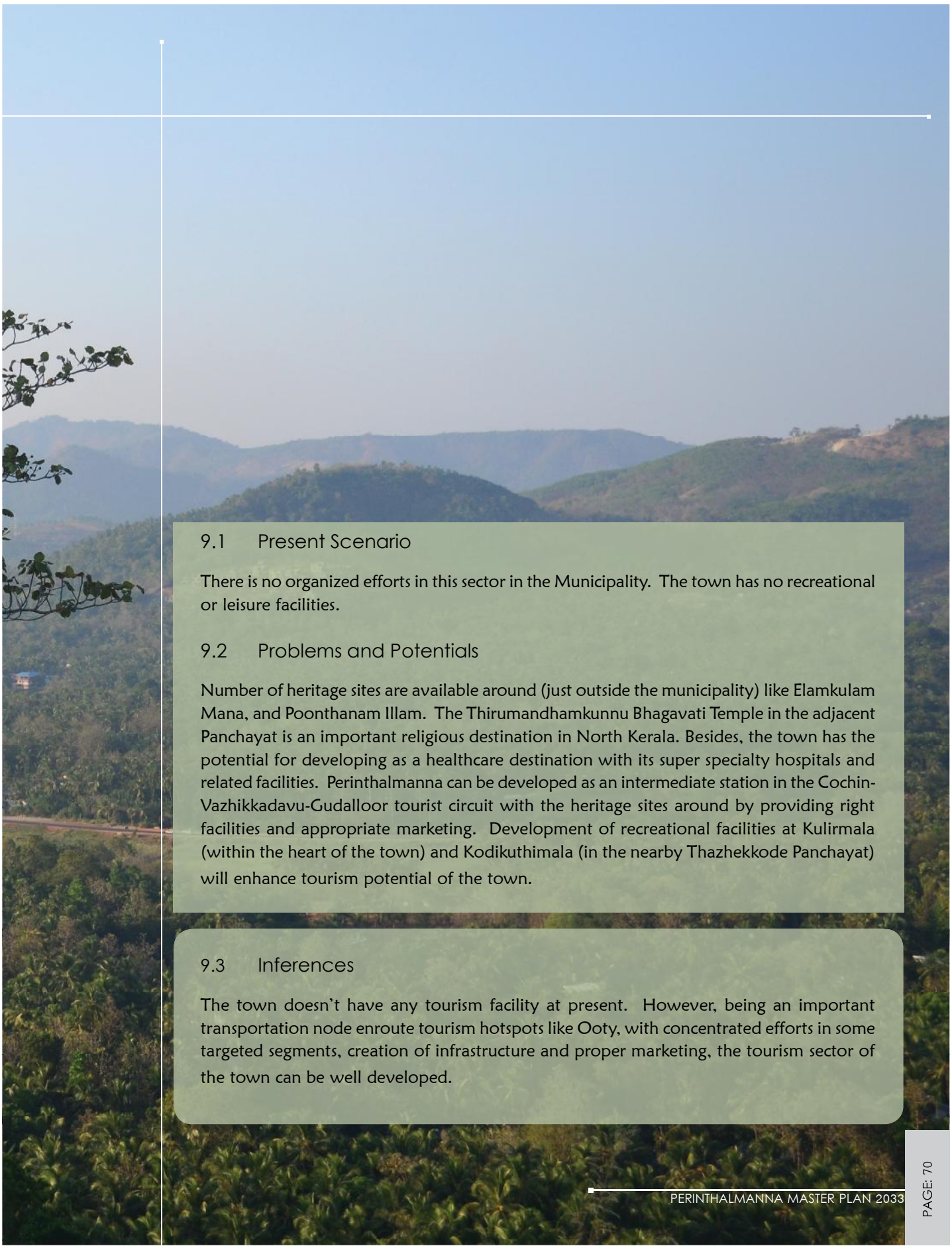
Even though there is no significant fisheries activity in the municipality, the town is a wholesale fish trading center. With number of ponds and uncultivated paddy, there is a scope for promoting fresh water fisheries in the town.

CHAPTER 9

TOURISM



Perinthalmanna, view from Kulirmala,
a potential tourist destination.



9.1 Present Scenario

There is no organized efforts in this sector in the Municipality. The town has no recreational or leisure facilities.

9.2 Problems and Potentials

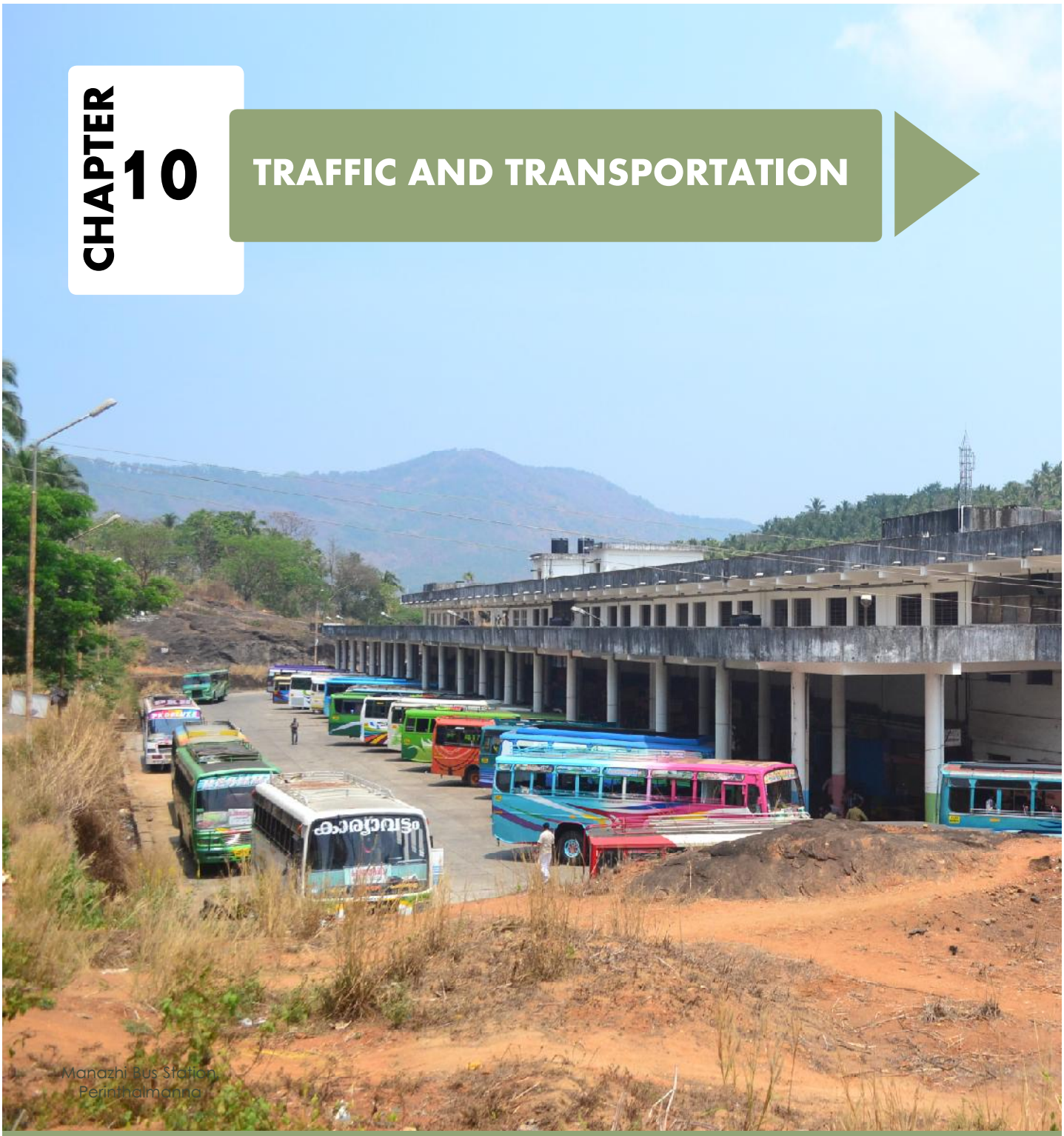
Number of heritage sites are available around (just outside the municipality) like Elamkulam Mana, and Poonthanam Illam. The Thirumandhamkunnu Bhagavati Temple in the adjacent Panchayat is an important religious destination in North Kerala. Besides, the town has the potential for developing as a healthcare destination with its super specialty hospitals and related facilities. Perinthalmanna can be developed as an intermediate station in the Cochin-Vazhikkadavu-Gudalloor tourist circuit with the heritage sites around by providing right facilities and appropriate marketing. Development of recreational facilities at Kulirmala (within the heart of the town) and Kodikuthimala (in the nearby Thazhekkode Panchayat) will enhance tourism potential of the town.

9.3 Inferences

The town doesn't have any tourism facility at present. However, being an important transportation node enroute tourism hotspots like Ooty, with concentrated efforts in some targeted segments, creation of infrastructure and proper marketing, the tourism sector of the town can be well developed.

CHAPTER 10

TRAFFIC AND TRANSPORTATION



Manazhi Bus Station,
Perinthalmanna



10.1 Introduction
10.2 Existing Road Network
10.3 Other modes of transport
10.4 Transport Terminals and other Transportation infrastructure
10.5 Existing traffic characteristics
10.6 Bottlenecks and missing Links
10.7 Inferences

10 TRAFFIC AND TRANSPORTATION

10.1 Introduction

Perinthalmanna is a town with strong historical and cultural heritage, and for last several centuries, has remained a center of trading and commercial activity for several villages around it. The National Highway 966 from Kozhikode to Palakkad and State Highway 39 from Perumbilavu to Nilambur meet at the Main Junction of Perinthalmanna. Hence, the town is a major traffic node in the region and carries a considerable volume of through traffic. Besides a couple of major hospitals are functioning in the town adding to the passenger volume. 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, forcasting 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

Perinthalmanna town has good road connectivity. Both North-South, and East-West corridors are prominent in the town and these corridors meet at the Main Junction.

10.2 Existing Road Network

Perinthalmanna town has good road connectivity. The major roads in the municipal area are:

a) Kozhikode- Palakkad Road (National Highway 966)

b) Perumbilavu – Nilambur Road (SH 39)

c) Cherppulassery – Perinthalmanna Road (SH 53)

d) Presentation Bypass Road

e) J.N Road

f) Manathumangalam Bypass Road

g) Housing Colony road

h) Pathaikkara pallipadi-Thanneerpanthal Road

Both North-South, (Perumbilavu-Nilambur), and East-West (Palakkad-Kozhikode) corridors are strong in the town and these corridors meet at the Main Junction. These roads divide the town into four quadrants. In the first quadrant ie. North-West, the Presentation bypass road connects the major arterial roads NH 966 and SH 39 and divert through-traffic from the Main Junction. In the second quadrant (ie. North-East), the Manathumangalam bypass road continues from Ooty road (section of SH 39 towards the North of Main Jn.) to meet Kozhikode-Palakkad road at Dubaipadi. This bypass also has been effective in diverting traffic from the town center. Another cross road in this quadrant is the Housing Colony road which starts near Moulana hospital in Ootty road and ends at Hospital Junction in Kozhikode-Palakkad road. A considerable traffic is taken away from the Main Junction, by this road.

In the third quadrant ie. South-East, Pathaikkara-Thanneerpanthal road connects Palakkad road and Cherpulassery road. However due to lesser width and bad geometry, this road has not been very effective in diverting through traffic, especially heavy goods traffic from the core area. In the South-West quadrant the J.N Road starting from J.N Road junction in Kozhikode road and connecting to Pattambi road acts as a bypass and diverts through-traffic to a considerable extent. A continuation of the Presentation bypass, connects bypass junction in Kozhikode road to J.N road.

"An advanced city is not a place where the poor move about in cars, rather it's where even the rich use public transportation."

- Enrique Penalosa (Columbian urban planner and politician)

"You are not stuck in traffic. You ARE traffic"

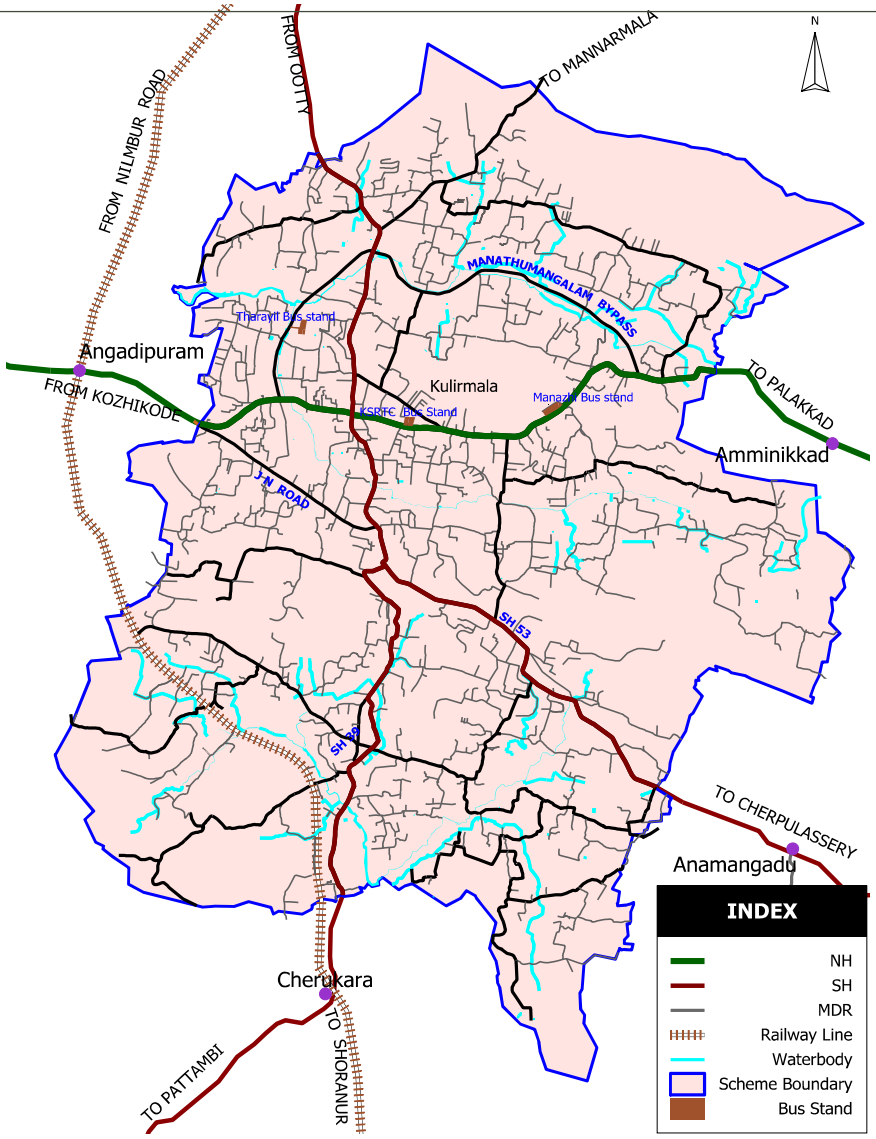


Figure 10.1 Existing Road Network

Besides these roads, there is a network of numerous collector streets criss-crossing the town. However these roads are narrow and often ill-formed, and are not a part of an efficient network. Thus, the road hierarchy in the town consists of arterial roads (NH and SH), the sub-arterial roads and the collector streets. The existing road network is shown in Figure 10.1.

The roads in the town are maintained by PWD (NH, SH and MDRs) and municipality. The category wise length of roads in the municipality is given in Table 10.1.

Table 10.1 Category wise Length of Roads (Source: Public Works Department)

Category	Length (Km)
NH	4.92
SH	15.15
Municipal Roads	217.67
Total	237.74



Manazhi Bus Terminal



KSRTC Bus Terminal



Tharayil Bus Terminal

The town has three bus terminals at present and the municipality has plans to construct one more to the South-East of Presentation by-pass junction.

The road density of the town comes to 6.91 km per sqkm which is comparable to other similar towns in the State.

10.3 Other Modes Of Transport

The nearest railway station to the town is at Angadippuram, just outside the municipality, 2 km away from town center, on the Nilambur-Shornur route. The Nilambur-Shornur railway line passes through the municipal area. The nearest airport is the Calicut International Airport at a distance of 43 km. The town has no water way connectivity. The proposed Ponnani cargo port is only 50 km away from Perinthalmanna.

10.4 Transport Terminals and Other Transportation Infrastructure

The town has three bus terminals at present and the Municipality has plans to construct one more near the Presentation bypass junction. The existing bus terminals are located on Palakkad road (KSRTC, Manazhi stand) and Presentation Bypass road (Tharayil stand), as presented in Figure 10.2. Previously, the bus stand in the town was right at the Main Junction and was causing a lot of congestion. So, this bus stand was shifted further east on the Palakkad road (Manazhi stand) and a commercial complex was built in the plot. But the new Manazhi stand is towards the eastern end of the Municipality and buses plying in other directions have difficulty in accessing this stand. The Tharayil stand which was constructed under a PPP agreement is also not being used to the full extent due to traffic operational problems. For the newly proposed bus stand also, the Municipality has got the required land by free surrender. The KSRTC bus stand is in Palakkad road, relatively close to the Main Junction, in the core area itself. This stand operates mainly inter district and interstate services. A few intra district services are also operated from this stand by KSRTC. Other state transport corporations like those of Karnataka, Tamil Nadu, Pondicheri also use this bus terminal.

The town has no truck terminal at present. The trucks and other goods vehicles are operating from the road side facilities near Manazhi stand on NH 966 and near Mini Civil Station on Pattambi road. The need for a truck terminal (without allowing kerb parking) is strongly felt.

In Perinthalmanna town there are no designated parking spaces for private vehicles. So the vehicle owners park on the road, on a first-come-first basis, creating chaos. However there are some designated areas for public carriers.

Taxi stands are available:

- Near Civil Station
- Near Police station,
- Near KSRTC stand, and
- Hospital junction

There are a number of auto stands in the municipality. The following are the major auto stands:-

- J.N junction
- Bypass junction
- Near Perinthalmanna nursing home
- Muncipal office
- Near Chamayam textiles
- Near to KSRTC stand
- Near government hospital
- Near Civil Station
- Near Police Station
- Alshifa hospital
- Near Moulana hospital
- Near Housing Colony junction
- Near City Centre Complex
- Near KTC booking center
- Near Manazhi stand

Goods carrying auto rickshaws are also popular in Perinthalmanna town, catering to the goods movement in small quantities. They have parking facilities at:

- Near Civil station.
- Near Government hospital.
- Near Housing Colony junction.

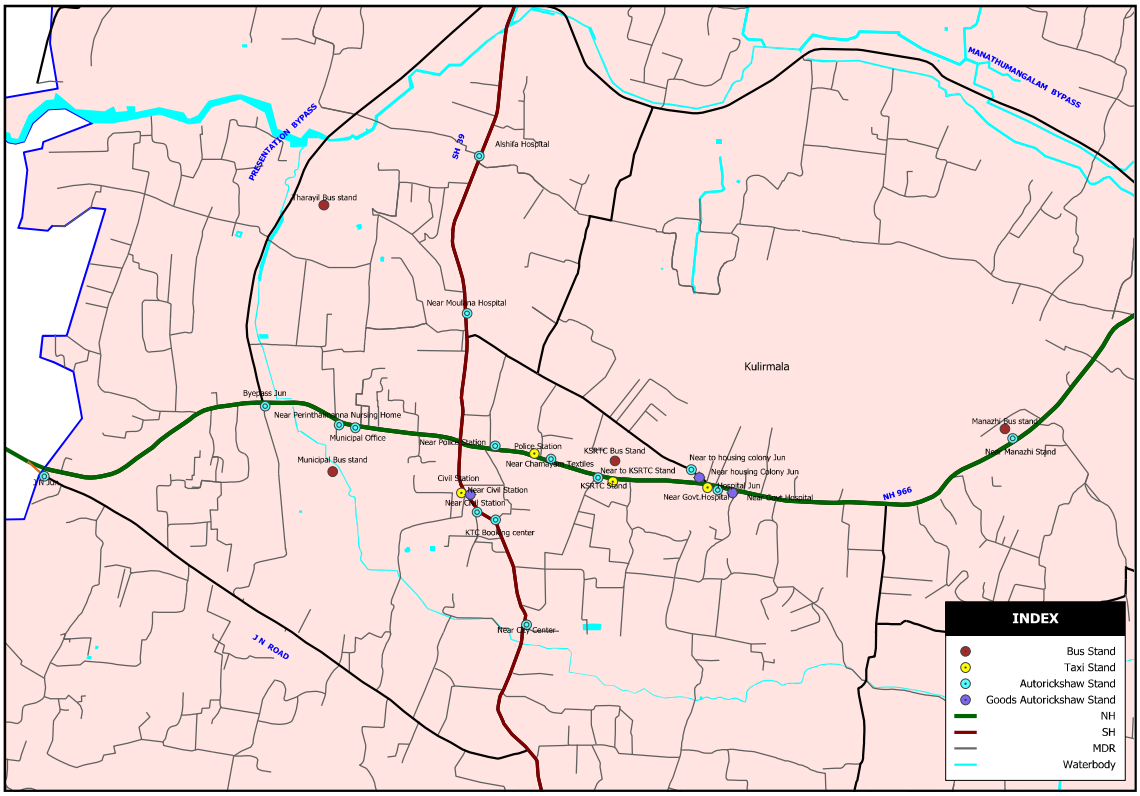


Figure 10.2 Location of Bus, Taxi and Athorikshaw stands

10.5 Existing Traffic Characteristics

10.5.1 Road Inventory

The road inventory survey reveals the physical condition of the roads. Table 10.2 gives details of road inventory.

Table 10.2 Details of Road inventory (Source: Traffic & Transportation Survey 2012)

Sl. No.	Location	Road	Right Of Way (m)	Pavement Width (m)	Median width (m)
1	Presentation School	NH 966	24.11	16.22	1.24
2	Municipal Office	NH 966	23.9	13.28	NIL
3	Hospital Junction	NH 966	16.78	9.8	NIL
4	Pattambi Road	SH 39	10.5	6.5	NIL
5	Thanneerpanthal	SH 53	16.6	6.9	NIL
6	Near RDO	SH 39	12.5	7.3	NIL
7	Near KSEB	SH 39	12.5	9.6	NIL
8	Al Shifa Hospital	SH 39	12.7	8.6	NIL
9	J.N road	J.N Road Bypass	7.5	6	NIL
10	Sunni Mahal	Bypass Jn.-J.N Road	9.7	4.7	NIL
11	Tharayil Bus Stand	NH Bypass Road	12.2	7	NIL
12	Housing colony road	Housing Colony Road	6.47	4.35	NIL
13	Pathaikkara	SH 53	6.81	3.95	NIL
14	J.N jn.	SH 39	26.78	16.22	1.96
15	Near EMS Hospital	NH 966	15.21	9.14	NIL
16	Kunnapally	SH 39	10.5	6.5	NIL
17	Balavadi	SH 53	16.6	6.9	NIL
18	Manathumangalam (near Tata Sky Motors)	SH 39	12	6	NIL

The State Highway is narrow and includes a dangerous curve near Cherpulasseri road junction.

Major geometric constraint of the Kozhikode-Palakkad NH 966 is that it intersects two major junctions within a distance of 900 meters, the Presentation bypass Junction and the Main Junction. Width of this road narrows down near the Main Junction and the Hospital Junction area. There are no major curves or steep slopes along this road. The Perumbilavu-Nilambur SH 39 is generally narrow and includes a dangerous curve near Cherpulasseri road junction.

Inadequate provision of proper foot path, on-street parking of vehicles and inadequate sight distance caused by this, absence of sign boards, certain sharp curves and poor road condition at certain stretches were the common problems found during road inventory survey.

10.5.2 Speed & Delay Characteristics

The speed and delay studies conducted using Moving Observer method on the various road stretches, point out the congestion areas in the town with low level of service. The results of this analysis are given in Table 10.3.

From the speed and delay studies, the main reasons for delay along the identified stretches in Perinthalmanna town were noted as traffic congestion, heavy and haphazard on-street parking of vehicles and heavy pedestrian movement. The highest delay observed along the section was that of 14 seconds along the Housing Colony road, followed by a delay of 9 seconds along NH 966 from the Bypass junction to the Main Junction. 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 signal, presence of pedestrians, heavy parking, lack of allocation of bus bays, unsafe driving behavior of the auto drivers, delay due to the acceleration and deceleration of vehicles etc.

Table 10.3 Speed and delay analysis (Source: Traffic & Transportation Survey 2012)

Sl No	Stretch	Distance (km)	Journey Time (s)	Delay time (s)	Actual running time (s)	Speed	
						Journey speed km/h	Running speed km/h
1	J.N junction to bypass junction	0.7	67	0	67	31	31
2	Bypass junction to main junction	0.6	107	9	98	26	31
3	Main junction to Hospital junction	0.8	155	5	150	21	22
4	Hospital junction to Manazhi stand	1	88	0	88	47	47
5	Poopalam to Al shifa bypass junction	1.5	180	4	176	28.7	29.03
6	Al shifa bypass junction to Housing colony junction	1.1	125	2	123	41	42
7	Housing colony junction to Main junction	0.35	51	0.5	50.5	23	23.7
8	Main junction to J.N junction	1.1	129	2	127	34	34.3
9	J.N junction to Pattambi cherplassery junction	0.4	46	0	46	35	35
10	Pattambi cherplassery junction to Pathaikkara	1	103	0	103	34	34
11	Pattambi cherplassery junction to Valayamoochi	2.5	182	0	182	50	50
12	J.N junction to J.N road junction	1.83	213	0	213	31	31
13	Housing colony road	0.9	138	14	124	20	21

10.5.3 Link Volume and Capacity Utilization

Traffic volume counts were taken at 13 selected locations (being the mid section points of the identified homogeneous sections) and 5 outer cordon points. Traffic volumes observed at different stretches were compared with the capacity of road sections, to calculate the v/c ratio of these sections. Volume capacity ratios thus worked out at these sections/points are depicted in Table 10.4.

On NH 966, almost all homogenous sections were found to be over utilized, except for J.N Road Junction - Bypass junction. On SH 39 and SH 53, almost all homogenous sections, were found to be over utilized except for Thanneerpanthal - J.N Road jn. stretch and Kunnampally - J.N road Jn. stretch whose service volumes were at capacity or near about. The capacity utilization (v/c) of the rest of the selected sections was found to be within the capacity limit except for Tharayil Bus Stand which had a v/c ratio of 1.02. Among the 13 selected mid block sections, the stretch from J.N Road Jn. to Main Jn. on SH 39, had the highest v/c ratio of 1.7 indicating inevitable traffic congestion and delay. In general, the capacity utilization values show overcrowding of traffic in a considerable number of sections which warrant immediate improvements to the road infrastructure of the town.

From the obtained v/c ratios of the selected 5 outer cordon locations, it is clear that the service volume is below the capacity of the sections and hence it is advisable to continue the existing physical infrastructure. Additional facilities can be recommended to facilitate the future demand.

There is overcrowding of traffic in a number of sections.

Table 10.4 V/C Ratio of major road sections and outer cordon points (Source: Traffic & Transportation Survey 2012)

Sl. No.	Road Links	Count Location	Capacity (PCU/hr)	Volume (PCU/hr)	V/C Ratio
1	J.N Road Jn. - Bypass Jn.	Presentation School	3600	2,419.5	0.67
2	Bypass jn. -Main jn.	Municipal Office	1500	2,152.5	1.44
3	Hospital Jn. – Manazhy	Govt. Hospital Jn	1500	2,293.0	1.53
4	Kunnappally - J.N road jn.	Pattambi Road	1200	1,223.5	1.02
5	Thanneer panthal - J.N road jn.	Thanneer panthal	1200	1,198.5	1.00
6	J.N road jn. - Main jn.	Near RDO	1200	2,035.0	1.70
7	Main jn - Housing colony jn.	Near KSEB	1200	1,845.0	1.54
8	Housing colony jn. – Ooty Bypass Jn.	Al shifa Jn	1200	1,863.5	1.55
9	J.N road	J.N road	1200	795.5	0.66
10	Sunni mahal - Bypass jn.	Sunni Mahal	600	435.0	0.73
11	Presentation Bypass	Tharayil Bus Stand	1200	1,221.5	1.02
12	Housing colony road	Housing colony road	900	870.0	0.97
13	Pathaikkara Pallipadi-Thanneerpanthal road	Pathaikkara	600	453.5	0.76
14	Outer Cordon Point	J.N jn.	3600	2944.5	0.82
15	Outer Cordon Point	Near EMS Hospital	1500	999	0.67
16	Outer Cordon Point	Kunnapally	1200	987.5	0.82
17	Outer Cordon Point	Balavadi	1200	596.5	0.50
18	Outer Cordon Point	Manathumangalam (near Tata Sky Motors)	1200	913.5	0.76

10.5.4 Traffic Volume at Major Intersections

The main junction, bypass junction and hospital junction need immediate attention.

The traffic flow at 5 major intersections of the town were measured and compared with their capacities. The table 10.5 below gives the summary of traffic characteristics in the junctions. The Main Junction, Presentation Bypass junction and Hospital Junction need immediate attention. Presentation Bypass Junction at present carries an almost constant volume (nearly 3000 PCU) per hour passing through from 8.00 am to 8.00 pm. Main Junction also has almost the same characteristics, the volume being around 4000 PCU per hour. The volume at hospital junction is also constant at 2500 PCU/hour. Ootty road - Manathumangalam bypass junction and Pattambi road-Cherpulassery road junction also need attention.

Table 10.5 Peak hour Volume at major intersections

Sl. No	Intersection	Peak hour Volume PCU/hr	Peak hour
1	Presentation Bypass Junction	2852	4-5 pm
2	Main Junction	4823	1-2 pm
3	Hospital Junction	3151	4-5 pm
4	Ootty Road - Manathumangalam Bypass Junction	1876	5-6 pm
5	Pattambi Road-Cherppulasseri Road Junction	1829	5-6 pm

10.5.5 Parking Characteristics

The parking characteristics of the town were studied using Registration Number Plate method. The parking accumulations and durations at 12 stretches of the roads were observed. The existing taxi/ auto stands and parking lot for commercial vehicles were also studied.

Out of the 12 corridors studied it was found that the section between J.N road junction to Savitha theatre along Calicut road had the highest parking accumulation of 122 vehicles consisting of 57 two-wheeler. 36 passenger autorikshaws, 21 LMW, 3 bus, 2 mini truck/ LCV, 2 goods auto,1 truck at 3.30pm. This was followed by the section from KR Bakery to Main Junction along Calicut road with a total of 107 parked vehicles. The Main Junction to KSEB section along ooty road had a total of 97 vehicles parked at 12:15 pm. The least parking accumulation was found along the Savitha theatre to Hitex section, with a parking accumulation 41 during 11:00 am. Table 10.6 depicts the peak parking accumulation at different road sections.

Table 10.6 Peak parking accumulation at different road sections (Source: Traffic & Transportation Survey 2012)

Road section	Peak Parking Time	LMV	Two Wheeler	Auto	M. Truck/LCV	Goods Auto	Bus	Lorry/ Truck	Tanker	Others	Total
J.N - Savitha Theatre	3:30 PM	21	57	36	2	2	3	1	0	0	122
Savitha Theatre - Hitex Complex	11:00 AM	9	4	7	0	0	19	2	0	0	41
Bye pass jn - KR Bakery	12:15 PM	14	12	24	3	0	0	1	0	0	54
KR Bakery - Main Junction	11:00 AM	26	43	37	1	0	0	0	0	0	107
Chamayam - KSRTC Stand	12:00 PM	19	55	8	1	0	0	0	0	6	89
KSRTC - Govt. Hospital jn.	4:30 PM	23	18	44	0	0	0	0	0	0	85
Govt. Hospital jn. - Fire station	12:00 PM	25	28	16	2	0	0	2	0	0	73
Near Manazhi bus stand	5:00 PM	2	7	14	7	2	3	1	7		43
Main jn. - Sakthi Books	11:00 AM	11	19	29	0	1	0	0	0	0	60
Sabrina - City Centre	4:45 PM	39	9	4	18	1	0	0	0	0	71
Main jn - KSEB	12:15 PM	7	24	44	11	11	0	0	0	0	97
KSEB - CP Tower	12:00 PM	22	32	29	0	2	0	0	0	2	87

Table 10.7 Duration of parking (Source: Traffic & Transportation Survey 2012)

Location		< 15 min	15-30 min	30-1hr	1.5hr-2hr	2.5hr-4hr	4.5hr-6hr	6.5hr-10hr	over 10hr	Total
KSEB to CP Tower	**No. of vehicles**	**336**	**111**	**71**	**40**	**13**	**1**	**16**	**2**	**590**
	% parking	56.95	18.81	12.03	6.78	2.20	0.17	2.71	0.34	
J.N to Savitha Theatre	**No. of vehicles**	**340**	**102**	**52**	**39**	**39**	**7**	**12**	**0**	**591**
	% parking	57.53	17.26	8.80	6.60	6.60	1.18	2.03	0.00	
Main Jn. to KSEB	**No. of vehicles**	**513**	**49**	**49**	**11**	**12**	**3**	**7**	**0**	**644**
	% parking	79.66	7.61	7.61	1.71	1.86	0.47	1.09	0.00	
Manazhi Bus Stand	**No. of vehicles**	**262**	**39**	**26**	**14**	**7**	**1**	**7**	**5**	**361**
	% parking	72.58	10.80	7.20	3.88	1.94	0.28	1.94	1.39	
K R Bakery to Main Junction	**No. of vehicles**	**706**	**170**	**55**	**32**	**8**	**6**	**2**	**0**	**979**
	% parking	72.11	17.36	5.62	3.27	0.82	0.61	0.20	0.00	
Govt. Hospital to Fire Station	**No. of vehicles**	**434**	**55**	**40**	**24**	**17**	**7**	**19**	**0**	**596**
	% parking	72.82	9.23	6.71	4.03	2.85	1.17	3.19	0.00	
Traffic Junction to Sakthi Books	**No. of vehicles**	**112**	**30**	**29**	**13**	**18**	**9**	**5**	**0**	**216**
	% parking	51.85	13.89	13.43	6.02	8.33	4.17	2.31	0.00	
Bypass to K R Bakery	**No. of vehicles**	**305**	**44**	**30**	**3**	**6**	**1**	**3**	**0**	**392**
	% parking	77.81	11.22	7.65	0.77	1.53	0.26	0.77	0.00	
Savitha Theatre to Hitex complex	**No. of vehicles**	**176**	**57**	**32**	**26**	**7**	**5**	**5**	**0**	**308**
	% parking	57.14	18.51	10.39	8.44	2.27	1.62	1.62	0.00	
KSRTC to Govt. Hospital	**No. of vehicles**	**176**	**38**	**10**	**23**	**7**	**6**	**8**	**0**	**268**
	% parking	65.67	14.18	3.73	8.58	2.61	2.24	2.99	0.00	
Chamayam to KSRTC Stand	**No. of vehicles**	**443**	**112**	**49**	**27**	**25**	**6**	**23**	**0**	**685**
	% parking	64.67	16.35	7.15	3.94	3.65	0.88	3.36	0.00	
Sabrina to City Centre	**No. of vehicles**	**321**	**80**	**73**	**16**	**7**	**1**	**0**	**0**	**498**
	% parking	64.46	16.06	14.66	3.21	1.41	0.20	0.00	0.00	

Majority of the vehicles parked along the identified corridors were found to be parked for a short duration of less than 15 minutes as presented in Table 10.7. 50-80% of the vehicles were parked for less than 15 minutes on a normal working day, while 7-19% were found to be parked for a period of 15 to 30 minutes and about 4-15% of the vehicles were found to be parked for a duration of 30 minutes to 1 hour, at various locations in the town.

10.5.6 Pedestrian Volume The pedestrian movement characteristics at 16 points in the town, as presented in Table 10.8, were surveyed and analyzed.

Table 10.8 Pedestrian peak hour volumes (Source: Traffic & Transportation Survey 2012)

Sl. No.	Location	Lateral movement		Cross movement	
		Morning	Evening	Morning	Evening
1	Perintalmanna Nursing Home	668	1020	164	304
2	J.N road Junctio	264	228	160	192
3	Presentation School	368	392	532	424
4	KR Bakery	288	320	112	116
5	By pass junction	820	1152	308	528
6	Municipal Office	388	380	96	160
7	KPM Arcade	592	572	1240	936
8	KSRTC	1060	1420	380	492
9	Hospital junction	500	512	428	388
10	Main junction (Ootty road)	564	780	160	296
11	Housing Colony road junction	964	880	192	248
12	Moulana Hospital	1500	1780	260	448
13	Al-Shifa (Main gate)	300	420	240	324
14	Al-Shifa (Bypass gate)	36	76	140	140
15	Near RDO office	600	1060	560	248
16	Main Junction (Calicut Road)	724	988	760	912

The lateral movement of pedestrians exceed 800 persons in both directions in peak hour near Perinthalmanna Nursing home, Presentation Bypass Junction, near KSRTC stand, Main Junction, near Moulana hospital and near RDO office. Proper footpaths and barricades to control pedestrian movement are to be provided in these locations.

10.5.7 Origin Destination Survey

The origin-destination studies were conducted by two methods, road side interviews and household surveys, for identifying the passenger travel characteristics. For a meaningful analysis of O-D survey data, the study region was divided into sixteen traffic zones and outside study region was divided into ten traffic zones, 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 Perinthalmanna town.

The maximum daily traffic volume generated using car, two-wheeler, autorickshaw 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 1. The maximum daily traffic volume generated using goods auto as the mode of goods transportation was observed at zone 1 and the maximum traffic attracted were to the same zone 1. Whereas for the truck the maximum trip was generated from the zone 17 and maximum trip attracted were also to zone 17. The figures 10.3 and 10.4 give desire lines for passenger and goods transport respectively in the town. The OD matrix and desire lines generated from the house hold surveys give insight into the travel characteristics of the inhabitants of the town. The maximum number of trips were generated from the zone 1, and the maximum number of trips were attracted to the zone 1. The desire lines form house hold survey is given in Figure 10.5.

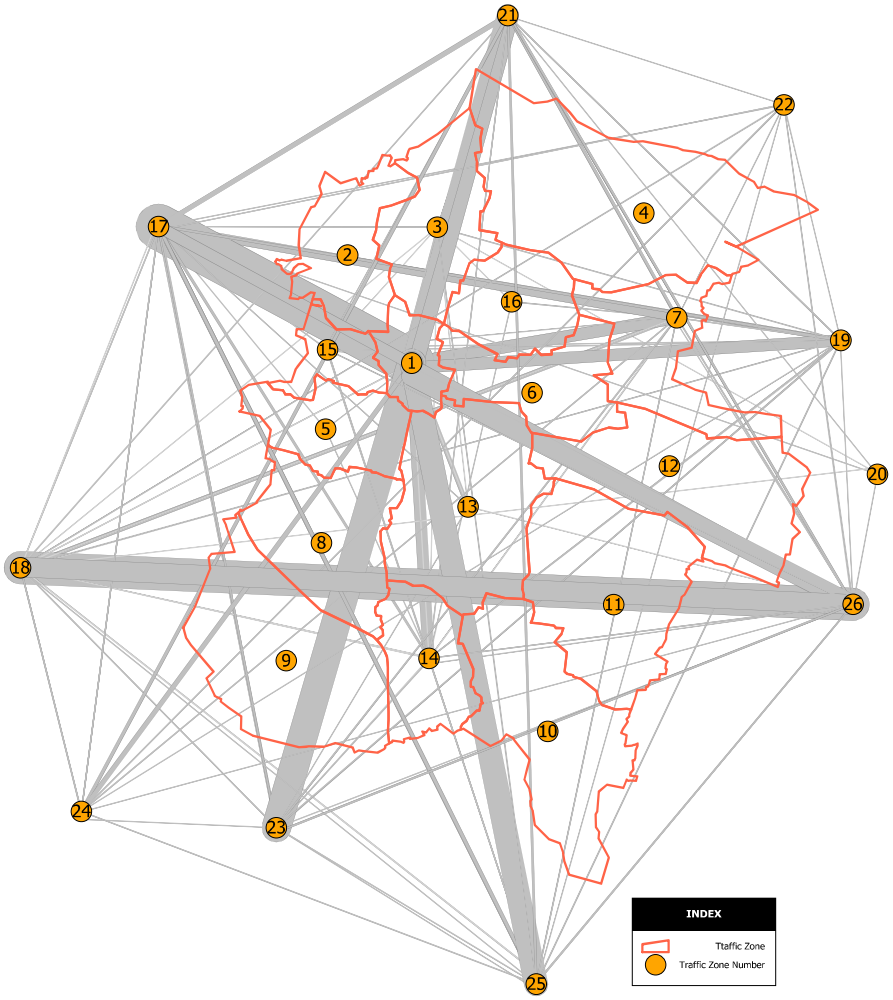


Figure 10.3 Desire Line for passenger Transport

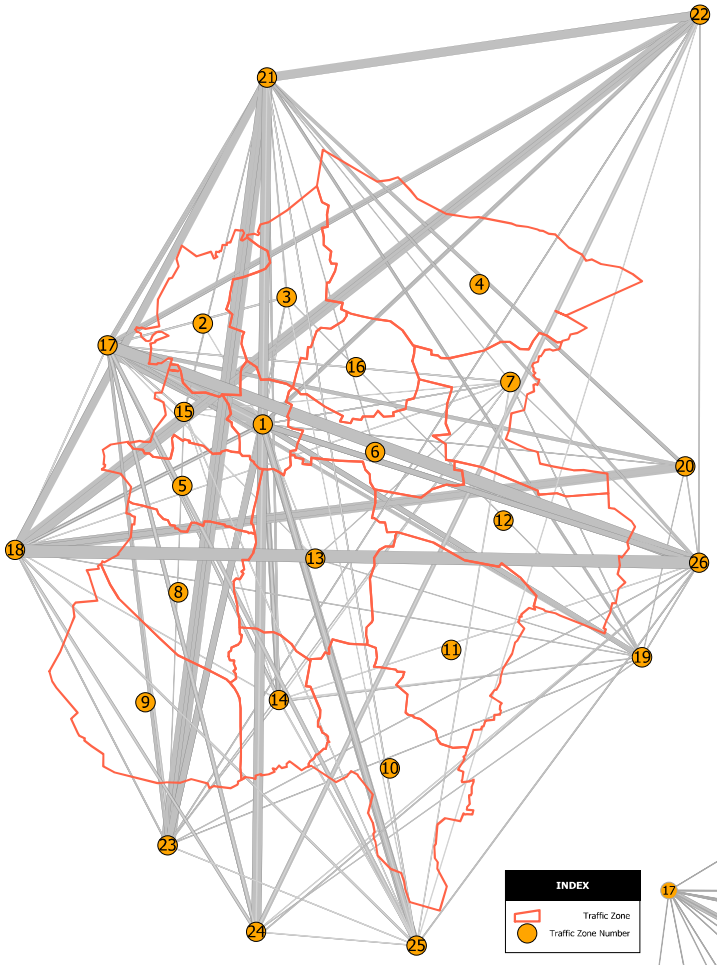


Figure 10.4 Desire Line for goods Transport

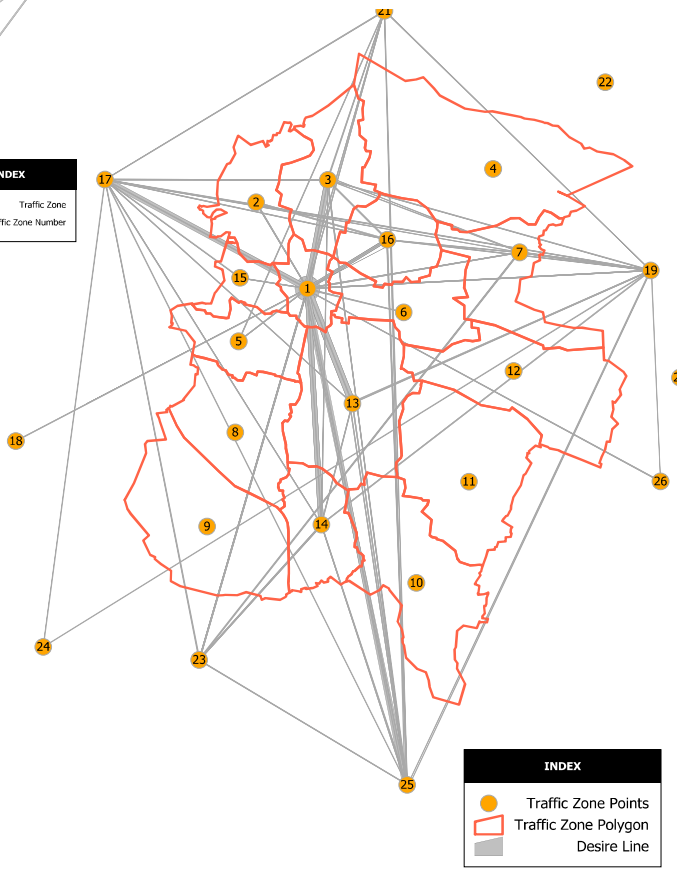


Figure 10.5 Desire Line from house hold survey

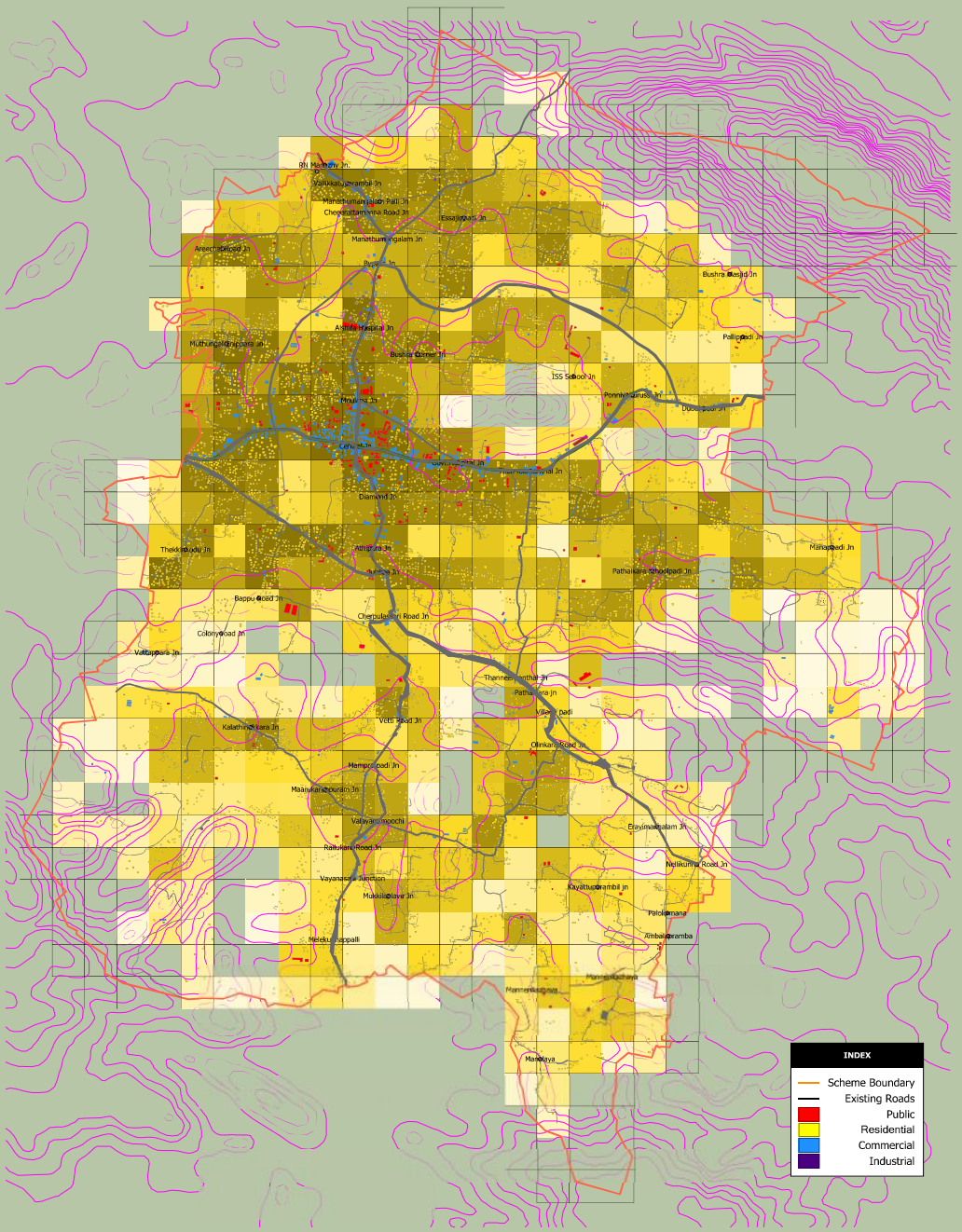


Figure 10.6 Accesibility of residential areas – Residential built up distribution over laid with existing road network, contour details

Figure 10.6 depicts the existing scenario of accesibility of residential areas in the Municipality obtained by overlaying details on existing residential built up density, existing road network and the contour distribution in the Municipality. It can be seen that while the concentration of residential land use is along the major roads, the less-dense residential areas are also fairly accessible through collector streets.

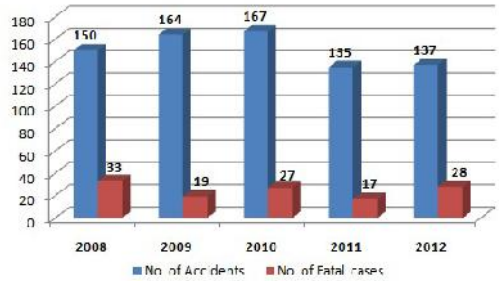


Figure 10.7 Accident Details

Analysis of accident data reveals that there is only a marginal decrease in the number of accidents as well as the number of fatalities over a period of five yeas. This indicates increasing congestion and accident risks in general.

Figure 10.8 indicates modal split of passenger travel obtained from house hold survey. Around 20% of passengers use private vehicles like car and two-wheelers for travel while around 22% use auto-rickshaws. Around 58% depend on buses for their transportation needs. Significant role of public transport is evident from this.

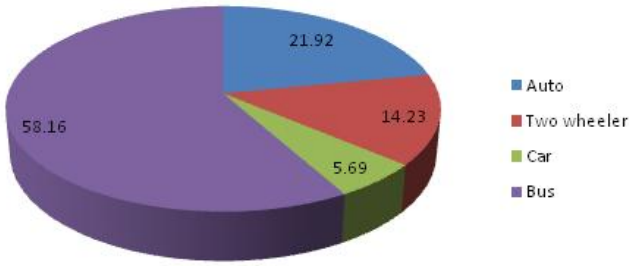


Figure 10.8 Mode of Passenger Travel

10.6 Bottlenecks and Missing Links

The major bottlenecks in the road network of Perinthalmanna municipality are the stretch between Main Junction to KSRTC on NH 966, near RDO on Pattambi road and near Moulana hospital on Ootty road. Shopping complexes, market and KSRTC buses turning to the terminal are the main problems faced in the Main Junction to KSRTC stretch. Near RDO, the presence of public buildings such as RDO, Mini Civil Station, court, Sub Registrar Office etc, opening to the NH, is the major factor leading to the formation of bottlenecks.

The stretch between Moulana and Al shifa hospitals has inadequate roadway width, and inaddition to this, the presence of Moulana & Alshifa hospitals, auto parking and unauthorized bus stops contribute towards the bottleneck formation.

The Housing colony road is a congested stretch with the presence of the Municipal Stadium, Town Hall & market. The lack of adequate space for parking is another major issue at this area. The other minor stretches such as the Sunni Mahal road, road connecting Pathaikkara and Thaneerpanthal and the road passing through the Al-shifa Hospital are roads with inadequate roadway width leading to traffic congestion. They lack in proper road markings, scientific road alignment and road geometrics.

In general, ill-formed junctions, lack of width, kerb parking, unruly driving habits and uncontrolled pedestrian movements cause congestion in these bottleneck areas.

Missing links in the road network of the Municipality are identified from land use survey and traffic survey. It was identified that there was a high demand for traffic movement between Town centre (zone 1) to Kunnumpuram (zone 16), in the North-East quadrant, but since there was no direct link between these two points, this constitutes an important missing link. Other major missing links are connectivity between Presentation bypass junction on Kozhikode-Palakkad road to Pattambi road and streets required for deepening commercial activity in order to curb ribbon development.

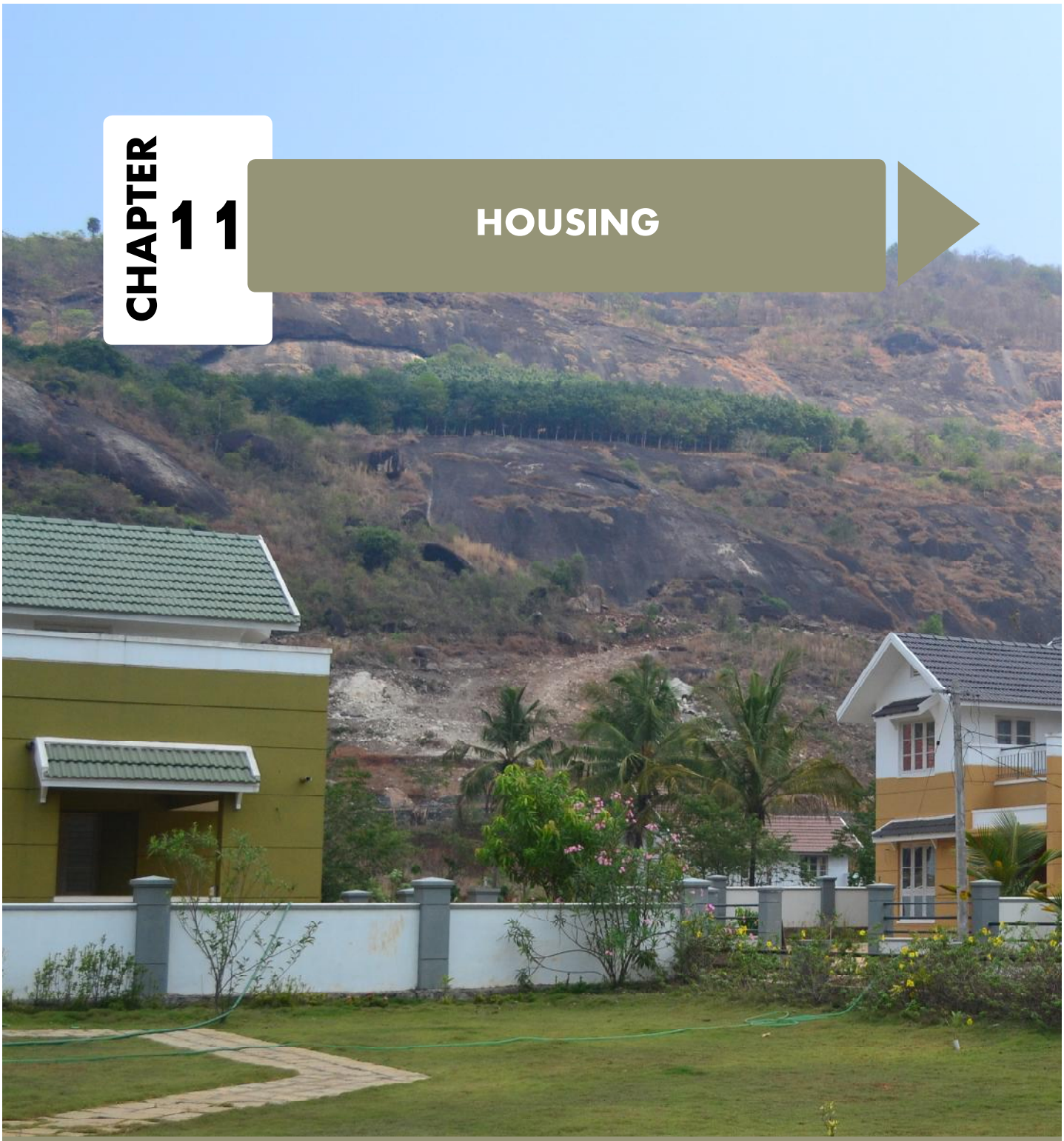
Even though the road density is 6.91 km per sqkm in the town, this no way reflects the level of service since most of the municipal roads are very narrow. This is also evident from the fact that the land under traffic and transportation use is only 1.35 Sq.Km ie. 3.94% of the total municipal area which is low by any standards. The draft transport policy for the state realizes this bottleneck in the case of urban roads and prescribes awareness creation and action to widen the existing arterial and sub-arterial roads to 4/6 lane standards with provision for pedestrian walking and crossing facilities, cycle tracks and off-street parking.

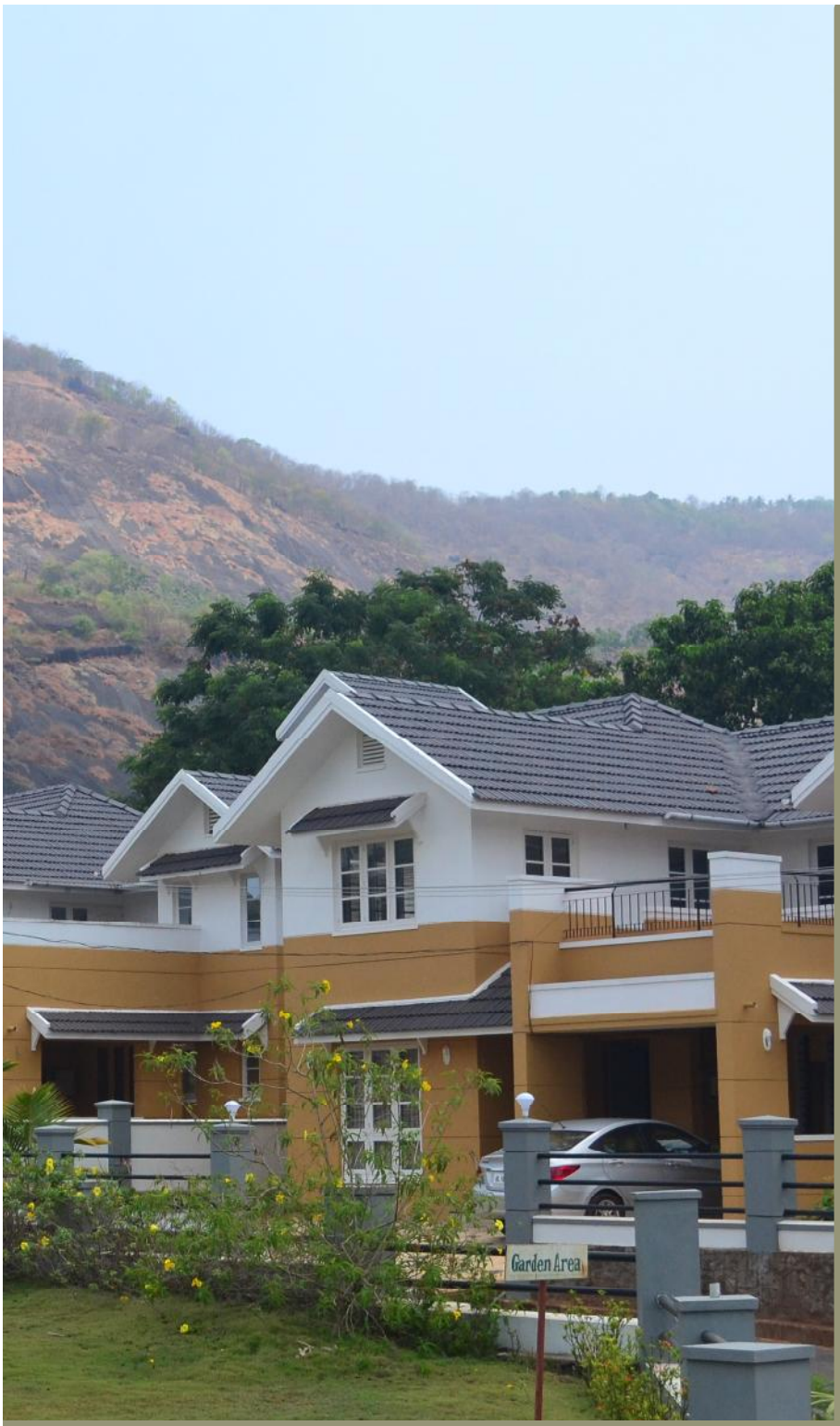
10.7 Inferences

The road infrastructure existing in the town has slight hierarchical relations. The network is not efficient and the percentage of land under traffic and transportation use is dismally low. The existing traffic characteristics show that the present network is not adequate to cater to the present transportation needs, even if the future demand is not accounted for.

CHAPTER 11

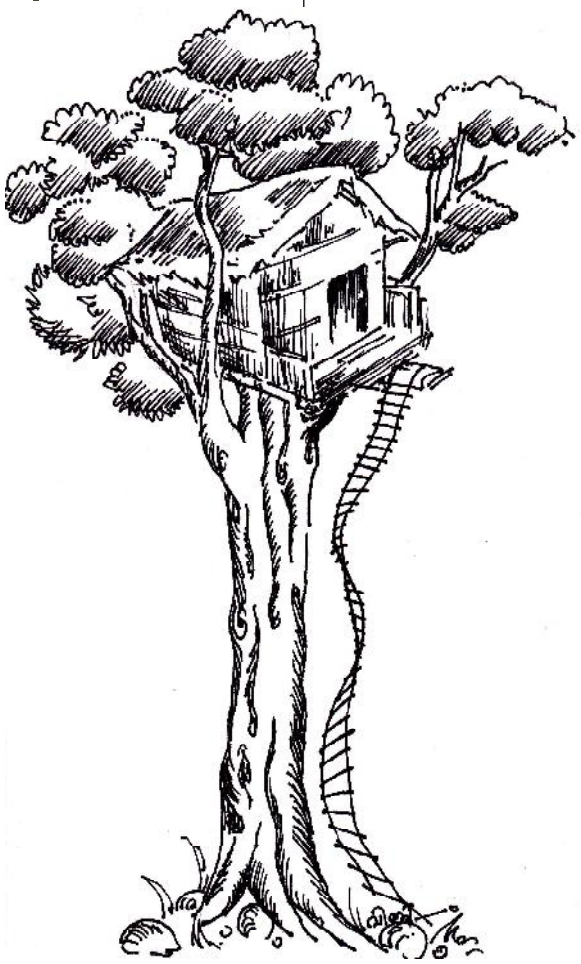
HOUSING





11.1 Existing Housing Conditions
11.2 Vertical and organised plotted developments
11.3 Urban poor and housing schemes
11.4 Housing Demand & Housing shortage
11.5 Inferences

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 Existing Housing Conditions

The Municipality has 8160 houses spread over in its 34 wards. (Source: Secondary Data, 2012) Out of these, 4960 (60.78%) are pucca buildings. 3180 (38.97%) houses are of moderate quality. There are only 10% each of kutcha houses and huts.

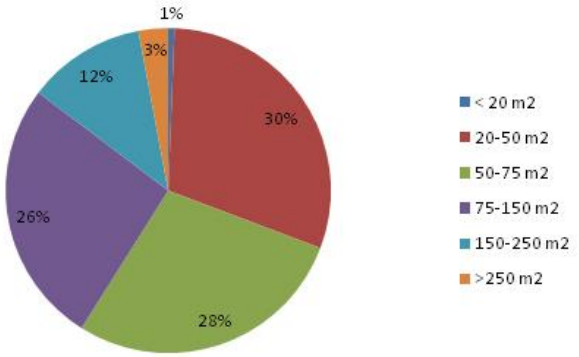


Figure 11.1 Percentage of houses by built up area
(Source: Socio Economic Survey 2012)

Majority of the houses are in the 50-150 m² category, built in own land, of sizes ranging between 5 - 25 cents and have 3 habitable rooms each.

Majority of the houses are in the 50-150 m^2 category. Only 1% of the houses are less than 20 m^2 in size. 30% of the houses are in 20-50 m^2 category. 150-250 m^2 category has only 12% and houses with size above 250 m^2 is only 3%.

Figure 11.2 gives the nature of land ownership for housing purposes. 98% of the houses are built in own land.

"The core focus of this Policy is provision of "Affordable Housing For All" with special emphasis on vulnerable sections of society such as Scheduled Castes/Scheduled Tribes, Backward Classes, Minorities and the urban poor."

- National Housing and Habitat Policy 2007

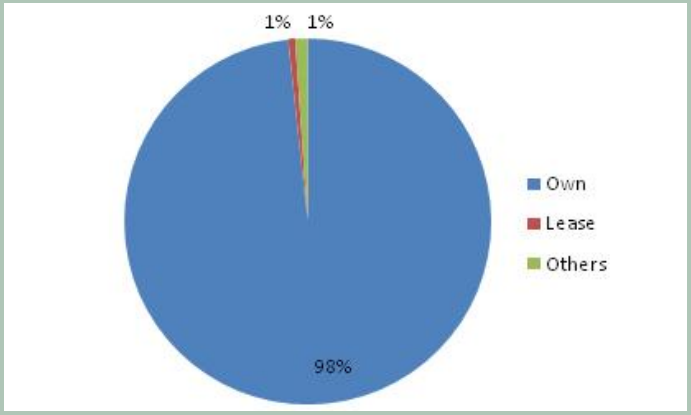


Figure 11.2 Nature of residential ownership (Source: Socio Economic Survey 2012)

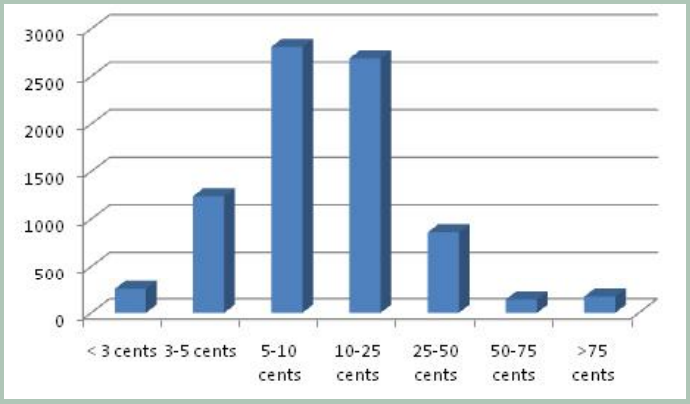


Figure 11.3 Residential plot size (Source: Socio Economic Survey 2012)

Variation of residential plot size is given in Figure 11.3. The plot size ranges between 5 - 25 cents in most cases. The Figure 11.4 shows the houses by number of habitable rooms. Majority of the houses have 3 habitable rooms.

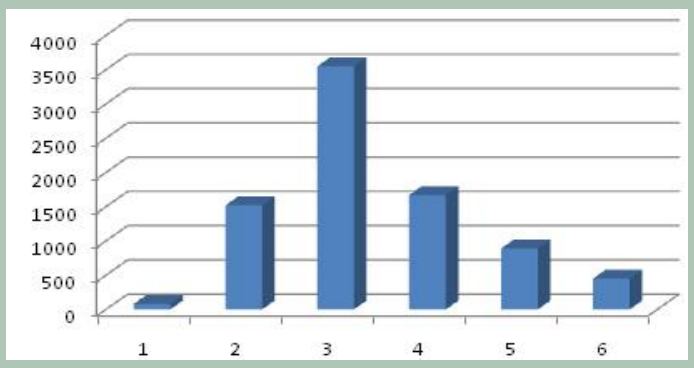


Figure 11.4 Houses by number of habitable rooms (Source: Socio Economic Survey 2012)







11.2 Vertical and Organised Plotted Developments

Vertical and plotted developments are slowly attaining pace in the Municipality. Currently two private sector developers (Malabar, Pentium) have come up with vertical developments, one with 70 residential apartment units and the other with 35 residential apartment units.

A few plotted developments by private developers are in progress in the municipality, including villa project of 32 villas and associated commercial and leisure facilities by Pentium developers, villa project by Saban Developers near Manathumangalam housing around 56 units and the villa project by Malabar group housing 52 villas.

11.3 Urban Poor and Housing Schemes

Municipality is providing assistance for housing under various government schemes and projects. The housing scheme under IHSDP (Integrated Housing and Slum Development Program) is the major one. Under the scheme assistance to a total number of 574 units were sanctioned of which 530 has been completed. This includes 467 units under general category and 63 units under SC category.

As per municipal records, there are eighteen urban poor colonies existing in the Municipality. These are 1) Vazhayil, 2) Thekkekaraparamb, 3) School Padi – 1, 4) Cholappadi, 5) School Padi – 2, 6) Ponniakurussi (N), 7) Ponnaramkunnu, 8) Perumpully,9) Kizhisssery, 10) Panchamy School, 11) Panikkarukundu, 12) Parakkode, 13) Pathaikkara Schoolpadi, 14) Mannenkaya, 15) Mannenkaya, 16) Lakshamveed Colony, 17) Thekkinkode Lakshamveed, and 18) Enippara.

Also, the town has got a significant presence of unskilled migrant laborers from other states, and ensuring proper accommodation for them has become a big concern. These migrants have currently put up at cheaply available lodges and rented accomodations and their overcrowding has resulted in sanitation and health problems.

11.4 Housing Demand & Housing Shortage

The population as per Census 2001 was 44612, with a household size of 5.51.The HH size decreased to 4.83, as per 2011 Census. A gradual decrease in household size is to be anticipated since the present household size is higher than the State average. So, the increase in households is projected assuming that the HH size in Perinthalmanna will atleast reach the current state average in the next two decades.

There is a demand for 370-480 residential units in a year in the town in addition to the demand created by institutions like Aligarh Muslim University, EMS Memorial Co-Operative Hospital, MES Medical college etc.

The housing shortage is worked out by adding the difference between the number of households and number of houses and the number of houses that need replacement. At present 20% of houses needs replacement, the kutcha houses and huts, as per the socio-economic survey. 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 each of the coming decades.Thus, the present and the projected housing shortage is worked out, as persented in Table 11.1 below.

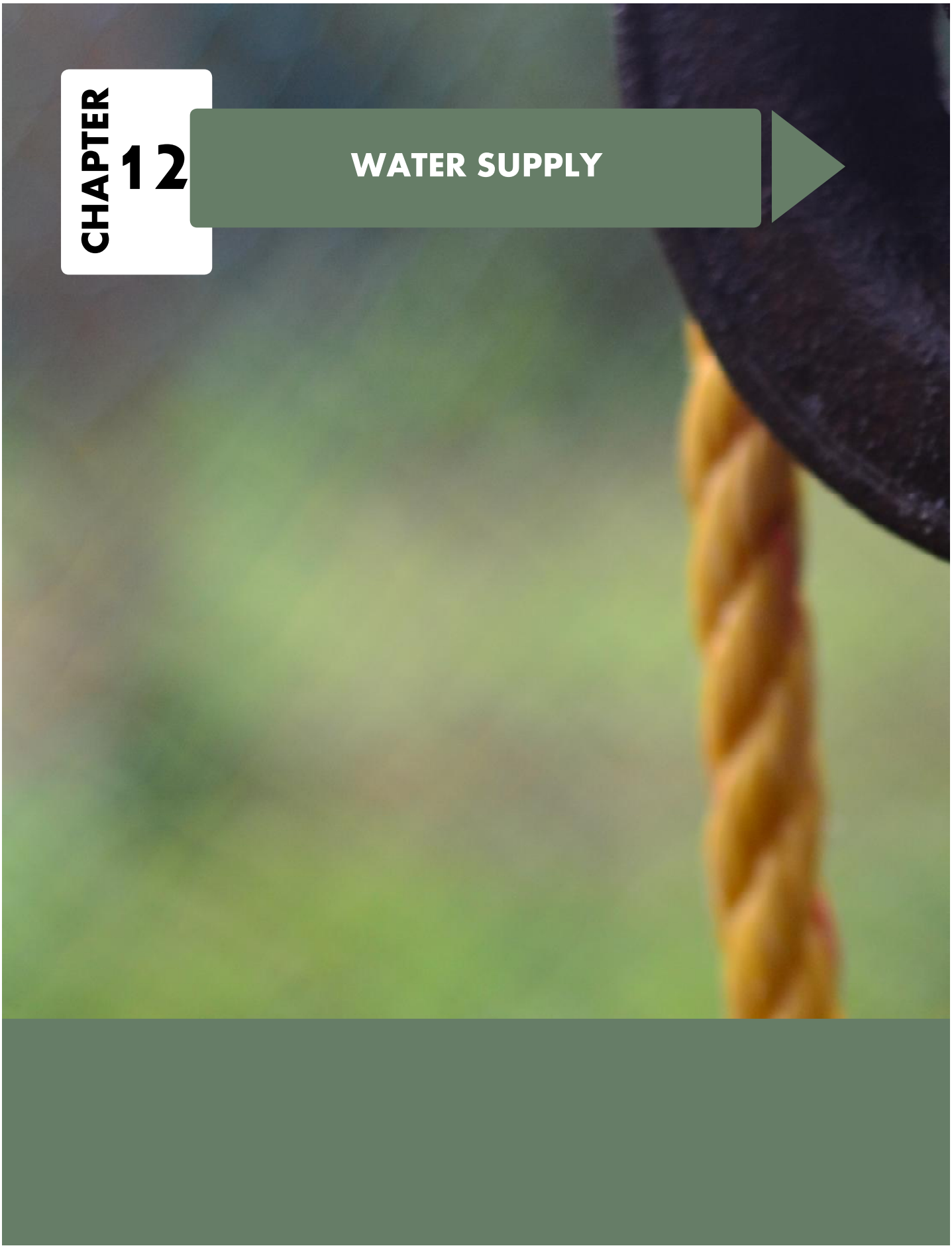
From the table it is evident that there is a demand for 370-480 residential units in a year in the town in addition to the demand created by institutions in the adjacent panchayaths like Aligarh Muslim University, EMS Memorial Co-Operative Hospital, MES Medical college etc. From the existing scenario, it can be deduced that more than 50% of this demand is in the 50 to 150m^2 size category with 3 or 4 habitable rooms. So, there is a strong case for further densification of residential land use and public intervention in providing affordable housing.

Table 11.1 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	Replacement	Total Shortage
1991	39018	6.05	6449	-	-	-	-
2001	44612	5.51	8097	-	-	-	-
2011	49723	4.83	10287	8160	2127	1632	3759
2021	55921	4.54	12317	10287	2030	2040	4070
2031	62022	4.25	14593	12317	2276	2572	4848

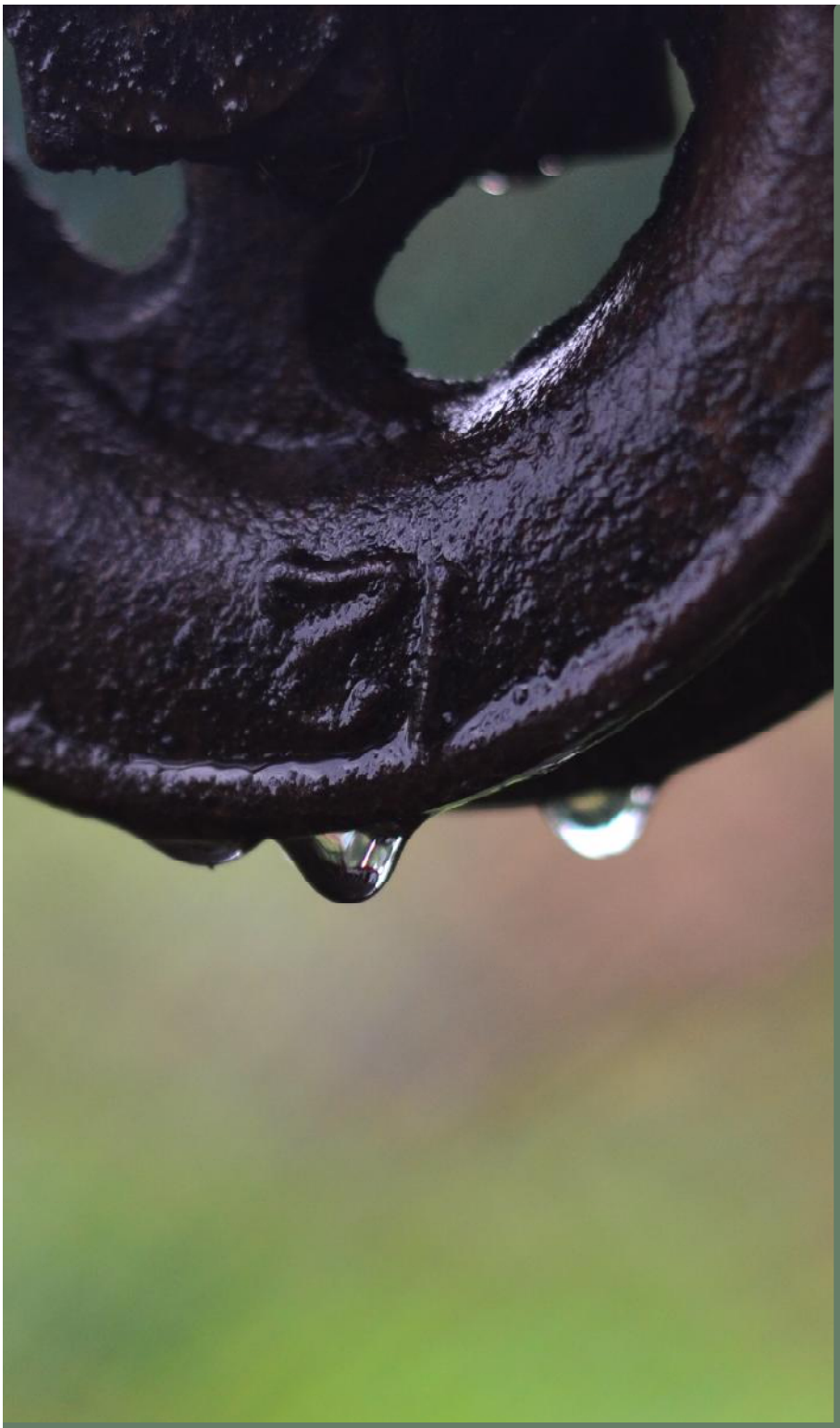
11.5 Inferences

Study of the existing housing conditions reveals a satisfactory picture of quality and quantity of housing in the municipality. However 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.



CHAPTER 12

WATER SUPPLY



12.0 Water supply
12.1 Source of Water
12.2 Consumption
12.3 Existing Network
12.4 Scarcity
12.5 Projects in the Pipeline
12.6 Projected Demand
12.7 Problems and Potentials
12.8 Inferences

12 WATER SUPPLY

"We never know the worth of water till the well is dry"
- Thomas Fuller. (English churchman and historian)

12.0 Water Supply

Water was treated as an abundant resource in most of Kerala till recent times. But with time, both the quality and availability is depleting fast. Ensuring water security is possible only through a multi-pronged strategy consisting of conservation of water resources, ground water recharging, reducing waste and prevention of water pollution in general.

12.1 Source of Water

Majority of the people of the town depend on their own wells as shown in Figure 12.1

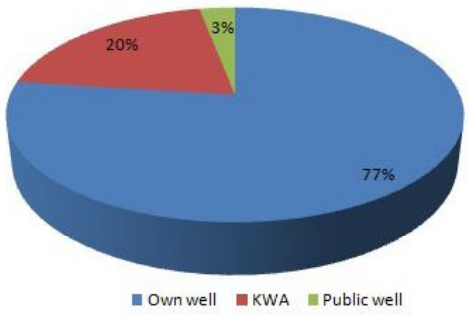


Figure 12.1 Major Source of Water (Source: Socio Economic Survey 2012)

Dependence on KWA is only 20.28%. A small percentage is catered by small scale schemes run by the municipality or user groups. The average ground water table depth in the town is 19.14 m. The distance to major source of water is shown in Figure 12.2.

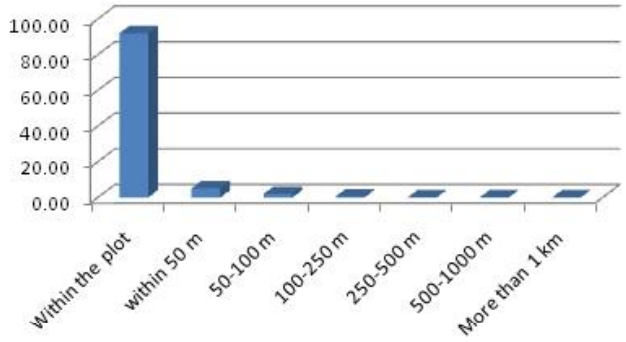


Figure 12.2 Distance to source of water (Source: Socio Economic Survey 2012)

92% of the houses have own source of water. Nobody travels more than 1 km for water.

92% of the houses have own source of water. Nobody travels more than 1 km for water.

All the wards in the Municipality are covered by piped water supply system.

12.2 Consumption

Since majority of the people are depending on their own wells, no direct data is available on consumption. On a rough estimation (50000 persons and a conservative estimate of 135 lpcd as per CPHEEO norms) the present consumption can be assumed to be 6.7 MLD. Out of this the Kerala Water Authority supplies 5 MLD.

12.3 Existing Network

All the wards in the municipality are covered by piped water supply system. The water is taken from Thootha River and pumped over to treatment plant at Pulinkavu. The treatment system consists of a 19 MLD Rapid sand filter. The treated water is stored in over head tanks at Pathaikkara (17 lakh litres), Kulirmala (5 lakh litres) and Kunnappally (3 lakhs litres). This stored water is distributed by gravity flow all over the town. Figure 12.3 shows the treatment and storage facilities.

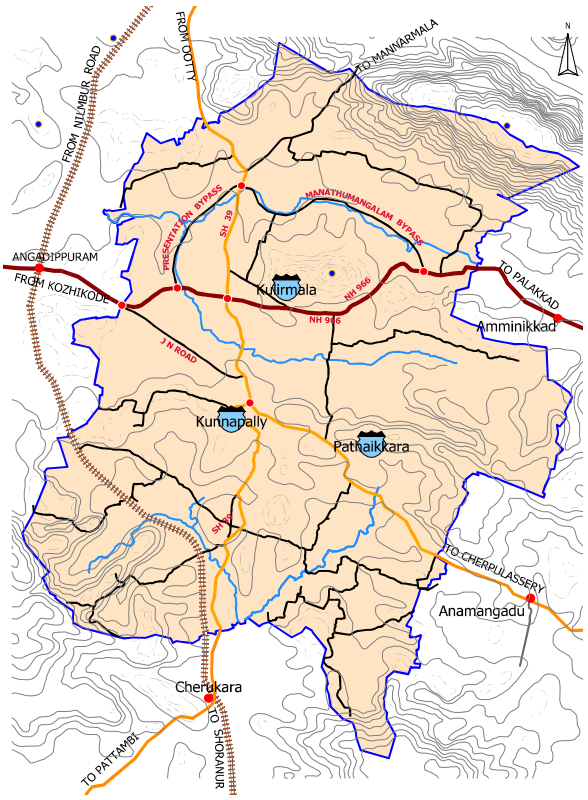


Figure 12.3 Location of Treatment and Storage

12.4 Scarcity

Figure 12.4 shows the nature of water scarcity in the town. 68.38% of the households do not face scarcity of water. 7.35% experience scarcity for 1-2 months and 12.87% for 2-3 months. Only 5.27% and 6% experiences scarcity for 3-6 months and more than six months respectively. The Kerala Water Authority supplies water once in two days.

The scarcity of water is mainly concentrated in wards 1,2,3,5,16 and 31 of the Municipality. It is understood that in some areas of these wards, the depth to ground water table is very high and even deep wells are not yielding water. This suggests the need for area-specific interventions to address water scarcity as well as for 24*7 watersupply by KWA.

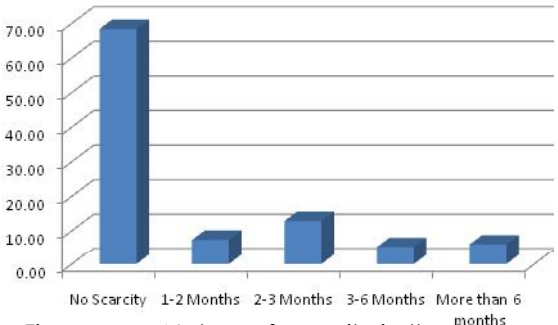


Figure 12.4 Nature of scarcity in the town
(Source: Socio Economic Survey 2012)

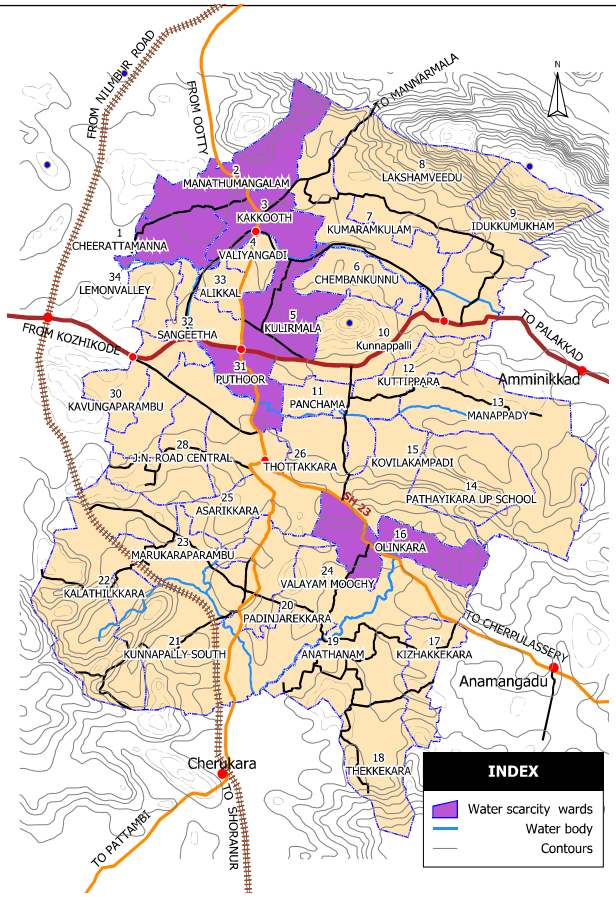


Figure 12.5 Spatial distribution of water scarcity

Even though the national standards prescribe 135 litres of water per capita per day, the cultural habits of Keralites demand more water.

12.5 Projects in the Pipeline

In order to improve the service delivery by increasing the frequency of pumping to a daily basis, the Kerala Water Authority has taken up a number of initiatives. The important components of this effort are construction of a weir at Kattuppara, construction of a sump with 1 lakh litre capacity at Kunnappally, construction of an over head tank with 1 lakh litre capacity at Thekkincode and installation of two more pumps of 225 HP capacity each.

12.6 Projected demand

Even though the national standards prescribe 135 litres of water per capita per day, the social habit of Keralites demand more water. Hence a per capita requirement of 200 litres per day is considered. Based on this requirement of water for the design population of 70,000 during the horizon year shall be 14 MLD. The dependence of piped water is likely to increase during this period due to contamination by densification and general reduction in availability of ground water. Thus, to ensure 24*7 piped watersupply to all by 2031, the piped water supply has to be enhanced to around 15 MLD.

12.7 Problems and Potentials

Water being the elixir of life, cannot be neglected in any development scenario. The threats to water scarcity in the form of depletion of sources and contamination has to be given serious attention by all concerned. Even though the situation is not out of control at present, this has to be developed in tune with the increase in population and other developments. Rain water harvesting and artificial ground water recharge, recycling of waste water, reducing wastage of water etc. need serious consideration.

12.8 Inferences

Majority of the people depend on wells for their water supply. Though the town doesn't have serious water scarcity in general, certain pockets have very low ground water table and are highly dependent on piped water supply. Taking into account the future population as well, in order to maintain a satisfactory level of service, Kerala Water Authority has to increase the capacity by three fold and ensure 24*7 water supply.

CHAPTER 13

WASTE MANAGEMENT





13.1 Storm Water
13.2 Sewage
13.3 Bio Medical Waste
13.4 Municipal Solid Waste
13.5 Inferences

13 WASTE MANAGEMENT

Managing waste is one of the most important issues in urban governance. With the rapid urbanization and a lack of due consideration for the conservation of natural environment, the issues related to urban waste has become difficult to manage.

13.1 Storm Water

The drainage network existing in the municipality consists of a system of natural drains, the continuity of which is hampered in many places by human intervention. This is supplemented by a set of disjointed road side drains. The existing drainage network is shown in Figure 13.1.

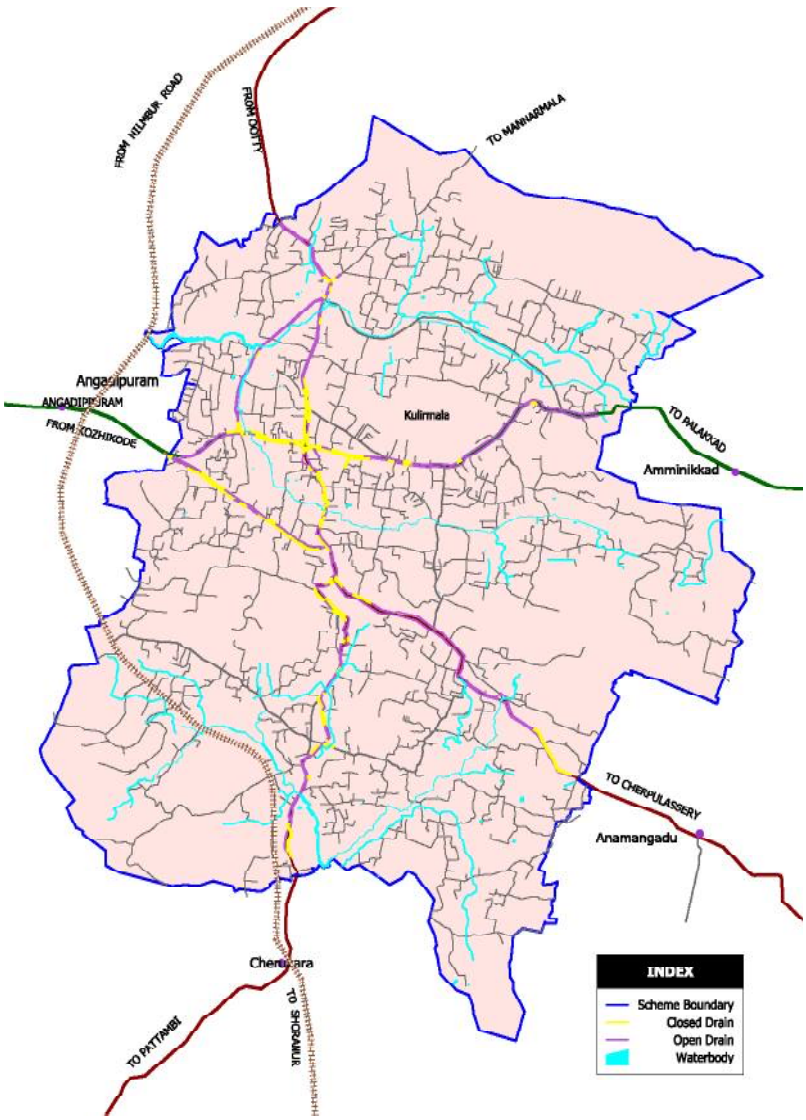


Figure 13.1 Existing Drainage Network
(Source: Landuse Survey, 2012)

13.2 Sewage

There is no sewerage system in the town. All the households in the town have their own toilets. 88% of the people use toilets with leach pits and the rest 12% use toilets with septic tanks. With the presence of a large number of leach pits and the majority of plot size being 10 or less than 10 cents, the quality of water available from the wells is questionable. With the increase in population projected and the envisaged densification of the town, a sewerage system is inevitable.

13.3 Bio Medical Waste

The town has a number of medical institutions and hence proper disposal of bio-medical waste is of high priority. Currently the biomedical waste generated by the health care institutions in the municipality is collected by the the Indian Medical Association and transported to its a centralized collection and treatment facility at Palakkad under the project IMAGE (Indian Medical Association Goes Eco friendly).

"Cleanliness and order are not matters of instinct, they are matters of education, and like the most great things you must cultivate a taste for them."

- Benjamin Disraeli (former British Prime Minister)

However, another issue, which is partly bio-medical in nature, does persist in the town. The untreated or partially treated waste water from the hospitals is let out into natural drains which is a health hazard to the local population by way of infection and the immunity of the new strains of disease causing micro-organisms to the normally used drugs. This can be prevented by stringent control on the quality of effluent from health care institutions.

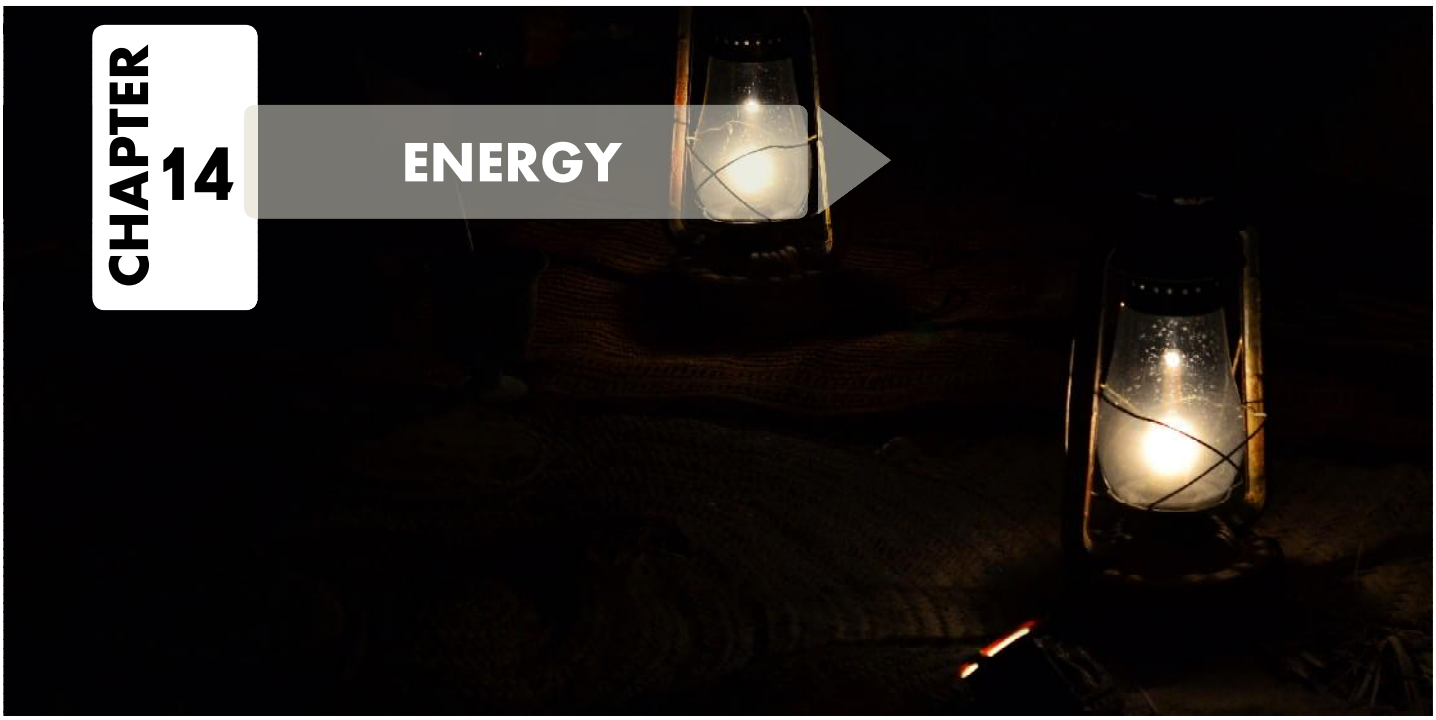
13.4 Municipal Solid Waste

Growing municipal waste and inadequacy of treatment facilities is experienced by almost all towns in the State. The situation of Perinthalmanna is slightly better in this regard. The socio-economic survey reveals that almost all the households treat/dispose their waste in their own premises. The municipality collects waste to the tune of 16 T/day from street sweeping, market and commercial establishments. Segregation of waste is not done during collection. Three vehicles (municipality owned) are used to collect the waste twice a day. 42 workers are employed in the operation. Door to door household wastes collection has started recently. The collected wastes are directly transported to the treatment plant at Kalathilakkara where the biodegradable and non-biodegradable wastes are segregated. The bio-degradable wastes are subjected to windrow composting and the bio-fertilizer is sold by the agency running the plant. Even though the present system is adequate for the current needs, further increase in the load has to be taken care of in the immediate future. System upgradation, modernization and streamlining the operation shall be needed as the load picks up. The treatment plant is located in a plot of 13 acres under government ownership and hence the modernization and upgradation can be easily taken up.

The untreated or partially treated waste water from the hospitals is let out into natural drains which are a health hazard to the local population.

13.5 Inferences

The drainage system needs total revamping to form an efficient, effective and clean storm water drainage. The rising density of land use calls for a sewerage system in order to protect the water resources. Even though the hospitals contribute heavily to the economy of the town, their wastes needs stringent monitoring in public interest. The present municipal solid waste treatment system, though adequate for the current needs shall require periodic improvements in system design, technology and capacity.



CHAPTER 14 ENERGY

Intensity of energy use is considered to be a yard stick for measuring degree of urbanization. The growth in energy demand with higher urbanization, though anticipated, has to be curbed to prevent depletion of natural resources as well as for environmental conservation. The energy policy of both the central and state governments call for tapping of more energy from non-conventional sources.

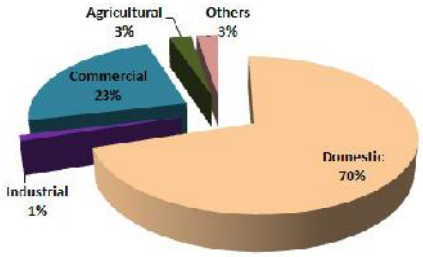


Figure 14.1 Electricity connection

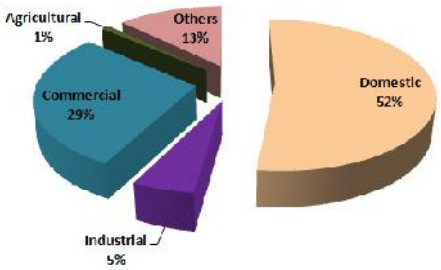


Figure 14.2 Electricity consumption pattern

14.1 Domestic Fuel

The socio-economic survey revealed that for 82% of the households, major domestic fuel is fire wood and the rest 18% depend solely on LPG. Only 8% of the people resort to non-conventional sources of energy (like solar power, bio gas etc) for their domestic needs.

For 82% of the households, major domestic fuel is fire wood and the rest 18% depend solely on LPG.

14.2 Electricity Distribution Network and Consumption

There is no facility for electricity generation in Perinthalmanna. The town has a 66 KV sub-station. There are 139 transformers in the Municipal area. 81 Km of HT lines and 400 Km of LT lines form the electricity distribution network in the town. Only Pathaikkara area faces low voltage problem in the Municipality.

"The World is in a transition phase and energy is central to it. We have to progressively move towards cleaner sources of energy and this can come about with increasing deployment of renewable energy technologies"

- Dr. Farooq Abdullah, (Former Minister of New and Renewable Energy, Govt. of India)

The per capita fossil fuel consumption works out to be 1 litre/day.

There are 17,363 electricity connections in the Municipality. The distribution of these connections among different type of consumers is given in Figure 14.1. Bi monthly power consumption is 3653532 MKWH. The category wise breakup of Power consumption is shown in Figure 14.2.

14.3 Use of Fossil Fuels

7572 KL of petrol and 11658 KL of diesel are sold in the town annually. The consumption of diesel is around 54% 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. So, approximately, the per capita fossil fuel consumption works out to be 1 litre/day.

14.4 Inferences

The use of non-conventional sources of energy is very limited. The town has a relatively strong network which is further strengthened by initiatives under R-APDRP (Restructured Accelerated Power Development & Reforms Programme). Consumption of electricity is mostly for domestic (i.e. Non-productive) purposes. The town has high consumption level of fossil fuels also.

CHAPTER 15

EDUCATION



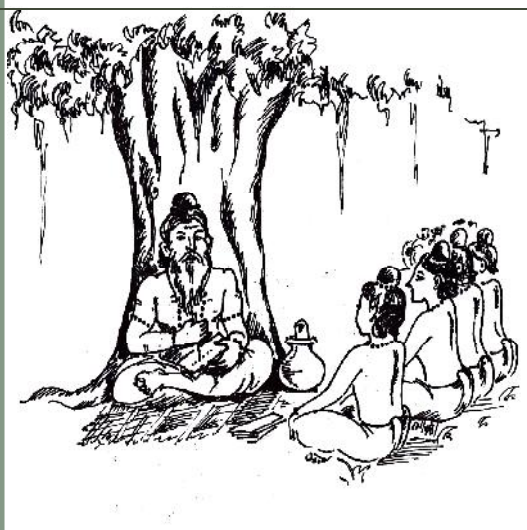


15.1 General
15.2 Educational Profile
15.3 Schools
15.4 Higher and Professional Education
15.5 Comparison with Planning Standards
15.6 Problems and potentials
15.7 Inference

15 EDUCATION

"Education is the most powerful weapon which you can use to change the world."

- Nelson Mandela



15.1 General

Malappuram district as a whole is considered as educationally backward. However, with new found riches and exposure to urban culture from the Middle East, the people of the District has become very eager in providing quality education to the next generation. This is evident from the results of various entrance examinations to professional courses where pupils from the District score high and wide. Among the students in self-financing colleges both within the State and outside also the share of the District is considerable. The case is not different in Perinthalmanna town also.

15.2 Educational Profile

The socio-economic survey reveals the educational profile of the people of Perinthalmanna municipality as depicted in Figure 15.1.

The figure indicates that majority of the people are educated upto higher secondary level and 27.8% of people have only primary education and professional graduates are less than graduates. Considering the technical and professional courses, only a few people have attained technical or professional education.

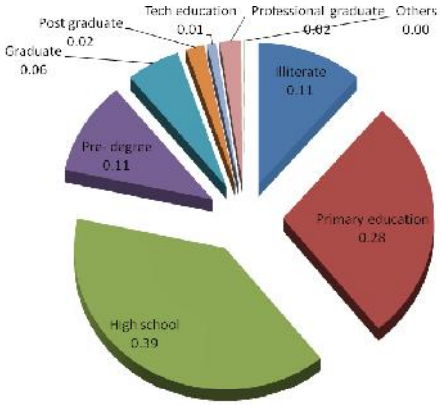


Figure 15.1 Educational profile
(Source: Socio Economic Survey 2012)

15.3 Schools

There are 23 schools in the Municipality. Lower primary education is available in 21 schools and upper primary classes are conducted in 11 schools. High school facilities are available in 8 schools. Out of this 6 schools offer higher secondary courses including 1 offering vocational higher secondary courses. The details of schools are tabulated in Table 15.1.



Table 15.1 Number of educational institutions in Perinthalmanna municipality (Source: Local Body)

Sl. No.	Type of institutions	No of institutions			Total
		Government	Aided	Un aided	
1	Anganvadi	31	-	-	31
2	Pre-Primary	-	-	6	6
3	LP School	4	11	6	21
4	UP School	-	5	6	11
5	High School	2	-	6	8
6	Higher Secondary School	2	-	4	6
7	Arts & Science College	1	-	3	4
8	Polytechnic	-	-	1	1
9	Teacher's Training Institute	1	-	2	3

Out of the 23 schools in the town, 6 are government schools, and 11 are aided by the government. The rest 6 are under private ownership including 1 in the co-operative sector.

Out of the 23 schools in the town, 6 are government schools, and 11 are aided by the government. The rest 6 are under private ownership including 1 in the co-operative sector.

15.3.1 Teacher – Student Ratio

The total number of students studying in the schools in the town is 12344 and the number of teachers is 568. The teacher-student ratio varies from 9 to 28. All UP schools have a ratio more than 1:30. Out of 6 U.P. Schools A.M.U.P.S Pathaikara and A.U.P.S Eravimangalam have high teacher-student ratio at 28 and 27 respectively. In the same manner all high schools and higher secondary schools have a ratio more than 1:30. Among the high schools, Valluvanad Vidhya Bhavan has higher teacher-student ratio (24). Among higher secondary schools, GHSS Perinthalmanna has higher teacher-student ratio which is 25. The student-teachers details in schools of Perinthalmanna are shown in Table 15.2.

15.3.2 Spatial distribution of schools

The spatial distribution of L.P, U.P, high Schools and higher secondary schools are given in Figure 15.2, 15.3, 15.4 respectively. The schools are spatially well distributed in tune with the distribution of population density.

The teacher-student ratio varies from 9 to 28. All UP schools have a ratio more than 1:30.



Table.15.2 Teacher– Student ratio of schools (Source: Local Body)

Sl. No.	Name of School	No. of students	No of Teachers	Teacher Student Ratio
1	GLPS Perintalmanna East	76	5	15
2	GLPS Perintalmanna West	55	4	14
3	GMLPS Kakkooth	55	6	9
4	GMLPS Perintalmanna Central	170	6	28
5	ALPS Cheerattamanna	107	5	21
6	ALPS Eravimangalam	121	5	24
7	AMLPS Manathumangalam	217	8	27
8	AMLPS Kunnappally	185	8	23
9	AMLPS Ponniakurussi North	200	8	25
10	AMLPS Ponniakurussi South	184	8	23
11	AMUPS Eravimangalam	720	27	27
12	AMUPS Kunnappaly	595	23	26
13	AMUPS Pathaikkara	614	22	28
14	KMMUPS Perintalmanna South	376	19	20
15	SMUPS Perintalmanna	150	9	17
16	Co-Operative School	158	17	9
17	Silvermount International School	263	25	11
18	Valluvanad Vidhya Bhavan	1269	54	24
19	Presentation English Medium High School	1664	74	22
20	GHSS, Perintalmanna	1549	63	25
21	GVHSS Perintalmanna	914	45	20
22	ISS English Medium HSS	2059	96	21
23	MES Central School	643	31	21

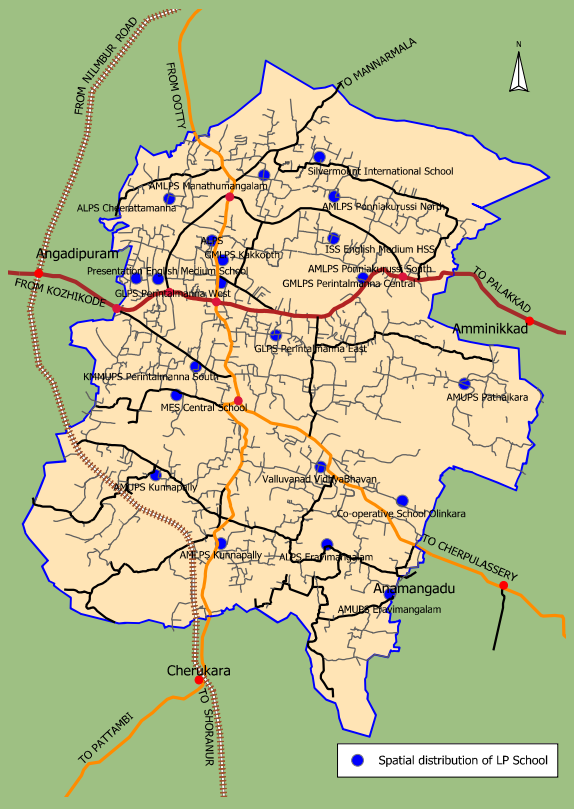


Figure 15.2 Spatial distribution of L.P Schools

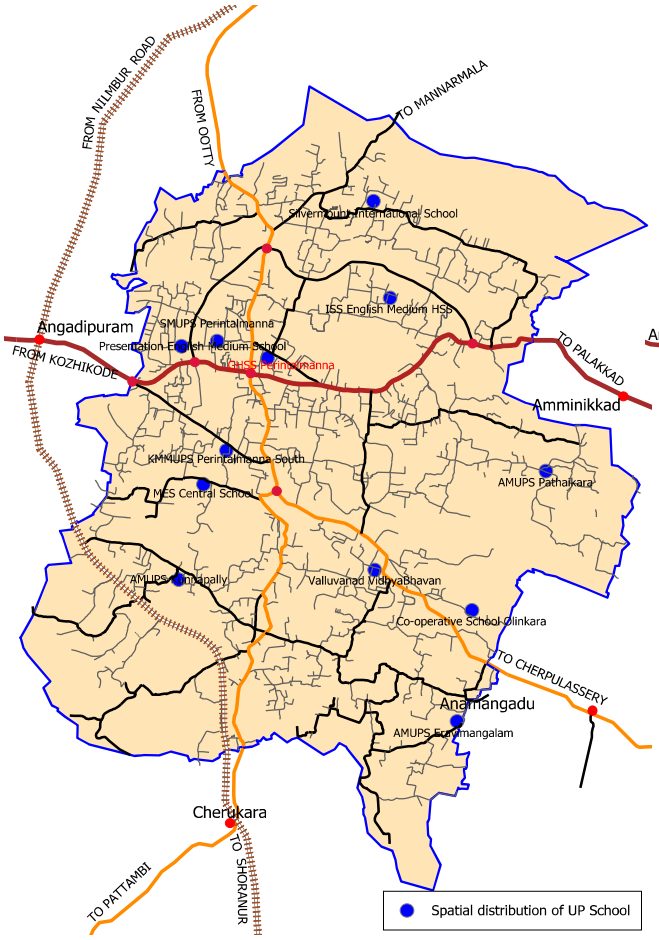


Figure 15.3 Spatial distribution of U.P Schools

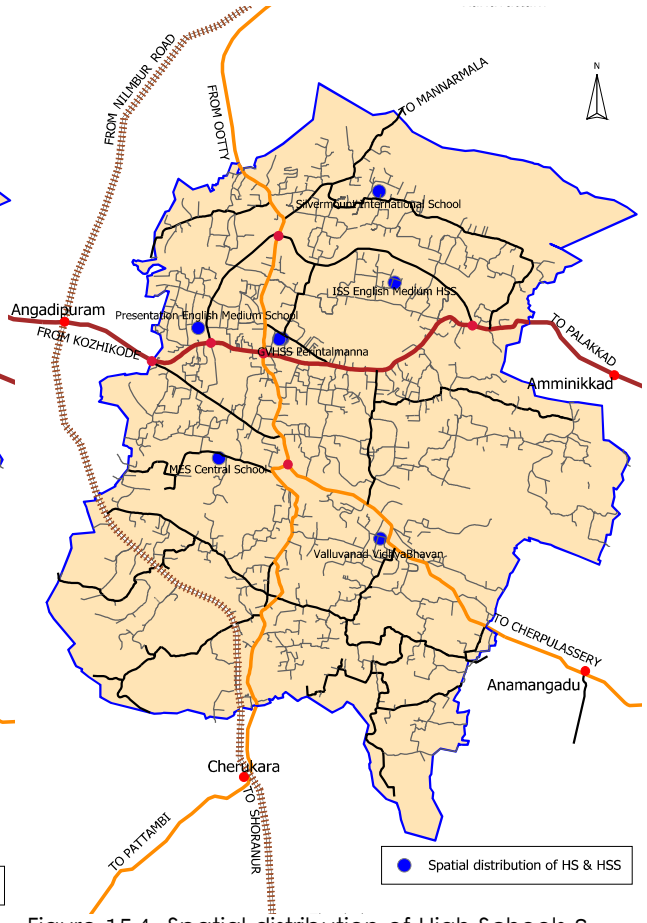


Figure 15.4 Spatial distribution of High Schools & Higher secondary schools

15.3.3 Infrastructure details of schools

All schools in Perinthalmanna municipality have drinking water availability and connectivity with motorable roads. In high school/higher secondary school category one school doesnot have a playground facility. Out of the total 21 primary schools, 10 schools do not have playground facilities. When considering all schools in Perinthalmanna, only 52% of schools have playground facility. 96% of the schools have separate toilets for girls. 66% of schools have computer lab facility and only 39% of the schools have internet connectivity. Improving IT related infrastructure is required in the schools.

15.4 Higher and Professional Education

15.4.1 Arts and Science Colleges

Perinthalmanna town has a number of higher education institutions offering courses in various fields. There are 4 arts and science colleges in the area of which one is in government sector and three are in the unaided sector. Table 15.3 gives the details of the arts and science colleges.

Table 15.3 Details of the Arts and Science colleges (Source: Local Body)

Sl. No.	Name of College	Location	Whether having PG courses	Number of students course wise (UG)				Number of students course wise (PG)				Govt./ Aided/ Un-aided
				BA	BSc	Bcom	BBM/ BBA	MA	MSc	Mcom	MBA	
1	Govt. College, Perintalmanna	Pathaikkara	Yes	49	47		41	13				Govt.
2	Co-Operative College	Perintalmanna	No	222		285						Un-aided
3	MES Womens College	Perintalmanna	No	163		96						Un-aided
4	Prathibha College	Perintalmanna	No	87		230						Un-aided

15.4.2 Professional Educational Institutions

There are 4 professional educational institutions in the municipality. Around 350 students study in these institutions. These students are coming from the municipal area and nearby LSGs. Table 15.4 gives the details of the professional educational institutions.

Table 15.4 Professional Educational Institutions (Source: Local Body)

Sl. No.	Name of College	Location	Details of Ownership	Professional courses offered	Total
1	Al- Kamil ITI	Ootty Road	Trust	Civil Draughtsman	42
2	Perfect Teachers Training Centre	Cholomkunnu	Trust	Hindi TTC	37
3	Hindi Mahavidyalaya	Pattambi Road	Private	Hindi TTC	19
4	NTC	Opp. Old Bus stand	Govt. Approved	Engg. Diploma courses	200
5	Perfect ITC	Pattambi Road	Trust	Fashion Design & Health Inspector Courses	15

The town has educational facilities in excess of those prescribed by the standards even for the projected population.

There are many other institutions in Perinthalmanna offering specialized courses. Table 15.6 shows the details of the various specialized courses. They include institutes which offer computer courses, technical training, Entrance coaching, X-ray welding, Spoken English centers and parallel colleges.

15.4.3 Spatial Distribution of Colleges

The spatial distribution of colleges is given in Figure 15.5. The colleges are not spatially distributed in relation to the distribution of population density. Availability of space (built space or land) for establishing these institutions influence location decisions.

15.5 Comparison with Planning Standards

Table 15.5 Comparison with Planning Standards (Source: Malappuram Master Plan–2030)

Sl. No.	Pattern	Strength	Standard	Available Strength	Required Strength	Gap
1	H.S	700	One HS for 14,000 ppn	2394	2486	92
2	H.S.S	400	One HSS for 18,000 ppn	1432	1105	0
3	Arts & Science college	500	One Arts & Science college for 80,000 ppn	1233	311	0
4	Professional college	250	One Professional college for 3,00,000 ppn	0	41	Available in adjacent panchayath
5	Polytechnic college	150	One Polytechnic for 37,000 ppn	0	202	Available in adjacent panchayath
6	ITI / ITC	300	One ITI/ ITC for 37,000 ppn	257	403	146
7	TTC	120	One TTC for 1,30,000 ppn	56	46	0

Table 15.6 Details of various Specialized courses (Source: Local Body)

Sl. No.	Name of College	Detail of ownership	Location	Specify the professional courses offered	Number of students course wise
1	IPA	Private	Hospital road, Perintalmanna	Accounts Training	60
2	School of Spoken English	Private	Hospital road, Perintalmanna	Spoken English	40
3	RIT	Private	Hospital road, Perintalmanna	CAD Centre	60
4	Arena Animation	Private	Hospital road, Perintalmanna	Animation Course	105
5	Sensorium school of Management	Private	Hospital road, Perintalmanna	Distance Education Programme	60
6	Bits & Bytes	Private	Hospital road, Perintalmanna	X-ray welding	8
7	Valluvanad Science Institute	Private	Hospital road, Perintalmanna	Entrance coaching	300
8	G-Tec Computer Education	Private	Calicut Road Perintalmanna	Computer Courses	53
9	Science Institute	Private	Hospital Road, Perintalmanna	Entrance coaching, Tuition center	300
10	SSI Net Computer Education	Private	Calicut Road Perintalmanna	Computer courses	72
11	Sree Sankaracharya Computer Education	Private	Hospital road, Perintalmanna	Computer courses	210
12	Al-Salama Education wing (Eye)	Private	Hospital road, Perintalmanna	Ophthalmology	54
13	Al- Salama institute of Architecture	Private	Hospital road, Perintalmanna	Architecture courses	
14	PKM School of Mentally Retarded	Private	Jubilee road	Rehabilitation	40
15	Random institute	Private	Hospital road, Perintalmanna	Entrance coaching	58
16	Nine IT Education	Private	Hospital road, Perintalmanna	Computer courses	45

The town has educational facilities in excess of those prescribed by the standards while comparing the no.of institutions. However, the strength has to be increased in High School section and in ITI/ITCs.



Figure 15.5 Spatial Distribution of Colleges.

15.6 Problems and Potentials

Literacy rate of Perinthalmanna Municipality is higher than the District and State literacy rate. The teacher- student ratio is more than 1:30 in all schools. There are no engineering or medical colleges in the Perinthalmanna Municipality, but are available in the nearby LSGs. Most of the colleges in the municipality are offering only the conventional courses and majority of these colleges are run by the private agencies. The presence of a number of hospitals in the town influence the medical institutions. The town has good potential for housing higher level professional institutions and centers of excellence.

15.7 Inference

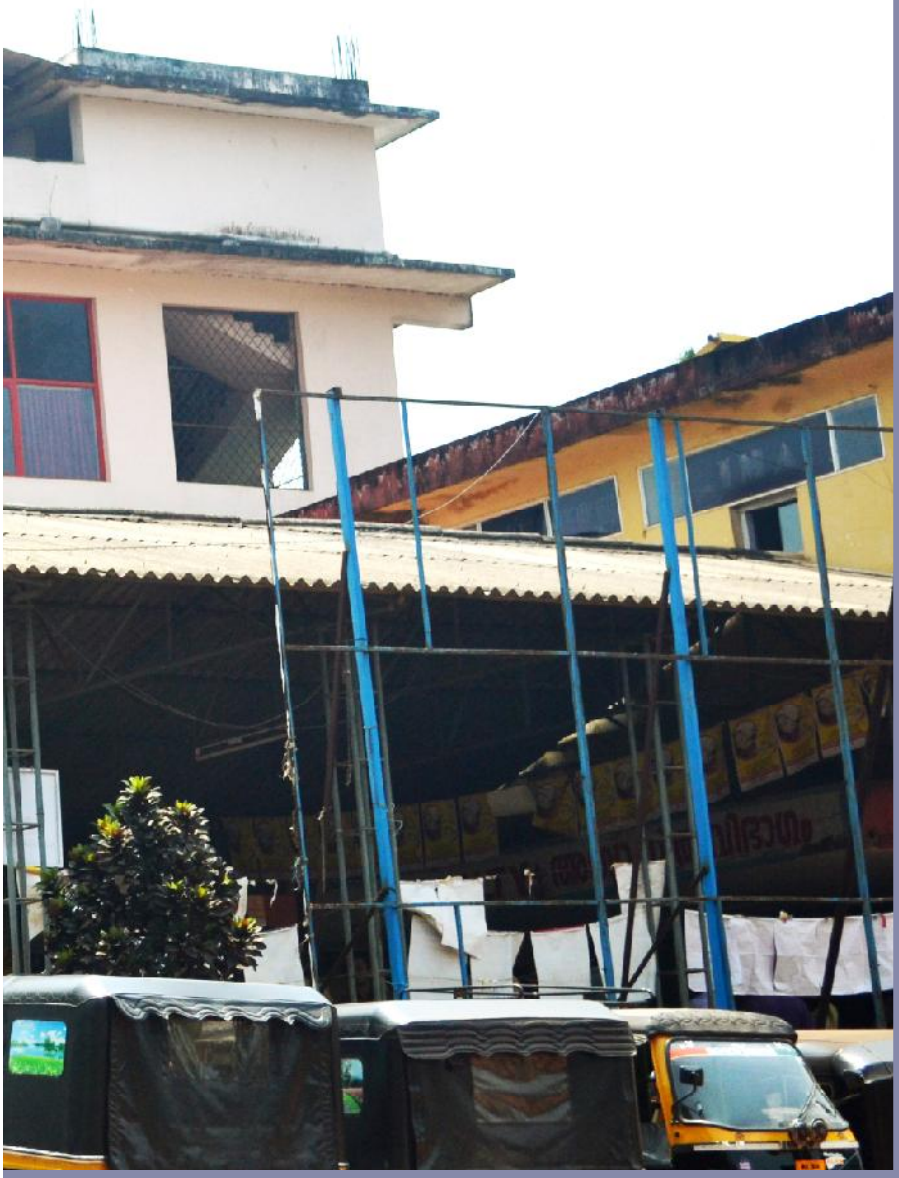
The literacy rate of Perinthalmanna municipality is high when compared to the district, indicating the relatively higher spread of primary education in Perinthalmanna municipality. The teacher-student ratio is more than 1:30 in all schools. Most of the colleges are offering only conventional courses, and there are no professional colleges or centers of higher learning within the municipality. However the locational advantages, proximity to various institutions like AMU and various medical and engineering colleges and good connectivity of the Municipality makes it a favourable destination for locating higher and professional education institutions.



CHAPTER 16

HEALTH





16.1 General
16.2 Existing Facilities
16.3 Spatial distribution of health care facilities
16.4 Problems and potentials
16.5 Inferences

16 HEALTH


From Govt. Taluk Hospital
Perinthalmanna

Perinthalmanna town is well-known in the region for healthcare facilities.

16.1 General

Health is another 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. Perinthalmanna municipality also follows the general pattern of development as elsewhere in the State. However, in contrast to most of the towns in the State, this town has a number of large scale hospitals both within the town and in the periphery.

16.2 Existing Facilities

The town is well known for health care facilities in the region. There are 31 allopathic hospitals and clinics in the town, out of which 22 are clinics with only outpatient consultation. Eight hospitals offer round the clock services and 4 hospitals have more than one operation threatre. Two have advanced diagnostic facilities. There are 7 ayurvedic hospitals and clinics in which 5 have OP only. Two ayurvedic hospitals also offer round the clock services. There are 6 homeopathic clinics in the town in which one has in-patient facilities. There are 24 medical laboratories, number of X-ray units and an MRI scan center in the town. There are around 200 medical doctors and 10 dentists practicing in the town. 1133 beds are available in the town. In the ayurvedic system, 10 doctors and 20 beds are available. In homeopathic system 7 doctors practice in the town with 9 beds.

The facilities in Govt sector include the District Hospital (recently upgraded Taluk Hospital), the Govt. Ayurvedic Hospital, a PHC at Kunnappally and four subcentres, at Thekinkode, Cheerattamanna, Manappadi and Eravimangalam.

The number of patients visiting the hospitals in the town are on the rise. Figure 16.1 shows the temporal variation of IP and OP in the selected large hospitals in the town.

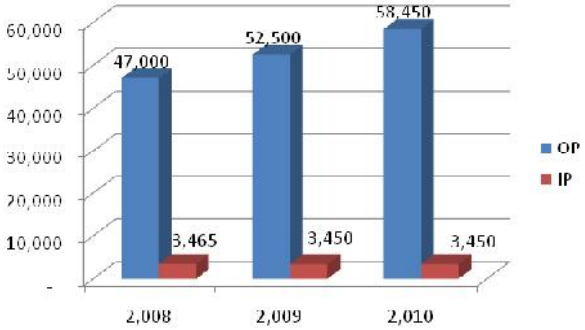


Figure 16.1 Temporal variation in number of patients per month (Source: Secondary data)

Table 16.1 Temporal variation in number of patients in major hospitals per month (Source: Local Body)

Sl. No.	Name of Hospitals	No. of OP /month	No. of IP/ month	No. of OP /month	No. of IP/ month	No. of OP /month	No. of IP/ month
		2008		2009		2010	
1	Govt. Taluk Hospital	22,000	870	25,000	850	28000	900
2	Moulana Hospital	24000	1950	24800	2000	25500	2100
3	Al-Shifa Hospitsal	18,000	1,500	19,000	1,600	20000	1600
4	Ramdas Clinic	4,500	550	5,000	500	7000	500
5	Amina Hospital	2,000	500	3,000	450	2800	400
6	Mumthaz Clinic	500	45	500	50	650	50
		47,000	**3,465**	**52,500**	**3,450**	**58,450**	**3,450**

The variation in the number of OP showed a steady increase as the years passed, whereas the IP showed a slight decrease in its number at the 6 major hospitals

It is evident from the temporal data that the variation in the number of OP showed a steady increase as the years passed, whereas the IP showed a slight decrease in its number at the 6 major hospitals. In 2010 there was about 58,450 OP and 3450 IP at the selected major hospitals per month.

16.3 Spatial distribution of health care facilities

The spatial distribution of the hospitals shows that they are located mostly along the major transport corridors.

The spatial distribution of the healthcare facilities shows that the higher order facilities like specialty hospitals are located mostly along the major transport corridors, around the Main Junction. However, lower order public healthcare facilities like public healthcentres and subcentres are fairly distributed all over the populated areas. Ensuring easy access to the major hospitals would satisfy the higher order heathcare needs of the public.

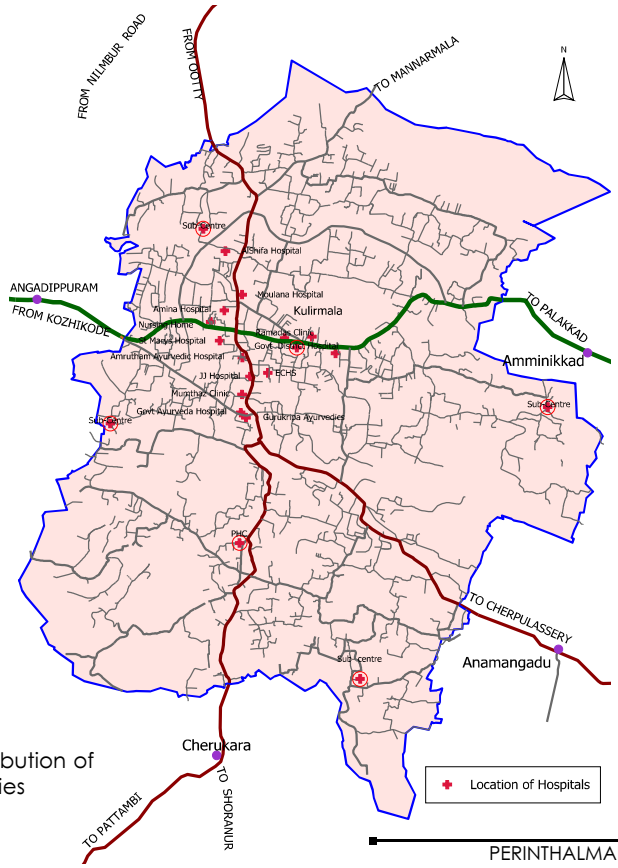


Figure 16.2 Spatial Distribution of Healthcare facilities

"A wise man should consider that health is the greatest of human blessings, and learn how by his own thought to derive benefit from his illnesses."

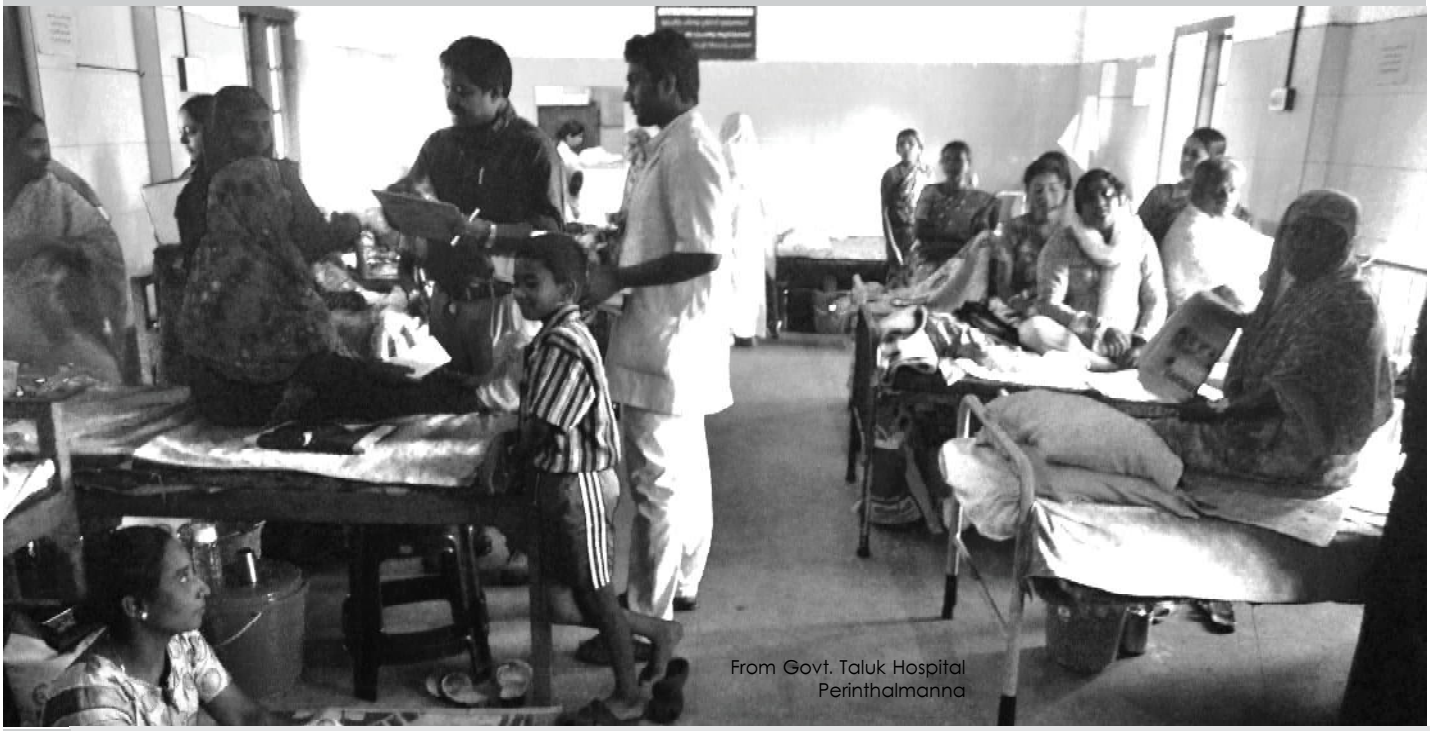
- Hippocrates

16.4 Problems and potentials

Besides the hospitals within the municipality, two large scale health care institutions exist just outside the town. One is MES Medical College in Angadippuram panchayat and the other is EMS Memorial hospital in Thazhekode Panchayat which is likely to become a Medical college soon. With the presence of all these facilities and the economies of scale arising out of it, the town is poised to be a health care destination. Adequate facilities for providing the patients with world-class and affordable healthcare services as well as ancillary infrastrcture in other sectors like recreation, commerce, housing etc. have to be developed in an integrated manner. One of the problems to be addressed by the town is the inadequacy of facilities in the Government Taluk hospital which cater to the health care needs of the poor and the commmon public.

16.5 Inferences

Even though the town has adequate high quality health care facilities, the facilities at the Government Taluk hospital need to be improved for providing quality services to the poor. The town is poised to be a healthcare destination and this would require an integrated effort in all sectors to position the town favourably.



From Govt. Taluk Hospital
Perinthalmanna


CASUALTY



CHAPTER 17

RECREATION AND OTHER CIVIC AMENITIES

Existing recreational facilities in the town are grossly inadequate.

17.1 Parks & Open Spaces

The town has no parks and open spaces which are open to public, except the Galileo Science Centre & Pedagogy Park.

17.1.2 Play Ground/Stadia

The municipality has one partially constructed stadium near the EMS educational complex. Even this is actually the play ground of the school complex converted into a public facility. The size of the stadium is not adequate to host professional matches or athletic events. Besides the stadium has no parking facility and is in the heart of the town adding to the congestion in the town. However, there is a national cricket stadium in Angadippuram, the adjacent panchayath.

Other playgrounds available in the town are attached to the three un-aided schools in the town (Valluvanad Vidya Bhavan, Presentation HSS and ISSHSS) which are not available for public use.

There are no indoor stadia or open air theatre in the town.

17.1.3 Theatre and Auditoria

There are four cinema theatres in the town. Three auditoria function in the town.

17.1.4 Problems and Potentials

The high cost of land hampers the development of recreational facilities in the town. However, due to the setting up of institutions like MES Medical College and Aligarh Muslim University off center campus in the adjoining LSGs, there is scope for development of urban centric recreational facilities in the town. The floating population due to these institutions and health care facilities in the town creates demand for such recreational facilities.

17.1.5 Inferences

The existing recreational facilities in the town are thoroughly inadequate even for the present population. Due to large scale educational and health care institutions in and around the town there is an unsatiated demand for recreational facilities in the town.

17.2 Other Civic Amenities

17.2.1 Town Hall



The municipality has a town hall with an approximate seating capacity of 1000. The town hall building is in a dilapidated condition and needs renovation. Besides, the parking facilities in the town hall is very limited.

17.2.2 Reading Room and Library

Five libraries, the V.K. Krishnamenon memorial public library, Cherukad library and research centre, Captian Lakshmi Memorial library, Edward club library and the Cosmopolitan club library are functioning in the town. Besides, the town has four reading rooms, one at Narangakundu, two at Eravimangalam and one at Pathaikkara.

17.2.3 Crematoria and Burial Grounds

There are a number of burial grounds attached to the mosques and churches in the town. There is one burial ground and cremation ground under the municipal ownership.

17.2.4 Police and Rescue Services

The town has a police station besides being the head quarters of a police sub division. The town also has a fire station and sub jail in the core area.

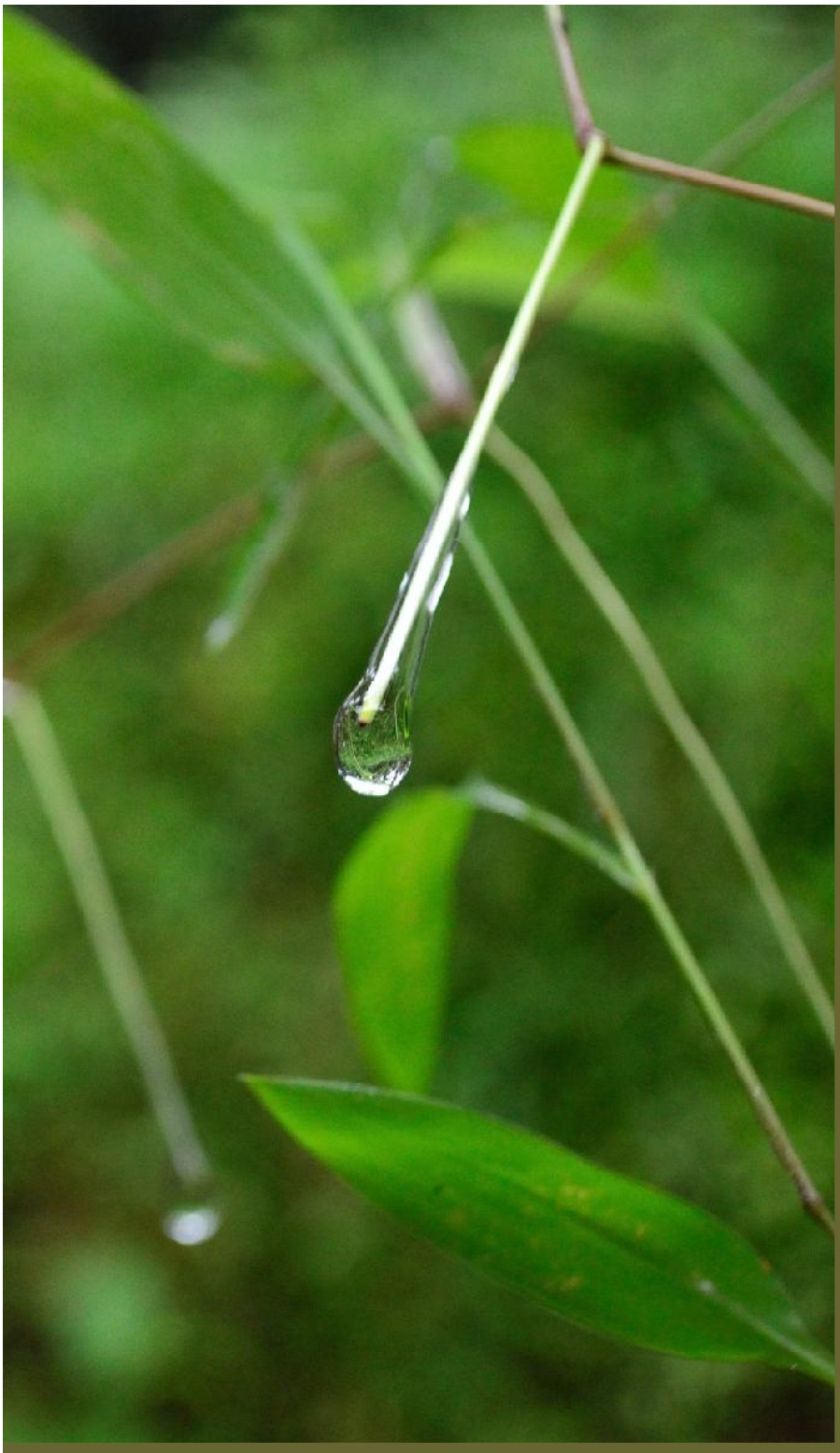
17.2.5 Inferences

The civic amenities in the town are not commensurate with the present population. Serious efforts are needed from the municipality to ensure adequate civic amenities to its inhabitants considering the projected population also during the plan period.



CHAPTER 18

SPECIAL CONCERN AREAS



18.1 BPL index
18.2 Scheduled castes and tribes
18.3 Living standards
18.4 Inferences

18 SPECIAL CONCERN AREAS

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

18.1 BPL index

The families are assessed using nine parameters, like housing, employment and educational status, female headed households, incidence of grave diseases, infant mortality, presence of senior citizens, etc in the State. A family which is characterised by four or more parameters out of this nine is considered 'Below Poverty Line'. As per BPL Survey (2009), 37.8% of the families in the town are classified as BPL. Figure 18.1 shows the concentration pattern of BPL families in different wards of the municipality.

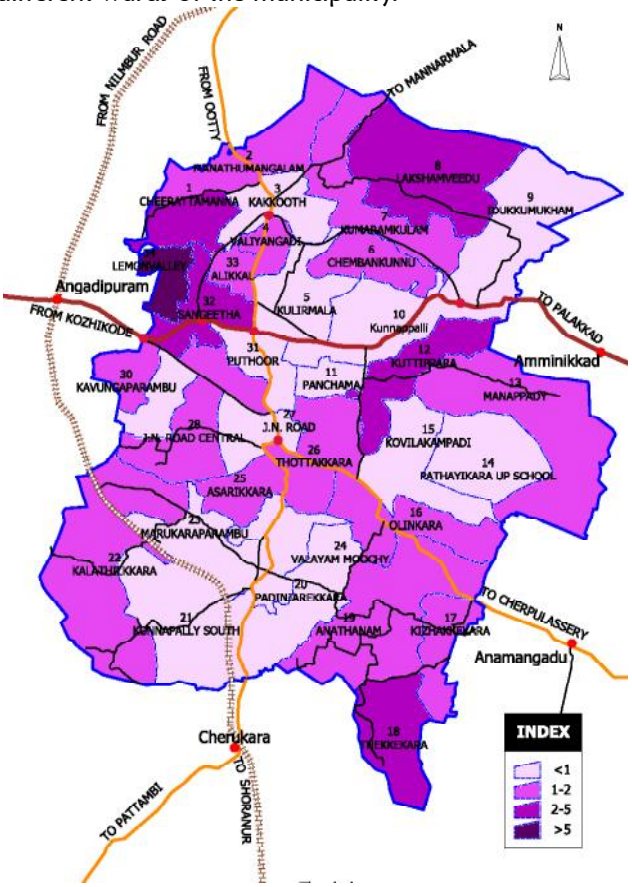


Figure 18.1 Concentration pattern of BPL families

> "There are people in the world so hungry, that God cannot appear to them except in the form of bread."
> - Mahatma Gandhi

37.8% of the families in the town are classified as Below Poverty Line.

According to the 2009 BPL survey there are 3886 families classified as BPL in the town. BPL index of wards 1,2,4,6,7,8,12,13,16,17,18,19,22,25,26,28,30,32,33,34 is equal to or greater than one in Perinthalmanna municipality.

According to the socioeconomic survey, the pattern of average monthly income per household is worked out and is shown in Figure 18.2. 8% of the households have an income of less than Rs. 1000/- per month. 21% of households earn Rs.1000/- to 3000/- per month. 28% of the households has a monthly income between Rs. 3000 and Rs. 8000/-. The remaining 43% of the households earn more than Rs. 8000/- per month. This gives an insight in to the prevailing economic conditions in the town.

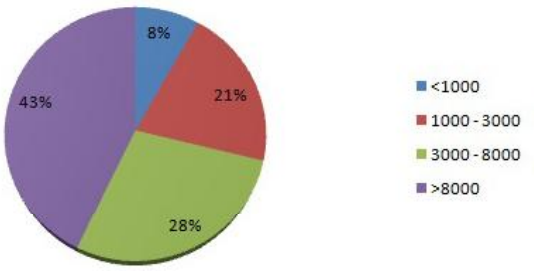


Figure 18.2 Monthly Household Income
(Source: Socio economic Survey 2012)

18.2 Scheduled Castes and Tribes

The SC population in the town as per Census 2011 is 10.41%. The concentration index of SC population in different wards of the municipality is given in Figure 18.3.

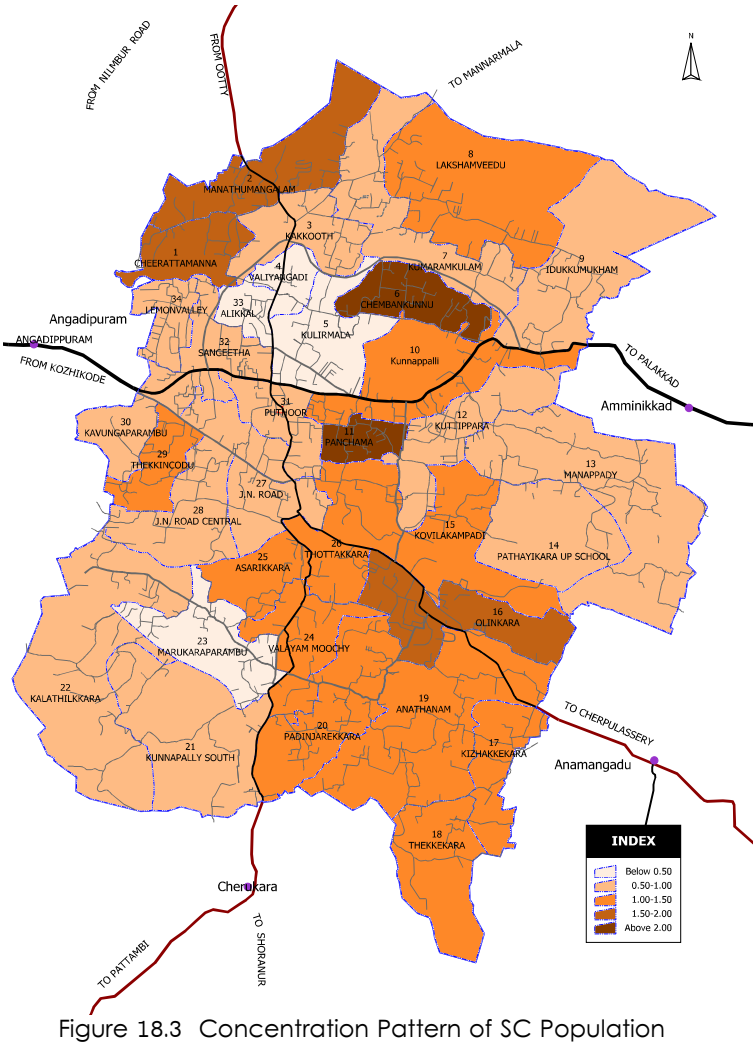


Figure 18.3 Concentration Pattern of SC Population

Out of the 3886 BPL families in the town now, 887 families, ie. 22.85% belong to SC, whereas only 10.41% of the population belongs to ST.

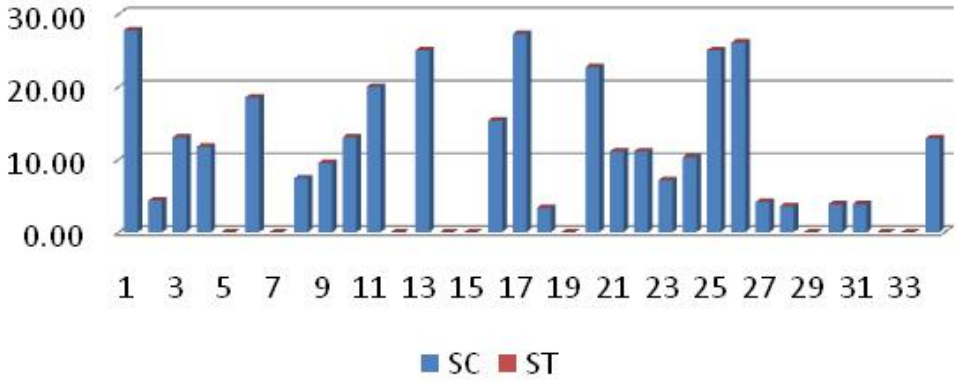


Figure 18.4 Percentage of SC/ST households

Wards 1,13,17,19,25 & 26 have more than 20% households belonging to SC category.

The literacy among the SC population is 72.13% (Census 2001) which is less than the town average. SC male literacy (2001) is 75.44% and female literacy is 68.87%.

Out of the 3886 BPL families in the town now, 887 families, ie. 22.85% belong to SC, whereas only 10.41% of the population belongs to SC.

There are only 103 persons (0.2%) belonging to ST in the town according to Census 2011, including institutional population. The literacy rate of ST population is even less than that of SC as per Census 2001. The total literacy rate is 40.48% among the ST. Male and female literacy rates are 4.48% and 36.84% respectively for ST population in the town. At present the town has 11 ST families belonging to BPL ; almost the entire ST families in the town belong to BPL. The sex ratio of the ST population is only 826 in contrast to that of the town.

18.3 Living Standards

Some measure of living standards was obtained by indirect means during the socio economic survey. Table 18.1 gives the percentage of people owning some gadgets which are indicative of living standard.

Table 18.1 Living Standards
(Source: Socio Economic Survey 2012)

Sl. No.	Gadget	% of households
1	Air conditioner	7.97
2	Refrigerator	41.18
3	Television	85.66
4	Washing machine	20.22
5	Telephone	35.54
6	Mobile phone	95.10
7	Computer	14.09
8	Internet connection	5.27
9	Gas connection	88.24

The vehicle ownership is also indicative of a household's prosperity. 29.17% of the households own two wheelers and 17.03% own four wheelers. Three wheelers are owned by 5.51% of the households. Since three wheelers are not used for personal transport in general, this means 5.51% of the households depend on three wheelers for their livelihood. Bicycle ownership is limited to 3.8% of the households mainly due to lack of awareness and unsafe condition of the road traffic.

18.4 Inferences

Only 10.6% of the population belong to SC/ST in the overall population. But, the SC and ST population is socially backward in general when we compare literacy, poverty, sex ratio etc. The ownership pattern of gadgets indicates a strong middle class population in the town.





CHAPTER 19

ENVIRONMENT AND HERITAGE



19.1 Environment: Present scenario
19.2 Sensitive areas
19.3 Conservation efforts
19.4 Problems & Potentials
19.5 Heritage
19.6 Inferences



19 ENVIRONMENT AND HERITAGE

19.1 Environment: Present scenario

The Perinthalmanna town as a whole is not heavily polluted due to the absence of large scale industrial units in the town. The town being a basin surrounded by hillocks, drains towards the west. This natural drainage is hampered in many places by human intervention causing stagnation of water in low lying (mostly paddy fields) areas. The situation is aggravated by letting out waste water to the natural drainage channels by various activities alongside the channels. Besides the squalor created by this stagnation, the water quality is also adversely affected. Air pollution due to vehicular traffic is limited to a very small area (the main junction and its environs) in the town centre. The site for solid waste treatment is far from the inhabited areas. Even though the treatment facilities are not fool-proof, this doesn't have a high impact due to uninhabited surroundings.

19.2 Sensitive areas

The town has elevated hillocks on three sides. So, the steep slopes on the side of the hillocks, the natural drainage channels draining these slopes through the paddy fields in two plains and the paddy fields depending on this intricate web of water courses form the components of environmental sensitivity in the town. The town has 357.31 ha of paddy fields. Only a fraction of this area is cultivated. The town has 63.7 km of arterial drains feeding the paddy fields.

19.3 Conservation efforts

The Kerala Conservation of Paddy and Wet Land Act, 2008 is in force in the municipality. Large scale conversion took place due to economic pressures and the legislations were not effective in preventing such conversions. Likewise, the land belonging to the arterial drainage is encroached upon in a number of places. In the absence of a master plan for the town, such physical controls had been difficult. Figure 19.1 shows environmentally sensitive areas of the Perinthalmanna Municipality.

"On land and in the sea our forefathers lived and survived in this environment, they were able to do so because they recognized the need to conserve it, to take from it only what they need to live and to preserve it for the succeeding generations."

- Sheikh Zayed Bin Sultan Al Nahyan. (Founder of the United Arab Emirates)

19.4 Problems & Potentials

The letting out of waste water into the storm water drainage is one of the most severe environmental issue in the town. The paddy fields have become uncultivable due to lack of continuity in some places and bad quality/shortage of water. But the conservation of paddy fields is required not only for the agricultural production but mainly for other functions like providing open spaces, water storage etc. So conservation of paddy fields is important for the healthy and environment friendly development of the built environment. The town has potential for further densification in the already inhabited areas and scope for leaving the cultivable paddy and other environmentally sensitive land alone.

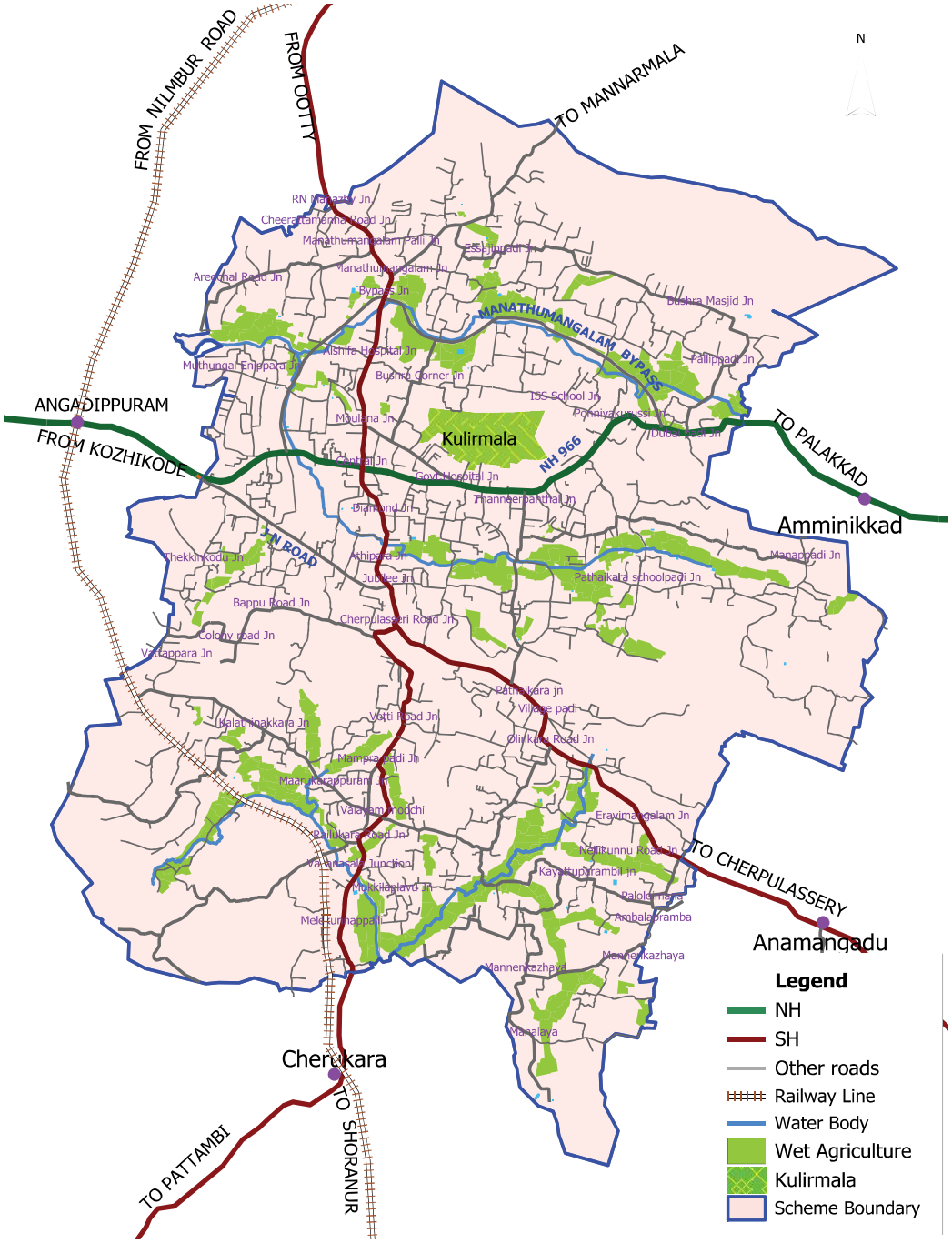


Figure 19.1 Environmentally Sensitive Areas



Pathaikkara Mana

The Perinthalmanna town as a whole is not heavily polluted due to the absence of large scale industrial units in the town.

19.5 Heritage

The man made heritage features reflect on the cultural ethos of the place. Perinthalmanna, being the central town in the erstwhile Valluvanad Kingdom has a number of heritage buildings around. Sree Thirumandhamkunnu temple and Tali temple are just 3 km from the town centre in the Angadippuram panchayat. The Poonthanam Illam, the residence of the great poet Poonthanam Namboothiri is in Keezhattur panchayat near to the town. The building is more than 500 years old and is being owned and maintained by Guruvayoor Devaswom. Likewise the ancestral house of Sri. EMS Namboothirippad, Elamkulam mana is also just outside the town. The Pathaikkara mana in Perinthalmanna is also an important heritage building.

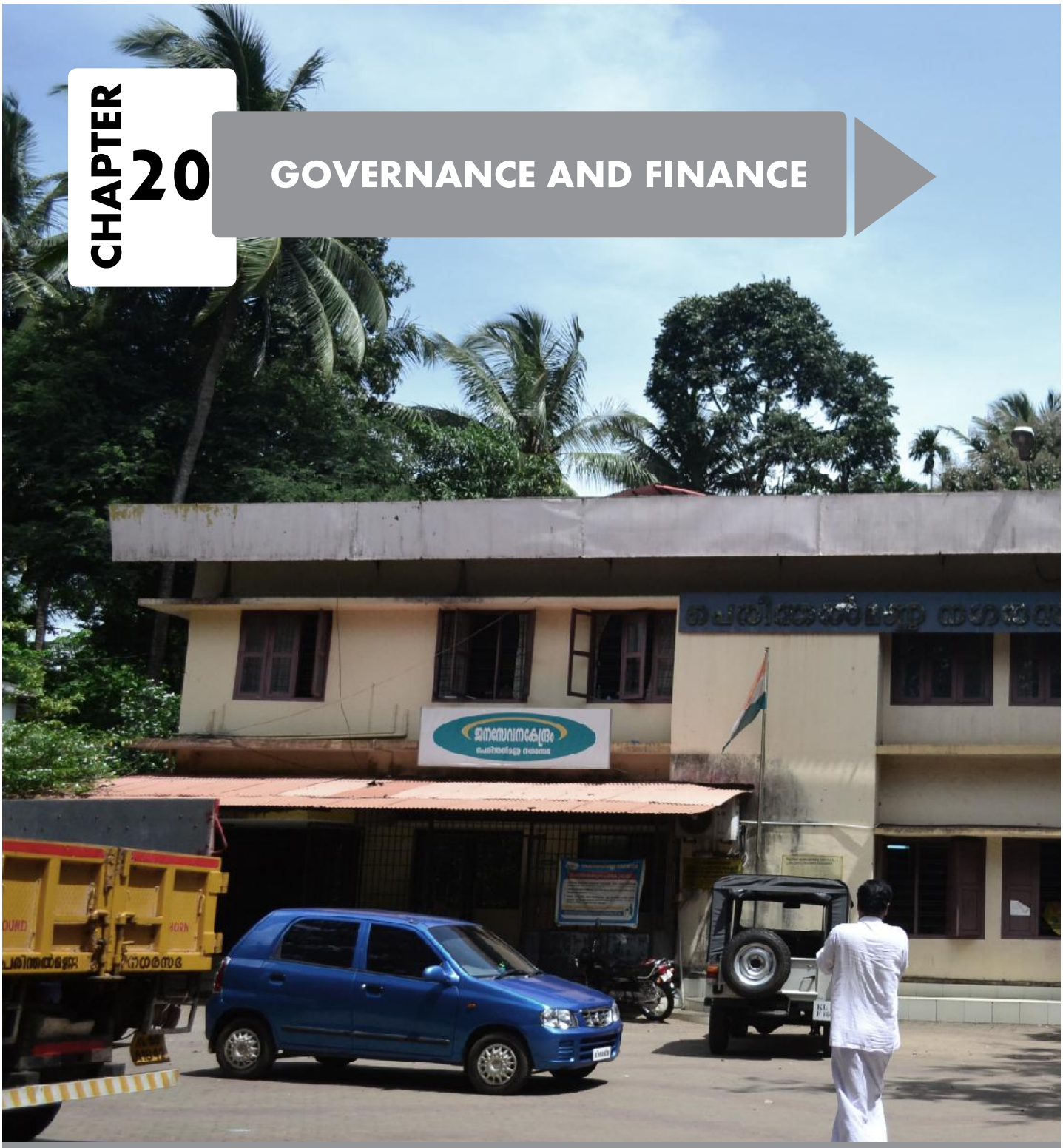
Even though most of these structures are outside the municipality, all these heritage buildings can be brought into a circuit for which Perinthalmanna town can be base station.

19.6 Inferences

Letting out waste water into storm water drains and manmade interruption to the drainage channels are the most severe environmental problems faced by the town. Development control regulations shall address the environmental conservation issues. The town can be a base station for visiting heritage sites and buildings all over Valluvanad area.

CHAPTER 20

GOVERNANCE AND FINANCE





20.1 Development administration
20.2 Municipal finance
20.3 Governance
20.4 Existing source of funds
20.5 Problems and potentials
20.6 Inference

20 GOVERNANCE AND FINANCE

The financial position of urban local self governments is very precarious throughout the nation except for a few very large urban centers.

20.1 Development administration

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 co-ordinated by the municipality. State plan schemes of these departments are channelled through the municipality.

20.2 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 Perinthalmanna 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. This source 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.

Another source of own revenue for the Municipality is the entertainment tax which is shrinking due to reduced public interest in cinema theatres.

Receipts from municipal properties also could be a major source. In fact Perinthalmanna municipality has more income under this head than that from rates and taxes. However, the full potential of this source of revenue is not utilized. The Municipality has a number of developable plots, the development of which is expected to boost the financial resources of the Municipality to the extent of self sustainability. Receipts from properties transferred to the Municipality by the State government is also a considerable source of income.

The municipal budgets from 2009-10 to 2012-13 are presented in Table 20.1 and Table 20.2 respectively.

"The best, quickest and most efficient way is to build up from the bottom. Every village has to become a self-sufficient republic."

- Mahatma Gandhi

Table 20.1 Municipal budgets – (Revenue Account) (Source: Local Body)

No.	Item	Amount in Lakhs			
		2009-10	2010-11	2011-12	2012-13
	INCOME				
1	Municipal taxes & rates	249.70	170.23	179.27	377.77
2	Income from other legislations	22.81	25.10	22.10	23.50
3	Income from municipal property	637.76	255.89	202.48	1552.45
4	Municipal fees	78.26	74.78	50.39	135.81
5	Grants and aid from the Govt.	111.05	127.18	138.92	153.70
6	Non plan allocations to transferred institutions	26.16	32.52	25.70	30.20
7	Pensions	50.30	56.09	91.30	150.15
8	Miscellaneous	104.00	50.55	46.50	52.00
9	Total	1280.04	792.34	756.66	2475.58
	EXPENDITURE				
1	Tax collection expenses	81.48	97.49	186.55	251.25
2	Public works	133.54	116.08	159.10	224.15
3	Town planning	3.65	2.65	7.19	8.88
4	Education	5.63	4.13	3.18	4.35
5	Water supply & drainage	11.50	12.25	9.75	12.00
6	Public health	97.27	100.86	124.82	180.46
7	Street lighting	27.50	29.10	43.00	38.00
8	Property maintenance	7.15	6.72	7.35	12.40
9	Transferred institutions	27.20	37.94	7.70	5.50
10	Pensions	50.83	56.59	91.30	150.15
11	Municipal development activities (transfer to capital A/c)	296.56	198.47	269.49	1654.05
12	Poverty alleviation	21.00	11.53	10.01	43.00
13	Miscellaneous	7.75	2.80	6.00	5.00
14	Total	771.06	676.61	925.44	2589.19
15	Surplus/(deficit) 9-14	508.98	115.73	(168.78)	(113.61)

The municipality has a number of developable plots, the development of which is expected to boost the financial resources of the municipality to the extent of self sustainability.

Table 20.2 Municipal budgets (Capital Accounts) (Source: Local Body)

No.	Item	Amount in Lakhs			
		2009-10	2010-11	2011-12	2012-13
	Income				
1	Grant from government	2634	2195	947.50	1103.50
2	Loan from government	200	200	100	-
3	Loan from financial institutions	125	475	150	100
4	Grant: Decentralised planning	271.49	298.47	330.83	400.00
5	MLA/MP fund	15.00	20.00	15.00	5.00
6	Transfer from revenue A/c	296.56	198.47	269.49	1654.05
7	Poverty alleviation (transfer from revenue A/c	21.00	11.53	10.01	43.00
8	Total	3563.05	3398.47	1822.83	3305.55
1		66.00	46.45	64.00	108.00
2	Public works-municipal development	3117.26	2966.75	1243.00	2588.50
3	Public health & welfare	62.00	48.00	133.50	95.30
4	Poverty alleviation	21.00	21.00	25.00	400.00
5	Street light	6.30	2.50	5.00	-
6	Endowment	-	0.30	0.50	-
7	Plan scheme of transferred institutions	10.0	10.0	10.00	-
8	Decentralized planning	271.49	298.47	330.83	-
9	Water supply & drainage	9.00	5.00	-	-
10	Other plan schemes	-	-	11.00	103.75
	Total	3563.05	3398.47	1822.83	3305.55

The increase in expenditure is not commensurate with the increase in income.

The budget show over dependence of the municipality on state funds. The increase in expenditure is not commensurate with the increase in income. The Municipality has anticipated deficits during the year 2011-12 & 2012-13 while preparing the budget itself. The advance to be received on renting out municipal buildings is considered as revenue income during the year 2009-10 and 2012-13. This is only propping up figures since this income can neither be counted in toto nor can be repetitive over the years. There is no leverage in financial affairs of the Municipality. Even though last two years show deficit, the revenue stream is not tapped to the fullest extent indicating poor financial management.

The management of spatial data for governance and fine tuning of revenue stream is lacking in this town, as elsewhere in the state.

20.3 Governance

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.

20.4 Existing source of funds

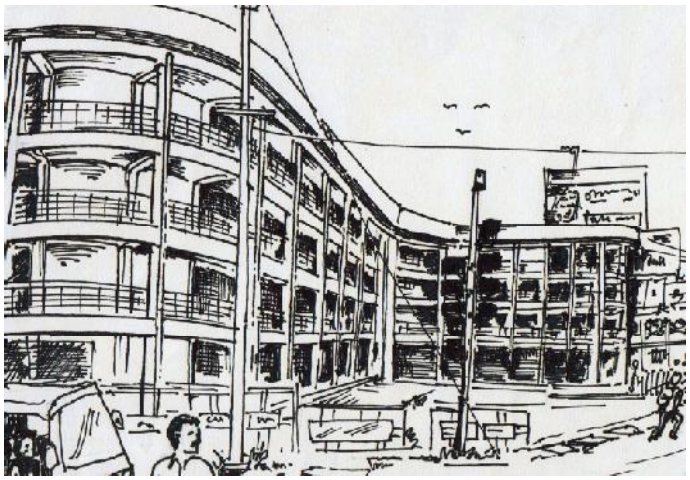
Major sources of revenue income for the Municipality are municipal rates and taxes, income from municipal properties and grants from the state government. The municipal rates and taxes contribute 15.26% of the revenue income during 2012-13. But this is due to the counting of the rent advance from the new shopping complex. If this figure is adjusted, the share of municipal taxes and rate in the revenue income becomes 25.6%. The income from properties comes to 37.44% and the share of grant from state government is 10.42% (both after the adjustment mentioned above). In the capital account 45.64% of the funds are provided by the state plan schemes. This indicates the need to concentrate on efficient collection of rates and taxes and enhancing income from properties for the financial health of the municipality.

20.5 Problems and potentials

The major problems faced by the municipality in the finance sector are the leakage in rates and taxes and paucity of funds for development activities. The Municipality has a number of prime plots in the town which can be developed (through PPP mode or otherwise) for enhancing the income of the municipality.

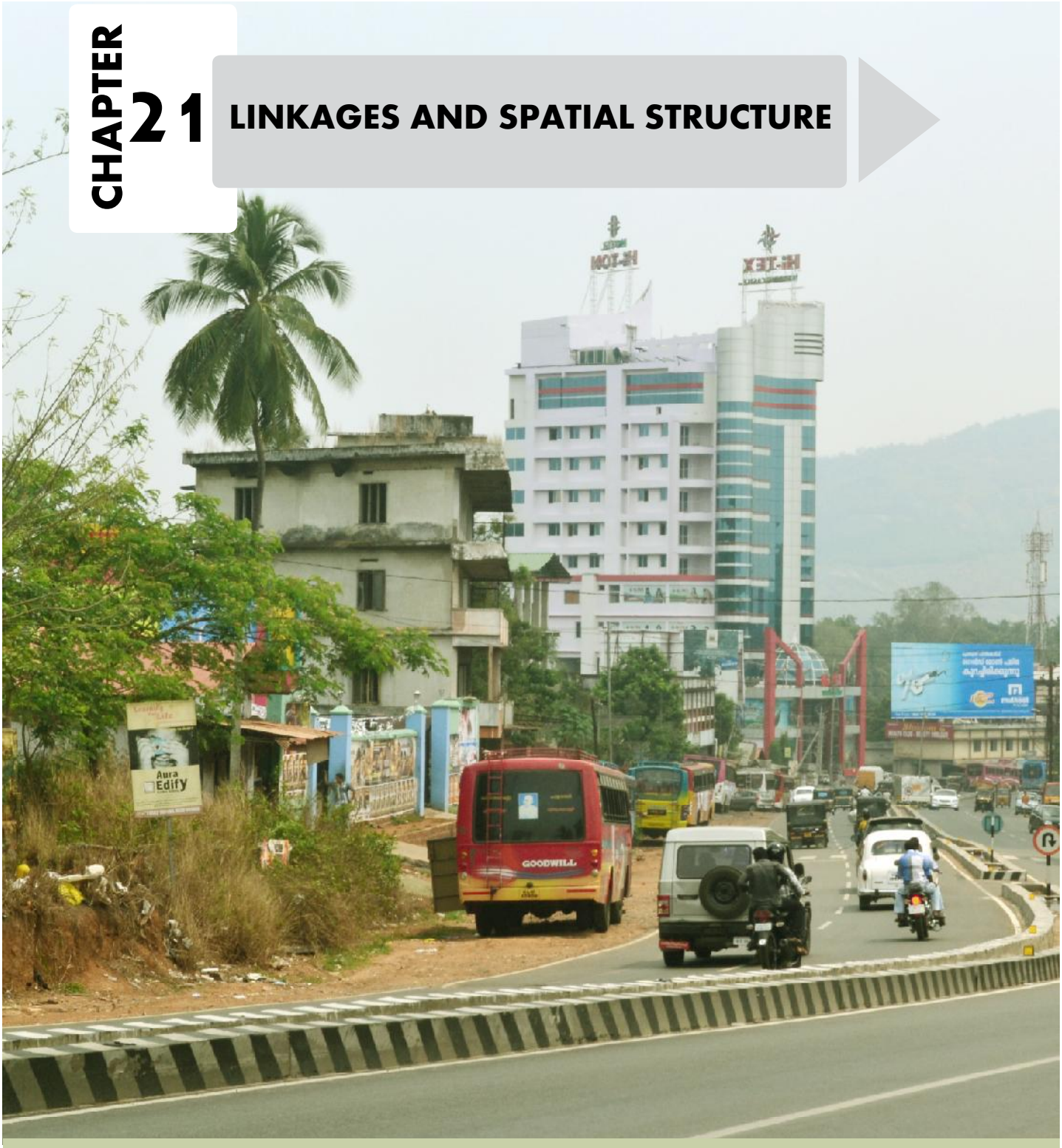
20.6 Inference

The financial position of the municipality is not very strong. The fiscal surplus of the municipality during 2009-11 is not an indication of financial health, but of poor financial management. However, this trend is weaning off. The municipality has tremendous potential for development of financially remunerative projects for sourcing funds for urban development.



CHAPTER 21

LINKAGES AND SPATIAL STRUCTURE





21.1 Linkages
21.2 Spatial structure
21.3 Inferences

21 LINKAGES AND SPATIAL STRUCTURE

21.1 Linkages

Intra sectoral relationships of various development parameters are examined in the sectoral analysis. The impact of some of these parameters are felt across the sectors and hence inter sectoral linkages also need to be explored while formulating the integrated development vision. Such prominent linkages are discussed in the following sections.

21.1.1 Effect of population growth on various sectors

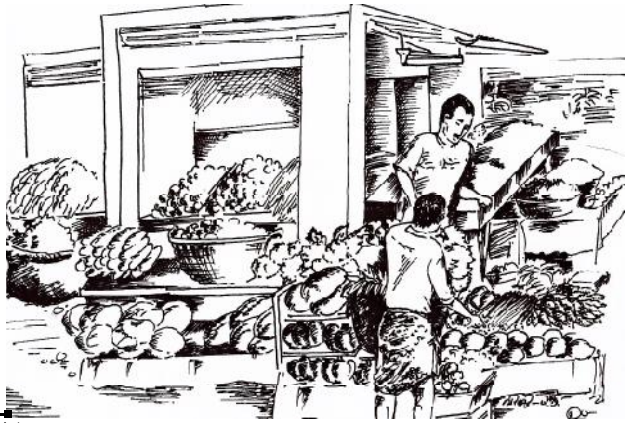
Changes in population has pervasive effect on all the development sectors since the extent of human activity and thus economic activity depends on the population size to a large degree. The effect of population growth is direct on sectors like water supply, electricity, housing, traffic and transportation, education, health care etc. where there is a direct consumption. The rest of the sectors experience secondary impacts.

No perceptible impact is anticipated in industrial sector in Perinthalmanna town due to increase in population since the employment in industrial sector is not very significant in the town. Besides, increased consumption due to population growth is not likely to be met by additional industrial production in the town since the share of internal production in the consumption pattern is also negligible in the town.

The trade and commerce shall be affected by population growth only beyond a threshold population. The distribution of basic necessities of life contributes only to a part of the total trade and commerce that take place in a town. The rest of the trade, ie. beyond the distribution of basic necessities of life, depends on surplus income. So, even though there is an increase in trade due to population growth, the trade volume is more elastic towards the surplus income and thus the significant changes are often related to the change in surplus income rather than population growth. The increase in trade due to increase in demand for basic necessities shall not be apparent if the surplus income is reducing. Trade and commerce take off at an accelerated pace when both the population and the surplus income grows in tandem.

The growth of population has no bearing on the performance of tourism sector in the town. Similarly, in the case of animal husbandry, agriculture and fisheries also, the town's population has not much influence since such produces consumed in the towns are generally imported to a large extent and are not locally grown.

Changes in population has pervasive effect on all the development sectors since the extent of human activity and thus economic activity depends on the population size to a large degree.



The human activities grow exponentially with population growth and this translates to increase in transportation needs of the people. The physical improvement to the transport network shall be attempted with this in view. The demand for water supply, sewerage system, solid waste management system, energy, education, health care, recreational and other civic amenities has direct relations to the increase in population. But physical infrastructure for these services cannot be built incrementally. Hence these facilities are to be developed in a phased manner with regard to the respective threshold population. The demand in housing sector also has direct relation to growth in population. However, development in this sector can be taken up in an incremental manner to an extent.

21.1.2 Land use changes and environment

The land use changes invariably change the environmental factors in the region. Depletion of paddy fields and larger building foot prints due to scattered, low density residential development are the major land use issues related to environment in the town. There has been a considerable reduction in both the area of paddy fields and the extent under cultivation. The agricultural production at present in the town is not a significant economic factor in an urban context. But the paddy fields essentially act as green open spaces and as reservoir of water during rains preventing floods and fast run off. The dry cultivation provides green cover and helps in carbon sequestration. Changes in this land use shall adversely affect the micro climate and increase net carbon emission. The land use policy decides the compactness of the built form. A less compact built form (with more than absolutely necessary intrusion of residential, commercial and such other land uses requiring built space in to agricultural/open land uses) shall mean wider building foot prints. This shall result in putting more land under manmade structures which is detrimental to environmental quality. Besides, the scattered, low density development necessitates costlier systems for providing basic amenities like water, sewerage, energy, roads, waste management etc. All these call for a compact nature of development in order to maintain required levels of environmental quality. The land use pattern has profound impact on micro climate also. A compact development shall prevent wide spread heat islands in the town. Another environmentally fragile physical component in the town is the network of drainage channels interwoven with the paddy fields. With the loss of paddy fields due to land use conversions, these channels are broken in many places by human intervention hampering its smooth functioning. Besides, these channels are widely polluted by waste water ingress.

Depletion of paddy fields and larger building foot prints due to scattered, low density residential development are the major land use issues related to environment in the town.

The distribution of various land uses in the town decides the traffic pattern of the town and hence has environmental implications. So, the changes in land use shall be managed in such a way that the traffic and transportation needs are optimized causing less pollution from vehicular traffic and less consumption of precious fossil fuels.

The small industrial units have come up in various locations in the municipality in a scattered manner due to the entrepreneurs' preference for utilizing the land which is already under their possession rather than acquiring the required land in an earmarked industrial estate.

21.1.3 Industrial sector - effect on environment, land use and employment

Micro, small and medium enterprises (MSME) sector is an important generator of employment. The small and micro enterprises in the town are not concentrated in any particular location. The municipality's efforts to bring in small enterprises to an industrial estate have not succeeded. The small industrial units have come up in various locations in the municipality in a scattered manner due to the entrepreneurs' preference for utilizing the land which is already under their possession rather than acquiring the required land in an earmarked industrial estate. Considering the tremendous potential for generation of employment, the MSMEs have to be facilitated in the municipality. The establishment of non-polluting small scale units in residential and commercial areas are to be viewed in this backdrop. The development of necessary infrastructure required for industrial development such as good road connectivity, availability of water and electricity etc also should be attempted to promote industrial development in the municipality.

In the case of medium and large scale industrial units, earmarking of parcels of land owned by private individuals who have no inclination to start an industrial unit in the master plan is to be avoided. For non nuisance/non-polluting industries of this scale, the location cannot be earmarked in advance due to the problems associated with the acquisition of land and uncertainity regarding the establishment of such units. In such instances considering the location decisions on a case to case basis only is feasible.

There is an issue as to where a polluting (with adequate pollution abatement measures)/nuisance type industry has to be located in the municipality if it is essential from other (economic/locational/strategic) consideration. The solution is to provide for allowing such industries in the less inhabited areas in the municipality with strict guidelines for site selection prior to establishment of such industry and control of other land uses around such industries after their establishment.

21.1.4 Effect of various sectors on employment

The small scale industrial sector in considered to be the prime provider of employment in small and medium sized towns. But in the case of many towns in Kerala, including Perinthalmanna, this sector is not the prominent employer. The tertiary sector, mostly various services, employ more people than industries. Trade and commerce is an important employment sector, both direct and indirect. However, the employees in this sector are mostly unorganized and hence do not reflect much on the statistics. The fluctuation in employment level is also high in this sector. Tourism, even though not developed in the town as an employment sector, has much potential in creating more jobs. The investment required to create unit employment is low in tourism sector. Another area of interest which can bring in employment to the town is IT related activities, as the town has a number of qualified professionals in this area. Even though studies based on physical features suggest agriculture, animal husbandry and SSI as thrust areas of employment in the town, the number of cultivators and agricultural labourers are on the decline in Perinthalmanna. This trend is not likely to be reversed without immediate intervention. So, increase in productivity with increased technology inputs is imminent in this sector. Organized farming does exist in a few holdings in the Municipality, which needs to be strengthened and rolled

The tertiary sector, mostly various services employ more people than industries.

out. Strengthening of animal husbandry and inland fisheries can also provide better livelihood to atleast a small section of the society, especially the women, while ensuring better quality animal products for all. Women and men self help groups, employees under employment guarantee schemes etc can be put to efficient use for the stregthening the primary sector activities in the Municipality. The town being a revenue division head quarters attract a number of sub district level offices of the government and some of the private sector concerns. However, the employment in this sector is almost at a saturation level and is not expected to grow at a fast pace. Education and health care are the major providers of organized employment in the state. In addition to the direct employment created by these sectors, development of these sectors create number of secondary employment besides making the population more employable. In the case of Perinthalmanna, the health care sector is already well developed so that conditions are ripe for developing and positioning the town as a destination of health care tourism. This will create a jump in employment both in health care and tourism sector. Likewise improvement to the physical infrastructure of the town shall attract employment generating activities to the municipality. So, providing better infrastructure is also a key to creation of jobs in the town. Hence tourism, IT services, education, health care including health tourism and physical infrastructure are the thrust areas for employment generation in the town. The development plan addresses this issue in two ways. One is by providing for improvements to physical infrastructure and creating new infrastructure facilities in the thrust areas. The second approach is by putting in appropriate policy measures for the development of the identified thrust areas.

21.1.5 Changes in traffic & transportation needs due to growth in various sectors

The relation between demand for traffic & transportation infrastructure and different sectors of economy is a very dynamic one. The growth in any sector of economy results in instantaneous changes in the demand pattern for transportation infrastructure. However, transportation infrastructure cannot be added in incremental manner. This can be expanded only in a phased manner. Hence careful consideration of the traffic generation aspects is required in any development plan while dealing with development in major sectors of economy and social infrastructure.

The location policies regarding medium and large industries should take care of the connectivity aspect also. The newly located industries are to be encouraged to use the existing network to the extent possible.

The growth in industrial sector calls for increased freight traffic both in bound and out bound. The location policies regarding medium and large industries should take care of the connectivity aspect also. The newly located industries are to be encouraged to use the existing network to the extent possible. The trade and commerce sector also poses the same problem. In the case of both the sectors, since the increase in demand shall be mainly for freight transport, development of a truck terminal is essential. So, a truck terminal, easily accessible from the network is a pre-requisite for development of industries and trade & commerce sector. The increase in trade and commerce increases the intra city traffic also. So, development of trade & commerce meant for local consumption should be decentralized to the maximum extent possible in order to reduce new generation of intra city traffic. These efforts shall decongest the town centre, especially the main junction.



Development of educational and health care sectors means establishment of institutions of higher order also. This shall increase the passenger traffic. The locational decisions of such institutions shall be taken so that the existing network is suitably used by the additional demand and development of the network is possible in a phased manner. Otherwise, the cost of development of new links in the network shall hamper the pace of development in these sectors. This is relevant for Perinthalmanna since new institutions of higher order are anticipated both in and around the town.

The creation of new recreational facilities shall also result in changes in demand pattern. The trips generated by these developments shall be mostly intra city in nature. Hence the location of such facilities should be decided considering the need to segregate through traffic and intra city traffic. Whereas development in tourism (and health tourism) sector means an increase in inter city traffic. So, such developments should be easily accessible from the arterial or sub-arterial roads.

21.1.6 Changes in traffic & transportation needs due to changes in land use

The land use pattern and the traffic pattern are interwoven inexplicably. The traffic pattern is the dependant variable in the relation and various models try to define this relation. The changes in traffic pattern due to changes in land use can be studied using these models to a reasonable level of accuracy. The land use pattern can change mainly in two ways. One is due to growth in population and subsequent increase in economic activities. The other is due to changes or increase in the pace of economic activities due to other impacts rather than population growth. The population growth is apparent mainly on the residential land use, its geographic spread and densification. The trips generated increases in proportion to the growth in population and the origin of these trips are decided by the spatial distribution and density of residential land use. The change is generally in increase in volume and not in pattern since the various destinations are normally in place in the case of Perinthalmanna since no major shifts in social infrastructure is anticipated.

The distribution of commercial land use has great impact on both the intra city and inter city traffic demand. This indicates need to locate commercial land use easily accessible from arterial and sub-arterial roads

The land use changes attributable to changes in the pattern of economic activity recast the existing traffic pattern and needs special consideration. The distribution of commercial land use has great impact on both the intra city and inter city traffic demand. This indicates need to locate commercial land use easily accessible from arterial and sub-arterial roads. But the experience in the state in this regard is the occurrence of ribbon development which is detrimental to the proper development of roads and result in inefficient use of land. So care shall be taken to prevent ribbon development while considering development of commercial land use along the arterial and sub-arterial roads. The attempt to re-route intra city traffic away from NH also shall prompt dispersion of commercial use, discouraging ribbon development.

The draft housing policy, 2011 of the Government of Kerala upholds the need for adequate and affordable housing for all

21.1.7 Spatial distribution of trade & commerce: effect on real property values and equitable housing policies

The draft housing policy, 2011 of the Government of Kerala recognises the right to adequate housing based on the covenant of United Nations on economic, social and cultural rights and the Article 21 of the Constitution of India. The trend in urban development in the state had been such that more and more people are forced to out migrate from the towns. The draft housing policy upholds the need for adequate and affordable housing for all. The spatial distribution of trade and commerce activities has a significant impact on the land value in any town. Development of a speculative market on land in the State cannot be ignored. The land banks amassed by private individuals in the State play a vital role in this speculative market. Investments are being made in this market on land for speculative purposes and only a small fraction of the buyers are real users. Due to such multiple transactions, the end user of the land ends up paying a highly jacked up price which seriously affects the economic viability of the venture. The increase in land value in commercial zones has a ripple effect on the price of residential plots also. This issue can be addressed in a development plan by ensuring adequate spread of commercial land use and making adequate area available for commercial development so that pressure on commercially developable area is released. This will affect the land value in residential area also since there will not be any unsatiated demand for commercial use and the resultant attempts by the trade and commerce activities to intrude into residential areas. The extent zoned for residential use also should be adequate so that the demand for more houses could be met. Another provision that shall reduce the pressure on land for housing is allowing low density EWS and LIG houses in a restricted manner in dry agriculture areas. These policy interventions through zoning (in extent and zoning regulations) are expected to increase the availability of land suitable for residential purpose and hence reduce demand driven increase in land value.

21.1.8 Tourism and environment

Tourism and environment move in a vicious circle. Certain level of environmental quality is a must for healthy development of tourism sector. But, unbridled development in tourism sector can adversely affect the environment. Well developed tourism destinations often lose their charm due to deterioration in environmental quality. The Perinthalmanna town has a serene environment to start with. The places of tourist attractions lying around the municipality are mostly in environmentally fragile areas. So, maintaining the environmental quality should be given top priority while formulating new tourism projects. Provision of basic amenities for the anticipated number of visitors is a must. New concepts like e-toilets etc merit consideration in this regard. The health tourism is expected to take off in the town. Hence, the waste management practices (for both solid and liquid waste generated by the tourism activities) should be state of the art and should not interfere with biotic system in any case since bio-medical waste shall be present. Negligence in this regard shall gradually kill the industry and the municipality shall be let alone with a degraded environment and hence should be taken care of in the planning stage itself.

Maintaining the environmental quality should be given top priority while formulating new tourism projects

The approach paper to the twelfth five year plan, released by the Planning Commission of India, aims at faster, sustainable and more inclusive growth.

21.1.9 Inclusive growth in various sectors

The eleventh five year plan of the Country focused on inclusiveness. This specific focus in the eleventh plan has helped creating awareness and institution building for inclusive growth. The approach paper to the twelfth five year plan, released by the Planning Commission of India, aims at faster, sustainable and more inclusive growth. Inclusiveness, being a multi dimensional concept, is difficult to assess. The concept can be explained in terms of liveability, poverty alleviation, access to health, education, basic amenities etc in general. Housing is the most prominent component of inclusive growth in the context of a development plan. Adequate and affordable housing should be ensured to all by direct intervention and/or policy measures to promote affordable and decent housing for the poor. The road connectivity, availability of water supply, electricity, educational facilities, health care facilities, recreational options and other amenities are addressed by the development plan. An equitable distribution of such amenities is targeted by this development plan which shall improve the inclusiveness in urban development. In the trade and commerce sector, recognizing the street vendors as legitimate entrepreneurs addressing the shopping needs of the common man is a big step towards inclusive growth. By this initiative the street vendor is no more a person to be taken off the road for illicit occupation, but someone whose trade is to be facilitated by the public authority in the interests of the common man. The attempt is to share part of the demand for trade and commerce and the profit therefrom with the poor who ekes out a livelihood by peddling goods for day to day use. Besides, the common man receives his supplies at reduced prices since the overhead expenses are minimal for the street vendor.



In the industrial sector, allowing micro enterprises in residential and commercial zones is a policy measure for ensuring inclusive growth in the sector. The zoning regulations in general have to be lenient towards the housing needs of the poor, being inclusive. The water scarcity in some wards of the municipality needs serious consideration in the development plan since such areas are inhabited by the marginalized population in general. The spatial distribution of educational and health care facilities is also important from the inclusiveness point of view. Access to school and primary health care facilities at walkable distance is essential for bringing in inclusiveness in the growth of these sectors. Ensuring proper sanitation (by giving sanitary toilets, efficient collection of wastes, abatement of waste water logging etc) should be given top priority in alleviating slum like conditions within the municipality.

In the traffic & transportation front, widening of interior collector roads so that mass transport systems like buses can reach the remote habitations, measures for the safe passage of pedestrian traffic etc can be considered as attempts at inclusive growth. In the energy sector no additional effort is required since the town is almost fully electrified. Various policy and other measures for creating employment in the town shall also contribute towards inclusive growth.

The benefits of energy saved by land use planning measures are of long term and hence need careful consideration.

21.1.10 Energy efficiency and land use

Energy efficiency is a very important consideration in the design of any system that uses energy. The urban system as a whole is a guzzler of energy. The energy requirement of an urban area is much more compared to a rural area of the same size. Conservation of energy is a need of the day due to various reasons such as depletion of fossil fuels, carbon emission and related climate change, depletion of ozone layer etc. The energy saved is considered to be energy produced. The benefits of energy saved by land use planning measures are of long term and hence need careful consideration. The compact nature of development reduces intra city traffic and thus saves fossil fuel. Efficient layout of various land uses based on their compatibility and trip generation characteristics shall result in reduction in use of energy for transportation needs. The compactness and proper lay out shall prompt pedestrian traffic also contributing to energy conservation. This also shall help conserve energy in sectors like water supply, electricity etc. The formation of urban heat islands within the town can be avoided by appropriate land use measures. This shall cause saving in energy by reduced demand for air conditioning and artificial ventilation. Another emerging area in this regard is the Energy Conservation Building Code (ECBC) and the practice of green buildings. As a direct policy measure the green buildings and the use of non-conventional sources of energy needs to be in incentivised by appropriate development control regulations.

21.2 Spatial structure

The town has a prominent position in the spatial structure of the District, being the only first order settlement in the District. The whole of the district communicates to the cities like Palakkad, Kozhikode, Coimbatore and Pollachi through Perinthalmanna.

21.2.1 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 can be derived through the integration of the land use concentration pattern, functional character and the urban profile. From the regional setting study the activity pattern of Perinthalmanna is obtained as Agriculture + Animal husbandry + Small scale industries. The determination of activity pattern at ward level is attempted here. However, for a ULB of the size of Perinthalmanna, activity pattern at micro level can be determined based on the land use concentration pattern since functional character and urban profile of the wards shall be more or less in conformity with the land use concentration pattern.



From the study of the land use concentration pattern of the town it is seen that urban activities are concentrated in those wards near the town centre and those along important roads.

Table 21.1 shows the land use concentration of the wards within the municipality and Figure 21.1 shows the activity pattern of the wards in the Municipality.

Table 21.1 Land use Concentration Index - wardswise

Ward No	Ward area in Ha	CI_Burial Ground	CI_Commercial	CI_Dry Cultivation	CI_Hazardous	CI_Industry	CI_Public and Semipublic	CI_Quarry	CI_Recreation	CI_Residential	CI_Transport and Communication	CI_Rocky area	CI_Vacant	CI_Water body	CI_Wet Cultivation
1	58.59		0.13	0.61		0.34	0.40			1.47	0.75		0.57	13.30	2.37
2	114.90	5.23	0.87	1.14		0.84	0.65	3.56		1.17	0.73		1.51		
3	73.51		2.36	0.54	3.63	0.58	0.36			1.48	1.56		4.10	2.88	1.35
4	29.09	8.63	3.74	0.33		1.46	2.59			1.38	1.78		2.40	3.41	2.31
5	90.75		4.53	0.88		1.04	2.86		35.74	0.99	1.84		0.46	0.29	0.75
6	64.16		0.11	1.09		0.19	4.22			0.97	0.70	0.33	0.37	1.12	0.56
7	129.67		0.26	0.91		0.24	0.36			0.91	1.37		0.69	1.86	2.09
8	201.21		0.07	1.43		1.20	0.74			0.49	0.46	3.52	0.04	0.00	0.13
9	172.44		0.16	0.92		0.36	0.45			0.24	0.69	13.49	1.43	0.80	1.20
10	130.20	1.34	4.21	1.14		0.73	1.14			0.96	1.67	0.60	0.45	0.03	
11	30.79	8.46	0.12	0.56		3.90	2.16			1.97	0.97		0.11	1.19	1.58
12	91.83	2.93	0.35	0.82	0.06	1.14	0.23	1.62		1.61	0.71	0.48	0.83	0.54	1.19
13	233.77		0.09	1.27		2.18	0.32	1.33		0.63	0.55	0.57	0.55	0.42	0.98
14	114.12		0.02	1.39		2.25	0.00	8.67		0.38	0.26	0.16	1.70	0.10	0.35
15	105.69		0.50	1.04		0.36	3.86			0.83	0.62	0.23	0.14	0.15	1.25
16	105.75		0.85	1.03		0.71	1.89			1.03	1.47		2.26	0.15	0.35
17	63.56		0.05	0.99		0.00	1.21			0.95	0.65			0.79	1.95
18	99.61		0.00	1.28		0.00	0.04			0.63	0.45		0.08	0.43	1.42
19	213.22		0.05	0.84		0.46	0.59			1.05	0.85	0.08	1.22	0.98	2.21
20	118.95		0.11	0.76		1.37	0.12			1.27	0.85		2.01	4.91	1.83
21	171.01		0.13	1.29		0.13	1.58	1.68	0.83	0.72	1.19		0.02	0.61	0.44
22	244.27	1.42	0.10	1.46	8.00	1.76	0.07	5.31		0.33	0.80	0.26	0.38	0.06	0.37
23	89.49		0.39	0.55		1.49	0.98			1.69	1.43		0.33	3.12	2.25
24	75.31		0.89	0.76		0.47	0.40			1.42	1.32		1.48		1.58
25	52.57		0.05	1.09		0.54	1.48			1.17	0.87		0.71		0.65
26	101.73		0.30	0.87	9.40	0.28	0.05			1.53	1.60		0.41	0.21	1.03
27	56.29	0.00	0.84	1.17		0.58	0.94			1.06	1.54		0.83		0.18
28	130.02	7.73	1.64	0.94		2.17	0.94			1.28	1.09	0.06	1.34	0.35	0.68
29	47.09		0.27	0.47		2.50	0.68			2.07	0.84		2.10	0.12	1.74
30	39.96		1.06	1.31		0.58	0.02			1.03	0.53		0.30		0.20
31	52.39		8.09	0.28	1.07	0.79	4.84		1.05	1.55	1.65		1.21	1.80	1.78
32	74.01		9.63	0.12	2.71	1.88	3.15			2.00	2.41		4.55	1.82	0.49
33	25.89		4.35	0.06		0.91	3.62			2.42	1.84		3.28	1.78	1.22
34	39.16	13.62	0.81	0.45		0.00	0.60			2.75	1.22		2.51	0.26	0.01
Grand Total	3441														

Table 21.2 Activity pattern

Ward No	Ward Name	Activity pattern
1	CHEERATTAMANNA	Primary Activity (Agri)
2	MANATHUMANGALAM	Tertiary Activity
3	KAKKOOTH	Tertiary Activity
4	VALIYANGADI	Tertiary Activity
5	KULIRMALA	Tertiary Activity
6	CHEMBANKUNNU	Tertiary Activity
7	KUMARAMKULAM	Primary Activity (Agri)
8	LAKSHAMVEEDU	Tertiary Activity
9	IDUKKUMUKHAM	Tertiary Activity
10	KUNNAPPALLI	Tertiary Activity
11	PANCHAMA	Small Scale Industries
12	KUTTIPPARA	Small Scale Industries
13	MANAPPADY	Tertiary Activity
14	PATHAYIKKARA UP SCHOOL	Small Scale Industries
15	KOVILAKAMPADI	Tertiary Activity
16	OLINKARA	Tertiary Activity
17	KIZHAKKEKARA	Tertiary Activity
18	THEKKEKARA	Primary Activity (Agri)
19	ANATHANAM	Tertiary Activity
20	PADINJAREKKARA	Small Scale Industries
21	KUNNAPPALLY SOUTH	Tertiary Activity
22	KALATHILKKARA	Primary Activity (Agri)
23	MARUKARAPARAMBU	Primary Activity (Agri)
24	VALAYAM MOOCHY	Primary Activity (Agri)
25	ASARIKKARA	Tertiary Activity
26	THOTTIKKARA	Primary Activity (Agri)
27	J.N. ROAD	Tertiary Activity
28	J.N. ROAD CENTRAL	Tertiary Activity
29	THEKKINCODU	Primary Activity (Agri)
30	KAVUNGAPARAMBU	Small Scale Industries
31	PUTHOOR	Tertiary Activity
32	SANGEETHA	Tertiary Activity
33	ALIKKAL	Tertiary Activity
34	LEMONVALLEY	Tertiary Activity

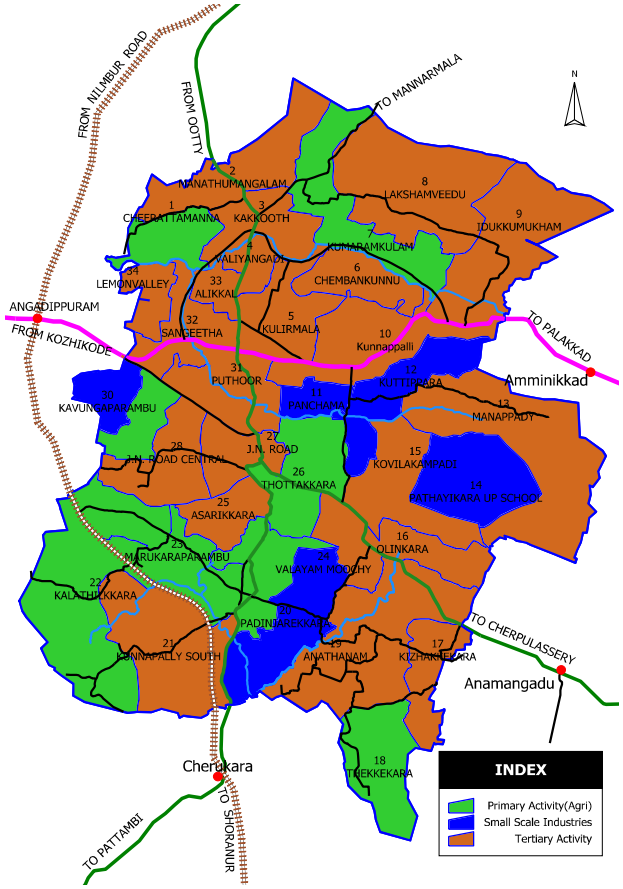


Figure 21.1 Activity pattern



21.2.2 Connectivity Pattern

Perinthalmanna town has good road connectivity. In the north-south direction, the State Highway from Perinthalmanna to Nilambur bifurcates the town. In the east-west direction, NH connecting Kozhikode and Palakkad provides the corridor. Both these corridors meet at the main junction. The bypass roads and J.N road links these major four arms. Majority of the facilities are located along the important roads. The connectivity pattern is shown in Figure 21.2. There are a few wards with poor connectivity. The railway line crossing through a part of the town is also a hindrance to road development in the south western periphery of the town.

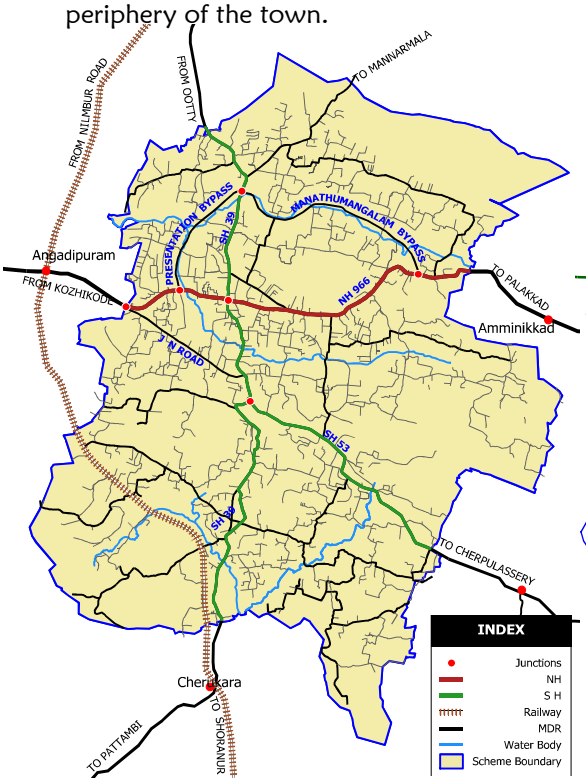


Figure 21.2 Connectivity pattern

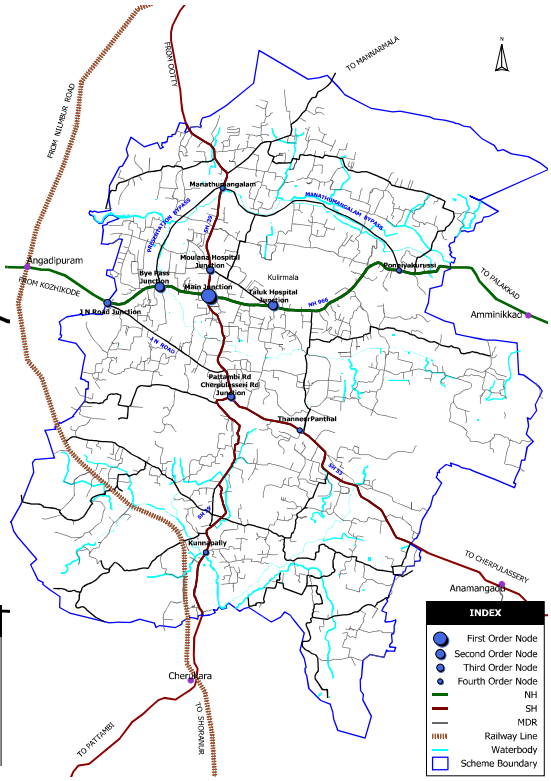


Figure 21.3 Hierarchy of nodes

21.2.3 Hierarchy of Nodes

Commercial nodes are identified on all important intersections of roads where there is a concentration of commercial activities and in the case of linear development, where there is commercial activity or physical development for a distance of 250 m is considered. The most important commercial nodes thus identified are main junction, by pass junction and hospital junction. Another important node is the section of Ootty road near Moulana hospital. Many of the educational, health, civic and other facilities are located in these places. The hierarchy of nodes is shown in Fig. 21.3 and the locations of the most important facilities are shown in Fig. 21.4.

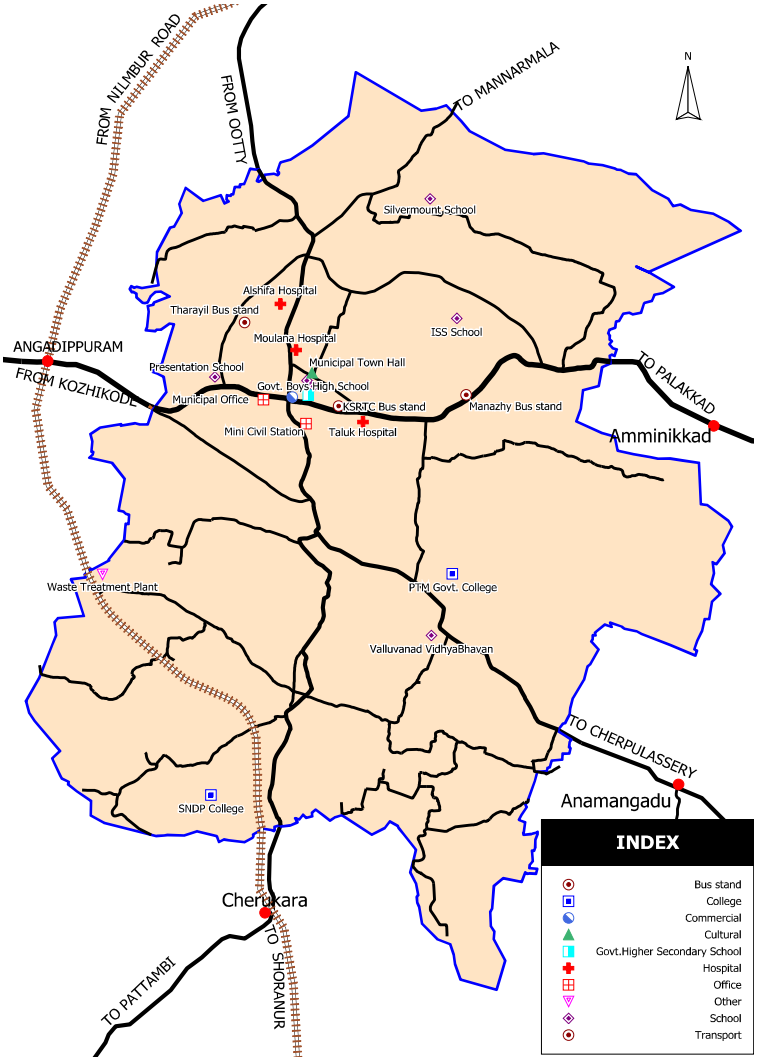


Figure 21.4 Location of most important facilities

21.2.4 Existing spatial structure

The activity pattern, connectivity and hierarchy of spaces are considered together to formulate the spatial structure of the town. The spatial structure obtained by overlaying the maps of the above three is shown in Fig. 21.5.

The town centre is developed at the valley of three hillocks. The north western part is mostly habitable and has oldest residential pockets. The north east quadrant is mostly dry cultivation at higher elevations and paddy in the valley. Three distinct belts of paddy which are not interconnected now can be identified. However, residential land use has encroached upon almost all the agricultural land uses and has a very scattered and low density nature. The commercial as well as public and semi public uses are concentrated in the town centre except for a few educational institutions in the peripheral area.

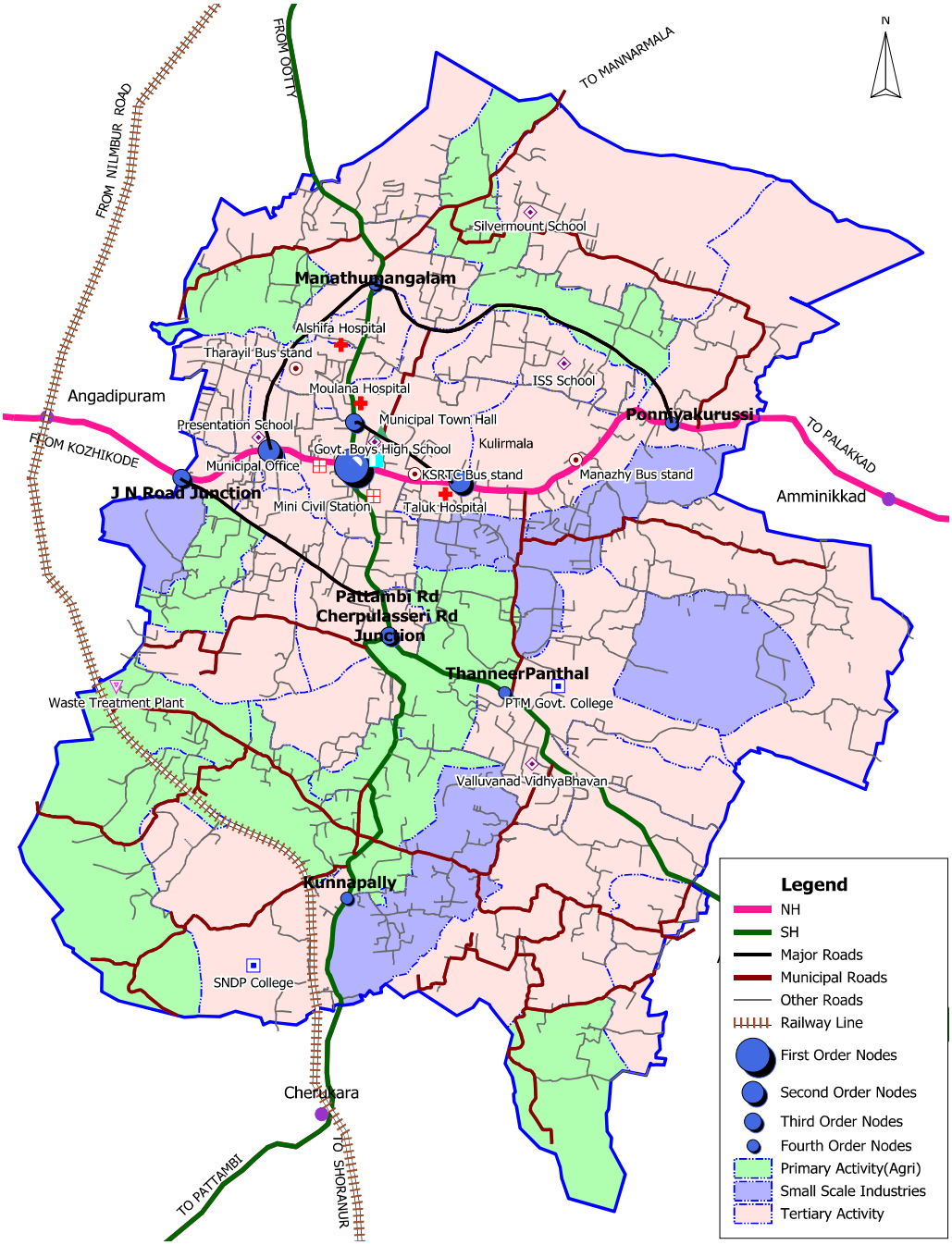


Figure 21.5 Existing Spatial Structure

21.3 Inferences

Various inter sectoral linkages examined in this section shall aid in formulation of sectoral proposals and proposed land use. The town had a natural growth centered around public institutions and the commercial activity in the main junction. The development of residential land use had been haphazard and inefficient in the absence of any sort of physical plan for the town. To achieve a compact spatial structure in the plan period, it is imperative to control the developments in a scientific manner promoting hierarchial development of land uses from town centre to the periphery.



PART – II
INTEGRATED DEVELOPMENT VISION

CHAPTER 22

SUMMARY AND FINDINGS





22.1 Summary
22.2 Swot Analysis
22.3 Development issues

22 SUMMARY AND FINDINGS

22.1 Summary

Perinthalmanna is a prominent and fast-growing settlement of Malappuram District. The town has a central geographic position and very good connectivity with all important settlements in the region. Besides, a number of large scale institutions have come up in the periphery of the town. The town is devoid of any statutory master plan and experiences a chaotic physical growth resulting in inefficient land use pattern and environmental degradation. As per Census 2011, the Municipality had a population of 49723 and an area of 34.41 Sqkm, thus accommodating 1.21% of the District's population in 0.97% of its geographical area. The town has a rolling terrain with hillocks and plains intermixed. Most of the physical development has taken place in the plains.

The town has high concentration of tertiary sector is the District, especially in health care sector. The National Highway from Kozhikode to Palakkad and the State Highway from Perumbilavu to Nilambur meet at the main junction of the town. The Bypass and J.N road interconnects these highways. The Angadippuram railway station in the Nilambur-Shoranur line is just 2 km away from the town. The Calicut International Airport is 45 km away from the town.

The population of the town grew at 11.46% during 2001-2011 which is less than that of the District and more than that of the state. The population growth rate of the town has a declining trend. But, most of the LSGs surrounding the town is growing at a faster rate. The population density of the town as per 2011 Census is 1445 persons/sqkm. Among the nearby LSGs Aliparamba and Angadippuram panchayats have higher population density than Perinthalmanna at 2066 and 1537 persons per sqkm respectively. Among the wards, Valiyangadi has the highest density (4442 persons per sqkm) and Valayamoochi ward has the lowest density (326 persons per sqkm).

The town is presently devoid of any statutory master plan and thus experience chaotic physical growth resulting in inefficient land use pattern and environmental degradation.

The age structure of the people in the town shows that the majority are in the 20-25 age group. The percentage of persons below the age 10 is also predominant showing a strong demographic dividend for the future Perinthalmanna. The town has higher literacy rate than the district average. The town had an average household size of 4.83 as per Census 2011. However this also has a declining trend.

The town (as well as the district) experienced only a nominal increase in the percentage of workers during the last few decades. The WPR of Perinthalmanna Municipality is 28%, slightly better than the 26% of the District. Majority of the workers are in the 'others' category and their number is increasing at a constant rate. The number of people engaged in agricultural sector is on the decline while that in service sector is increasing. The town depends considerably on Middle East countries for employment. The low WPR when compared to that of the State and high percentage of tertiary workers in the occupational structure indicates the weak agricultural and industrial base of the town.

The town has a scattered residential development. The commercial development is concentrated on the major junctions and as ribbon development along the major transport corridors. Industrial land use is insignificantly low in the town and there is no public space



for recreation except a pedagogy park. Public and semi public land use is also concentrated near the main junction. Area under transportation land use is only 4.0% which is quite inadequate. The land under paddy (both cultivated and uncultivated) is 10.03%. 1.73% of the land area in the town is rocky. Based on the built up density and land use pattern the land in the municipality can be classified as core, transition and other areas.

The town caters to a wide hinterland as a commercial centre. However commercial development has not taken place is tandem in the absence of planned commercial development. The market need to be refurbished with cleaner and efficient buildings and other amenities. Street vendors are to be facilitated by allocating organised spaces for them.

The town has a weak industrial base at present. But, with availability of vacant land in the peripheral region and growth in health care and educational institutions in the region, there is a scope for the development of units manufacturing hospital and educational supplies in the town. Agrobased industries, aimed at value addition of agricultural produce from its own agricultural land and the vast agricultural hinterland, can also be promoted in the town.

The major crops in the Municipality are coconut and rubber. Paddy fields are depleting fast due to conversion. Credit facilities and other inputs for agriculture sector is available in the town. However, the town has no agricultural market even though it is a service centre for a vast agrarian hinterland. The town has the potential to be the major agricultural facilities provider, processing and trading centre for its vast agrarian hinterland.

The animal husbandry sector is weak in the town. However, there is a possibility for developing the sector with creation of adequate infrastructure. Modern facilities to ensure healthy and hygenic slaughtering and markerting of meat must be put in place on priority basis. Facilities for proper disposal of the slaughter waste is also an important need at present.

The town is a whole sale fish trading centre. Inland fish farming is not very significant at present. With a number of ponds and uncultivated paddy, fresh water fisheries can be promoted in the town.

There is a scope for development of industrial units manufacturing hospital and educational supplies in the town.

The town does not have any tourism facility at present. The sector can be developed in the town with creation of infrastructure, concentrated efforts in some targeted segments and proper marketing. The town can be a midway station in the Kochi-Gudalloor tourism circuit and the base station for visiting heritage sites and buildings all over Valluvanad area.

The road infrastructure in the town, though had an organic growth, has a slight resemblance to a hierarchical pattern. The network is not efficient and the percentage of land under traffic and transportation use is dismally low. The existing traffic characteristics show that the present network is not adequate enough to cater to the present transportation needs, left alone the future demand.

The existing housing conditions in the Municipality is satisfactory. 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 town is devoid of recreational amenities. There is a high unsatiated demand for recreational facilities in the town.

Majority of the people depend on their own wells for domestic water needs. The town does not have serious scarcity of water in general. However, in order to maintain the level of service, considering the future population also, the water supply system has to be augmented by three times the present capacity during the plan period.

In the waste management front, the drainage system needs total revamping to create an efficient, effective and clean storm water drainage. A sewerage system shall help protect the water resources. Even though the hospitals contribute heavily to the economy of the town, their waste need stringent monitoring in public interest. The present municipal solid waste treatment system, though adequate for the current needs, shall require periodic improvements in system design, technology and capacity.

The use of non-conventional sources of energy is very much limited. The town has relatively strong electricity network which is further strengthened by initiatives under R-APDRP. Consumption of electricity is mostly for domestic use (ie. non productive purposes). The town has high consumption level of fossil fuels also.

The municipality has a relatively high literacy rate, when compared to the District. The school education infrastructure is well set in the town. The teacher - student ratio is more than 1:30 in all schools. The colleges in the town are offering only conventional courses and there are no professional colleges or higher centers of learning in the municipality. However the locational advantages, proximity to various institutions like AMU and various medical and engineering colleges and good connectivity of the Municipality makes it a favourable destination for locating higher and professional education institutions.

In the health care sector, the town has high quality facilities at adequate levels. However, the situation at the government Taluk hospital needs to be improved for providing better quality services to the poor. The town is poised to be a healthcare destination with integrated efforts in all sectors to position the town favourably.

The town is devoid of recreational amenities. There is a high unsatiated demand for recreational facilities in the town. Likewise, other civic amenities in the town also are not commensurate with the present population. Serious efforts are needed from the municipality to ensure adequate civic amenities to its inhabitants, considering the projected population during the plan period as well.

Only 10.6% of the population belong to SC/ST in the overall population. But the SC and ST population is socially backward in general when the literacy, poverty, sex ratio etc are compared. The town has a strong middle class population.

Environmental conservation need to be a serious objective of the development control regulations.

The major environmental threats faced by the town are the letting out of waste water into storm water drains and manmade interruption to the drainage channels. Environmental conservation need to be a serious objective of the development control regulations.

The financial position of the municipality is not very strong at present. However, the municipality has tremendous potential for development of financially remunerative projects for sourcing funds for urban development.

The town had a natural growth centered around the public institutions and the commercial activity in the main junction. The development of residential land use had been haphazard and inefficient in the absence of any kind of physical development plan for the town. To achieve a compact spatial structure in the plan period, it is imperative to control the developments in a scientific manner promoting hierarchial development of land uses from town centre to the periphery.



22.2 Swot Analysis

A SWOT analysis is attempted based on the various analyses and stake holder consultations. The results of the analysis are as follows:

STRENGTH

- Prominent and fast growing settlement of the District
- Important commercial node and intermediate service center
- Strong road connectivity in all four directions
- Scope for further densification
- Well established tertiary level health care system
- Considerable extent of land under public ownership available at town center
- Availability of water due to the peculiarities in topography
- Good environmental quality
- Availability of considerably higher percentage of cultivable paddy land and dry agricultural land
- Land availability for utilities like solid waste treatment plant.
- High demographic dividend and working age population
- Declining population growth rate
- High foreign employment, inflow of NRI remittances to the market (at present)

OPPORTUNITIES

- Possibilities to be developed as a healthcare destination
- Potential midway destination of the proposed Eastern tourism corridor to Nilambur
- Availability of high altitude, undeveloped area in the middle of the town suitable for recreational uses
- Developing institutional zones in the surrounding areas expected to provide better education and more jobs in the region as well as benefit the overall economy of the town.
- High potential for agrobased, health and education sector based industries
- High potential for agricultural activities due to basin type topography
- Potential for improvement in animal husbandry and related activities
- Reduced possibilities for urban sprawl - line of least resistance leads to only one direction ie. Angadippuram, which is already denser than the town.
- Scope for a helipad for health care needs

WEAKNESS

- Unscientific organisation of landuses in the absence of development controls (scattered residential settlements, absence of recreational spaces, commercial ribbon development, public and commercial uses concentrated at town centre only)
- Narrow roads and reduced road capacity due to street vending
- Inadequate parking and pedestrian facilities, Underutilized bus terminals
- Inefficient internal road network
- Absence of proper slaughter house
- Inefficient waste collection and treatment system
- Weak agricultural and industrial base
- Increase in unstable employment
- Low workers participation rate
- Acute shortage of agricultural laborers and unskilled workforce
- Minimal use of non conventional energy sources
- Weak higher education facilities
- Peculiar topography resulting in heavy surface run-offs
- Interrupted natural drainage network

THREATS

- Increasing migrant labor population and associated threats in social security, public health etc.
- Urban sprawl happening towards nearby panchayaths Angadippuram and Thazhekkode
- Rocketing land values





22.3 Development Issues

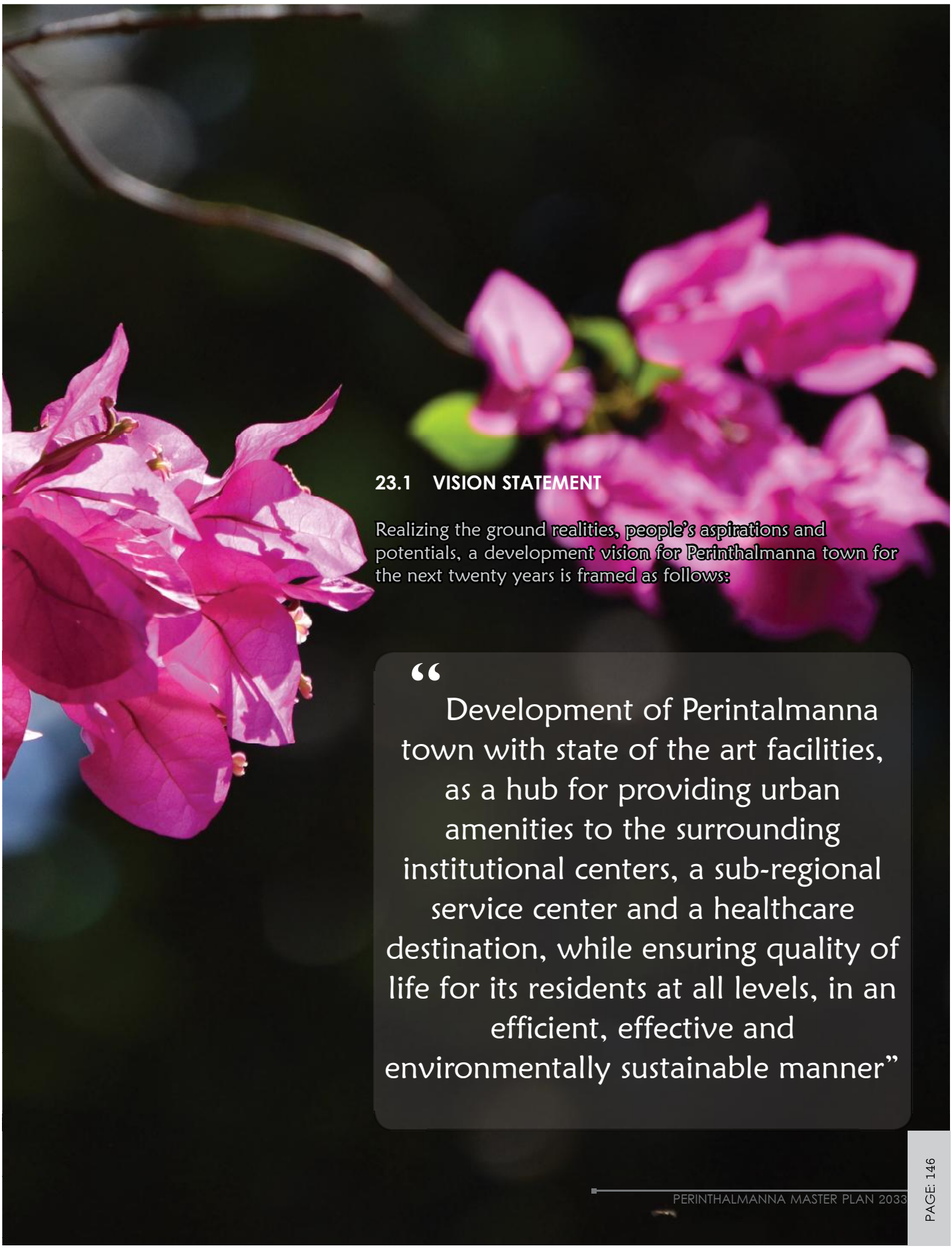
Based on the various studies and analysis including SWOT analysis, the key development issues in the town were identified as:-

- Inadequate transportation infrastructure
- Inefficient land use pattern - ribbon development, overcrowding of urban landuses at Main Junction
- Low density residential development resulting in faster depletion of natural resources
- Inefficient spatial distribution of social infrastructure
- Low WPR and unavailability of unskilled labour resulting in increase of migrant labour
- Absence of recreational facilities
- Faster development of large scale institutions in the adjacent LSGs
- Blockage of natural drainage due to haphazard conversion of paddy lands
- Absence of proper drainage network
- Inefficient use of physical infrastructure
- Underutilized lands in public ownership
- Inefficient channelization of NRI remittances
- Improper waste management system, especially that of large scale health care facilities and health problems
- Unutilized potential for urban agriculture
- Lack of proper facilities for street vendors
- Absence of hygienic systems for production, processing and storage and sale of fish and meat products

CHAPTER 23

DEVELOPMENT VISION





23.1 VISION STATEMENT

Realizing the ground realities, people's aspirations and potentials, a development vision for Perinthalmanna town for the next twenty years is framed as follows:

"Development of Perintalmanna town with state of the art facilities, as a hub for providing urban amenities to the surrounding institutional centers, a sub-regional service center and a healthcare destination, while ensuring quality of life for its residents at all levels, in an efficient, effective and environmentally sustainable manner"

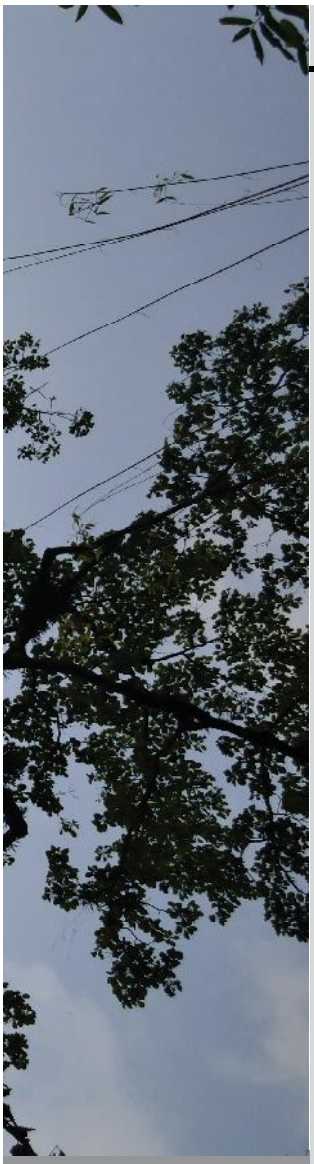


23.2 GOALS AND OBJECTIVES

Broad goals are formed for the realization of the vision based on the various studies and analysis.

GOALS

1. To develop urban amenities required to cater surrounding institutional centers
2. Develop the town as a sub-regional service center
3. Develop the town as a major healthcare destination
4. Enhance the quality of life of the citizens at all levels.
5. Ensure environmental, economic and social sustainability in development activities



OBJECTIVES

For realizing the goals formulated, specific objectives are derived as follows,

Goal: To develop urban amenities required to cater surrounding institutional centers

- Facilitate good quality housing
- Facilitate development of shopping facilities
- Provide adequate drainage and sanitary facilities
- Provide improved civic amenities
- Facilitate state of the art students facilities

Goal: Develop the town as a sub-regional service center

- Provide improved vehicle parking facilities
- Development of modern shopping precincts
- Facilitate street vendors
- Establish shopping streets
- Provide centralized warehousing facilities
- Facilitate development as a midway station in Cochin-Gudalloor circuit and as base station for heritage tourism in Valluvanad area

Goal: Develop the town as a major healthcare destination

- Easy accessibility to healthcare facilities
- Establish a hospital friendly zone around Al Shifa, Moulana hospitals
- Ensure proper management of hospital wastes

Goal: Enhance the quality of life of the citizens at all levels.

- Ensure seamless connectivity and accessibility
- Facilitate affordable housing
- Provide adequate recreational, leisure and amusement facilities
- Ensure improved safety aspects
- Provide better social infrastructure facilities

Goal: Ensure environmental, economic and social sustainability in development activities

Environmental sustainability

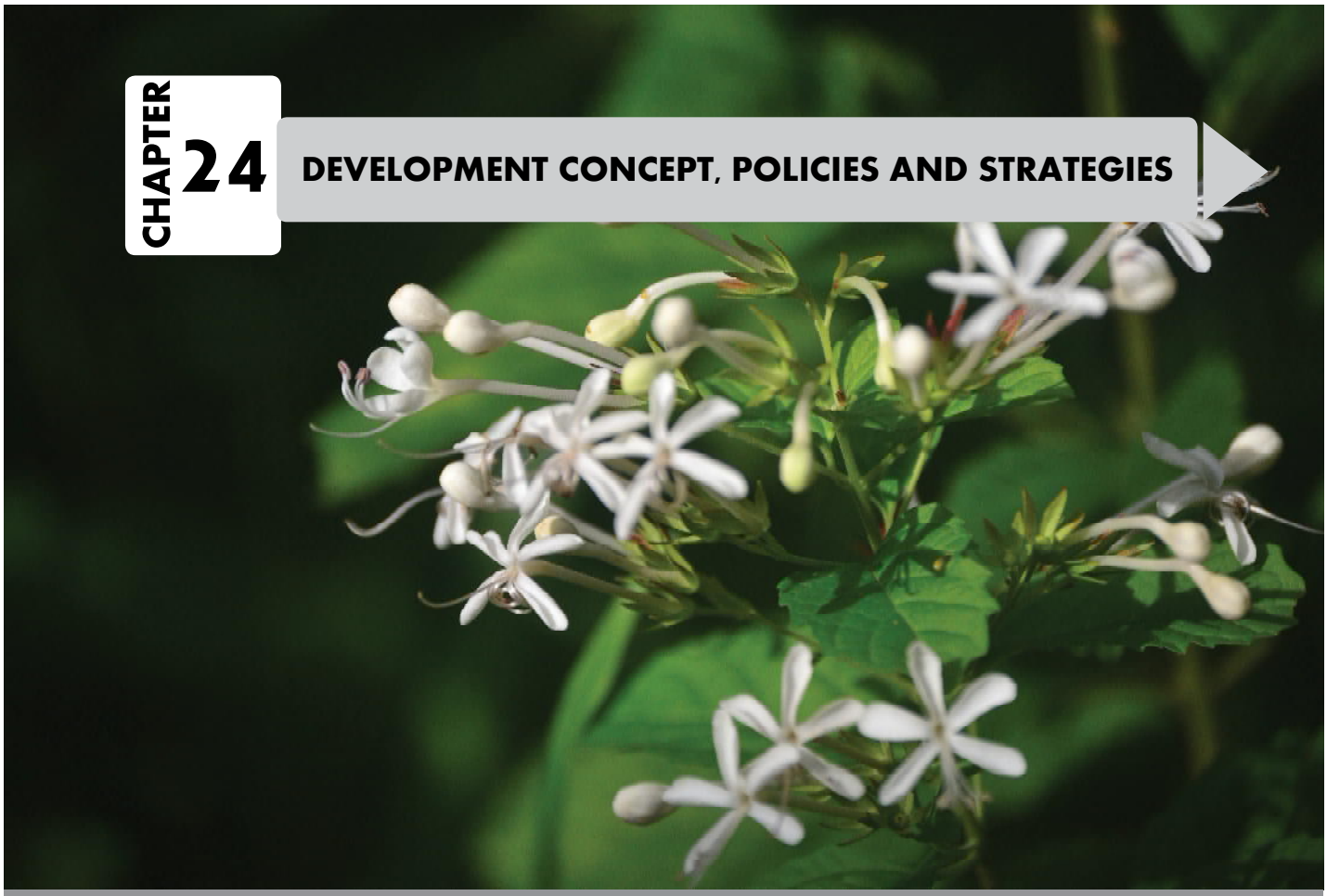
- Establish integrated waste management system and ensuring proper waste management
- Activities and measures for eco-restoration of the area
- Facilitate various modes to tap the non-conventional energy source potential
- Conservation, preservation and restoration of natural water bodies of the area
- Ensure improved ambient air quality
- Conservation of fragile environmental areas and environmentally sensitive zones

Economic sustainability

- Enhance the revenue generation of the municipality
- Bring in PPP systems to strengthen the economic backbone of the municipality
- Strengthen tertiary level economic activities

Social sustainability

- Equity in access to major services and facilities
- Increased access to good quality public transport systems
- Measures for retaining and strengthening cultural/social integrity



CHAPTER 24 DEVELOPMENT CONCEPT, POLICIES AND STRATEGIES

24.1 Development Concept

The development concept of the town stems from the existing spatial structure (its strengths and inadequacies), need to rationalize land use and the new impetus required in various development sectors in order to achieve the goals set by this development plan and thus fulfill the development vision.

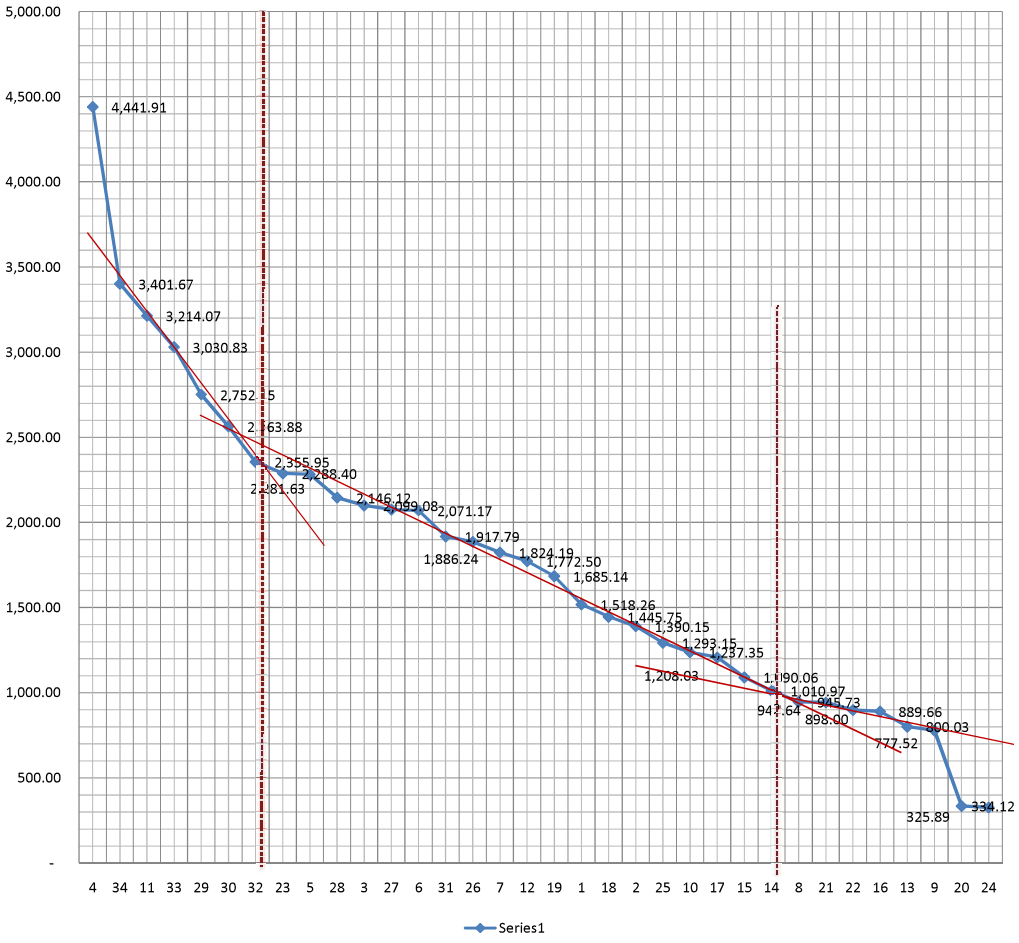
In the existing scenario, the town has a scattered residential development. The public institutions and commercial activity are mainly concentrated in the town center. To arrive at a more compact pattern of development, the areas where specific developments need to be intensified, promoted or discouraged need to be identified. With this purpose, an overlay analysis of various factors forming the development concept is conducted as detailed here under.

Stage-1

The ward-wise population densities were distributed and plotted in descending oder in Figure 24.1.

The variation in population densities across the wards, forms three distinct group forms three distinct groups exhibiting high, medium and low population density characteristics.

The variation in population densities across the wards, forms three distinct groups exhibiting high, medium and low population density characteristics.



Sl No	Zoane	Density Range, persons / km2	Wards
1	High Density Zone	2300 to 4500	4, 34, 11, 33, 29, 30, 32
2	Medium density zone	1000 to 2300	23, 5, 28, 3, 27, 6, 31, 26, 7, 12, 19, 1, 18, 2, 25, 10, 17, 15, 14.
3	Low Density Zone	below 1000	8, 21, 22, 16, 13, 9, 20, 24

Figure 24.1 Ward wise density of population

In the high density group, identified to be part of the urban core of the town, the densities varies from 2300 to 4500 persons / km^2, and are comprised of wards 4, 34, 11, 33, 29, 30 and 32. In the medium density group, identified as the part of the town under transition towards urban nature, the densities varies from 1000 to 2300 persons / km^2, and are exhibited in wards 23, 5, 28, 3, 27, 6, 31, 26, 7, 12, 19, 1, 18, 2, 25, 10, 17, 15 and 14.

Wards having population densities 1000 persons / km^2 and below are categorized in low density group, and are identified to be the areas in the municipality which still retain the rural characteristics and comprises wards 8, 21, 22, 16, 13, 9, 20 and 24. These three groups of wards are shown in Figure 24.2.

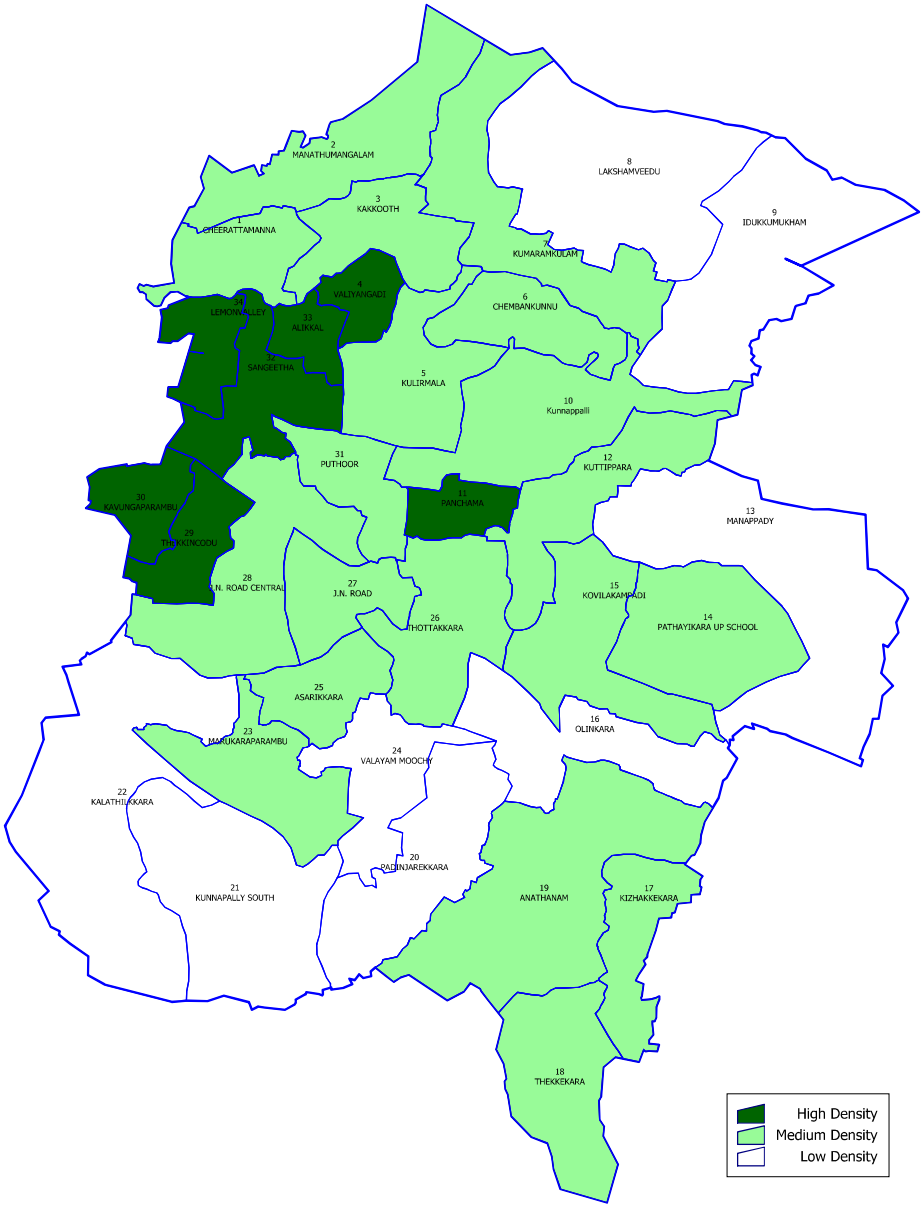


Figure 24.2 Wards categorized as high, medium and low density wards.

Stage-2

In the second stage, the Concentration index of residential land use has been superimposed. The density group remains the same as resulted from stage 1.

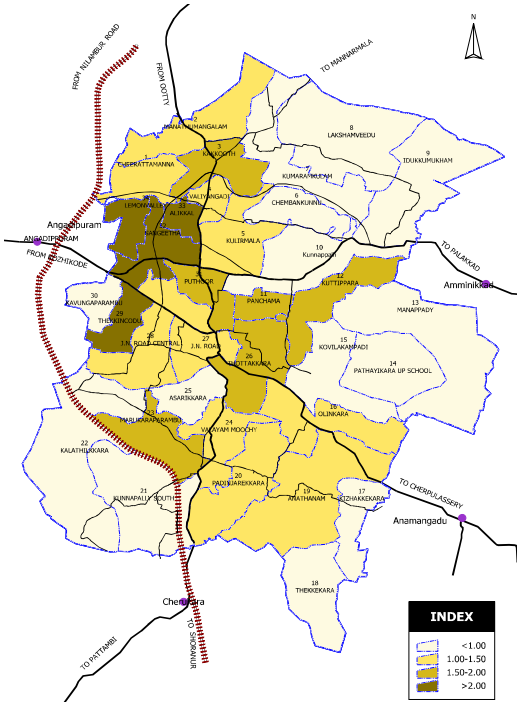


Figure 24.3 Residential Land Use Concentration Index

Stage-3

In the third stage, the concentration index of commercial land use has been overlaid. All wards having a concentration index of 2 or more are identified to be part of the urban core of the town. Accordingly Wards 3, 5, 10, 31 and 28 added in to the core area.

Figure 24.4 shows the core, transition and other areas after the stage 3 of overlaying.

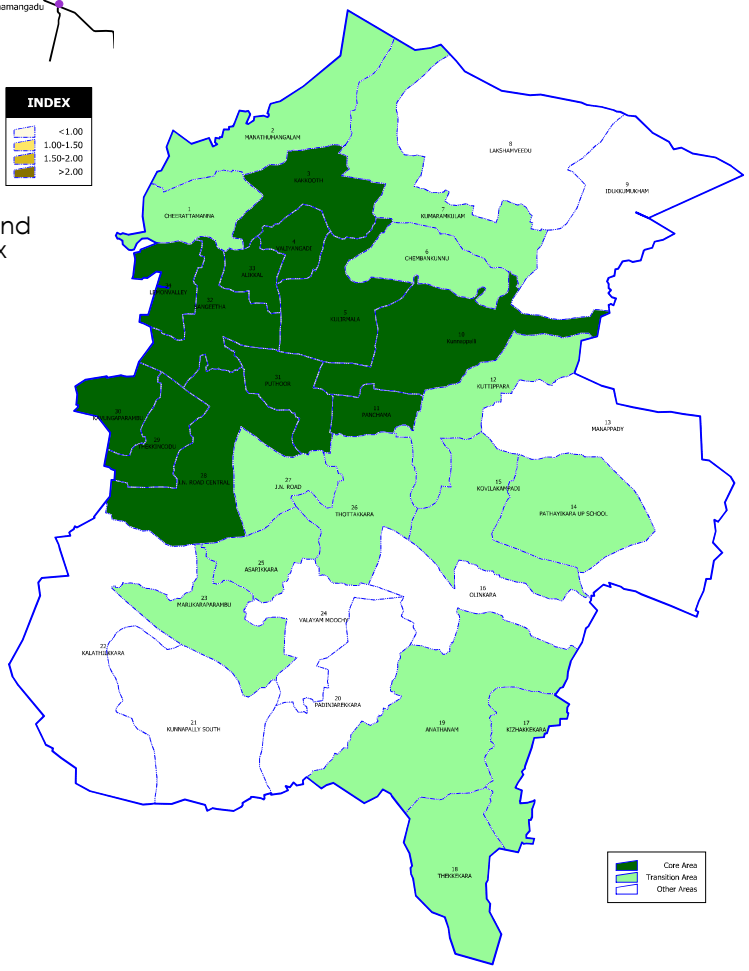


Figure 24.4 Core, transition and other areas after commercial land use CI overlay

Stage-4

Clusters of major public and semi public land uses are overlaid in this stage. Major public and semi public institutions fall within the core area already defined hence no change resulted in this stage of over laying, shown in Figure 24.5.

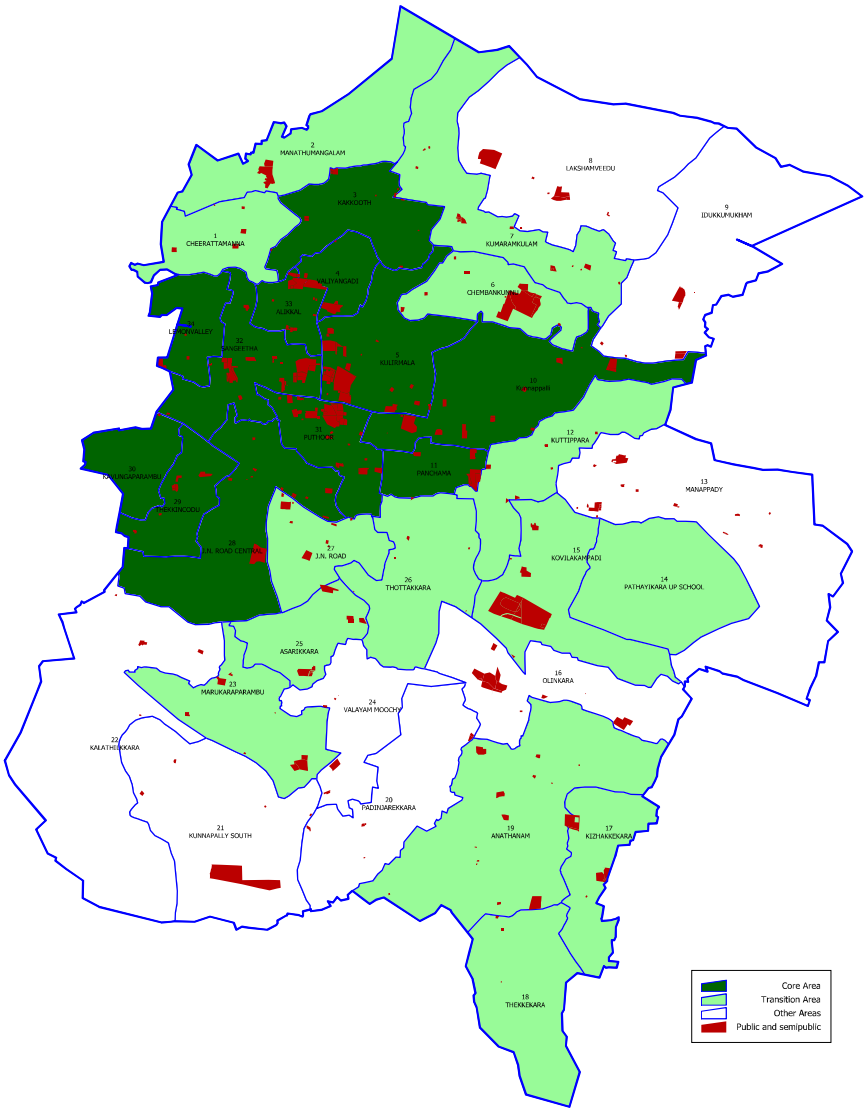


Figure 24.5 Core, transition and other areas after public and semi public land use overlay

Stage-5

In this stage contour details are over laid. From the already identified core areas the portions with steep slope (slope forming an angle of more than 45^0 with horizontal) are excluded, shown in Figure 24.6

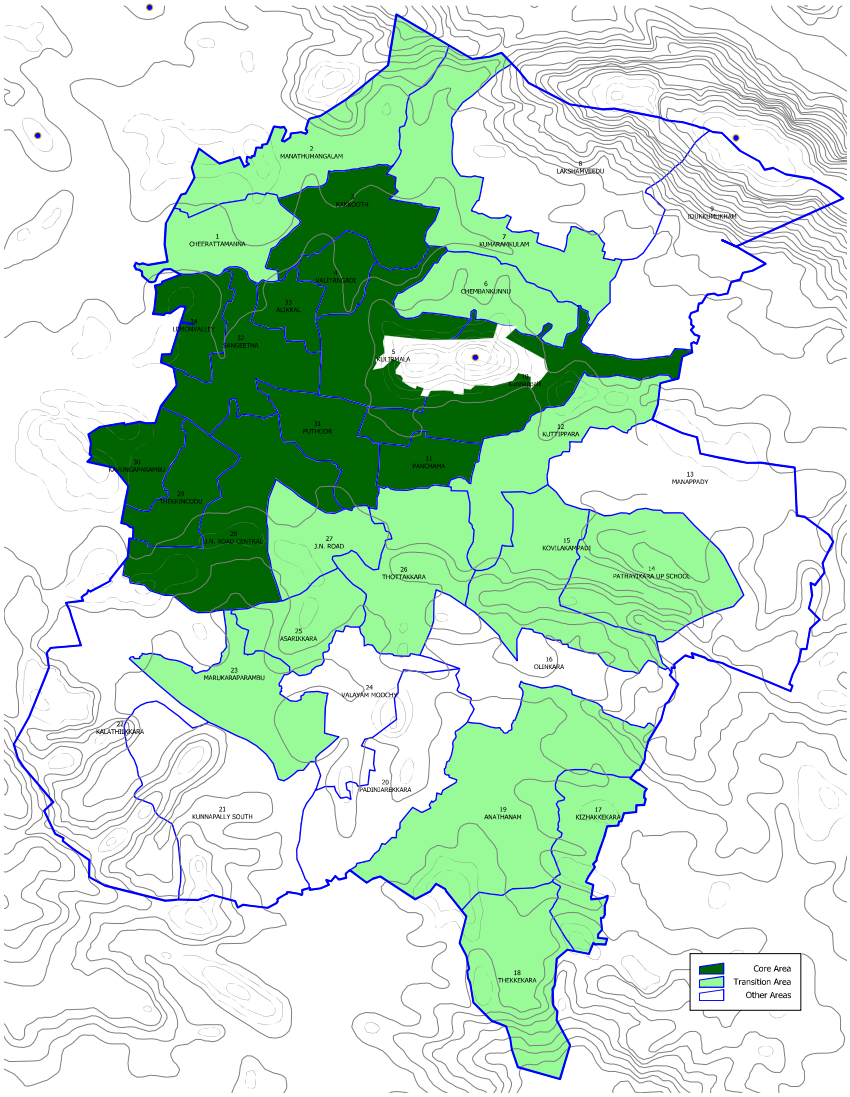


Figure 24.6 Core, transition and other areas after contour overlay

Stage-6

In this stage builtup distribution, existing road network, and identified improvements to strengthen the existing road network are overlaid. The portions with least accessibility and low built up density are excluded from the core. Also the area surrounding the proposed improvements to road network are given due consideration with regards to future developments. Also, areas which were included in transition areas but are far away from the CBD are incorporated in the other areas. The resulting core,transition and other areas division is shown in Figure 24.7.

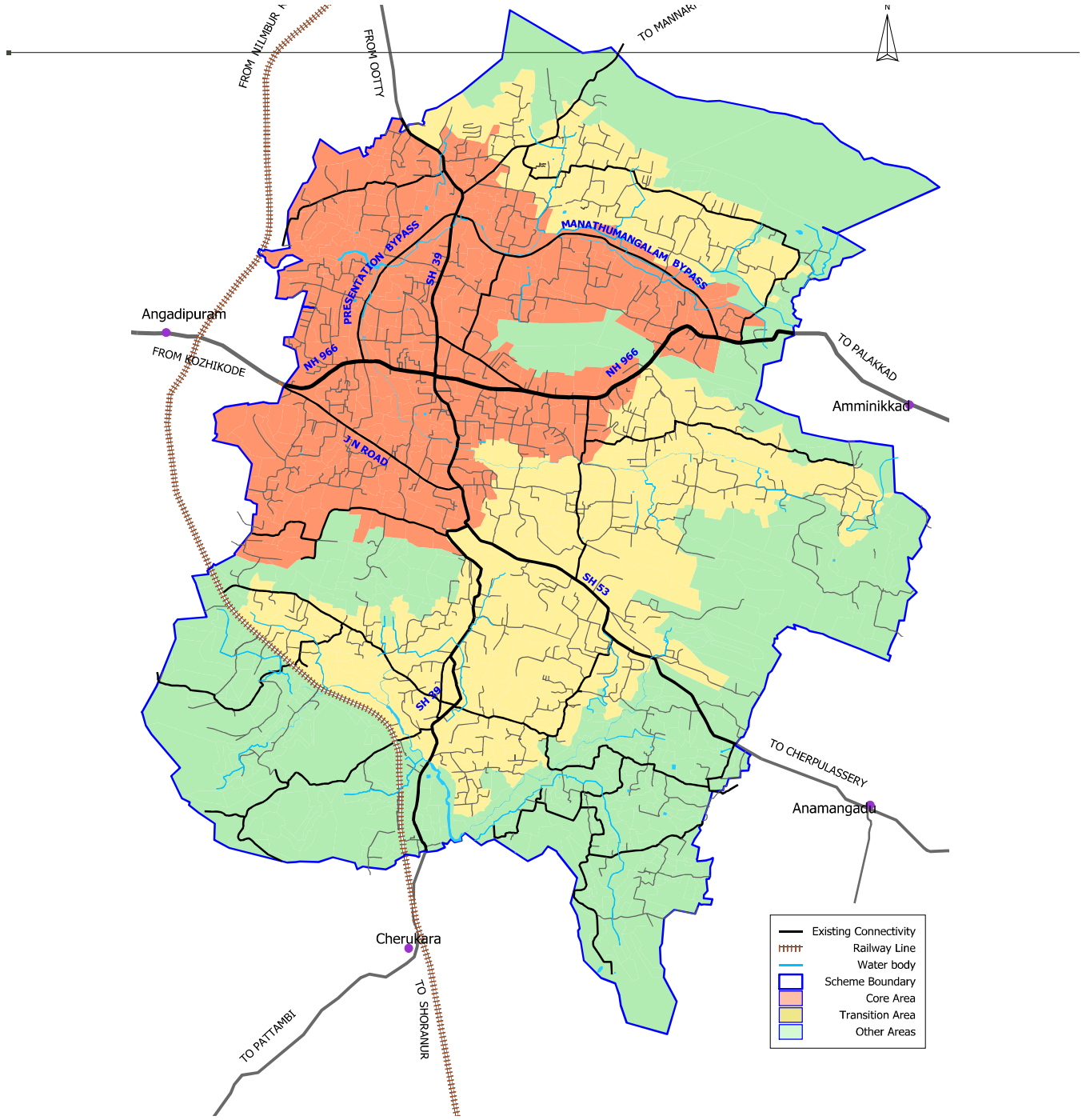


Figure 24.7 Core, transition and other areas after overlay of builtup distribution, existing road network and proposed connectivity improvements

The town is thus divided to three categories of broad development pattern, the core, transition and other areas, based on the population density and intensity of urban activities, each requiring different treatment in terms of development strategy.

After identifying the core and transition areas, specific areas to accomodate the various functions envisaged for the town are identified. The core area consist mainly of commercial activities and public and

semi public land use and has three major functional areas, one between the bypass junction and the main junction having commercial activity, second around Moulana and Al-shifa hospitals and the third one between the main junction and the Taluk Government hospital, where administrative and other facilities are located. The proximity of the two super specialty hospitals in Ooty road makes the area ideal for creating a healthcare zone. The commercial areas can be intensified in the area from J.N junction to the main junction, while the administration and other services can be focused in the areas from main junction to taluk hospital.

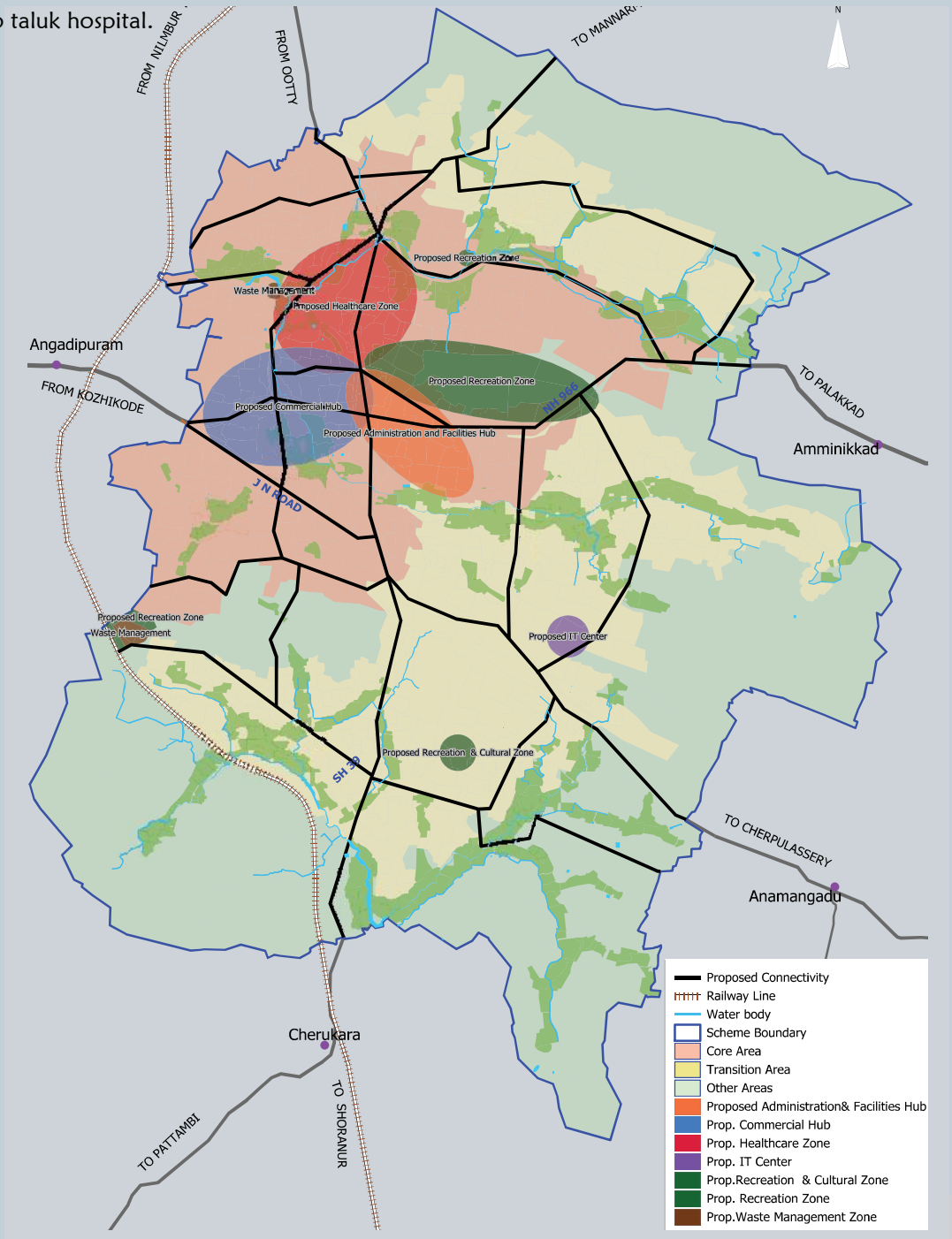


Figure 24.8 Proposed Spatial structure

To enhance the environmental quality of the urban centre, conservation of the existing streams and waterbodies, as well as the wet agriculture areas, is inevitable and hence they are proposed to be retaining intact. The municipality gravely lacks parks and other recreational facilities at present. To allocate the necessary space for recreation, one major recreational zone is proposed at Kulirmala, and two others along Manathumangalam Bypass and Valayam moochi-Olinkara road junction respectively. Besides, locations for waste managment facilities are identified as well. To enhance the presence of new age industries in the industrial sector of the municipality, an IT zone is envisaged at the PTM Govt college campus.

The intermediate area is primarily residential and residential activity in this area needs to be strengthened with more ancilliary facilities. The peripheral area has more large-sized plots of predominantly dry agricultural activities, and is ideal for locating new institutional development and non-polluting industrial ventures. The road network is proposed to be enhanced with bypasses for through traffic as well as internal roads to efficiently connect the various activity centres. The proposed spatial structure, stemming out of this development concept is presented in Fgure 24.8.

24.2 Population Projection

The population of Perinthalmanna is projected using various statistical techniques. The results of this projection is shown in Table. 24.1.

Table 24.1 Population Projection

Sl. No	Method	2021	2031
1	Arithmetic increase method	55708	61692
2	Geometric increase method	56952	69182
3	Incremental increase method	55547	61370
4	Decrease rate of growth method	53404	55192
5	Apportionment method	53956	-

The growth rate of population in the town has a declining trend and hence a geometric increase in population is not expected. However, with the full scale development of the health care and educational institutions both within the town as well as in the periphery a steady increase in population is anticipated. Due to these factors, the trend in population growth rate in the town is not likely to follow that of the district in general. So, an average of population projection obtained by Arithmetic increase method, Geometric increase method and decrease rate of growth method is taken for arriving at the design projected population for 2031.

Table 24.2 Design projected population

Year	Projected population
2021	55,921
2031	62,022

Considering an allowance for floating population a design population of 70,000 is considered for the town during 2031.



24.3 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 development proposals. 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.

- The development activities are required to be in an environmentally, economically and socially sustainable manner.
- The plan needs to look into various measures to ensure improved quality of life of people at all levels of the society.
- There are various large scale educational institutions situated at the peripheral areas of the municipality which are depending on the town for various urban activities. The plan needs to address the needs and requirements of these institutions.
- The plan needs to address different aspects required for the proper functioning of large number of hospitals in the town, with a special focus on promoting the town to be a major healthcare destination of the region.
- Improved infrastructural facilities are to be provided for developing the commercial potential of the town, including various measures to promote the town to a major shopping destination of the region. Shopping precincts are to be developed with facilities including shopping streets, agricultural markets, warehouses, modern market place etc. The street vendors are to be properly accommodated.
- Transportation infrastructure facilities to be improved to ensure seamless connectivity by providing/developing ring roads, fly overs, elevated corridors, scientifically designed junctions, widened roads, parking plazas, diverting through traffic from the core town through bypass roads etc. Development and enforcement of an integrated traffic and transportation plan is also needed. Facilities and safety requirements of pedestrians also should be addressed in the plan.

The plan needs to look into various measures to ensure improved quality of life of people at all levels of the society.

- The town requires improved facilities to be provided for recreational, amusement and leisure activities.
- Integrated scientific systems for drainage, sewage, sanitary and solid waste management including special focus on proper treatment of wastes generated from hospitals are needed.
- Residential areas to be made more compact.
- The plan needs to facilitate affordable housing, having required quality, accessible especially to low/medium income group, including special provisions for proper accommodation for migrant laborers from other states.
- No separate area is to be earmarked for industrial use, as it is experienced that zoning need not attract industrial activities. Micro and small industries of non polluting nature to be allowed in all zones, moderately polluting ones in the transition areas and that of polluting nature in the outer areas with stringent pollution control norms.
- Additional areas for public and semipublic use are also not to be earmarked. Instead, policy provisions are to be framed to facilitate expansion of the existing public/semipublic facilities.
- 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.
- 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 groups.

24.4 Concept of 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 management, energy efficient systems, healthy environment, smart planning and good governance are all components of a smart city.

24.4.1 Strategies for making Perinthalmanna a 'Smart City'

Perinthalmanna is known as the 'hospital city' in Malappuram, due to the presence of four large scale specialty hospitals in and around this small city. It has a beautiful landscape of hillocks and valleys, with plenty of greenery, which attracts tourists. Apart from these the higher education facilities available

near this city also influence the urban development of this area. The town provides the urban facilities and services for all these activities.

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. The potential of the city as a healthcare destination in the presence of the specialty hospitals is utilized to develop a health care zone, by improving connectivity and promoting ancillary health care facilities and institutions. The potential of the city to attract tourists with its serene environment, beautiful hillocks like Kulirmala and green valleys, is preserved by zoning these areas as environmentally sensitive areas. As the International Airport is only 43 km away and the city is frequented by foreign citizens for treatment at the specialty hospitals, it is felt that improving the recreational facilities and preserving the environmental quality of the town would attract international tourists and enhance the tourism economy of the town.

Innovative approaches to promote new business establishments as well as large scale industrial/ institutional developments in areas outside the city core, without compromising the quality of environment, is inbuilt in the development control regulations. Smart mobility is envisaged to be achieved through strengthening of existing corridors, by providing bypass and outer ring roads and ensuring hindrance-free connectivity to the nearest Railway Station. The Airport is also reachable within reasonable distance.

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 Perinthalmanna, to prevent mixing of sewage with the natural drains, 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 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.





PART – III
LAND USE PLAN AND SECTORAL PROPOSALS



CHAPTER 25

LAND USE PLAN

25.0 Land Use Plan

The municipal area is conceptually classified into core area, transition area and other areas.

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.

According to the residential and commercial density, availability of existing physical infrastructure, ease in expansion of physical infrastructure and topography, the municipal area is conceptually classified into core area, transition area and other areas. The core area, comprising about 26% of the geographical extent of the Municipality, is the high density area where land value is the highest. The physical infrastructure is concentrated in this area and hence with marginal investment in infrastructure this area can contain more people and economic activities. Considering the importance of healthcare sector in the town and the need to position the town as a healthcare destination, a special policy area is carved out in the core with an extent of 89.5 ha. In this zone the promotion of health care and related activities are envisaged. The transition area, which is around 29% of the Municipal area, has reasonable coverage of road network and is ideal for predominantly low to medium density residential development. Other areas, covering 45% of the Municipality, has large tracts of undeveloped land, predominantly dry agricultural, and hence is suitable for large scale institutional and industrial uses. The zoning regulation in these areas are formulated keeping these development scenarios in mind.

The proposed residential zone comprises of 1074.39 ha which is 31% of the total municipal area. Out of this 432.34 ha (40.2%) is in core area, 497.61 ha (46.3%) is in transition area and the remaining 144.45 ha (13.4%) is in other areas. Out of the residential area proposed in the core, those in healthcare special policy area is specifically designated in the zoning, to promote more health related infrastructure and facilities here. In addition to this, low density residential land use is permissible in dry agriculture zone. Besides 36.5 ha is under mixed residential and commercial land use where both the uses are permissible. Hence the land required for housing needs shall be adequate at a reasonable net residential density. The residential land use is provided in a continuous manner except for natural barriers like water ways, roads etc. in order to ensure compactness and thus easy provision for basic amenities and infrastructure.

Proposed commercial land use covers an area of 87.5 ha, i.e, 2.5% of the municipal area, of which 96.2% lies within the identified urban core. Besides, commercial uses are permissible in mixed use zone, ideal for both commercial and residential uses, 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.

No industrial zone is marked in the land use plan. Hence, the existing industrial areas are merged with the major adjacent use, in the absence of an earmarked industrial use zone. However, developments, as permitted by the Kerala Municipality Building Rules in force, shall be allowed in such areas irrespective of the zones they fall in. 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. The need for industrial land use is addressed by allowing small scale industries of non-polluting nature in residential 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.

An extent of 159.21 ha is coming under the transport and communication zone, which is 4.6% of the municipal area, which includes railway land, transport terminals and roads. The major share of this extent, around 4.2%, is the area covered by roads. The proposals in this sector is detailed out in chapter 26.

The proposed dry cultivation zone has an extent of 1537.2 Ha, 44.7% of the municipal area. This area, besides its economic value due to agricultural production, is important since large tracts of land are available in this zone within the municipality. Low density residential development aimed at affordable housing shall be allowed in this zone due to comparative price advantage. The industrial and institutional land uses also shall be permitted in this zone with certain regulatory measures to ensure isolation of non-compatible land uses.

Proposed wet cultivation zone comes to 332.52 ha. Paddy fields work as water sinks and undisturbed open land influencing ground water management and micro climate. Hence these are of environmental significance. 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. 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, with due permission from the concerned authorities and regulatory bodies.

Parks and open spaces are poposed in 41.85 ha of land, including proposed Kulirmala Biopark and Kalagramam. The area under public and semi public land use comes to 79.03 ha. Only land under public ownership and private land intended for institutional development are considered in this zone. A number of higher level institutions are anticipated to be set up in the town. No specific location can be set apart for this purpose since the point of time and nature of ownership of these institutions cannot be ascertained at present. So, provision for these is made in dry agriculture zone where vast tracts of suitable land is available, with certain regulatory measures. Besides, to address the capacity enhancement requirements of existing public and semipublic institutions, suitable regulatory measures are inbuilt in the zoning regulations.

The proposed land use map of Perinthalmanna municipality is shown in Figure 25.1.

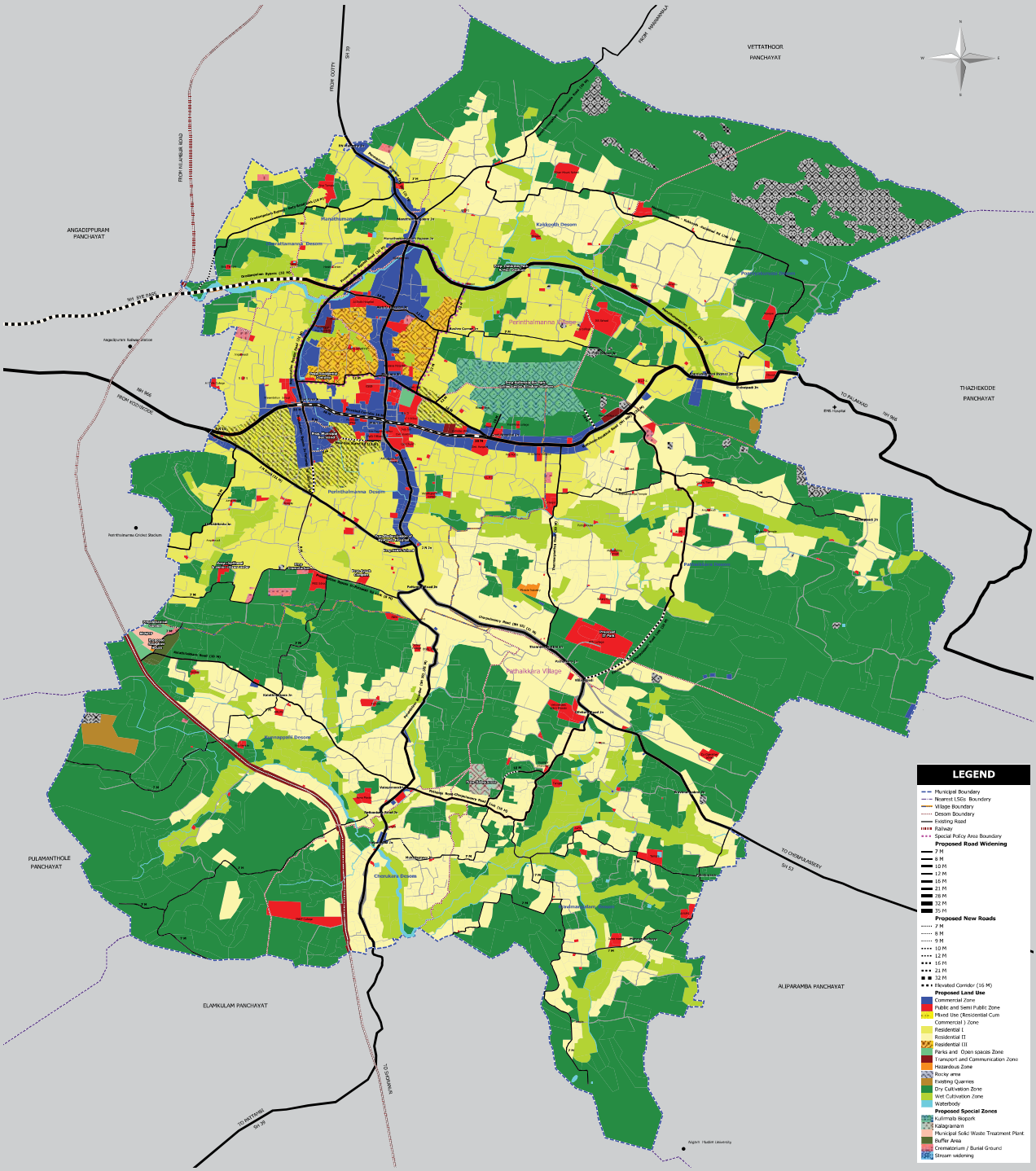


Figure 25.1 Proposed land use map

Table 25.1 Proposed land use 2033

Proposed Land Use	Core area (Ha)	Transition area (Ha)	Others areas (Ha)	Total area (Ha)
Residential	432.34	497.61	144.45	1074.39
Commercial	84.20	2.38	0.92	87.50
Public and Semi Public	38.19	29.13	11.72	79.03
Mixed Use (Residential & Commercial)	36.50	0.00	0.00	36.50
Park and Open space	3.48	0.00	38.37	41.85
Transportation and Communication	69.94	51.38	37.89	159.21
Municipal Solid Waste Treatment Plant	0.00	0.00	2.35	2.35
Buffer Area of Solid Waste Treatment Plant	0.00	0.00	2.64	2.64
Hazardous	0.00	1.19	0.06	1.25
Crematorium / Burial Ground	2.73	1.13	1.63	5.49
Existing Quarries	0.00	0.00	7.71	7.71
Rocky area	0.88	0.26	58.21	59.36
Dry Cultivation	164.47	279.26	1093.47	1537.20
Wet Cultivation	72.84	128.57	131.11	332.52
Waterbody	6.97	2.34	4.56	13.87
Wet Cultivation	**912.55**	**993.24**	**1535.07**	**3441**

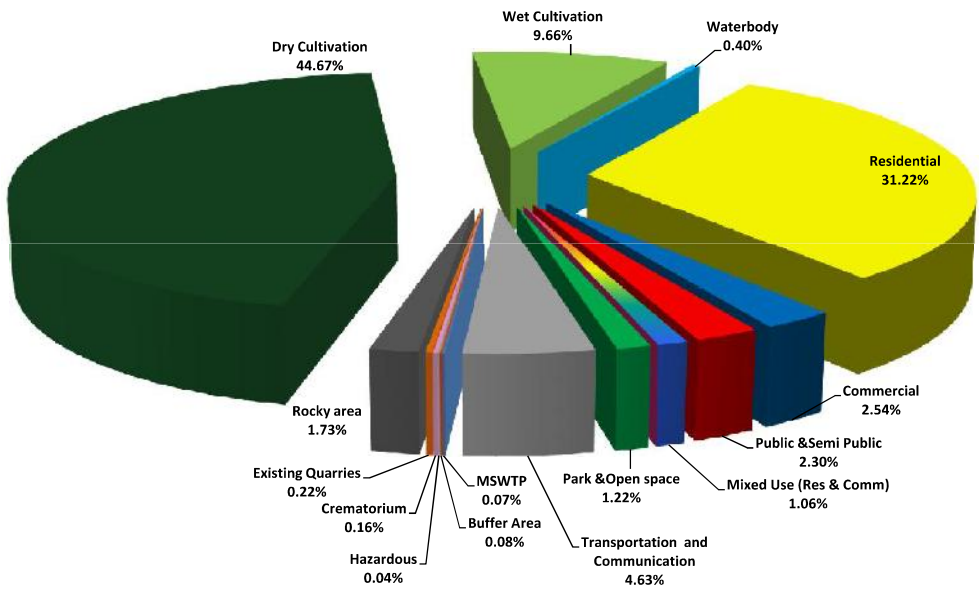


Figure 25.2 Proposed land use break up 2033

The existing rocky areas are zoned seperately and only minimal development for residential and public utilities is proposed here, considering the terrain. An existing hazardous industrial area is earmarked as the Hazardous Zone and activities of hazardous nature are permitted here.The solid waste treatment plant and a buffer zone of 100m width around the plant are earmarked as seperate zones. The exisitng areas used for cremation/burial purposes are earmarked as a zone and a proposed crematorium is also included in this zone. The exisiting waterbodies are retained under the zone waterbody, and realignment of streams that is affected by the proposed developments is zoned under ' Stream Widening'. The existing granite quarries are zoned seperately, and no building construction or development activity is permitted here.

CHAPTER 26

TRAFFIC AND TRANSPORTATION PLAN 2033



In the absence of water ways and limited use of the railways, the transportation system in the Municipality entirely depends on its road network.



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Courtesy: www.gochengdoo.com

In the absence of water ways and limited use of the railways, the transportation system in Perinthalmanna Municipality entirely depends on its road network.

Though the existing road network slightly resembles a hierarchical network, it is inadequate in many counts like width, geometry, alignment, etc. On-street parking of vehicles, absence of pedestrian facilities, sign boards, bus bays, etc., lack of road way capacity, unruly driving habits, unscientific road geometry and alignment and ill formed junctions contributed towards the traffic congestion and chaos in Perinthalmanna Municipality. The observed traffic volume in many stretches exceeds the existing capacity, even if the projected volume for 2033 is not considered. Hence drastic improvement to the network is required to cater to the projected traffic volume and to maintain a reasonable level of service on the roads.

26.1. Traffic Projection

To formulate a long term transportation plan for the Municipality, it becomes necessary to forecast the future travel pattern for the horizon year. Various methods of traffic projections such as statistical, economical and mathematical models are available for projecting the future demand. Traffic projection for Perinthalmanna municipality was carried out using the Average Growth Rate method.

Traffic volumes obtained during link volume surveys were interpolated to take in to account the volume carried by the Manathumangalam bypass, which became functional after the surveys, considering the OD survey details at the outer cordon. These volumes were projected for two decades assuming that the vehicle population will double in each of the decades. The projected volumes are presented in Table 26.1.

Table 26.1 Projected Traffic Volume - 2030 (Source: Traffic & Transportation Study - 2012)

Sl. No.	Road Link	Capacity(PCU/hr) 2012	Volume (PCU/hr) 2012	V/C ratio 2012	Interpolated Volume 2012 (PCU/hr)	Interpolated V/C ratio 2012	Projected volume (PCU/hr) (2020)	Projected volume (PCU/hr) (2030)
1	J.N Road Junction - Bypass junction	3600	2419.5	0.67	2419.5	0.67	4839	9678
2	Bypass junction -Main junction	1500	2152.5	1.44	1882.5	1.26	3765	7530
3	Hospital Junction – Manazhy	1500	2293	1.53	1497	1.00	2994	5988
4	Kunnappally - Jubilee road jn.	1200	1223.5	1.02	1223.5	1.02	2447	4894
5	Thanneer panthal - Jubilee road jn	1200	1198.5	1.00	1198.5	1.00	2397	4794
6	J.N road jn - Main jn.	1200	2035	1.70	2035	1.70	4070	8140
7	Main jn - Housing colony jn.	1200	1845	1.54	1319	1.10	2638	5276
8	Housing colony jn – Ooty Bypass Jn.	1200	1863.5	1.55	1337.5	1.11	2675	5350
9	J.N road	1200	795.5	0.66	795.5	0.66	1591	3182
10	Sunni Mahal-Bypass junction	600	435	0.73	435	0.73	870	1740
11	Presentation Bypass	1200	1221.5	1.02	1491.5	1.24	2983	5966
12	Housing Colony Road	900	870	0.97	870	0.97	1740	3480
13	Pathaikkara pallippadi -Thanneer Panthal Road	600	453.5	0.76	453.5	0.76	907	1814
14	Manathumangalam bypass	1200	NA	NA	796	0.66	1592	3184

Table 26.2 Projected V/C ratios (Source: Traffic & Transportation Study - 2012)

Sl. No.	Road Link	Capacity(PCU/hr) 2012	Projected volume (PCU/hr) (2030)	V/C ratio 2030
1	J.N Road Junction - Bypass junction	3600	9678	2.688
2	Bypass junction -Main junction	1500	7530	5.02
3	Hospital Junction – Manazhy	1500	5988	3.992
4	Kunnappally - J.N road jn.	1200	4894	4.078
5	Thanneer panthal - Jubilee road jn	1200	4794	3.995
6	J.N road jn - Main jn.	1200	8140	6.783
7	Main jn - Housing colony jn.	1200	5276	4.396
8	Housing colony jn – Ooty Bypass Jn.	1200	5350	4.458
9	J.N road	1200	3182	2.65
10	Sunni Mahal-Bypass junction	600	1740	2.9
11	Presentation Bypass	1200	5966	4.972
12	Housing Colony Road	900	3480	3.867
13	Pathaikkara pallippadi -Thanneerpanthal Road	600	1814	3.02
14	Manathumangalam bypass	1200	3184	2.65

If we maintain the existing road conditions, a v/c ratio of 2.69 will be experienced along the stretch of J.N road junction to Presentation bypass junction (4-Lane) on NH-966, whereas a v/c ratio of 5 will be experienced along Presentation bypass Junction to Main Junction. A v/c ratio around 4 will be experienced along Hospital junction to Manazhi Stand on NH and Thannnerpanthal to J.N road junction on SH. A maximum v/c value of 6.78 will be experienced along J.N road junction to Main Junction on SH. Even the local roads were found to overly exceed the capacity utilization, as presented in Table 26.2.

The details of proposals for various roads, considering the projected V/C ratios are presented in the following sections.

26.2. National Highway

The National Highway (NH 966) traversing the town in E-W direction is the main arterial road for the town. The present right of way varies from 15.21 m to 28.92 m. The projected V/C ratio in 2030 with the existing width for this road varies from 2.69 to 5.0. To bring down this v/c ratio to satisfactory levels, ROW of 45m is required. Due to the land value and exisiting developments on site, the maximum width that can be achieved on site is 32m. This would suffice a 6 Lane Divided Two Way arterial road as presented in Fig. 26.1.

To cater to the remaining volume and solve the low level of service without going for additional land acquisition, a four-lane elevated corridor of 16m ROW (see Figure 26.3) is proposed at the town centre, from Presentation School area to Government Hospital Junction. Due to the peculiarities in topography (i.e, the start and the end of the stretch is at almost same levels and the stretch in between is depressed) the elevated corridor becomes the natural choice (see Figure 26.2). In this stretch of the NH, both sides of the road is heavily developed and widening of the road to 32m is particularly cumbersome. Considering the objections received by the Special Committee on the published draft master plan about the widening of this road and the council resolution in the matter, NH 966, in this stretch supported by the elevated corridor, is proposed to be widened to 28m only.

Besides there is an upcoming bypass being implemented by the PWD, the Orodampalam bypass, which takes off from the NH in Angadippuram Panchayath, the adjacent LSGI, and meets the Presentation Bypass. This bypass along with the existing Manathumangalam Bypass will help the through- traffic to bypass two congested commercial nodes, that of Angadippuram and Perinthalmanna, and thus ease the traffic on NH, at these nodes.

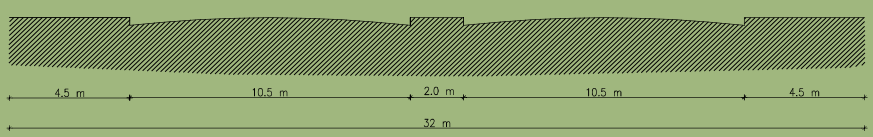


Figure 26.1 Cross Section, 32m wide road

Since the sides of NH are heavily built up in the municipality, large scale widening is not feasible.

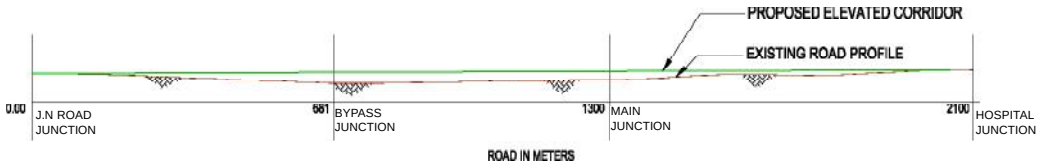


Figure 26.2 Elevation details of the existing topography from J.N Road Junction to Hospital Junction

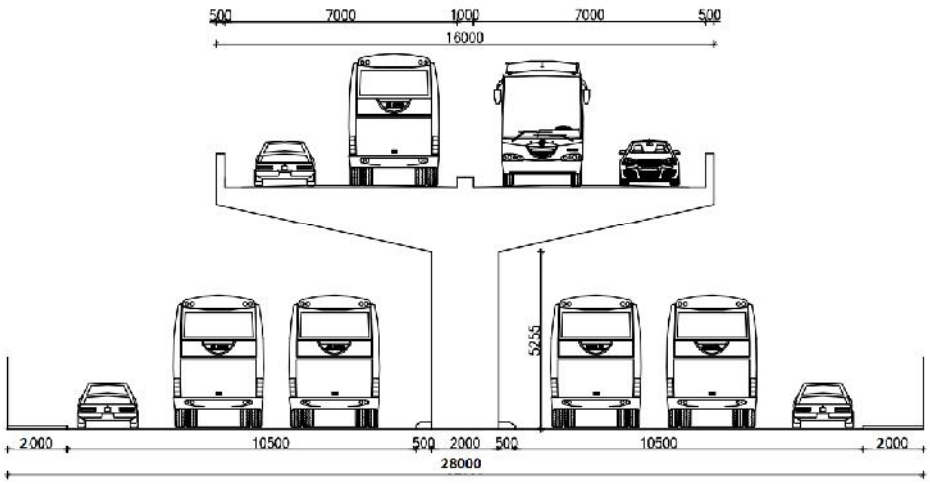


Figure 26.3 Cross section of the Elevated Corridor

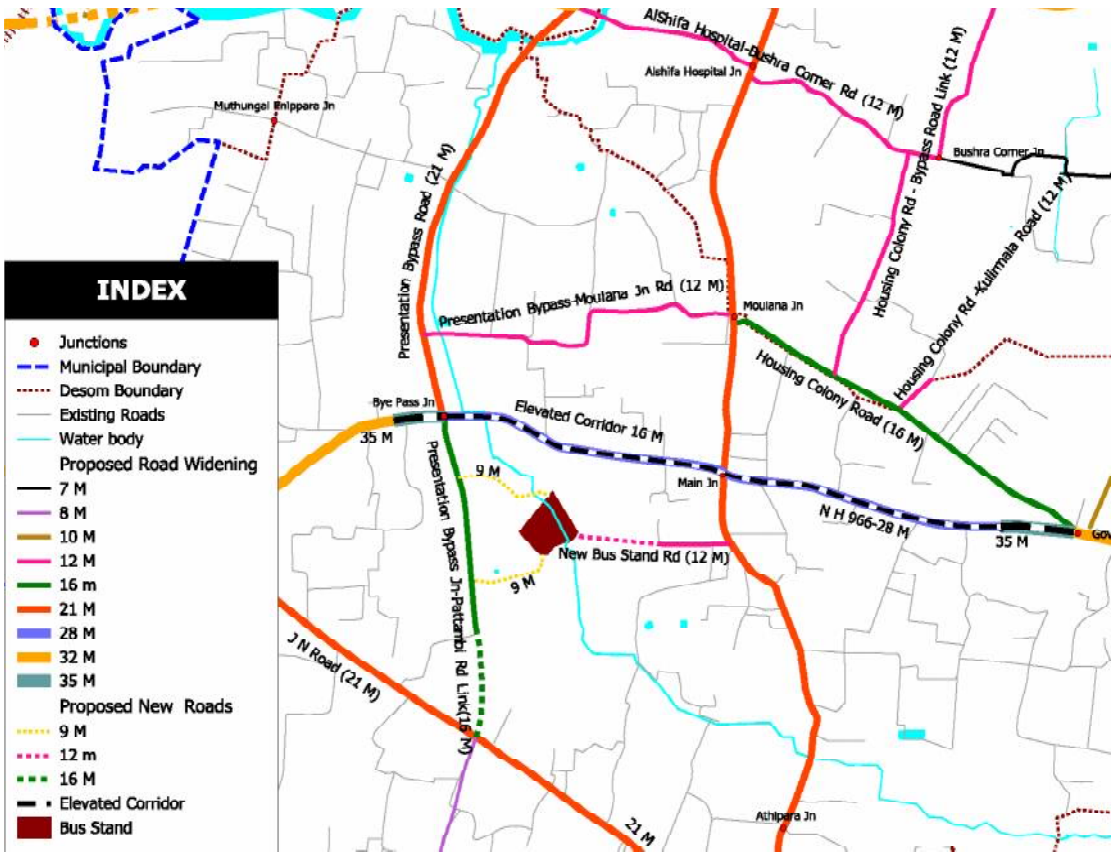


Figure 26.4 Elevated Corridor

26.3 Bypass Roads

The bypass proposed for NH consists of the upcoming Orodampalam bypass which takes off at Orodampalam in Angadippuram Panchayath and joins Presentation Bypass at AlShifa Hospital Junction, the stretch of Presentation Bypass from AlShifa Hospital Junction to Manathumangalam and the Manathumangalam Bypass and joins the the NH at Ponnyakurussi. To carry the projected traffic on Manathumangalam Bypass, an ROW of 21m is required. However, to carry the bypassable traffic of NH966, two additonal lanes are estimated to be required. Hence, an ROW of 32m is necessary for the Manathumangalam Bypass and similarly for the stretch of Presentation Bypass and Orodampalam Bypass.

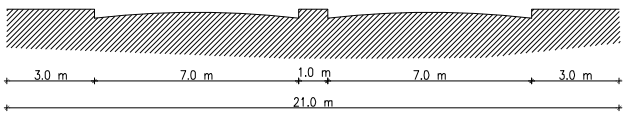


Figure 26.5 Cross section, 21 m wide road

The existing Presentation bypass (from Kozhikode road to Ootty road) is 12 m wide. The present V/C ratio of this road is 1.24 showing a lower level of service at present. The V/C ratio projected for 2033 is 4.97, calling for substantial improvements to this stretch of road. Besides this is key access to the health care zone defined in this development plan. To satisfy the projected volume at a reasonable level of service, an ROW of 32m is required. However, due to the heavy builtup and high land value, such widening is not possible. Besides the Orodampalam Bypass is also expected to divert a considerable share of through-traffic. Hence widening of this road to 21 m (See figure 26.5) is proposed, till Alshifa Hospital Junction.

26.4 State Highway

The J.N road is a major link road connecting Calicut road and Pattambi road, with a V/C ratio of 0.66 at present, and need to be widened to 21m to ensure maintaining the level of service.

The part of State Highway 39 within the town starts from the northern boundary, passes through the Main Junction (this stretch being called Ootty Road) and then proceeds south, meets Cherpulassery Road (SH 53) and further proceeds to Pattambi (this stretch being called Pattambi Road). These road stretches have a V/C ratio of 1.11 to 1.7 at present and these are projected to reach 4 to 6.8 by 2030 and an ROW of 32m is required to ensure a satisfactory level of service. The Cherpulassery road also has a high projected V/C ratio of 4 by 2030, for which an ROW of 32 m is required. However, due to practical constraints including high land values, a width of 21 m is suggested for these roads.

To address the remaining traffic demand, it is proposed to develop parallel roads in the North South Direction with atleast 2 lanes in each direction, to bypass traffic from J.N road junction to Main junction on SH 39. The unmet demand on SH53 can be managed by linking these roads to the National High way through less built up areas and four laning the existing roads. This would also help to strengthen the connectivity to the interior areas of the Municipality.

26.5 Link roads

The Housing Colony road has a V/C ratio close to 1.00 at present. This is projected to increase to 3.87 by 2030. Widening the road to 21 m (with four lanes) shall maintain the V/C ratio close to 1. However, as the sides of this road are heavily developed and the land value is very high, and considering the objections received by the Special Committee about the widening of this road on the published draft master plan and the council resolution in the matter, the widening of this road to 16m is proposed.

The southern arm of the existing Presentation bypass connects Kozhikode road to J N road. This road is 10.0 m vide and has a V/C ratio of 0.73 at present. The road is ill formed with dangerous curves. The projected V/C ratio of this road by 2030 is 2.9. Widening to 12m would address this requirement. Widening of this road to 21 m and linking it to Pattambi road is ideal for easing traffic from Pattambi road and Main Junction . Thus a parallel road to SH 39, Presentation Bypass Jn-Pattambi Rd Link, could be formed. However, between JN Road and Pattambi Road, there is heavy residential built up at some sections and intense public protest was witnessed on this proposal on the published draft master plan. Considering the objections received by the Special Committee about the widening of this road on the published draft master plan and the council resolution in the matter, the widening of this road to 16m is proposed between Presentation Bypass Jn and J N Road and between JN Road and Pattambi Road, widening to 8m is proposed. Additional link roads may further be identified and implemented by the municipality between JN Road and Pattambi Road to ease congestion on NH and Pattambi road.

The Thanneerpanthal-Palakkad road connection is very narrow and has a bad geometry. Hence a direct link from Cherpulassery road to Palakkad road is missing now, forcing passengers to go through the Main Junction. A 21 m wide link road from Palakkad road to Cherpulassery road and further to Pattambi road is ideal to ease traffic in the Main junction and in Pattambi road at the town centre. However, as these roads passes through thickly developed residential areas, objections and suggestions to reduce the width was received by the Special Committee on the published draft master plan. Considering these and the council resolution in the matter, these roads are proposed to be established with a width of 16m. Thus, Palakkad Road-Cherpulassery Road link and Pattambi Road-Cherpulassery Road Link together form another parallel road to ease traffic on SH 39.

The connectivity of the health care zone need to be improved. For this, improvements to existing roads to form Al Shifa Hospital – Bushra Corner Road from Presentation Bypass to Bushra Corner Junction, Housing Colony Road- Manathumangalam Bypass Link, and Presentation Bypass - Moulana Jn Road, with a width of 16 m is ideal. However, considering the objections and suggestions received by the Special Committee on the published draft master plan and the council resolution in the matter, these roads are proposed to be widened to 12m.

A connection between Pattambi road and the new bus stand, the Sunnimahal-Pattambi Road Link, at a width of 16 m was also envisaged in the draft master plan to address the traffic created by the proposed new bus stand. However, as the municipality has already started developing two 9m roads on the west side, and considering the objections and suggestions on the matter, the roads under construction is incorporated in the master plan and the proposed 16m road on the west side is dropped. On the east side, the 16m road proposal is reduced to 12m.

Besides, two important projects Kulirmala bio park and Kalagramam at Eravimangalam need improved connectivity. The Kulirmala bio park was proposed to be connected to Housing Colony road (by a 16 m

wide link) and Palakkad road (one 10 m wide and another 16 m wide link) at two locations. Of these the proposal for 16 m wide link from Housing Colony road to Kulirmala has been reduced to 12m considering the objections and suggestions received by the Special Committee on the published draft master plan. The Kalagramam at Eravimangalam shall be connected to link road from Pattambi road to Cherpulassery road by a 10 m wide road.

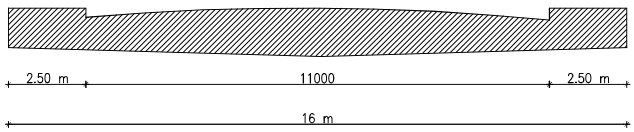


Figure 26.6 Cross section, 16 m wide road

26.6 Important Collector streets

The important collector streets in the municipality which cater to the trips generated from the residential areas are proposed to be widened to 10m.

The Kalathilakkara road, Thanneerpanthal road, Manathumangalam-Mannarmala Road, Orodampalam Bypass - Ootty Road link and the Manathumangalam-Kakkooth-Palakkad Road link parallel to the bypass road are important collector streets in the municipality which cater to the trips generated from the residential areas. Another road from J.N Road to Thekkinkode also connects the residential areas and further links to the Cricket Stadium in Angadippuram Panchayath. These roads are proposed to be widened to 10 m.

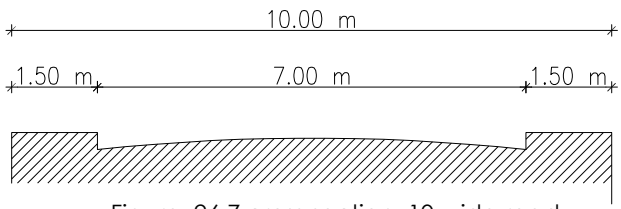


Figure. 26.7 cross section, 10 wide road



Photo for illustration purpose only collected from internet

26.7 General proposals for improvement of road network

In addition to the roads mentioned in this report all important collector streets are proposed to be widened to 7.0 m, as marked in the map. Table 26.2 gives the major road development proposals in this development plan. 26.7

Manathumangalam bypass is proposed to be developed in to a model street with the help of a detailed DPR. The street shall be scientifically designed for people of all ages and physical abilities, and all transit modes including pedestrians and cyclists, and to create a safe and welcoming ambience, with places for social interaction, appealing architecture, street furniture, landscaping, and public art that reflect the history and culture of Perinthalmanna, and should positively address environmental sustainability including water management, energy conservation, and preservation of plant life and healthy living of users and residents of the neighbourhood.

According to the survey conducted on the traffic volume at intersections, three junctions in the town ie. Bypass Junction, Main Junction and Hospital Junction require immediate improvement measures.

26.8 Junction improvement

The effective designing of the junction plays an important role in the efficient and smooth flow of traffic on road network. The study reveals that, three junctions in the town ie. Presentation Bypass Junction, Main Junction and Hospital Junction require immediate improvement measures. In most of these junctions, volumes are almost level without any significant peaks showing continuous snarls in traffic which warrants engineering measures to improve these junctions. It is recommended to provide proper signals at the junctions for the effective regulation of both vehicles as well as pedestrians. Proper road markings such as zebra crossing, carriageway line etc is vital for the safety of the road users. Provision of hand rails along the legs of the junction ensures pedestrian safety.

Table 26.3 Major Road Proposals

Sl. No.	Major Road Proposals		Length (m)	Existing Width (m)	Proposed Width (m)
1	Kozhikode-Palakkad Road (NH 966)	J N Road Jn - Presentation Bypass Jn	773.21		32
		Presentation Bypass Jn - Govt. Hospital Jn	1252		28
		Govt. Hospital Jn - Municipal Boundary	2890.67		32
		Elevated Corridor from Presentation Bypass Jn - Govt. Hospital Jn	1700	0	16
2	Manathumangalam Bypass		2914.93	20	32
3	Orodampalam Bypass		1123.11 (New)	0	32
4	Presentation Bypass Road		1034.58, 771.05	12	21,32
5	Presentation Bypass Jn-Pattambi Rd Link		1547.95 (Widening), 505.79 (New)	0-8	16,8
6	Cherpulassery Road (SH 53)		3281.18	22.5	21
7	Housing Colony Road		910.25	6.3	16
8	J.N Road		1822.57	12.8	21
9	Perumbilavu Nilambur (SH 39)		7469.98	17	21
10	Palakkad Road-Cherpulasseri Road Link		1934 (Widening), 841.63 (New)	6	16
11	Pattambi Road-Cherpulassery Road Link		2076.43	7.8	16
12	Al Shifa Hospital - Bushra Corner Road		837.62	5.5	12
13	Housing Colony Road -Kulirmala Road		100.59	4.4	12
14	Housing colony Rd-Manathumangalam Bypass Link		994.30	4.8	12
15	Kulirmala-NH Road		189.80 (New)	0	16
16	Presentation Bypass-Moulana Jn Road		767.80	4.2	12
17	New Bus Stand Road Link 1		151.74 (Widening),131.34 (New)	5	12
18	Hospital Jn to Kulirmala Road		206.40	5	10
19	Kalathilakkara Road		2427.66	5	10
20	Manathumangalam - Kakkooth - Palakkad Road Link		4880.92	8.1	10
21	Road to Kalagramam (West Side)		31.81(New)	0	10
22	Road to Kalagramam (East Side)		490.59 (Widening), 131.34 (New)	0-6.5	10
23	Thanneerpanthal Road		1685.82	6.6	10
24	Manathumangalam-Mannarmala Road		1332.84	8	10
25	New Bus Stand Road Link 2 &3		401.75 (New)	0	9

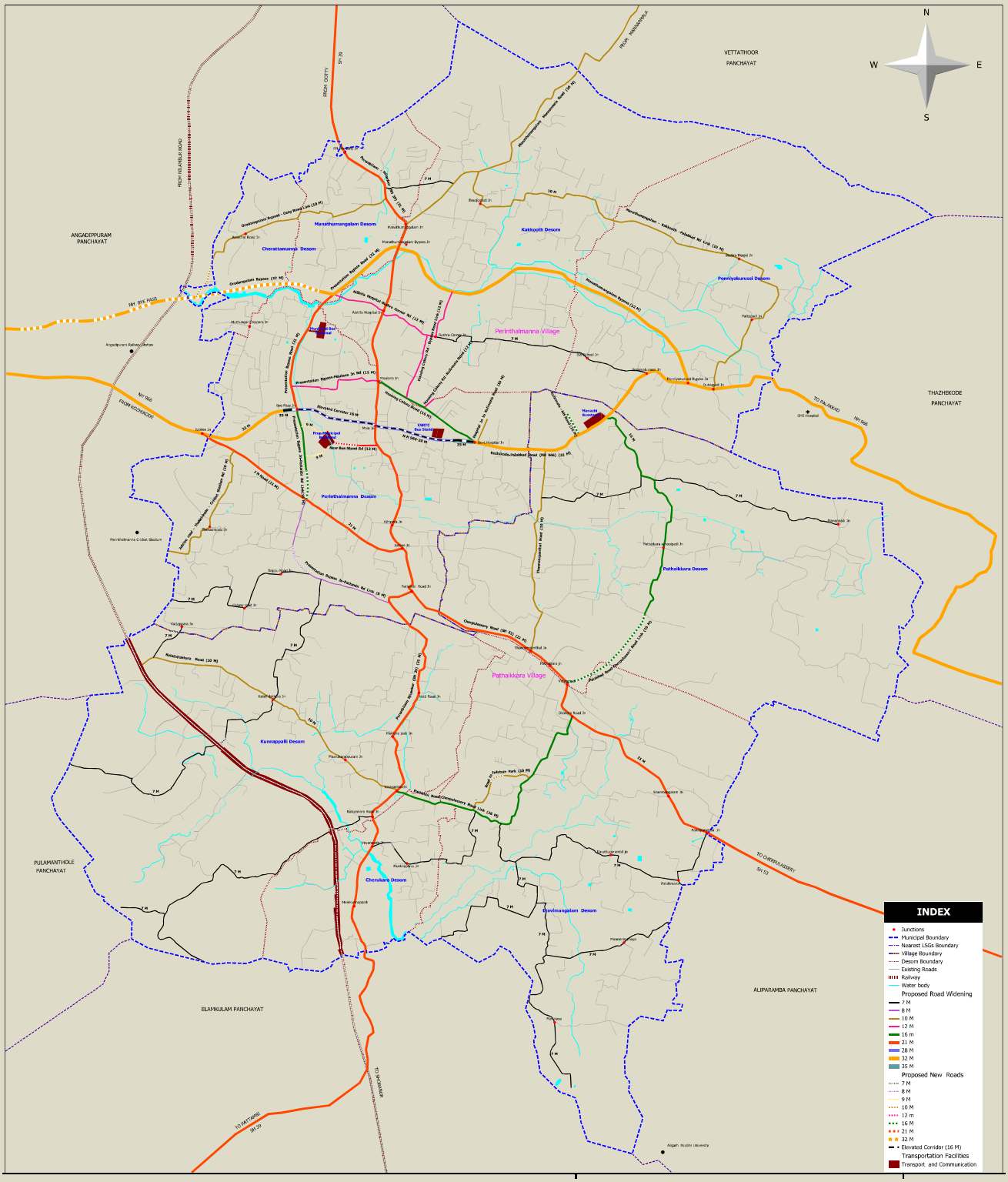


Figure 26.8 Proposed Road Network

Proper footpaths and barricades to control pedestrian movement are to be provided at locations where the cross and lateral pedestrian movement exceeds 800 persons.

26.9 Pedestrian Safety

The study of pedestrian characteristcs at various locations in the town revealed that the lateral movement of pedestrians exceed 800 persons in both directions in peak hour near Perinthalmanna Nursing home, Presentation bypass junction, near KSRTC stand, Main Junction, near Moulana Hospital and near RDO office. There was absence of adequate foot paths for the pedestrians and also the markings were absent or faded. Hence proper measures should be adopted for the safety of pedestrians. Proper footpaths and barricades to control pedestrian movement are to be provided in these locations. Raised footpaths are always preferable for segregating pedestrians from traffic flow. Railings along foot path and central dividers are particularly important near intersections so as to force pedestrians to cross only at the designated crossing. Skywalk projects (pedestrian foot over bridges) are proposed from District Hospital to Children's Hospital and near Mini-Civil Station from Police Station to Market , as a temporary measure to facilitate pedestrian traffic in these points. However, since foot-over-bridges are among the least preferred pedestrian facility, these shall be implemented after a detailed feasibility study.

26.10 Transport terminals

The municipality has already initiated action for the construction of a fourth bus stand in the town. Hence, the bus terminals shall be adequate in the town. A truck terminal with all ancillary facilities is required in the municipality. A temporary terminal can be provided in part of the municipal land opposite Manazhi Bus stand, where seized vehicles are currently dumped. However, a suitable land for a permanent facility shall be identified by the municipality and the project is to be implemented preferably in the plan period itself. Most of the taxi stands and auto stands in the town make use of the carriage way. Separate ways must be earmarked for taxi and auto parking in the town.Suitable locations for organized parking can also be earmarked at road sides, where the proposed road width is less than the existing road width , subject to feasibility (ex: certain sections of Pattambi Road and Cherpulassery Road).

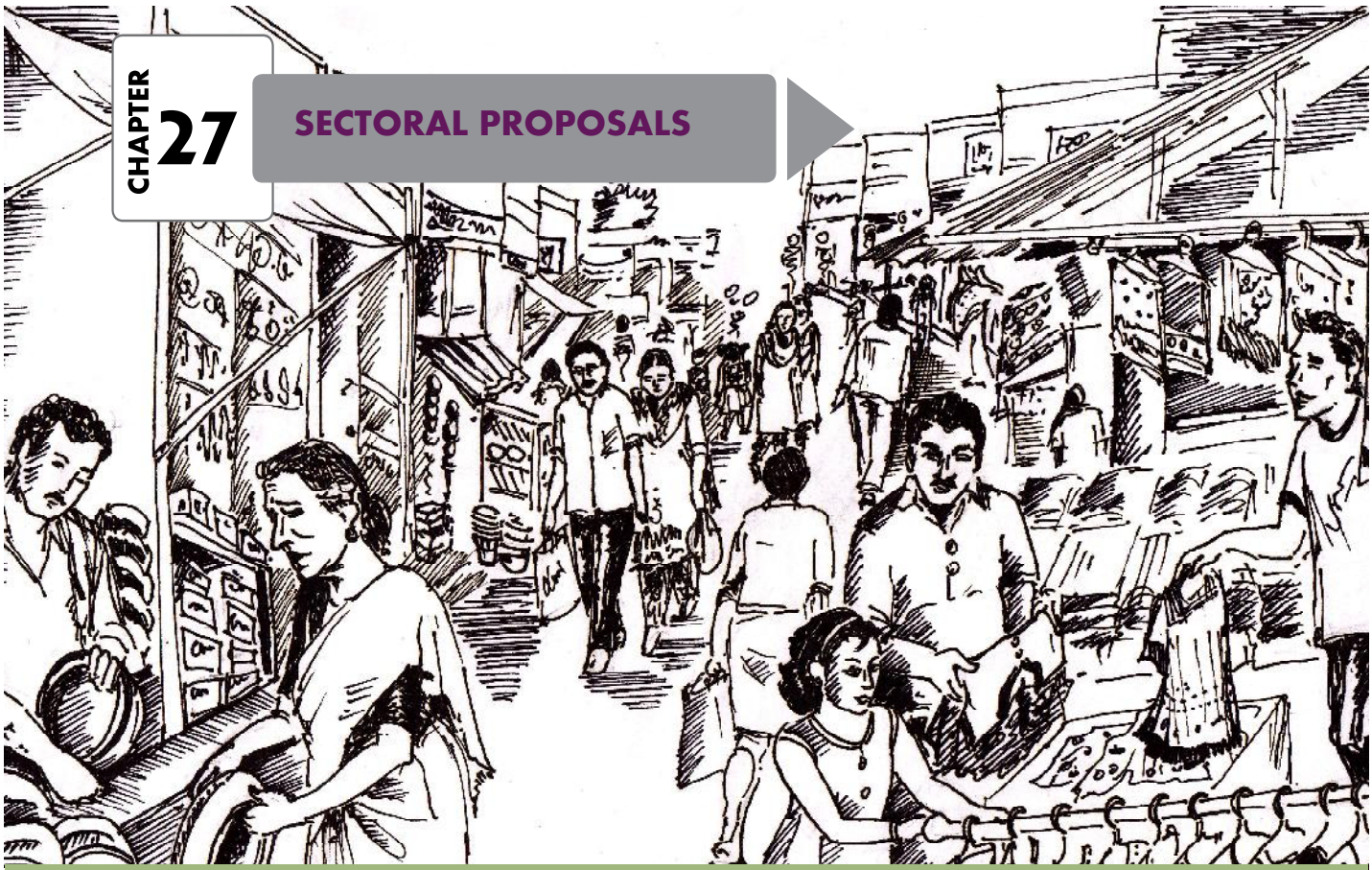
26.11 Parking

Parking facility for private vehicles is non-existent in the 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. Locations of auto rickshaws and taxi stands within the bell mouth of the junctions and KSRTC bus stands and haphazard parking of vehicles on the curb space are a few of the causal factors for traffic chaos in the Perinthalmanna municipality. Also the presence of unauthorized parking at many of the locations within the town becomes a catalyst to the parking problems in the town. In addition to insisting upon mandatory parking facilities for all buildings, parking plazas are proposed in the market area and near Mini Civil Station. Parking plazas may also be constructed in the green belt for fish market, proposed by the municipality.



CHAPTER 27

SECTORAL PROPOSALS



27.1 Trade and Commerce

Trade and commerce being a mainstay of the local economy, a number of projects are proposed for the strengthening of this sector.

The 3.5 acres plot where the present market functions can be developed as a high rise Modern Market Complex with sufficient facilities for wholesale and retail trading and warehousing of different merchandise like agricultural produces, hill produces, fruits & vegetables, stationeries etc., space for street vendors, proper drainage and sanitation facilities, parking plaza etc. The existing town market shall be redesigned to accommodate the existing vendors as well as to allocate more vendors. Sufficient parking and loading-unloading area shall be provided. The entry and exit to the market complex shall be segregated and carefully planned and timing shall be allotted for goods movements to ensure no disturbance to the traffic movement on the highways. Sufficient godown and warehouse space shall be provided to facilitate wholesale trading. Organised spaces for street vendors is also proposed in the Modern Market Complex. The working hours and time allotment can be decided by the municipality, corresponding with non-busy hours of the wholesale market.

With the completion of the new fish market complex, fish and meat trading activities will be shifted to this building. A shopping street with only pedestrian entry shall be developed near the Presentation bypass junction, from Kozhikode road to the proposed bus stand, which can accommodate street vendors in an organised way. Suitable locations for street vendors can also be earmarked at road sides, where the proposed road width is less than the existing road width (ex: certain sections of Pattambi Road and Cherpulassery Road).

The development of trade and commerce sector can be enhanced by urban renewal projects at various locations in the town centre. As the commercial areas are concentrated along the NH, special care shall be taken to avoid the possible congestion and bottlenecks, by providing service lanes. Separate land use policies and schemes using plot reconstitution technique shall be framed in order to facilitate such developments.

27.2 Industry

IT related activities being an area of focus in the industrial scenario of the State and can bring employment to the skilled professionals in the Municipality, an IT park is proposed in the PTM Govt. College Campus where enough land is available, without disturbing the functioning of the college, along with a serene environment. New IT related courses can be introduced in the college, which can act in synergy with the IT park. Dry agricultural land available near this campus can provide ample space for future expansion.

With availability of developable land in the peripheral region and growth in health care and educational institutions in the region, non-polluting industries manufacturing supplies for healthcare and education sectors are proposed to be promoted in the town. Agrobased industries shall also be promoted, as the town itself has a good share of agricultural land and has a vast agricultural hinterland. No area is specifically zoned in the development plan for industrial purposes. But in the zoning regulations industries of appropriate nature are allowed in all the zones.

27.3 Fisheries

Perinthalmanna is not a coastal town and has no major water bodies like backwater or lakes. But there are large extent of uncultivated paddy and number of ponds through-out the municipality where there is a scope for fresh water fisheries. Hence, fresh water fisheries including ornamental aquaculture is proposed to be promoted. Besides, in the abandoned quarry areas, aquaculture projects may be taken up.

27.4 Agriculture

The town has no agricultural market even though it is a service center for a vast agrarian hinterland. Hence a wholesale agricultural market and warehouse is proposed along with the proposed Modern Market Complex near Main Junction.

27.5 Animal Husbandry

Even though there is considerable consumption of meat in the municipality as revealed by the studies the town has no slaughter house. Hence a slaughter house is proposed in the municipality in the 13 acre plot where the solid waste treatment plant also functions.

27.6 Recreation & Tourism

Recreational facilities in the town are highly inadequate.

The recreational facilities in the town are highly inadequate. Kulirmala, situated at the heart of the town shall be developed to enhance the tourism potential of the town. A recreation centre, Bio Park, exhibition centre and an open air theatre are proposed here with this purpose.

Besides a modern science center named Galileo center is also proposed in the municipal land near Kulirmala. The center shall have a modern planetarium with all facilities, interactive science experiment installations, exhibition spaces, center for science shows etc. A multiplex and an indoor stadium is also proposed to be integrated with this to act as a public interface, to integrate the center into mainstream town life and to ensure revenue generation. The indoor stadium is envisaged with all facilities to conduct multiple activities, sports and games with gallery facilities, multiple courts, retiring rooms, lockers, segregated entry and exit, administration rooms, ticketing counters, flood light, TV streaming/ recording, and infrastructure amenities like security and fire safety installations, water and waste water management systems etc.

An Arts Village, Kalagramam, is proposed in 4Ha at Eravimangalam with planned spaces focusing at comprehensive development of arts and culture, including facilities for education, training, entertainment, recreation, exhibition, etc. Kalagramam is envisaged to accommodate Art Galleries, Work Shop Spaces, Exhibition areas for curated events, Amphitheater, Indoor auditorium, Accommodation suites and dormitories, canteen and kitchen, gathering and interactive spaces, seminar hall, board room and meeting space, and internet center etc. The project shall be developed as per a detailed DPR with phasing of development. Amenities like water and waste water management and recycling, rainwater harvesting, solar assisted power generation etc. shall be part of the project.

Even though there is a partly constructed stadium which is actually the play ground of the EMS Education Complex, it is inadequate for the town and also adds to the congestion in the town center. It is proposed to construct a mini stadium in a 3.5acre plot along Manathumangalam bypass. Besides, a children's park is also proposed along this Bypass.

The existing PWD complex has an extent of 1.30 acres and contains a number of low rise buildings spread throughout. All the government offices in this compound could be brought into a single tower making land available for a park.

Besides, neighborhood parks are proposed near housing colonies and near new recreational developments. Jogging tracks/Walk ways are proposed along the natural drainage channels.

Perinthalmanna can be developed as an intermediate station in the Cochin-Vazhikkadavu- Gudalloor tourist circuit with the sites of heritage, cultural and environmental values like Elamkulam Mana, Poonthanam Illam, Pathikkara Mana, Thirumandham

kunnu Bhagavati Temple, Tali Temple, Kodikuthimala etc. around. Suitable locations for comfort stations and tourist-oriented refreshment facilities shall be developed at road sides, preferably where the proposed road width is less than the existing road width (ex: certain sections of Pattambi Road and Cherpulassery Road).

27.7 Housing

There is a shortage of 3759 housing units at present. Various schemes like IHSDP, VAMBAY, EMSHS, RAY etc. in operation in the municipality are expected to cover this shortage to an extent. Still there is a need for public intervention in providing affordable housing. In the absence of planned development the residential land use is spread out all over the town encroaching upon the valuable paddy lands. So further densification of residential land use is necessary for protecting the cultivable lands. Hence appropriate zoning regulations for densification of residential land use, affordable housing and promotion of green architecture are incorporated in the development plan. By allowing more FAR in core area compared to other areas and depromoting non-residential activities in core residential area densification of the residential land use can be achieved. The housing needs of economically weaker sections and migrant labourers can be solved to certain extent through ensuring availability affordable land in peripheral area.

27.8 Water Supply

Presently the town does not face serious scarcity of water in general, however certain pockets have very low ground water table and are highly dependent on piped water supply. Also, the ground water quality is at threat in the absence of proper sewerage infrastructure. In order to maintain the level of service, considering the future population as well, the Kerala Water Authority has to increase its capacity by three fold. Besides a dedicated water supply system is proposed in the special policy area for health care. Moreover, 24*7 water supply shall be ensured to the water scarce areas. Hence a comprehensive plan to improve the watersupply infrastructure of the town shall be drawn up by the Municipality with the help of KWA, and implemented in a phased manner, with the aim of provision of treated water to all by 2030.

27.9 Waste Management

Due to the absence of proper drainage and sewerage system and the small plot sizes, the ground water is getting contaminated.

Due to the absence of proper drainage and sewerage system and the small plot sizes, the ground water is getting contaminated. An integrated sewerage system is proposed for the core and transition areas, to be taken up in two phases. Fig. 27.1 shows the proposed sewerage network. The proposal consist of construction of 17 km sewerage networks and trunk mains, laying network having size from 150 mm to 600 mm, RCC manhole with diameter 1.20 m to 1.50 m house service connection, inspection chamber, road re-formation, shifting of existing utilities, construction of 1 lifting station and connected electro mechanical work and construction of 2.5 MLD STP initially for the core area, covering about 2.51 km^2 targeting a design population of 8500. The design period considered is 20 years for all components except pump set. Sewage Pumping Stations are proposed to be located near low lying area near natural drains. The land for STP can ideally be located along the Presentation Bypass road on the West side, opposite Tharayil Bus Stand, considering the future expansion of sewerage network and enhancement of STP capacity. Municipality, through the council's resolution subsequent to the publishing of Draft Master Plan has decided to the change the location of the proposed STP, from that in the published plan, based on a detailed feasibility study. Suitable location for the STP has to be identified and acquired by the municipality, in this vicinity, at the earliest.

It is proposed to construct STP having a capacity of 2.5 MLD with modern technology like MBR/SBR or the latest available technology in the initial phase. The rough cost estimate is Rs. 45 crores for the Sewerage System for the core area. A future expansion of STP with a capacity 6.75 MLD will be required to cater to the sewerage of the transition area which shall be included in the second phase of the project.

Due to unplanned developments and conversion of wetlands, natural drainage has been obstructed in many places. A detailed plan to introduce a proper system for storm water drainage, by establishing the links wherever needed in the existing road side drain and integrating this properly to the natural drainage channels, shall be drawn up and implemented in a phased manner, by the Municipality.

The solid waste treatment plant situated in the vast 13 acres of land at Kalathilakkara area of the Municipality presently treats 16 tonnes of solid wastes collected from various parts of the city. The design population in 2033 would generate solid waste in the range of 35.0 tonnes, considering generation of 0.50 kg of solid wastes per capita per day. The capacity of the treatment plant need to be enhanced so as to properly treat these 35 tonnes of waste generated. The plant and land fill areas can be scientifically designed and landscaped to ensure a pleasing ambience inside the treatment plant premises, against the usual unpleasant image created by solid waste treatment facilities, so as to disguise itself in to a garden and function along with the proposed botanical garden and children's park in the adjacent municipal land.

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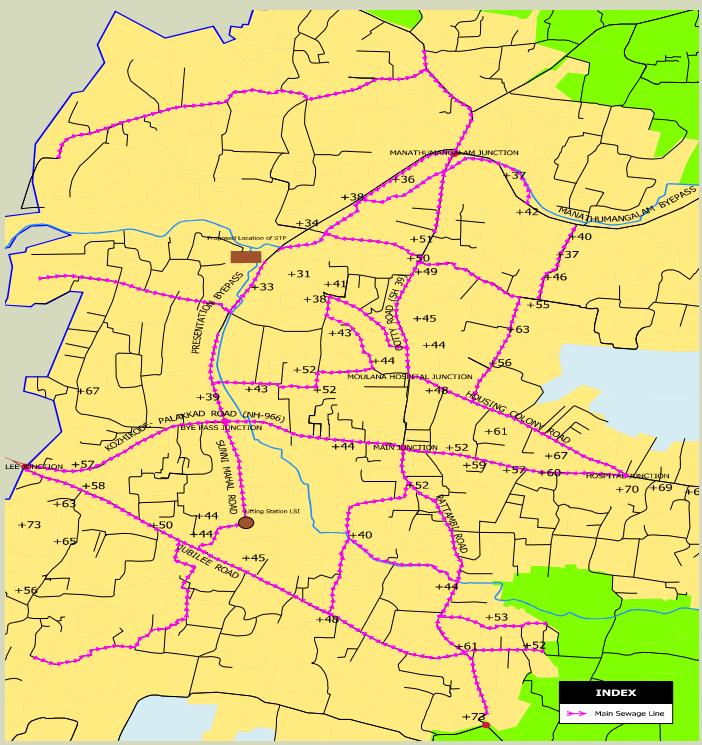


Figure 27.1 Proposed Sewerage Network

The modernization of the treatment plant also should accompany with a detailed integrated municipal solid waste disposal strategic plan.

The modernization of the treatment plant shall be based on a detailed integrated municipal solid waste disposal strategic plan, which shall in general address various aspects including but not limited to the following,

1. The waste need to be segregated at the source, there by facilitating the collection of wastes in four distinct types as 1) General trash, 2) Plastics and other non bio degradable wastes 3) Hazardous/chemical waste and 4) Recyclable papers, card boards and the like items.

2. The idea of "Reduce, Recycle, Reuse "shall be given due prominence in the plan, thereby reducing the quantity of waste generated, also reducing the quantity of wastes

3. The bio medical wastes shall not be mixed up with the other general solid wastes. Elaborate treatment system shall be established for the treatment of various wastes arising from the hospitals and allied areas of the city.

4. The possibilities of generating power from wastes and the production of various types of fertilizers has to be further investigated and implemented.

5. Garbage collection bins shall be provided at various parts of the streets, in sufficient numbers and at suitable locations easily accessible for the public, prompting them to use the bins and not to leave the garbage on streets. Alappuzha model 'WAT SAN Park' is proposed to be implemented in the municipality. A temporary location is identified in part of the municipal land opposite Manazhi Bus stand, where seized vehicles are currently dumped.

6. Modern tools, equipments and machineries shall be provided for the collection, treatment and disposal of the wastes, including machineries and arrangements for street sweeping.

7. The plan shall aim and accomplish a "zero waste city" system for the Municipal area.

One significant factor in an urban design context is the conversion of overhead electric lines to underground cables.

27.10 Energy

The supply of electricity in the municipality is satisfactory. The routine expansion programme of KSEB is expected to cover the increased energy demand. One significant factor in an urban design context is the conversion of overhead electric lines to underground cables. Such a conversion is proposed in the town in this development plan. 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.

27.11 Education

Though there are no higher education centers within the municipality, number of such institutions exist in the surrounding LSGs which are expected to cater to such needs of the people in the town. With better connectivity and locational advantages the town has scope for developing as a facility centre for the students in these institutions. The proposed modern market complex shall accommodate such facilities. The development of Galileo centre near Kulirmala and improvement of physical infrastructure and strength of the schools, ITI/ITCs are also proposed.

27.12 Health

The town has a high potential to be developed as a healthcare destination owing to the presence of a large number of speciality hospitals in and around it. A special policy area for healthcare is proposed along Ootty road in the surroundings of the two major hospitals in the town. Facilities like accommodation for doctors, affordable housing for staff, lodging for bystanders, ancillary industries, restaurants, recreation & communication facilities shall be developed as part of the project. Improved connectivity shall be ensured by providing proper links and widening of existing roads. The infrastructure and other facilities in the District Hospital are to be improved for meeting the health care needs of the common public. Hence the development of District Hospital is to be undertaken based on a detailed project report.

The town has a high potential to be developed as a healthcare destination due to the presence of a large number of speciality hospitals in and around it.

For the development of medical facilities in ayurvedic, homeo and unani fields, an Ayush Complex is proposed in the 0.39 ha land in Sy.No.183 (P) of Perinthalmanna Desom, owned by the municipality at Cholomkunnu. This is nearly 2 km from the town centre and can be accessed from the Pattambi Road. The Ayush Complex is proposed to consist of an Ayurveda Hospital with 30 IP beds, with supporting OP, Pharmacy, Staff, Administration facilities, along with three referral facilities with single OP consultation and respective pharmacies for Homeo, Unani and Allopathy streams.

The Ayurveda hospital currently functioning in two separate buildings is proposed to be modernized and housed in a single building, at Sy.No.117 (P) of Perinthalmanna Desom.

27.13 Other civic amenities

The municipal town hall is presently located at the Housing Colony road with thoroughly inadequate facilities. Hence it is proposed to be developed with state of the art facilities to accommodate various kinds of functions, stage shows, drama and plays, orchestra events etc.

A gas crematorium is proposed at Cholomkunnu is Sy. No. 172(P) of Perinthalmanna Desom. A herbarium is proposed in the premises of the crematorium to create a solemn and serene ambience.

In order to cater to the needs of the students from the neighboring LSGs where lot of higher education centers are coming up, a reference library is proposed in the shopping mall to be built along with the proposed Modern Market Complex.

A residential complex for municipal/government employees is proposed to be constructed in the municipal land in parts of Sy. No. 28 and 31 of Perinthalmanna Desom.

27.14 Environment

Environment protection and management are given due consideration in the development plan. Appropriate zoning regulations are formulated for the conservation of paddy lands, control of various land uses and thus protection of the environment. Regulation for promotion of green buildings and renewable sources of energy are also put forward.

Regulation for promotion of green buildings and renewable sources of energy are also put forward.

A buffer zone of 100 m is proposed around the solid waste treatment plant in order to improve the environment quality in the surrounding areas. Residential activities shall not be permitted in this buffer zone. Social forestry, as well as public utilities and industries may be permitted in the buffer zone. A botanical garden is also proposed to be developed in the municipal land around the solid waste treatment plant, along with a children's park.

There are number of ponds in the municipality, majority being unusable due to dumping of waste and neglect. These ponds are proposed to be renovated so that they can act as water reservoirs improving the ground water table and also can be used for recreation. Besides, the natural drainage channels are to be revitalised, ensuring intact connectivity. Walkways/jogging tracks can be developed along the streams. Avenue plantation along the major corridors is another proposal for improvement of environmental quality.

27.15 Special Concern Areas

A Buds School for the special children is proposed to be established at Sy.No.118 (P) of Perinthalmanna Desom where a section of the Ayurveda hospital is currently functioning.

An Urban Livelihood Centre for the rehabilitation of the physically challenged/ specially skilled persons in the region is proposed in part of the municipal land in Sy.No.163 of Perinthalmanna Desom. The centre is envisaged to have accommodation, skill development programs, livelihood training, medical care etc for the beneficiaries and their care-takers.

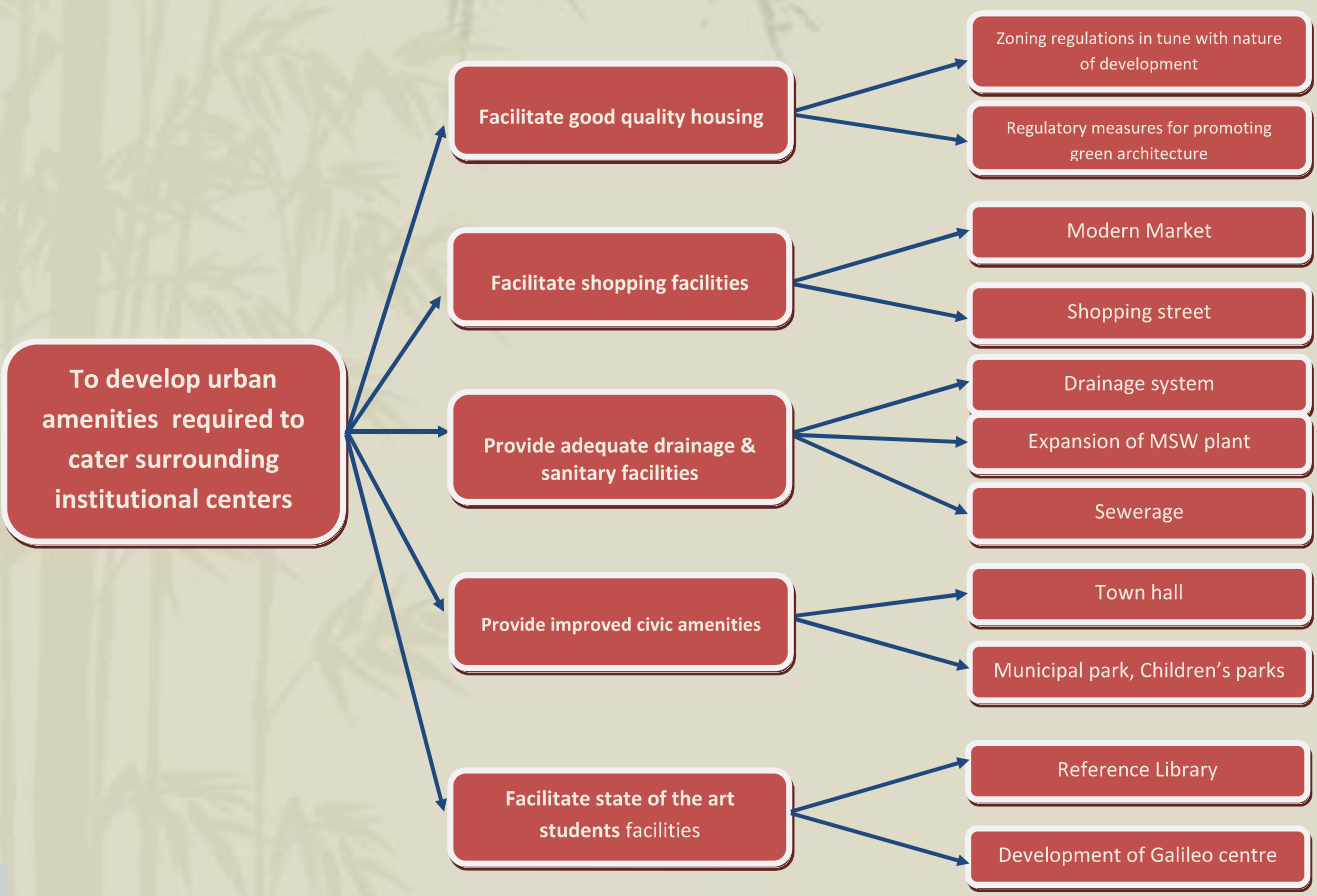
A Senior Citizens Centre is also proposed in part of the municipal land in Sy.No.163 of Perinthalmanna Desom with accommodation, recreation, healthcare facilities for the elderly, along with livelihood opportunities if desired.

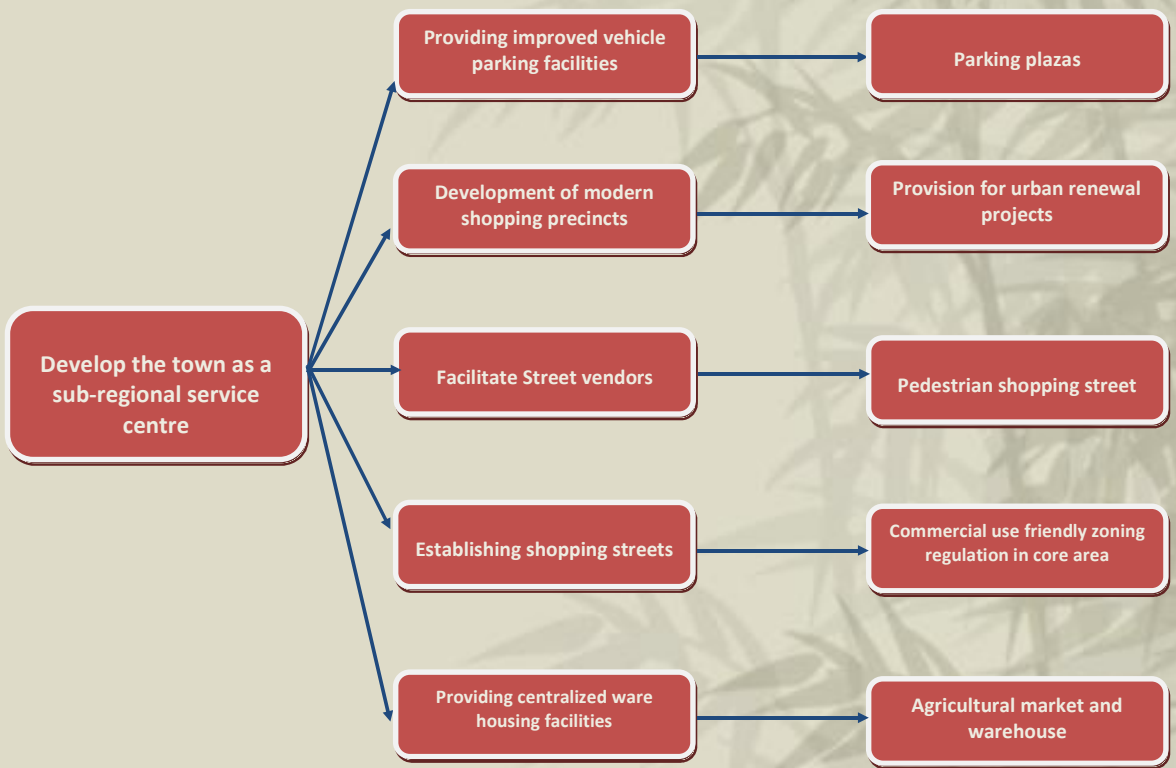
27.16 Governance

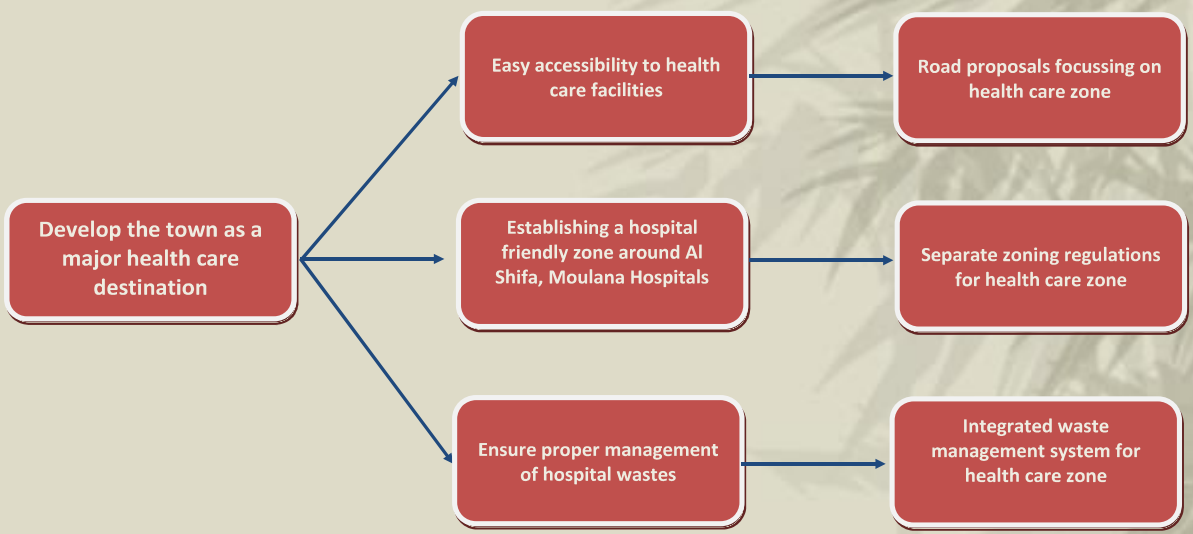
Digitizing the property tax data base and managing this spatial information in a GIS platform with stake holder interface, is proposed to be taken up, to ensure timely detection of unauthorized construction, bringing the evaders to the tax net and ensuring compliance of regulations. This would help to enhance a major revenue stream of the Municipality and would assist the Municipality to reduce its dependence on external aids.

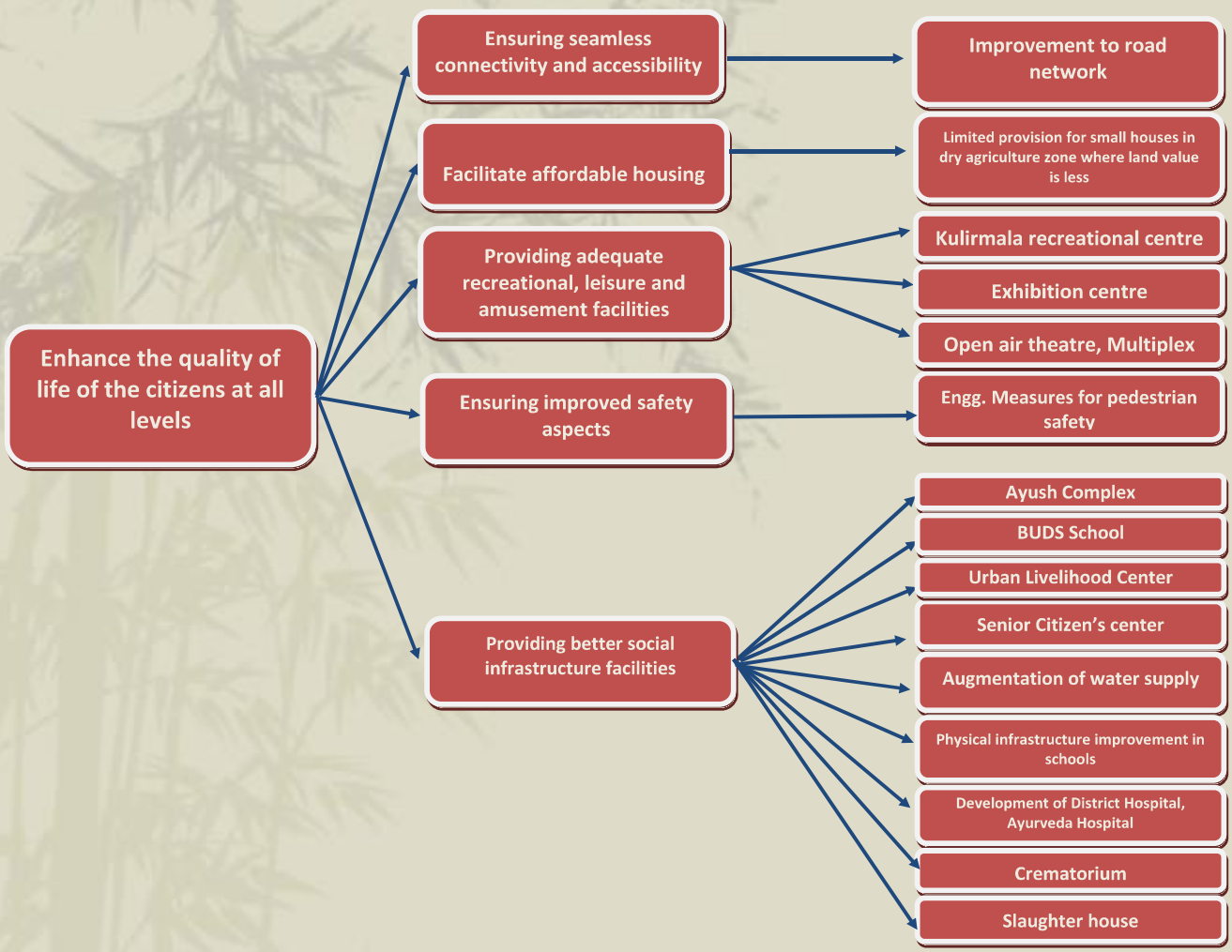
27.16 Goal Based Decision Tree

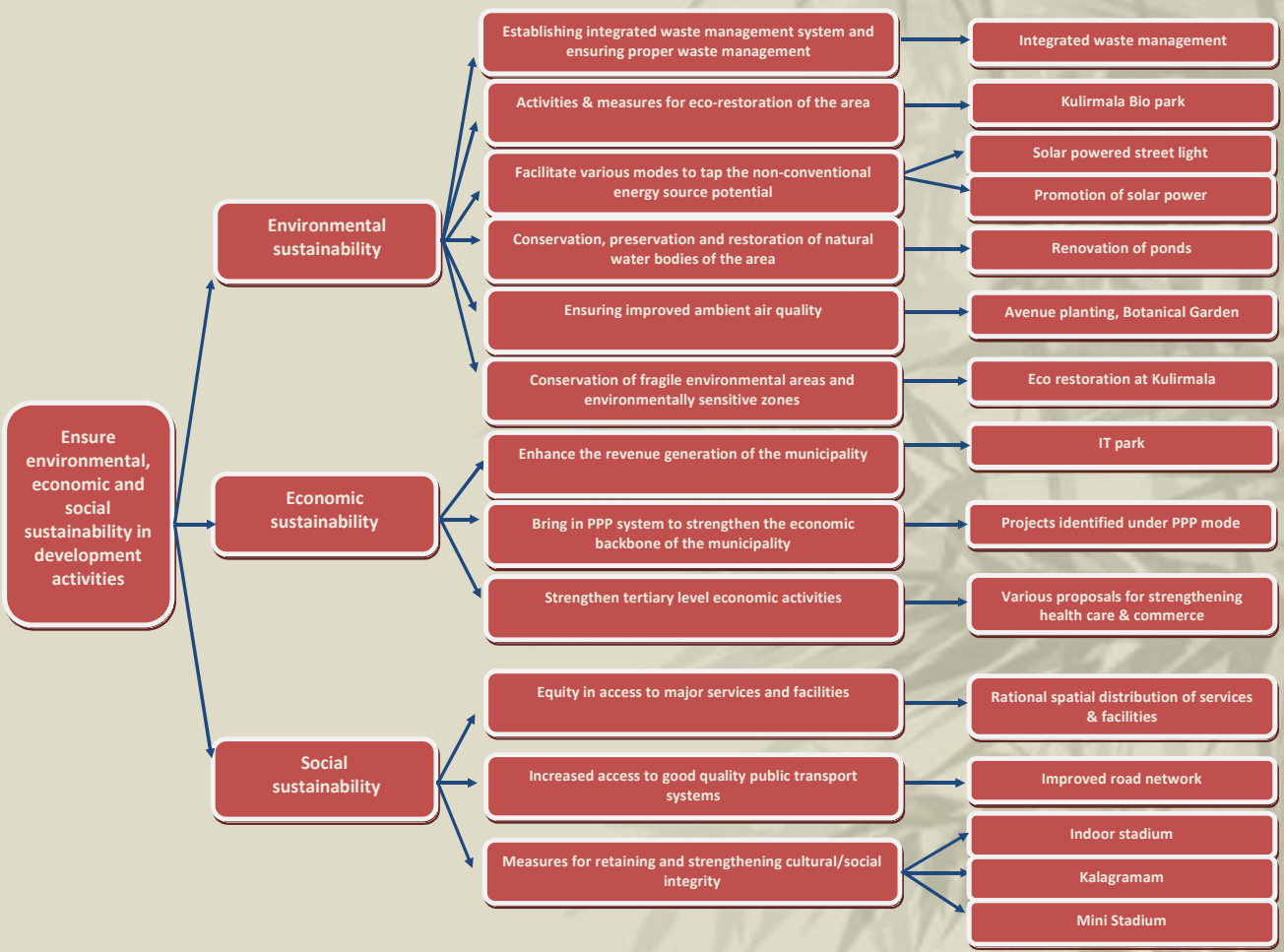
A goal based decision tree is made to ensure the integrity of the development plan. Each objective has been derived from any of the identified goals and each of the projects proposed has an objective behind it. Various land use policies adopted in the development plan also emanate from the identified objectives. Thus the development plan aims at realizing the development vision formulated for the town.




Develop the town as a sub-regional service centre
Providing improved vehicle parking facilities
Parking plazas
Development of modern shopping precincts
Provision for urban renewal projects
Facilitate Street vendors
Pedestrian shopping street
Establishing shopping streets
Commercial use friendly zoning regulation in core area
Providing centralized ware housing facilities
Agricultural market and warehouse


Develop the town as a major health care destination
Easy accessibility to health care facilities
Road proposals focussing on health care zone
Establishing a hospital friendly zone around Al Shifa, Moulana Hospitals
Separate zoning regulations for health care zone
Ensure proper management of hospital wastes
Integrated waste management system for health care zone


Enhance the quality of life of the citizens at all levels
Ensuring seamless connectivity and accessibility
Improvement to road network
Facilitate affordable housing
Limited provision for small houses in dry agriculture zone where land value is less
Providing adequate recreational, leisure and amusement facilities
Kulirmala recreational centre
Exhibition centre
Open air theatre, Multiplex
Ensuring improved safety aspects
Engg. Measures for pedestrian safety
Providing better social infrastructure facilities
Ayush Complex
BUDS School
Urban Livelihood Center
Senior Citizen's center
Augmentation of water supply
Physical infrastructure improvement in schools
Development of District Hospital, Ayurveda Hospital
Crematorium
Slaughter house


Ensure environmental, economic and social sustainability in development activities
Environmental sustainability
Economic sustainability
Social sustainability
Establishing integrated waste management system and ensuring proper waste management
Integrated waste management
Activities & measures for eco-restoration of the area
Kulirmala Bio park
Facilitate various modes to tap the non-conventional energy source potential
Solar powered street light
Promotion of solar power
Conservation, preservation and restoration of natural water bodies of the area
Renovation of ponds
Ensuring improved ambient air quality
Avenue planting, Botanical Garden
Conservation of fragile environmental areas and environmentally sensitive zones
Eco restoration at Kulirmala
Enhance the revenue generation of the municipality
IT park
Bring in PPP system to strengthen the economic backbone of the municipality
Projects identified under PPP mode
Strengthen tertiary level economic activities
Various proposals for strengthening health care & commerce
Equity in access to major services and facilities
Rational spatial distribution of services & facilities
Increased access to good quality public transport systems
Improved road network
Measures for retaining and strengthening cultural/social integrity
Indoor stadium
Kalagramam
Mini Stadium



CHAPTER 28 PLAN IMPLEMENTATION & MONITORING

28.1 Financial Resources & Phasing

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 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. The following table 28.1 gives broad phasing and approximate costs at 2013 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.

The cost of projects under various source of funds can thus be summarized as given in table 28.2.

Table 28.1 Source of funds

Sl. No.	Source	Rupees in Lakhs
1	External (source yet to be identified)	32460
2	PPP	9700
3	Own	13091
4	State	6000
5	KWA	5000
6	KSEB	1000
7	PWD & NH	32183
8	Total	99433

Out of the total Rs. 99433 lakhs required, Rs. 38543 lakhs (41%) is for road development. Out of this, 32183 lakhs (81%) is to be met by PWD & NH. That is 32% of the total outlay for the implementation of the development plan has to come from state/central government for road development. The municipality needs to invest approximately Rs. 655 lakhs per annum for the implementation of this development plan. The municipal financial resources are to be augmented to meet this demand.



Table 28.2 Sectoral proposals (Phasing & Costing)

Sl. No.	Project	Approximate cost Rs. in 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	Modern Market Complex & Warehouse	9200	3	PPP		■	■	■																
2	Shopping street	150	1	Own					■															
3	IT Park	5000	3	State				■	■	■														
4	Renovation of Ponds	80	5	Own			■	■	■	■	■													
5	Ayush Complex	500	2	Ext							■	■												
6	Slaughter House	100	2	Ext						■	■													
7	Kulirmala Recreation Centre	500	3	PPP					■	■	■													
8	Kulirmala Bio Park	100	5	Own								■	■	■	■	■								
9	Kulirmala Exhibition Centre	200	3	Ext								■	■	■										
10	Kulirmala Open Air threatre	200	3	Own											■	■	■							
11	Augmentation of Water Supply system	5000	15	KWA						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12	Sewerage	15660	20	Ext	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13	Storm Water Drainage	5000	10	Ext	■	■	■	■	■	■	■	■	■	■										
14	Expansion MSW Plant	1000	5	Ext											■	■	■	■	■					
15	U.G Cabling in core area	1000	5	KSEB		■	■	■	■	■														
16	Solar powered street lights	100	5	Own	■	■	■	■	■															
17	Development of Galeleo Centre & Multiplex	200	3	Own			■	■	■															
18	Improvement of physical infrastructure in schools	1000	5	State		■	■	■	■	■														
19	Development of District Hospital	2500	5	Ext			■	■	■	■	■													
20	Indoor Stadium	200	3	Own		■	■	■																
21	Mini Stadium & Children's Park	2550	3	Own					■	■	■													
22	Park at PWD Complex	50	3	Own			■	■	■															
23	Kalagramam	5000	5	Ext			■	■	■	■	■													
24	Municipal Town Hall	500	3	Own		■	■	■																
25	Crematorium	50	2	Own	■	■																		
26	Reference Library	100	3	Own					■	■	■													
27	Avenue Plantation	100	10	Own	■	■	■	■	■	■	■	■	■	■										
28	Engineering measures for Pedestrian safety	50	3	Own		■	■	■																
29	Junction improvement	1500	5	PWD		■	■	■	■	■														
30	New Bus stand	1000	3	Ext	■	■	■																	
31	Parking Plaza	1000	3	Ext		■	■	■																
32	Residential Complex	100	2	Own		■	■																	
33	Modernization of Ayurveda Hospital	500	3	Ext	■	■	■																	
34	BUDS School	100	2	Own	■	■																		
35	Urban Livelihood Center & Senior Citizen Center	500	5	Own		■	■	■	■	■														
36	Botanical Garden & Children's Park	100	10	Own	■	■	■	■	■	■	■	■	■	■										

Table 28.3 Road Proposals

Sl. No.	Major Road Proposals	Length (m)	Existing Width (m)	Proposed Width (m)	Approximate cost Rs. 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	Kozhikode-Palakkad Road (NH 966)	4915.88	22.46	32	4723	NH	■	■	■	■	■	■	■	■	■	■										
2	Elevated Corridor	1700	0	16	6800	NH											■	■	■	■						
3	Manathumangalam Bypass	2914.93	20	32	2800.3	PWD				■	■	■	■													
4	Orodampalam Bypass	1123.11	0	32	5390.9	PWD		■	■	■	■															
5	Presentation Bypass Road	1034.58, 771.05	12	21,32	1902.5	PWD	■	■	■																	
6	Presentation Bypass Jn-Pattambi Rd Link	2053.74	0-8	16,8	1231.8	PWD			■	■	■	■	■	■	■											
7	Cherpulassery Road (SH 53)	3281.18	22.5	21	1969.6	PWD														■	■	■				
8	Housing Colony Road	910.25	6.3	16	544.5	Own					■	■	■													
9	J N Road	1822.57	12.8	21	1093.7	Own		■	■	■	■															
10	Perumbilavu Nilambur (SH 39)	7469.98	17	21	2943.9	PWD			■	■	■	■	■	■												
11	Palakkad Road-Cherpulasseri Road Link	2775.63	6	16	1674.8	PWD										■	■	■	■							
12	Pattambi Road-Cherpulassery Road Link	2076.43	7.8	16	1246.2	PWD						■	■	■	■											
13	Al Shifa Hospital - Bushra Corner Road	837.62	5.5	12	331.9	Own																				
14	Housing Colony Road -Kulirmala Road	100.59	4.4	12	44.0	Own		■	■																	
15	Housing colony Rd-Manathumangalam Bypass Link	994.30	4.8	12	437.7	Own				■	■															
16	Kulirmala-NH Road	189.8	0	16	77.1	Own			■	■																
17	Presentation Bypass-Moulana Jn Road	767.80	4.2	12	336.8	Own			■	■																
18	New Bus Stand Road Link 1	340.98	0	12	323.5	Own		■	■	■																
19	Hospital Jn to Kulirmala Road	206.40	5	10	57.8	Own				■	■															
20	Kalathilakkara Road	2427.66	5	10	679.6	Own						■	■	■												
21	Manathumangalam - Kakkooth - Palakkad Road Link	4880.92	8.1	10	1366.6	Own	■	■	■	■																
22	Road to Kalagramam (West Side)	31.81	0	10	17.8	Own			■	■	■															
23	Road to Kalagramam (East Side)	621.93	0-6.5	10	243.8	Own			■	■	■															
24	Thanneerpanthal Road	1685.82	6.6	10	468.2	Own			■	■	■															
25	Manathumangalam-Mannarmala Road	1332.84	8	10	497.6	Own	■	■																		
26	Orodampalam Bypass - Ooty Road Link	1749.3	0-6.3	10	685.7	Own														■	■	■				
27	J N Road- Thekkinkode-Cricket Stadium Road	1165	4.8	10	339.2	Own																■	■	■		
28	New Bus Stand Road Link 2 & 3	401.75	0	9	315.3	Own	■	■	■																	

Implementation of the development plan is as important as its preparation.

28.2 Monitoring and Review

Implementation of the master plan 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.

28.2.1 Monitoring

A monitoring committee shall be set up as follows.

Municipal Chairman	Chairman
Chairpersons of all standing committees	Members
Town Planner of the State Town and Country Planning Department having jurisdiction in the area	Member
Municipal Secretary	Convener

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.

28.2.2 Review

The sanctioned master plan shall be reviewed and a committee shall be constituted for the review of the master plan as per the provisions of the town planning legislations in force.

The 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.



PART – IV
DEVELOPMENT REGULATIONS





CHAPTER 29

ZONING

For the implementation and enforcement of the proposals envisaged in the Master Plan for Perinthalmanna town, the town is divided into various zones intended for specific uses.

29.1 Zoning regulations

1. All future developments shall be in conformity with the provisions of the Master Plan for Perinthalmanna town.

2. For the implementation and enforcement of the proposals envisaged in the Master Plan for Perinthalmanna town, the town is divided into various zones such as residential, commercial, public and semi public etc. Details regarding the nature of uses permitted, uses restricted and uses prohibited in each zone are given below.

3. Zoning regulations are not intended to prohibit existing uses that have been lawfully established prior to the enforcement of these regulations, unless otherwise specifically mentioned in this Master Plan. They are essentially intended to help the competent authority in decisions regarding granting or refusal of permits for land developments and construction of buildings/ structure or any other matter specifically mentioned in these regulations.

4. "Uses permitted" in a zone cover the uses that can be normally accommodated in the relevant zone. They shall be permitted by the Secretary, Perinthalmanna Municipality, hereinafter referred to as Secretary.

5. In some cases it may be possible to permit some other uses also, which are not likely to affect the quality of environment in a zone specified for a particular use. Such cases have to be individually studied based on their performance characteristics and spatial locational factors. Such cases are classified as "Uses restricted." 'Uses restricted-1' category deals with the uses that may be permitted by the Secretary, Perinthalmanna Municipality, 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 of the Department of Town and Country Planning

6. "Uses prohibited" enlists the various objectionable uses in each zone, which shall not be permitted under normal circumstances.

7. If any portion of a zone is put into a 'Use prohibited' as stated in paragraph 3 above, before the sanctioning of the Master Plan, such use shall be termed as a non-conforming use. A non-conforming use may be allowed to continue in its existing location, if lawfully established prior to the enforcement of these regulations, and essential repair 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, may be permitted for such uses by the Secretary with the concurrence of the Chief Town Planner.

8. Existing areas and structures of archeological importance and religious uses may be permitted to continue in all zones and shall not constitute non-conforming uses.

.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Residential Zone I	All residences, Residential flats, Residential Quarters, Guest houses, Home based professional services, Home offices and Studios of the residents, Orphanages, Old age homes and Dharmasalas, Ashram/ Mutt, Night shelters, Lodges, Hostels and Boarding houses, Parks and Play grounds, Service or light industries of non-nuisance nature (see annexure I) engaging not more than 5 workers with power limited to 10 HP or 20 workers without power, Tot lots, Water treatment plants upto 10 MLD, religious buildings, Police Post/Police Station, Fire Post / Fire station. **Floor area limited to 150 Sq.m.** Banking and Financial Institutions, ATM, Gymnasium/Yoga Centers, Clinics (OP), Cottage Industries, Post & Telegraph Office, Social Welfare Centers, Community halls. **Floor area limited to 300 Sq.m.** Day care centers and Crèches, Nursery/ Kindergarten / Anganvadi, Uses incidental to residential uses such as Retail and Convenience shops, Cafeteria, Professional offices, Clubs, Library and Reading room, Open air theatre.	Primary, Secondary and Higher secondary schools, Transmission towers/ Wireless station, Parking plazas, Swimming pool, Smoke house attached to a residential building, Other public utility areas and buildings essentially serving the need of the locality, Taxi/Jeep/Autorickshaw stand **Floor area limited to 500 Sq.m.** Commercial offices/ Establishments, Bakeries and Confectioneries, Restaurants /Canteen, Hospitals, IT (Hardware and Software) establishments, Automobile workshops for 2/3 wheelers. Community hall above 150 Sq.m. provided access road has a width of 8m.	Fuel filling stations	Any other uses not specified in column 2, 3, and 4.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Residential Zone II	All uses permitted in Residential Zone I. **Floor area limited to 200 Sq.m.** Banking and Financial institutions. **Floor area limited to 500 Sq.m.** Primary Schools.	All uses permitted with the concurrence of Town Planner in Residential Zone I. Hospitals up to 750 Sq.m. floor area. **Floor area limited to 500 Sq.m.** Automobile workshops.	Fuel filling stations	Any other uses not specified in column 2, 3, and 4.
Residential Zone III (for Healthcare Special Policy area)	All uses permitted in Residential Zone I. **Floor area limited to 500 Sq.m.** Banking and Financial institutions, Primary Schools, Commercial buildings.	All uses permitted with the concurrence of Town Planner in Residential Zone I. Commercial buildings upto 1000 Sqm.	Fuel filling stations, Hospitals, Educational institutions conducting Medical/ Paramedical / Allied courses, Industries to manufacture Hospital/ Medical supplies including Instruments and Consumables, Commercial buildings	Any other uses not specified in column 2, 3,and 4.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Commercial Zone	Residences (floor area up to 300 Sq.m), Orphanages, Old age homes, Dharmasala, Ashram/Mutt, Hostels, Boarding houses, Guest houses, Lodges, Night shelters, All shops including Shopping complexes, Shopping malls, Multiplex, Hypermarket, Restaurants, Hotels, swimming pool, Markets, Professional offices, Commercial offices & Establishments, Banking and Financial institutions, Godown / Ware house/ Storage of non- hazardous materials, Stacking yards, IT software/hardware units, Movie halls, Auditorium/Wedding halls/ Community halls, Gymnasium/ Yoga centers, Day care and Crèche, Tot lots, Parks/Play grounds, fair grounds, Open air theatre, Outdoor games stadium, Automobile workshops, wash stalls and service station, Cold storage, Weigh bridges, Marble/Granite/Other natural stones Storage/Cutting centers, Local / State / Central Government or public sector offices, Transmission towers, Telecommunication towers and Wireless station, Library and Reading room, Social welfare center, Museum, Exhibition centers and Art gallery, Indoor games stations, Convention centers, Public utility areas & Buildings, , Religious buildings up to 100 Sqm, Clinics (outpatient), Diagnostic centers, Hospitals up to 500 Sq.m., Parking plazas, Transport terminals, Plant nursery, Storage and Sale of Agricultural produces and Seeds, Taxi/Jeep/Autorickshaw stand, Police Post/Police Station, Fire Post / Fire station.	Residential flats/ Apartments with FAR limited to 2.5.	Hospitals above 500 Sq.m floor area, Educational institutions conducting Medical/ Paramedical/ Allied courses	Any other uses not specified in column 2, 3, and 4.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Public and Semi Public Zone	Local /State /Central Government or Public Sector Offices, Social and Cultural Establishments, Auditorium/Wedding/ Community Halls upto 500 Sq.m, Hospitals, Diagnostic centers, Clinics / Health Centre, All types of Educational Institutions, Hostels, Public utilities and related Buildings, Religious buildings, Civil Defense and Home Guard, Police Post/Police Station, Fire Post / Fire station, Jail and Reformatory, Library and Reading Room, Social Welfare Centres, All types of recreational facilities(Parks, Museum, Indoor Games Stadium, Fairground, Swimming pool, Exhibition Centre and Art Gallery, Play ground, Open air theatre, Zoological/Botanical Garden, Bird Sanctuary, Camping site), Banking and Financial Institutions, ATMs, Cyber café, Radio and TV Stations, Transmission towers/ Wireless station, Water treatment plants up to 10 MLD, Tot lots, Storage and Warehouses. **Floor area limited to 100 Sq.m.** Day care centers and Crèche, Retail shops/Whole sale shops/ Professional offices, Restaurants /Canteens, Residential uses incidental to main use.	Auditorium/ Wedding/ Community Halls up to 1000 Sq.m, Outdoor Game Stadium, Convention Centers, Parking plaza, Traffic park, Taxi/Jeep /Autorickshaw stand, IT/Software/ Hardware units, Beauty parlor, Gymnasium/ Yoga centre, Water treatment plants above 10 MLD.	Auditorium/Wedding/ Community Halls more than 1000 Sq.m, All transport Terminals/Stand/Lorry Stand, Fuel filling Stations, Crematorium, Burial Ground, Cremation ground, Common Vault, Sewage Treatment plants, Dumping Yards.	Any other uses not specified in column 2, 3, and 4.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Dry Cultivation Zone	Agriculture, horticulture and fodder cultivation, pastures, grazing ground, and other types of cultivation including social forestry. Dairy Farms, Fish farms, Seed farms, Poultry farms, Plant nursery, pump house, wells and irrigation ponds. Single Family Residential Buildings, Hostels, Residential buildings consisting of multifamily dwellings, residential flats / apartments, residential quarters, IT Establishments. Orphanages, old age homes, 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 Creche, Nursery / Kinder Garten / Primary & Upper primary schools. Automobile workshops for 2/3 Wheelers Tot Lots/Parks/Play Grounds, Saw Mills, Weigh Bridges. **Floor area limited to 100 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	Cremation ground / crematorium, burial ground, common vault Slaughter Houses Autorickshaw/ Taxi/ Jeep stand, Diary/ Poultry/Piggery Farms.	Fuel filling stations, Storage of explosives and fireworks, Gas Godowns, Saw mills with Timber yards, Fish or meat processing centre, Dumping Yards, Sewage treatment plants, Industries of nuisance nature (Annexure II) with power limited to 20 HP.	Any other uses not specified in column 2, 3, and 4.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Dry Cultivation Zone	Provided that the access road has a width of 8m minimum			
	Hospitals & Health Centres **with number of beds limited to 5.** **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 **Floor area limited to 500 m^2.** Auditorium/Wedding Halls/Community halls	Secondary & Higher Secondary Education buildings, Swimming pools, Parking Plazas		
	Provided that the access road has a width of 12m minimum			
		Auditorium/wedding hall/community hall upto - 1000 sqm Stacking yards, Godowns/ Warehouses/Storage - non hazardous materials. Higher Education Institutions. Health Care Facilities including Diagnostic Centres, Clinics, Hospitals with number of **beds limited to 50.**	Auditorium/wedding hall/community hall Bus terminal, Lorry stand, Industries of nuisance nature as listed in Annexure II and Industrial estate and industrial parks,	

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Mixed Use (Residential Cum Commercial) Zone	All uses permitted under Residential Zone I and Commercial Zone.	Primary, Secondary and Higher secondary schools, Taxi/Jeep /Autorickshaw stand. Other public utility areas and buildings essentially serving the need of the locality, Hospitals. Industries to manufacture Hospital/ Medical supplies including Instruments and Consumables.		Any other uses not specified in column 2, 3, and 4.
Parks and Open Spaces Zone	Parks, Open spaces and maidans, Play grounds, Tot lots, Zoological and Botanical Gardens, Stadia, Swimming pools, Bird Sanctuary, Public utility Buildings such as Police post/ station, Fire post/station, Fair Ground, Exhibition Centre, Art Gallery, Traffic park, Amusement parks, Circus, Festivals, Picnics, Travelling Cinemas, Camping site, Transmission towers/ wireless station.	Pavilions and grand stands, Bath House, Aquarium, Reading room, Gymnasium / yoga centers, T.V/ Radio kiosks, Social and Cultural Establishments incidental to main use, Taxi/Jeep/ Autorickshaw stand incidental to the main use, ATMs, Water treatment plants below 10 MLD, Day care centers, crèches and Kindergarten, Public utilities, Museums, Parking Plazas, Incidental uses viz. retail shops, Restaurants/ canteens etc with coverage limited to 5% and a maximum FAR of 0.1.		Any other uses not specified in column 2, 3, and 4.
Wet CultivationZone	Paddy fields, Gardens, Pastures and Grazing grounds, Fodder Cultivation, Brick kilns, Dhobikhana, Agriculture, Horticulture, Fish Farm, Seed Farm, Pump House, Wells and Irrigation Ponds, Storage of Agricultural Produces and Seeds, Green Houses and Plant Nursery, Constructions/ land developments all in conformity with the provisions of Conservation of Paddy Land and Wetland Act in force in the State.	Tot lots and playground, Transmission towers and wireless stations, Water treatment plants up to 10 MLD, all as per the provisions of Conservation of Paddy Land and Wetland Act in force in the State.		Any other uses not specified in column 2, 3, and 4.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Transport & Communication Zone	All uses connected with traffic such as Road and Rail Transportation Routes, Bus terminals, Railway stations, Vehicle parking areas, Repair and service centers attached to the terminals, Container Terminals (Minimum access width required 12m), Weigh Bridges, Tot Lots, Traffic Park, Parks, Lorry Stand, Taxi/Jeep/ Autorickshaw Stand, Transmission towers/ Wireless stations, Parking Plaza.	Cyber café, Police Post/ Station, Fire post/ Station, Post and Telegraph office, Telephone Exchange, Electric substation, Clinics (OP), Play ground. Any use incidental to main uses such as Retail Shops/Restaurants/ canteens, ATMs, Residential Buildings, Night shelters, Guest houses, Lodges, Offices, Public Utility Areas and Buildings and parks which form an integral part of the Transportation Use Proposed.	Fuel Filling Stations.	Any other uses not specified in column 2, 3, and 4.
Rocky Area	All constructions / developments in this zone shall be are carried out with minimum disturbance to the terrain and ecology of the area.			
	All uses permitted in Park & Open Spaces Zone. Water treatment plants up to 10 MLD.	All uses permitted with the concurrence of Town Planner in Park & Open Spaces Zone. Single family residential buildings not exceeding 7m height from surrounding ground level at any point, Incidental public utility buildings of floor area upto 100sqm. Public utility areas and buildings essentially serving the need of the local community all not exceeding two floors from surrounding ground level and/ or 7m in height.		Any other uses not specified in column 2, 3, and 4.

Zone	Uses permitted	Uses restricted 1	Uses restricted 2	Uses Prohibited
1	2	3	4	5
Hazardous Zone	Cremation Grounds, Burial Grounds and Related constructions, Sewage Treatment Plants, Manure Storage, Garbage Dumping, Junkyards, Slaughter Houses and all types of Obnoxious and Nuisance Industries as per Annexure II, Incidental Storage and Ware housing, Transmission towers/ Wireless station, Residences and Public and semi Public Offices incidental to the main uses up to 100 Sq.mof floor area.	Police and Fire post/ stations.	Storage of Explosives and Fire Works, and Gas Godowns, Saw Mills with Timber Yard, Spray Painting Workshops, Fuel Filling Stations.	Any other uses not specified in column 2, 3, and 4.
Water body	Bridges, Retaining walls, Water sports, Fish farming, wells, irrigation/water supply/sewage treatment related structures			Any other uses not specified in column 2, 3, and 4.



SPECIAL ZONES: Developments in these zones may be permitted by the Secretary of the LSG with the concurrence of the Chief Town Planner .
Kulirmala Biopark: Only single storied buildings shall be permitted in this zone and it shall be ensured by the secretary that the constructions are carried out with minimum disturbance to the terrain and ecology of the area. The uses listed under Parks and Open Spaces Zone may be permitted in this zone. The development of the existing residential settlements in this area, including addition/alteration/renovation of existing houses, construction of new houses and ancillary buildings essential for the community shall be permitted. Other developments in this area reserved for Kulirmala bio-park shall be for eco-restoration, recreational park (including open air theatre), museums/planetariums/exhibition spaces and bio-reserve. Also, to act as a public interface and to ensure revenue generation, a multiplex and an indoor stadium may also be accommodated along with the biopark. All these developments shall be according to the detailed design and DPR to be prepared for the purpose by the Municipality. The detailed lay out design and DPR shall be subject to the approval of the Chief Town Planner.
Kala Gramam: Around 4Ha is reserved at Eravimangalam for an Arts Village (Kala Gramam) with planned spaces focusing at comprehensive development of arts and culture, including facilities for education, training, entertainment, recreation, exhibition, etc to be taken up according to the detailed design and DPR to be prepared for the purpose by the Municipality. Hotels, Banking and Financial institutions, Movie halls, Auditoriums / Community halls, Gymnasium/ Yoga centers, Swimming Pool, Day care and Crèche, Tot lots, Parks/Play grounds, fair grounds, Open air theatre, Transmission towers, Telecommunication towers and Wireless station, Library and Reading room, Social welfare center, Museum, Exhibition centers and Art gallery, Convention centers, Public utility areas & Buildings, Social and cultural establishments, Educational Institutions in the field of arts, incidental residential facilities for artists, students, staff and short stay facilities for visitors, Water treatment plants up to 10 MLD may be permitted in this zone. Besides, the uses listed under Parks and Open Spaces Zone may also be permitted in this zone.
Municipal Solid Waste Treatment Plant: Survey No.1(P) of Kunnappalli Desom, where the solid waste treatment plant is currently functioning, is earmarked for the expansion and capacity enhancement of the plant. Besides, slaughter houses, facilities for hospital waste treatment and disposal, e-waste processing and plastic waste processing are permitted in this zone.
Buffer area around solid waste treatment plant: A distance of 100m from the premises of solid waste treatment plant shall be the buffer area in which no residential building construction shall be permitted. However, all kinds of industries, social forestry/botanical garden and activities of the like as well as public utility areas and buildings essentially serving the need of the local community shall be permitted in this zone.
Stream Widening: To avoid any discontinuity/narrowing of the natural drainage existing along the eastern side of Presentation bypass road during the implementation of the proposed widening of the road, a patch of land along the road is demarcated as 'stream widening', so that, even after the widening, the natural drainage can remain uninterrupted and retain its natural width, with suitable shifts in its alignment as necessary.
Crematorium/Burial Ground: Survey No. 172(P) of Perinthalmanna Desom is earmarked for the construction of a public crematorium and its ancillary buildings and facilities. Besides, existing burial grounds/cemeteries/crematoriums are included in this zone and modernization/reconstruction/additions to the existing facilities are permitted in these areas also complying with the provisions of the Kerala Municipality Building Rules in force.

29.2 General guidelines

No building shall be constructed (other than that is essential for the bonafide use of the water body under consideration) within 3 m from the boundary of any water body.

1) The General Guidelines shall apply to all zones irrespective of the zoning regulations for individual zones.

2) 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.

3) No building shall be constructed (other than that is essential for the bonafide use of the water body under consideration) within 3m from the boundary of any water body. Walkways/jogging tracks may be constructed in this area.

4) Incentives for Green buildings and utilization of solar power and other renewable energy may be permitted as per government policies from time to time.

5) In areas zoned as 'Existing Quarries' no building construction or development activity may be permitted. However, activities like aquaculture, floriculture, rain water harvesting and associated water treatment facilities etc may be permitted. Comprehensive development/ Rejuvenation of these areas for recreational purposes based on a site specific DPR may also be permitted with approval/NOC from Fire & Safety Department, Police Department and the District Collector, after obtaining concurrence from the Chief Town Planner.

6) 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.

7) 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.

8) 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.

9) Regulation of construction on the sides of new roads/roads proposed for widening as per this Master Plan shall be governed by the distance from the centerline of the road, unless otherwise specified in this Master Plan or Detailed Town Planning Schemes or any detailed road alignments approved by the Government.

10) The Government shall have the power to issue any clarification required in respect of technical interpretation, if any, in consultation with the Chief Town Planner.

11) Any use not specified in the 'uses permitted' or 'uses restricted' category of a particular use zone, but which is of 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.

12) Large scale development proposals in area not less than 2 ha., exceeding an 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 Perinthalmanna 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, Perinthalmanna Municipality 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.

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13) 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.



14) 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.

15) In land up to a depth of 200m, on either side of the road from the edge, having an existing or proposed width of 16m or more, uses listed under Residential Zone II, Commercial Zone and Public and Semi public zone may be permitted in Residential Zone I, Residential Zone II ,and Dry Cultivation Zone if not allowable otherwise by these zoning regulations.

16) 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 Kerala Conservation of Paddy Land and Wet Land Act and other relevant acts, rules and government orders in force in the state.

17) 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.

18) 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.

19) 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.

20) When existing road width is more than the proposed road width as per this master plan, organized street vending locations, organized parking facilities, public utility areas & buildings essentially serving the need of the local community etc may be permitted with the consent of the concerned authorities in conformity with the relevant Acts, rules and government orders in force in the state.

21) Non polluting industries (as per Annexure I)with power capacity upto 150HP, engaging 50 workmen will be permitted in the planning area.

ANNEXURES

ANNEXURE

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, photo 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

Ist 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.

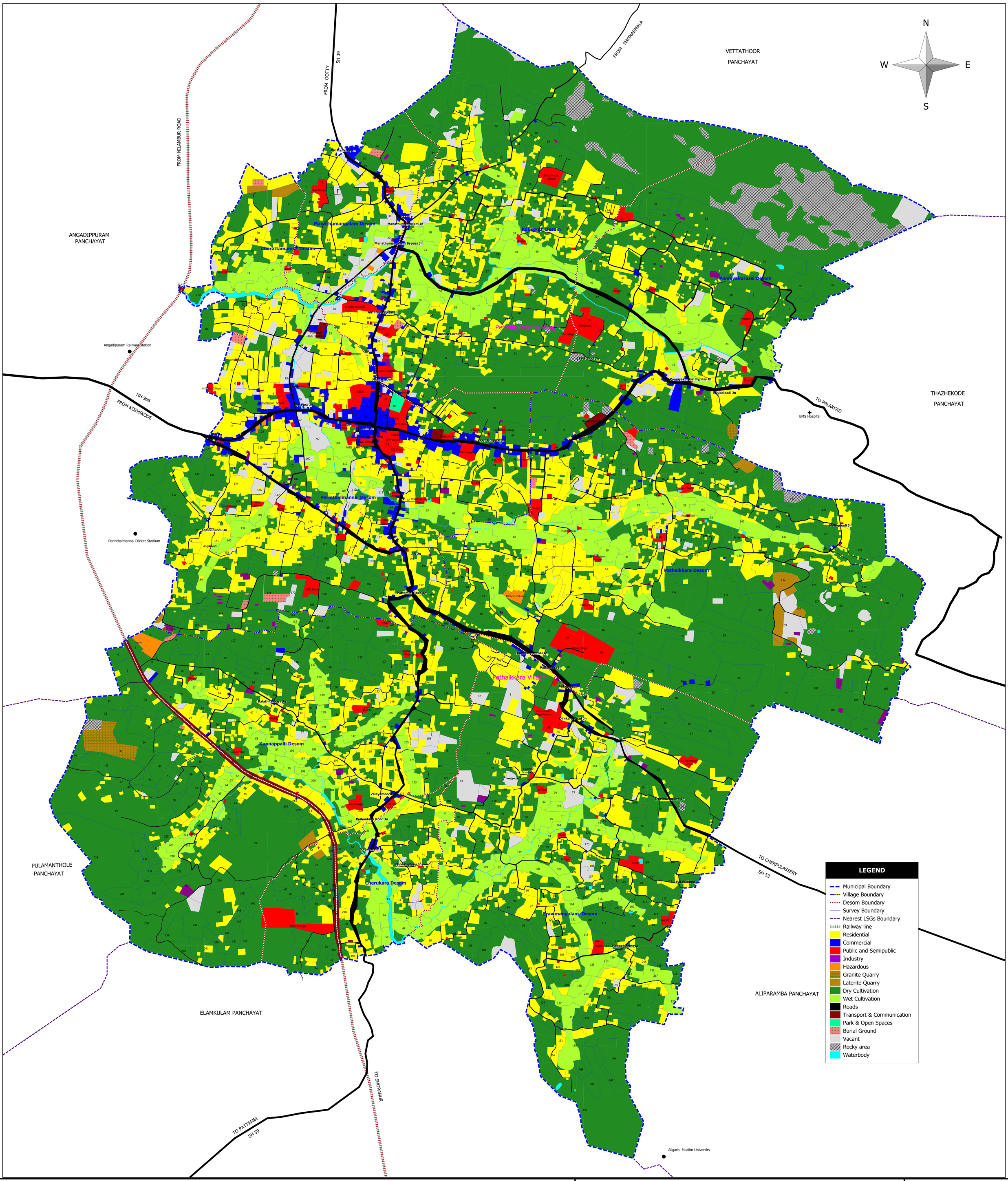
ANNEXURE III

From the Development Seminar, conducted in connection with the 2012 ~ 2017 five year plan, and Perinthalmanna Master Plan 2033 preperation, on 08th Aug 2012

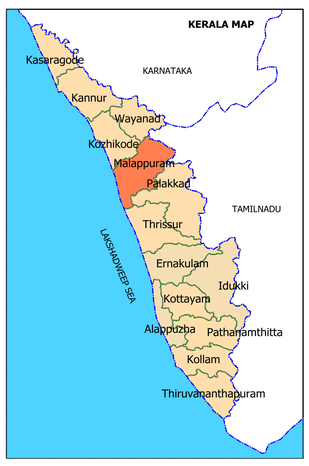


MASTER PLAN FOR PERINTHALMANNA TOWN

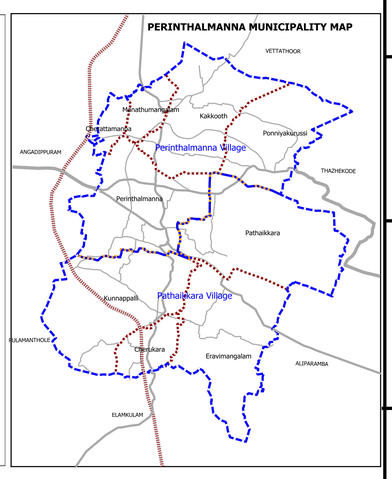
EXISTING LAND USE-2013











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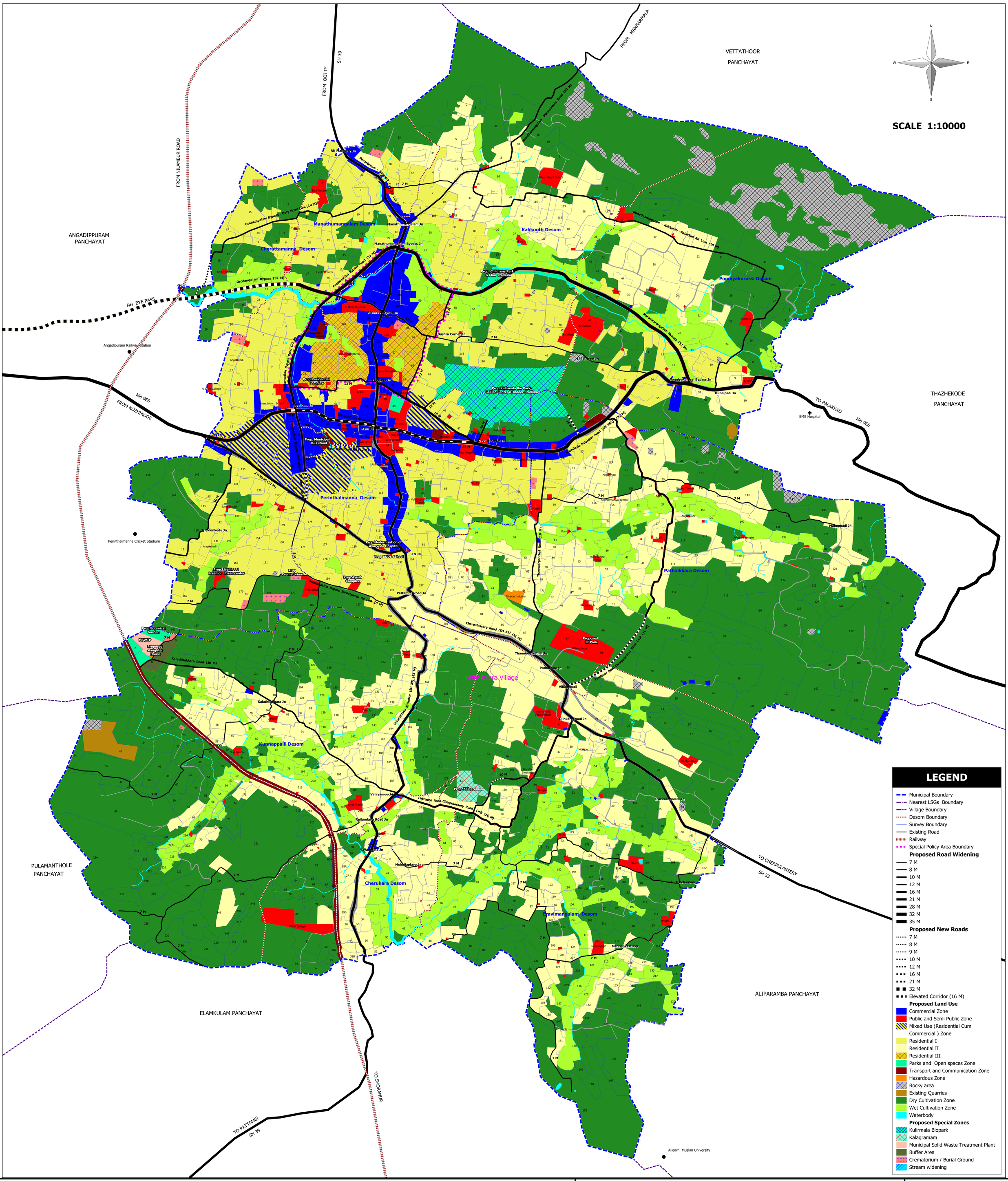
Office of the Town Planner , Malappuram				
Draftsman	Assistant Town Planner	Deputy Town Planner	Town Planner	Municipal Chairman
Office of the Chief Town Planner, Thiruvananthapuram				
Asst. Town Planner	Dy.Town Planner	Town Planner	Sr.Town Planner	Chief Town Planner (Planning) / Secretary

LOCAL SELF GOVERNMENT DEPARTMENT

Principal Secretary to Government

MASTER PLAN FOR PERINTHALMANNA TOWN

PROPOSED LAND USE-2033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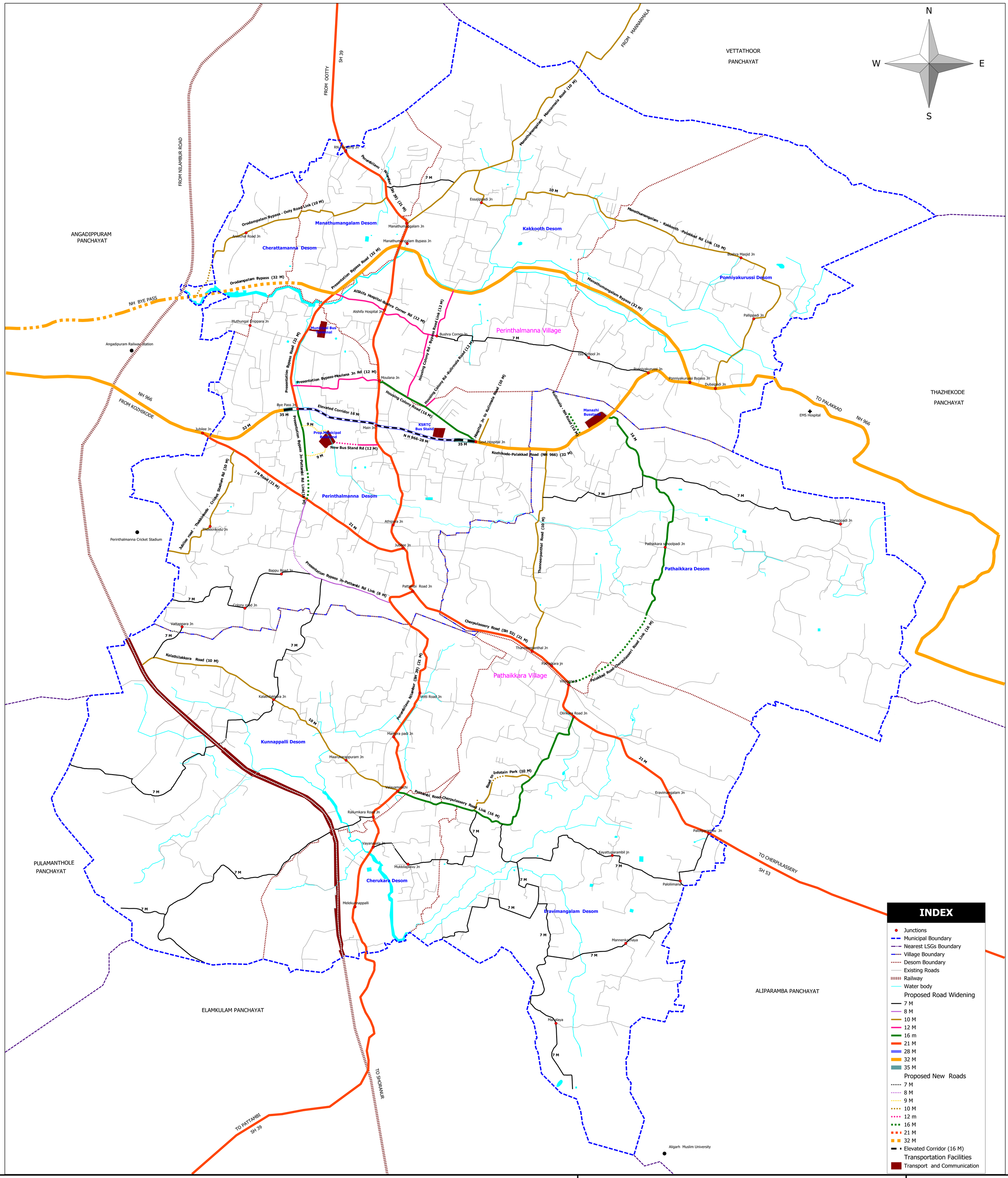
FROM NILAMBUR ROAD
FROM OOTTY
SH 39
FROM MANNARMALA
VETTATHOOR PANCHAYAT
ANGADIPPURAM PANCHAYAT
NH BYE PASS
NH 966
FROM KOZHIKODE
Angadipuram Railway Station
Perinthalmanna Cricket Stadium
THAZHEKODE PANCHAYAT
TO PALAKKAD
NH 966
EMS Hospital
PULAMANTHOLE PANCHAYAT
ELAMKULAM PANCHAYAT
ALIPARAMBA PANCHAYAT
TO CHERPULASSERY
SH 53
TO SHORANUR
TO PATTAMBI
SH 39
Aligarh Muslim University
Manathumangalam Bypass Jn
Manathumangalam Desom
Cherattamanna Desom
Kakkooth Desom
Ponniyakurussi Desom
Perinthalmanna Desom
Pathaikkara Desom
Pathaikkara Village
Kunnappalli Desom
Cherukara Desom
Eravimangalam Desom
Manathumangalam - Kakkooth -Pattikkad Rd Link (10 M)
Manathumangalam Mannarmala Road (10 M)
Orodampalam Bypass (32 M)
Ooty Road Link (10 M)
Perumbilavu Flyover (21 M)
Presentation Bypass Road (32 M)
Presentation Bypass Road (21 M)
Manathumangalam Bypass (32 M)
Ponniyakurussi Bypass (32 M)
Perinthalmanna Bypass (32 M)
Perinthalmanna Bypass (21 M)
Perinthalmanna Bypass (10 M)
Presentation Bypass Jn-Pattambi Rd Link (8 M)
Pattambi Road-Cherpulassery Road Link (16 M)
Thrikkode-Palakkad Road (NH 966) (45 M)
Pattambi Road (SH 39) (21 M)
Cherpulassery Road (SH 53) (21 M)
Palakkad Road-Cherpulassery Road Link (16 M)
Thannerpanthal Road (10 M)
Kalathilakkara Road (10 M)
Perinthalmanna Jn
Manathumangalam Jn
Manathumangalam Bypass Jn
Bushra Corner Jn
ISS School Jn
Dubaipadi Jn
Ponniyakurussi Bypass Jn
Byp Pass Jn
Govt Hospital Jn
Pattambi Road Jn
Thekkinkodu Jn
Kalathilakkara Jn
Thannerpanthal Jn
Pathaikkara jn
Villappadi
Olinkara Road Jn
Eravimangalam Jn
Mahappadi Jn
Vaiyamkara Jn
Mukkalapayu Jn
Railumkara Road Jn
Valayamoochi Jn
Prop.Residential Complex
Prop. Municipal Bus stand
Prop.Kulirmala Bio Park, Galileo Center, & Indoor Stadium
Prop.Children's Park & Mini stadium
Prop.Livelihood & senior citizen center
Prop.Crematorium
Prop.Ayush Complex
Prop.BUDS School
Prop.Modernization of Ayurveda Hospital
Prop.Botanical Garden
MSWTP
Proposed Slaughter House
Proposed IT Park
Prop.Kalagramam
Municipal Co-Holor 16 Floor
Silver Mount School
Al Shifa Hospital
Al Ameen Hospital
Govt Ayurveda College
Govt Homoeo Hospital
Govt Ayurveda Hospital
Govt Unani Hospital
Govt Siddha Hospital
Govt Dist. Hospital
Govt Women's ITI
Govt Polytechnic College
Govt Teachers Training Institute
Govt Arts & Science College
Govt Model Residential School
Govt Model Boys HSS
Govt Model Girls HSS
Govt Model Boys HSS
Govt Model Girls HSS
Govt Model Residential School

MASTER PLAN FOR PERINTHALMANNA TOWN

PROPOSED ROAD NETWORK-2033



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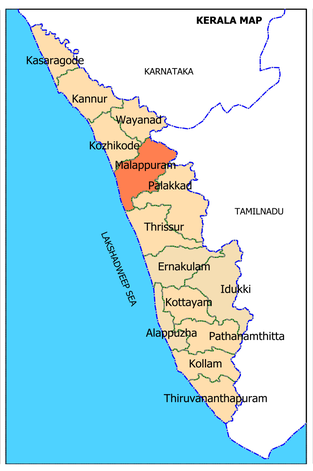
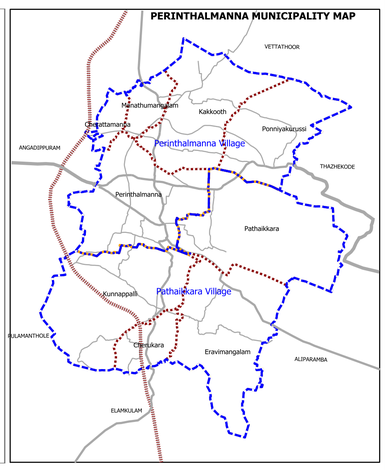
- Transport and Communication









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