MASTER PLAN

FOR

KUTHUPARAMBA TOWN-2031



KUTHUPARAMBA MUNICIPALITY

&

LOCAL SELF GOVERNMENT DEPARTMENT PLANNING

GOVERNMENT OF KERALA

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Prepared by

KUTHUPARAMBA MUNICIPALITY

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NOVEMBER 2023

FOREWORD

History of Kuthuparamba is closely related with Kottayam dynasty. Kottayam kingdom was spread over the area included in the present parts of Thalassery Taluk, Wayanad district, Kannur Taluk and Taliparamba Taluk. Keralavarma Pazhassi Raja was the prominent ruler of this dynasty. Kottayam dynasty had given much importance to the fine arts of Kathakali and Koothu. It is believed that the name Kuthuparamba was derived from the words 'koothu' and 'paramba'. The people of Kuthuparamba town focuses on the potentials offered by the newly opened Kannur International Airport located in the near by town. The good road connectivity with in the town can be exploited for the growth of the town as an urban centre.

And it is the right time for us to equip ourselves to rise to the occasion for utilizing in maximum the opportunities lying ahead. At this occasion, it is with great pleasure that I present this Master Plan for Kuthuparamba Town. The plan, as intended, will be used as a general guide for the future development of land within the Municipal area for many years to come.

The plan is the product of extensive community participation over the last couple of years. The contribution of every citizen and stakeholder who participated in the preparation of Master Plan can be seen in the following pages. A special thanks is extended to the members of Municipal Standing Committee and it's working groups who volunteered their precious time to guide the planning process, for their diligence and hard work. I appreciate the efforts put in by the officials of the Local Self Government Department Planning who have prepared this development plan through a process of people's participation, carefully understanding the aspirations and expectations of the citizens of the town.

Contained within are people's aspirations, dreams, and vision for emerging as a smart urban centre, developing a vital central commercial area at the heart of the town, urbanization of the surrounding area for a sustainable development, foundation stones for a strong economy with emphasize on the existing agriculture platform and proposed export allied industries. It depicts a transportation plan for accommodating all future needs which will provide smooth transit for all road users. The Master plan also includes strategies for developing a town that enriches our lives with more urban and civic amenities and precautions to ensure qualitative life without much deterioration to the present environment.

I hope that you read this plan with great enthusiasm and find that it addresses the critical problem in the development scenario of the town. Finally the plan is open-ended allowing for revisions and additions at every five years. And I hope this open-ended nature of the plan will help to fine tune the proposed incentives and regulations, if any defects are identified at later stage.

SUJATHA V
Municipal Chairperson
Kuthuparamba

Kuthuparamba

PREFACE

The State of Kerala is very unique as far as the settlement pattern is concerned. In that sense, it differs widely from the rest of the country where the hamlets are surrounded by hectares and hectares of field/ open areas which lies between the hamlets of habitations whereas in Kerala, in most of its parts, it is a continuous spread of habitation without much open lands of field separating habitations. Limiting the ecological and physical footprints 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 this backdrop – to ensure efficiency of built form of the town so as to augment economic development, facilitate inclusive and faster development by the impetus given to various sectors of economy and put in place a regulatory mechanism for limiting the anthropogenic threats to the scarce environmental resources, keeping the demands of development well within the carrying capacity of our precious environment.

The Local Self Government Department Planning has been instrumental in the preparation of Town Planning Schemes in the State as per the provisions contained in the Town Planning Acts in force. Accelerated urbanization in the State, a fact underlined by the 2011 Census of India figures, made it imperative to prepare Master Plans for all urban settlements in the State on a priority basis. The Department has taken up the challenging task of preparation of 32 Master Plans in the first stage and further 29 in the next stage to cover all the municipal areas in the State. The preparation of Kuthuparamba Master Plan was included in the latter list of 29 schemes.

Kuthuparamba municipality was formed on April 1, 1990, till now no efforts were made for the preparation of Master plan for the town hence this is the first attempt of making master plan for future development . The existing urban facilities and civic amenities are limited. The financial status of Kuthuparamba municipality being stable, there is immense scope for economic development of the town due to the proximity of Kannur International Airport. The development is

concentrated in the core area and the exterior portions of the town remains as residential and agriculturally predominant areas. The planning intervention for the town is occurring at the right time and can therefore harness the town to a controlled and planned growth without much disturbance to the qualitative environment present in the town.

I take this opportunity to appreciate the officials of the Local Self Government Department Planning Kannur, especially Sri. Ravikumar P, Town Planner, Smt. Sanma Jishnudas Deputy Town Planner, Sri. Rajeev P M, Assistant Town Planner, Smt. Deepa A V, Second Grade Town Planning Surveyor in the preparation of this document. The State Project Cell played anchor role in this regard, right from conceptualization to completion. I also appreciate the consistent efforts of Sri. Pramod Kumar C P, Chief Town Planner, Smt. Darley D.S. Mony, Chief Town Planner (Retd), Sri. K. Ramanan, Chief Town Planner (General)(Retd), Sri. Ajaykumar S Senior Town Planner, Smt. Asha Ajoy Ghosh, Smt. Oormila Raj. U Town Planner, Smt. Sindhu Rani P V, Deputy Town Planner and other officials of the State Project Cell and Division III for their efforts in vetting and finalizing the Master Plan for Kuthuparamba town.

Certainly, this plan document for Kuthuparamba town will provide a frame work for development of the town for years to come.

Thiruvananthapuram

PRASANTH H

Chief Town Planner (Planning)

Local Self Government Department Planning

Government of Kerala

ACKNOWLEDGEMENT

The Master Plan for Kuthuparamba Town is prepared as a part of preparation of Master Plans for 29 towns in the Kerala State vide G.O (Rt) No.1376/2012/LSGD of Local Self Government Department dated 17.05.2012. A methodology was evolved for the preparation of Master Plans at the state level and the same was adopted with suitable modifications at the town level. People participation has been a crucial element in the methodology. The Master Plan once sanctioned shall give directions to the development process in the municipal area for years to come. Suitable provisions for monitoring and review of the Master Plan is inbuilt.

We are highly spirited by the interest and enthusiasm shown by Smt. Sujatha V, Honourable Chairperson, Sri. M. Sukumaran and Sri. Dhananjayan.K, former Chairpersons of Kuthuparamba Municipal Council. Without their constant support, timely advices and valuable suggestions, this plan would not have reached at this stage. We have heavily relied on statistical data from various Development Departments. Their readiness to share the data is gratefully acknowledged. The collection of data, analysis and preparation of this report would not have been possible without the active involvement and painstaking efforts taken by Councillors of Kuthuparamba Municipality, members of Municipal Standing Committee and its various working groups. We are indebted to the earnest endurances offered by Sri. A.K. Vinod Kumar, Co-ordinator of Municipal Standing Committee whose devoted service was a persistent source of inspiration throughout the process of preparation of Master Plan.

I am also very much grateful to Sri. Prasanth H, Chief Town Planner (Planning), and Sri. Pramod Kumar C P, Chief Town Planner (General), Sri.Ajay Kumar S , Senior Town Planner ,Gigi George, Chief Town Planner (Retd.), K. Ramanan, Chief Town Planner (Retd.), Sri Shaji Joseph, Chief Town Planner (Retd.), Smt. T.M. Sudha, Chief Town Planner (Retd.), Smt. Darley D.S. Mony, Additional Chief Town Planner (Retd.) for guiding us in the right direction in the fulfilment of this study. I whole-heartedly acknowledge the able and valuable support given by Smt.Asha Ajoy Ghosh, Smt. Oormila Raj. U Town Planner, Smt. Sindhu Rani P V, Deputy Town Planner, Office of the Chief Town Planner, Thiruvanathapuram and all staff members of the State Project Cell, Thiruvanathapuram.

I take this opportunity to acknowledge the valuable contribution of the Town Planners Sri.Ranjith.K.V(Retd.) and Sri.G.Sasikumar(Retd.). The contributions made by Smt. Sanma Jishnudas, Sri.Nidhin Kumar.S , Sri.Sooraj.T.C, Deputy Town Planners, Jiji Bhaskaran Sri. Rijesh.N.M, Sri.K.Sathyababu, Sri. Nidheesh.K.P, former Deputy Town Planners, Sri. Rajeev P.M, Sri. Arun Chandran and Akhil V, Assistant Town Planners, were key to the successful completion of this report. The assistance offered by Smt, Sajina V, Ist Gr. Town Planning Surveyor/Draftsman, Smt. Deepa A V, IInd Gr. Town Planning Surveyor/Draftsman, Kumari Ranjusha V, Planning Assistant (GIS) and Sri.Ramachandran Kothila , Sri.Niral N.C.M, Sri Shiju Thottathil and Smt.Rajitha.T.V former Statistical Investigators of this office for the preparation of this report, needs special mention. All the staff members of the LSGD Planning Wing need to be specially acknowledged for their keen participation in various stages without which this work would not have been completed in the present form and time frame.

RAVIKUMAR P
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Place: Kannur

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ANNEXURE I

Type of non - obnoxious and non-nuisance type of service or light industries permissible in residential zone

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 Khandsri for sugar-cane
7. Carrying and preservation of fruits and production of jam, jelly etc.
8. Processing 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) appalam.
15. Production of vinegar.
16. Manufacture of soda, water, lemonade 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, bobbers 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 and paper hand.
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 chap pals.
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 aluminium 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, 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 non-nuisance industries other than those included in Annexure 2 list.
101. Industries classified as Green category by State/Central Government.

ANNEXURE II

List of obnoxious or nuisance industries subject to objectionable odours, fumes, effluents or processors to be located in Hazardous zone

(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 skins 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, nitric, hydrochloric acids, etc.) ammonia, chorine and bleaching powder manufactures.

(16) Manufacture of dyes, paint, colours and varnishes, printing ink.

(17) Manufacture of fertilizers (Especially from organic materials).

(18) Manufacture of disinfectants and insecticides.

(19) 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., or 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 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.

Chapter 1
INTRODUCTION

1.1 THE TOWN

Kuthuparamba, a midland Town in Kannur district situated in south west quarter of the district. The famous dynasty of Keralavarma Pazhassi Raja was situated near to this place. This town acts as major hill trades centre and major connecting town to Karnataka as well as Tamil Nadu through Wayanad district. The administrative area of Kuthuparamba municipal town comprising of 16.76 km² area is taken as the planning area delineated for Master Plan of Kuthuparamba town. The existing topographical features reveals that Kuthuparamba town falls under midland region of Kerala. The topography of the town mainly includes plain terrain. Kuthuparamba town is located 14km north- east of Thalassery town and 13km south of Mattannur town. The District Head Quarter, Kannur is 24km away from Kuthuparamba town. Kuthuparamba town is surrounded by 4 panchayaths. Mangattidam panchayath separates Mattannur and Kuthuparamba Municipalities. The Pazhassi canal passes through the wards located along the western boundary. The two major roads passing through Kuthuparamba town are SH 30 (Thalassery – Coorg road) and SH 38 from Kannur to Kuthuparamba. Easy access to the upcoming Kannur International Airport from Kuthuparamba town is through Kinavakku - Vengadu road. The town comprises of Kuthuparamba village with four desoms namely Ambilad, Naravoor, Mooriyadu and Thrikkannapuram.

The study and analysis of Kuthuparamba town has been started since 2012 and hence only 6 municipalities were considered for comparison purposes. But later in November 2015, the Kannur Corporation has been formed by absorbing 5 panchayaths namely Pallikkunnu, Puzhathi, Chelora , Elayavoor and Edakkad panchayath with Kannur Municipality. The newly formed municipalities are Sreekandapuram, Iritty, Panoor and Andoor Municipality. Andoor municipality has been carved out from the earlier Taliparamba Municipality. At present there are total of 71 panchayaths in Kannur District. Figure 1.1 shows the location of Kuthuparamba town.

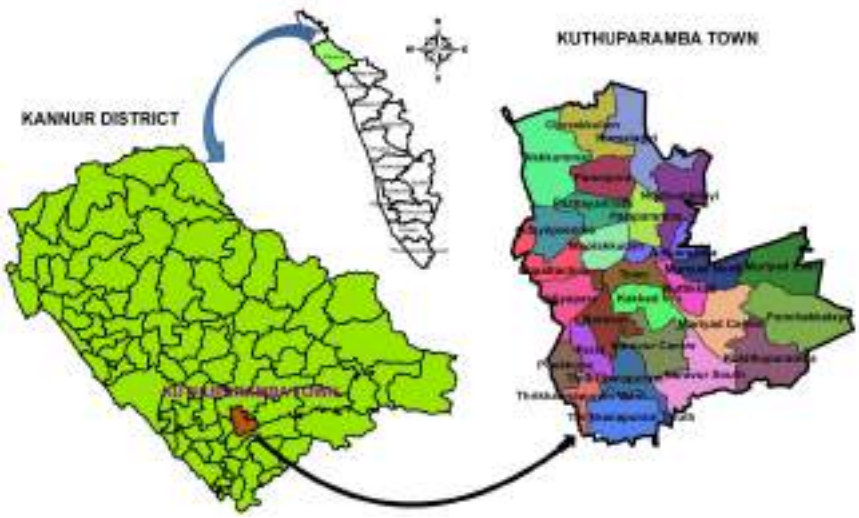


Figure 1.1 Location map of Kuthuparamba Municipal town



Municipal Office, Kuthuparamba



Bus station Kuthuparamba

1.2 NEED FOR MASTER PLAN

The 73rd and 74th Constitutional Amendment (1992) brought about new development standards by prescribing urban planning, regulation of land use and construction of buildings, planning for economic development, social justice etc. as the functions of Urban Local Self Governments. 73rd Amendment The Kerala Municipal Act, 1994 which followed the Constitutional Amendment Act, 1992 necessitates every municipality to prepare a Master Plan for its development, in the prescribed manner with focus on Scientific Spatial Planning, taking into account its resources and fiscal investment.

A Master Plan is an evolving, long term planning document. It establishes the frame work and key elements of a site reflecting a clear vision created and adopted in an open process. The key elements of the Master Plan are reviewed for potential effects on surrounding neighborhoods and the local environment in public processes. A Master Plan will facilitate improvement of basic infrastructure including roads, power and water supply, facilities for parking, telecommunication, facilities for commercial development including modern markets, shopping centers, high level hotels, recreational facilities like parks, play grounds, stadium, multiplex theaters and community halls. It will also accommodate systems for effective solid and liquid waste management.

As per census 2011, the population of Kuthuparamba Municipal Town is 29619 and the density of population is 1767 persons per sq.km. By 2031 the town will have to cater the needs of an estimated population of 33,328 with an expected population density of nearly 1990 persons per sq.km.

The necessity of a Master Plan in Kuthuparamba Municipal town is enhanced by various factors that may arise with the functioning of the Kannur International Airport located in the nearby town. Moreover the growth of the town can be controlled in an organized manner so as to prevent haphazard development. The environmental protection and conservation is yet another matter of concern.

Kuthuparamba Municipality has got the advantage of getting a planning process at the right time for moulding the town to the desired shape. Therefore the political leadership has initiated Master Plan process with the motto " Team work makes the dream work" and accordingly the Municipal Council took a

Resolution as No.48 in its meeting on 29.04.2013 for the preparation of a Master Plan of Kuthuparamba Municipal Town. The Plan period has been judiciously taken as 20 years which is neither a short period nor a long period, as far as a medium town is concerned.

1.3 DELINEATION OF PLANNING AREA

The first stage in the preparation of a Master Plan is the delineation of a planning area. Delineation is done based on the regional study. Frequently this stage must be completed very quickly in order to enable the planning team to begin their surveys in the area. The role of the town in the overall development of the region and the primary influence zones of the town are the major deciding factors.

The major public institutions functioning in the municipal area influences the town and the surrounding local bodies are block office, Municif Court, First Class Judicial Magistrate Court, Sub Treasury offices, Sub Registrar office, Land Tribunal Office, Commercial Tax Office, Nirmalagiri College and Rani Jai Higher Secondary School.

Delineation of planning area is also influenced by the surrounding local bodies of Kuthuparamba town. Kuthuparamba town is surrounded by 4 panchayaths viz. Mangattidam, Chittariparamba, Pattiam and Kottayam. As per District Urbanization Report, all these local bodies have urban nature except Chittariparamba. Mattannur Municipal town is very close to Kuthuparamba which is separated by only one panchayath namely Mangattidam. The presence of two municipal towns within a distance of hardly 14km gives an urban nature to the surrounding regions also. Figure 1.2 shows the surrounding local bodies of Kuthuparamba town.

1.4 METHODOLOGY

The guidelines issued by the Government for the Scheme for the preparation of Master Plan for municipalities' aim to prepare statutory town planning schemes for towns as per Town Planning Act in force in a time bound participatory manner. The general process of preparation of Master Plan involves four major steps which are schematically represented in figure 1.3.



Figure 1.2 Surrounding panchayaths around Kuthuparamba municipal town

The first step of the planning process is data collection and compilation. The second step is analysis in which two types of analysis namely spatial analysis and local analysis are to be carried out. Spatial analysis is done by the LSGD Planning (Kannur)

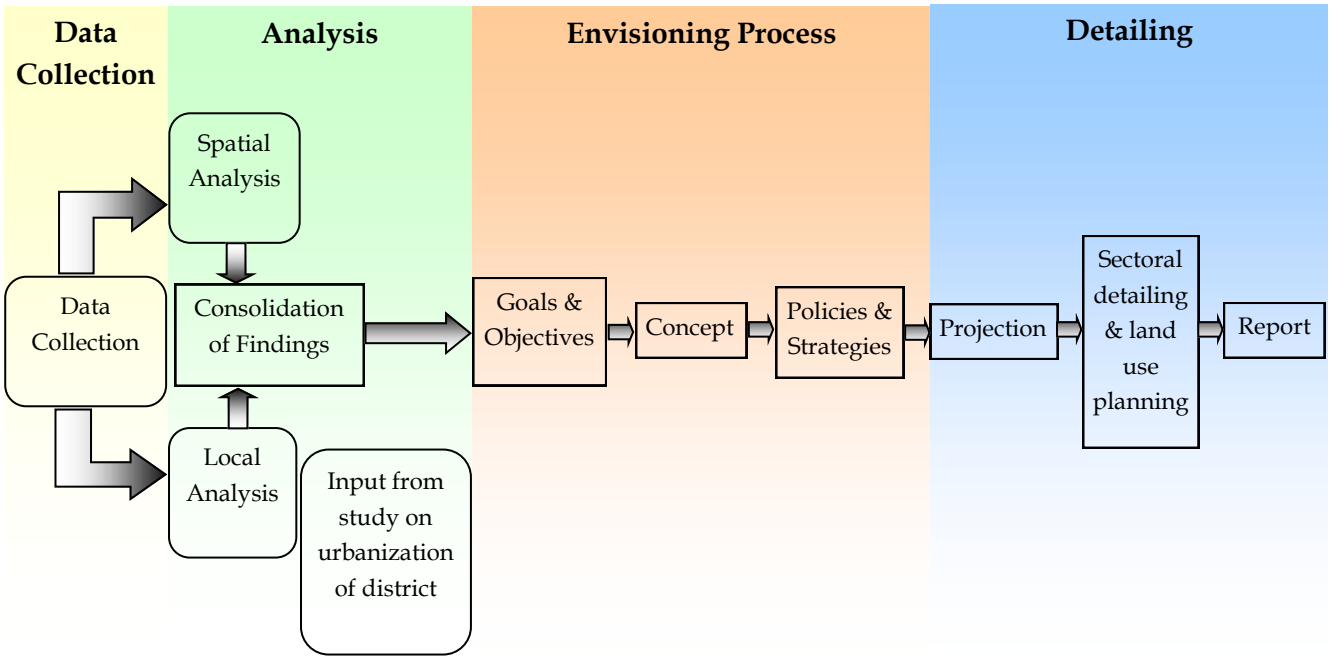


Figure 1.3 General Methodology for the preparation of Master Plans

and local level analysis is carried out through Municipal Standing Committee (MSC) and working groups. Master Plans are comprehensive documents covering socio-economic aspects, physical infrastructure and environmental aspects of development of a delineated area falling under the jurisdiction of respective development authority. Social and economic aspects cover firstly a proposal for designating various land uses, secondly reservation of land for public purposes such as education, health, markets, cultural institutions and public places including reservation of land for local authorities. Environment aspects cover designation of land spaces such as zoological gardens, green belts, natural reserves and sanctuaries etc. These also include preservation, conservation and development of green area, conservation of places of historical value and architectural interest. The proposals need to be made for prevention of air and water pollution and also for flood control particularly in river catchment areas. Physical infrastructure includes transport and communication features such as road ways, railways, water ways and air ways including airports, their extension and development. Proposals for services such as water supply, drainage and sewage disposal, supplies of electricity and gas also needs to be taken care of.

Consolidation of findings of both sectoral as well as spatial analysis will reveal the development issues. The third step is envisioning process in which development goals and objectives are formulated, the development concept is formed and suitable policies and strategies are evolved for achieving the development goals. Last step is the detailing where sectoral projects, land use planning, zoning regulations and report preparation are attempted.

1.5 PEOPLE'S PARTICIPATION IN THE PREPARATION OF MASTER PLAN

For the purpose of preparation of Master Plan contribution must be asked from recognized groups of peoples such as NGO's, professionals, academicians, scholars and experts in addition to proposals made by

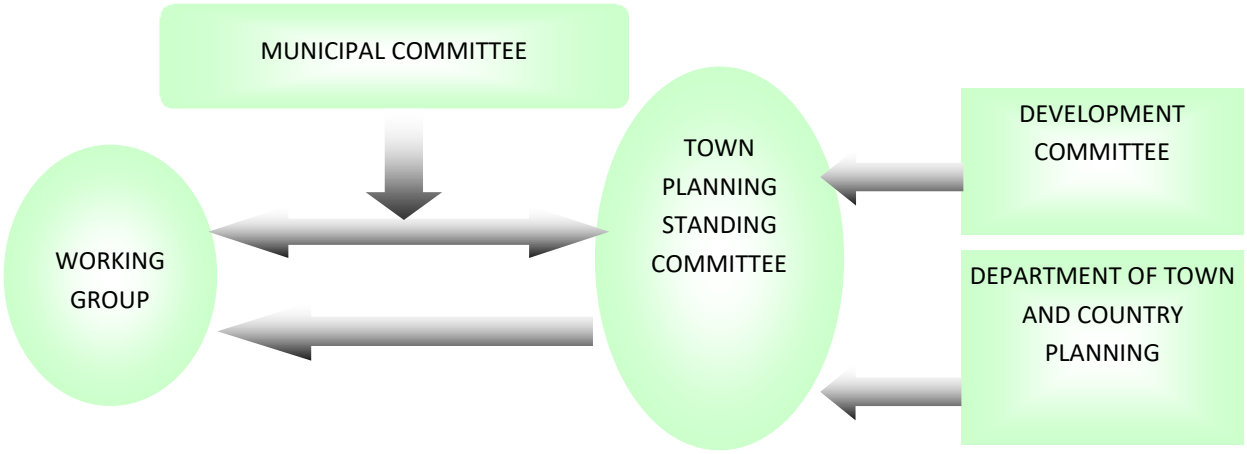


Figure 1.4 Organizational setup for the preparation of Master Plan

authorities. Participation is the act of sharing in the formulation of policies and proposals and therefore furnishing information's by the planning authority and opportunity to comment on that information is a major part in the process of participation.

The people's participation is inevitable in the preparation of a meaningful Master Plan. In the preparation of Master Plan for Kuthuparamba Municipal Town, the first level of consultation with the stake holders was through questionnaire and interviews. The household survey conducted using a well framed questionnaire helped to extract the citizen's vision regarding the development priority in wards as well as the town as a whole. Organizational setup for the preparation of Master Plan is represented as flow chart shown in figure 1.4. The break - up details of methodology adopted in the planning process of Master Plan of Kuthuparamba Town including peoples participation is described in figure 1.5.

An initial seminar was conducted on 11.08.2014 to give awareness of citizen's participation in framing the Master Plan of the town and got very good response from the stake holders. Municipal Chairperson, Former Municipal Chairman, Municipal councilors, Plan Co-ordinator and other personalities from all walks of life were present in the seminar and gave significant suggestions about their vision of the town.

Municipal Standing Committee (MSC) helped and monitor the work related to Master Plan under the chairmanship of Municipal Chairperson. The formation of Spatial Integration Committee and working groups incorporating experts from various sectors and officials from line departments helped to collect data as well as analysis of data from various sectors. The working group along with Municipal Standing Committee helped to finalize the findings in various sectors. The participatory approach in planning gave considerable momentum in shaping the Master Plan and in prioritization of the findings.

The need of a Master Plan and its significance has been presented before the newly formed Municipal Council on 05.12.2015.

Working groups were formed and Group discussions were held on 19.01.2016 at Municipal Town Hall , Kuthuparamba. Newly elected municipal chairman, Sri. M. Sukumaran participated in the function. Based on this, the draft Master Plan was formulated incorporating people's aspirations. Several prominent



1st Seminar on 11.08.2014



2nd Seminar on 5.12.2015



3rd Seminar and Group discussion held on 19.01.2016

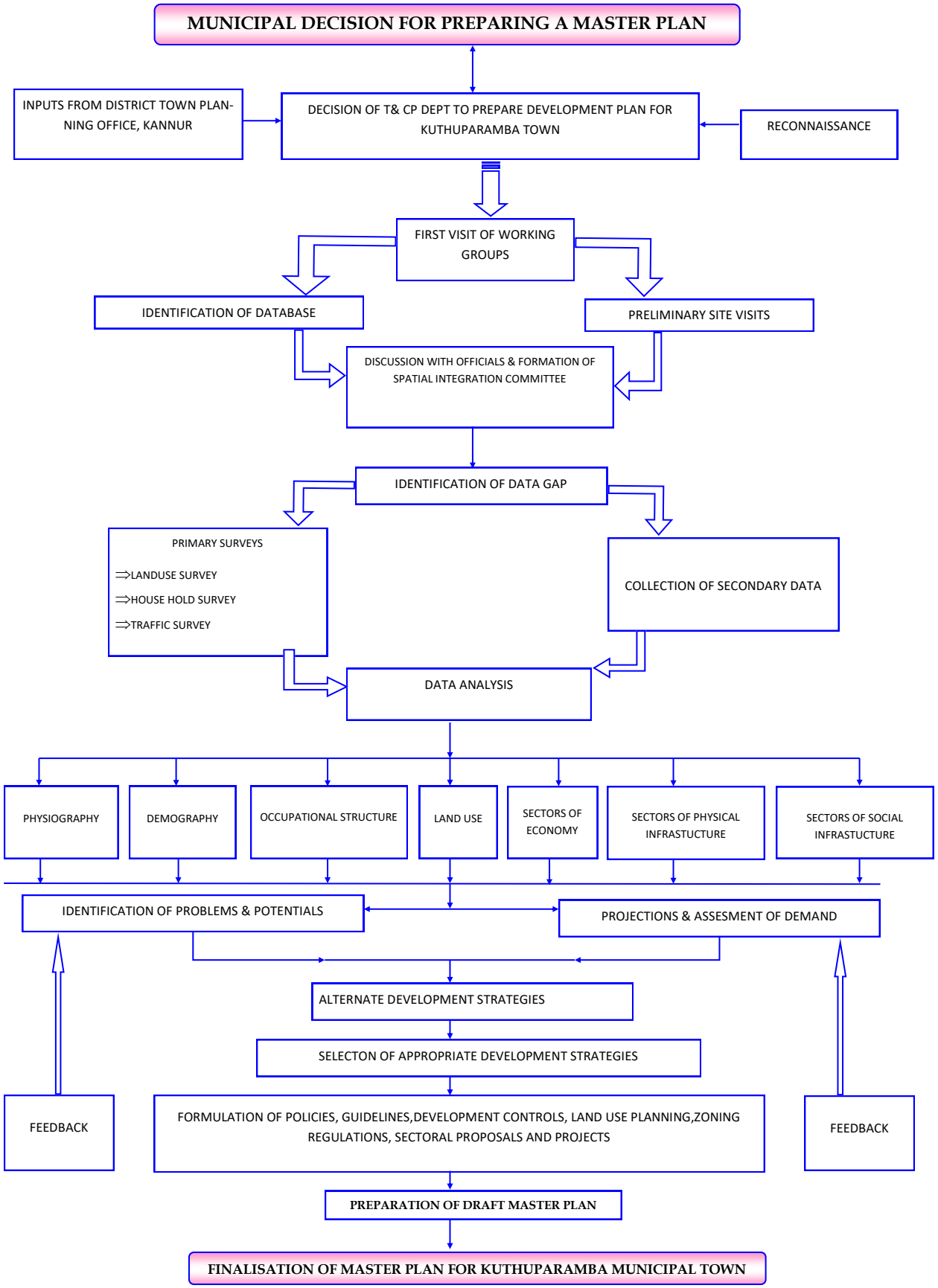


Figure 1.5 Methodology adopted in the preparation of Master Plan of Kuthuparamba Municipal Town

members of the society and NGO's representatives shared their opinion and detailed group discussions in various development sectors had also been conducted. Suggestions and proposals evolved from group discussions were also presented in the seminar by the group convenors and these were consolidated to form the draft report of Master Plan.

The concepts evolved in this plan is based on the surveys, studies, analysis and consultations with the concerned stake holders, concerned departments, public in general and the commuters. The present trend of development is The present trend of development is considered for evolving the concept plan. The jurisdiction of the Kuthuparamba Municipality at present has a vast area of 1676 Hectares and the serving population of this town certainly includes the people from surrounding region. The influence of the airport and activities in the neighbouring local bodies have been also considered while formulating the final plan.

The break - up details of methodology adopted in the planning process of Master Plan of Kuthuparamba Municipal Town including peoples participation is described in figure 1.5.

1.6 EARLIER PLANNING EFFORTS

Kuthuparamba Panchayth formed in the year 1939 got upgraded as municipality on 1st April 1990. After the formation of Kuthuparamba Municipality , the remarkable planning effort was offered by The Town and Country Planning Department through the preparation of IDSMT (Integrated Development of Small and Medium Towns) project for the town in 2004. The genesis of the scheme of IDSMT Projects dates back to sixth five-year plan period. The program operates with the objective of improving Infrastructure and essential basic amenities of a town in an integrated and co-ordinated manner.

The total estimated cost of the IDSMT project was Rs.258.38 lakhs. Kuthuparamba Municipality was vested with the responsibility to implement the project under the guidance of Local Self Government Department Planning, Kerala. The project selected under the IDSMT Scheme are enlisted as below.

1. Shopping complex at market compound
2. Dining hall for existing town hall
3. Vegetable stall and fish stall
4. Solid waste management
5. Construction of drain
6. Street lighting

Chapter 2
PROFILE OF THE TOWN

2.1 LOCATION

Kuthuparamba town is located at the midland of the Kannur district and lies between 11^{0}50′ N to 12^0 04′ North latitudes and 75^{0}25′ E to 75^{0}40′ East longitudes. The town is surrounded by four panchayaths, namely Mangattidam in the north, Chittariparamba in the east, Pattiom in the south and Kottayam in the west side. Mattanur is the nearest municipal town and Mangattidam panchayath separates it from Kuthuparamba town. Mattannur town is 13 km away from Kuthuparamba town.

Kuthuparamba town is located at a distance of about 480 km north of Thiruvananthapuram, the state capital and about 24 km east of Kannur town, the district headquarters. The commercial capital of Kerala, namely Kochi is 263 km away from Kuthuparamba. Kozhikode, the major urban centre of North Kerala is nearly 80 km south of Kuthuparamba town. Wayanad is the only district in Kerala that borders both the neighbouring states, Karnataka and Tamil Nadu and is at a distance of 93 km from Kuthuparamba town.

The two major cities of Karnataka state, namely Mysore and Bangalore are 167 km and 298 km east of Kuthuparamba town. Mangalore, an important port city is 175 km north of Kuthuparamba town.

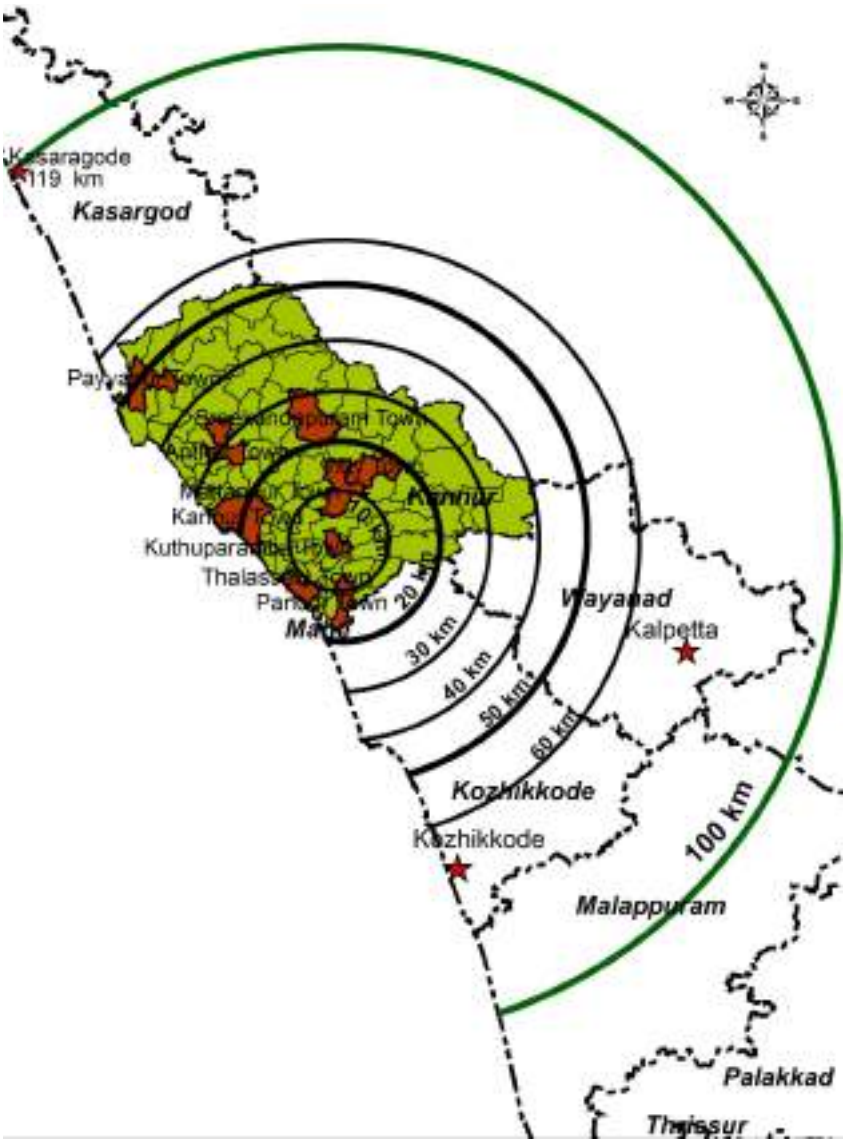


Figure 2.1Regional map showing major locations around Kuthuparamba town

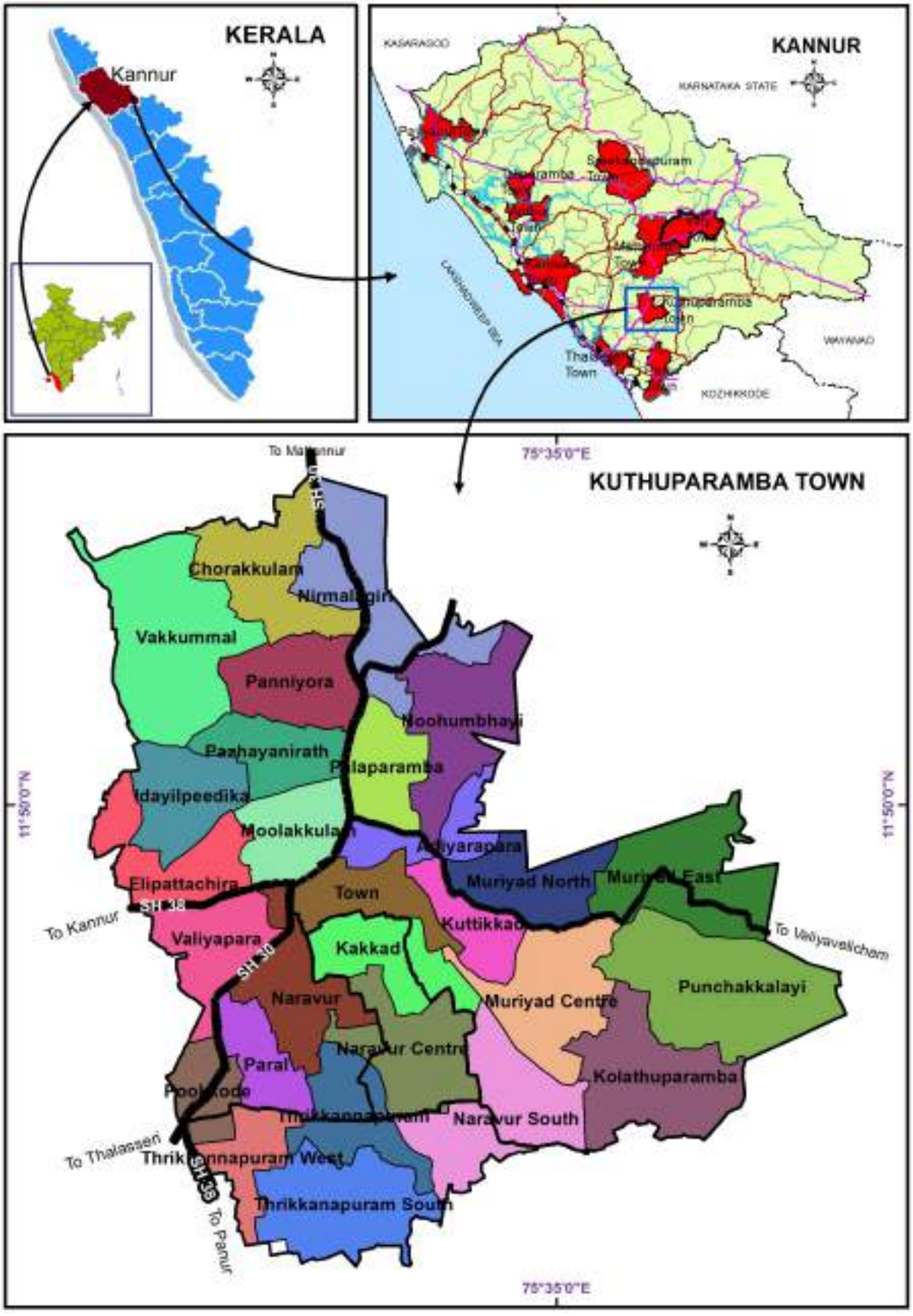


Figure 2.2 Location of Kannur district in the state and Kuthuparamba Town in Kannur district

2.2 CONNECTIVITY

Kuthuparamba town is well connected to the neighbouring towns in Kerala. The Thalassery – Coorg road (SH 30) passes through the town and connects it to the neighbouring towns namely, Thalassery and Mattannur and also have linkages to cities like Mysore, Bangalore, Kozhikode, Kochi, Thiruvananthapuram, etc. Another important road is SH 38 which extends from Thazhe Chovva to Puthiyangadi in Kozhikode district via Kuthuparamba, Panoor, Peringathur and Kuttiyadi. The Major District Road from Thokkilangadi junction to Nidumpoil (Thalassery – Bavali road) further leads to Wayanad via Mananthavady. Another MDR links Kuthuparamba town to Kottiyoor via Valiyavelicham. The Thalasseri-Coorg road also connects the proposed Hill Highway at Iritty which in turn provides connectivity to all major settlements in the Western Ghat area.

There is no rail connectivity to Kuthuparamba. However, Thalassery is the nearest railway station and is about 15 km away from Kuthuparamba town. At present, the nearest airport is at Kozhikode. The upcoming

Kannur International Airport located at Mattanur is very close to Kuthuparamba.

2.3 AREA AND POPULATION

Kuthuparamba municipal town has an area of 16.76 km^2 and ranks 5th position in geographical area when compared with other municipal towns in the district. As per census 2011, population of Kuthuparamba town is 29619 and is found to be the least among the ten municipal towns in the district. Gross population density of Kuthuparamba town is 1767 which ranks third position when compared with other municipal towns of Kannur District. Regarding gross population density Kuthuparamba town ranks 3rd position (1767) next to Kannur (5152) and Thalassery (3863) which indicates that the town is thickly populated. Population growth rate of Kuthuparamba town is only 0.29 % during 2001— 2011 period. Sex ratio of Kuthuparamba town is the highest (1202) when compared with other municipal towns of district. Kuthuparamba town posses work force participation rate of 32.60% ranking third position in the district.

2.4 ADMINISTRATIVE DIVISION

Kuthuparamba village is the only village in Kuthuparamba town. The village comprises of four desoms namely Ambiladu, Naravoor, Muriyadu and Thrikkannapuram. The Figure 2.3 shows the revenue details of Kuthuparamba town.

The 25 election wards that existed in 2010 has been reorganized and increased to 28 wards in 2011. The Figure 2.4 and Table 2.1 shows the political wards in 2010 and 2011.



Figure 2.3 Revenue details of Kuthuparamba Town

Table 2.1 List of election wards during 2010 & 2011

25 Wards during 2010						28 Wards during 2011					
Ward No.	Ward Name	Ward area (Sq.km)	Ward No.	Ward Name	Ward area (Sq.km)	Ward No.	Ward Name	Ward area (Sq.km)	Ward No.	Ward Name	Ward area (Sq.km)
1	Chorakkulam	1.14	14	Thrikkannapuram	0.83	1	Vakkummal	1.16	15	Kakkad	0.50
2	Nirmalagiri	0.73	15	Thrikkannapuram west	0.63	2	Chorakkulam	0.67	16	Naravur Centre	0.63
3	Thokkilangadi	0.63	26	Pookkode	0.30	3	Nirmalagiri	0.87	17	Thrikkannapuram	0.48
4	Palathumkara	0.64	17	Paral	0.52	4	Noojhumbhayi	0.72	18	Thrikkanapuram South	0.77
5	Noojhumbayi	0.51	18	Naravur	0.49	5	Palaparamba	0.42	19	Thrikkannapuram West	0.32
6	Adiyarapara	0.15	19	Town	0.43	6	Adiyarapara	0.32	20	Paral	0.34
7	Kuniyil palam	0.84	20	Valiyapara	0.60	7	Muriyadu North	0.48	21	Pookkode	0.30
8	Muriyadu Centre	0.74	21	Elipattachira	0.50	8	Muriyadu East	0.82	22	Naravur	0.55
9	Muriyadu North	0.83	22	Moolakkulam	0.55	9	Punchakkalayi	1.14	23	Valiyapara	0.52
10	Muriyadu East	0.88	23	Pazhayanirath	0.45	10	Kolathuparamba	0.84	24	Elipattachira	0.53
11	Kolathuparamba	1.41	24	Panniyora	0.53	11	Muriyadu Centre	0.73	25	Moolakkulam	0.46
12	Naravur South	0.52	25	Vakkummal	0.89	12	Naravur South	0.82	26	Pazhayanirath	0.42
13	Naravur Centre	0.81				13	Kuttikkad	0.32	27	Panniyora	0.54
						14	Town	0.39	28	Idayilpeedika	0.50

25 Wards during 2010 **28 Wards during 2011**



Figure 2.4 Election wards in 2010 & 2011

2.5 CLIMATE

The region has a tropical humid climate with an oppressive hot summer season from March to the end of May. This hot summer is followed by the South West monsoon which continues till the end of September. The region experiences North East monsoon (post monsoon or retreating monsoon) during the month of October and November. During April and May, the mean daily maximum temperature is about 35^{0}C however, the temperature is low in December and January and the minimum temperature observed here is around 20^{0}C. The average annual rainfall is 3438 mm and almost 80% of the annual rainfall is obtained from South West monsoon. Heavy rainfall occurs during the month of July contributing 60 to 70% of the annual rainfall.

2.6 PHYSIOGRAPHY

Kannur district comprises of three geographical regions - highlands, midlands and lowlands. Kuthuparamba municipal town lies in the midland region of Kannur District. The midland region, lying between the mountains and the low lands, is made up of undulating hills and valleys. Kuthuparamba has an average elevation of 76 m (249 ft). Kuthuparamba town is located at 11° 51' North latitude and 75° 35' East longitude. Figure 2.5 shows the physiography of Kuthuparamba town. . The figure reveals the demarcation of different elevations in municipal area.

The height above MSL varies within a range of 0 to 120m. Almost 70% of the area under study has an altitude ranging from 11 to 50m above MSL. However the eastern portion of the

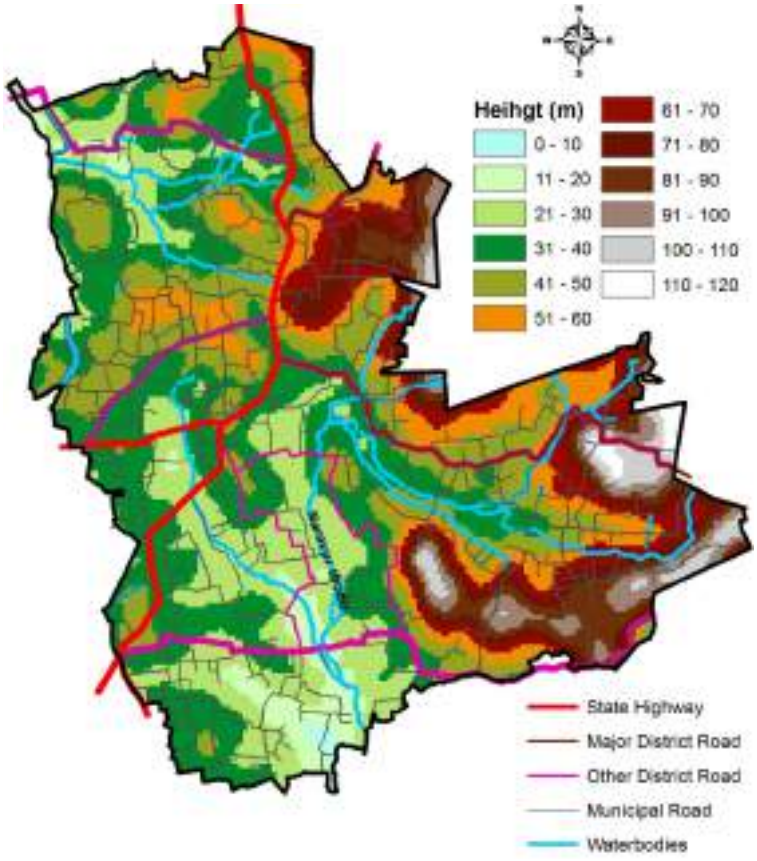


Figure 2.5 Physiography of Kuthuparamba town

town has an elevation ranging from 51 to 120 m and in these areas dry agriculture is mainly concentrated. All other agricultural activities are evenly distributed in the remaining portion of the Kuthuparamba town. Muriyadu East is the highly elevated ward and Thrikkannapuram south has the least elevation in Kuthuparamba Town. Physiography includes not only the topography but also physical features like population, climate, soil and water bodies.

2.6.1 Water bodies

Certain ponds, streams and a portion of the Pazhassi Irrigation Canal are the only water bodies existing within Kuthuparamba town. Pazhassi Irrigation Canal passes through Vakkummal ward located in the northern part of the Kuthuparamba town and has a length of 0.512km. Another portion of the canal (0.604km long) forms a boundary to the two wards namely Elippattachira and Idayilpeedika. Monsoon is the main source for fresh water as there is not even a single river flowing through the municipal area.

Kottayam Chira is a significant water body with a total area of around 11 acres at present. It is located about 1.5km away from Kuthuparamba town. The Kottayam Chira is environmentally, historically and culturally of of at most significance. it was part of the livelihood of the native population as it acted as reservoir to supply water for irrigation into the adjoining paddy fields and also people were dependent on it for its fish wealth.

2.6.2 Soil

The major group under the soils of Kerala is laterite and its variations. In the traditional midland region the dominant soil type is typical laterite. In Kuthuparamba town the type of soil observed are lateritic, loamy and sandy red soil. Granite quarries are also present here.

2.7 HISTORY

2.7.1 Brief History

History of Kuthuparamba is closely related with Kottayam dynasty. Old Kolathunadu kingdom was an area spread between Korappuzha in the south and Kasaragod in the north. A portion of this area was handed over to a Kshatriya family. This resulted in the formation of Kottayam dynasty. Kottayam kingdom was spread over the area included in the present parts of Thalassery Taluk, Wayanad district, Kannur Taluk and Taliparamba Taluk. Keralavarma Pazhassi Raja was the prominent ruler of this dynasty. Due to his bravery and skill in warship, he was known as Keralasimham. He was a constant nightmare to the powerful British who feared his guerilla warfare that caused substantial setback to the British army. Kaithery Ambu, a great warrior and Thalakkal Chandu leader of a strong Kurichiya war group were the powerful support to Pazhassi Raja. Pazhassi Raja was bold enough to fight against the British till his death in Wayanad on 30th November 1805. The capital of Kottayam dynasty was Kottayam Bazaar, 2km away from present Kuthuparamba town situated in Kottayam panchayath.

Since the British captured Kuthuparamba area, Keralavarma was forced to flee from Patinhare Kovilakam (Kottayam Malabar) to Kizhakke Kovilakam (Pazhassi). The area fell under British rule was formed as Kottayam Taluk. This Taluk was in existence unto 1956. Due to the geographical features, the British made Kuthuparamba a notable military camp. In order to ensure the availability of milk and

clothes to the soldiers, they encouraged the herdsmen and weavers to live around Kuthuparamba town. Gokul street and Weavers Street are the result of this attempt made by the British Military Force.

Kottayam dynasty had given much importance to the fine arts of Kathakali and Koothu. It is believed that the name Kuthuparamba was derived from the words 'koothu' and 'paramba' (the ground where the koothu was performed). The ground where Koothu was performed in olden days is believed to be the plot where the co-operative circle office situates now. As per records, Kuthuparamba is a small piece of land behind Gokul street owned by the Government, now some Government offices are functioning here. This name was given to the complete area by British military, there was a Cantonment and it was known as Kuthuparamba Cantonment. The remnants of past history are still alive in the structure like Court complex, Inspection Bunglow, Maroli ghat etc.

2.7.2 Political History

Kuthuparamba dwellers had played a notable part in the national movement. The agitated people treaded along Kuthuparamba shouting slogans against the British rule. They violated 144 that declared on 15th September 1940 as a part of Anti Colonisation Day declared by Indian National Congress. People became agitated in the post Second World War period due to severe famine. The grains that kept hidden were captured and distributed among the poor hungry people. Many were sent to Selam Jail. One of the victims shot dead at Selam Jail was Azad Gopalan Nair of Ambiladu.

The important political leaders and cultural heroes of that period are Vagbhatananda Guru, N.E. Balaram, Pathalayi Kunhikannan, T.K. Raju and M. Kunhikannan Nair.

Maroli ghat is a silent witness of various memorable events in the political history of Malabar area. The 'Pattini Jatha' (Hunger Strike Rally) led by Sri. A. K. Gopalan, Sri. Chandroth Kunjiraman, Sri. K.P.R. Gopalan, Sri T.K. Raju, Sri. K.N. Chathukkutti, Sri K.A. Keraleyan, Sri.Vadavathi Krishnan, Sri. Pinaryi Krishnan Nair, Sri.V.M. Gopalan, Sri.C.C. Gopi, Sri.Kasim Manual and Sri.Gopalan started from Maroli ghat towards Chennai in the year 1936.

In 1939 Kuthuparamba panchayath was formed by fixing Kuthuparamba revenue village as its boundary. The first President of the panchayath was Dr. C. Kumaran . Sri. V.K. Chandu was the last President of Kuthuparamba Panchayath. He tried to upgrade Kuthuparamba Panchayath as third grade Municipality and this was fullfilled in 01.04.1990. Smt. C.V. Malini was elected as the first Chairperson of Kuthuparamba Municipality. The present Chairman is Sri. M.Sukumaran.

2.7.3 Socio Cultural History

Kuthuparamba native, Maroli Kunhikannan was prominent personality. He had received a land at Kuthuparamba from District Collector on the basis of 'Quit Rent'. He constructed a pond and an inn for the poor at this site. With the formation of Kuthuparamba Panchayath, the pond has been preserved properly. Now preservation and innovation attempt has been initiated by Kerala Government. The first reading room at Kuthuparamba namely Deseeya Vayanasala was functioning in this inn. But later, the building was demolished. A

stage for public speech was constructed. This premise is known as 'Maroli Ghat'



Maroli Ghat Pond

The Inspection Bungalow built in the first half of 19th Century is also an institution at Kuthuparamba with historical importance.



Inspection bungalow

The subjugated countries under the British rule were strongly instructed to celebrate the coronation of King George V in 1911. A celebration committee was formed at Kuthuparamba and the function was treated as a grand festival. The fund for the celebration was so huge that there was a balance amount. With this amount, the committee revolved to build a platform around the peepal tree situated before the magistrate court for the memory of this event. The inauguration of this platform was on 12.12.1911. This platform can be seen even now without much ruin.



Platform around peepal tree

In 1871, a sub jail also came in existence at Kuthuparamba. The sub jail built near Police station is only a memory today.



Sub jail

The Judicial Second Class Magistrate court was established in 1871 by the British Government. It existed as Second Class Executive Magistrate Court. It shows that the British Government had seen Kuthuparamba as an important meeting place in 19th century itself. In 1954 when judiciary and executive got separated the court became active as Second Class Magistrate Court. Recently it got upgraded as First Class Magistrate Court.



Judicial First Class Magistrate Court

The first police station in Kottayam Taluk was established in 1871 in Kottayam Bazaar. But the rulers were convinced the importance of Kuthuparamba and so they shifted it to Kuthuparamba in 1878. Now the police station is situated in the same premise.



First Police station, Kuthuparamba

'Kuthuparamba' the name itself indicates the relevance of 'Koothu', an important art form of Kerala. Chaakyaar koothu is one of the plays performed in temples. This is enacted in the special dance hall called Koothambalam, connected to the temples. It is performed by people belonging to the Chaakyaar community. The word koothu is derived from the Sanskrit term, Koordanam which means 'dance'. Among the different types of Chaakyaar koothu Parakkum Koothu is mainly performed in Kuthuparamba.



Parakkum Koothu

Theyyam is another important ritual dance form especially in Malabar area and is being practiced in Kuthuparamba and surrounding. People consider Theyyam itself as a God and seek blessings from this Theyyam. The Theyyam represents a mythological, divine or heroic character.

Chapter 3
REGIONAL SETTINGS AND URBANISATION TRENDS

Kuthuparamba Municipal town itself act as a major node regarding transportation and this is well revealed from the existing road network system. The roads leads to major towns namely Kannur, Thalassery, Mattannur and also to Wayand district and Coorg. SH-38 and SH-30 (Thalassery– Coorg road) are the two state highways passing through the town, another important road is Kuthuparamba—Wayanadu road. The neighboring towns within the district are Mattannur Municipal Town in the north and Thalassery Municipal Town in the south–west. The presence of the newly emerging airport town, Mattannur in Kannur district is yet another potential of the town under study and is at a distance of just 14km. The regional profile, population growth, its spatial distribution, trends in urbanization and service facilities required for the surrounding region are the factors that need to be considered for the development of the town.

3.1 REGIONAL SIGNIFICANCE

The major factors that determine the regional settings of the municipal town includes the hierarchy of settlement in the district, the activity pattern that the town has to perform in the district and its connectivity with different nearby settlements.

The regional linkage of the town with surrounding district / state is described in terms of connectivity and spatial location, whereas the regional settings of the town within the district is described based on the "District Urbanisation Report" prepared by the Town and Country Planning Department.

The District Urbanisation Report (DUR) defines the future spatial structure of a district, which is formulated by integrating hierarchy and activity pattern of urban and rural settlements and the connectivity between them. The spatial structure of a district will act as a frame for the orderly development of urban centres and their rural hinterland subsequently leading to a planned urbanisation.

As per DUR, Kuthuparamba town falls under urban category in the functional classification of settlement. The functional classification is done based on the occupational structure, population distribution, land use and plot size. Based on these parameters the settlements are classified as urban, semi urban, semi rural and rural. Hierarchy of settlement of the town was found to be third order settlement. The method adopted for the analysis is Cumulative Functional Index (CFI).

The activity pattern derived in DUR reveals that Kuthuparamba Municipal Town has urban nature with dominance of tertiary activity over primary and secondary activities. Urban activity is decided according to the combined result of urban profile, type of land use and functional characteristics of LSG's. The land use pattern of Kuthuparamba town shows high residential concentration which indicates that the town is thickly populated.

The spatial structure of the district has been presented in the District Urbanisation Report. It has been derived by overlaying the activity pattern of the settlements, connectivity,

physiographical limitations and functional hierarchy of settlements. The paddy fields are seen in almost all parts of the district and the dry agriculture cultivation mainly rubber and cashew in the high land areas.

The regional setting of Kuthuparamba Municipal Town is shown in Figure 3.1. Kannur district is situated on the northern part of Kerala. It is located as penultimate District from the north and 13th District from the south. Kannur District is bounded by Kasaragod district on the north, Western Ghats bordering Coorge District of Karnataka on the east, Kozhikode and Wayanad District and Mahe Municipality of Pondichery State on South, and Lakshadweep Sea on west.

Kuthuparamba , one of the municipal town in Kannur district , located in the southeast side of Kannur town. Kozhikode and Wayanad are the nearby districts located in the southern part of the municipal town.

The District Headquarters is Kannur. The whole district is treated as one Revenue Division and further divided into 4 Taluks viz. Thalassery, Kannur, Taliparamba and the newly formed Iritty Taluk and has a total of 132 revenue villages. Kannur district has 71 Grama Panchayaths in 11 Blocks. At present, there are nine municipalities viz. Payyannur, Taliparamba, Thalasseri, Mattannur, Koothuparamba, Andoor, Iritty (Keezhur-Chavassery), Panoor and Srikandapuram.

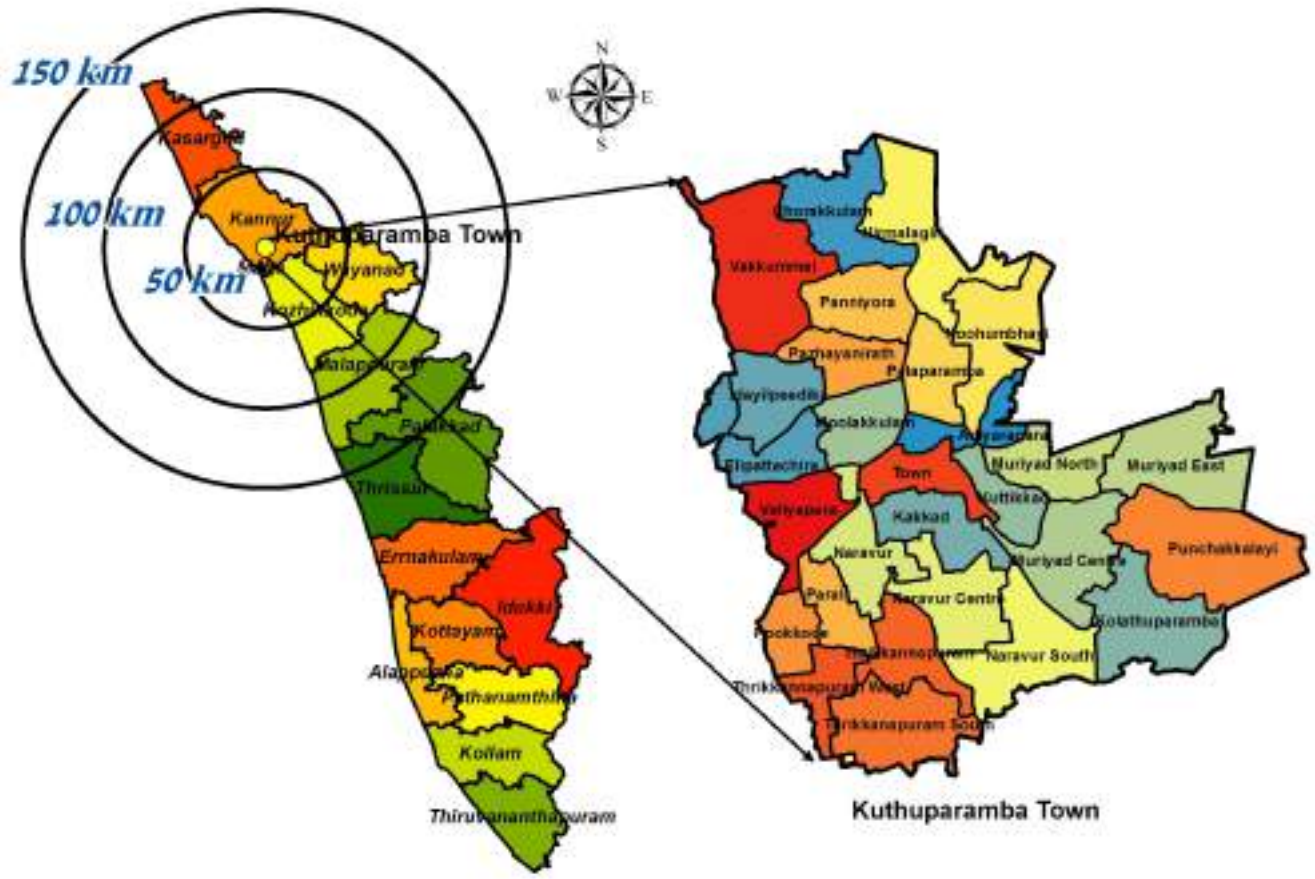


Figure 3.1 Regional Settings of Kuthuparamba town

Kannur Corporation has been formed by merging the then existed Kannur municipal town with 5 panchayaths, namely Pallikkunnu, Puzhathi, Chelora, Valiyannoor and Edakkad.

Figure 3.2 shows the location of Kuthuparamba town, spatial distribution of other municipal towns in Kannur district and the major transport corridors.

The demographical details of the municipal town, the neighbouring LSG's and other urban settlements in Kannur district as per last census are given in Table 3.1



A busy market in Kuthuparamba town



Figure 3.2 Municipal towns – Kannur District

Table 3.1 Demographic details of surrounding settlement and other municipal towns in the district

Description	Name of local body	Population (2011)	Total area (sq. km.)	Density (persons/ sq.km)	Total workers	Sex Ratio
LSGS under study	***Kuthuparamba***	***29,619***	***16.76***	***1767***	***9656***	***1202***
Nearby LSG's	Pattiam	30,502	27.88	1094	10345	1162
	Chittariparamba	23,878	33.81	706	8744	1167
	Mangattidam	34,652	33.31	1040	11436	1118
	Kottayam	19,176	8.43	2275	5535	1176
Other municipal towns in the district	Mattannur	47,078	54.15	869	17,303	1,078
	Taliparamba	72,465	43.08	1,682	21,314	1,145
	Thalassery	92,558	23.96	3,863	26,879	1,180
	Kannur	56,823	11.03	5,152	15,325	1,161
	Payyannur	72,111	54.63	1,320	25,484	1,159
District	**Kannur**	**25,23,003**	**2,969.76**	**850**	**8,24,116**	**1,136**

Source: Census of India 2011

3.2 INFLUENCE REGION OF THE TOWN

Though the town has an extend of only 16.76 sq.km, it acts as a major node interconnecting the nearby towns within and outside the district. Kuthuparamba town has good road connectivity with major tourist attractions like Aralam, Mysore, Ootty, Bangalore, etc.

IMA Hall, Commercial tax office, Police station, K.S.E.B, Office of the Assistant Educational Office, Judicial 1st class Magistrate office, Municif court, Irrigation Department, Krishi Bhavan , India Post, Land Tribunal Office, Office of the Sub registrar, Sub treasury, Veterinary Hospital are the available major public institution that can attract people from outside the municipal area.

Kuthuparamba town is a major transit centre well connected by roads. Thalassery—Coorg Inter State Highway (SH - 30) is the main corridor of the town. Another major roads are namely Kannur road to Maroli Town Square and Kuthuparamba-Wayanadu road. Major road leading to the proposed Kannur Airport traverse through the town and gives some strategic importance to the town which will help the town to flourish as a trade centre in the region. Thalassery is the nearest railway station located 15km away from the town.

Kottiyoor Mahadeva Temple is a very famous Siva Temple in Kottiyoor, Kannur District, located on the bank of Bavali river. This temple is located 44km east of Kuthuparamba , and hence Kuthuparamba town acts as an entry town to this pilgrim centre for those devotees from all over Kerala and

Karnataka. Kottiyoor Vyshakha Mahotsavam is a huge religious pilgrimage attracting thousands of pilgrims. Pilakootam Makham is another important pilgrim centre located within the municipal town, near to Kuthuparamba Police station. Makham Uroose is a huge Islamic religious function attracting thousands of people.

3.3 URBANIZATION TRENDS IN KUTHUPARAMBA TOWN COMPARED TO KANNUR DISTRICT

Urbanization can be defined as the shift from a rural to urban society, and involves an increase in the number of people in urban areas during a particular year. Urbanization is the outcome of social, economic and political development that lead to urban concentration and growth of large cities, changes in land use and transformation from rural to urban pattern.

The total population of Kannur district as per 2011 Census is 25,23,003, constituting about 7.56% of the state population. The population density accounts to 850 persons per sq.km. The district has 4 Taluks namely Taliparamba, Kannur, Thalassery and Iritty. The population growth of Kannur district since 1901 is presented in the table 3.2.

From the table, it is clear that the decadal growth rate of population shows an increasing trend from 1901 to 1971. But in 1981 a negative growth rate* (- 13.65 %) is observed. However in 1991, the growth rate has increased to 16.63%. During the last two decades even though the district shows a positive growth rate it is in a declining trend.

Table 3.2 Growth of population in the district

Census Year	Population	% of decennial variation
1901	7,60,903	
1911	8,12,728	6.81
1921	8,35,611	2.81
1931	9,64,758	15.46
1941	10,85,623	12.53
1951	13,15,501	21.17
1961	16,90,094	28.48
1971	22,35,829	32.29
1981	19,30,722	-13.65
1991	22,51,727	16.63
2001	24,08,956	6.98
2011	25,23,003	4.73

* *The decline of urban population of 1971 in Kannur district is due to change in concept of urban area and the resultant declassification of urban areas of 1961 census. The high increase of urban population in 1991 is due to carving out of Kanhagad and Kasargod taluks having mostly rural population to form the Kasargod district (in 1984).*

Table 3.3 shows that the proportion of rural and urban population of Kannur district as well as the state. It indicates a steady progress of urbanization in Kannur district. Moreover, at present Kannur is the highly urbanized district of Kerala, with nearly two-third of its population living in urban areas. As per 2011 census percentage of urban population in Kannur is 65 which is higher than that of state (48%).

Table 3.3 Rural-Urban break up of population (Kannur district)

Census Year	No. of persons			
	Rural in %		Urban in %	
	Kannur	Kerala	Kannur	Kerala
1901	93	93	7	7
1911	92	93	8	7
1921	93	91	7	8
1931	93	90	7	10
1941	93	89	7	11
1951	91	87	8	13
1961	83	85	17	15
1971*	86	84	14	16
1981	77	82	23	18
1991*	49	74	51	26
2001	50	74	50	26
2011	35	52	65	48

As per 2001 census data, Kannur district ranked 1st in urban content (urban population 50.45%) and 11th in per capita income among the districts in Kerala. But 2011 census reveals that Kannur district has been pushed back to 4th position in urban content (65.05% urban population). Whereas , Ernakulam district which ranked second in urban content (47.6%) and 1st in per capita income as per 2001 census, has ranked 1st in urban content (67.5%) as per 2011 census. This relative reduction in the urbanization in the district may be due to the prevalence of low income generating small-scale industries, compared to the large scale industrialization in Ernakulam district.

Prior to the preparation of Master Plans for the Municipal Towns, the Department of Town and Country Planning, Kerala has conducted a study on Urbanization of the district and has published the District urbanization Report.

As per the 2011 census, Kannur Agglomeration consists of 6 Municipal Towns, 1 Cantonment Board and 62 Census Towns. The urban area comprises of 54 LSG's and most of them are located in western half of the district along NH 66, in and around the major settlements viz; Kannur and Thalassery as shown in figure 3.3 and figure 3.4. According to the 2001 Census report, only 37 LSGs were declared urban in Kannur district. 2011 Census indicates that 54 LSGs were declared urban with a growth rate of 46% during 2001-2011.

According to census 2001 Kuthuparamba Municipal town and two adjoining panchayaths namely Pattiam and Kottayam Malabar were categorized as urban. But in 2011 census it is observed that Mangattidam panchayaths was also included in the urban category. On observing the figures given below it is clear that the urbanization has started spreading to the eastern side of the district during the last decade. Chittariparamba is located on the eastern side of the municipal town with a hilly terrain and predominant agricultural activities and this justifies the rural nature of Chittariparamba.

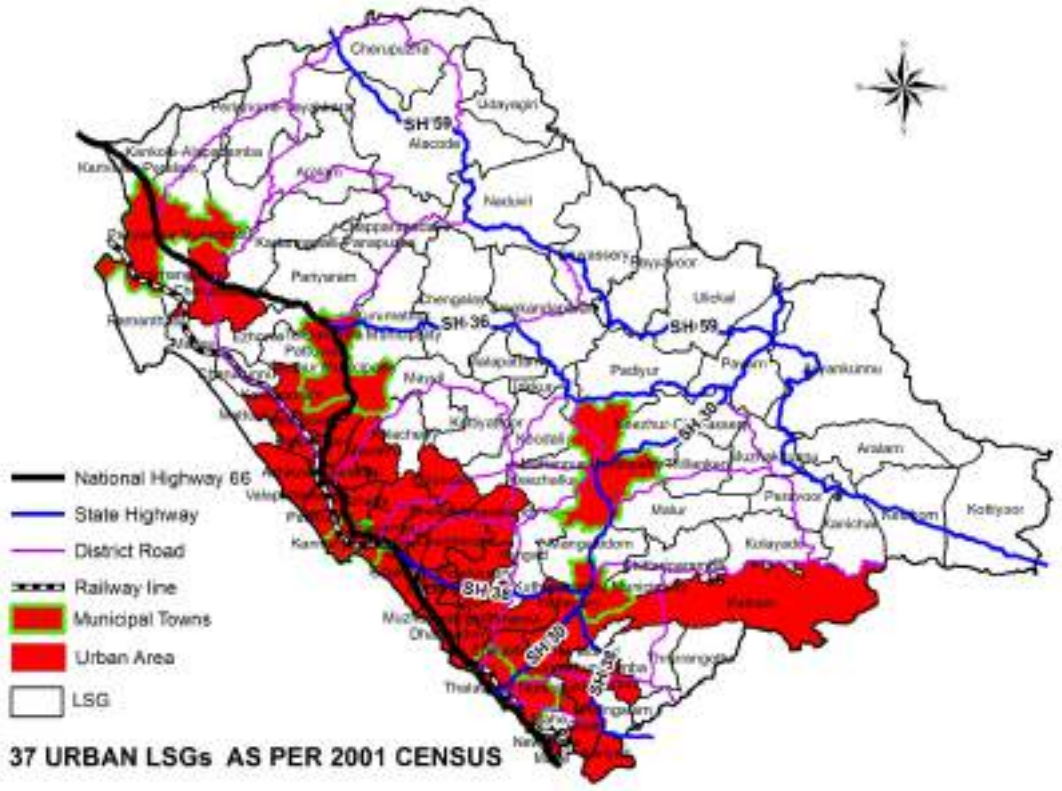


Figure 3.3 Census urban area - Kannur 2001

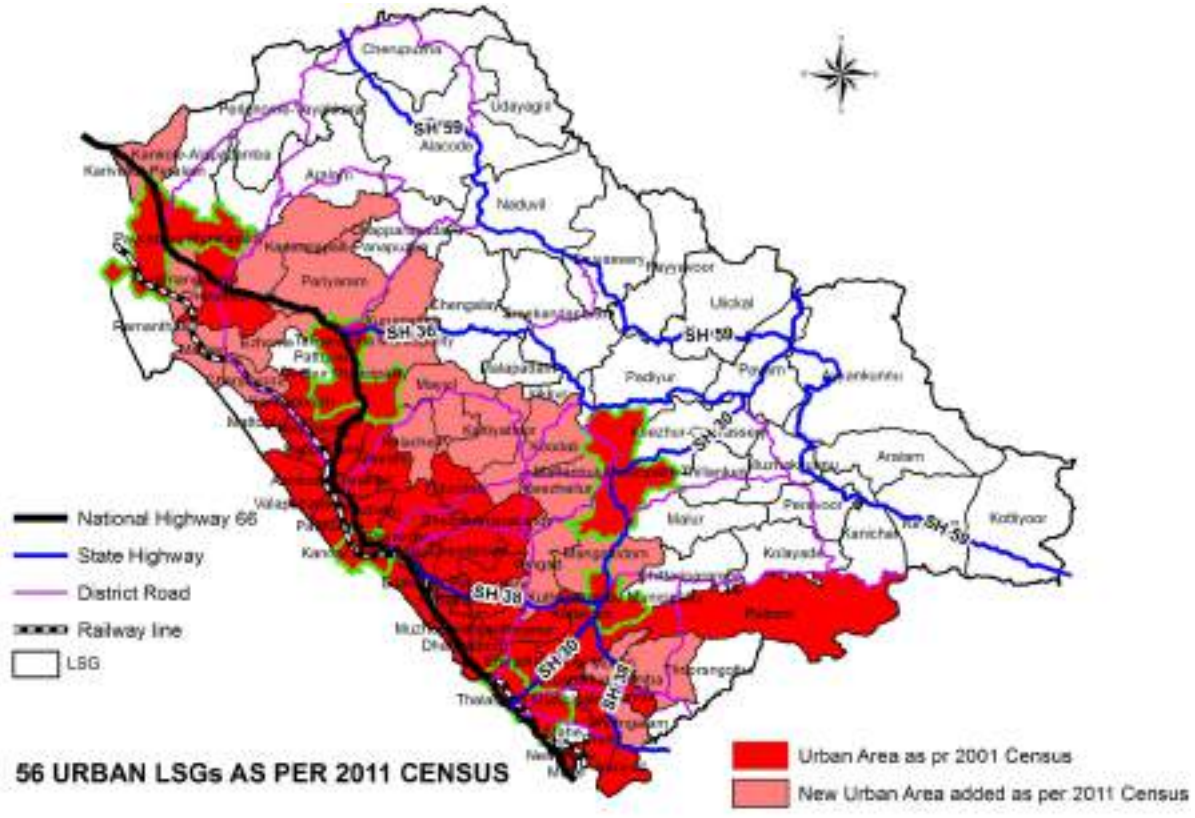


Figure 3.4 Census urban area - Kannur 2011

3.3.1 Connectivity of Kuthuparamba town

Roads play the most crucial role in the economic, commercial and industrial development of an area. Roadway of a place are often compared to the arteries of human beings. Kerala is very well connected with a good network of roads. There are eight National Highways in the state of Kerala with major highways NH-66, NH-47 and NH-49 connecting other parts of the state. Connectivity to Kannur district is shown in figure 3.5. An excellent road transport system connects Kannur District to all the major towns and cities of the South India. National Highway (NH-66) and the three State Highways namely SH-30, SH-36 and SH-38 are the major roads passing through the District. Another important connectivity to the Kannur district is through rail. Kannur is linked to Mangalore at north and Kozhikode at south by Broad Gauge line in the district.

Kuthuparamba municipal town has good connectivity due to the existence of three major roads namely SH-30(Thalassery—Coorge road), SH-38(Thazhe Chova– Kuttiyadi)and Kuthuparamba—Wayanadu road. There is no railway line passing through the municipal area but the nearest railway station, Thalassery is only 15km away from the town. The upcoming Kannur International Airport is only about 15km away from the town. The newly formed Panoor municipal town is 10km which is connected by SH-38.



Figure 3.5 Road connectivity –Kannur district

3.3.2 Functional Character of Kuthuparamba town in Kannur District

The major activity within the settlement decides the functional character of that settlement. Here an attempt is made to determine the major function of a settlement by studying the population distribution within the region, average plot size and major land use of that area. Analysis based on these parameters shows that there exist semi urban and semi rural character of settlement in addition to the urban and rural character. The functional character is said to be rural, if it has agriculture and allied activities or urban, if it has secondary or tertiary activities.

The functional character of LSG's in Kannur district is shown in figure 3.6 . Urban and semi urban areas are mainly concentrated along National Highway and some portion of State Highway. From the figure it is clear that the functional character of Kuthuparamba municipal town is urban.

3.3.3 Activity pattern of Kuthuparamba town in Kannur District

Activity pattern is determined based on the three important parameters namely, land use concentration pattern, future urban profile and functional classification of that area. The Urbanization studies conducted for the district clearly shows that urban activities are more predominant in Kannur municipal town and the neighbouring panchayaths in the north and eastern portion. Figure 3.7 Shows the resultant activity pattern of Kannur district

The activity pattern derived from the analysis shows that the urban activities are mainly concentrated in two first order municipal towns viz; Kannur and Thalassery. Kuthuparamba town also shows urban character as tertiary activities are more

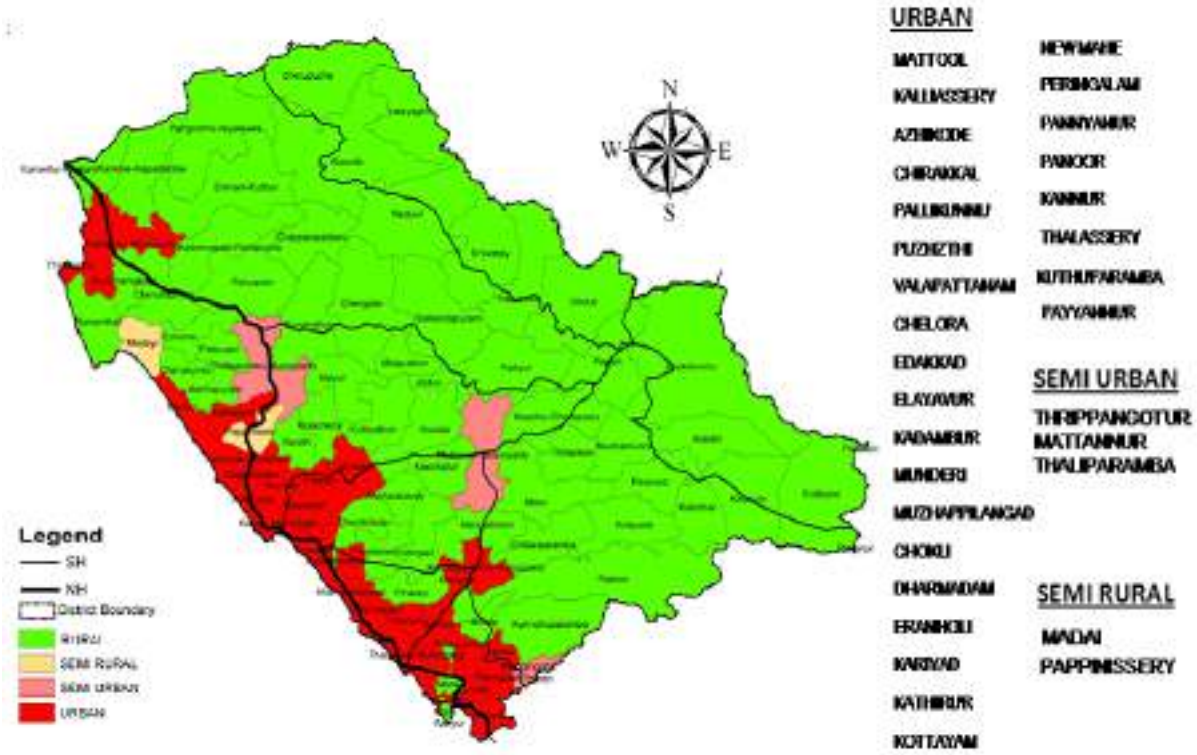


Figure 3.6 Functional character of towns in Kannur district (Source: District Urbanisation Report)

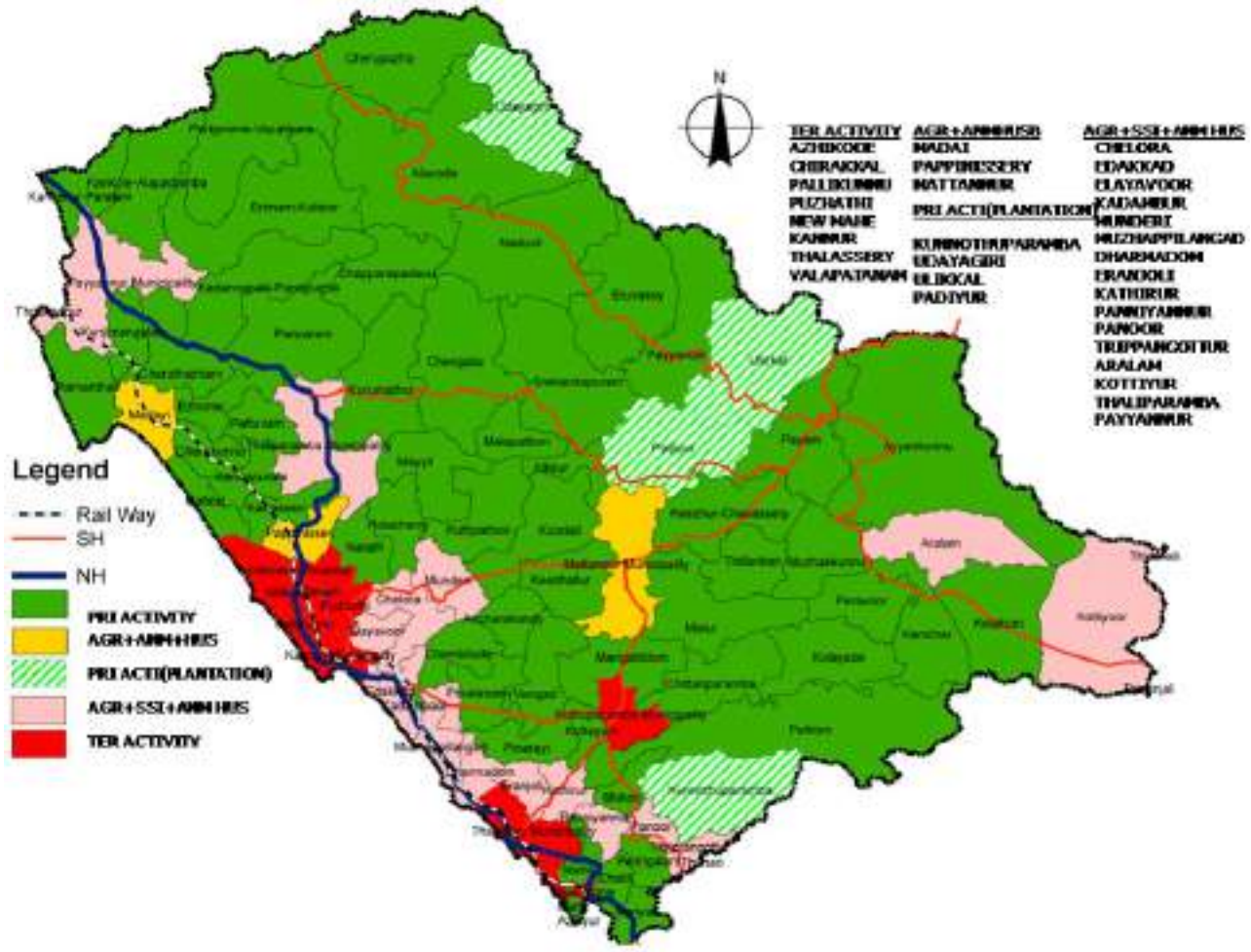


Figure 3.7 Activity pattern of towns in Kannur district (Source: District Urbanisation Report)

predominant.

The secondary activities are mainly concentrated in local bodies situated along the coastal areas in between Kannur and Thalassery and also in Taliparamba, Payyannur, Kottiyoor and Aralam. Kuthuparamba municipal town shows predominant tertiary activity.

3.3.4 Spatial structure of Kuthuparamba town in Kannur District

The regional plan of a town details the hierarchy of the town in the district scenario, the activity of the town that it has to perform and its connectivity with different settlements. From this, the regional setting of the town is finally evolved. The study on urbanization of the district gives the hierarchy of the local bodies which forms a part of the regional road network. The spatial structure of the district is the resultant of hierarchy of settlement, connectivity and activity pattern. The figure 3.8 shows the suggested spatial structure of Kannur district.

The suggested spatial structure (Figure 3.8) so derived reveals that Kuthuparamba town has secondary activity pattern with third order node. However Kannur municipal town and local bodies on the northern side , Thalassery and Taliparamba municipal towns has urban activity. These towns posses 1st and 2nd order nodes.

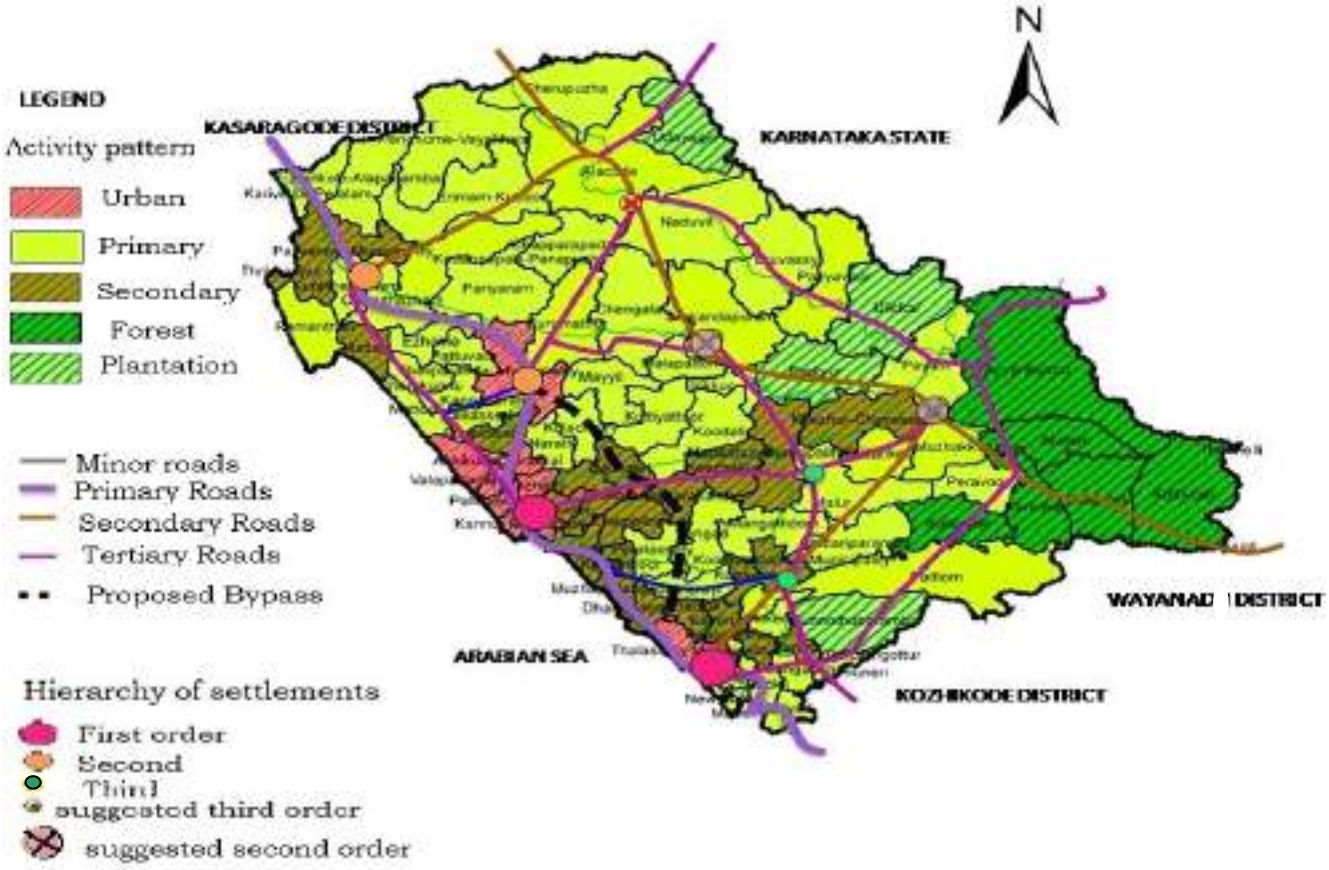


Figure 3.8 Suggested spatial structure - Kannur District (Source: District Urbanisation Report)

3.4 INFERENCE

The study of regional setting reveals that Kuthuparamba town has strategic importance due to its location in the southern part of the district. It acts as a major node connecting various towns as it posses good road network system . As SH-38 and SH-30 passes through the town, it has inter–district and inter-state traffic movements. The study shows that the functional character of Kuthuparamba town is urban and the activity pattern is Tertiary. However suggested spatial structure of the district shows that Kuthuparamba town has secondary activity with 3rd order settlement.

Chapter 4
DEMOGRAPHY

4.1 POPULATION SIZE

Demographical study of Kuthuparamba Municipal Town is mainly based on the data obtained from Census of India. The decadal variation of population size from 1981– 2011 is shown in Figure 4.1 . As per 2011 Census, the total population of Kuthuparamba municipal town is 29,619. From the analysis of the figure, it is clear that from 1981 to 1991 there is a steady increase in population size due to the merging of Muriyad desom to Kuthuparamba panchayath. After 1991 to 2011 there is a gradual increase in population size.

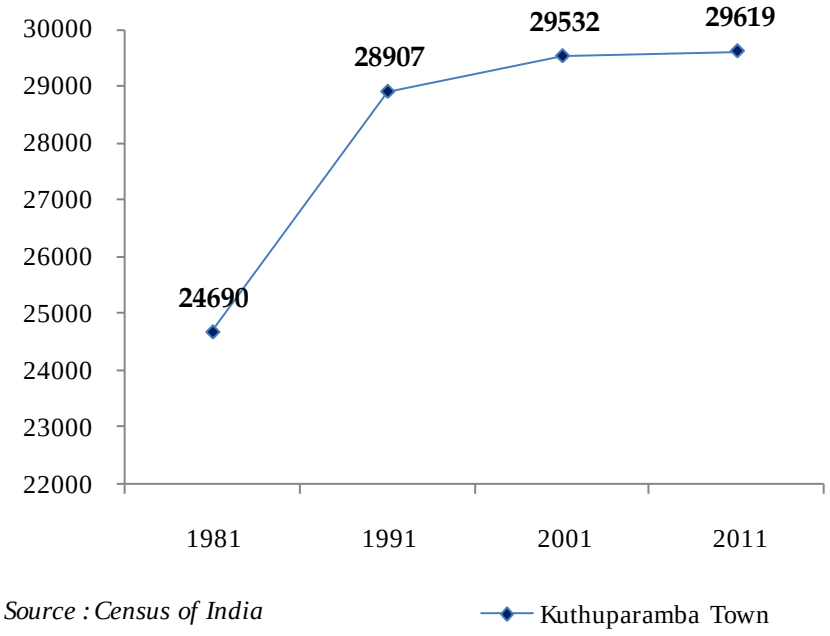


Figure 4.1 Decadal variation of population 1981 – 2011

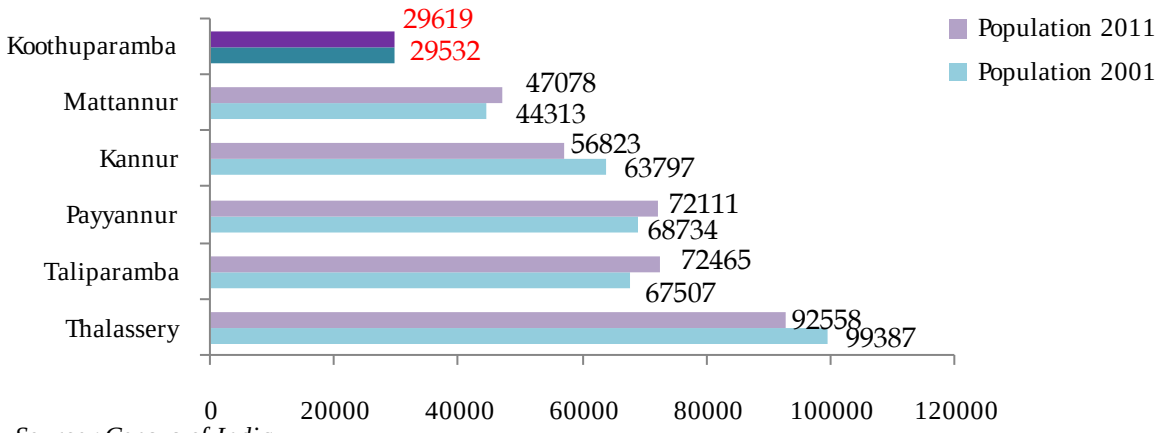
Table 4.1 Population size comparison with district and state (1981 – 2011)

Year	*Kerala*	*Kannur*	*Kuthuparamba Town*
1981	2,54,53,680	19,30,722	24,690
1991	2,90,98,518	22,51,727	28,907
2001	3,18,41,374	24,08,956	29,532
2011	3,34,06,061	25,23,003	29,619

Source : Census of India

Table 4.1 shows the decadal variation of population size in Kuthuparamba Municipal town, District and State. From the Table 4.1 it is clear that population size is found increasing by decades in Kuthuparamba Municipal Town and similar trend is observed in District and State also.

The comparison of population size in Kuthuparamba municipal town with other municipalities in the District is given in Figure 4.2 .



Source : Census of India

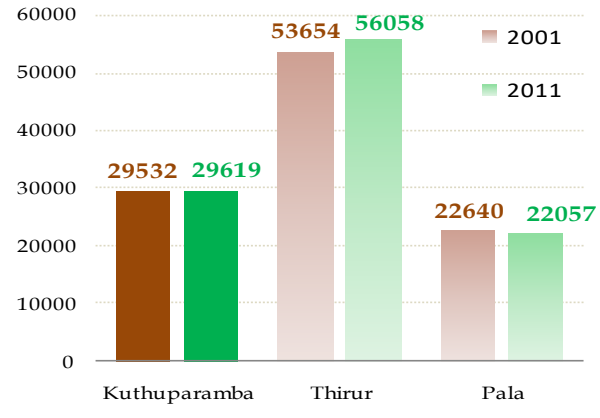
Figure 4.2 Population size comparison with other municipal towns with in the District during 2001 & 2011.

From figure 4.2, it is clear that Kuthuparamba Municipal Town has the smallest population and hence Kuthuparamba ranks 6th position in the District. During the last decade, Mattannur , Payyannur and Taliparamba show increasing trend in population, Kannur and Thalassery show decreasing trend while Kuthuparamba shows stagnation.

Considering the development potential of Kuthuparamba town together with the area and existing topography, demography and the characteristics of settlement, towns namely Tirur and Pala are selected for the comparative studies.

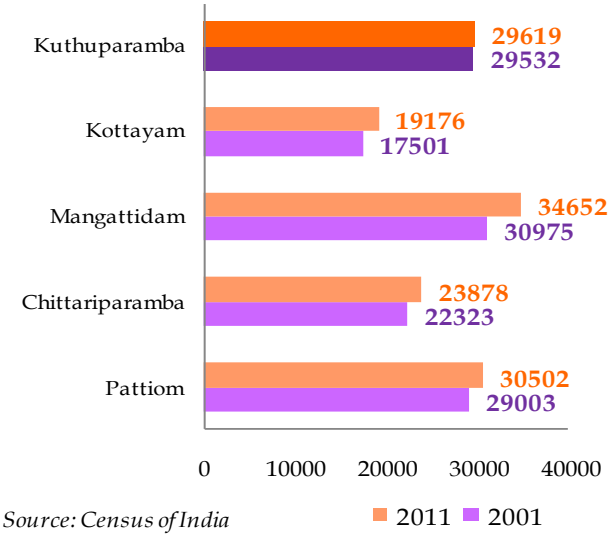
Comparison of population size with similar municipal towns in the State is represented as histogram in figure 4.3. Population size of Tirur town is almost double of Kuthuparamba , while that of pala is decreasing.

Figure 4.4 shows the comparison of population size of Kuthuparamba municipal town with adjacent panchayaths. All adjacent panchayaths also shows an increasing trend in population size unlike Kuthuparamba town which shows stagnation.



Source : Census of India

Figure 4.3 Comparison with similar municipal towns in the State during 2001 and 2011



Source: Census of India

Figure 4.4 Comparison of population size with adjacent panchayaths

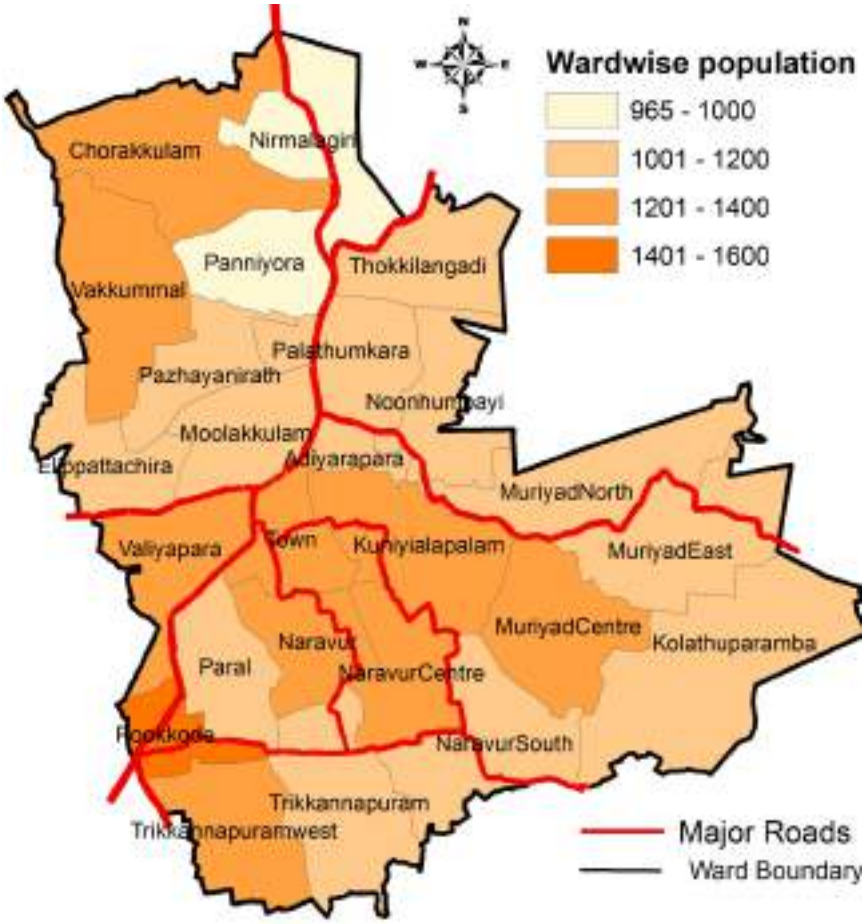


Figure 4.5 Ward wise population size in Kuthuparamba Municipal Town

Ward wise population size in Kuthuparamba Municipal Town is shown in Figure 4.5. Ward wise population size of Kuthuparamba Municipal Town ranges from 0—1600. Chorakkulam, Vakkummal, Valiyapara, Pookode, Trikkannapuram west, Town, Kuniyilpalam and Muriyad centre are the wards with highest population size. Nirmalagiri and Panniyora are wards located in the north eastern periphery with lowest population size .

Table 4.2 shows the comparison of SC and ST population in Kuthuparamba Municipal Town with State, District and other Municipal Towns within the District. As per the table, percentage of SC and ST population in Kuthuparamba Municipal Town is less when compared with District. Among the Municipal Towns within the District, Kuthuparamba Municipal Town ranks 6th position in SC population (1.36%) but 1st position in ST population (0.36%).

Figure 4.6 shows the ward wise distribution of SC and ST population in Kuthuparamba Municipal Town.

The figure shows that SC population ranges from 0 to 60 and high concentration of SC population is seen in wards located in the north— west part of the municipal town. Pazhayanirath is the ward with highest SC population (46 to 60). ST population is comparatively less than SC population and ranges from 0 to 20. ST population is mainly concentrated in a ward, namely Thokkilangadi (16 to 20).

Table 4.2 SC and ST Population

Location	*SC*	*% of Total*	*ST*	*% of Total*	*Others*
State	3039573	9.10	484839	1.45	29881649
District	83350	3.30	41371	1.64	2398282
Payyannur	4018	5.57	153	0.21	67940
Thaliparamba	2814	3.88	152	0.21	69499
Kannur	2674	4.71	159	0.28	53990
Thalassery	2096	2.26	267	0.29	90195
Kuthuparamba	*402*	*1.36*	*108*	*0.36*	*29109*
Mattannur	945	2.01	132	0.28	46001

Source : Census 2011

SC POPULATION **ST POPULATION**

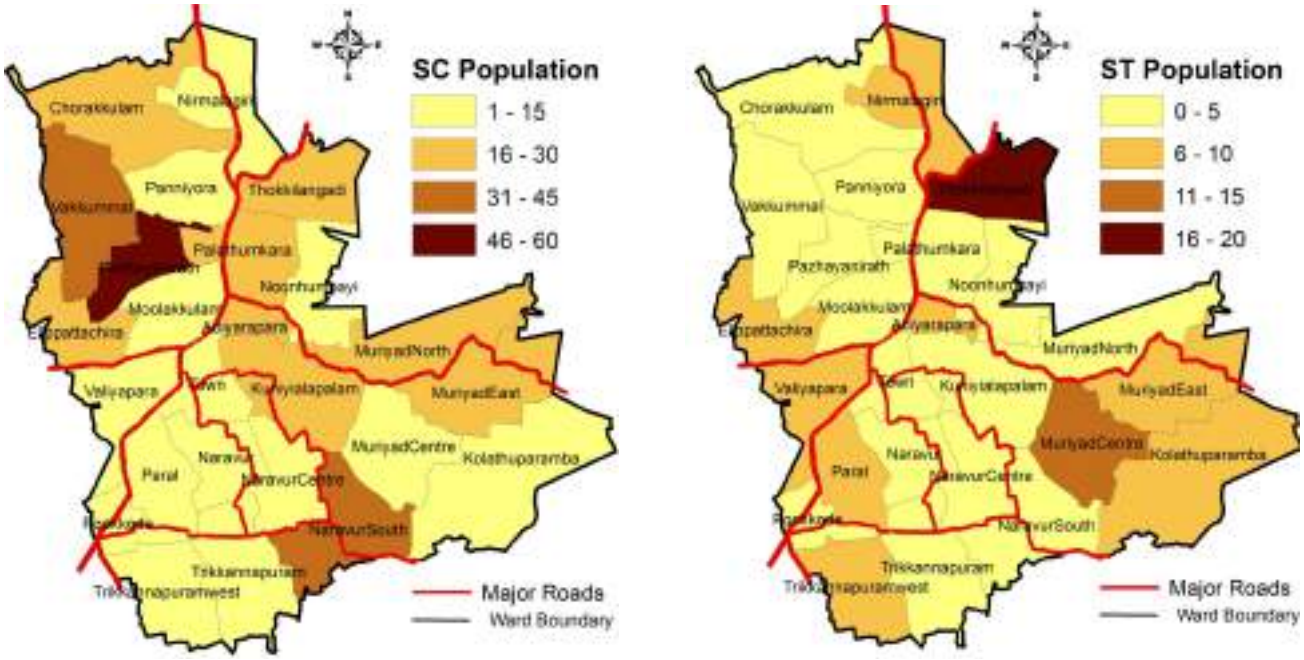


Figure 4.6 Ward wise distribution of SC and ST population in Kuthuparamba Municipal Town as per 2011 Census

4.2 GROWTH RATE OF POPULATION

Growth rate of population in State, District and Kuthuparamba Municipal Town are shown in figure 4.7.

From figure it is clear that population growth rate shows a decreasing trend during last two decades in Kuthuparamba Municipal Town , District and State. During 1981 - 1991 population growth rate of Municipal Town shows a sudden decline from 17.08 to 2.16. Population growth rate of Kuthuparamba municipal town

is lowest when compared with District and State, except during 1981 - 91.

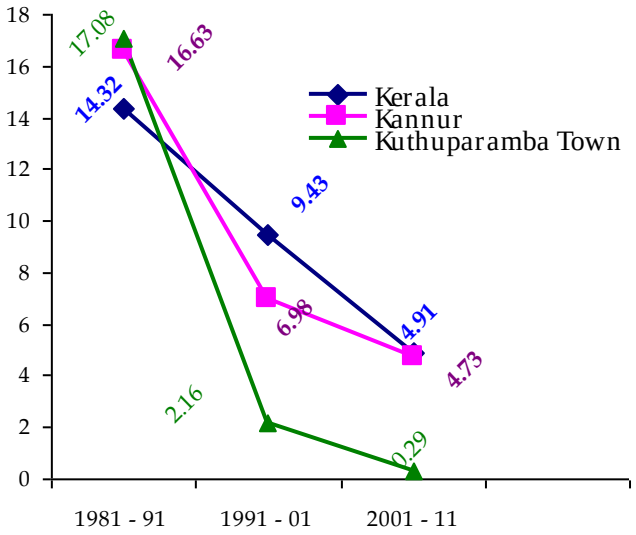


Figure 4.7 Comparison of population growth rate with District and State.

Comparison of growth rate of population in Kuthuparamba municipal town with other municipal towns in the District is given in Figure 4.8. From the figure it is clear that during last decade all municipal towns within the District shows a decreasing trend and Kuthuparamba Municipal Town ranks 4th position. However Thalassery and Kannur shows a negative growth rate trend.

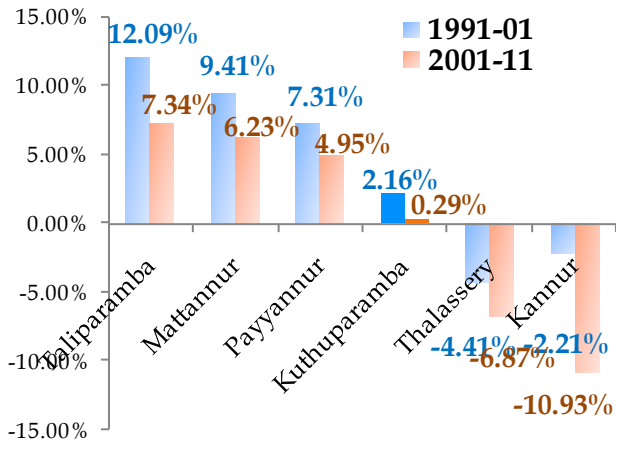


Figure 4.8 Comparison of population growth rate with other municipal towns in the District

Population growth rate comparison of Kuthuparamba town with similar towns in the District is shown in figure 4.9.

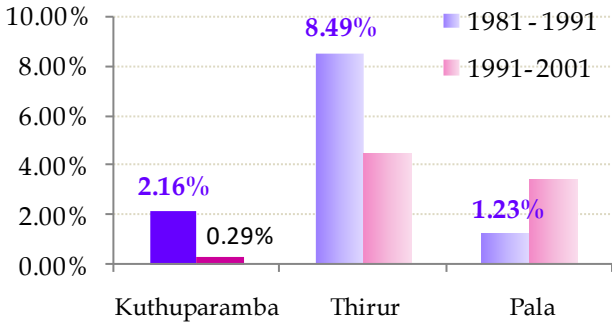


Figure 4.9 Growth rate comparison with similar municipal towns in the District.

4.3 POPULATION DENSITY

Population density is a measurement of population size per unit area, that is population size divided by total land area. Population density is broadly classified into two, gross population density and net population density.

Gross population density is defined as the number of persons per gross area. Decadal variation in gross population density of Kuthuparamba Municipal Town along with District and State is given in Figure 4.10.

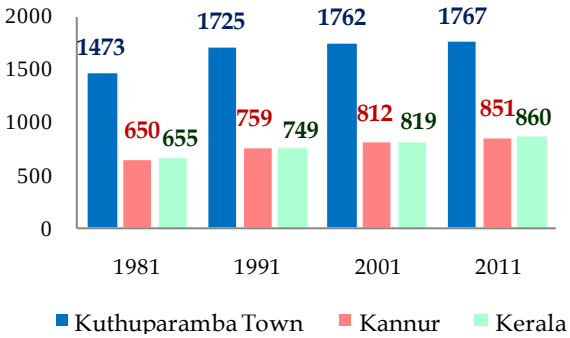


Figure 4.10 Comparison of decadal variation in gross population density of Kuthuparamba Municipal Town along with District and State.

The figure above reveals that the gross population density of Kuthuparamba Municipal town is more than twice that of the District and State.

Comparison of gross population density in Kuthuparamba Municipal Town with other Municipal Towns in the District is given in Figure 4.11. From the figure below, it is clear that gross population density of Kuthuparamba municipal town stands third in position when compared with other municipal towns in the District.

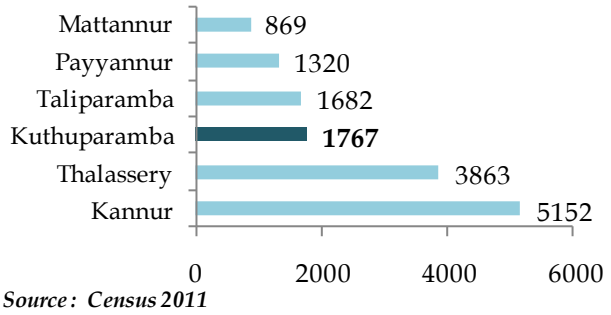


Figure 4.11 Gross population density - Comparison with other municipal towns in Kannur District

Net population density is the number of persons per net area.

Ward wise distribution of gross population density and net population density in Kuthuparamba Municipal Town are shown in Figure 4.12.

The gross population density and net population density of Kuthuparamba town ranges from 800 to 6700. Both Gross population density and Net population density are high in Adiyarapara ward , being located at the central part of the municipal area. Followed by the Town ward located adjacent to Adiyarapara. Wards located along the north western and south eastern periphery shows low density ranging from 801 to 1600. However the remaining wards has moderate value of gross as well as net population density. The percentage of water bodies and forest land are negligibly small in Kuthuparamba town. Hence the net area almost matches the gross area which is reflected in the gross and net population density also.

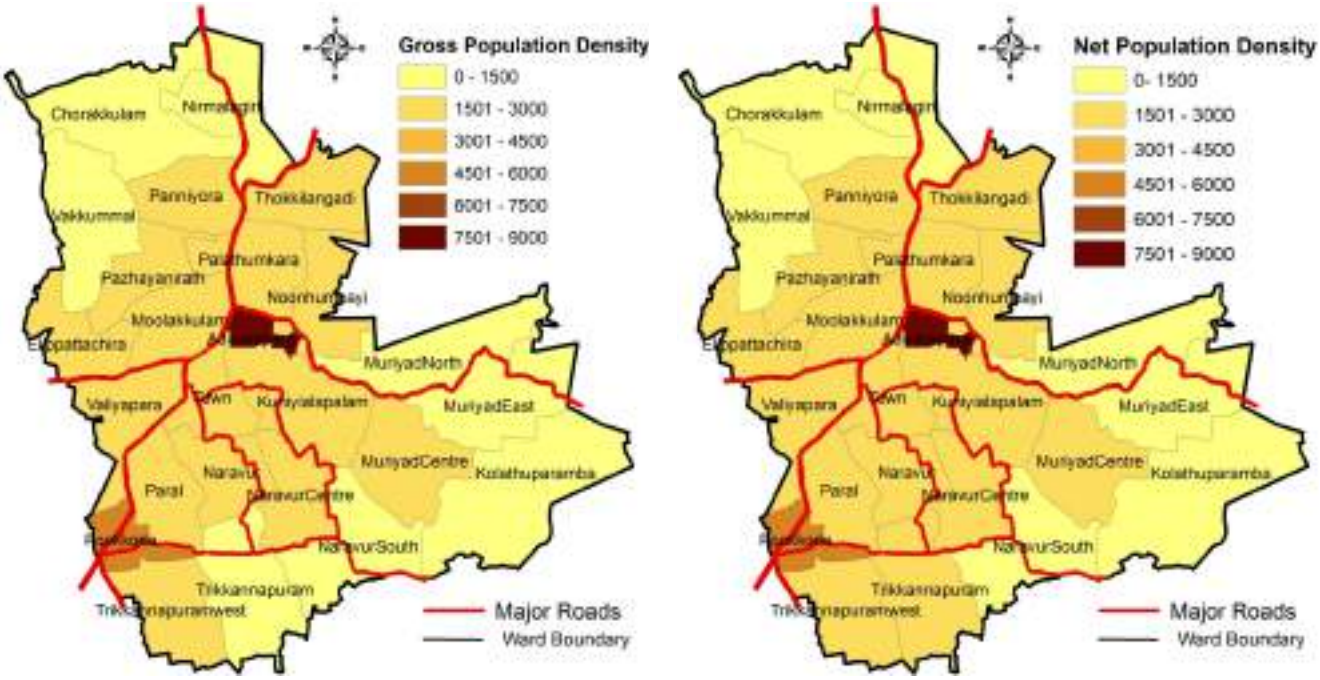


Figure 4.12 Gross population density and Net population density of Kuthuparamba town

4.4 SEX RATIO

Sex ratio is defined as the proportion of female to male in a given population, usually expressed as the number of females per 1000 males.

Comparison of sex ratio in Kuthuparamba municipal town with District and State is shown in Figure 4.13.

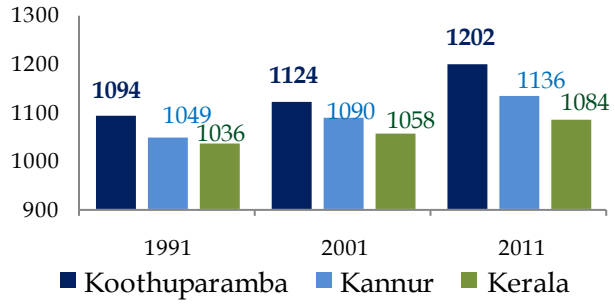


Figure 4.13 Temporal variation of sex ratio - District, State and Kuthuparamba Municipal Town

During last three decades, Kuthuparamba municipal town shows a sharp increase in sex ratio along with District and State. As per 2011 census, sex ratio of municipal town is about 1202.

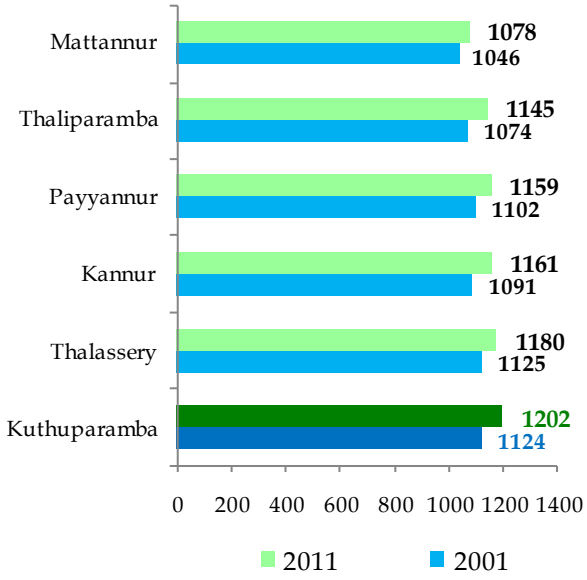


Figure 4.14 Temporal variation of sex ratio - Municipal towns within the District

Sex ratio comparison with other municipal towns in the District is given in Figure 4.14.

During the last decade, all municipal towns within the District shows an increasing trend in sex ratio. Kuthuparamba municipal town ranks first position in sex ratio as per 2011 census.

Child sex ratio

Decadal variation of child sex ratio in Kerala, Kannur and Kuthuparamba Municipal town are shown in Figure 4.15.

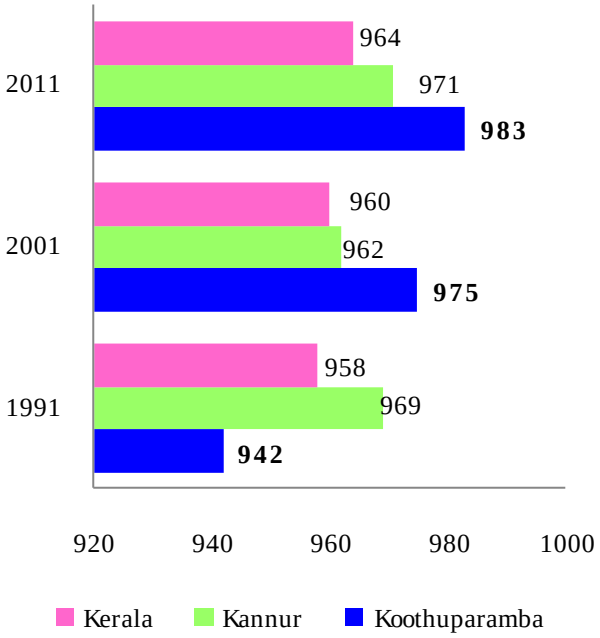


Figure 4.15 Decadal variation of Child sex ratio – Comparison with District and State

Child sex ratio in Kuthuparamba municipal town is less than 1000, however it has increased from 942 to 983 during the last two decades and similar trend is observed in District and State.

4.5 AGE STRUCTURE

The comparison of age structure with District and State is done based on the data obtained from Census 2011 and the same is represented in Table 4.3.

Table 4.3 Age structure comparison with District and State

Age	State	% of Total	District	% of Total	Kuthuparamba Town	%of Total
0-6	3472955	10.40	274318	10.87	3110	10.50
Above 6	29933106	89.60	2248685	89.13	26509	89.50
Total	33406061	100.00	2523003	100.00	29619	100.00

As per table percentage of population ranging from 0 - 6 years and above 6 years in Kuthuparamba municipal town matches the District and State average.

Age – Sex Pyramid

A Population Pyramid also known as age - sex pyramid is a graph that shows the age –sex distribution of a given population. Sex is shown on the left/right sides, age on the y-axis, and the percentage of population on the x-axis.

Population pyramids are often viewed as the most effective way to graphically depict the age and sex distribution of a population, partly because of the very clear image these pyramids present.

A great deal of information about the population broken down by age and sex can be read from a population pyramid, and this can shed light on the extent of development and other aspects of the population. A population pyramid also tells how many people of each age range live in the area. There tends to be more females than males in the older age groups, due to females' longer life expectancy.

The age-sex pyramid of Kuthuparamba town is shown in figure 4.16. The figure reveals that in Kuthuparamba municipal town the highest percentage of male and female population are in the age group of 25 to 30. It constitutes to almost 12% in each gender. In case of aged people, Kuthuparamba town also follows the general trend as the percentage of female in age group of 85 and above is almost three times that of the male population.

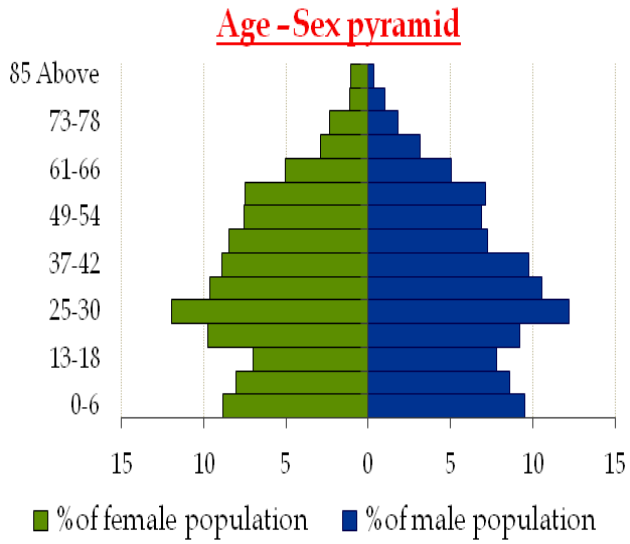


Figure 4.16 Age - Sex Pyramid of Kuthuparamba municipal town

4.6 INFERENCE

From the study of demography it can be inferred that in Kuthuparamba Municipal Town there is only a slight increase in the total population as per census data. Comparing with other municipal towns in the District Kuthuparamba ranks last position during 2001 as well as in 2011. While sex ratio of Kuthuparamba town shows an increasing trend and stands in 1st position.

Chapter 5
WORK FORCE

5.1 WORK FORCE

Work force can be defined as the people engaged in or available for work, either in a country or area or in a particular firm or industry. Work Force Participation Rate (WFPR) is the percentage of working age population that is part of the labor force. It is a measure of what proportion of a country's population is employed or actively looking for employment. Higher the labor force participation rate, more of the country's population is interested in working.

Figure 5.1 shows the percentage of working and non working population in Kuthuparamba Municipal Town.

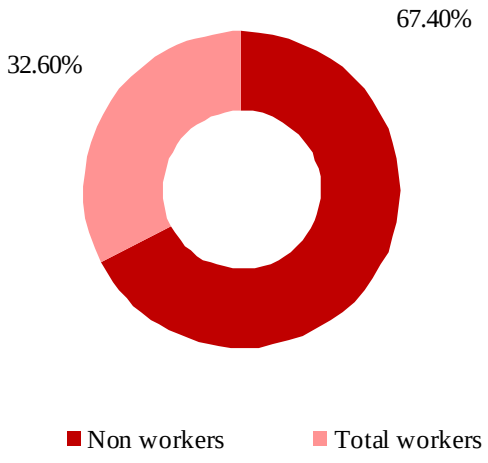


Figure 5.1 Percentage of workers and non workers of municipal town.



Workers in the construction sector

Temporal variation in work force participation of Kuthuparamba municipal town along with District and State is shown in Figure 5.2.

From the Figure it is clear that during 1981 to 2011 work force participation rate of Kuthuparamba Municipal town is lower when

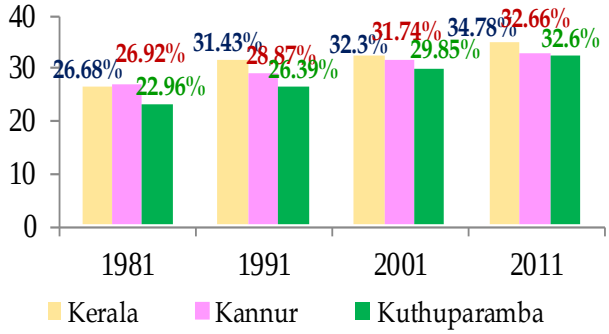


Figure 5.2 Comparison of work force participation rate with district and state

compared with district and state. However as per census 2011 the percentage of work force participation in Kuthuparamba municipal town is 32.6 which is close to the District average.

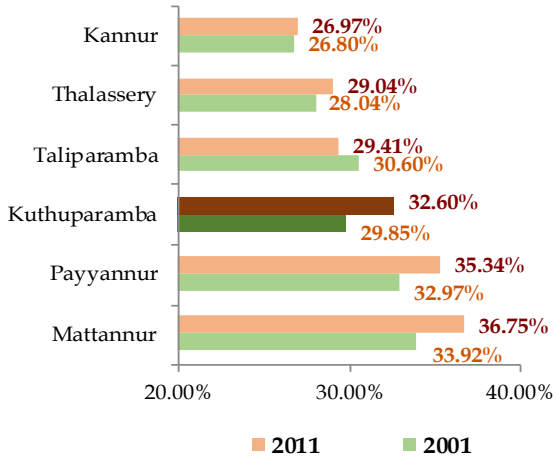


Figure 5.3 Comparison of WFPR with other municipal towns in the district.

As per the Figure 5.3 work force participation rate of Kuthuparamba Municipal Town shows an increase during 2001—2011 and Kuthuparamba ranks 3rd position in WFPR when compared with other municipal towns in the districts during 2011.

Comparison of WFPR in Kuthuparamba town with similar towns in state is given in Figure 5.4. From figure it is clear that during 2001 and 2011 Pala ranks 1st position in WFPR followed by Kuthuparamba town.

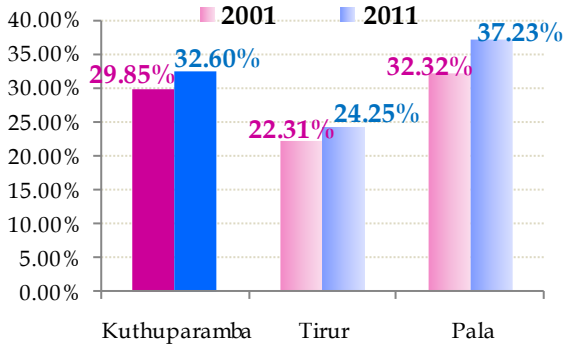


Figure 5.4 Comparison of WFPR with similar municipal towns in the state.

Figure 5.5 shows the comparison of WFPR in Kuthuparamba town with adjoining panchayaths during 2001 & 2011. Kuthuparamba town and all other adjoining panchayaths except Kottayam shows an increase in WFPR during 2011 when compared

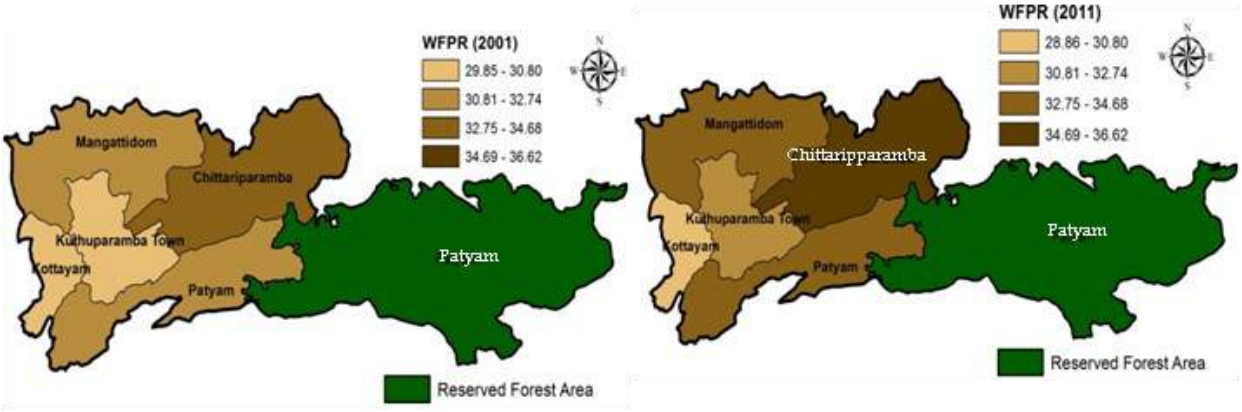


Figure 5.5 Work force participation rate comparison with adjoining panchayaths.

with WFPR during 2001 .

Female Work Force Participation Rate

The percentage of male and female workers with respect to total population is compared with district and state and is represented in Figure 5.6.

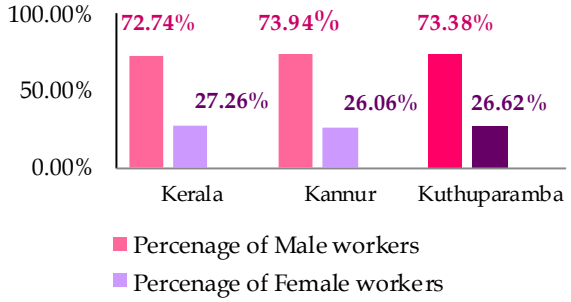


Figure 5.6 Percentage of male workers and female workers with respect to total population.

As per 2011 census percentage of female work force participation rate of Kuthuparamba Municipal Town is about 26.62 %. From the Figure 5.6 it is clear that percentage of female work force participation rate of Kuthuparamba Municipal Town is almost similar to that of district and state.

Comparison of male workers with respect to male population and female workers with respect to female population in district, state and municipal town is shown in Figure 5.7.

According to census 2011 percentage of male workers with respect to male population and female workers with respect to female population of Kuthuparamba town are 52.67 % and 15.90 % respectively and these values are very close to the district and state values.

The total workers are further classified as main workers and marginal workers. Main workers are those who work more than 180 days in a year.

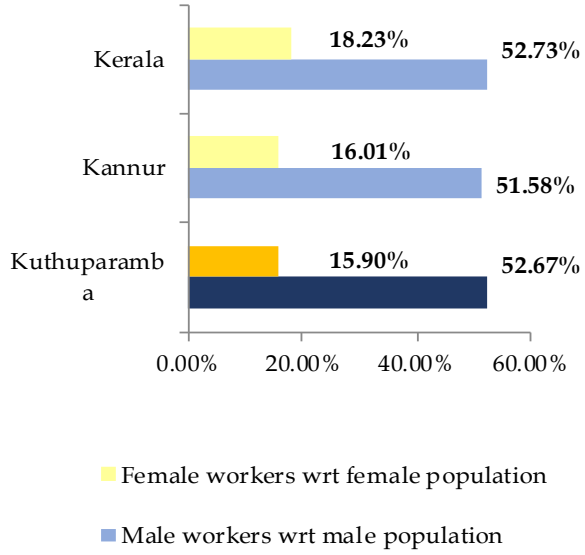


Figure 5.7 Percentage of male workers with respect to male population and female workers with respect to female population.

Main workers and Marginal workers

Work is defined as participation in any economically productive activity. Work involves not only actual work but also effective supervision and direction of work. According to this definition, the entire population has been classified into three main categories, i.e., Main workers, Marginal workers and Non- workers.

Main workers were those who had worked for the major part of the year preceding the date of enumeration i.e., those who were engaged in any economically productive activity for 180 days (or six months) or more during the year. Marginal workers were those who worked any time at all in the year preceding the enumeration but did not work for a major part of the year, i.e., those who worked for less than 180 days (or six months). Non-workers were those who had not worked any time at all in the year preceding the date of enumeration.

Figure 5.8 shows the percentage of main workers, marginal workers and non workers in Kuthuparamba municipal town.

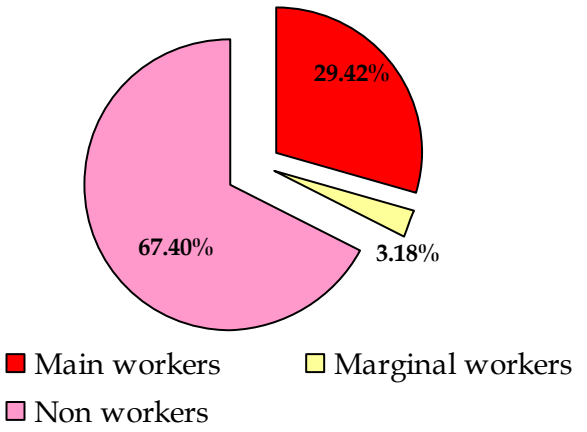


Figure 5.8 Main workers, marginal workers and non workers

From Figure 5.8 it is clear that majority of the population are non-workers i.e. 67.4% and workers constitute about 32.6%. Out of 32.6% workers, 29.42% are main workers and 3.18% are marginal workers.

Comparison of percentage of main workers, marginal workers and total workers with district and state is given in Figure 5.9.

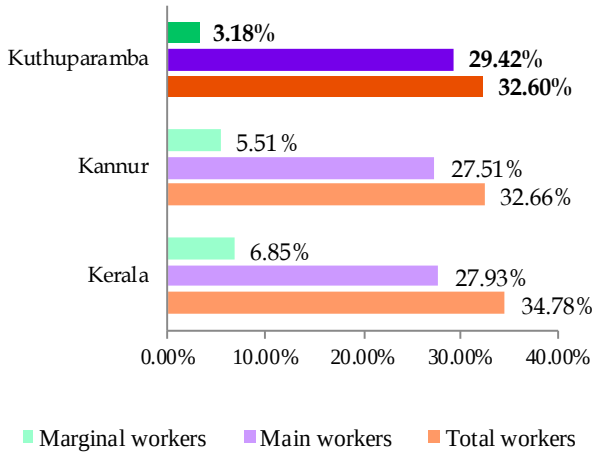


Figure 5.9 Main workers, marginal workers and total workers - comparison with district and state.

As per the Figure percentage of total workers in Kuthuparamba municipal town is less than that of district and state. However the percentage of main workers in the municipal town is higher than that of district as well as state.

Decadal variation of total workers, main workers and marginal workers are represented as histogram in Figure 5.10.

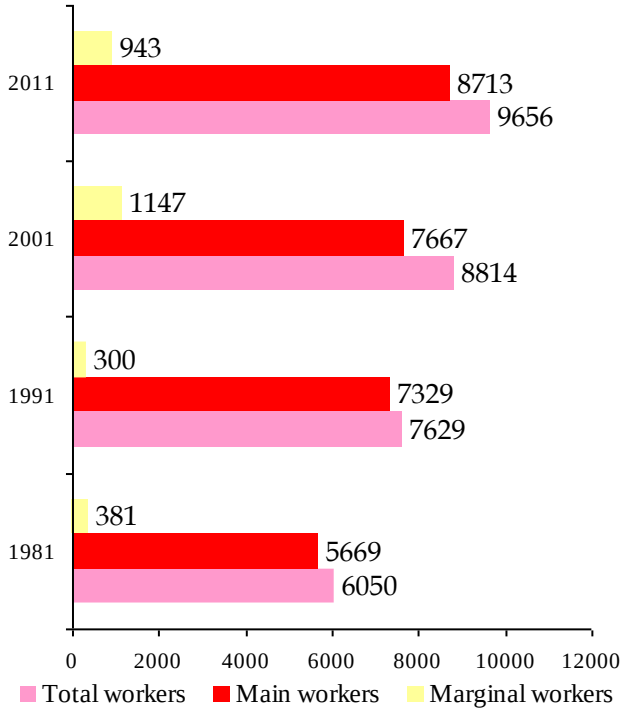


Figure 5.10 Decadal variation of workers

Bar chart shows that during last four decade number of total workers as well as main workers shows a steady increase. However number of marginal workers shows an increase up to 2001 (1147), but during 2011 the number of marginal workers has decreased to 943.

5.2 OCCUPATIONAL STRUCTURE

The broad category of economic activities, also known as four fold classification of workers, are Cultivators, Agricultural labourers, those working in House hold

Industries, and other workers. The cultivators and agricultural labourers broadly show the workers engaged in the agricultural sector, except those engaged in plantation activities, which, over the Censuses, have been considered as a part of 'other workers'.

As per 2011 census main workers and marginal workers are classified into four category they are agricultural labourers, cultivators, household industrial labourers and other workers.

Four fold classification of main workers and marginal workers in Kuthuparamba municipal town is shown in Figure 5.11.

Figure 5.12 shows the comparison of four fold classification of workers in Kuthuparamba Municipal Town with district and state. In Kuthuparamba municipal town the percentage of agricultural workers is comparatively low.

Temporal variation of four fold classification of main workers in Kuthuparamba municipal town is shown as bar chart in Figure 5.13.

From the analysis it is clear that the percentage of other workers shows an increasing trend. The decrease in the percentage of cultivators and agricultural labourers during last three decades shows the decline in primary activity. The decadal variation of percentage of

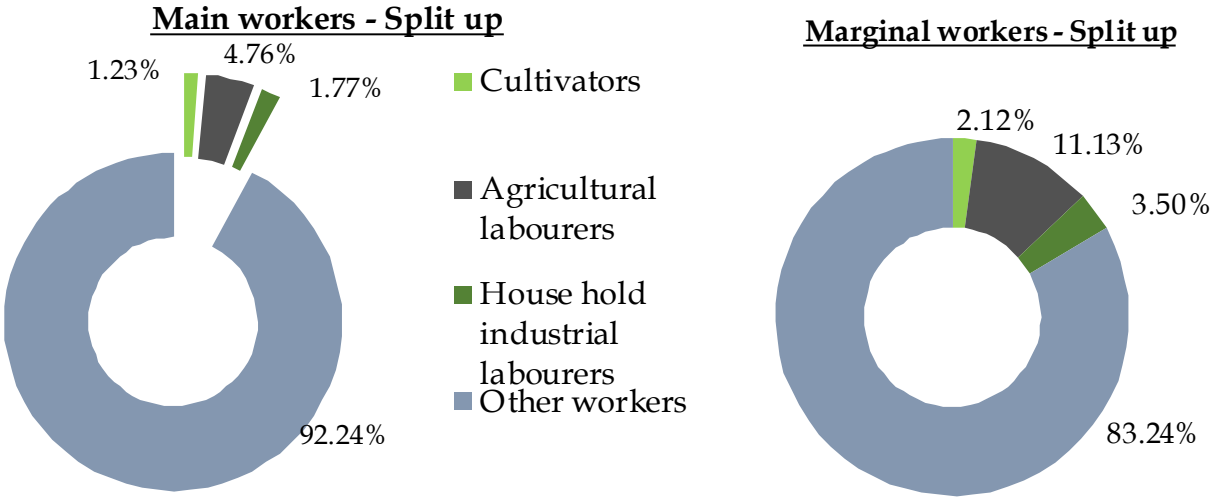


Figure 5.11 Four fold classification – Main and marginal workers

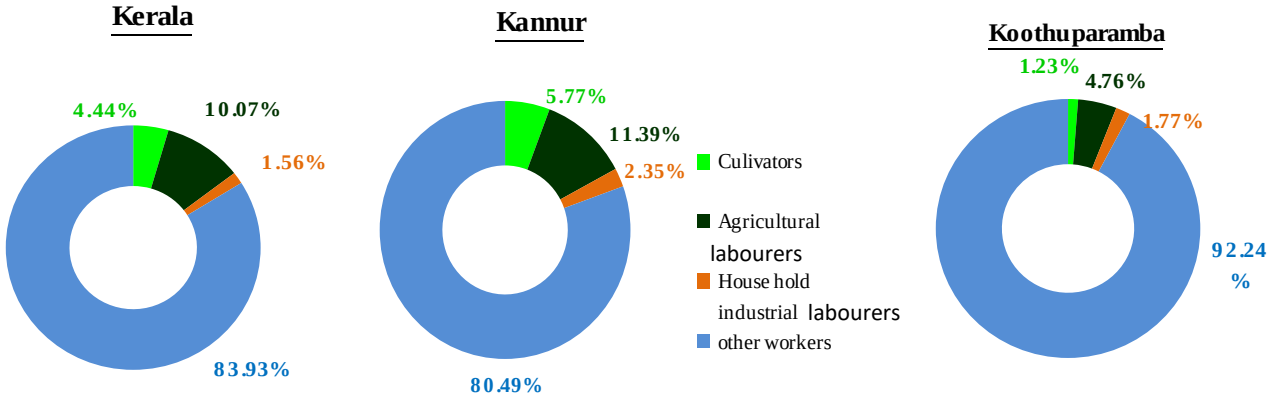


Figure 5.12 Comparison of four fold classification of workers with district and state

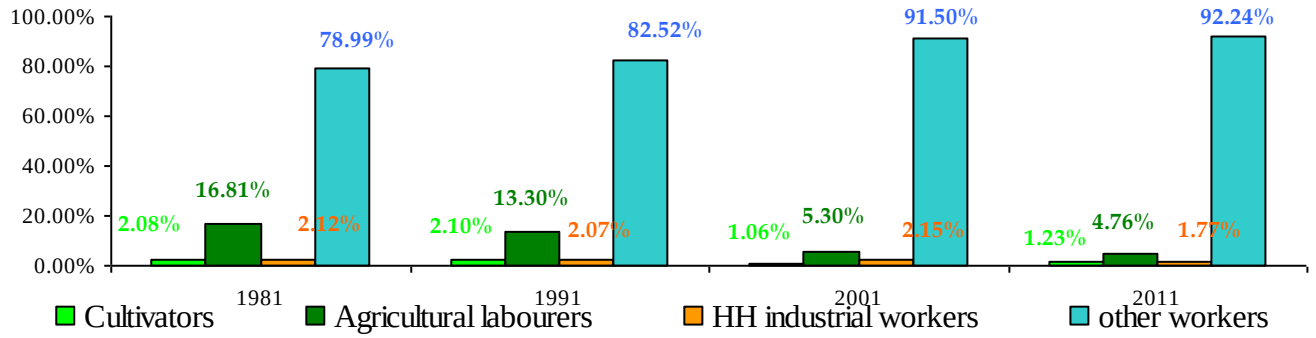


Figure 5.13 Temporal variation of four fold classification in Kuthuparamba Municipal town

household industrial labourers is almost steady. Where as other workers has increased and accounts to 92.24% of the total workers as per census 2011.

Classification of workers as per the socio-economic survey conducted in Kuthuparamba Town is graphically represented in Figure 5.14. Other workers constitutes the major share (24%) followed by government employees

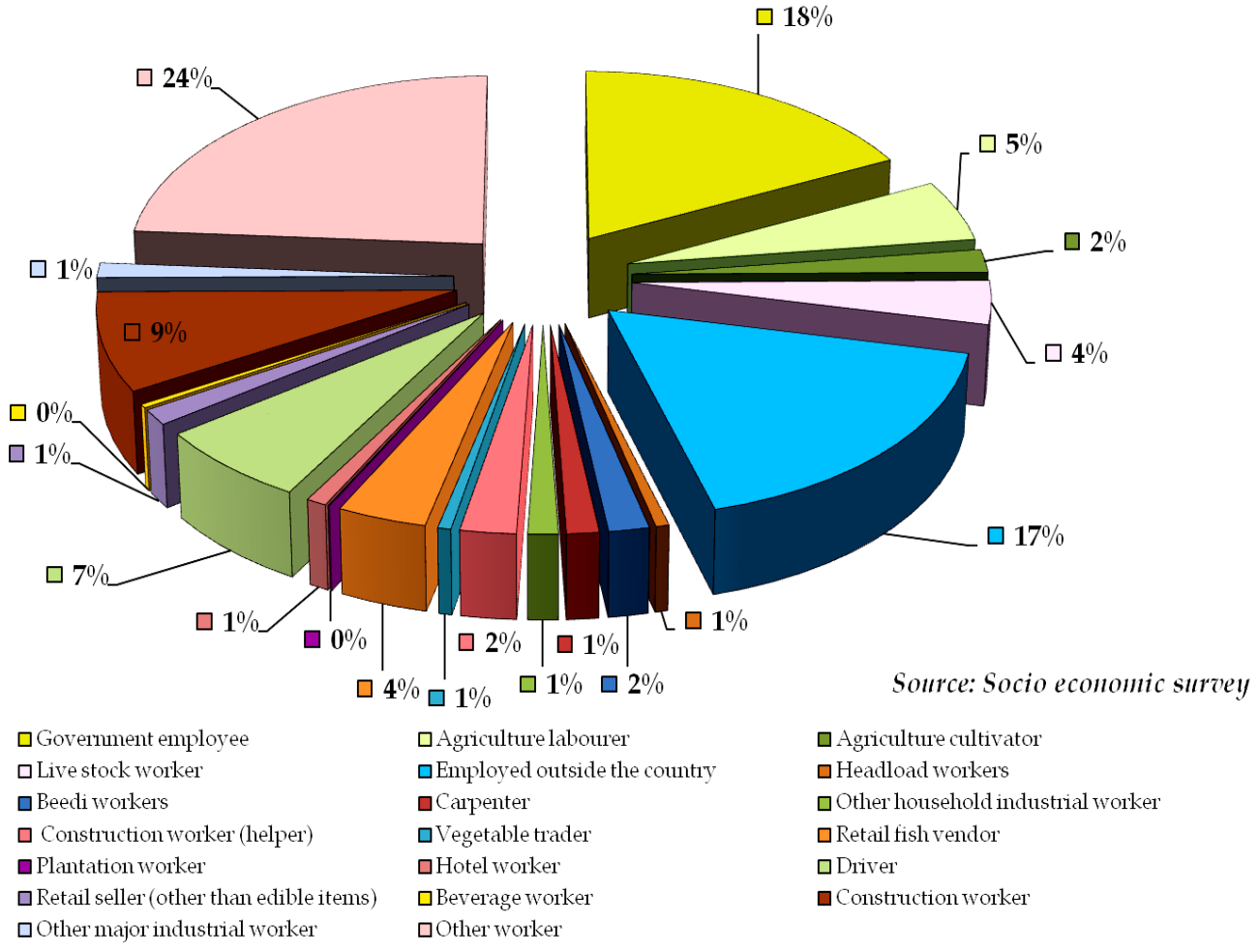


Figure 5.14 Classification of workers in Kuthuparamba town

(18%) and those employed abroad (17%). All other categories falls below 10%.

5.3 SPATIAL DISTRIBUTION OF MAJOR CLASS OF WORKERS

The ward wise occupational structure of Kuthuparamba Municipal Town is shown in Figure 5.15..

Figure shows that in all wards other workers constitute more than 75% of total workers. Workers involved in primary and secondary activities are also distributed in all wards. However cultivators and agricultural labourers are more prominent in wards located in northern and south eastern part of Kuthuparamba town.

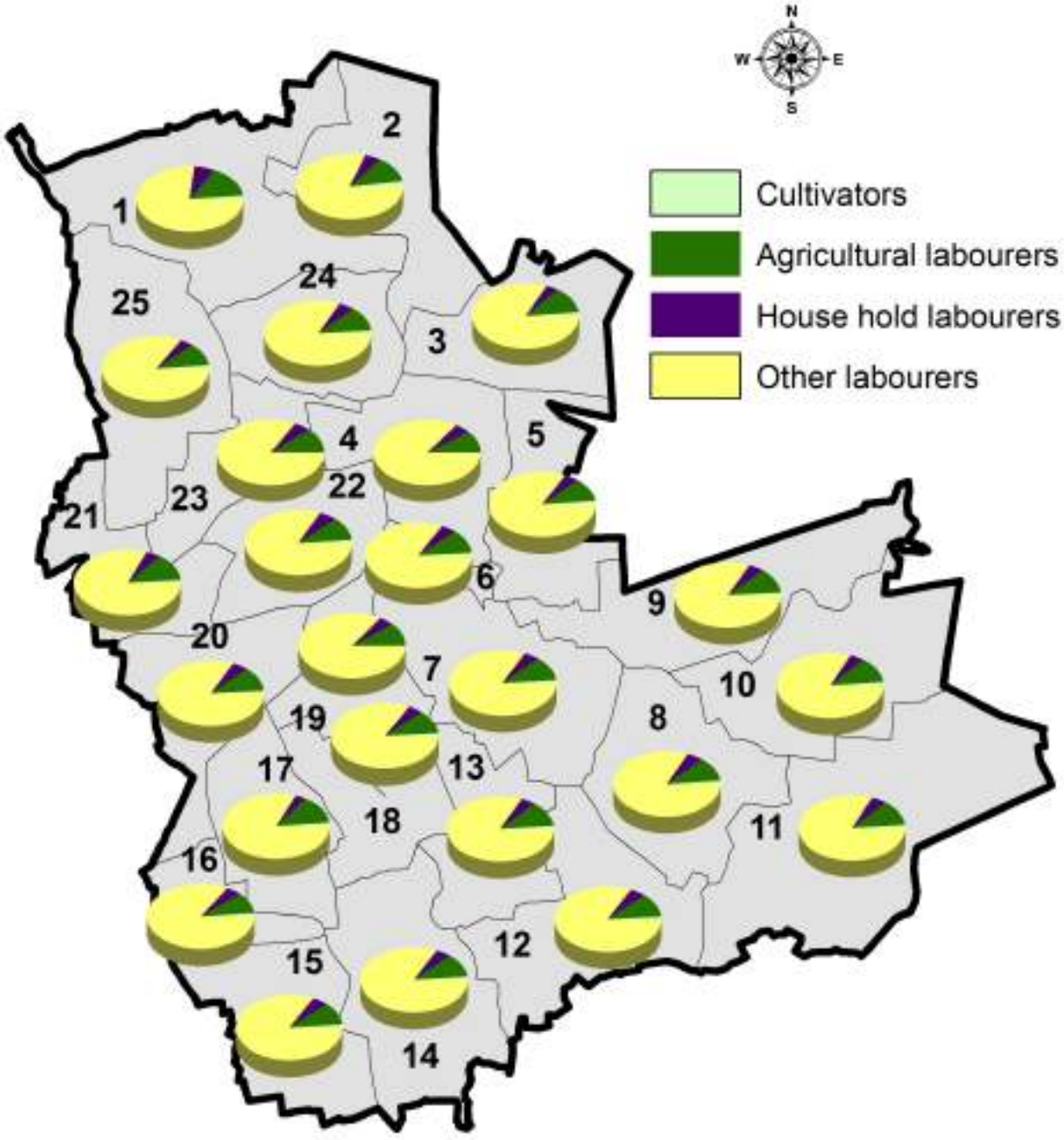


Figure 5.15. Ward wise occupational structure of Kuthuparamba Municipal Town

5.4 INFERENCE

The work force participation rate of Kuthuparamba town is 32.60% and ranks 3rd position among the six municipal towns of the district. Percentage of female work force participation rate is 26.62% almost matches the district and state average. The analysis on fourfold classification of laborers reveals that 92.24% are other workers which is high when compared with district and state. Temporal variation in fourfold classification of laborers during the last three decades shows an increase in the percentage of other workers which indicates the transformation of primary activities to service sectors in Kuthuparamba town.

Chapter 6
LAND USE

6.1 LAND USE AT TOWN LEVEL

Kuthuparamba town lies in the midland region of North Kerala and has comparatively plain terrain. The soil of this area is generally fertile and experiences good surface run off.

Kuthuparamba municipal town consists an area of 16.76 km² located in the southern portion of Kannur District. Land use of Kuthuparamba municipal area is classified as Residential, Commercial, Public & Semipublic, Transportation, Industry, Park & Open space, Dry agriculture, Coconut groves, Paddy field, Uncultivated paddy, Canal land, Water body, Hazardous land, Laterite quarries and a Granite quarry.

Land use breakup of Kuthuparamba municipal town is shown in Figure 6.1 and Table 6.1.

The major single land use (62.66%) is residential followed by dry agriculture (22.45%). There is considerable transportation land use (4.23%) in Kuthuparamba municipal town. Land under public and semi public, coconut groves and uncultivated paddies are 3.24%, 2.26% and 2.45% respectively. Remaining categories namely park & open space, Hazardous, laterite and granite quarry.

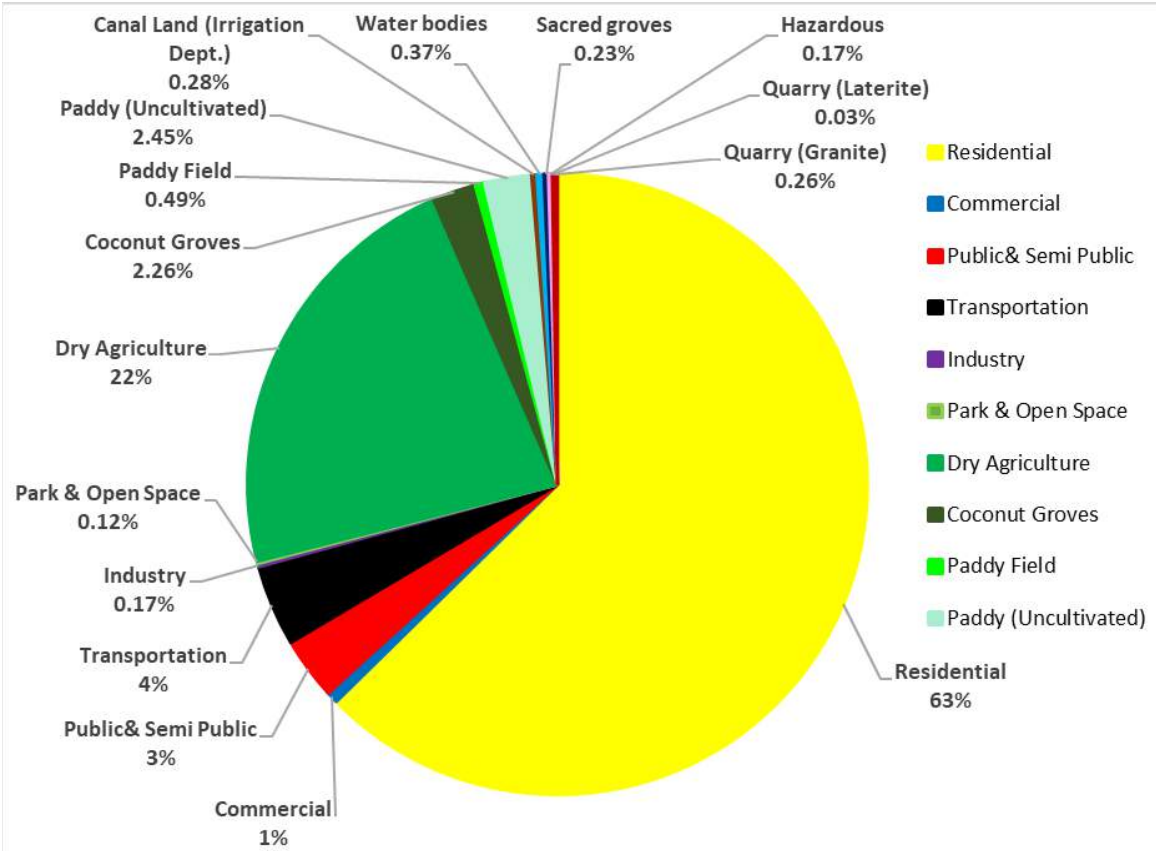


Figure 6.1 Land use break up details – 2011

Table 6.1 Land use break up 2011

Sl. No.	Land use classification	Area in sq.km.	% Area
1	Residential	10.50	62.66
2	Commercial	0.10	0.60
3	Public& Semi Public	0.54	3.24
4	Transportation	0.71	4.23
5	Industry	0.03	0.17
6	Park & Open spaces	0.02	0.12
7	Dry Agriculture	3.76	22.45
8	Coconut groves	0.38	2.26
9	Paddy Field	0.08	0.49
10	Paddy (Uncultivated)	0.41	2.45
11	Canal land (Irrigation Dept)	0.05	0.28
12	Water bodies	0.06	0.37
13	Sacred groves	0.04	0.23
14	Hazardous	0.03	0.17
15	Quarry (Laterite)	0.004	0.03
16	Quarry (Granite)	0.04	0.26
	Total	***16.76***	***100***

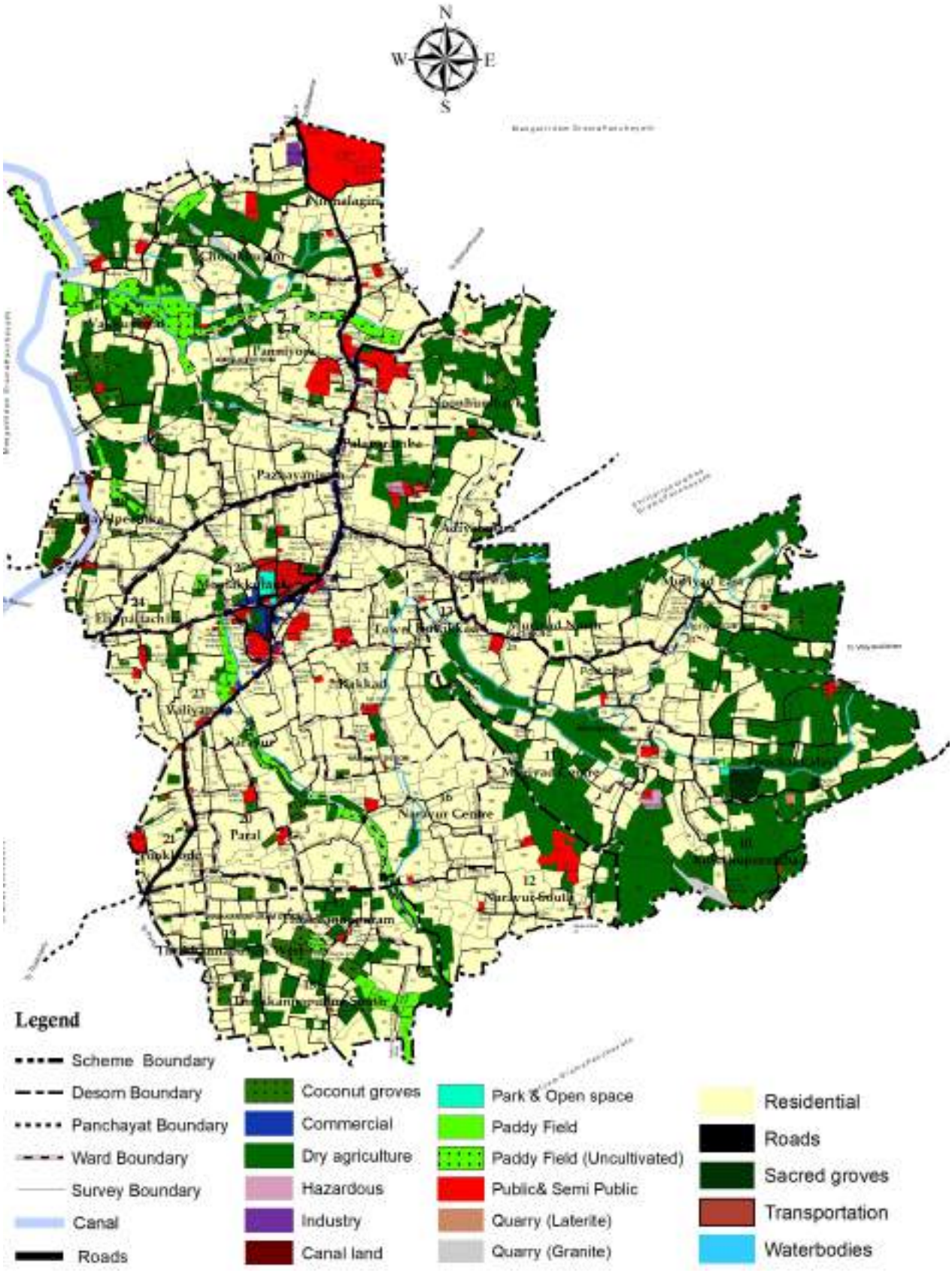


Figure 6.2 Existing land use map 2011

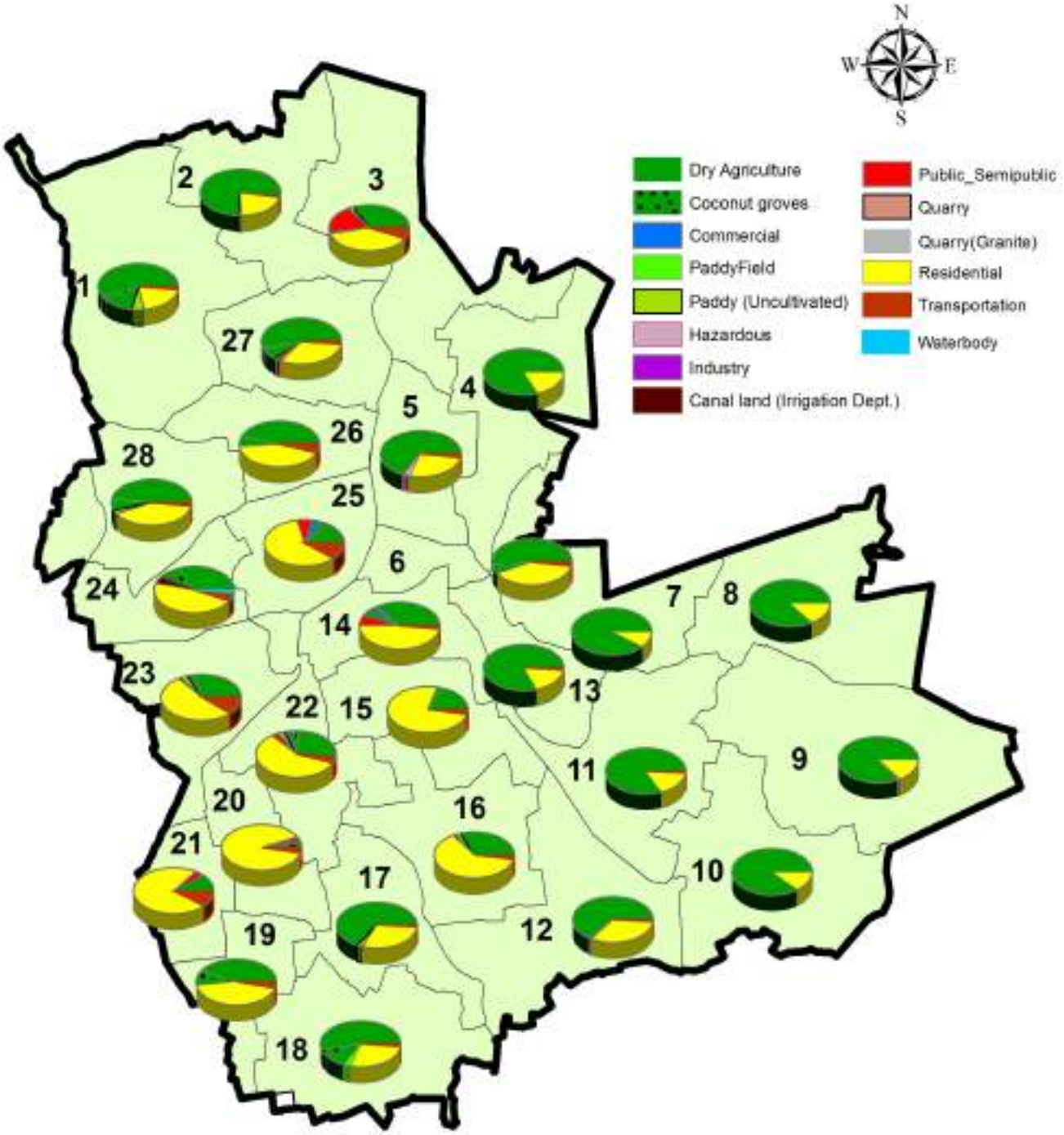


Figure 6.3 Ward wise distribution of Land use

Ward wise distribution of land use in Kuthuparamba town is represented as pie chart in figure 6.3 and Table 6.2. From the figure, it is clear that residential and dry agricultural land use occupies major portion of the wards. Wards with major residential concentration is seen located in the core area and surrounding portion of the municipal town. Ward number 3 (Nirmalagiri) show high public land use concentration due to the presence of educational institutions. Agriculture predominant wards are located in the north western and south eastern portion of the town.

Table 6.2 Ward wise distribution of Land use in Kuthuparamba town

Ward Name	Residential	Canal land	Coconut groves	Commercial	Dry Agriculture	Hazardous	Industry	Paddy (Uncultivated)	Paddy Field	Parks and Open Spaces	Public& Semi Public	Quarry (Granite)	Quarry (Laterite)	Sacred groves	Transportation	Water bodies
Adiyarapara	0.26		0.01	0.01	0.02	0.00	0.00				0.006				0.01	0.00
Chorakkulam	0.37		0.01	0.00	0.12		0.01	0.03			0.01	0.02			0.02	0.00
Elipattachira	0.35	0.03	0.04	0.00	0.03		0.00	0.01			0.00				0.03	0.01
Idayilpeedika	0.38	0.01	0.01	0.00	0.05		0.00	0.02			0.00				0.02	0.00
Kakkad	0.43		0.01	0.00	0.01	0.00	0.00				0.00				0.02	0.00
Kolathuparamba	0.35		0.01	0.00	0.45	0.02	0.00				0.01	0.02			0.02	0.00
Kuttikkad	0.22			0.00	0.07		0.00				0.01				0.02	0.00
Moolakkulam	0.30		0.02	0.01	0.01	0.00	0.00			0.02	0.04				0.05	0.00
Muriyad Centre	0.34			0.00	0.40	0.00	0.00				0.00		0.004		0.03	0.00
Muriyad East	0.38		0.01	0.00	0.35						0.00				0.03	0.00
Muriyad North	0.24			0.00	0.24		0.00				0.00				0.01	0.00
Naravur	0.39		0.02	0.02	0.03	0.00	0.00	0.02		0.00	0.03				0.03	0.00
Naravur Centre	0.53			0.00	0.03			0.02		0.00	0.02				0.02	0.00
Naravur South	0.67			0.00	0.18		0.00	0.01		0.00	0.04		0.00		0.02	0.00
Nirmalagiri	0.48		0.00	0.01	0.07		0.00	0.03			0.23				0.07	0.00
Noohumbhayi	0.40		0.01	0.00	0.36	0.00	0.00				0.01				0.02	0.00
Palaparamba	0.27		0.01	0.01	0.08	0.01	0.00				0.01				0.02	
Panniyora	0.48		0.01	0.00	0.07	0.00		0.01			0.01				0.02	0.00
Paral	0.31		0.01	0.00	0.00		0.00				0.01				0.01	
Pazhayanirath	0.33		0.01	0.00	0.03	0.00	0.00				0.00				0.03	0.00
Pookkode	0.25		0.00	0.00	0.00		0.00				0.01				0.03	0.00
Punchakkalayi	0.46		0.00	0.00	0.54	0.00	0.00	0.00		0.00	0.004		0.00	0.04	0.03	0.00
Thrikkanapuram South	0.53		0.07	0.00	0.15			0.01	0.06		0.00				0.02	0.00
Thrikkannapuram	0.35		0.00	0.00	0.07			0.03			0.00				0.01	0.00
Thrikkannapuram West	0.25		0.03	0.00	0.02		0.00				0.00				0.02	
Town	0.30		0.01	0.02	0.02	0.00	0.00				0.04				0.01	0.00
Vakkummal	0.48	0.01	0.06	0.00	0.32		0.00	0.17	0.02		0.01				0.04	0.01
Valiyapara	0.38		0.01	0.01	0.02		0.00	0.04			0.01				0.04	0.00
Grand Total	**10.50**	**0.05**	**0.38**	**0.10**	**3.76**	**0.03**	**0.03**	**0.41**	**0.08**	**0.02**	**0.54**	**0.04**	**0.004**	**0.04**	**0.71**	**0.06**

6.2 LAND USE CONCENTRATION PATTERN

The land use concentration index of residential, agriculture, paddy fields, public and semipublic, park and open spaces, industries and commercial are analyzed in this chapter. The Land use Concentration Index is derived by applying the following method:

Concentration index of Land use = [(Area of Land use/ Total Ward Area)]/ [(Area of Land use in the local body / Total area of the Local body)].

6.2.1 Commercial land use

Ward wise Commercial land use distribution in Kuthuparamba municipal town is given in figure 6.4.

Commercial activity is high in wards located in the central portion of the municipal town along the major corridors. All other wards have minimal commercial land use activities.



Figure 6.4 Ward wise distribution of commercial land use

6.2.2 Public and semi pubic land use

Public and semipublic uses in Kuthuparamba town are highest in Nirmalagiri followed by Moolakkulam and Town ward .

Public and semi public land use are scattered in all other wards. Figure 6.5 shows ward wise public and semi public land use distribution.



Figure 6.5 Ward wise public and semi public land use distribution

6.2.3 Residential land use Concentration

Residential land use concentration index in Kuthuparamba municipal town varies from 0.60—1.60 . Wards with highest residential concentration are concentrated along the major corridors of the town. Minimum residential concentration ranging from 0.60 to 0.80 are observed in wards located in the north western and south eastern periphery of the town . Ward

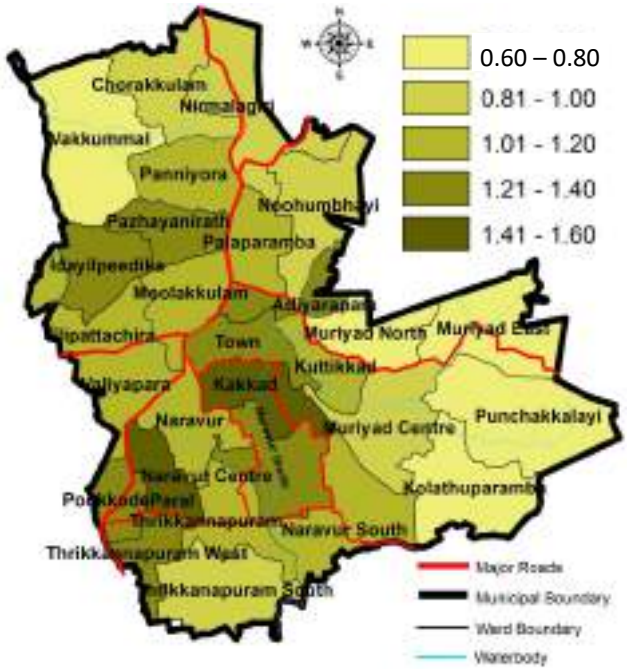


Figure 6.6 Residential land use concentration

wise residential land use concentration index in Kuthuparamba municipal town is shown in Figure 6.6.

6.2.4 Agricultural land use Concentration

The agricultural land use concentration of Kuthuparamba municipal town is shown in Figure 6.7.

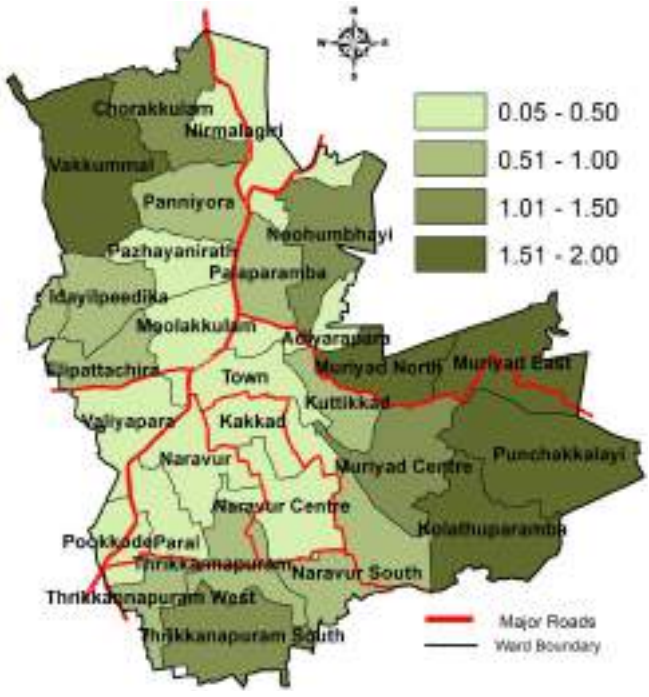


Figure 6.7 Agricultural land use concentration

Agricultural land use concentration index ranges from 0.05 - 2.00. Highest concentration index of agricultural land use is observed in two wards namely Vakkummal and Kolathuparamba, and also these wards are having low residential concentration index. As a whole agricultural concentration index is high in north west and south east portion of the municipal town.

6.3 OTHER MAJOR LAND USES

6.3.1 Transportation

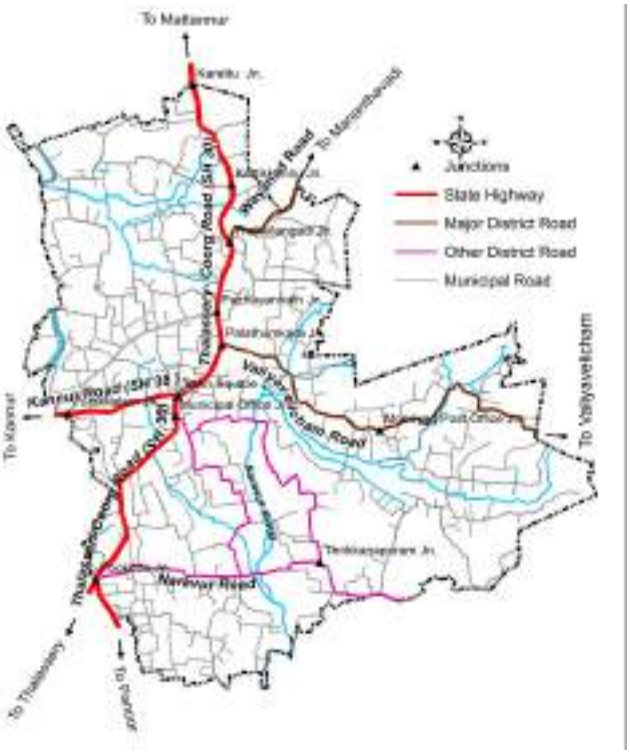


Figure 6.8 Existing Road Network

About 4.18 % (0.70 sq.km) of total municipal area is occupied by transportation. Figure 6.8 represents the existing transportation network of Kuthuparamba town whereas Figure 6.9 gives the land use concentration pattern of traffic and transportation. From figure, it is clear that transportation land use

concentration index is high in wards located along the major roads namely Thalassery - Coorg road (SH –30) and Kannur—Kuttiyadi road (SH– 38). Highest concentration (2.01–2.50) is observed in Moolakkulam ward due to the existence of bus stand. Pookode being an important junction , also shows high concentration. Concentration index is minimum in Muriyad North (0.33—0.50).

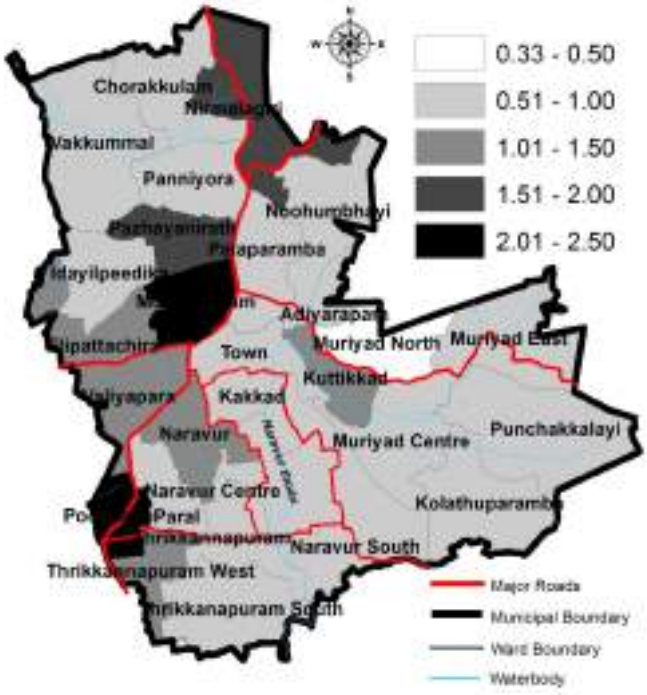


Figure 6.9 Land use Concentration of Traffic and Transportation

6.3.2 Industries

Distribution of industrial land use in Kuthuparamba town is shown in Figure 6.10. Only 0.18% (0.03 sq.km) of total municipal area is occupied by industries and are mainly concentrated in the northern portion of the town. However, few small scale industries are scattered in wards located in the central portion of the town mainly automobile related industries.



Figure 6.10 Industrial land use

6.3.3 Other land uses

Other land uses includes hazardous, canal land, park and open space, quarry and water bodies which constitutes 0.30%, 0.30%, 0.12%, 0.30% and 0.36% of total municipal area respectively.



Figure 6.11 Concentration of other land uses

From figure 6.11 it is clear that no major water bodies passes through the municipal area. Part of Pazhassi Irrigation canal passes through the north west boundary which is not a perennial canal. Hazardous land is mainly located in Palapparamba and Kolathuparamba. Laterite quarries are located in northern and south eastern portion of the municipal town where as granite quarry is located in the wards Kolathuparamba and Chorakkalam .

6.4 LAND USE COMPARISON WITH OTHER MUNICIPAL TOWNS IN THE DISTRICT

Kuthuparamba town is compared with other municipal towns in the district namely Mattannur, Taliparamba and Payyannur. The comparison is shown in Table 6.3 and Figure 6.12. Due to the large built up area in existing land use of Kannur and Thalassery town , they are excluded from the land use comparison.

In Kuthuparamba town, urban land uses like commercial, public and semipublic, industrial and transportation are found less than 5%. Percentage of residential land use is found to be highest (62.89%) when compared with other land uses of the town and residential land use of other towns in the districts. Industrial land use of towns in Kannur district is only less than 1% of the total land use.

Paddy & uncultivated paddy , water bodies and other land uses are found to be minimum when compared with other towns . Percentage of dry agricultural land use of Kuthuparamba town is almost similar to that of Payyannur town.

Table 6.3 Comparison of Land use with other Municipal Towns in the District

Land use	**Kuthuparamba**		**Mattannur**		**Taliparamba**		**Payyannur**	
	Area in Sq.km	**% of Area**	**Area in Sq.km**	**% of Area**	**Area in Sq.km**	**% of Area**	**Area in Sq.km**	**% of Area**
Residential	10.50	62.66	21.06	38.89	25.81	59.92	26.10	47.80
Commercial	0.10	0.60	0.08	0.15	0.22	0.52	0.38	0.70
Public and semipublic	0.54	3.24	0.57	1.05	1.73	4.01	1.01	1.80
Industrial	0.03	0.17	0.05	0.09	0.29	0.67	0.06	0.10
Transportation	0.71	4.23	3.22	5.95	1.55	3.59	1.79	3.20
Paddy & Uncultivated paddy	0.49	2.94	3.18	5.87	4.06	9.43	5.37	12.30
Dry Agriculture & Coconut groves	4.14	24.71	23.59	43.56	5.04	11.71	12.86	23.50
Park & Open spaces	0.02	0.12	0.002	0.01	0.1	0.24	0.06	0.10
Water body	0.06	0.37	1.19	2.20	2.62	6.09	4.56	8.30
Others	0.16	0.96	1.21	2.24	1.66	3.82	2.44	2.20
Total	16.76	100	54.15	100	43.08	100	54.63	100

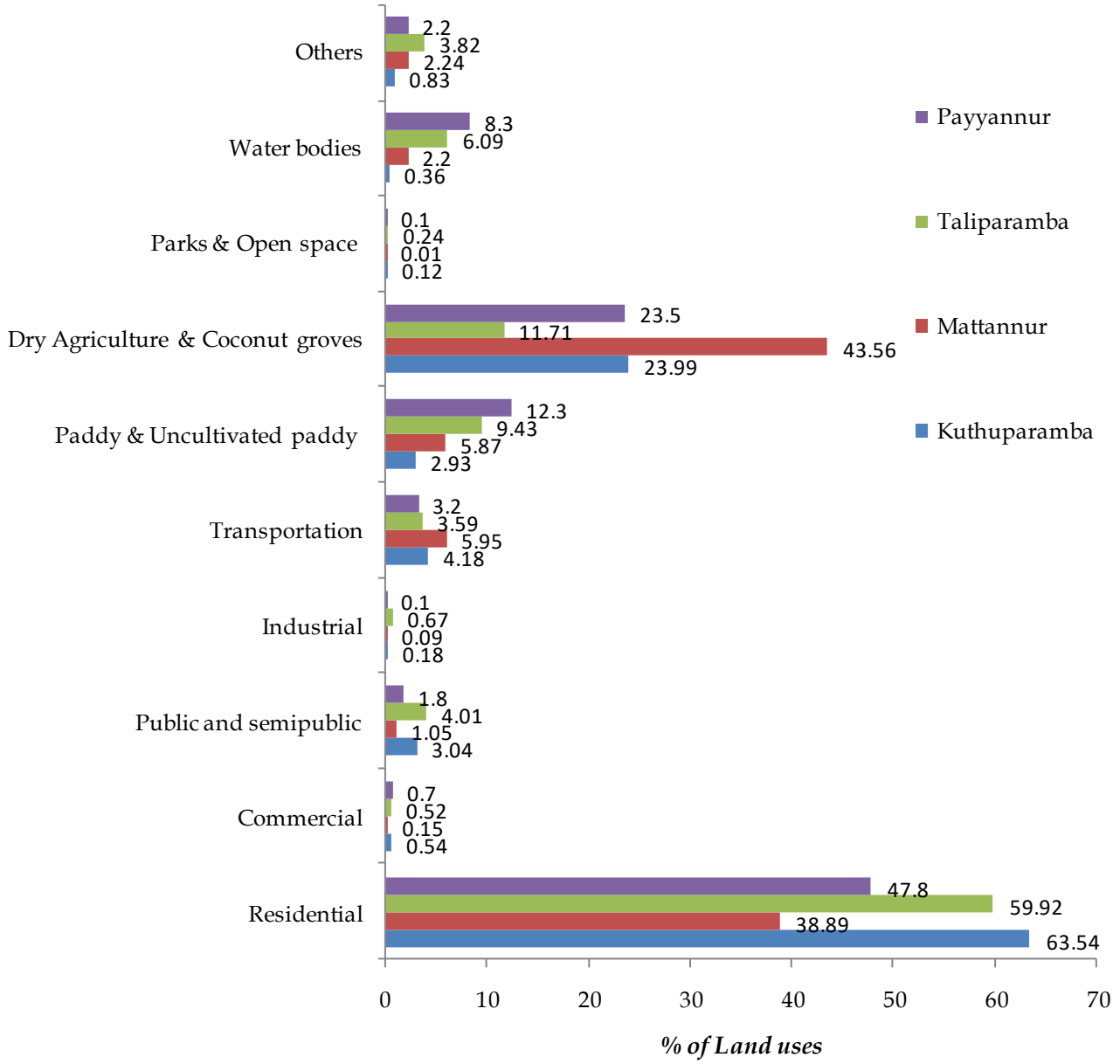


Figure 6.12 Comparison of Land use with other Municipal Towns in the District

6.5 LAND USE COMPARISON WITH SIMILAR TOWNS IN THE STATE

Land use comparison of Kuthuparamba town with similar towns in the state is shown in Table 6.3 and Figure 6.13. The similar towns Tirur and Pala towns are selected for the comparative study. These two towns are located south of Kuthuparamba town. Tirur belongs to Malappuram district whereas Pala town belongs to Kottayam district. One of the criteria considered in selecting similar towns is the extent of land area. The extent of land of Kuthuparamba, Tirur and Pala towns are almost the same.

Highest residential land use is observed in Kuthuparamba town where as dry agricultural concentration is low when compared with similar towns. Land under traffic and transportation (4.18%) of Kuthuparamba town is more than that of Pala but low when

Table 6.4 Comparison of Land use with similar Municipal Towns in the State

Land use	Kuthuparamba		Tirur		Pala	
	Area in km²	% of Area	Area in km²	% of Area	Area in km²	% of Area
Residential	10.50	62.66	7.58	45.78	6.39	39.77
Commercial	0.10	0.60	0.52	3.14	0.46	2.87
Public and semipublic	0.54	3.24	0.54	3.28	1.02	6.34
Industrial	0.03	0.17	0.01	0.06	0.08	0.50
Transportation	0.71	4.23	0.92	5.56	0.41	2.55
Paddy & Uncultivated paddy	0.49	2.94	1.19	7.16	0.26	1.66
Dry Agriculture & Coconut groves	4.14	24.71	4.82	29.1	6.86	42.72
Parks & Open space	0.02	0.12	0.01	0.04	0.02	0.12
Water bodies	0.06	0.37	0.37	2.26	0.56	3.47
Others	0.24	0.96	0.60	3.62	-	-
Total	16.76	100	16.83	100	16.05	100

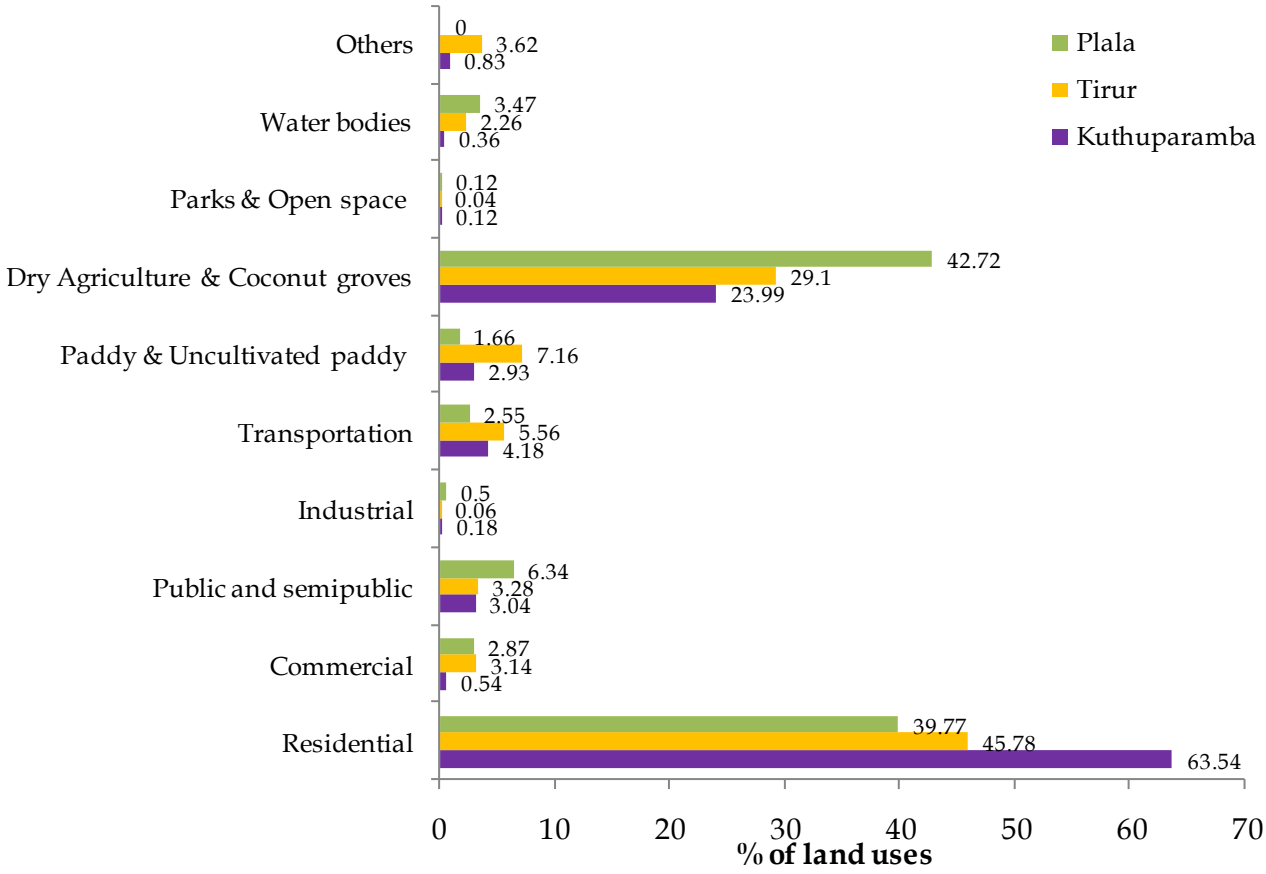


Figure 6.13 Comparison of Land use with similar Municipal Towns in the State

compared to Tirur.

6.6 COMPARISON OF EXISTING LAND USE WITH PLANNING STANDARDS

Kuthuparamba town has plain terrain with population size 29,619 hence as per URDPFI Guideline,2014 the town falls under the category of small town. For the comparison of existing land use with planning standard the sum of major urban land uses like residential, commercial, industrial, public & semi public , recreation and transport & communication is taken as developed area. The developed area obtained is 11.93 sq.km which is about 71.17 % of the total town area and is mainly contributed by high residential activity.

From Table 6.4 it is clear that percentage of developed area of residential land use (88.35%) is much higher than the required range in planning standard (45—50%). The percentage of existing developed area of all other major land uses are far below the planning standards.

Table 6.5 Existing land use comparison with planning standards

Sl. No.	Land Use	Area in Sq.km	Existing % of Total area	% of Developed Area	Requirement for Small Plain Towns as per planning standard
1	Residential	10.50	62.66%	88.35%	45— 50
2	Commercial	0.10	0.60%	0.75%	2— 3
3	Industrial	0.03	0.17%	0.25%	8—10
4	Public & Semi- public	0.54	3.24%	4.16%	6—8
5	Recreational	0.02	0.12%	0.17%	12—14
6	Transport & Communication	0.71	4.23%	5.87%	10—12

6.7 INFERENCE

The study and analysis of land use in Kuthuparamba town reveals that the commercial land use is concentrated in the central portion of the town along the major corridors. But the commercial activities are only moderate in Kuthuparamba town. Industrial land use is negligibly small and is slightly concentrated in the northern part of the town. Residential land use concentration is high in the central portion and the concentration index is found decreasing as we move towards the periphery of the town. The agricultural land use concentration is high in the north western and south eastern part of the town where residential concentration is comparatively low. Public and semi public land use is concentrated in Nirmalagiri ward located in the northern part and in 2 wards located in the central part viz., Town ward and Moolakkulam.

Chapter 7
TRADE & COMMERCE

7.1 ANALYSIS OF EXISTING STATUS

Commercial land use in Kuthuparamba town constitutes 0.56% (0.09 km²) of total municipal area. Kuthuparamba town acts as an intermediate commercial center between Mattannur town and Thalassery town. Due to the existence of good network system, the town act as a service town for near by local bodies there by enhancing commercial activities in the town.



Thokkilangadi, an important commercial centre in Kuthuparamba



Bus stand shopping complex



Pookkode an important commercial centre in kuthuparamba



Figure 7.1 Commercial land use & major commercial activities in Kuthuparamba Town

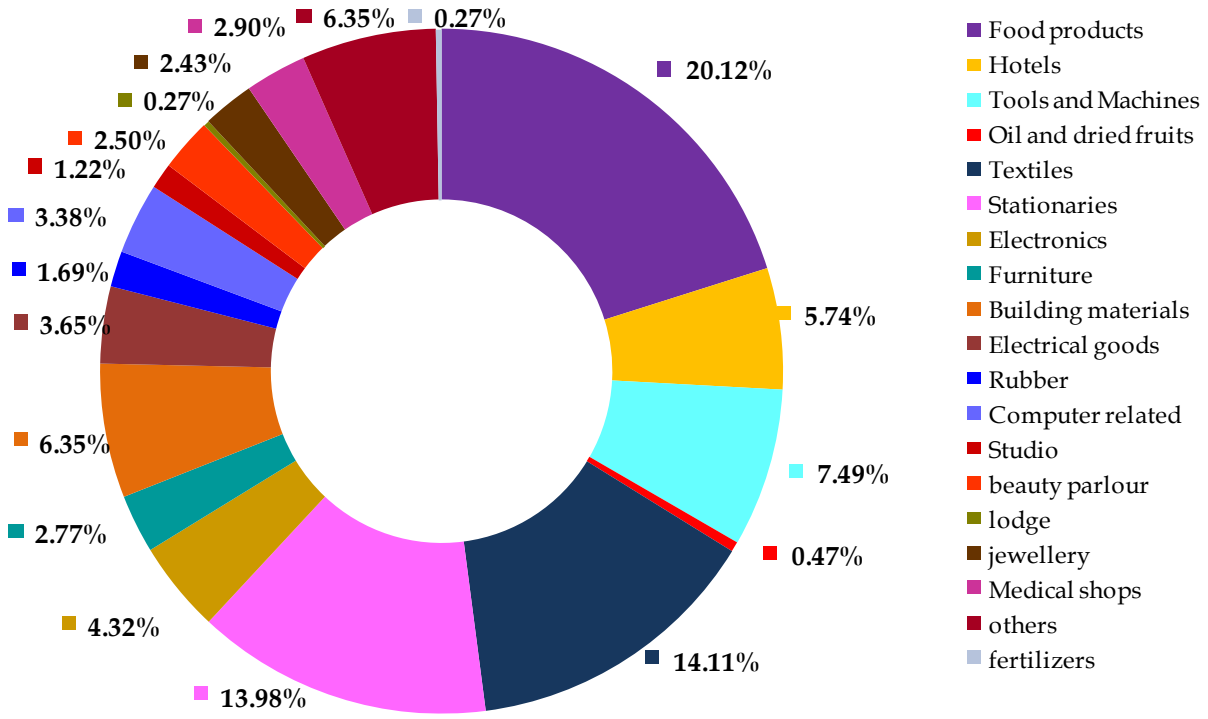


Figure 7.2 Classification of trade and commercial activities in Kuthuparamba town

Figure 7.2 shows the classification of various trade and commercial activities in Kuthuparamba town area. Commercial activities in town involves Textiles, jewelleries, vegetable & fruit shops, hotels, bakeries, mobile shops, fish markets etc. From figure indicates that major commercial activities are related to food production, stationeries and textiles.

Commercial centres of the town and its details are obtained from Secondary Data and is given in Table 7.1.

There are four commercial nodes existing within the town namely Kuthuparamba, Pookkode, Thokkilangadi and Purakkalam. The table above reveals that Kuthuparamba has basic facilities like separate parking area, authorized auto , taxi & lorry stand as well as public comfort station. Only authorized auto stands are provided in all other commercial nodes.

Table 7.1 Details of Commercial centers

Sl. No.	Commercial Centres/ nodes	Separate parking area (Yes/No)	Authorized auto stand (Yes/No)	Authorized taxi stand (Yes/ No)	Authorized lorry stand (Yes/No)	Public comfort station (Yes/ No)
1	Kuthuparamba	Yes	Yes	Yes	Yes	Yes
2	Pookkode	No	Yes	No	No	No
3	Thokkilangadi	No	Yes	No	No	No
4	Purakkalam	No	Yes	No	No	No

Source– Secondary Data

7.1.1 Commercial nodes

Hierarchy of commercial nodes in Kuthuparamba town is shown in figure 7.3. First order commercial node is located in the Town center where all major commercial activities take place. First order node acts as a meeting point of SH—30 (Thalassery—Coorg road) and SH-38 (Kannur—Kuttiyadi road) and this highlights the node. Commercial activities are more predominant at this node.

Kuthuparamba town has two 2nd order nodes also, namely Thokkilangadi and Pookkode. Thokkilangadi is located in the north eastern part of the municipal town. Wayanad road meet with TC road at this junction. Another node Pookkode is located in the south western portion of the town. This node acts as an entry point of SH 30 in Kuthuparamba town. The only third order node, Purakkalam is located at the entry point of SH 38 in the town.

7.1.2 Informal Sectors

Informal sector refers to those workers who are self employed, or who work for those who are self employed. People who earn their lively hood through self employment in most case are not on payrolls, and thus are not taxed.

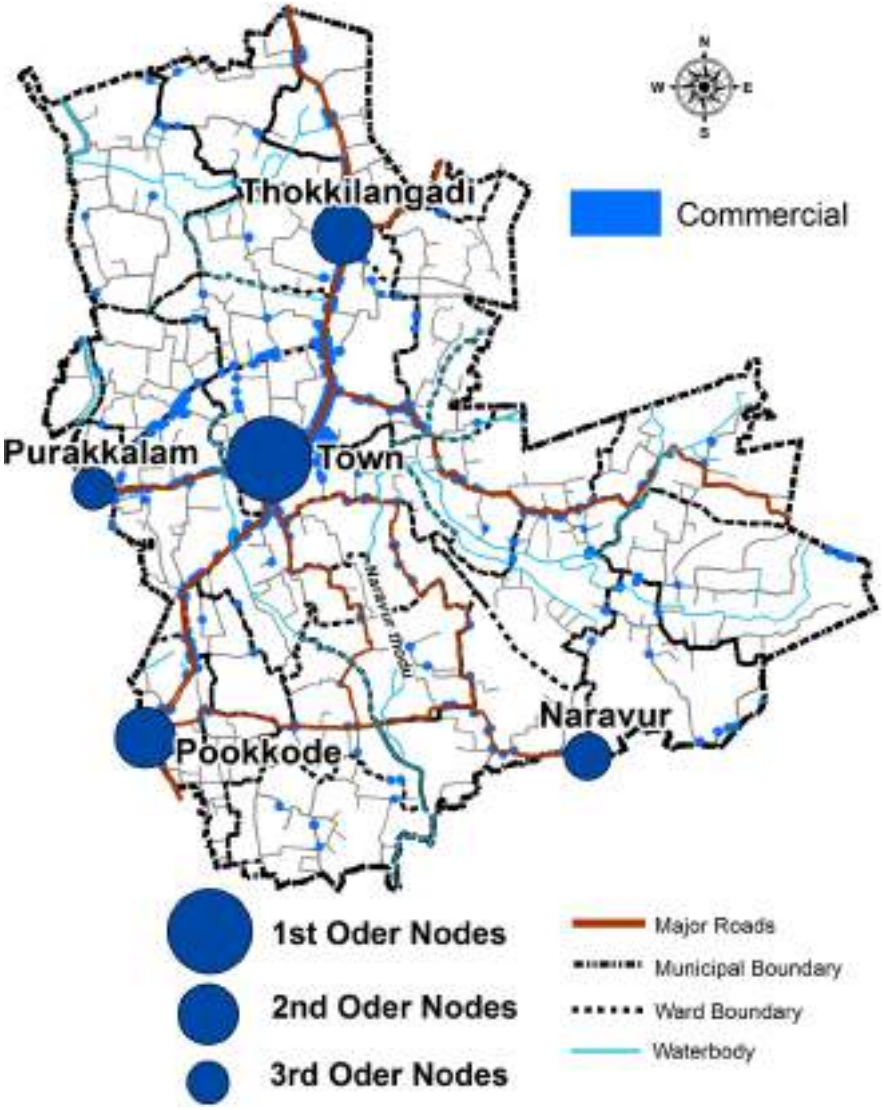


Figure 7.3 Commercial nodes in Kuthuparamba town

Table 7.2 Informal sectors in Kuthuparamba Town

Sl. No.	Area of concentration of informal sector activities	Type of activity – fruits and vegetables, garments, tea and snacks, home appliances, books etc.	Extent of informal sector activity in each area (no of shops/cart),	No of units under Informal sector activity having the approval of Local body- Location wise	Labour force (man, women, children separately) in informal sector
1	Kuthuparamba Town centre	Fruits and vegetables, garments, tea and snacks, home appliances, books etc	142	131	260
2	Thokkilangadi	Fruits and vegetables, garments, tea and snacks.	21	18	31
3	Pookode	Fruits and vegetables, garments, tea and snacks.	9	8	12
4	Purakkalam	Fruits and vegetables, tea and snacks.	6	6	8

Data available in informal sector is given in Table 7.2. At present there are 178 street vendors units existing in Kuthuparamba town as found in primary survey with number of authorized units being 163. The type of activities includes sale of fruits, vegetables, garments, tea, snacks, home appliances, books, etc. The labour strength of street vendors in town is about 311 and it includes men and women .

7.2 DEVELOPMENT POTENTIALS AND PROBLEMS

7.2.1 Potentials

Kuthuparamba town serves as a main commercial node of the surrounding region. The town is blessed with a good road network which connects other LSGI's of the district there by offering enough scope for trade and commerce activities. Another potentiality of this sector is the presence of Kannur International Airport located only 15km away from the town.

7.2.2 Problems

Commercial nodes are mostly characterized by congestion due to vehicular and pedestrian traffic. Lack of enough space for parking and in sufficient road width is the major reason for congestion. It prevents smooth maneuvering of vehicles causing frequent traffic block. Many commercial centres with in the central area are lying close to Bus terminals which aggravates the congestion problems and hence hinders the growth of the town.

7.3 INFERENCE

The development of trade and commerce in Kuthuparamba town has great potential due to the existing road network and possibilities of export of commodities and service activities connected with the establishment of Kannur International Airport, located close to Kuthuparamba town. Commercial activities can be enhanced and attracted by improving the road connectivity which in turn reduces the chaos and confusion caused by traffic blocks.

Chapter 8
INDUSTRIES

8.1 EXISTING STATUS

The study of existing status of industries in Kuthuparamba town shows that industrial activities are only minimum in this area. Only 0.03 km² (0.18%)of total municipal area is occupied by industrial land use. Existing land use concentration pattern of industries in the town has already been discussed in Chapter 6.

Existing industrial areas are mainly concentrated in the northern portion Kuthuparamba town. Figure 8.1 shows the location of various industries in Kuthuparamba town.

The Valiyavelicham industrial growth centre is located at the outside periphery of the town. Rubber, agro based major industries and hosiery industrial units are seen in this industrial unit.



KSIDC's *Industrial Growth Centre* at Valiyavelicham



Figure 8.1 Location of major industries in Kuthuparamba town



Best industry – Handloom industrial unit at Pook-ode



Mini industrial estate at Vakkummal

At present, there are no large scale industries in Kuthuparamaba municipal area. Kuthuparamba town area shows backwardness in industrial sector. Hosiery, handloom, stone crusher and tobacco are the few sectors in which a team of labourers work.

Almost 300 Beedi workers are working under four units of Kerala Dineesh Beedi. Sadhoo beedi, Mayan, Haridas, Yogi are other beedi companies in Koothuparamba Municipal area.

A mechanized weavers loom is located in Pookkode. Marketing of looms are mainly taking place out side the municipal area.

Kuthuparamba Municipal area is abundant with quarry land, mainly laterite . In Ambiladu, a granite quarries is functioning at present and the granite quarry in Naravur area is currently inactive.

Almost 50 number of small scale engineering industries are functioning under the manufacturing of Gates, Grills, automobile repair work, painting, sofa making etc. These industries are mainly concentrated in the Pazhaya nirathu area.

About 5 industrial units are under resoling with a total labour strength of 50 numbers. Three major tyre resoling units in Kuhuparamba Municipal Town are sakthi tyers (Pazhaya nirathu), Krishna tyres and Sindhu tyres.

Categorization of industries in Kuthuparamba municipal area is show in Figure 8.2

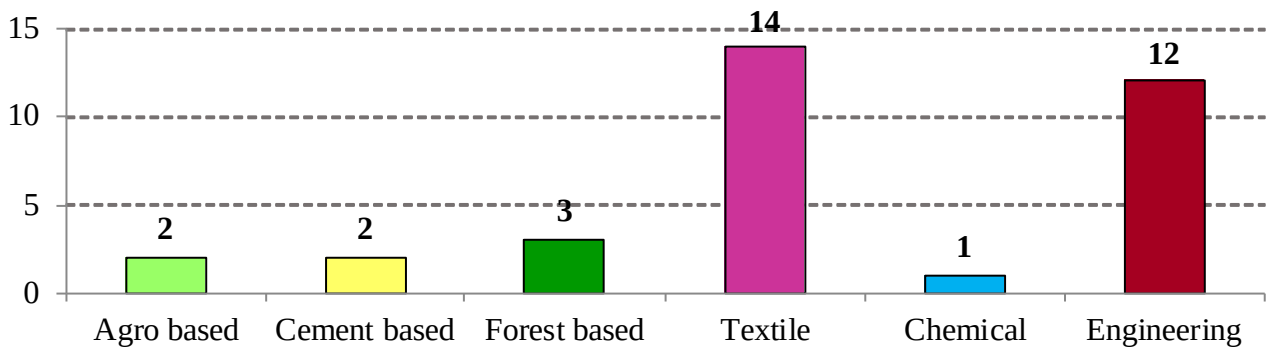


Figure 8.2 Categorization of industries in Kuthuparamba municipal area.(Source: DIC Kannur,2014)

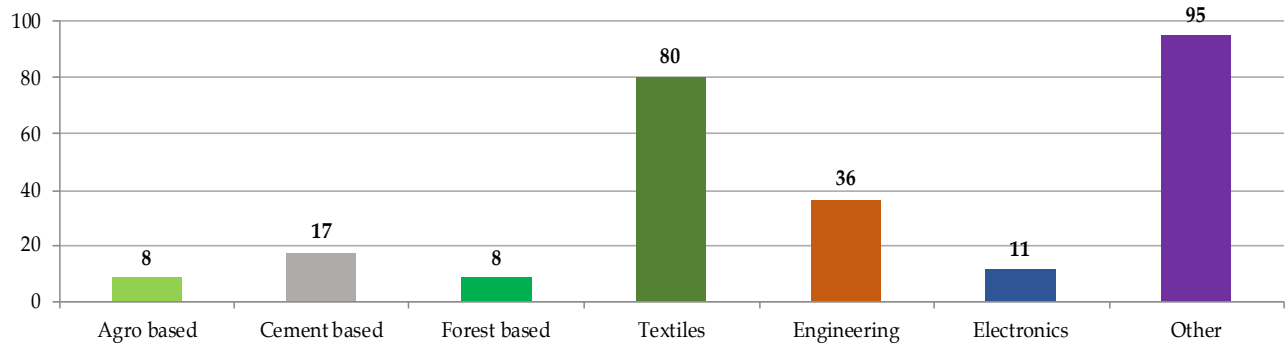


Figure 8.3 Number of workers involved in various industrial units (Source: DIC Kannur,2014)

From the Figure it is clear that number of textile industries and engineering industries are high when compared to other categories.

Number of workers involved in each category is also given in Figure 8.3. As per the figure it is clear that labour strength is also high in textile engineering and other industries.

New establishments registered in MSME (Micro Small and Medium Enterprises)/Year is shown in Table 8.1.

Table 8.1 New establishments registered in MSME/ year

Year	New establishments registered in MSME/year
2011	10
2012	20
2013	14
2014	19
2015	20

The table shows that the number new establishments registered per year shows up and downs from 2011 to 2015. the highest value of 20 is observed during 2012 and 2015.

About 2 acres of industrial area is owned by municipality in Chorakkulam ward. But there are no major industrial units functioning in this industrial plot.

Saw mill is situated in chorakkulam ward extend to an area of 2 acres . At present there is no major industrial units are functioning in this industrial plot.

8.2 DEVELOPMENT POTENTIALS AND PROBLEMS

8.2.1 POTENTIALS

Kuthuparamba can advance in the field of Agro based, Electronics based, Engineering based products. With the emergence of Kannur International Airport export oriented industries can be started and promoted. Another major potential of this sector is the existence of important roads namely SH– 30(Thalassery – Coorg road) and SH– 38 (Kannur—Kuttiyadi road) which offers good connectivity to near by towns. The proximity to Valiyavelicham Industrial Growth Centre shows potential for growth in industrial sector.

8.2.2 PROBLEMS

Kuthuparamba municipal town lacks basic industries and is incapable of exporting industrial goods. High concentration of residential area hinders the development of large scale industries is another major problem in this sector.

8.3 INFERENCE

In Kuthuparamba municipal town only 0.18% of total land area is covered by industries . Only small scale industrial units exist with in the town area and these units are mainly based on textiles and engineering. Export based industrial units can be promoted in the town foreseeing the potential of Kannur International airport. Ready made textiles industrial units can be introduced by enhancing the existing handloom unit in town area.

Chapter 9
TOURISM AND HERITAGE

9.1 ANALYSIS OF EXISTING STATUS

Tourism and heritage sector belongs to sectors of economy. In Kuthuparamba town, the type of tourism that prevails is the pilgrim tourism. There are a number of pilgrim centers located in and around the town area. Good road connectivity to the important pilgrim centers out side the town area enhances this sector. Maroli Ghat is the only heritage centre that exists within the town area.

9.1.1 Pilgrim centres inside the town area.

Presence of pilgrim centres in the town area may enhance the tourism potentiality, thereby increasing the economic status of the town.

1.Mangulathu Kavu (Muriyadu Kavu)

Mangulath Kavu is located at Muriyad, hence the kavu is also known as Muriyad Kavu. In ancient period about 1500 acres of land were under temple authorities, and this temple belongs to Ningileri Tharavadu. First Thira (Utsav) was conducted in 1890 and is celebrated on every year on Vrischikam 15th .



Mangulathu Kavu

2. Sree Durga Temple (Vazhumcheri Kavu)

Sree Durga Bagavathi Temple (Vazhumcheri Kavu), also known as Thiruvancherry kavu has an idol of Goddess Durga and the temple belongs to Kottayam Rajas. The temple is located in Ambiladu desom



Sree Durga Temple (Vazhumcheri Kavu)

3.**Pilakoottam Makham Masjid**

Pilakootam makham is located at near by the Koothuparamba police station. Makham Uroos is a huge Islamic religious function attracting thousands of people .

4. Kanchi Sree Kamakshi Amman Kovil

Temple is situated in Town ward and Goddess Devi is the idol in this temple. At the time of british invasion the people belong to Yadava community in Andrapradesh forced to migrate to various parts of Kerala. The main intension behind this was milk production. They worshiped the idol Sree Kamakshi amma and hence after performing various rituals and built a temple in Kuthuparamba town. Temple



Kanchi Kamakshi Amman Kovil

is now popularly known as Kuthuparamba Kanchi Sree Kamakshi Amman Kovil.

There are a number of small and medium pilgrim centres within the town area and they are found scattered almost in all parts of the town. List of temples, churches & mosques and their locations are given in table 9.1.

9.1.2 Major Pilgrim centres out side the town

Certain pilgrim centres located out side the town area are more popular and often attracts pilgrim tourists. The centres are enlisted below.

1. Sree Kottiyoor Mahadeva Temple

Kottiyoor Mahadeva Temple is located 44 km east of Kuthuparamba and the town acts as an entry town. Kottiyoor Vysakha Mahotsavam is a huge religious pilgrimage attracting thousands of pilgrims. It is a festival commemorating the Daksha yaga



Kottiyoor Mahadeva Temple

Table 9.1 List of pilgrim centres

List of temples, churches & mosques	Location
Puthiyangadi Bagavathi temple, Sree Kalariyal Bagavathi Temple	Vakkummal
Kannanchal Shiva temple, Thiruvancheri Kavu	Idayilpeedika
Subrahmanya Swami Kshethram	Elippattachira
Kanchikamakshi Amman Kovil	Town
Porkkali Temple, Manakkal Temple	Kakkad
Ningileri Sree Vettakkoru Makan Kshetram	Paral
Siva Ganapathi Temple	Pookod
Sree Kurumba Bagavathi temple	Trikkannapuram
Mavullatil Mahavishnu Temple	Muriyad East
St. Marrys Church	Nirmalagiri
Kristhu Raja Devalayam	Naravoor
Mosque	Naravur,Valiyapara, Kolathuparamba, Town,Adiyarapara, Idayilpeedika, Pazhayanirath, Nirmalagiri, Muriyad centre

2. Peralassery Subramanya Temple

Temple is located 10 km away from Kuthuparamba town. Peralassery Subramanya temple is believed to be where Rama and Lakshmana halted on their way to Sri Lanka to rescue Sita. An important annual attraction is the eight day Kodiyettam festival that is celebrated in the month of December and the festivities have been drawing thousands of visitors here every year. Kathakali, Chakyarkoothu, Ottanthullal, Parayan Thullal and Seethankan Thullal are the main art-forms performed during the festival. Another important concert during the festival is a highly religious dance, ' Thidampunritham' performed by the priest.



Peralassery Subramanya Temple

3. Thodeekkalam Siva Temple

Thodeekalam Shiva Temple is a two-storied structure that is said to be more than 2000 years old. The beautiful paintings attract pilgrims and art lovers and provide a visual treat . Temple is located 2km from Kannavam and the nearest town is Kuthuparamba.



Thodeekalam Shiva Temple

3. Thrikkaikunnu Siva Temple

Trikkaikunnu Sree Mahadeva Temple is one of the largest temple in North Kerala and is a temple of Kottayam Dynasty. Kottayam chira associated with this temple has an extent of more than 12 acres. Temple is located in Kottayam panchayath , situated 2km from Kuthuparamba town.



Trikkaikunnu Sree Mahadeva Temple

9.1.3 Heritage centre

At present Maroli Ghat is considered as heritage centre in town area and it also act as an important landmark of the town. It covers an area of 12.6 cents and has a pond (Maroli Kulam). Presently the site is known as "Maroli Ghat – Town Square"



Maroli Ghat , Kuthuparamba

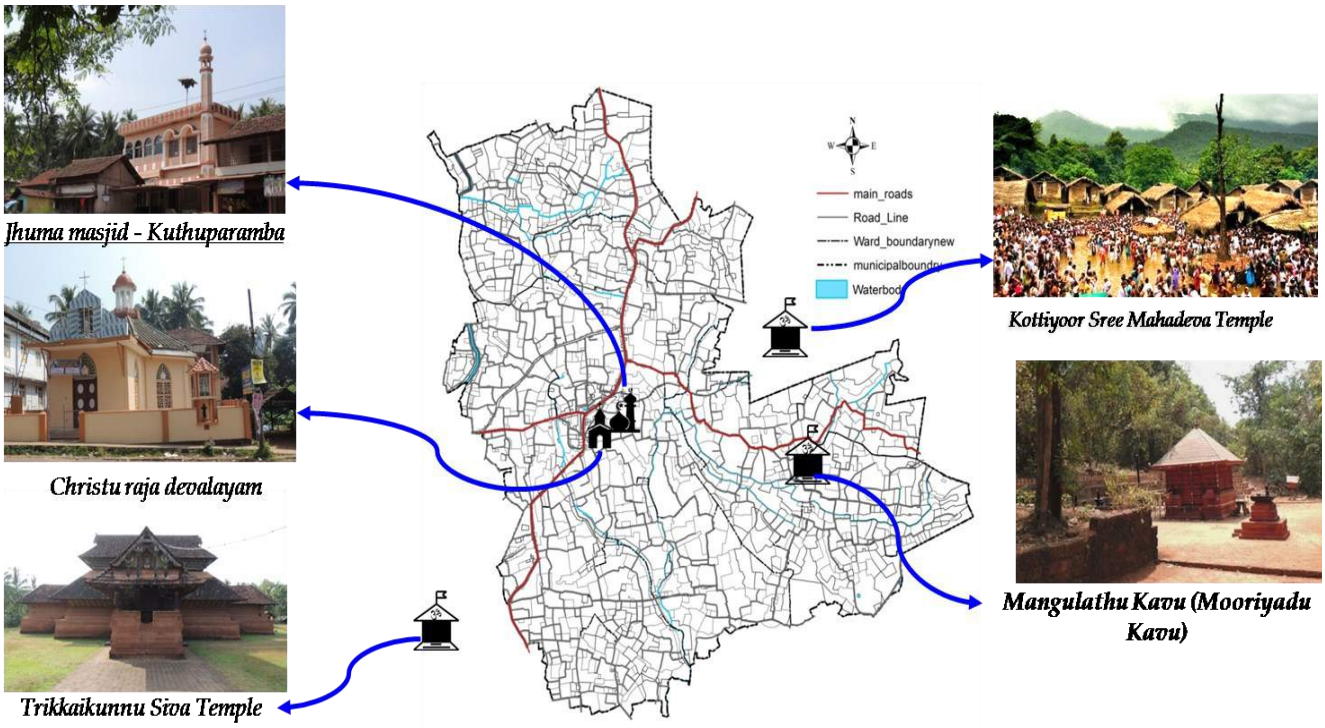


Figure 9.1 Location of major pilgrim centres in and around Kuthuparamba town



Figure 9.2 Location of major tourist destination adjacent to Kuthuparamba town

9.2 DEVELOPMENT POTENTIALS AND PROBLEMS

9.2.1 Potentials

Proximity to the Kannur airport enhances the growth potential in the hospitality sector. Town can function as an intermediate halting station for airport users and the tourists visiting surrounding tourism destinations like Wayanad, Coorg, Kannavam forest, Aralam wild life sanctuary, Kottiyoor temple etc. The promotion of health tourism especially ayurvedic resorts has tremendous scope and may attract foreigners also. Kuthuparamba town is famous for Theyyam & Thira hence by promoting these traditional art forms tourists get easily attracted towards the town.

9.2.2 Problems

From the study and analysis of this sector, it is evident that tourism sector in Kuthuparamba town is weak. The major reason is lack of tourism awareness info and infrastructure facilities within the town area.

9.3 INFERENCE

Present status of tourism sector reveals that tourism is weak in Kuthuparamba town. No major tourism promotion centres exists within the town area. However there are a number of pilgrim centres just outside the town area, hence Kuthuparamba town can act as an entry town for those famous pilgrim centres.

Chapter 10
AGRICULTURE AND ALLIED SECTORS

10A) AGRICULTURE

10A.1 ANALYSIS OF EXISTING STATUS

Agriculture is one of the major sector in Kuthuparamba municipal area. About 21.72% of total land area of the municipal town is occupied by dry agriculture. Apart from dry agriculture Coconut groves comes to 2.27%, Paddy field comes to 2.93%. In general paddy fields are broadly classified into two , active paddy fields and uncultivated paddy fields. Active paddy field covers 0.08 sq.km (0.48%) and Uncultivated paddy field covers 0.41 sq.km (2.45%) of total municipal area. Apart from these, almost all residential plots are partially filled with coconut groves.

Latest data regarding area, production and productivity of various crops in Kuthuparamba municipal town is shown in Table 10.1.



Ambilad paddy field

Table 10.1 Details of agricultural productivity

Type of crop	Area (Ha)	Production (Tonne)	Productivity (Tonne /Ha)
Paddy (1st Crop)	13.0	52.0	4.00
Paddy (2nd Crop)	7.5	30.4	4.05
Paddy	20.5	82.4	8.05
Coconut	1,120.0	7850000 nuts	45 nuts/palm
Arecanut	45.0	45.0	1.00
Cashew	30.0	75.0	2.50
Pepper	42.0	2.7	0.07
Plantain	34.0	300.0	8.82
Banana	47.0	593.0	12.62
Rubber	5.0	3.8	0.75
Vegetables	30.0	45.0	1.50

Source: Agricultural department, 2014

As per the table 10.1, coconut and banana are the major agricultural products.

10A.1.1 Major crops

Major crops in Kuthuparamba municipal town are paddy, coconut, areca nut, cashew, . pepper, plantain, banana, rubber and vegetables

Table 10.2 shows the temporal variation in area, production and productivity of major crops in Kuthuparamba municipal town.

Table 10.2 Temporal variation - Area, Production and Productivity of Major crops

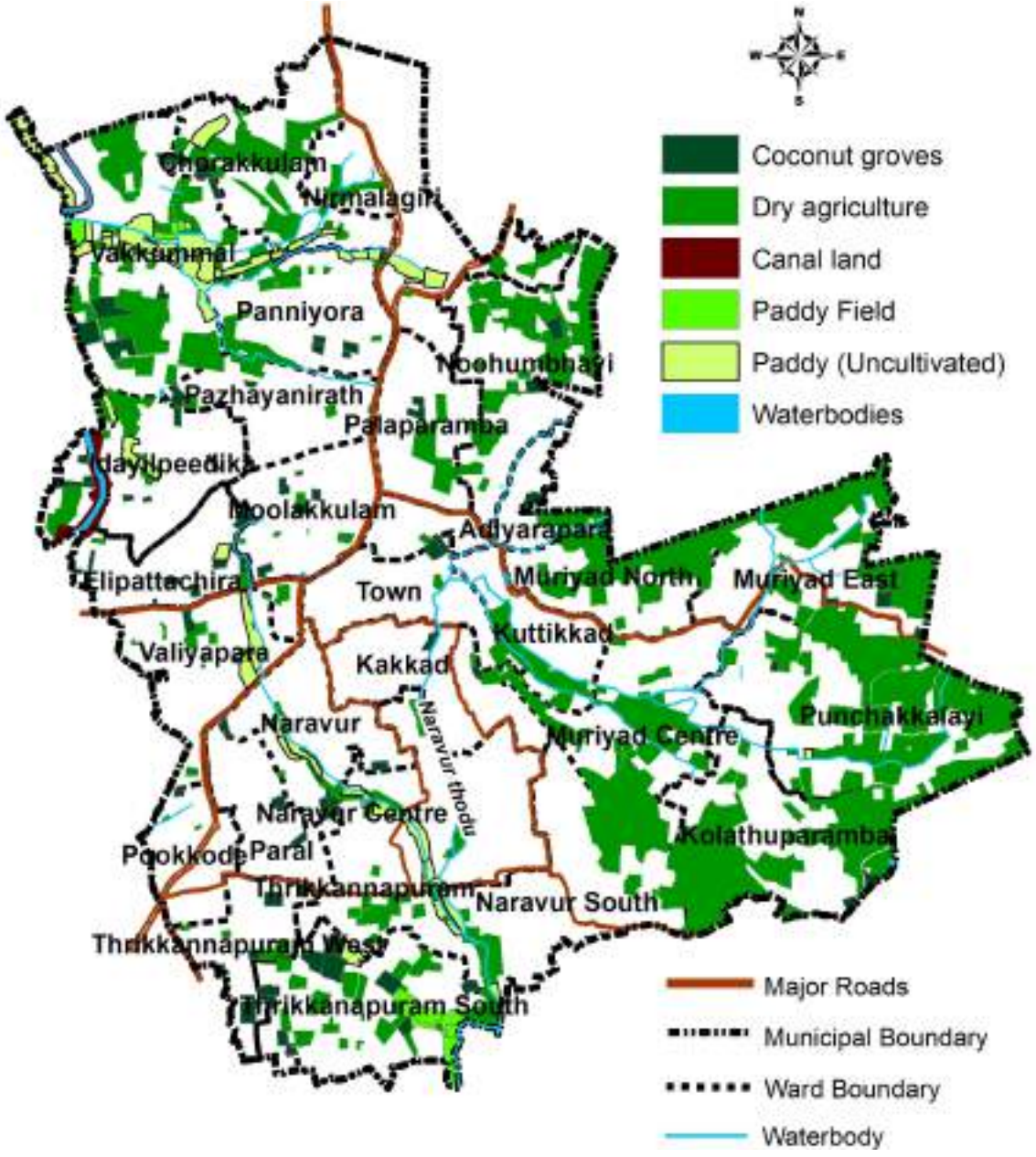
Type of crop	*Area (Ha)*			*Production (Kg)*			*Productivity (Kg/Ha)*		
	2010-11	*2011-12*	*2012-13*	*2010-11*	*2011-12*	*2012-13*	*2010-11*	*2011-12*	*2012-13*
Paddy	20.0	22.0	20.5	81,400.0	87,600.0	82,400.0	8,200.00	7,950.00	8,053.33
Coconut	1,122.0	1,120.0	1,120.0	7854000 nuts	7850000 nuts	7850000 nuts	7000 nuts/Ha	7008 nuts/Ha	7008 nuts/Ha
Arecanut	45.0	45.0	45.0	45,000.0	45,000.0	45,000.0	1,000.00	1,000.00	1,000.00
Cashew	50.0	30.0	30.0	125,000.0	75,000.0	75,000.0	2,500.00	2,500.00	2,500.00
Pepper	35.0	40.0	42.0	2,900.0	3,100.0	2,700.0	82.86	77.50	64.29
Plantain	30.0	32.0	34.0	306,000.0	298,000.0	300,000.0	10,200.00	9,312.50	8,823.53
Banana	40.0	45.0	47.0	760,000.0	855,000.0	593,000.0	19,000.00	19,000.00	12,617.02
Rubber	5.0	5.0	5.0	3,800.0	3,800.0	3,800.0	760.00	760.00	760.00
Vegetables	20.0	30.0	30.0	30,000.0	45,000.0	45,000.0	1,500.00	1,500.00	1,500.00

Source : Agricultural Dept. 2014

As per Table 10.2 , the area under Paddy, Coconut, Arecanut and Rubber are almost steady. However an increase is observed in the case of Pepper, Plantain, Banana and Vegetables. A decrease is seen in the area under Cashew. Productivity of Coconut, Arecanut, Cashew, Rubber and Vegetables remains more or less the same. Productivity decreased in the case of Paddy, Pepper, Plantain and Banana. Though the area has increased.

10A.1.2 Existing agricultural land use

Existing land use of agriculture includes dry agriculture, paddy (uncultivated paddy), paddy fields, coconut groves, irrigated land , vacant land and water bodies. The land use concentration pattern of agriculture has already been discussed in chapter 6 (Land use). Figure 10.1 shows the map



10.1 Agricultural land use in Kuthuparamba Municipal Town

10A.1.2.1 Paddy (Oryza sativa)

In Kuthuparamba town, the land occupied by agriculture is about 4.51 sq.km of which the area occupied by active paddy and paddy (uncultivated) are 0.08 sq.km and 0.41 sq.km respectively.

Paddy field land use concentration in Kuthuparamba town is shown in Figure 10.2. Paddy field concentration index ranges from 0 to 8. Paddy field concentration is highest in a single ward namely Vakkummal which is located in the north western periphery of the municipal town. Trikkannapuram south also has a better concentration of paddy fields. Most of wards in the town does no possess any land under paddy cultivation.

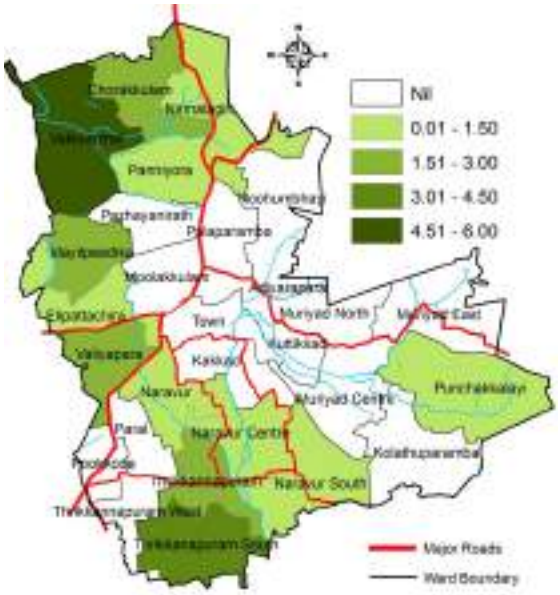


Figure 10.2 Paddy field concentration



Trikkannapuram Vayal

10A.1.2.2 Coconut (Cocos nucifera)



Coconut palms near Naravoor vayal

Coconut is one of the major crops in Kuthuparamba Municipal Town. Coconut is cultivated in an area of 0.38 sq.km which is about 2.27% of the town and has a productivity of 7008 nuts/Ha.

Figure 10.3 shows the land use concentration pattern of coconut. As per figure, coconut cultivation is mainly concentrated in the central part of the town and 3 wards in the south-west region. However all parts of the municipal town shows some amount of coconut concentration.

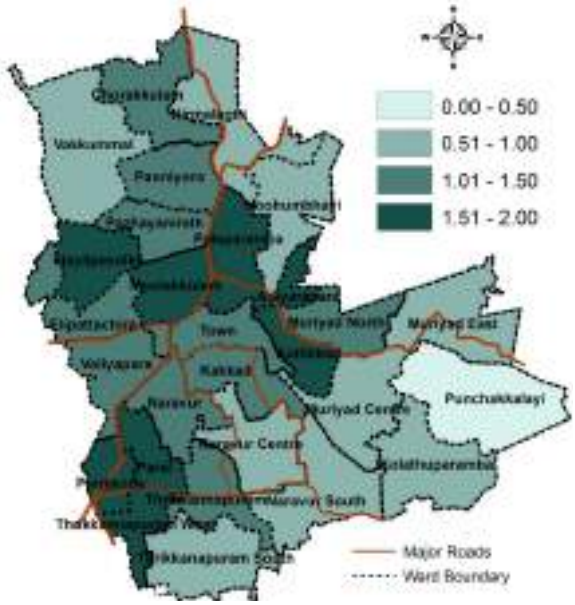


Figure 10.3 Coconut concentration

10A.1.2.3 Arecanut (Areca catechu L)



Arecanut palms near Ambiladu vayal

Arecanut spread to 45 Ha of land in Kuthuparamba town with a productivity of 1 ton/ year.

Arecanut concentration in Kuthuparamba municipal town is shown in figure 10.4.

From figure it is clear that all wards of the town has Arecanut concentration , however concentration is more in the north east side. And its concentration index ranges from 0 to 2.

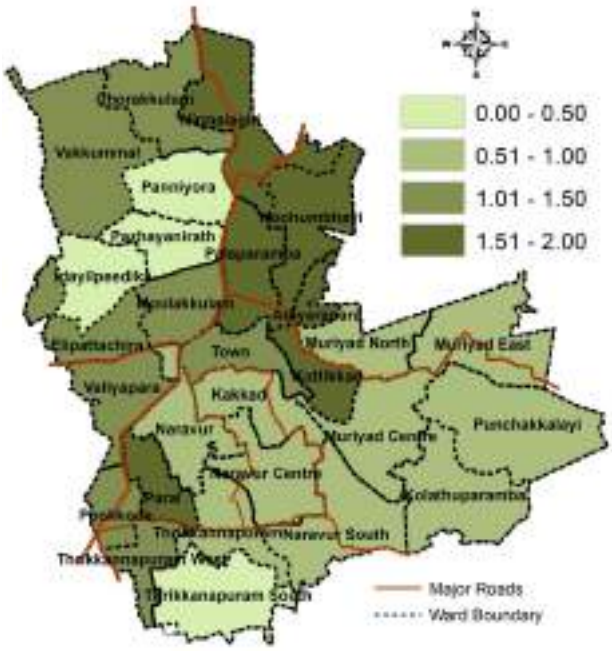


Figure 10.4 Arecanut - concentration pattern

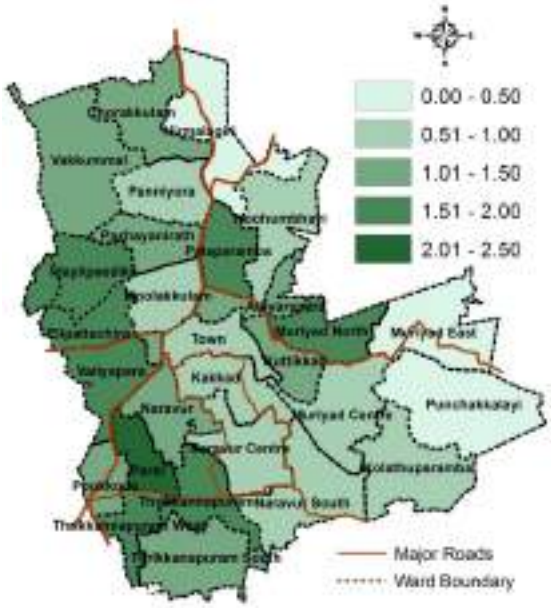


Figure 10.5 Pepper - land use concentration pattern

10A.1.2.4 Pepper (Piper nigrum)

42 Ha of land in Kuthuparamba is under pepper cultivation and the productivity is about 64.29 kg/Ha. Concentration index of pepper cultivation ranges from 0 to 2.5. Pepper cultivation is more in the western part of the town. All parts of the municipal area shows some amount of pepper concentration. The productivity is about 64.29 Kg/Ha.

10A.1.2.5 Rubber (Hevea brasiliensis)

Rubber cultivation in Kuthuparamba town is seen only in two wards namely Chorakkulam and Vakkummal wards located on the eastern side of the municipal area.

10A.1.2.6 Banana (Musa)

Banana cultivation in the municipal area is mainly concentrated in the northern portion. Concentration index is ranges from 0 to 6.

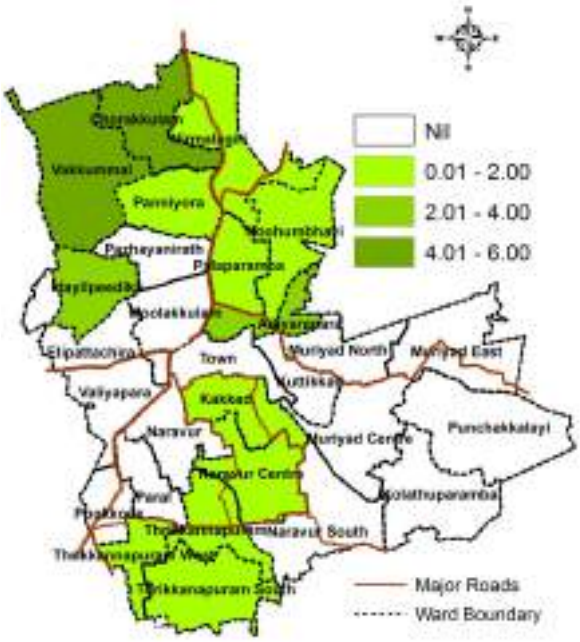


Figure 10.6 Banana- land use concentration pattern

10A.1.2.7 Vegetables

Vegetable cultivation in Kuthuparama town extents to an area of 30Ha with a productivity of 1.5 Tonne/Ha. Krishibhavan functioning with in the municipal area promotes vegetable cultivation through various horticulture programs.



Banana Cultivation near Ambiladu vayal



Vegetable Cultivation near Thrikkannapuram

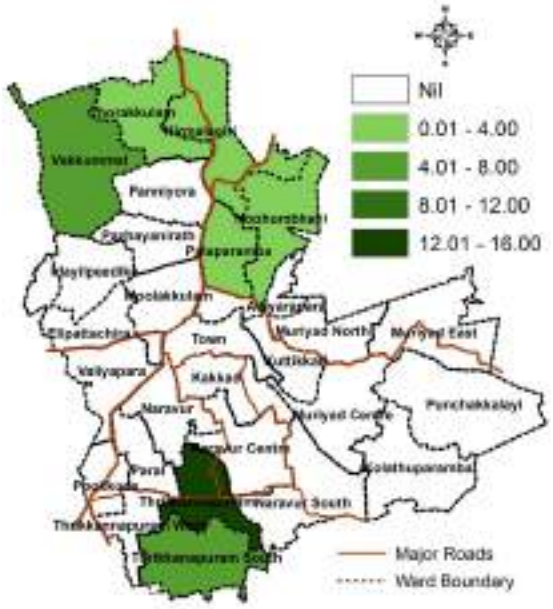


Figure 10.7 Vegetables- concentration pattern

10A.1.2.8 Plantain (Musa paradisiaca)

About 34 Ha of land is under plantain cultivation and the productivity is about 8.8tons/year. Land use concentration index of plantain in Kuthuparamba town ranges from 0 to 4. Plantain concentration is also higher in the northern part of the town namely Vakkummal, Chorakkulam, Nirmalagiri and Noonhumbayi.



Figure 10.8 Plantain - concentration pattern

10A.1.3 Details of paddy fields

In Kuthuparamba Municipal Town, there are two paddy field committees namely Thrikannapuram and Ambiladu. Ward numbers 17 and 18 are under Thrikkannapuram paddy field committee and ward numbers 1 and 27 are under Ambiladu paddy field committee.

The area and production details of paddy fields in Kuthuparamba Municipal Town is given in Table 10.3.

Table 10.3 Details of paddy fields

Sl. No.	Name of Paddy field Committee	Ward No.	Area (Ha)			Production (T)		
			Ist Crop	IInd Crop	IIIrd Crop	Ist Crop	IInd Crop	IIIrd Crop
1	Thrikanna puram	17 & 18	6	4.5	-	225 T	180 T	-
2	Ambilad	1 & 27	5	3.5	-	190 T	144 T	-

10A.1.4 Agricultural Infrastructure

Agricultural infrastructure existing in Kuthuparamba municipal area includes Krishibhavan, Marketing and Storage units of agricultural products and agro machineries.

10A.1.4.1 Mechanization Details

Agro - Machines available under various paddy field committees are tabulated in Table 10.4.

Table 10.4 Mechanization details

Sl. No.	Name of Paddy field	Included Wards	Available Agro - Machines									
			Power Tiller	Weeding Machine	Harvesting Machine	Threasurer Machine	Winnower	Knacp sack Pump	Rocket sprayer	Power Sprayer	Bush Cutter	Transplanter
1	Ambilad	1 & 27	2	1	-	1	-	1	1	-	1	1
2	Thrikanna puram	17 & 18	1	1	-	1	1	1	1	-	1	-



Krishi Bhavan located in Kuthuparamba town

From the table, it is clear that almost all major machineries required for paddy cultivation are available in Kuthuparamba town.

10A.1.4 .2 Marketing and Storage Centres

Marketing and Storage centers for agricultural products are given in Table 10.5 and Table 10.6.

Table 10.5 Marketing of agricultural products

Sl No.	Product	Marketing Centres		
		Private	Co-operative	Farmers participation
1	Chemical Fertilizers,	3		
2	Bio Fertilizers, Bio pesticides etc		1	

Table 10.6 Storage centre for agricultural products

Sl No.	Name	Marketing Centres		
		Private	Co-operative	Farmers participation
1	Thrikannapuram – A – Grade vegetable cluster, Procurment			1
2	Suraksha (Jaiva Pachakkari Market)		1	

10A.1.6 Minor Irrigation Projects

At present there are 4 irrigation projects within the municipal area out of which 3 are under Naravoor ward and the remaining one is in Panniyora ward. Details are given in Table 10.7.

Table 10.7 Details of Minor Irrigation Projects

SI No.	Projects	Year of Commencement	Year of Completion	Project Expense	Location	Ward No.
1	Reconstruction of V. C. B across Naravoor stream	04.04.2013	16.12.2013	20.45 lakhs	Naravoor	16
2	Construction of bridge along with bund connecting K.V Roshan road and Pathalayi Kunjikkannan road	2013	Completed	23.5 lakhs	Naravoor	16
3	Renovation of pond at Panniyora	2013	Completed	15 lakhs	Panniyora	27
4	Shore protection work of Naravoor stream	2013	On going	100 lakhs	Naravoor	16

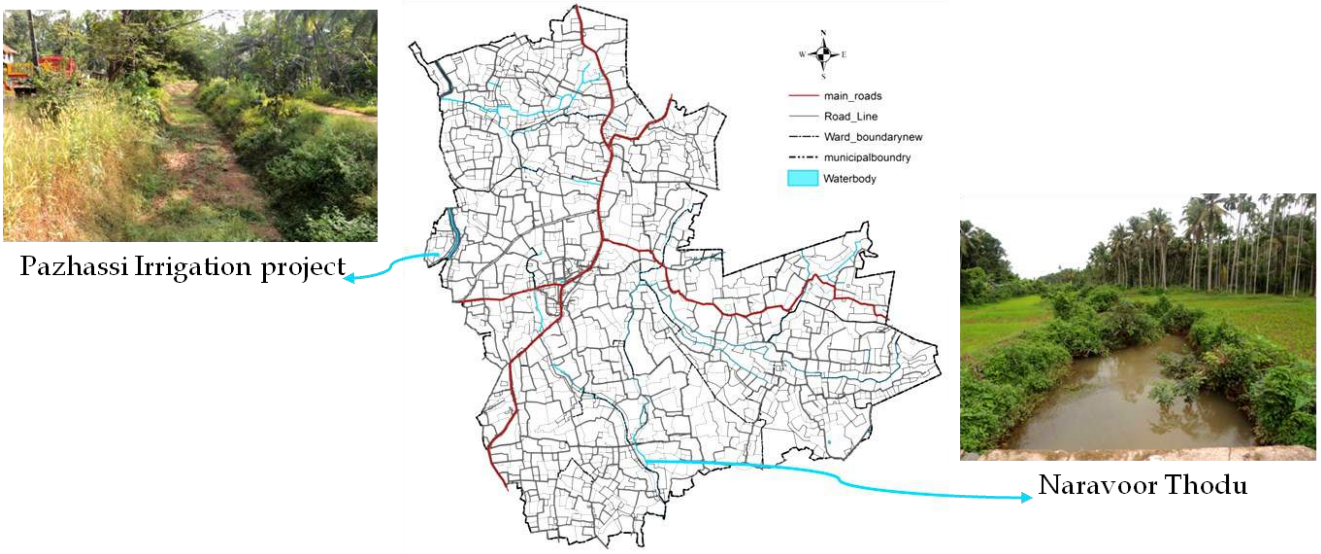


Figure 10.9 Existing irrigation projects in Kuthuparamba municipal area

10B)ANIMAL HUSBANDRY

There are many animals which are useful to man. We use them as source of food. The food from animals provides us with certain proteins which the plants are not capable of producing.

The branch which deals with the feeding, shelter, health and breeding of domestic animals is called animal husbandry. It is the scientific and systematic management of livestock.

10B.1 ANALYSIS OF EXISTING STATUS

In Kuthuparamba town, animal husbandry sector is weak. At present there is no poultry farm within the municipal area. Socio - economic survey has been conducted in order to find out the animal population and their significance in the municipal area.

10B.1.1 Live stock population

Data obtained from socio - economic survey regarding live stock population is shown in figure 10.10.

The live stock population in Kuthuparamba town was obtained from secondary data and socio economic survey. The pie chart given below shows that fowl population in the town is the highest among livestock population.

10B.1.2 Infrastructure facilities

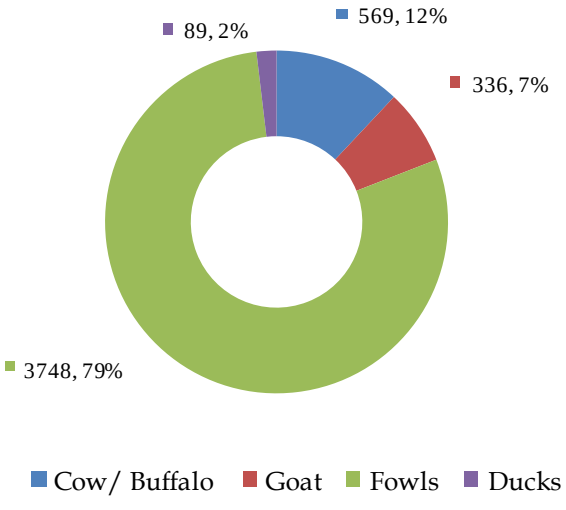
In Kuthuparamba Municipal Town, there are no poultry farms, hatchery units and authorized slaughter houses.

10B.1.2.1 Cattle farm

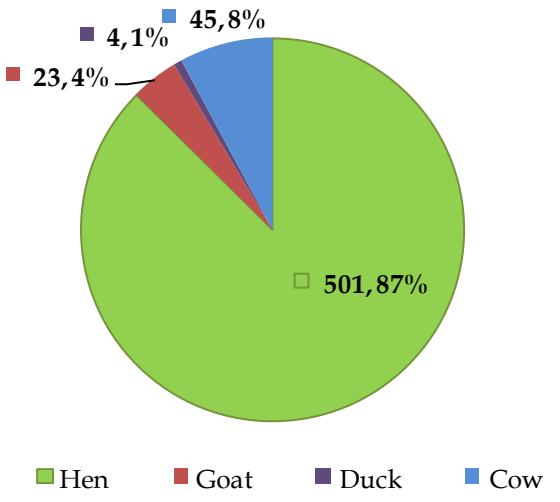
Kinathi farm is the only cattle farm existing within the municipal area and is situated in Palaparamba ward . Average milk production is around 45 litres per day.

10B.1.2.2 Diary out lets and collection centers

A diary out let is located at Pazhayanirathu (Ward number 23) under Ksheera Vyavasaya Sahakaranasangam. The average quantity of milk produced in this diary farm is about 4500 litres.



Source: Secondary data,2014



Source: Socio economic survey,2014

Figure 10.10 Live stock population

10C) FISHERIES

10C.1 ANALYSIS OF EXISTING STATUS

Water bodies present in Kuthuparamba municipal area is only 0.06 km² which constitutes to around 0.36% of the total land use. At present, there are no large scale fishing activities within the municipal area. Land use map of water bodies in Kuthuparamba municipal town is shown in Figure 10.11.



Figure 10.11 Map showing water bodies in Kuthuparamba town

10.2 DEVELOPENT POTENTIALS & PROBLEMS

10.2.1 Potentials

Value added food products from jackfruit, coconut, etc and its export via Kannur airport is a major thrust of this sector. Presence of airport offers enough scope for floriculture also. By promoting organic farming under the Co-operative sector and Kudumbashree units, the productivity can be improved to a great extent. Value added products and its export in the co-operative sector by group farming methods can be promoted. Animal husbandry and agriculture are the sectors which are inter related and the enhancement of one benefits the other too. As a result, the livestock population is more in areas where primary activities are predominant.

10.2.2 Problems

Agriculture is declining with every passing year. Most of the workers are getting shifted into tertiary sectors. The non availability of labourers makes agriculture production uneconomical. Moreover, cultivable land is being used for construction activities. Non availability of fertilizers and seeds is yet another problem faced by this sector. Fragmentation of land and uncultivated paddy fields also hinders the development of agriculture and allied sectors. The number of livestock in the municipal area is also very less. At present there are no poultry farms, hatchery units and authorized slaughter houses.

10.3 INFERENCE

Though agriculture is a predominant sector, it shows a declining trend in Kuthuparamba town indicating the uneconomic agricultural earnings. The newly emerging Kannur International airport offers scope for the export of value added products obtained from various agricultural products. The irrigation facilities includes only Minor Irrigation Projects. The absence of major water bodies within the municipal area hinders the improvement of this sector as well as fishing activities. Animal Husbandry is also weak in Kuthuparamba town.

Chapter 11
TRAFFIC AND TRANSPORTATION

11.1 MODES OF TRANSPORTATION

Road ways, is the only mode of transportation in Kuthuparamba town. Kuthuparamba Town is a major junction well connected by two State Highways and a major district road to Wayanad. Thalassery is the nearest railway station, 15km away from the town. Kannur International Airport is located only 15 km away from the town. There are no major water bodies passing through the town area and hence there is no scope for water transportation.

11.2 ROAD TRANSPORT

The purpose of Development Plan is to formulate long term Land use cum Transportation Development Plan for the horizon period to have balanced growth of the Urban Centres. As a part of this exercise, the District Town Planner, Kannur has entrusted National Transportation Planning and Research Centre (NATPAC) to carry out Traffic and Transportation Study for Kuthuparamba Municipal Town in Kannur district. The outcome of the study will serve as useful inputs for the preparation of Transportation Sectoral Plan.

There are two State Highways passing through the town namely SH -30 (Thalasserry-Coorg inter-state highway) and SH-38 (Kannur—Kuttiyadi road). These two roads act as major corridors of the town and possess good connectivity. Considerable volume of traffic from Karnataka passes through the town. In addition to this, other district roads and municipal roads exist within the town.

Mananthavadi road is a major district road starts from Thokkilangadi Junction to Wayanad district which is an important tourist destination in Kerala. The Valiyavelicham-KINFRA Park road (MDR) along with the above roads forms the major transportation network of the town. Major roads leading to the upcoming Kannur Airport also traverses through the Town.

Other district roads in Kuthuparamba towns includes Naravoor road, Padinjare Ambalam road, Roshan road of which the longest one is Naravoor road (4.67 km). The other minor corridors are intra- network of Thrikkannapuram, Naravoor, Town Square linkage and Panniyora-Edayilpeedika road and Cheruvancherry road. The Panoor road from Pookode junction acts as a link well as boundary of Municipal limits. The road network is spread all over the town area with a total length of 111.59 km.

The study area is served by public transport system consisting of both State owned Kerala State Road Transport Corporation (KSRTC) and private buses.

List of important roads passing through the town area and their lengths are given in Table 11.1. Existing road network of Kuthuparamba town is shown in Figure 11.1.

Table 11.1 List of important roads and their lengths

Road Name	Length (KM)
State Highways (SH)	
Thalassery-Coorg Road (SH –30)	5.70
Kannur Road (SH-38)	1.17
Major District Roads (MDR)	
Valiavelicham Road	5.88
Mananthavadi Road	0.96
Other District Roads (ODR)	
Naravoor Road	4.67
Padinjare Ambalam Road	1.39
Roshan Road	1.52
Municipal Roads	
Old Kannur Road	1.79
Lakshamveedu colony road	2.50
T.K. Raju Road	0.67
V.P. Nanu Master Road	0.52
Kuthuparamba LP School Road	0.82
Kinathi-Govinda Road	1.62
Pykad Road	0.89
K.V Koran Vaidyar Road	1.41
Shanmukhan Road	1.74
Azad Gopalan Nair Road	2.24
Kizhakke Ambalam Road	1.36
Kumaran Master Road	1.62
Vandai Janardhanan Road	1.00
Kunhimayan Road- Haji Road	0.65
Mundayath Balakrishnan Road	0.77
Adiyari Kunhiraman Road	2.16
Moorikkalli Gopalan Road	0.77
Kandoth Abu Road	1.65
Kalliyath Kunjiraman Road	0.92
P.K. Chandukutti Road	0.70
Uchabilli Achuthan Road	0.45
Keloth Murikkacheri Gopala Road	0.87
Ambilad Mini industrial estate road	0.20

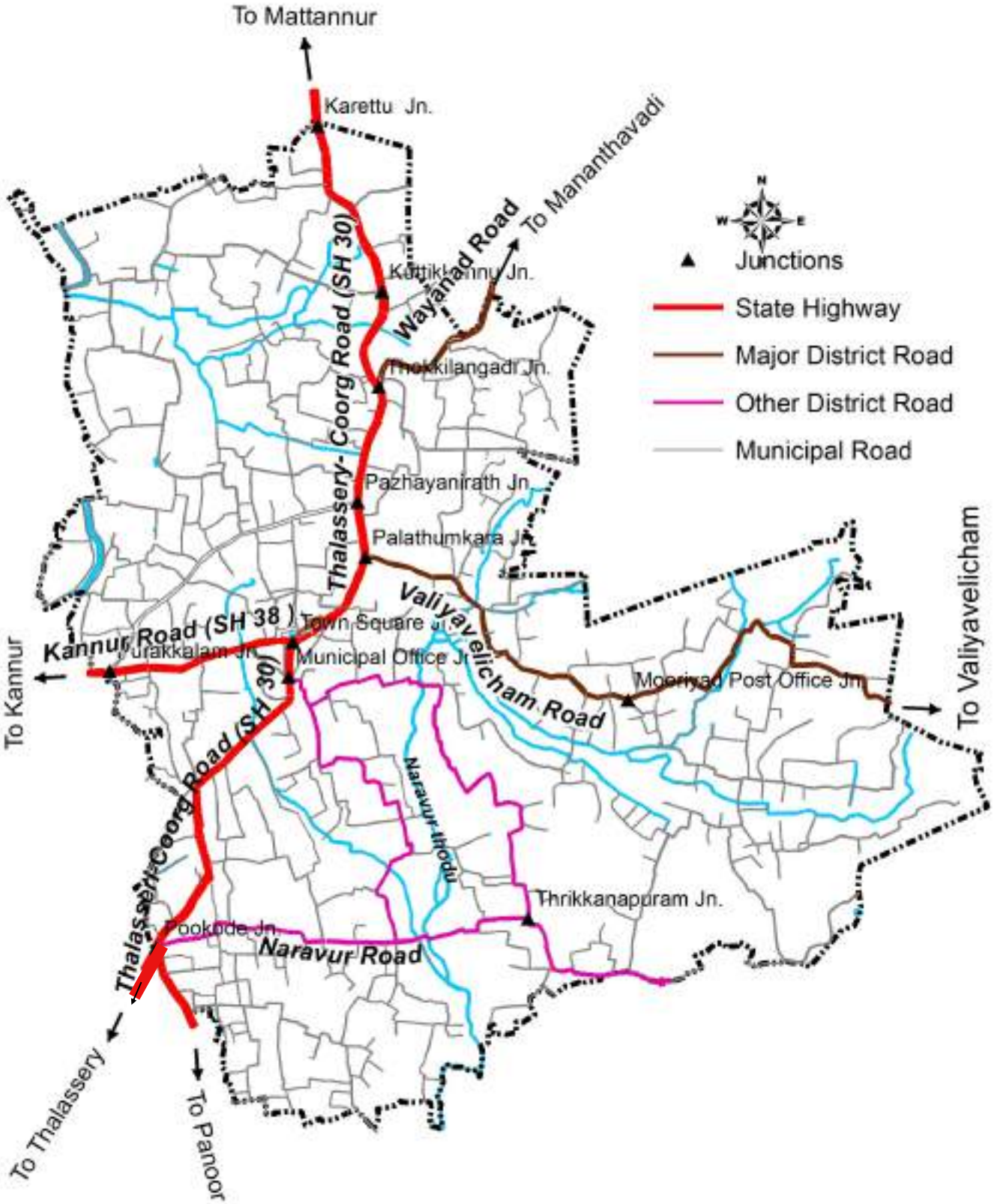


Figure 11.1 Existing road network of Kuthuparamba town

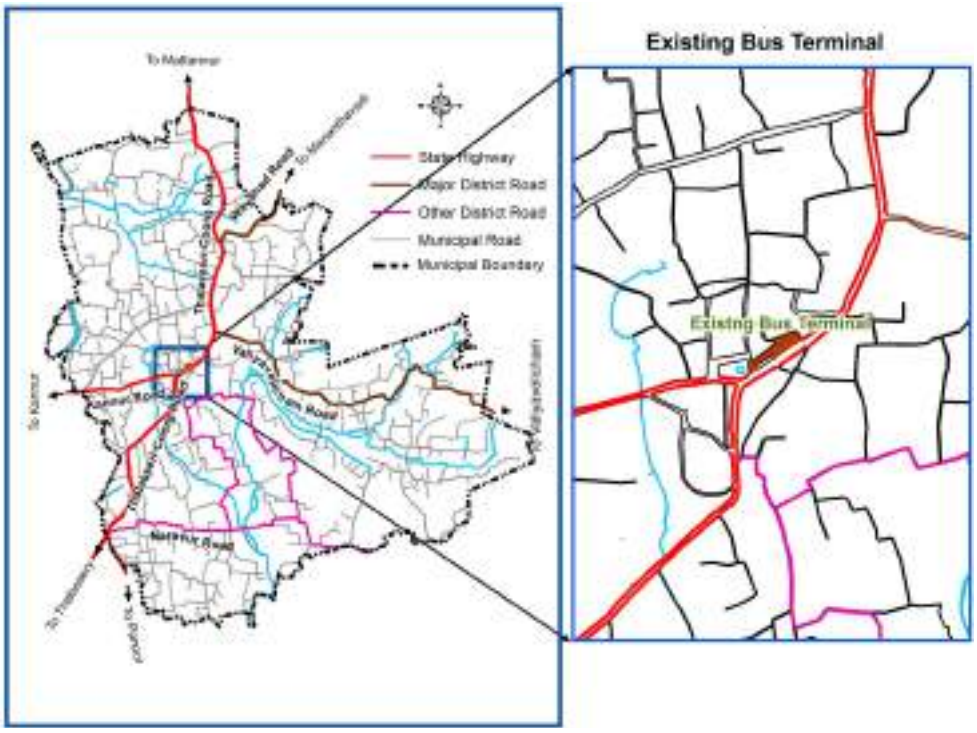


Figure 11.2 Location of existing Bus stand in Kuthuparamba town

Existing bus stand of Kuthuparamba town is located in the core area of the town along TC road which is extend to an area of 0.592 Ha. Both KSRTC and private buses are operated from this bus stand. At present there exist 10 bus tracks and 12 ideal bus parking facilities. Separate bus stand for KSRTC bus is not provided here hence the existing bus stand handles a total of about 50 KSRTC bus trips daily. Location of existing bus stand in Kuthuparamba town is shown in Figure 11.2.

11.2.1 Road Network Characteristics

Kuthuparamba town has a spine and spur type of road network. Thalasserry - Coorg road, Wayanad Road, Kannur Road, Valiyavelicham road are the main roads connecting settlements within and outside Kuthuparamba town. Both private and KSRTC bus services are available, hence the town remains well connected with the neighbouring local bodies.

Road Network Characteristics mainly deals with type of roads based on material of pavement & major road junctions.

A. Type of roads

The roads in Kuthuparamba town are classified into 5 categories based on the materials of pavement construction. Cement concrete, Tar, Metals, & Kutcha roads are the types of road, details are given in Table 11.2.

Table 11.2 Type of roads

Type of Roads	Length in Km
Cement concrete	0.45
Tar	77.09
Metal	1.62
Gravel	2.73
Kutcha	23.9
Total	***105.8***

Major portion of the road belongs to tarred roads (77.09 km), followed by Kutcha type (23.90 km). Only 0.45 km of the road is cement concrete type.

To compile necessary inputs for the study, various primary surveys were conducted in the study area. For the purpose of carrying out the surveys, major roads in the study area were divided into various homogeneous sections based on road and traffic characteristics. Road and traffic characteristics were obtained based on reconnaissance survey, review of earlier reports and collection of secondary data. The details of homogeneous sections on major roads in Kuthuparamba town are given in Figure 11.3 and Table 11.3.

From the figure it is clear that the studies were conducted based on 13 homogenous points and 15 homogenous sections of major roads in Kuthuparamba town .

Road inventory surveys were carried on all homogeneous sections mentioned above to

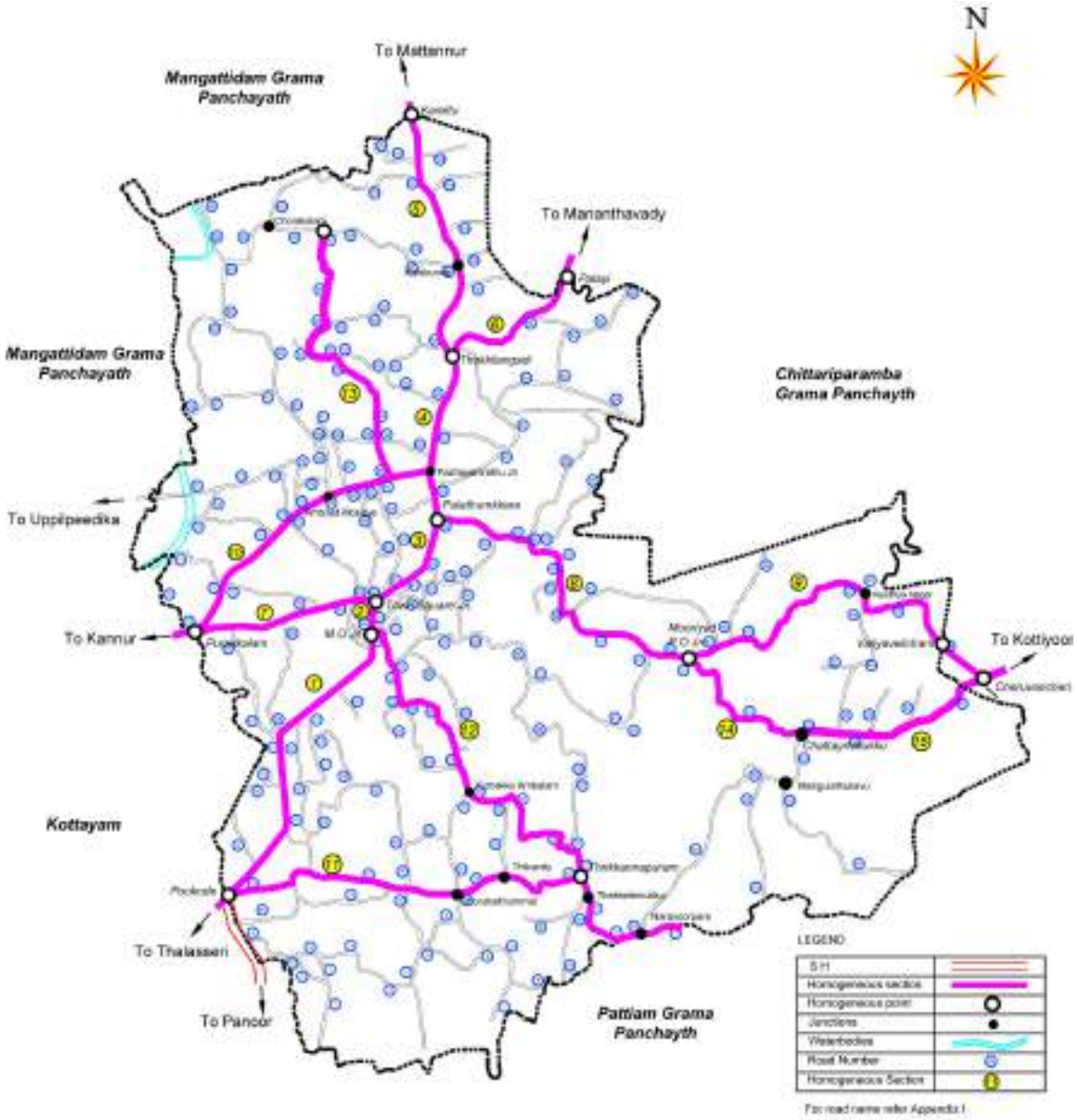


Figure 11.3 Traffic survey locations in Kuthuparamba town.

Table 11.3 List of homogeneous sections

Sl. No.	Name of Road and homogeneous section
	I. Thalasserry - Coorg Road
1	Pookode Junction (Municipal limit) to Municipal Office
2	Municipal Office to Town Square Junction
3	Town Square Jn to Palathumkara Junction
4	Palathumkara Jn to Thokkilangadi Junction
5	Thokkilangadi Junctionn to Karetta (Municipal limit)
	II. Wayanad Road
6	Thokkilangadi Junction to Palayi (Municipal limit)
	III. Kannur Road
7	Town Square Junction to Purakkalam (Municipal limit)
	IV. Valiyavelicham Road
8	Palathumkara Junction to Muriyad Post Office Junction
9	Muriyad Post Office Junction to Valiyavelicham (Municipal limit)
	V Other Roads
10	Old Kannur Road
11	Thrikkannapuram Road (to Naravoor)
12	Municipal Office to Naravoor Road Corridor
13	Panniyora Road
14	Muriyad Post Office Junction to Chattayamukku
15	Chattayamukku to Cheruvancherry

obtain information like road length, cross-sections, hierarchical pattern of roads, surface condition, intersections, street furniture, parking area, bus bays etc.

11.2.2 Traffic Volume Study

Link volume count survey was carried out at mid points of all the major homogeneous sections within the study area between 8.00 AM and 8.00 PM. The survey was conducted for a period ranging between eight hours and twelve hours.

Data pertaining to traffic volume and its composition were collected for all major road links in Kuthuparamba town through link volume survey. Traffic volume data collected from the field were converted into a single unit called 'Passenger Car Unit' (PCU), using conversion factors suggested by Indian Road Congress (IRC).

A. Traffic volume on major corridors

Volume of daily vehicular traffic on major road links within Kuthuparamba town are given in Table 11.4 and Figure 11.4 shows the

density of traffic on major roads in Kuthuparamba town.

It is found that Thalasserry –Coorg road carried the highest traffic volume in the town, with traffic volume ranging between 23,251 PCU and 8,841 PCU among various road sections. Kannur road carried traffic volume of about 10,000 PCU, followed by Wayanad road with about 6,700 PCU. Other roads which carried substantial volume of traffic included Thrikkannapuram road (6,393 PCU) and Palathumkara-Muriyad road (4,709 PCU).

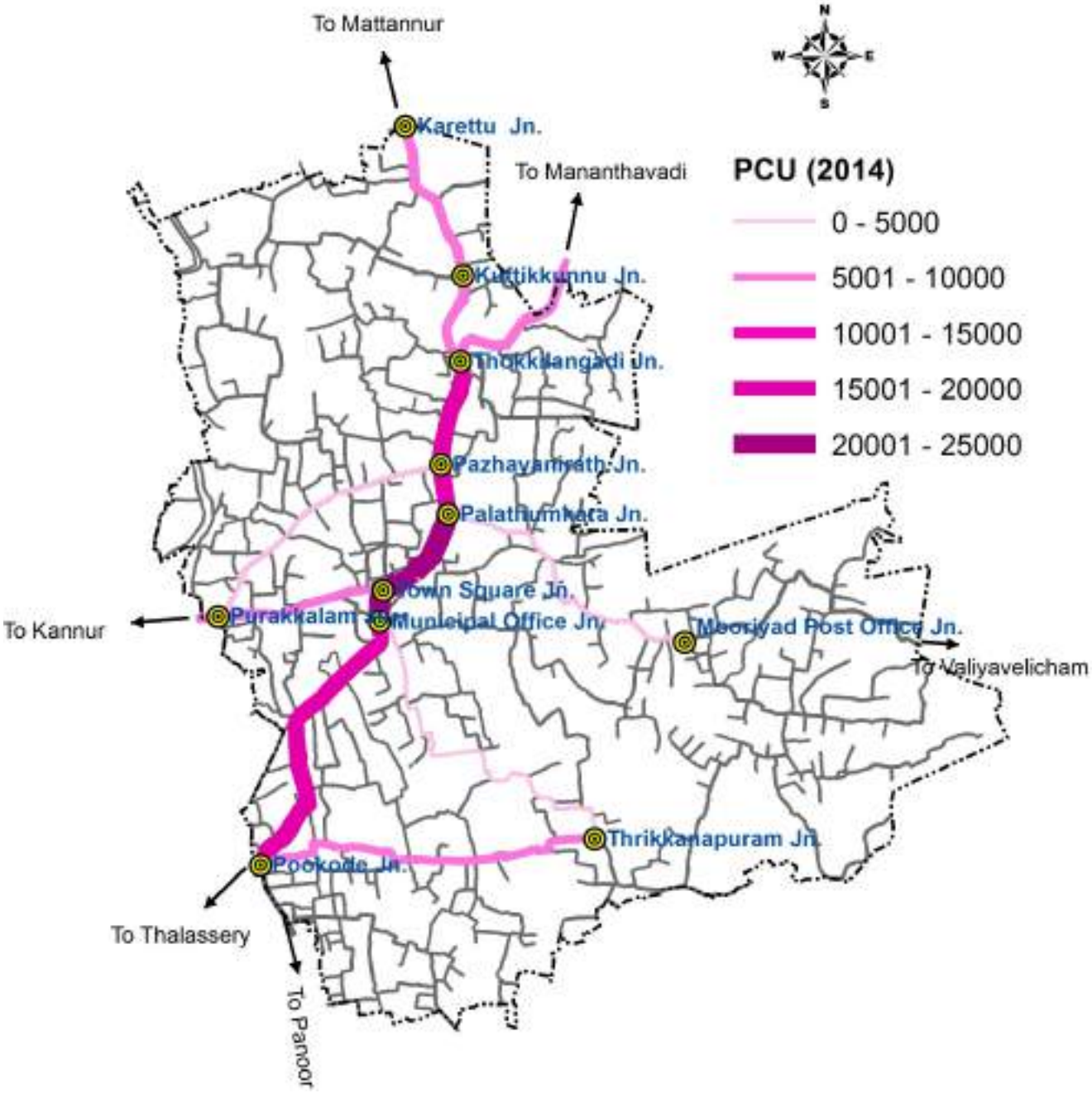


Figure 11.4 Traffic volume at major corridors

Table 11.4 Traffic volume at major corridors

Sl. No.	Road Link	Volume at 2014 (PCU/ day)
	I. Thalasserry - Coorg Road	
1	Pookode Junction - Municipal Office	18,636
2	Municipal Office - Town Square Junction	21,454
3	Town Square Junction - Palathumkara Junction	23,251
4	Palathumkara Junction - Thokkilangadi Junction	16,411
5	Thokkilangadi Junction - Karetta	8,841
	II. Wayanad Road	
6	Thokkilangadi Junction - Palayi	7,699
	III. Kannur Road	
7	Town Square Junction - Purakkalam	9,993
	IV. Valiya Velicham Road	
8	Palathumkara Junction - Muriyad Junction	4,709
	V. Other Roads	
9	Old Kannur Road	1,961
10	Thrikkannapuram Road (to Naravoor)	6,393
11	Municipal Office - Naravoor Road	2,818

B. Traffic volume at major junctions

Turning movement surveys were conducted at five major intersections in Kuthuparamba town to ascertain the peak hour demands. The summarized traffic flows in PCU at the seven intersections are given in Table 11.5 and Figure 11.5.

The highest peak hour volume of 2,483 PCU was observed at Town Square Junction, followed by 2,263 PCU at Pookode Junction and 2,134 PCU at Palathumkara Junction. It was less than 2000 PCU at other two intersections.

Table 11.5 Traffic volume at major junctions

Sl. No.	Name of road/ intersection	Peak hour volume (PCU)
1	Pookode Junction	2,263
2	Town Square Junction	2,483
3	Purakkalam Junction	1,353
4	Palathumkara Junction	2,134
5	Thokkilangadi Junction	1,761

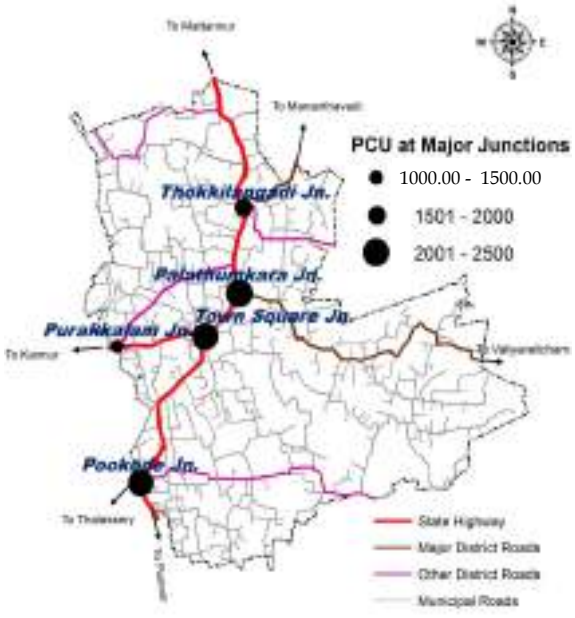


Figure 11.5 Traffic volume at major junctions

C. Volume - Capacity Ratio of Major roads in Kuthuparamba town

Capacity utilization of the road stretches was measured by volume-to-capacity ratio (V/C Ratio). It is the ratio of volume of traffic plying on the road stretch to the capacity of the road stretch.

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

The traffic volume observed at different road stretches were compared with the capacity of road sections, to calculate the volume-capacity ratio (V/C ratio) of different road sections within the study area.

The volume capacity ratio of major roads within the Kuthuparamba town is given in Table 11.6. It could be seen that Thalassery-Coorg road has exceeded the design capacity of the road with v/c ratio more than 1.0 except for the stretch between Thokkilangadi -Karetta Junction. All other roads in the town have v/c ratio less than 1.0 implying under-utilization.

Volume-capacity ratio for the horizon years is also given in the table. Thalassery-Coorg road which is handling traffic volume more than their capacity is expected to carry double its designated capacity by the year 2030. In addition, Kannur road (between Town square junction and Purakkalam) and Thrikkannapuram road will also exceed their capacity by 1.5 times.

11.2.3 Hierarchy of junctions

Hierarchy of junctions in the planning area is identified based on the significance of each junction. Hierarchy of junctions in Kuthuparmba town is categorized into three, 1st order, 2nd order and 3rd order junctions. Figure 11.6 shows the hierarchy of junctions in Kuthuparamba town.

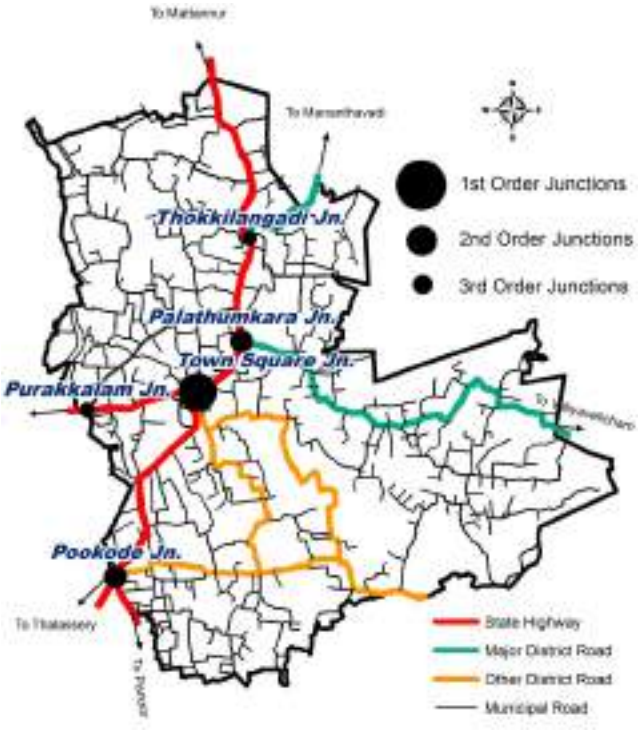


Figure 11.6 Hierarchy of junctions

1st order junction - Town Square junction which acts as a meeting point of two State Highways namely SH– 30 and SH - 38. Other District Roads also meets at this junction.

2nd order junctions -There are two 2nd order junctions in Kuthuparamba town namely Palathumkara junction and Pookkode junction, both of them being located along SH - 30. Palathumkara junction is located in the north of Town Square junction and Pookkode junction is located towards south. At Palathumkara junction, SH - 30 meets the Major District Road

(MDR) towards Valiyavelicham. TC road (SH–30) meets with Muriyadu road (Other District Road) at Pookkode junction.

3rd order junctions - Thokkilangadi junction and Purakkalam junction are the 3rd order junctions of Kuthuparamba town. In Thokkilangadi junction, TC road meets with MDR (Manathavadi road). Purakkalam junction is located along SH - 38.

11.2.4 Inter - city Travel Characteristics

Base year inter-city travel characteristics of passenger and goods movements were obtained by conducting Origin-Destination survey on a sample basis at outer cordon locations in Kuthuparamba town. During the OD survey, buses were not stopped due to practical difficulty and hence, OD pattern of buses were estimated from OD pattern of other vehicle types.

As the Origin-Destination survey was conducted on a sample basis, in order to get the total number of vehicles passing through the outer cordon locations, traffic volume survey

Table 11.6 Volume capacity ratio of major roads within Kuthuparamba town

Sl. No.	Road Link	Capacity (PCU)	2014		2020		2030	
			Vehicle (PCU)	V/C	Vehicle (PCU)	V/C	Vehicle (PCU)	V/C
I	**Thalasserry - Coorg Road**							
1	Pookode Jn - Municipal Office	15,000	16,810	1.12	21,270	1.42	31,485	2.10
2	Municipal Office - Town Square Jn	15,000	20,228	1.35	25,594	1.71	37,886	2.53
3	Town Square Jn - Palathumkara Jn	15,000	21,055	1.40	26,641	1.78	39,436	2.63
4	Palathumkara Jn - Thokkilangadi Jn	15,000	15,585	1.04	19,720	1.31	29,190	1.95
5	Thokkilangadi Jn - Karetta (Rani Jai HSS)	15,000	8,363	0.56	10,581	0.71	15,663	1.04
II	**Wayanad Road**							
6	Thokkilangadi Jn - Palayi	15,000	7,520	0.50	9,515	0.63	14,085	0.94
III	**Kannur Road**							
7	Town Square Jn - Purakkalam	12,000	9,610	0.80	12,160	1.01	17,999	1.50
IV	**Valiya Velicham Road**							
8	Palathumkara Jn - Muriyad Jn	9,000	4,603	0.51	5,824	0.65	8,620	0.96
V	**Other Roads**							
9	Old Kannur Road	9,000	2,168	0.24	2,743	0.30	4,060	0.45
10	Thrikkannapuram Road (to Naravoor)	9,000	5,773	0.64	7,304	0.81	10,812	1.20
11	Municipal Office - Naravoor Road	9,000	3,418	0.38	4,324	0.48	6,401	0.71

was also conducted simultaneously at these locations.

Volume survey of all the vehicles entering/ exiting the study region was conducted at four outer cordon points of the town. Classified volume of vehicles was recorded according to their direction of travel. Distribution of vehicles passing through the outer cordon points in Kuthuparamba town are given in Table 11.7.

The table reveals that maximum daily traffic volume of 18,636 PCU was observed on the Pookode survey location on Kuthuparamba - Thalassery Road, followed by 9,993 PCU of vehicles through 'Purakkalam' survey location on Kuthuparamba-Kannur road. Least volume of vehicles (7,669 PCU) was observed at 'Palayi' survey location on Kuthuparamba - Mananthawadi road.

Table 11.7 Distribution of vehicles passing through the outer cordon points in Kuthuparamba town

Name of road	In (PCU)	Out (PCU)	Total (PCU)
Pookode(Kuthuparamba - Thalassery Road)	10,546	8,090	18,636
Purakkalam (Kuthuparamba - Kannur Road)	4,544	5,449	9,993
Karetta (Kuthuparamba - Mattannur Road)	4,771	4,070	8,841
Palayi (Kuthuparamba - Mananthavadi Road)	4,106	3,593	7,699

A. Inter- city passenger traffic

The inter-city passenger transport in Kuthuparamba town is predominantly met by road based buses, mini-buses, and a host of personalized vehicles like four-wheelers, two-wheelers etc.

An analysis of the O-D survey data collected from outer cordon survey locations revealed that an estimated 1,79,832 inter-city passenger trips were performed in the study region on a reference day consisting of 91,845 bus passenger trips (51.07%), 22,733 car trips (12.64%), 19,417 auto trips (10.80%) and 12,377 two-wheeler trips (6.88%). It could be inferred that public transport had a significant role in meeting the inter-city passenger demand. Table 11.8 and Figure 11.7 give the modal split of inter-city passenger traffic in Kuthuparamba town.

Table 11.8 Modal spilt of inter-city daily passenger trips in Kuthuparamba Town

Sl. No.	Mode of travel	No. of passengers	% of passengers
1	Bus	91,845	51.07
2	Mini-bus/ tempo	33,460	18.61
3	Car/ van/ jeep	22,733	12.64
4	Autorickshaw	19,417	10.80
5	Two wheeler	12,377	6.88
	Total	**1,79,832**	**100.00**

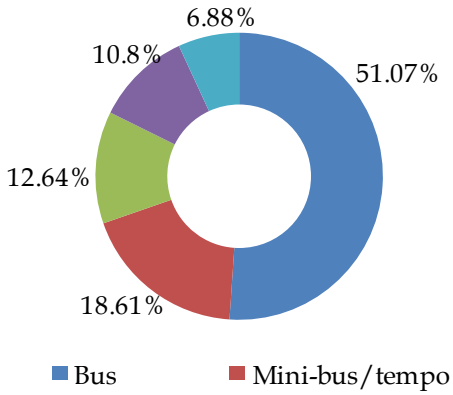


Figure 11.7 Modal spilt of inter-city daily passenger trips in Kuthuparamba Town

B. Origin—Destination of passenger trip

The Origin-Destination matrix of inter-city passenger trips is shown in Table 11.9. Desire

Table11. 9 Origin-destination matrix of inter-city passenger trips

	Origin	Destination																					Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1	CBD area of town	-	-	-	-	-	1,729	50	155	1,899	1,056	504	1,108	96	-	-	469	-	243	117	84	345	-	**7,855**
2	Wards east of Thalassery & South of Pakal Velicham	-	-	-	-	-	850	618	578	1,991	1,557	1,029	81	335	-	-	117	155	-	-	-	328	-	**7,639**
3	Wards south of Old Kannur Rd & west of Thalassery Rd	-	-	-	-	-	3,455	467	575	2,148	1,007	1,033	1,045	-	597	-	776	-	81	-	-	615	-	**11,799**
4	Wards north of Old Kannur Rd & West of Mattannur Rd	-	-	-	-	-	1,682	373	989	1,963	1,487	721	559	-	-	-	155	-	202	-	-	96	-	**8,227**
5	Wards of Mattannur road & North of Pakal Velicham	-	-	-	-	-	1,898	541	1,330	1,760	1,442	1,190	295	-	67	-	659	-	206	-	-	621	-	**10,009**
6	Kuthuparamba Block	1,673	2,267	4,178	1,809	2,088	-	,093	4,351	4,123	3,797	2,793	1,758	-	181	96	1,044	-	738	265	151	1,986	-	**34,391**
7	Dharmadam Block	236	383	808	843	141	1,650	-	128	245	309	-	-	-	-	-	37	-	291	-	-	227	-	**5,298**
8	Mattannur Block	371	674	121	326	913	7,147	286	-	2,732	601	395	131	68	-	-	276	-	-	78	-	264	30	**14,413**
9	Thalasery Block	,984	2,925	2,908	4,512	3,345	0,151	326	1,486	-	517	1,555	346	-	-	-	85	-	1,116	-	202	853	61	**32,372**
10	Dharmadam & Kannur Block	,013	991	1,143	772	879	1,813	84	686	1,290	-	564	67	34	-	99	82	-	1,070	-	-	381	-	**10,968**
11	Peravoor & Mattannur Blocks	1,670	452	869	762	1,577	3,264	396	530	1,500	818	-	335	-	-	-	383	-	178	34	-	30	-	**12,798**
12	Taliparamba Block	577	779	2,049	1,416	306	2,861	-	550	182	-	89	-	-	-	-	279	-	270	-	16	-	150	**9,524**
13	Kaliasseri & Azhikode Block	-	-	-	-	359	-	-	-	225	-		-	-	-	-	-	-	-	-	-	-	-	**584**
14	Payyannur Block	-	167	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**167**
15	Irikkur Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51	-	-	-	-	-	-	**51**
16	Kozhikkode District	626	505	184	374	102	1,283	79	300	1,020	40	651	-	-	-	-	-	-	-	-	-	-	-	**5,164**
17	Kasargod District	-	-	-	-	-	368	-	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**435**
18	Wayanad District	-	-	-	-	-	360	-	-	316	545	-	82	-	-	-	88	-	-	-	-	68	-	**1,459**
19	Other Districts in Kerala	-	-	-	-	-	31	-	27	68	-	-	-	-	-	-	138	-	121	-	-	-	-	**385**
20	Tamil Nadu	67	-	-	-	-	34	-	-	51	40	-	50	-	-	-	68	-	-	-	-	-	-	**310**
21	Karnataka	238	286	61	311	1,044	2,713	171	441	208	27	17	-	-	-	-	-	-	-	78	-	-	-	**5,595**
22	Other States	-	-	-	-	-	102	-	17	180	-	-	-	-	-	-	-	-	90	-	-	-	-	**389**
	Total	***8,455***	***9,429***	***12,321***	***11,125***	***10,754***	***41,391***	***4,484***	***12,210***	***21,901***	***13,243***	***10,541***	***5,857***	***533***	***845***	***195***	***4,707***	***155***	***4,606***	***572***	***453***	***5,814***	***241***	***179,832***

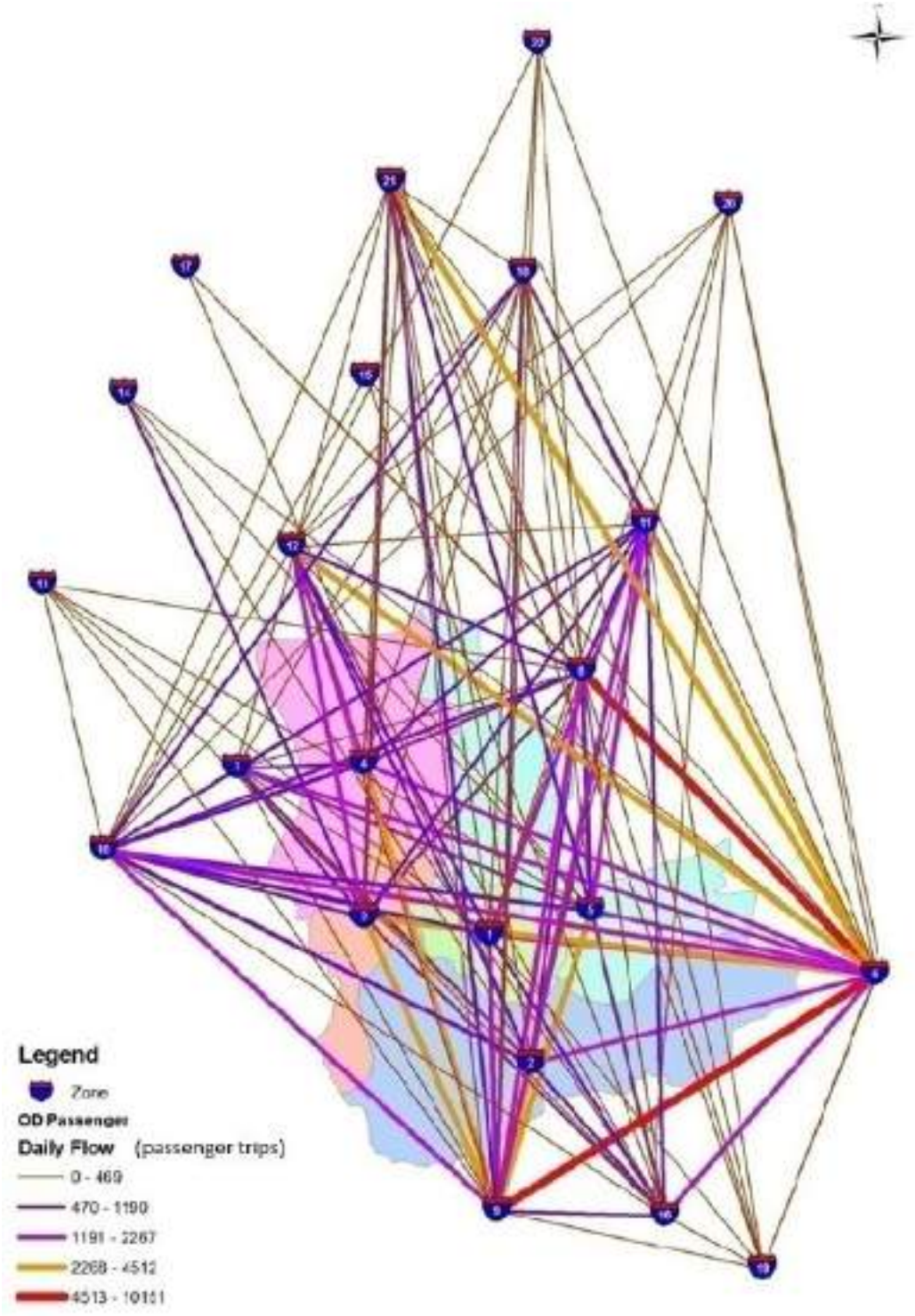


Figure 11.8 Desire Line Diagram of O-D Passenger

Line diagram of O-D Passenger is given in Figure 11.8.

Out of 1,79,832 passenger trips performed as inter-city trips in the study region, 79,920 trips originated from Kuthuparamba town. More than one lakh trips were originated from other places in Kannur district. About 7,443 trips were originated from other districts in the State and 6,294 from other States.

C. Pattern of inter-city passenger trips

Pattern of inter-city passenger trips are given in Table 11.10. The O-D pattern of inter-city passenger traffic revealed that there were 46,144 internal - external trips (Study region to outside study region), out of 1,79,833 inter-city passenger trips. They constituted 26 per cent of total trips. A total of 53,500 trips were external – internal trips (outside study region to study region) constituting 30 per cent of the total trips. External – external trips to the tune of 80,189 (45%) were performed through the study region. This shows the need of bypass traffic facility.

Table 11.10 Pattern of passenger movements through Kuthuparamba town

Pattern of movement	No. of passengers	Percent of passengers
Internal to External	46,144	25.66
External to Internal	53,500	29.75
External to External	80,189	44.59
Total	1,79,833	100.00

D. Inter—city goods traffic

Table 11.11 and Figure 11.9 shows the modal spilt of inter-city daily goods traffic (in tonnes) in Kuthuparamba Town. A total of 3,108 goods vehicles passed through various outer cordon points in Kuthuparamba town, of which 417 were trucks, 1,900 mini-trucks and 791 goods autos. The quantum of goods handled by these goods vehicles was to the tune of 12,817 tonnes. Mini-trucks carried the maximum volume of goods traffic (85.15%), followed by Goods Auto (7.5%). The remaining goods traffic was handled by Goods Trucks.

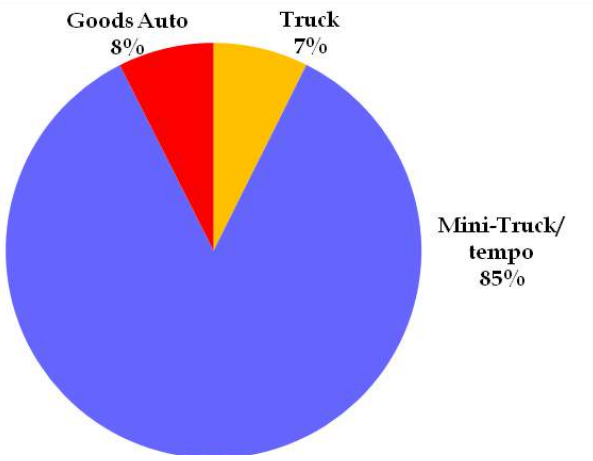


Figure 11.9 Pattern of passenger movements through Kuthuparamba town

Table 11.11 Modal spilt of inter-city daily goods traffic (in tonnes) in Kuthuparamba Town

Sl. No.	Mode of travel	No. of vehicles		Quantity carried	
		Number	Per cent	Tons	Per cent
1	Truck	417	**13.42**	947.67	**7.39**
2	Mini-Truck/ tempo	1900	**61.13**	10913.45	**85.15**
3	Goods Auto	791	**25.45**	956.06	**7.46**
	Total	**3,108**	**100.00**	**12,817**	**100.00**

E. Origin– Destination of goods transportation

The origin-destination matrix of inter-city goods traffic is shown in Table 11.12.Desire line diagram of goods movements in Kuthuparamba town is shown in Figure 11.10. Shows heavy volume of through traffic in Thalassery– Coorg road (SH– 30)

Table 11.12 Origin-Destination matrix of inter-city goods traffic (in tonnes) in Kuthuparamba Town

	Origin	Destination																						Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1	CBD area of town	-	-	-	-	-	1	-	-	50	82	-	-	-	-	-	-	-	-	-	-	-	-	**132**
2	Wards east of Thalasserry &South of Pakal Velicham	-	-	-	-	-	-	-	-	263	36	-	97	-	-	-	32	-	-	-	-	-	-	**428**
3	Wards south of Old Kannur Rd & west of Thalasserry Rd	-	-	-	-	-	-	-	-	48	81	-	-	-	-	-	284	-	-	-	-	-	-	**412**
4	Wards north of Old Kannur Rd & west of Mattannur Rd	-	-	-	-	-	16	-	-	176	6,108	-	-	-	-	-	200	-	-	-	-	-	-	**6,499**
5	Wards of Mattannur road & North of Pakal Velicham	-	-	-	-	-	-	-	-	-	76	-	-	-	-	-	119	-	-	-	-	-	-	**196**
6	Kuthuparamba Block	-	-	20	38	-	-	-	193	385	22	19	-	-	-	-	30	-	-	-	-	35	-	**742**
7	Dharmadam Block	-	-	-	-	-	-	-	-	41	-	-	-	-	-	-	-	-	-	-	-	-	-	**41**
8	Mattannur Block	25	69	50	-	-	172	-	-	544	44	21	14	-	-	-	188	-	-	-	-	28	-	**1,154**
9	Thalasery Block	46	-	-	9	-	56	-	30	-	-	16	-	-	-	-	-	-	-	-	-	-	-	**157**
10	Dharmadam & Kannur Block	-	-	246	-	-	727	-	41	-	-	-	-	-	-	-	-	-	12	-	-	40	-	**1,066**
11	Peravoor & Mattannur Blocks	50	31	-	25	25	67	-	17	373	80	-	-	-	-	-	378	-	-	-	-	-	54	**1,100**
12	Taliparamba Block	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	1	-	-	-	-	**17**
13	Kaliasseri & Azhikode Block	-	-	-	-	-	-	-	577	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**577**
14	Payyannur Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
15	Irikkur Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
16	Kozhikkode District	-	-	-	-	-	21	-	10	4	-	-	-	-	-	-	-	-	-	-	-	-	-	**35**
17	Kasargod District	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
18	Wayanad District	-	59	-	41	25	29	-	8	37	30	-	-	-	-	-	19	-	-	-	-	-	-	**248**
19	Other Districts in Kerala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
20	Tamil Nadu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
21	Karnataka	-	-	-	9	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**13**
22	Other States	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Total	**120**	**159**	**316**	**122**	**50**	**1,089**	**-**	**880**	**1,937**	**6,558**	**55**	**111**	**-**	**-**	**-**	**1,250**	**-**	**13**	**-**	**-**	**103**	**54**	**12,817**

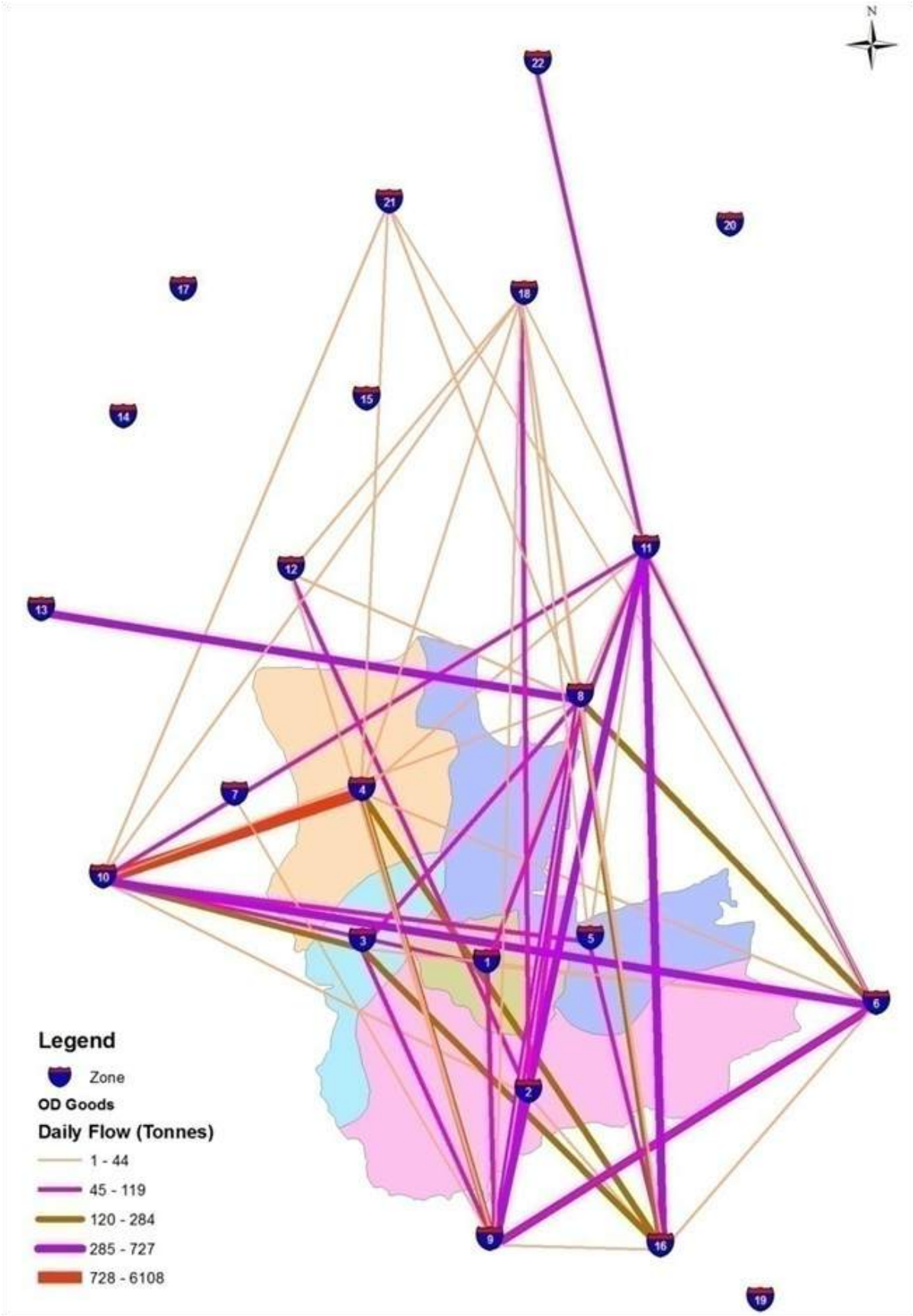


Figure 11.10 Desire line diagram of goods movements in Kuthuparamba town

11.2.4 Speed and Delay Characteristics

As part of the study, speed and delay survey was carried out on all major road stretches within Kuthuparamba town.

The maximum average journey speed of 41 km/hr was observed between Thokkilangadi Jn and Karetta on Thalassery-Coorg road. However, the speed was quite low in the following stretches.

1. Municipal Office - Naravoor Road (15 kmph)
2. Town Square Junction - Palathumkara Junction (16 kmph)
3. Municipal Office - Town Square Junction (18 kmph)

Delay characteristics in Kuthuparamba town is shown in Figure 11.11. An analysis of the delays and causes of delay has revealed that traffic congestion was the major reason for delay between Town Square Junction and Palathumkara Junction. . Location of bus stop caused delay between Municipal Office and Town Square Junction and between Town Square Junction and Palathumkara Junction.



Figure 11.11 Delay characteristics in Kuthuparamba town

11.2.5 Parking Characteristics

Parking surveys were carried out on major road sections of Kuthuparamba town to obtain the peak parking demand and parking duration of vehicles on these road sections.

Most of the parking activities in Kuthuparamba town were found to be along Maroli Town Square and Bus stand with 90 vehicles found parking during peak time. The parking accumulation at different road sections in Kuthuparamba Town is given in Figure 11.12.



Figure 11.12 Parking Characteristics in Kuthuparamba town

Majority of the vehicles parked at most of parking corridors were found to be for short duration of less than 30 minutes. 80 to 90 percent of vehicles were parked for less than 30

minutes and six to 10 percent of vehicles were parked for nearly an hour.



11.2.6 Pedestrian Crossings

Pedestrian surveys were conducted at all the locations in Kuthuparamba town where pedestrian activities were found to be high. Analysis of the data on pedestrian cross movements revealed that a high volume of pedestrian cross movements i.e around 556 observed around Kuthuparamba Bus stand between 12 noon and 1 pm. Sizable volume of pedestrian crossing is seen in Maroli Town Square and Thokkilangadi. Peak hour pedestrian cross movements observed at major locations in Kuthuparamba town are given in Table 11.13 and the location of pedestrian crossings in Kuthuparamba town is given in Figure 11.13

Table 11.13 Peak hour pedestrian cross movements at major locations in Kuthuparamba Town

Sl. No.	Name of location	Peak time	No. of pedestrians		
			Up	Down	Total
1	Maroli Town Square	12.00-01.00 PM	251	191	442
2	Kuthuparamba Bus stand	04.00-05.00 PM	360	196	556
3	Municipal Office	11.00-12.00 AM	105	61	166
4	Thokkilangadi	03.00-04.00 PM	141	268	409



Figure 11.13 Locations of pedestrian crossings in Kuthuparamba Town.

11.2.7 Hierarchy of Traffic Nodes

Town Square junction comes first in the hierarchy of traffic nodes due to its prime location and traffic characteristics..Pookode Junction and Palathumkara Junction comes second in the hierarchy.Thokkilangadi is third and Purakkalam is fourth in hierarchy.

11.3 DEVELOPMENT POTENTIALS AND PROBLEMS

11.3.1 Potentials

Kuthuparamba town is blessed with good road connectivity. There are two State Highways passing through the town which provides inter state as well as inter district connectivity and offers great potential regarding transportation sector. Road connecting Wayanad district and Valiyavelicham industrial area is also an important road network in the existing scenario. One of the road connecting Kannur International Airport passes through the town

area. The existing system of road network will definitely promote trade and commercial activities of the town and this hence gets reflected in all production sectors.

11.3.2 Problems

Major traffic problems facing Kuthuparamba town are the traffic blockages witnessed near the Bus station located on the TC road during most parts of a day. This is due to the multiple entries made by buses to enter and exit the bus station. Added to it are the parking of autos in front of the bus station, and pedestrian criss-cross movements across the TC road to and from the bus station. Pedestrian movements in front of Taluk hospital on TC road are also found to be risky due to fast moving vehicular traffic on the main road.

The major traffic and transportation problems facing Kuthuparamba Municipal Town could be attributed to: Unorganized on-street parking in the absence of proper parking lots;Movement of inter-city bus traffic through the central area of the town due to the location of bus station within the central area;Encroachment of right-of-way by hawkers, parking of vehicles; and Absence of adequate design for major junctions, Absence of road markings and signs. Commercial nodes are mostly characterized by congestion due to vehicular and pedestrian traffic. Lack of enough space for parking and in sufficient road width is the major reason for congestion. It prevents smooth maneuvering of vehicles causing frequent traffic block. Many commercial centres within the central area are lying close to Bus terminals which aggravates the congestion problems and hence hinders the growth of the town.

11.4 INFERENCE

Regarding Kuthuparamba Town, traffic and transportation sector is a very crucial as the town serves as a major transit having well connected road network system. The two State Highways, SH-30 and SH-38 having inter state as well as inter district connectivity, offers tremendous scope for the expansion of trade and commercial activities within the town. The widening of existing roads and the construction of new roads may reduce the traffic blocks to a certain extent. The development and improvement of this sector can enhance the productivity of various sectors of economy.

Chapter 12
WATER SUPPLY

12.1 EXISTING STATUS

Kuthuparamba town has no major water body and hence only 0.37% (0.06 sq.km.) of the land is covered with water. The existing ponds, open wells and thods are the only water resource available within the municipal area. Majority of the population depends on wells for domestic purposes. Kerala Water Authority is the only agency which provides safe drinking water to the public.

12.1.1 Water Distribution Network

12.1.1.1 Details of source

The intake well is the Meruvambayi river located at Kandamkunnu which is outside of town in the north east direction of Nirmalagiri College. The details of the source is given in Table 12.1.

The socio-economic survey conducted in Kuthuparamba municipal area reveals that majority of the population depends on well and the average percentage for LSGI is shown in Figure 12.1. Location of intake well in Taliparamba town is given in Figure 12.2.

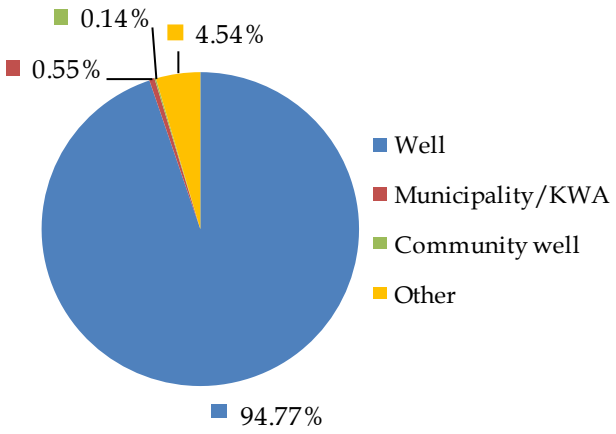


Figure 12.1 Source of water in Kuthuparamba town

12.1.1.2 Details of Distribution Network

In Kuthuparamba town, the existing distribution network of Kerala Water authority (KWA) covers 50% of the wards (14 wards). 6 hours supply per day is reported in wards located mainly along the periphery of the municipal area. Moreover, almost 95% of the population depend on open wells and tube wells for their basic needs.

Table 12.2 gives the details of distribution network in Kuthuparamba town and Figure 12.3 shows the existing distribution network of KWA in Kuthuparamba town.

Table 12.1 Water Supply - Details of Source

Sl.No.	Source of water (Rivers, Fresh water lakes, ponds, streams, Tube well, Bore well, etc)	Location	Quality of water source wise (Potable water that can be used after Chlorination-1, Water containing iron, salt, hardness-2, Treated water-3)	Yield from the source - (MLD)	Challenges to the sources (Stake holder discussion)
1	Intake well (Meruvambayi river)	Kandamkunnu	1	0.24	No

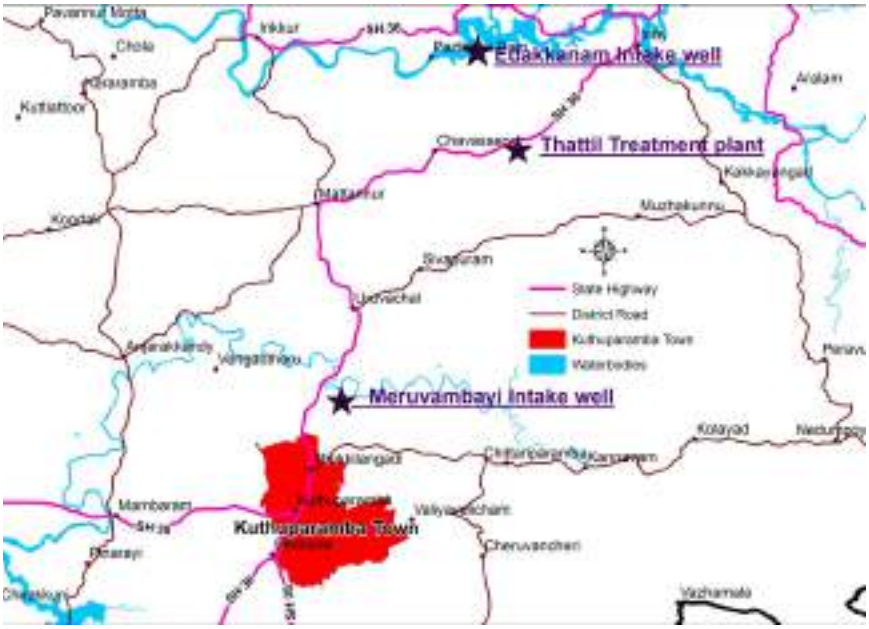


Figure 12.2 Location of intake well and treatment plant

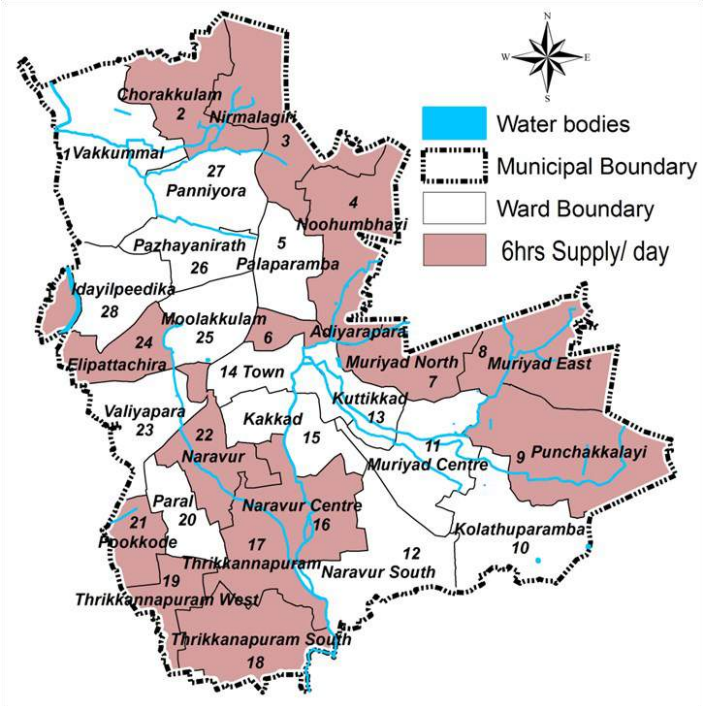


Figure 12.3 Existing distribution system of KWA

Table 12.2 Details of Distribution Network

Network	Source	Area of coverage (wards)	Number of houses covered/ Number of connections	Number and capacity (MLD) of OH tank	Total quantity supplied/day	Quality of water (properly treated, only chlorination/ no chlorination)
KWA	Intake well (Meruvambayi river)	2,3,4,6,7,8,9,16,17,18,19,21,22,24	266 connections, 46 Street taps	0.15 MLD (GL)	0.24 MLD	Chlorination

12.1.2 Water Scarcity

Water scarcity in Kuthuparamba town is studied based on socio economic survey. The data obtained is represented in figure 12.4.



Figure 12.4 Water scarcity in Kuthuparamba town

From figure it is clear that Moolakkulam ward located in the core area of the town faces water scarcity for more than 6 months. Punchakkalayi and Muriyard Centre are the wards facing water scarcity for a period of 3-6 months. No river passes through the town except minor thods like naravur.

Data collected from councilors of various wards indicates that Pookode, Panniyora, Moolakkulam and Punchakkalayi are the wards facing water scarcity for 6 months and more.

12.1.3 Ground water condition

Groundwater quality comprises the physical, chemical, and biological qualities of ground water. Temperature, turbidity, color, taste, and odor make up the list of physical water quality parameters. Since most ground water is colorless, odorless, and without specific taste, we are typically most concerned with its chemical and biological qualities. The study on ground water condition gives an idea on the

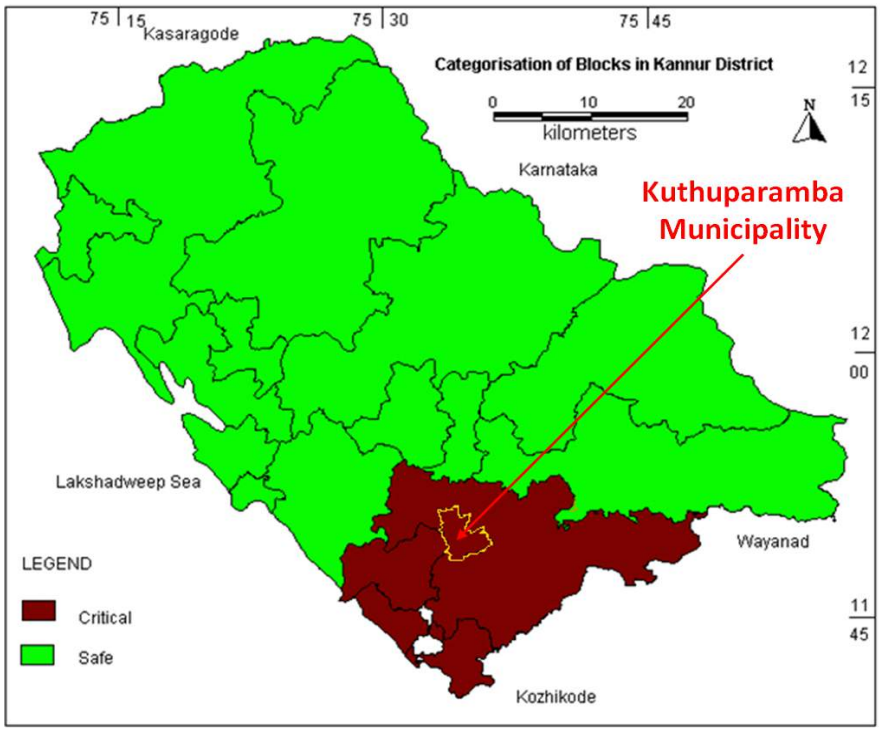


Figure 12.5 Categorization of blocks in Kannur District based on ground water condition

availability of water in a particular area. Figure 12.5 shows the categorization of blocks in Kannur district based on the ground water condition. The Central Ground Water Board has conducted a study on ground water condition in Kannur district and categorizes into two, critical and safe. It reveals that the Kuthuparamba town falls under the critical category. It may be noted that as per the categorization of blocks based on 1999 data, all the blocks were under safe category but as per 2004 data computations, Kuthuparamba and Thalassery has become 'Critical' and the remaining six blocks are under 'Safe category'.

12.1.4 Water Consumption

Ground water is the main source of water. Water scarcity is observed in certain areas as the piped water supply of KWA does not reach all wards of Kuthuparamba town. The consumption is mainly for domestic purposes.

12.1.5 Connection details of existing schemes

Kerala Water Authority is the only agency involved in the supply of drinking water in Kuthuparamba town. The different types of connections provided by KWA based on the purpose of consumption are domestic, non domestic, industrial and special. The details of connection is given in a tabular form in Table 12.3. The same is represented as pie chart in Figure 12.5.

Table 12.3 Details of water connections

Type of connection	No. of connections
Domestic	190
Non domestic	96
Industrial	Nil
Special	Nil
Total	**286**

The table reveals that there are no industrial and special connections in Kuthuparamba town. The domestic connection is almost double when compared with non domestic connection. The percentage variation in type of connection is shown in the figure 12.6.

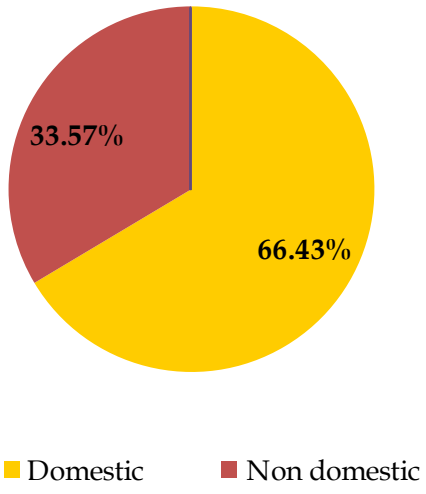


Figure 12.6 Percentage variation in type of connections in Kuthuparamba town

Kerala Water Authority has two offices in Kuthuparamba town. It includes the Water Supply Section Office and the Project Office. The Water Supply Section office functions under the Sub Division office, Thalassery and is responsible for the water supply and maintenance of existing water supply schemes in Kuthuparamba town. The Project office functions under the Division office, Kannur and deals with the newly commissioned major projects.

The existing schemes are Rural Water Supply Scheme (RWSS), Mini Water Supply Scheme (MWSS) and Accelerated Rural Water Supply Scheme (ARWSS). The details of existing schemes, its source, capacity and benefitted villages are listed in Table 12.4.

Table 12.4 Existing Water Supply Schemes in Kuthuparamba town

Sl. No.	Name of Scheme	Source of Scheme	Capacity	Benefitted village	Remarks
1	RWSS to Kuthuparamba	Open well	0.15 MLD	Naravoor	
2	RWSS to Peravoor	Open well	0.007 MLD	Manathana	
3	RWSS to Kottakkunnu	Open well	0.02 MLD	Manathana	
4	RWSS to Kelakam	Open well	0.04 MLD	Kelakam	
5	RWSS to Adakkathod	Open well	0.13 MLD	Kelakam	
6	RWSS to Perunthanam	Open well	0.02 MLD	Kelakam	
7	RWSS to Valayamchal	Open well		Kelalam	
8	MWSS to Manhalampuram – Vazhikudimala	Open well	0.008 MLD	Kelakam	
9	RWSS to Nananipoil	Open well	0.015	Kelakam	
10	RWSS to Kottiyoor	Open well	0.02 MLD	Kottiyoor	
11	RWSS to Muzhakkunnu	Open well	0.15 MLD	Muzhakkunnu	
12	RWSS to Kannavam	Bore well		Cheruvanchery	Damaged pipeline
13	ARWSS to Cheruvanchery Zone –1	Open well		Cheruvanchery	Damaged pipeline
14	ARWSS to Cheruvanchery Zone –2	Open well		Cheruvanchery	Damaged pipeline
15	ARWSS to Cheruvanchery Zone –3	Open well		Cheruvanchery	Damaged pipeline
16	RWSS to Kottiyodi Pathayakkunnu	Open well	0.027 MLD	Pattiam	
17	ARWSS to Panoor - Mokeri Zone –1	Open well	0.107 MLD	Mokeri	
18	ARWSS to Panoor - Mokeri Zone –2	Open well	0.25 MLD	Panoor	
19	ARWSS to Panoor - Mokeri Zone –3	Open well	0.46 MLD	Panoor	
20	ARWSS to Puthur Zone –1	Open well	Transferred to Kunnothparamba panchayath	Puthur	
20	ARWSS to Puthur Zone –2	Open well	Transferred to Kunnothpara-mba panchayath	Puthur	
21	RWSS to Kottayam Mouveri	Open well	0.275 MLD	Kottayam	
22	RWSS to Thrippangottur	Open well	0.5 MLD	Thrippongottur	

12.2 ON GOING PROJECTS

The newly commissioned project is the "Accelerated Urban Water Supply Scheme (AUWSS) to Kuthuparamba, Kottayam and Pattiam". The scheme covers the whole municipal area and the two nearby census towns, namely Kottayam and Pattiam. The intake well is at Edakkaanam, behind the Pazhassi Reservoir in Irikkur river. The treatment plant of the Water Supply Scheme is located at Thattil situated along Iritty Narayanpara road and the total capacity accounts to 11 MLD. The service area of AUWSS has been divided into three zones, namely Zone 1, Zone 2 and Zone 3 for distribution purposes. The project including the laying of distribution network is almost complete and hence, is expected to serve the public in the near future. Thus, with the completion of the project KWA can cover all wards of Kuthuparamba town.

12.3 DEVELOPMENT POTENTIALS

12.3.1 Potentials

"Accelerated Urban Water Supply Scheme to Kuthuparamba, Kottayam and Pattiam" is the major potential of the sector. The scheme is designed to cover the entire municipal area and hence with the completion of the project, safe drinking water can be supplied to the public.

12.3.2 Problems

The existing Rural Water Supply Schemes covers only 14 wards out of the total 28 wards of Kuthuparamba town. Hence certain elevated portions of the town faces water scarcity especially during summer season. The low quality pipe fittings, fixtures and damaged pipelines of various existing schemes need to be replaced. Another major issue regarding the sector is the lack of proper conservation measures for surface sources.

12.4 INFERENCE

The newly commissioned "Accelerated Urban Water Supply Scheme" likely to function in its full swing in the near future can meet the future water demand of Kuthuparamba town. At present, majority of the people depends on wells for their basic needs but unfortunately as per 2004 data computations of Central Ground Water Board, Kuthuparamba block falls under the category of critical condition. Hence, there is a need to depend on various agencies like Kerala Water Authority to meet their requirements. The existing schemes of KWA can be improved by proper maintenance of pipelines and fixtures and there is a need to conserve the surface water sources also.

Chapter 13
ENERGY

13.1 ANALYSIS OF EXISTING STATUS

The available sources of energy and their consumption in Kuthuparamba town is explained in this chapter.

13.1.1 Consumption

Energy consumption details of Kuthuparamba town obtained from Kerala State Electricity Board (KSEB) is summarized. Based on the purpose, the power consumption is categorized as domestic, industrial, commercial and agriculture.

Power consumption details in Kuthuparamba town is given in Table 13.1 and is represented as pie chart in Figure 13.1.

There are a total of 21,865 connections in Kuthuparamba town with total monthly power consumption being 20,74,333 units.

It is observed that in Kuthuparamba town, number of connection is more for domestic purposes 16,836 (77% of the total) followed by commercial use (20.33%). The power consumed for industrial and agricultural purposes are minimum.

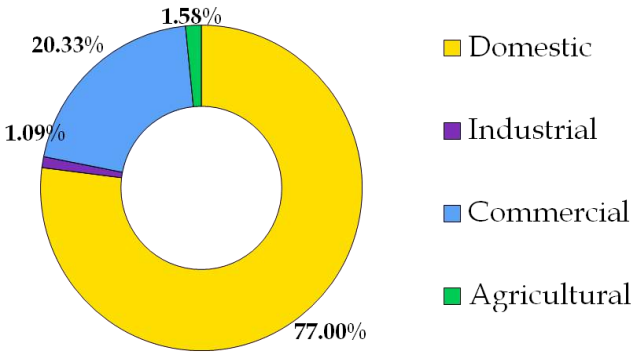


Figure 13.1 Details of Energy consumption in Kuthuparamba town

13.1.2 Connection and Distribution

The most widely used form of energy in Kuthuparamba town is the electrical energy and the only licensee responsible for its distribution is KSEB (Kerala State Electricity Board). The whole distribution network of the town comes under Kuthuparamba Section office and has a total of 112 transformers. The power is supplied from the 110 KV Substation at Kuttikkunnu, located outside the municipal area. The details of the length of H.T (High Tension) and L.T (Low Tension) line in Kuthuparamba municipal area is given in Table 13.2.

Table 13.1 Details of Energy consumptions in Kuthuparamba town

Sl. No	Total Number of Connections	Category wise break – No of connections				Total monthly power consumption (KWH)
		Domestic	Industrial	Commercial	Agricultural	
1	21865	16836	238	4445	345	20,74,333 units

Table 13.2 Details of Transformers

Sl. No.	Name of Section	Number of Transformers	Length of H.T line (km)	Length of L.T line (km)
1.	Kuthuparamba	112	95	498

13.1.3 Other sources of energy

Other sources of energy in Kuthuparamba town includes petroleum products and Liquefied Petroleum Gas (L.P.G).

A) Petroleum

There are a total of four petrol pumps within Kuthuparamba municipal area and are mainly located along the major corridors. The details are given in Table 13.3.

B) L.P.G

There is only one L.P.G godown within the municipal area

Table 13.3 Petrol Pumps in Kuthuparamba town

Sl. No.	Name	Location/ ward	Capacity/ Extent/ Service area
1.	Teekay Filling station	Alakandy	Diesel –20000L Petrol –15000L
2.	Popular Filling station	Padathumkara	Diesel –40000L Petrol –25000L
3.	Techno Filling station	Thokkilangadi	Diesel –40000L Petrol –40000L
4.	T.R Petroleum	Thalasserry road	Diesel –20000L Petrol –15000L



110 KV Substation at Kuttikkunnu

13.1.4 Cooking Fuels

Sources of energy used for cooking purposes were obtained from socio economic survey. Figure 13.2 shows various fuels used for cooking purposes.

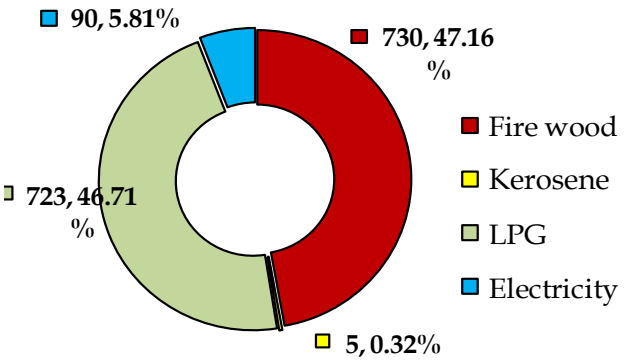


Figure 13.2 Cooking fuels



Petrol pump located along Kuthuparamba - Mattannur road

As per socio economic survey major sources of energy for cooking purposes are fire wood (47.16%) and LPG (46.71%). Only 5.81% are depends upon electricity for cooking purpose and consumption of kerosene is negligibly small.

13.2 DEVELOPMENT POTENTIALS AND PROBLEMS

13.2.1 Potentials

Electrical energy is the major source of power in Kuthuparamba town. There is no other alternative source of energy other than non conventional sources. Majority of the power generated is consumed for domestic purposes. There is enormous scope for utilization of solar energy. According to socio economic survey the percentage of un electrified houses are negligibly small.

13.2.2 Problems

There is no other alternative energy sources other than conventional. Voltage fluctuation is seen in wards located along the south eastern and south western periphery. Poor regulation by utility or variation in generation capacity may also cause fluctuation. The potentials of solar energy is not yet tapped.

13.3 INFERENCE

Major source of energy in Kuthuparamba town is electrical energy. There is a possibility for generating an alternative source viz. solar energy. The entire municipal area is served by a substation located near Kuthuparamba town area and the energy is mainly consumed for domestic purposes. As per socio economic survey fire wood and LPG are the major sources of cooking fuel.

Chapter 14
DRAINAGE & SANITATION

14.1 ANALYSIS OF EXISTING STATUS

14.1.1 DRAINAGE

Drainage and topography of an area are inter related. Due to its good topographic conditions there is no major issues related to drainage in Kuthuparamba town. Major portion of Kuthuparamba town area has an altitude ranging from 11 - 50m above Mean Sea Level (MSL). Figure 14.1 shows the physiography of Kuthuparamba town.

From figure, it is clear that highly elevated areas are located in the eastern portion of the town area. Low lying areas seen in northern and southern part of the town includes those portion where small streams and thods passes. The existence of small water bodies in Kuthuparamba town area enhances the natural drainage system.

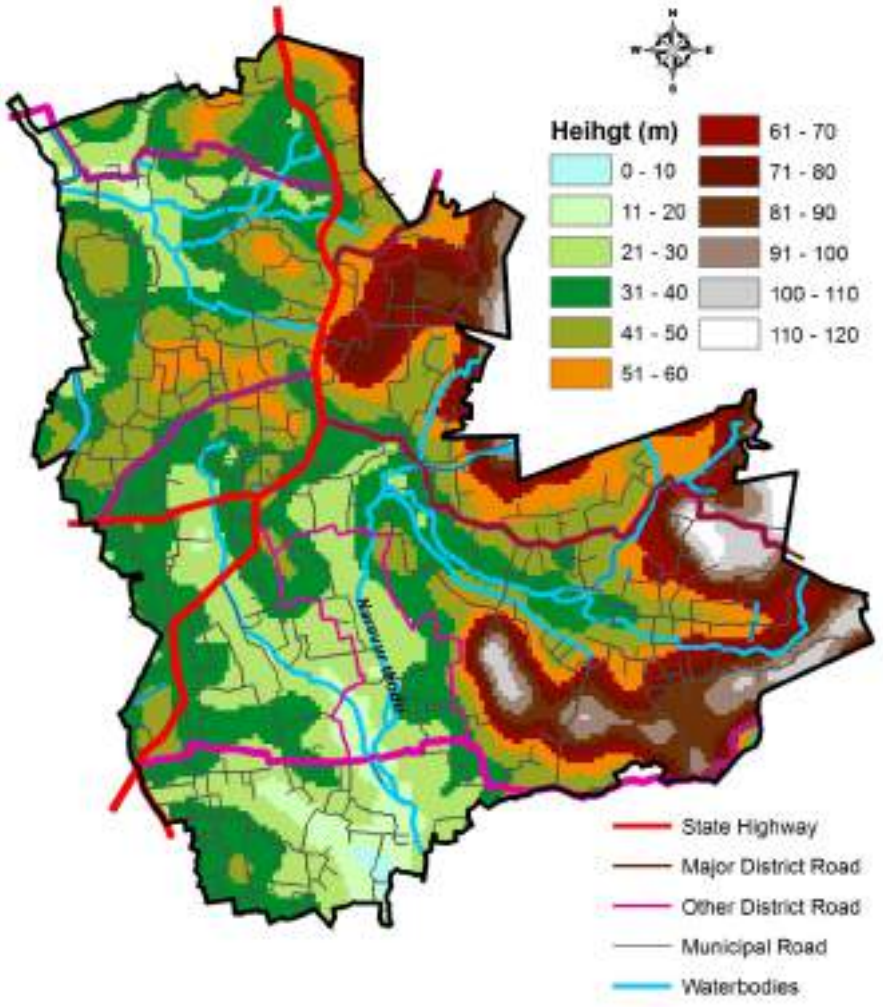


Figure 14.1 Physiography of Kuthuparamba town

Details of existing drainage system in Kuthuparamba town area is shown in Table 14.1.

Table 14.1 Details of existing drainage system

SI No.	Name of road	Length of uncovered drain (m)	Remarks
1	Suresh road	50	
2	Keloth Murikkanchery Gopalan road	100	
3	Puthussery Achuthan Master road	119	
4	Pookode school road	51	Partially covered
5	M. Kousalya teacher road	200	Partially covered
6	Govt. Hospital road	1	
7	Dr. T. Kumaran road (Old road)	240	

The table reveals that 761 m long uncovered drains exist in Kuthuparamba town area. The longest uncovered drains are observed in Dr. T. Kumaran road. Partially covered drains are seen in Pookode school road and M. Kousalya teacher road.

Considering the climate of this area all roads requires well maintained drainages.

14.1.2 SANITATION

Sanitation is the hygienic means of preventing human contact from the hazards of wastes to promote health. Examples of waste that can cause health problems are faeces, solid wastes, domestic waste water and industrial wastes. There should be comprehensive sanitation, sewage and solid waste management for every living establishment in an area as well as easy availability of public toilets and waste bins. Sanitation comprises of sewerage and solid waste management.

A. Sewerage

Sewerage includes waste generated from kitchen, bathroom etc .

Details regarding existing sewerage system in Kuthuparamba town was obtained from socio economic survey. Methods adopted for sanitary waste disposal is shown in figure 14.2.

From figure it is clear that ,mainly three methods of sewage disposal adopted in Kuthuparamba town area namely septic tank, pit latrine and leach pit. About 43% of houses depends upon septic tank for sewage disposal .

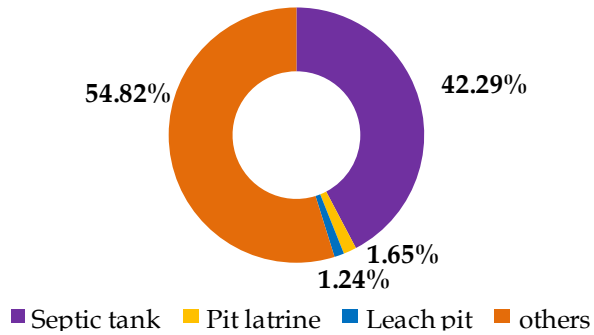


Figure 14. 2 Sewage disposal methods

B. Solid Waste Management

The process of solid waste management involves solid waste collection, disposal and treatment using suitable scientific methods.

i. Solid waste collection

Roads, public places, shops, Institutions are the major sources of solid wastes. Solid waste collection in Kuthuparamba town area is done by both sanitation workers (21) and Kudumbasree labourers (10). Waste collection

points are located near Town Hall and Palathumkara. The waste collection is carried out daily. Municipality has 1 tipper lorry and 1 tipper auto for waste collection purposes.

Monthly solid waste collection details of Kuthuparamba town area is shown in Table 14.2. From table, it is clear that solid waste collection covers an area of 5 km² . Partially centralized system of solid waste collection is done here. About 270 Tons of solid waste is generated per month out of which 240 tons are collected per month.

Table 14.2 Monthly solid waste collection details

Sl. No.	Type of the System (Centralized , Partially centralized, community level)	Source of solid waste (Area/ Ward)	Total quantity of solid waste generated (T)	Total quantity of solid waste collected (T)	Coverage Area/ wards
1	Partially Centralized	Road, Public place, shops, Institutions	270	240	5 Sq Km

ii. Solid waste disposal

For the disposal of solid waste, trenching ground located at Palaparamba is utilized. Composting is the final method of solid waste disposal in trenching ground. Here system for separation of solid waste is available. There is no significant public protest against the location.



Trenching ground at Palaparamba

Solid waste disposal data obtained from socio economic survey is shown in figure 14.3.

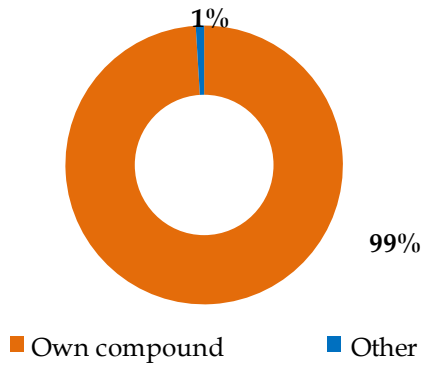


Figure 14.3 Method of solid waste disposal

From figure, it is clear that about 99% of the population disposes solid waste in their own compound. The waste generated mainly is from public places and business establishments.

iii. Solid waste treatment.

Hospital wastes are disposed by there own methods. Surgical wastes are disposed throughIndian Medical Association Goes Eco–friendly (IMAGE). One private hospital has incineration facility and other hospitals are disposing the wastes by dumping method.

Details of ongoing and committed projects under solid waste disposal management along with their agencies are listed below.

1) Windrow composting unit-1 (With the aid of Suchitra Mission)

The vision of this project is a waste free Kerala with unpolluted environment, public hygiene and cleanliness. It is expected to be reflected in better quality of life due to improved health and general well being,

economic gains, better aesthetic surroundings and overall environmental upgradation.

2) Vermi composting unit—1 (With the aid of Nirav project)

14.2 DEVELOPMENT POTENTIALS AND PROBLEMS

14.2.1 Potentials

Undulated terrain of Kuthuparamba town provides easy drainage and absence of water logged area reduces the drainage issues. Municipality has own trenching ground within town limits and is a major potential of this sector. The waste generated from hospitals is treated by IMAGE operated by Indian Medical Association.

14.2.2 Problems

Drainage of Storm water is one of the problem as the drainage networks along many roads are not continuous. Overflowing of drains in rainy season due to improper cleaning also prevails at most of the commercial nodes. The waste water from houses, shops and hotels are also disposed into the storm drains. Solid waste collection works are done only in the town wards. At present, there is no collection mechanism for e- wastes. Most of the house holds have leach pit tanks while others use septic tanks. The number of toilets provided in commercial establishments and offices are far below the requirements. There is no sewage treatment plant at present. Lack of public pay & use toilets in market places, shopping areas is yet another problem being faced by the public . There is no public sewerage system also.

14.3INFERENCE

Due to the unique topography of Kuthuparamba town, at present there are no major issues regarding drainage of storm water. As the drains remain uncovered, the overflow of drains during rainy season is a real threat making it unhygienic for the healthy living of the people. Kuthuparamba townhas own trenching ground and composting is the method being practiced for solid waste disposal. Advance technology need to be introduced for improving vermi composting. Sanitation facilities need improvement by introducing localized collection and processing techniques.

Chapter 15
EDUCATION

15.1 ANALYSIS OF EXISTING STATUS

Education sector has vital role in the development of an area. In Kuthuparamba town the educational institutions are more or less scattered all round the municipal area. The chapter deals with the literacy rate, status of educational institutions and development issues regarding this sector.

15.1.1 Literacy rate

Literacy is the ability to read, view, write, design, speak and listen in a way that allows us to communicate effectively. As per 2011 Census, the literacy rate of Kerala state is 94% where as that of India is only 74.04%. Comparison of literacy rate of Kuthuparamba town with district and state is represented as histogram in Figure 15.1. The literacy rate of the municipal area is 96.76% which is high when compared to the district and state average.

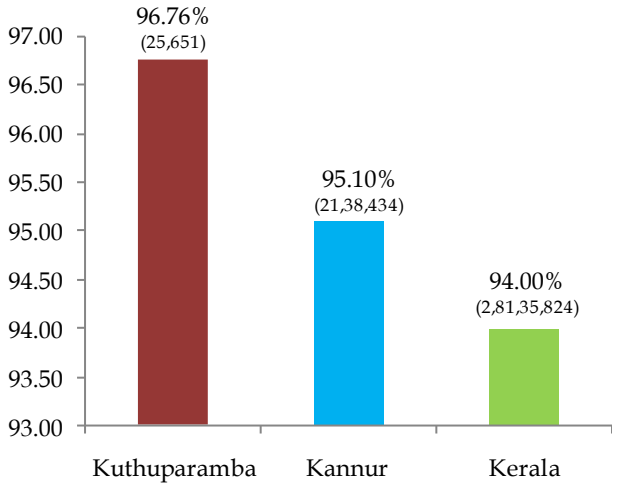


Figure 15.1 Comparison of Literacy rate with district and state

The female literacy rate of Kuthuparamba town is shown in Figure 15.2. It reveals that the female literacy rate of Kuthuparamba municipal area is also high when compared to district and state.

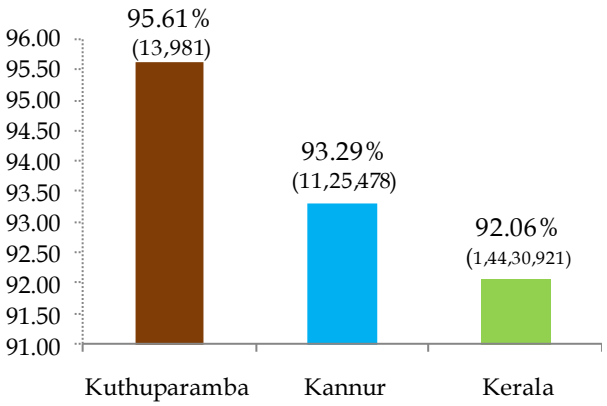


Figure 15.2 Comparison of Female Literacy rate with district and state

Kuthuparamba town ranks 1st position in literacy rate when compared with the similar municipal towns in the state. The comparison is shown as histogram in Figure 15.3.

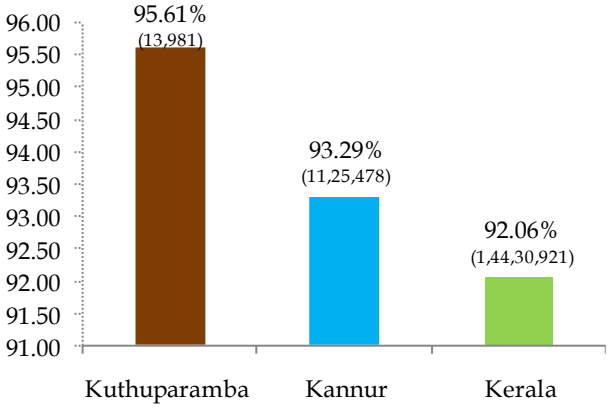


Figure 15.3 Comparison of literacy rate with similar municipal towns in the state

Comparative study on literacy rate of Municipal towns within the district reveals that Kuthuparamba town stands second in position , just behind Thalassery town and is closely followed by Kannur municipal town. The high literacy rate prevailing within the town indicates the significance of education sector. Payyannur town has the lowest literacy rate. Figure 15.4 gives a clear picture on the literacy rate of the municipal towns in Kannur district.

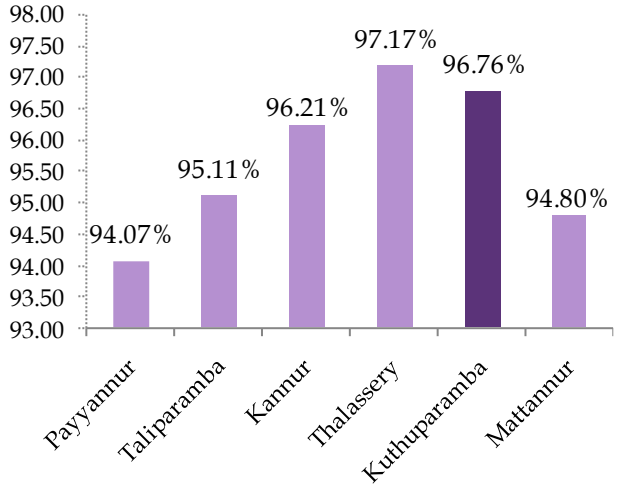


Figure 15.4 Comparison of literacy rate with other municipal towns in the district

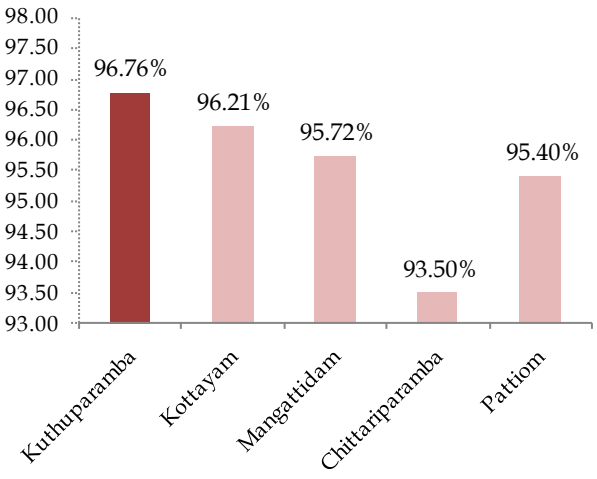


Figure 15.5 Comparison of literacy rate (%) with adjacent panchayaths

Comparison of literacy rate of Kuhuparamba town with adjacent panchayaths is shown in Figure 15.5. Kuthuparamba town stands first in position with a literacy rate of 96.76%, immediately followed by Kottayam panchayath (96.21%). The lowest rate is observed in Chittariparamba panchayath (93.50%)

15.1.2 Educational Status

In order to evaluate the present educational status of Kuthuparamba town, socio-economic survey has been conducted and the data so obtained is represented in Figure 15.6. It reveals that majority of the population in Kuthuparamba town belongs to High School educated group (29.79%) closely followed by primary education group (28.74%). The percentage of graduates and those with higher qualifications are less, indicating the backwardness in higher education facilities of the town.

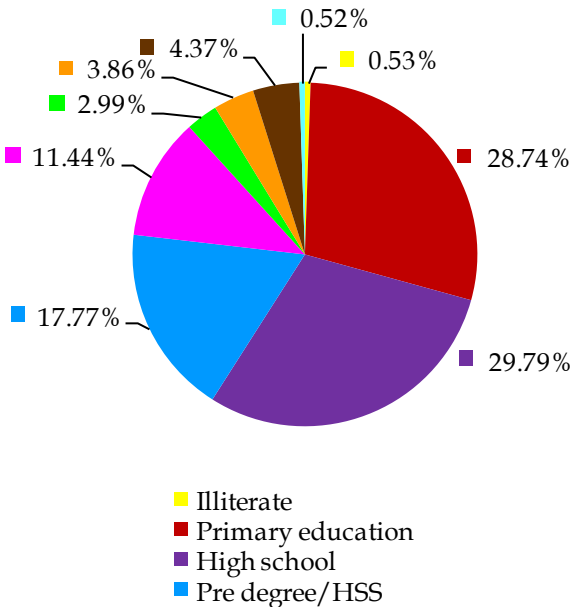


Figure 15.6 Present Educational Status

Sl No.	Name of school	Sl No.	Name of school
1	GLPS Kuthuparamba	16	South Kuthuparamba UPS
2	Ambilad LPS	17	Kuthuparamba UPS
3	Kunhambu Smaraka LPS	18	BEMUPS Kuthuparamba
4	Thrikkannapuram LPS	19	MES English Medium UPS Kuthuparamba
5	Central Naravoor LPS	20	Brennan E M School
6	Thrikkannapuram West LPS	21	Nirmala EM School
7	VVLPS Thrikkannapuram	22	Makdoomiya EM School
8	Naravoor LPS	23	Kuthuparamba HS
9	Naravoor North LPS	24	Amrutha Vidhyalayam
10	Naravoor South LPS	25	GHSS Kuthuparamba
11	Mooriyad Mappila LPS	26	Rani jai HSS,Nirmalagiri
12	Prince& Prince E M School	27	Buds(Snehadeepam Training Cente Mentally Retard)
13	Merit & Merit Public School	28	M G College
14	Gama international School	29	Academic College
15	Mooriyad Central UPS	30	Anzizia Muslim Vanitha College

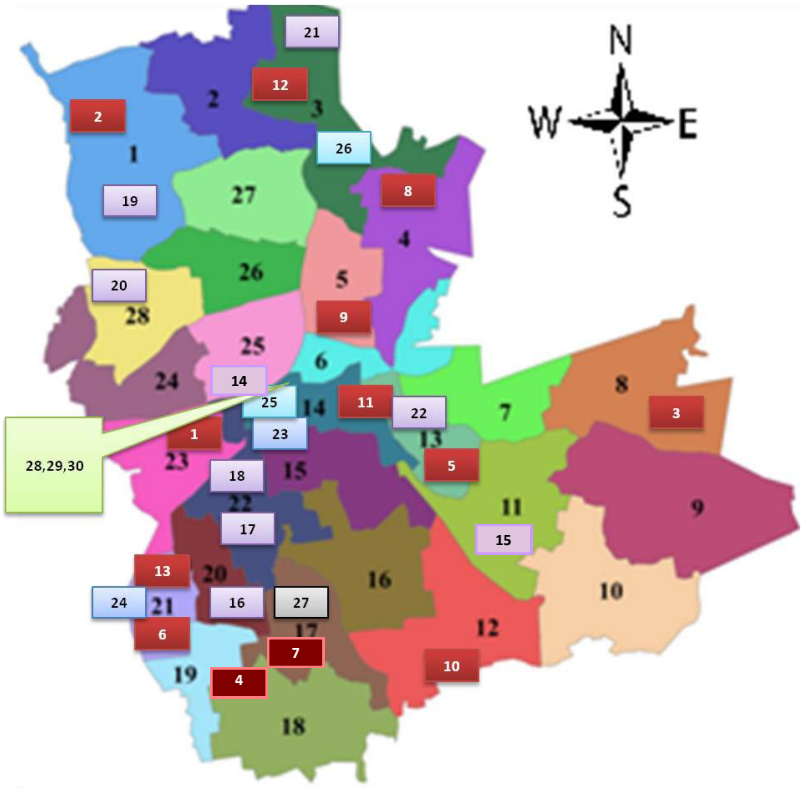


Figure 15.7 Location of Educational Institutions in Kuthuparamba town

Figure 15.7 shows the location of various educational institutions in Kuthuparamba town. From the figure, it is clear that most of the schools are located in the central part and northern part of the town. The south eastern part of the town has few Lower Primary Schools only. Their locations are shown in Figure 15.7. The unrecognized schools include Prince and Prince English Medium School, Merit and Merit Public School, Gama International School, Brennan English Medium School, Nirmala English Medium School and Makdoomiya English Medium School. Moreover, a Buds School is functioning at Thrikkannapuram under Snehadeepam Training Centre.

Table 15.1 gives a list of major educational institutes which includes Colleges, Higher Secondary Schools, Upper Primary Schools and Lower Primary Schools. The table also illustrates the ownership, whether government , aided or unaided. Majority of the schools in Kuthuparamba town are aided and all existing colleges are unaided. Aided schools follow State syllabus and unaided schools follow CBSE syllabus except Rani Jai Higher Secondary School, Nirmalagiri. There are a total of 6 unrecognized schools in Kuthuparamba and these are not listed in Table 15.1.

Details of teachers and students under various category is given in Table 15.2. The table reveals that there are no Vocational Higher Secondary Schools (VHSS) in Kuthuparamba town.

Table 15.1 Educational Institutions in Kuthuparamba town

No	Name of Institute	Government	Aided	Unaided
	Colleges			
1	M.G College			√
2	Academic College			√
3	Azizia Muslim Vanitha College			√
4	Christhu Raja School of Nursing			√
	Higher Secondary Schools			
1	GHSS Kuthuparamba	√		
2	Rani Jai HSS			√
	High School			
1	Kuthuparamba HS		√	
2	Amritha Vidyalayam			√
	Upper Primary School			
1	Mooriyad Central UPS		√	
2	South Kuthuparamba UPS		√	
3	Kuthuparamba UPS		√	
4	BEM UPS Kuthuparamba		√	
5	MES English Medium UPS Kuthuparamba			√
	Lower Primary School			
1	GLPS Kuthuparamba	√		
2	Ambilad LPS		√	
3	Kunhambu Smaraka LPS		√	
4	Thrikkannapuram LPS		√	
5	Central Naravoor LPS		√	
6	Thrikkannapuram West LPS		√	
7	VVLPS Thrikkannapuram		√	
8	Naravoor LPS		√	
9	Naravoor North LPS		√	
10	Naravoor South LPS		√	
11	Mooriyad Mappila LPS		√	
	TOTAL	***2***	***15***	***7***

Table 15.2 Details of teachers and students in Kuthuparamba town

Sl. No.	Category	Pre-primary Prima-ry	HS	HSS	VHSS	Total
1	Number of schools	16	2	2	0	20
2	Number of teachers	357	109	35	0	501
3	Number of students	8219	1958	858	0	11035

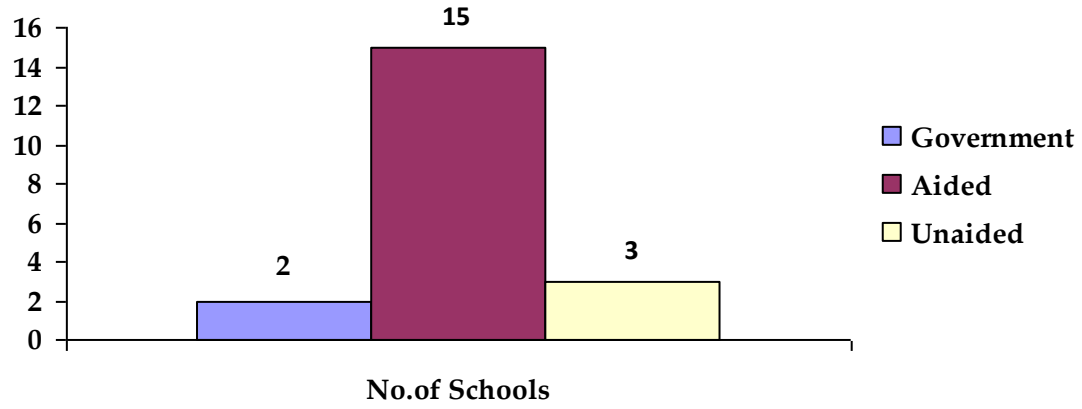


Figure 15.8 Ownership of schools in Kuthuparamba

Figure 15.8 shows the ownership details of the schools in Kuthuparamba town.

From figure it is clear that the number of schools under government, aided and unaided are 2, 15 and 3 respectively.

Figure 15.9 shows the 1 km radius buffering of Primary Schools in Kuthuparamba town .The existing primary schools serves almost the whole municipal area except a small portion in the south eastern region, in wards Punchakkalayi and Kolathuparamba.

Figure 15.10 shows 2 km radius buffering of Higher Secondary Schools in Kuthuparamba town. Higher secondary schools in Kuthuparamba serves all wards except 6 wards located in the south eastern part.

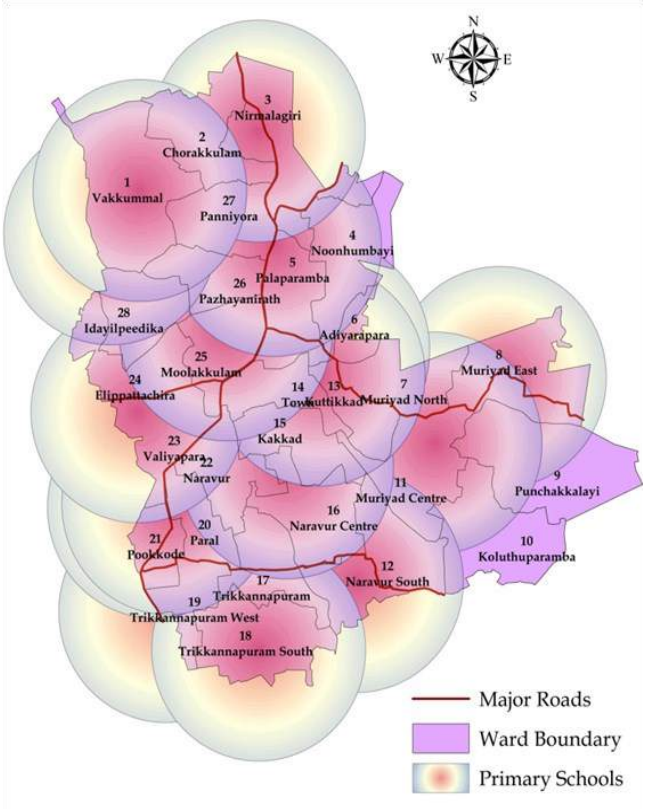


Fig 15.9 1km buffering of Primary Schools

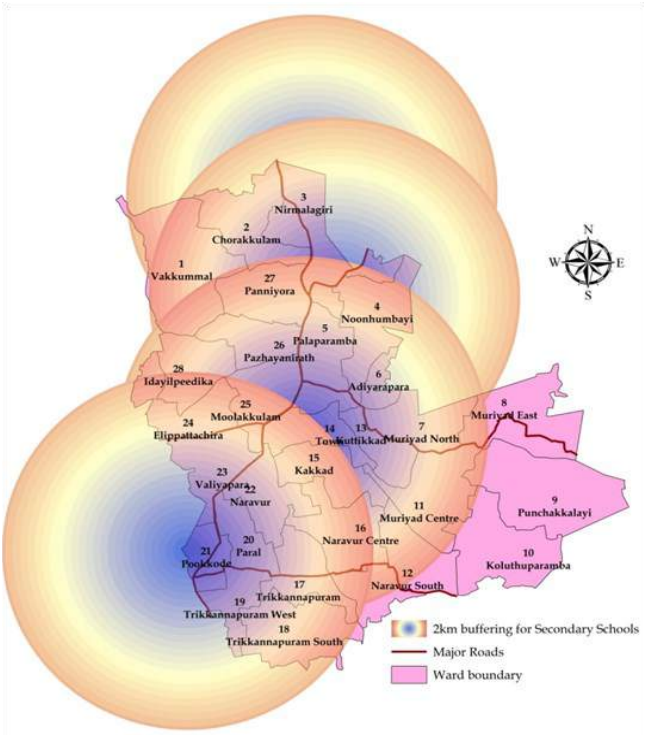


Figure 15.10 2 km buffering of HSS

15.1.3 Major Educational Institutions

»» **Nirmalagiri College**

Nirmalagiri College, Kuthuparamba is located in Nirmalagiri ward, but the major portion lies in Mangattidam panchayath. The college situated by the side of the Thalassery-Coorg highway has almost round-the-clock bus service at its doorsteps. The service area covers Kuthuparamba town as well as the neighbouring districts.



Nirmalagiri College, Kuthuparamba

Nirmalagiri College, a minority institution belonging to the Archdiocese of Thalassery, was established on 13th May 1964. One of the commendable achievements of the college was the setting up of central library in 1989 which isthe second largest under Kannur University with more than 40,000 volumes and about 65 journals apart from the department stocks and subscriptions. The college campus has good infrastructural facilities and offers under graduate as well as post graduate courses. The computer centre functioning within the campus has international accreditation.

College of Applied Science, Kuthuparamba

College of Applied Science under Institute of Human Resources Development (IHRD) is affiliated to the University of Kannur and has been established in 2000 with regular courses of B.Sc (Computer Science), B.Sc (Electronics) and B.Com with Computer Application. The institute offers Post Graduate courses, viz. M.Sc (Computer Science) and M. Sc (Electronics). It is located in Kottayam panchayath, along Chovva –Kuthuparamba road (near Purakkalam Junction) and is only 1 km far from Kuthuparamba Bus stand.

»» **MES College, Kuthuparamba**

MES college, Kuthuparamba is located in Naravoor South ward of Kuthuparamba town. It is an educational institution envisaged by the Muslim Educational Society, Calicut founded in 1964 and is the first college of MES affiliated to Kannur University. The courses offered includes BBM, B. Sc (Computer Science), B.Com and BBA.

»» **MG College, Kuthuparamba**

Mahatma Gandhi College, Kuthuparamba is located in Kuthuparamba town along Thalassery –Coorg State Highway. The college is under private sector.

»» **Gramika Insitute of Management and Communication, Kuthuparamba**

The institute is located at Paral, Kuthuparamba and is a partner institution of Bharatiar University. The various courses offered includes BBA, BBM, BCA, B. Com and B. Sc (Visual Communication, Multimedia and Web Technology, Maths). The Post Graduate courses offered here are MBA, M. Com and MA (Mass Communication and Journalism). It also offers PG Diploma in Mass Communication and Journalism.

Nirmalagiri College and Rani Jai Schools are very popular educational institutes in Kuthuparamba town, but only a small portion of college lies within the municipal area. Major portion lies in the neighbouring panchayath, namely Mangattidam.

15.1.4 Infrastructural Facilities

Considering the physical infrastructure, all High Schools have play ground, but some of the Lower Primary schools and Upper Primary schools lacks this facility. There is water availability in all schools and most of them depend on wells. All schools are well connected with motorable roads. High Schools have separate toilets for girls, but this facility is not provided in some Primary Schools. Computer lab and internet facilities are provided in all High Schools.

As per URDPFI Guideline infrastructural facility demand on 2031 are 7 numbers of primary schools and 4 senior secondary schools. All other categories of educational institutions are far above the demand. Future

The details including the courses offered, no of students, teaching and non teaching staff are given in Table 15.3. The only professional college is the Christu Raja School of Nursing and the details are given in Table 15.4..

Table 15.3 Arts and Science Colleges(Parallel Colleges)

Sl. No.	Name of College	Location	Whether having PG	Number of students course wise				Number of Students	No. of teachers	No. of non teaching staff
				Plus 2	BA	B.Com	M.Com			
1	M G College	Near Municipality	N	600	175	240		1015	13	0
2	Academic College	Near Market	N	140		47		187	6	0
3	Azizia Muslim Vanitha College	Kannur Road	N	60				60	4	0

Table 15.4 Professional Colleges

Sl. No.	Name of College	Details of owner ship	Location	Specify the course	Number of students course wise	No. of Teachers	No. of non-teaching staff
1	Christhuraja School of Nursing	Trust	Thokkilangadi	General Nursing	75	9	2

15.2 DEVELOPMENT POTENTIALS AND PROBLEMS

15.2.1 Potentials

Nirmalagiri College, MES College, MG College, Gramika Institute of Management and Communication, Rani Jai HSS and Amrita Vidyalayam are the major potentials of Kuthuparamba town in this sector. These educational institutions possess almost all basic infrastructural facilities. Moreover, the High schools and Primary schools in Kuthuparamba town are also quite sufficient at present. Agricuture, being the predominant sector, there is abundant scope for the starting up of Agriculture Guidance and Research Centre. The Kannur International Airport in Mattannur offers enormous scope for Aviation related courses.

15.2.2 Problems

Even though Kuthuparamba town possess adequate number of educational institutions upto graduate level, most of the colleges are offering only conventional courses and are under private sector too.

There are no higher order educational institutions of regional importance in Kuthuparamba town. Moreover, skill acquisition and career advancement centres need to be introduced within the town. The existing infrastructural facilities in all primary schools need to be improved. Library, computer lab and internet facilities should be provided in all schools.

15.3 INFERENCE

The only professional college in Kuthuparamba town is the Christuraja School of Nursing. The absence of other professional colleges is one of the major drawback of the sector. But the good road connectivity of the town enables the people to depend on nearby towns for higher order education. With the proper co-ordination of existing facilities , the town can be developed as a higher order education centre. The present status of the town reveals that there is enough scope for courses related to agriculture and aviation. Considering the opportunities that may arise due to the proximity of Kannur International Airport, Entrepreneurial Support System and Facility for Start-ups may be introduced.

Chapter 16
HEALTH

16.1 ANALYSIS OF EXISTING STATUS

The chapter deals with the existing status of Health sector in Kuthuparamba town. Details regarding the infrastructure facilities, location of health centres, and diseases occurred during last 5 years are also dealt in this chapter.

At present, there are 5 Allopathic Hospitals in Kuthuparamba among which only one belongs to Government sector. Regarding Ayurvedic Hospitals in Kuthuparamba town, only one is under government sector and the remaining three are under private sector. In Homeopathic system of medicine, one Govt. hospital and 3 private hospitals exist. The system of medicine in Kuthuparamba town is such that only 4 hospitals are provided with bed facilities.

Location of major hospitals in Kuthuparamba town and the available infrastructural facilities are described in detail below.

16.1.1 Major Hospitals in Kuthuparamba town

The major hospitals in Kuthuparamba town are listed in a tabular form in Table 16.1.

- ***Taluk Hospital, Kuthuparamba***

Taluk hospital is one of the major hospital in Kuthuparamba town and is located in the heart of Kuthuparamba town along the major corridor. Hospital is functioning under Government sector and is facilitated with 12 doctors and 153 beds



- ***Christhuraja Hospital***

Christhuraja hospital is located in Thokkilangadi and is another important hospital in Kuthuparamba town. There are 10 doctors serving the hospital and the number of beds provided is 250. The hospital belongs to private sector.

- ***Co-operative hospital, Kuthuparamba***

Kuthuparamba Co-operative hospital is also located in Kuthuparamba town and is functioning under co-operative sector. The total number of doctors working in this hospital are 9 and has 28 beds. New building for this hospital is under construction.



- ***Government Homeo Dispensary***

Government Homeo Dispensary is located at Naravur.

- ***Government Ayurveda Dispensary***

Government Ayurveda Dispensary is situated near Co operative hospital. The hospital is served by a single doctor. In addition to this, the infrastructure facilities of existing building are very poor and hence needs improvement. There are no bed facilities in this dispensary.

- ***Malabar Sanjeevani Ayurvedic Hospital***

Malabar Sanjeevani is the only one ayurvedic hospital in Kuthuparamba town area with 10 number of beds. Hospital is located in Kuttikkunnu.

- ***Family Welfare Sub centre , Mooriyad***

A Family Welfare Sub centre is functioning at Mooriad in Kuthuparamba town. It aims at the treatment and control of various lifestyle diseases.

- ***NCD Clinic, Naravoor***

Non communicable lifestyle diseases pose a huge threat to the health of the public and hence a non communicable diseases prevention and control programme has been launched in the state. As a part of this programme, Non Communicable Diseases (NCD) clinics were started in many regions. One of them is functioning at Naravoor in Kuthuparamba town.

Table 16.1 List of hospitals in Kuthuparamba town

Allopathic system of medicine

Sl. No.	Name of Hospital	Location	Number of beds	Number of Doctors	Govt./ Private/ Co-operative
1	Taluk Hospital,Kuthuparamba	Kuthuparamba	153	12	Govt.
2	Christhuraja Hospital	Thokkilangadi	250	10	Private
3	Co-operative Hospital Kuthuparamba	Kuthuparamba	28	9	Co-operative
4	Kalyan Lying in Hospital	Thalassery Road		1	Private
5	Abdullakutty Memorial Hospital	Kannur Road		1	Private
6	Rajni Clinic	Palathumkara		1	Private
7	Rajeev Clinic	Thokkilangadi		1	Private
Ayurvedic system of medicine					
1	Govt. Ayurveda Dispensary	Kuthuparamba	Nil	1	Govt.
2	Malabar Sanjeevani Ayurvedic Hospital	Kuttikunnu	10	1	Private
3	Amruthakalpa Nursing Home	Treasury Road		1	Private
4	Amruthakalpa Vaidyasala	Thalassery Road		1	Private
Homeopathic system of medicine					
1	Govt. Homeo Dispensary	Naravoor		1	Govt
2	Homeopathic Medical Centre	Thalassery Road		1	Private
3	Homeopathic clinic	Gokul Street		1	Private
4	Adarsh Homeo Clinic	Juma Masjid Complex		1	Private

Table 16.2 Details of major hospitals

Sl. No.	Name	Existing Facilities & Services	Future Plans
1	Taluk Hospital, Kuthuparamba	Operation theater, Labour room, Pharmacy, Lab, X-ray, Dental, Physiotherapy, ICTC, Mortuary, E.C.G, RNTCP (DOTS), Palliative unit, Gynaecology, Ortho, Pediatric, Ophthalmology, ICU (24hr), P.P unit,	Dialysis, Ophthalmic theater, Blood storage unit, Drug controller
2	Co– Operative Hospital, Kuthuparamba	Labour room, Scanning room, X-ray, Operation theater, General medicine, Surgery, Ortho, Gynaecology, Pediatric, Dermatology, Rheumatology, Oncology, Physiotherapy, Lab, Pharmacy, Scanning, Ambulance	
3	Christhuraja Hospital, Thokkilangadi	Operation Theater, Surgical unit, Gynecology unit, Pediatric, Ortho, Dermatology, X-ray, Scanning, Lab, Pharmacy, ICU, Palliative care unit, AC Ambulance, Mobile freezer	
3	Kalyan Lying in hospital	General Medicine, Dermatology, Ophthalmology	
4	Abdullakutty Memorial Hospital	General medicine, Dental	
5	Rajeev Clinc	Offers treatment for various problems related to gynecology without surgery	
6	Rajini Clinic	General medicine, Pediatric, Scanning, X-ray, Lab, E.C.G	

The details of existing facilities and future plans of major hospitals in Kuthuparamba town are given in Table 16.2.

Three major allopathic hospitals in Kuthuparamba town namely, Taluk hospital, Co– operative hospital and Christhuraja hospital. These hospitals possess all basic infrastructural facilities, butt lack modern techniques provider of super specialty hospitals.

Location of various hospitals in Kuthuparamba town is shown in Figure 16.1.



Figure 16.1 Location of major hospitals in Kuthuparamba town

16.1.2 Studies on health issues

Health issues that existed in Kuthuparamba town were studied and analysed based on socio economic survey. Major diseases that occurred and percentage of houses diagnosed with various diseases is represented as pie chart in Figure 16.2.

Socio Economic Survey was conducted in the year 2010 as a part of the preparation of Master Plan for Kuthuparamba Town. The details of major diseases that occurred in the town during

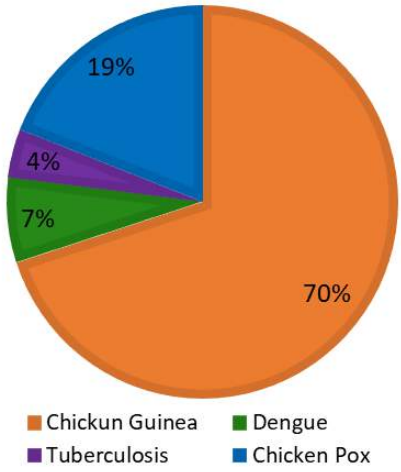


Figure 16.2 Percentage of various diseases diagnosed in Kuthuparamba town

the past five years were collected for analysis purpose. Chickun Guinea (70%) was reported as the major disease of the town during the last five years. Another major disease diagnosed was Chicken pox (19%) followed by Dengue fever and Tuberculosis.

16.2 DEVELOPMENT POTENTIALS AND PROBLEMS

16.2.1 Potentials

The expansion of the existing hospitals will definitely improve the medical facilities in the town thereby improving the general health of the people, both residing in the town as well as adjacent panchayaths. Kannur International Airport situated near Kuthuparamba town offers enough scope for the health sector. By promoting ayurvedic medicines and establishing ayurvedic resorts, the tourists from various parts can be attracted towards Kuthuparamba town.

16.2.2 Problems

The existing infrastructural facilities and medical equipments in hospitals of Kuthuparamba town are inadequate. At present there are no super specialty hospitals in the planning area. Hence the people have to depend on hospitals outside the municipal area to meet their necessities. Moreover, most of the hospitals functioning within the town area are under private sector. Taluk hospital is the only government hospital in the town and needs upgradation.

16.3 INFERENCE

In Kuthuparamba town, the health sector needs improvement as the existing facilities are inadequate. The Taluk Hospital may be upgraded so as to meet the necessities of the public. There are no super specialty hospitals within the municipal area, hence introduction of modern techniques and medical instruments are essential for the proper diagnoses of various diseases. Also measures need to be taken to improve waste management techniques and quality of drinking water thereby ensuring the safety of the people against various health hazards. The potentiality of the sector is foreseen in the promotion of ayurveda as the town is very close to the Kannur International Airport.

Chapter 17
HOUSING

17.1 ANALYSIS OF EXISTING STATUS

The chapter deals with the residential land use of Kuthuparamba town, house hold size, presence of slums and the available facilities, existing housing schemes in the town etc. The various problems and potentials of this sector are analysed and are dealt in this chapter.

17.1.1 Residential land use

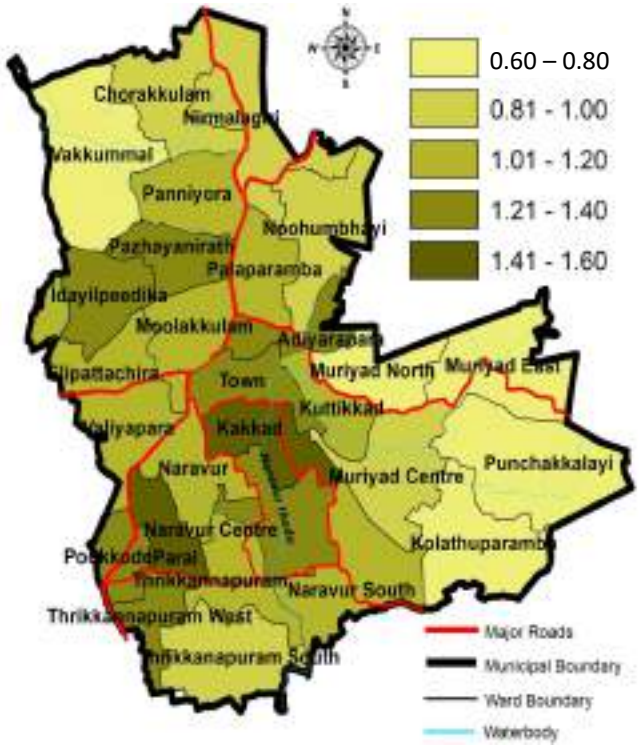


Figure 17.1 Residential concentration

The residential land use is found scattered in almost all parts of Kuthuparamba town. At present, there are no multi storied apartments within the town area. About 63.54% of total land area (10.65 Ha) is occupied by residential land use. Residential land use is mainly concentrated in central and south western portion of the town. Ward wise residential concentration in Kuthuparamba town is shown in Figure 17.1.

17.1.2 House hold size

Number of persons occupied in a house is known as house hold size. Number of house holds in Kuthuparamba town is 6,465 and number of houses are 6331. Comparison of house hold size in Kuthuparamba town is shown in Figure 17.2

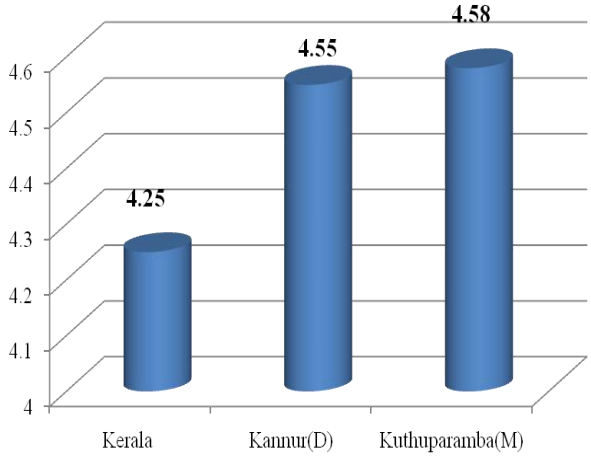


Figure 17.2 House hold size - comparison with district and state

House hold size of Kuthuparamba town is more when compared with district and state values. The comparison of house hold size with other municipal towns in the district during last two decades is shown in Figure 17.3.

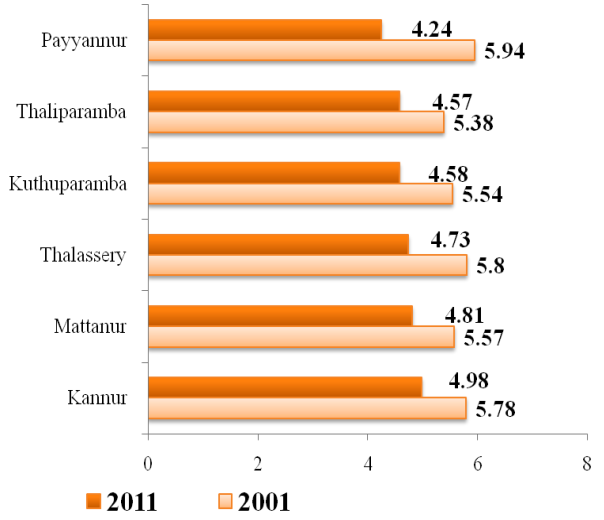


Figure 17.3 House hold size - comparison with other municipal towns

Figure 17.3 shows that house hold size of all municipal towns in the district shows a decreasing trend during the last decade. Kuthuparamba town ranks 4th position in house hold size as per census 2011.

Comparison of house hold size with adjoining local bodies of Kuthuparamba town during 2001 and 2011 are shown in Figure 17.4a and 17.4b respectively. During 2001, house hold size is observed to be highest (5.51 - 6.00) in Kuthuparamba town and Kottayam panchayath. All other local bodies have house hold size ranging between 5.0 and 5.50.

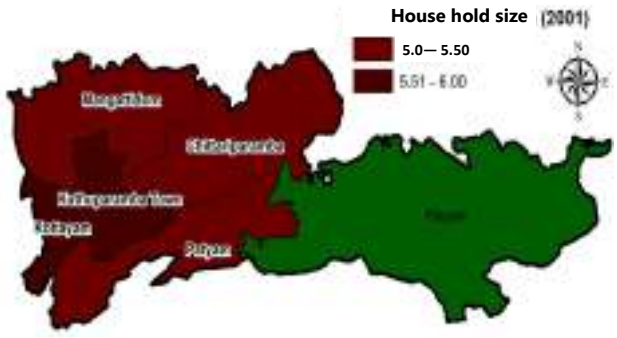


Figure 17.4a House hold size -comparison with adjoining panchayaths during 2001

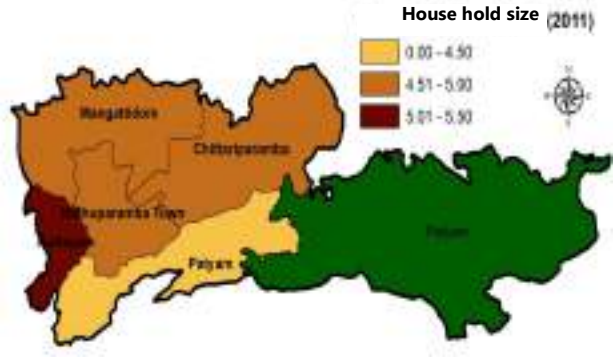


Figure 17.4b House hold size -comparison with adjoining panchayaths during 2011

During 2011 house hold size shows a decreasing trend in Kuthuparamba town and all adjoining panchayaths. Highest house hold size is observed in Kottayam (5.01 - 5.50). Pattiyam shows comparatively low house hold size of 4.50 .

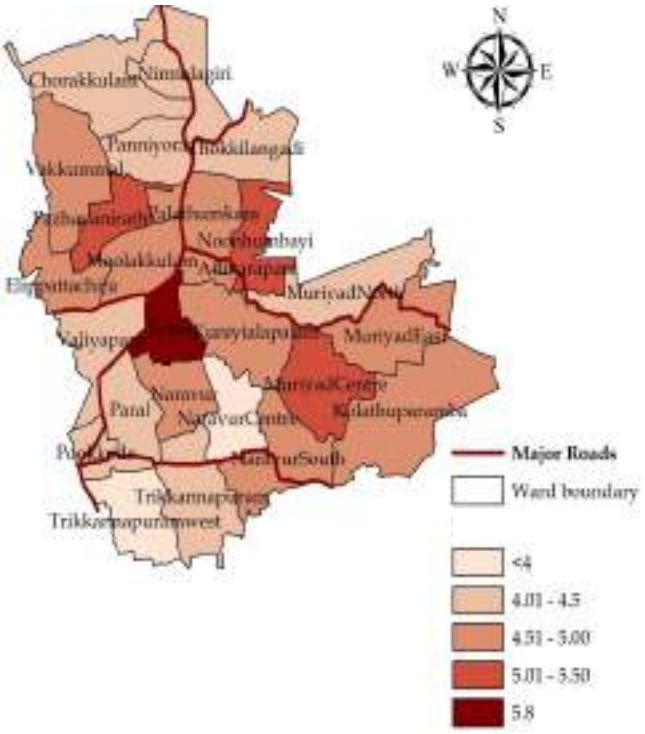


Figure 17.5 Ward wise distribution of house hold size

Ward wise distribution of house hold size in Kuthuparamba town is shown in Figure 17.5. Highest house hold size of 5.8 is observed in Town ward located in the heart of

Kuthuparamba municipal area, along the major corridors. House hold size is less than 4 in two wards, namely Naravur Centre and Trikkannapuram West.

17.1.3 Infrastructure facilities

The data regarding plinth area, category of buildings, materials used for the construction of roof, floor and wall are obtained from socio economic survey conducted in Kuthuparamba town.

Figure 17.6 shows the categorization of buildings according to plinth area as per socio economic survey. It reveals that about 49% of houses are having plinth area varying from 75 to 150 m² followed by 50 to 75 m² (30%). Houses having plinth area greater than 250m² constitutes only 2% whereas those with plinth area less than 20m² is negligibly small.

Buildings are classified into 4 categories namely hut, pucca, moderate and kutcha . Figure 17.7 indicates the percentage variation of houses for different types of building. Majority of houses belongs to pucca category (58.10%) followed by moderate houses (40.38%). Kutcha houses in Kuthuparamba town is only 1.37 % and percentage of huts are negligibly small.

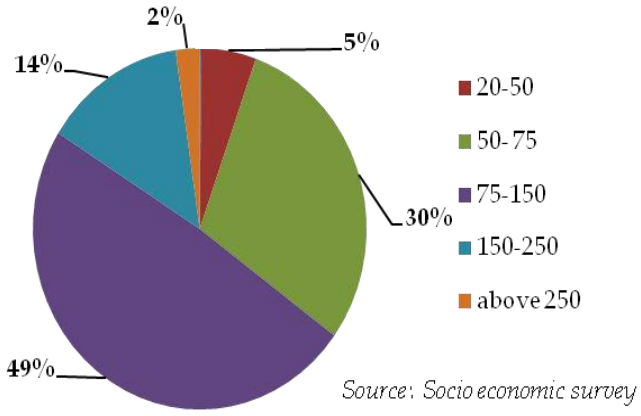


Figure 17.6 Percentage variation of houses in each range of plinth area (sq.m)

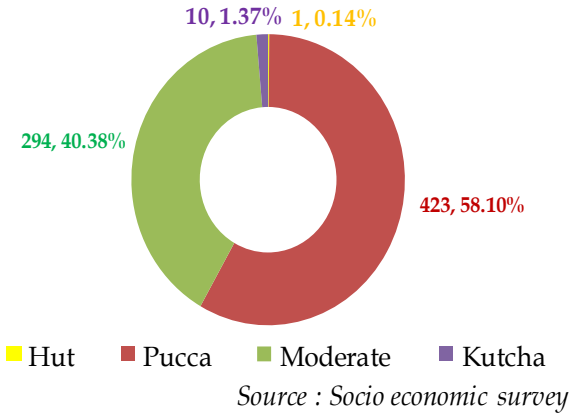


Figure 17.7 Percentage variation of houses for different types of building

Materials used for flooring includes marble, cement, mosaic, earth, ordinary tiles and others. The percentage variation of different types of floors in houses is shown in Figure 17.8.

As per the socio economic survey conducted in Kuthuparamba town, about 40.41% of the houses possess cement flooring followed by marble flooring (30%) and mosaic flooring (7.97%). However, the houses with mud floors and ordinary tiled floors are below 1%.

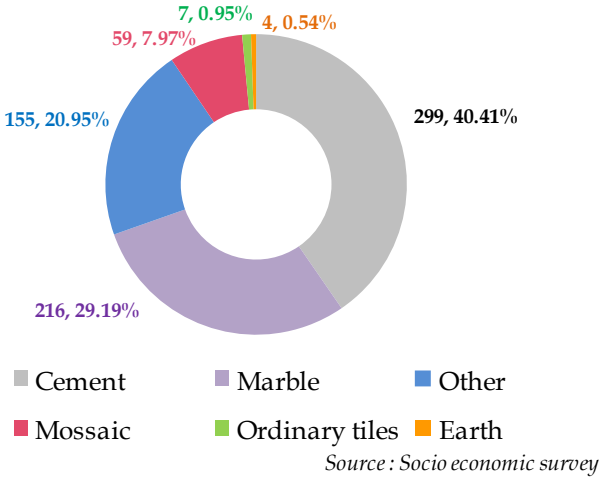


Figure 17.8 Materials used for flooring of houses

Figure 17.9 shows the percentage variation of houses in Kuthuparamba town based on different types of walls constructed. Materials used in the construction of walls include earth blocks and bricks. The various types of walls constructed are brick walls, earth block walls, brick plastered walls and earh blocks plastered walls.

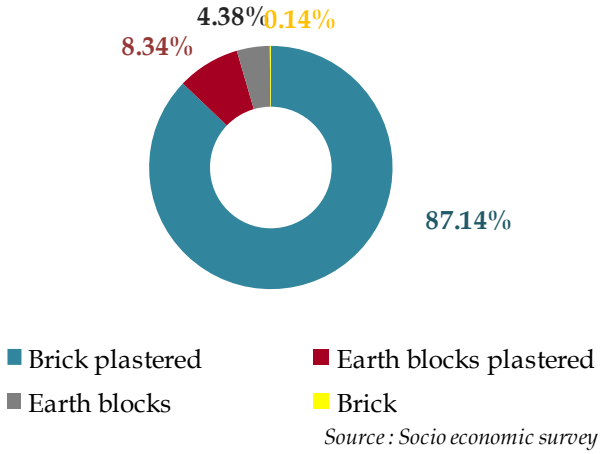


Figure 17.9 Materials used for the construction of walls

Majority of the houses have brick plastered walls (87.14%) followed by earth blocks with plastering (8.34%). Walls with out plastering is less than 5%.

17.1.4 Slums

A slum is a house or a neighbourhood that is in poor condition and that is generally considered unsafe and not nice to live or be in. According to the secondary data obtained from survey, 4 slums were identified in Kuthuparamba town. Detailed study has been conducted to collect the data regarding the status of these slums and the data so obtained is given in Table 17.1. The location of slums in Kuthuparamba town is shown in Figure 17.10.

There are a total of 158 houses that exists as slums and all these houses falls under the category of pucca buildings. The total number of house holds in slums accounts to 584 .



Figure 17.10 Location of slums in Kuthuparamba town

Table 17.1 Details of slums

Sl. No.	Name of Slum	Place	No. of Houses	No. of Household	Housing Category		
					Pucca	Moderate	Kutcha
1	Thokkilangadi Laksham veedu Colony	Palaparambu	66	264	Y		
2	Thrikannapuram laksham veedu colony	Thrikannapuram	54	153	Y		
3	Sooryamkunnu laksham veedu colony	Near Nirmalagiri	13	40	Y		
4	Pookode laksham veedu colony	Pookode	25	127	Y		



Punchakalayi Ashraya Colony

- ***Slum Improvement Schemes***

i) Valmiki Ambedhkar Avasan Yojan (VAMBAY) Housing Scheme (2005 – 2006).

Valmiki Ambedhkar Avasan Yojan (VAMBAY) intends to provide housing along with physical infrastructure to the urban poor. Total beneficiaries selected in Kuthuparamba town were 72 houses and all these houses were completed in this project. Total expenditure of this project was about Rs. 28,80,000.

ii) Integrated Housing and Slum Development Programme (IHSDP) Scheme (2007– 2008)

Integrated Housing and Slum Development Programme aims to have an integrated approach in ameliorating the conditions of the urban slum dweller who do not possess adequate shelter and reside in dilapidated conditions. The project period commenced from 2007—2008 with an expenditure of about Rs. 97,94,000 in Kuthuparamba town. In the planning area, four clusters were selected for this scheme. Here 30 new houses were constructed and 13 houses were renovated 13. Total estimated cost of this project in Kuthuparamba town was about Rs. 82.3 lakhs.

iii) E.M.S Housing Scheme (2008 – 2009)

The EMS housing scheme of Govt. of Kerala targets housing for the poor, providing support to the tune of Rs. 75,000 to individual beneficiaries. In Kuthuparamba municipal area total beneficiaries selected were 120, out of which 103 houses were completed. Total expenditure of this project was about Rs. 8,41,000.

17.2 DEVELOPMENT POTENTIALS AND PROBLEMS

17.2.1 Potentials

In Kuthuparamba town, the housing sector has great potential due to the easy accessibility provided by the existing road network and

available infrastructural facilities. This has been proved by the high residential concentration in Kuthuparamba town. Moreover, the socio economic survey conducted within the town shows that majority of the houses fall under the category of pucca buildings followed by moderate buildings. The newly opened Kannur International airport in the nearby town will definitely enhance the housing demand in Kuthuparamba town in the near future.

17.2.2 Problems

Even though the residential land use is predominant in Kuthuparamba town, the residents face several problems. The study and analysis reveals that the household size has decreased from 5.54 to 4.58 during the last decade indicating the chances for demand of more houses in future. 4 slums are identified in Kuthuparamba town, most of them being located along the periphery of the municipal area. The details regarding the present status, housing shortage and future demand will be illustrated in the forth coming chapter, 'Projected Requirements'.

17.3 INFERENCE

The major single land use in Kuthuparamba town is residential (63.54%). The house hold size ranges from 3.90 to 5.80 and the ward with highest house hold size is the Town ward located in the central portion of Kuthuparamba town. The slightly lower values observed in the northern and southern part may be due to out migration in search of job whereas the higher value in the central portion shows that the area is thickly populated and the need for more houses in future. Various slum improvement schemes were carried out during 2005 - 2009 and was found to be very effective in constructing new houses as well as renovating the existing houses. The total number of houses in the municipal area are 6331 and the total household is 6465 and this clearly depicts the high residential activity prevailing within the municipal area. Hence, at present there is no significant shortage of houses in Kuthuparamba town.

Chapter 18
RECREATION AND CIVIC AMENITIES

18.1 ANALYSIS OF EXISTING STATUS

The chapter deals with the availability and existing conditions of recreational facilities and civic amenities in Kuthuparamba town.

18.1.1 Recreation

Recreation is essential to the longevity of humans because it assists with lowering stress levels. Organized recreational activities can be found at local parks, schools, churches, etc. These types of programs are successful because they include recreation for the entire family.

A) Parks and Playgrounds

As far as the recreational facilities of Kuthuparamba town are concerned, there exist play grounds, community halls and libraries. At present there are no established parks within the town area. Details of play grounds and stadium in Kuthuparamba town are given in Table 18.1



Open ground near Kuthuparamba Bus Stand

In Kuthuparamba, there are two open grounds, a municipal stadium and a town square within the town area. Municipal stadium is located at the heart of Kuthuparamba town with an area of 1.47 Hectares. An open ground of 1.41 Hectare is located in Kuthuparamba High School. Town Square located inside the Maroli Ghatt is yet another potential of this sector in Kuthuparamba town.

B) Community Halls/ Town Halls

There are a total of five community halls namely Municipal Town Hall, Rural Bank Auditorium, IMA (Indian Medical Association) Hall, City Auditorium, Vanitha Community Hall and Sree Narayana Guru Smaraka Mandhir Kalyana Mandapam

Municipal community Hall: – Kuthuparamba Municipal Community Hall is located in the core area of the town. It has a capacity of about 600 persons which is the highest carrying capacity when compared with other halls.



Kuthuparamba Municipal Town Hall

Table 18.1 Details of open ground and stadium

SI No.	Facilities	Name	Location	Area
1	Stadium	Municipal Stadium	Kuthuparamba	1.47 Ha
2	Town Square	Maroli Ghatt	Kuthuparamba	0.042 Ha

IMA (Indian Medical Association)Hall :- Indian Medical Association is the only representative voluntary organization of doctors of modern scientific system of medicines which looks after the interest of doctors as well as the well being of community at large. IMA Hall is located in Kuttikkunnu with a capacity of 250.



I M A Hall, Kuthuparamba

Vanitha community hall is located along the Treasury road with a capacity of 80.

The City auditorium located in Kaniyamkunnu has a seating capacity of 480.

C) Cinema Theatre

Only one cinema theatre exixts in Kuthuparamba town. BABY theatre is the only one functioning today. The theatre with two screens is situated in the town area, along Kannur – Kuthuparamba road.

D) Libraries and other recreational centers

At present there are a total of 19 libraries in Kuthuparamba town and are found scattered within the municipal area. Some of the important libraries in Kuthuparanmba town includes Municipal Library, Grameena Vayanashala (Thrikkannapuram), Sree Narayana Guru Smaraka Vayanashala (Thrikkannapuram), Sree Vaghbadanandha Gurudeva Smaraka Vayanashala (Naravoor South), Mooriyadu Grameena Vayanashala, etc.

Other recreational centres are Arts and Sports Club (13 numbers), Cultural Centres (8 numbers), Drama Theaters (2 numbers) and an Arts Training Centre.

18.1.2 Civic Amenities

The existing civic amenities in Kuthuparamba town includes Munsiff Court, Judicial Magistrate Court, Family Court, Kuthuparamba Municipal Office, Kuthuparamba Police Station, Office of the Excise Circle Inspector, Circle Inspector Office, Kuthuparamba Village Office, Kuthuparamba Block Panchayath Office, Office of Assistant Engineer (P.W.D), Office of Assistant Executive engineer (L.S.G.D), K.S.E.B Section Office, Commercial Tax Office, Office of the Assistant Educational Officer (AEO), Office of Sub Registrar, Land Tribunal Office and three Post Offices. Location of certain major civic amenities in Kuthuparamba town is given in Table 18.2.

Table 18.2 Location of major civic amenities

Sl. No.	*Name*	*Location*
1	Munsiff Court	Kuthuparamba
2	Magistrate Court	Kuthuparamba
3	Police Station	Kuthuparamba
4	Post Office	Kuthuparamba Nirmalagiri Muriyadu North

A fire station is situated in Kuttikkunnu ward. It possess two fire engines with tank capacity of 8,300 litres and another ground tank having a capacity of about 12,000 litres. The Fire station is well equipped with all basic facilities. Almost 30 staffs are working here.

A public crematorium namely Shanthivanam is located in Punchakalayi ward of Kuthuparamba town.



Fire Station, Kuthuparamba



Shanthivanam –Public Crematorium

18.2 DEVELOPMENT POTENTIALS AND PROBLEMS

18.2.1 Potentials

The major potentials regarding recreation is the 'Town Square' at Maroli Ghatt and the Municipal Stadium. Various Community Halls and Auditoriums located within the town area serves as a venue for public meetings, seminars and marriage functions. The major civic amenities include all the public offices in Kuthuparamba town, the public crematorium namely 'Shanthivanam'.

18.2.2 Problems

In Kuthuparamba town, there are no Children's Park . The available open spaces may be utilized for these purposes to attract children and tourists. The existing play grounds belong to schools and hence are not open to public. Proper location needs to be identified for developing parks and playgrounds. The basic infrastructural facilities in community halls and libraries need to be improved and properly maintained. There are no open air theatres and art galleries in Kuthuparamba town.

18.3 INFERENCE

The 'Town Square' at Maroli Ghatt may be developed as an important Heritage site and the Municipal Stadium in Kuthuparamba town has to be upgraded. Lack of enough playgrounds and recreational facilities at present necessitates the development of infrastructural facilities for entertainment . Above all, the promotion of various cultural activities will make the city more lively and vibrant.

Chapter 19
SOCIAL WELFARE

19.1 ANALYSIS OF EXISTING STATUS

The chapter deals with the analysis of the present status of weaker section of the society namely women , children, old aged people, BPL (Below Poverty Line) families and people belonging to Scheduled Caste and Scheduled Tribes (SC/ST).

19.1.1 Women welfare

As per 2011 Census, in Kuthuparamba town out of total population (29,619), the number of females is 16,165 which accounts to 55% of total population. It is represented as pie chart in Figure 19.1.

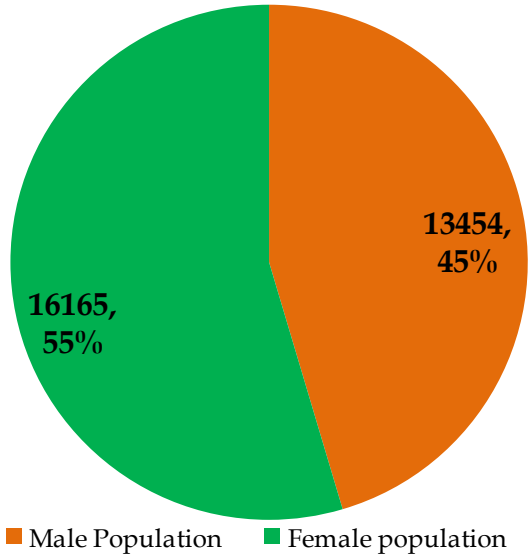


Figure 19.1 Percentage of male and female population

In Kuthuparamba town percentage of male workers with respect to male population is 52.67% where as percentage of female workers with respect to female population is only 15.90%.

A ladies hostel is functioning in Kuthuparamba town and is under the ownership of Kuthuparamba municipality.

Kudumbasree is the main organization working for the welfare of women and children. At present there are 12 Kudumbashree units in Kuthuparamba town and are found scattered within the municipal area. Three Kudumbasree units exists in Town ward and two in Panniyora ward. Location of Kudumbasree units in Kuthuparamba town is shown is Figure 19.2.

19.1.2 Child Welfare

Population in the age group 0—15 is

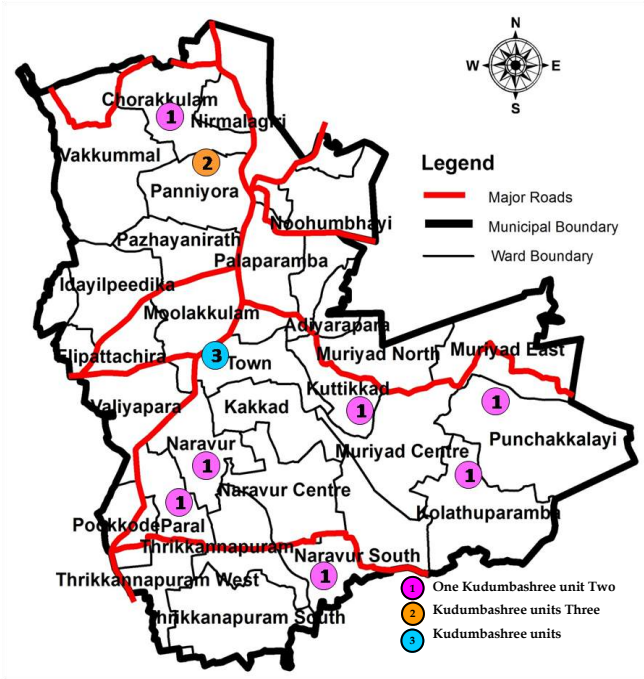


Figure 19.2 Kudumbashree units in Kuthuparamba town

categorized as child group. Percentage of population in the age group 0– 6 in Kuthuparamba town is only 10.5% of total population. Age sex ratio of Kuthuparamba town shows a decreasing trend during the last decade. As per Census 2011, child sex ratio is 958. Anganvadies are grass root level delivery point of social welfare activities. There are 26 anganvadies in Kuthuparamba town which are again scattered all over the municipal area. Location of anganvadies in Kuthuparamba town is shown in Figure 19.3.

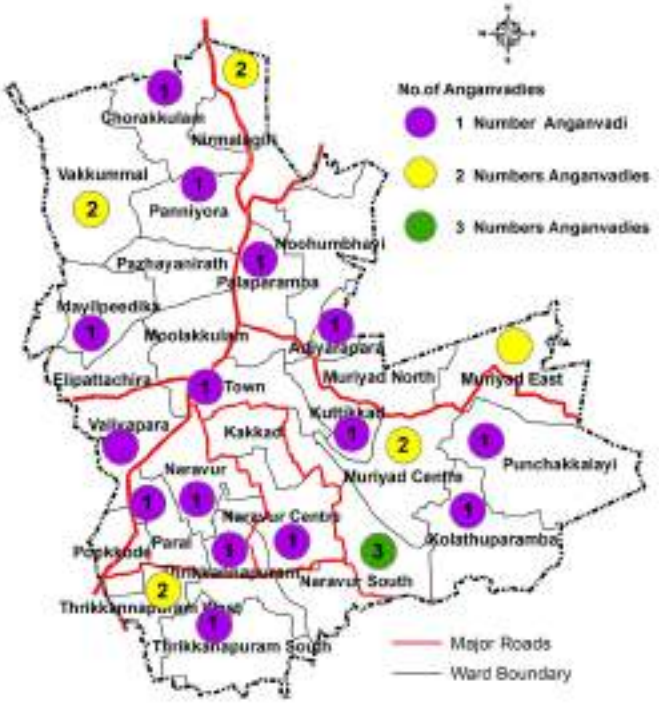


Figure 19.3 Location of Anganvadies in Kuthuparamba town.

Three Anganvadies exists in Naravoor south ward and 2 each in Nirmalagiri, Vakkummal, Muriyadu east, Muriyadu centre and Thrikkannapuram west wards. The quality of Anganvadies need to be enhanced by improving the existing infrastructure facilities like water supply, toilet facilities, playing equipments etc.

19.1.3 Old aged welfare

People with age above 60 years comes under the old aged group. An old aged home known as Snehanikedhan is functioning within the municipal area with all basic facilities and good infrastructure. It is located near Palaparamba.

In addition to this, a rest house for the old aged is functioning within Kuthuparamba town under the ownership of Kuthuparamba municipality.



Snehanikethan– Home for the Aged

19.1.4 SC and ST welfare

As per 2011 Census, Scheduled Caste and Scheduled Tribe population in Kuthuparamba town are 402 (1.36%) and 108 (0.36%) respectively. Details of SC and ST population has already been discussed in Chapter 4 (Demography). At present there are no major institutions for those belonging to Scheduled Caste and Scheduled Tribes in Kuthuparamba town. As per secondary data and socio economic survey, all houses in SC/ST colonies fall under the category of pucca buildings indicating that their quality of life is moderate.

Figure 19.4 shows the location of SC colonies in Kuthuparamba town.



Figure 19.4 Location of *SC colonies*

19.1.5 Below Poverty Line (BPL) families

The poverty line defines a threshold income. Households earning below this threshold are considered as poor. As per BPL survey, 1855 families in the planning area fall under the category of Below Poverty Line (BPL). The ward wise distribution of BPL families in Kuthuparamba town is shown in Figure 19.5.



Figure 19.5 Ward wise distribution of BPL families in Kuthuparamba town

19.2 DEVELOPMENT POTENTIALS AND PROBLEMS

19.2.1 Potentials

The social welfare sector has good signifance in Kuthuparamba town as the town posses basic infrastructural facilities that promotes the weaker section of the society. The potentials include the municipality owned ladies hostel and rest house for the old aged. The various Kudumbashree units led by women is yet another potential. It often encourages the women population and also helps in the economic growth of the town.

Anganvadies functioning in different portions of the town provides good guidance to the little ones and promotes the development of the children.

19.2.2 Problems

Though the number of Kudumbashree units and Anganvadies are quite sufficient in Kuthuparamba town, the infrastructural facilities needs further improvement. The rest house for the old aged requires proper maintenance. The SC/ST population needs to be promoted. The Kudumbashree units functioning within the municipal area may be properly coordinated and the active participation of the members in various programmes should be encouraged.

19.3 INFERENCE

In Kuthuparamba town, the Kudumbashree units and Anganvadies are functioning properly. The welfare of the old aged are also given due consideration. The SC/ST population can be promoted by introducing separate coaching centres and training institutes where job oriented courses are offered. The social

welfare programmes often ensures the safety and security of the public.

Chapter 20
ENVIRONMENT

20.1 ANALYSIS OF EXISTING STATUS

At present there are no major issues related to environment. Environmental problems due to air pollution and noise pollution in Kuthuparamba town are negligibly small. Kuthuparamba town area has a plain terrain with small undulations and the possibility of soil erosion is greatly reduced. Kuthuparamba municipal town has its own trenching ground which facilitates an efficient solid waste management system.

Environmentally sensitive areas in Kuthuparamba town mainly includes paddy fields and water bodies.

A) Paddy Fields

Paddy land conversion is a very serious agro—environmental issue. Paddy field is also acting as a collection basin of rain water and in turn recharges the ground water resources.

Percentage of land use under total paddy fields in Kuthuparamba town is about 2.93% out of which 0.48 % is cultivated paddy and the remaining 2.45% is uncultivated. About 21.72% of total land area of Kuthuparamba town is under dry agriculture. Paddy lands are mainly concentrated in northern and southern portion of Kuthuparamba town. Percentage of land use under paddy fields are minimum indicating the conversion of paddy lands for various other purposes such as construction of buildings and roads etc. The conversion of agricultural land to non agricultural land may lead to various environmental issues.

B) Water Bodies

Only 0.06 sq km of total municipal area is occupied by water bodies. Naravoor thodu is the only major stream passing through Kuthuparamba town and has an average width of 3m. During rainy season, the Naravoor thodu often gets flooded with water and hence plenty of water is made available. The stream is mainly utilized for irrigating the agricultural land.

In addition to this, about 1.12km length of the Irrigation canal of Pazhassi Project also passes through the town. There are no major pollution problems in these areas.



Mangulathu Kavu

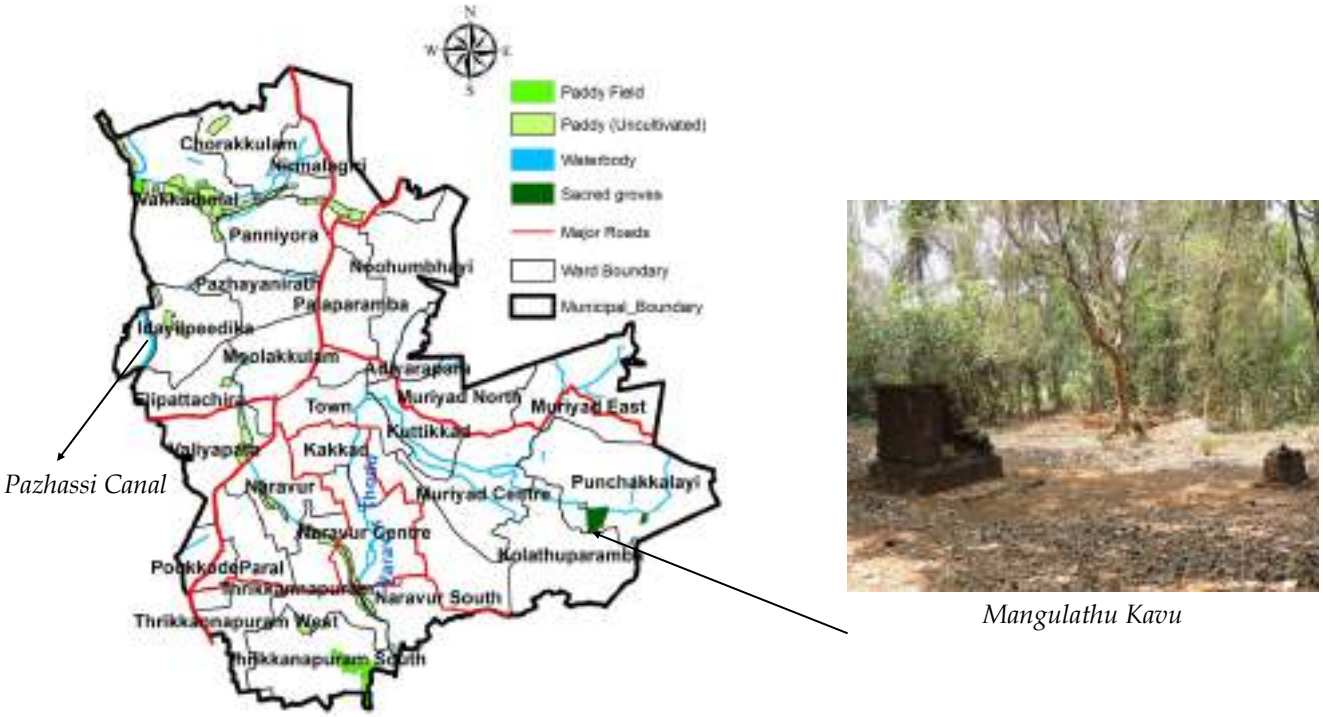


Figure 20.1 Environmentally sensitive areas

C) Environmentally significant area

There are a number of kavus located within Kuthuparamba town out of which Magulathu Kavu is categorized as environmentally sensitive area. Mangulath kavu is situated in Punchakalayi ward and has an extent of about 3.83Ha. Mangalathu kavu comprises of two kavus, namely Thazhe kavu (3.36Ha) and Mele kavu (0.47Ha).

20.2 DEVELOPMENT POTENTIALS AND PROBLEMS

20.2.1 Potentials

Mangaluth kavu is can be developed as an eco tourist spot. At present, there are no major issues regarding pollution in these environmentally sensitive areas.

20.2.2 Problems

The eco sensitive areas need to be protected and conserved. Measures need to be taken by the Municipal Authority and environmental property agencies to protect these environmentally sensitive areas.

20.3 INFERENCE

The environmentally sensitive areas are scarce in Kuthuparamba town ,mainly due to the absence of major water bodies. The water bodies within the town includes the existing Naravoor thodu, a small part of Pazhassi Irrigation Canal and small streams only. The only eco sensitive area is the Mangulath kavu which can be developed as an eco tourist spot in future. Various pollution control measures need to be introduced to protect the environment from issues that may arise due to rapid urbanization.

Chapter 21
MUNICIPAL FINANCE AND ADMINISTRATION

21A.MUNICIPAL FINANCE

Municipal finance is all about the revenue and expenditure decisions of municipal governments. It covers the sources of revenue that are used by municipal governments—taxes (property, income, sales, excise taxes), user fees and intergovernmental transfers. Municipal finance also addresses issues around expenditure at the local level and the accountability for expenditure and revenue decisions, including the municipal budgetary process and financial management. The chapter deals with the municipal finance of Kuthuparamba town and identifies issues, challenges and trends.

21A.1 EXISTING STATUS

The main sources of municipal revenue are tax revenue, non-tax revenue, assigned (shared) revenue, grants-in-aids, loans and other receipts. Tax revenue is defined as the revenues collected from taxes on income and profits, social security contributions, taxes levied on goods and services, payroll taxes, taxes on the ownership and transfer of property, and other taxes. Non-Tax Revenue is the recurring income earned by the government from sources other than taxes. Typical examples of assigned revenue include entertainment tax, surcharge on stamp duty, local cess/surcharge on land revenue, lease amount of mines and minerals, sale proceeds of social forestry plantations etc. Grants-in-aid is a grant or subsidy for public funds paid by a central to a local government in aid of a public undertaking.

Municipal expenditure can be classified into two categories viz., capital expenditure and revenue expenditure. Further, revenue expenditure comprises of establishment expenditure, administrative expenditure, operations and maintenance expenditure and interest payments on loans. Capital expenditure comprises of expenditure on capital formation and principal repayment. Local governments make expenditure on a variety of services including transportation, policing, fire protection, water and sewers, garbage collection and disposal, housing, health, recreation and culture, education and social expenditures. Municipality fund these services and the infrastructure associated with them from a variety of sources.

Table 21.1 shows the statement of receipt and expenditure of Kuthuparamba municipality during the last 7 years (2009 - 2016). The table above reveals that the surplus fund has reached Rs. 6,11,00,285 in 2015—2016 and shows an increasing trend from 2013—2014 onwards.

21.1.1 Source of Fund

The Municipality has mainly four sources of funds which includes

i) Own revenues

ii) State Government aided funds

iii) Central Government aided funds

iv) Loan from financial institutions

To improve the financial condition of the municipality, it has to think of increasing the

Table 21.1 Statement of receipt and expenditure of Kuthuparamba municipality

Year	Opening Balance	Receipt	Total	Expenditure	Surplus
2009– 2010	1,51,32,976	6,00,79,216	7,52,12,192	6,28,49,341	1,23,62,851
2010— 2011	1,23,62,851	6,21,86,500	7,45,49,351	6,44,92,426	1,00,56,925
2011— 2012	1,38,38,178	9,02,33,000	10,40,71,178	8,49,29,000	1,91,42,178
2012—2013	1,63,54,754	8,59,99,500	10,23,54,254	8,70,20,000	1,53,34,254
2013—2014	1,53,34,254	28,44,70,000	29,98,04,254	26,76,81,000	3,21,23,254
2014— 2015	4,00,16,361	1,2,03,10,629	16,03,26,990	10,85,45,705	5,17,81,285
2015— 2016	5,17,81,285	12,23,67,000	17,41,48,285	11,30,48,000	6,11,00,285

income from its properties and at the same time, the physical condition of such properties including buildings must be improved for durability and for attracting tenants or agents.

21B. MUNICIPAL GOVERNANCE

Governance is a term used to describe the political organization of municipalities. It also concerns the on-going involvement of citizens and the accountability of council members and hence, accountability is a fundamental requirement of good governance. Local government has an obligation to report, explain and be answerable for the consequences of decisions it has made on behalf of the community it represents.

Any project or programme, whether it is Government sponsored or Municipality owned/ sponsored will be discussed in the Standing Committee concerned and thereafter if deserved, it will be forwarded to Municipal Council for discussion. The municipal council will take a resolution and accordingly the Secretary passes orders to implement such resolutions.



Municipal Office, Kuthuparamba

A Standing Committee can accord an administrative sanction for a maximum amount of Rs. 50,000/- for the implementation of a project. For amounts greater than Rs. 50,000 the Municipal Council's sanction is required with an approval of District Planning Committee.

Municipal councils are empowered to address the existing and future needs of their community by making decisions that are recorded in by-laws or resolutions.

Council members embody the public welfare of their communities which often means trying to balance their vision with the concerns expressed by the people and organizations affected by their decisions.

Councils also have the ability to manage the finances of their Municipality by setting levels of expenditures and taxation. Ultimately, they are also responsible for the management and delivery of services to their community.

21.2 DEVELOPMENT POTENTIALS AND PROBLEMS

21.2.1 Potentials

The trade and commercial activities in Kuthuparamba town can contribute significantly to the municipal income. The Kannur International Airport in the nearby town is yet another potential of Kuthuparamba town where agricultural activities still prevails. The agricultural and allied products can be exported thereby creating a momentum for raising the municipal income. Parks and playgrounds can be maintained properly with the view of promoting tourism in the town. The good road network of the town enables the people to utilize the available Municipal services effectively. The above mentioned factors are responsible for the increasing trend observed in the closing balance.

21.2.2 Problems

The statement of receipt and expenditure of Kuthuparamba town shows an increasing trend in the surplus fund, which indicates that, at present revenue outstands expenditure. However, the income from agriculture, industries, trade and commercial activities and transportation sector can be increased further. Proper planned utilization of fund is to be achieved

21.3 INFERENCE

The proper utilization of municipal assets and innovative new projects can bring sustainable income generation for the municipality. The mobilization and proper utilization of resources, implementation of transportation and accountability, improving the efficiency in delivering of services, public participation and co ordination, etc. are the major steps for reaching to a good governance.

Chapter 22

SPATIAL STRUCTURE

22.1 FUNCTIONAL CHARACTER

The major activity within the town decides the function of that town. Based on this, the wards in a town are classified as urban, semi urban, semi rural and rural. Studies and analysis were carried out on the existing land use to determine the major functions in Kuthuparamba town.

22.1.1 FORMULATION OF FUNCTIONAL CHARACTER

Functional character of Kuthuparamba town is derived . In order to formulate the functional character of Kuthuparamba town, various factors were taken into account. It includes the ward wise population, ward wise area and various land uses such as residential, commercial, industrial, agricultural, stadium, park, burial ground, crematorium, transportation, water bodies and vacant lands.

Urban, semi urban and semi rural are the various functional characters observed in wards of Kuthuparamba town. Table 22.1 and Figure 22.1 shows the functional classification of wards in Kuthuparamba town.

Table 22.1 Functional classification of wards in Kuthuparamba town

Ward No.	*Ward Name*	*Functional Character*	*Ward No.*	*Ward Name*	*Functional Character*
1	Vakkummal	Semi rural	15	Kakkad	Semi rural
2	Chorakkulam	Semi rural	16	Naravur Centre	Semi rural
3	Nirmalagiri	Urban	17	Thrikkannapuram	Semi rural
4	Noohumbhayi	Semi urban	18	Thrikkanapuram South	Semi urban
5	Palaparamba	Semi urban	19	Thrikkannapuram West	Semi urban
6	Adiyarapara	Urban	20	Paral	Semi urban
7	Muriyad North	Semi rural	21	Pookkode	Semi urban
8	Muriyad East	Semi rural	22	Naravur	Semi urban
9	Punchakkalayi	Semi rural	23	Valiyapara	Semi urban
10	Kolathuparamba	Semi rural	24	Elipattachira	Semi urban
11	Muriyad Centre	Semi urban	25	Moolakkulam	Semi urban
12	Naravur South	Semi rural	26	Pazhayanirath	Semi urban
13	Kuttikkad	Semi urban	27	Panniyora	Semi urban
14	Town	Semi urban	28	Idayilpeedika	Semi urban

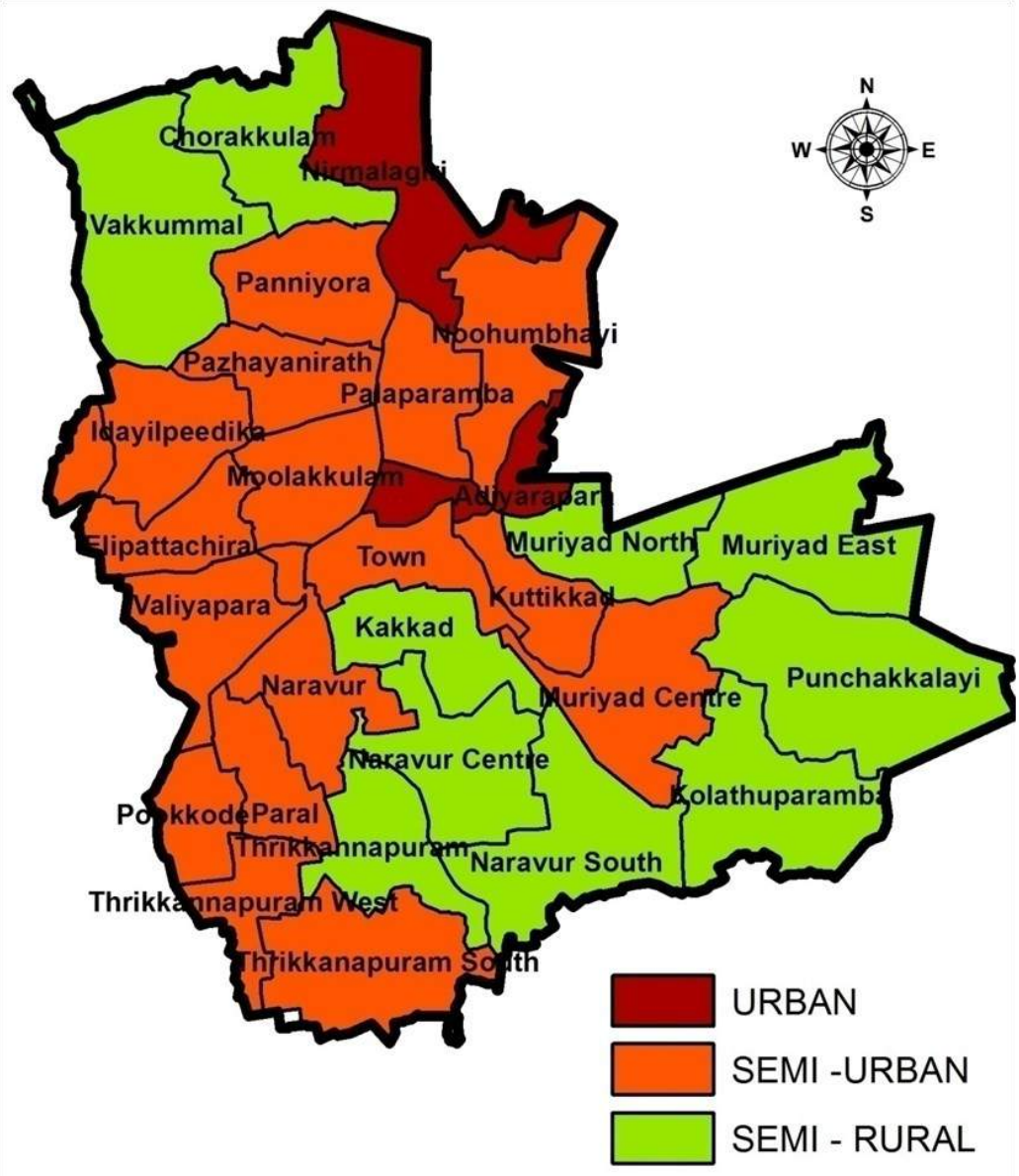


Figure 22.1 Functional classification of Kuthuparamba town

From the table, it is clear that majority of wards in Kuthuparamba town are classified as semi urban (16 wards) followed by semi rural category (10 wards). Nirmalagiri and Adiyarapara are the two wards that falls under urban category and no wards under rural category.

22.2 ACTIVITY PATTERN

Activity pattern of Kuthuparamba town is decided based on the existing land use and functional character.

Land use in Kuthuparamba town is broadly divided into three namely primary land use, secondary land use and urban land use. Primary land use includes all agricultural land, irrigation land and water bodies. In secondary land use residential as well as vacant lands are taken into account. Industries, public & semipublic, transportation etc. are considered in urban land use. Ward wise classification of major land use in planning area is shown in Figure 22.2.

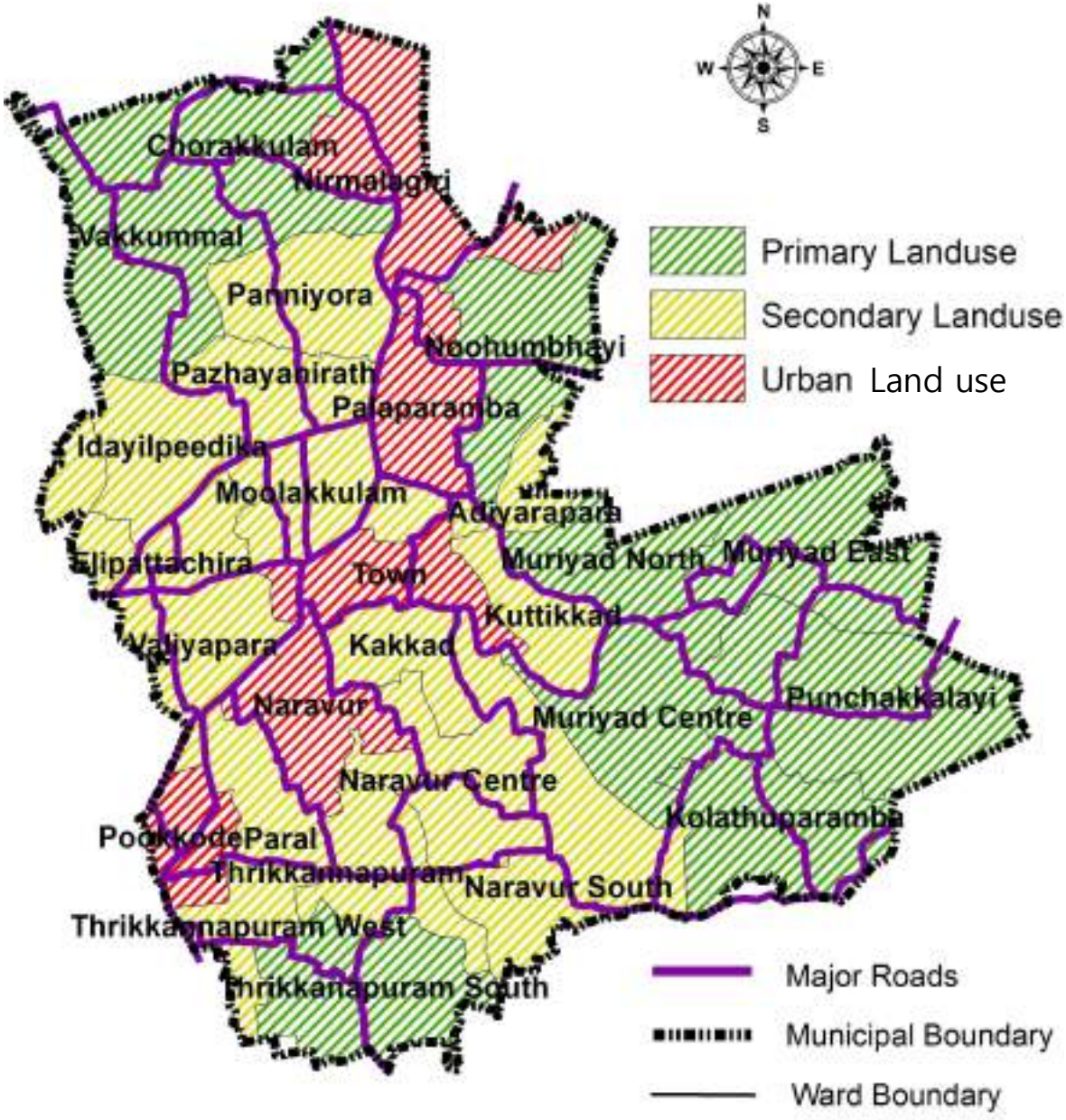


Figure 22.2 Major land use in Kuthuparamba town

From the above figure it is clear that Nirmalagiri, Palaparamba, Town, Naravur and Pookode wards are categorized as urban land use. These wards are located along the major corridor of the town (SH—30). Wards with secondary land use is located adjacent to urban wards. Panniyora, Pazhayanirathu, Idayilpeedika, Moolakkulam, Elipattachira, Adiyarapara, Valiyapara, Kuttikkad, Kakkad, Naravoor Centre, Naravoor South, Thrikkannapuram, Thrikkannapuram west and Paral are the wards that fall under secondary land use classification. The remaining wards located in the northern, southern and western periphery of the town are categorized as primary land use.

Derivation of the activity pattern of Kuthuparamba town by combining major land use concentration with the functional character is given in Table 22.2 and Figure 22.3.

Table 22.2 Derivation of Activity Pattern of Kuthuparamba town

SI. No.	Combination of Major land use concentration and functional character		Activity Pattern
	Functional character	Major land use concentration	
1	Rural	Primary Land use	Primary activity
2	Semi rural	Primary Land use	Primary activity
3	Semi rural	Secondary land use	Secondary activity
4	Semi urban	Primary Land use	Secondary activity
5	Semi urban	Secondary land use	Secondary activity
7	Urban	Secondary land use	Urban activity
8	Urban	Urban Land use	Urban activity

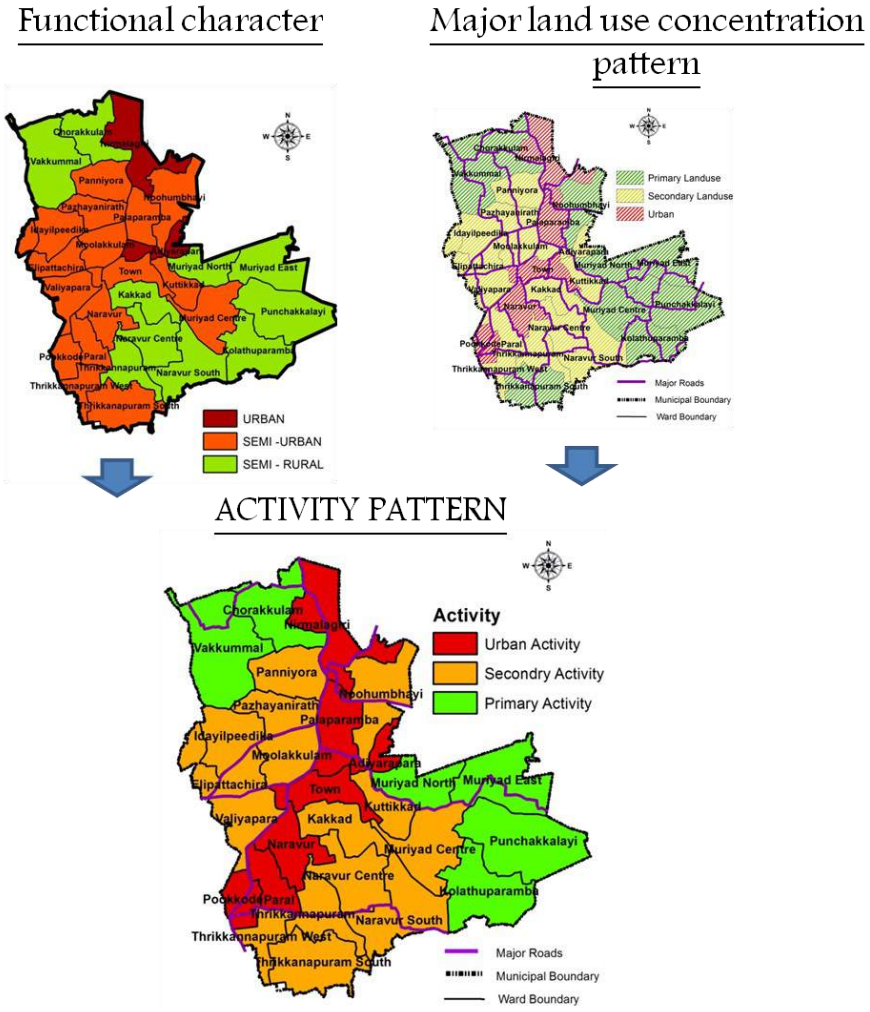


Figure 22.3 Derivation of activity pattern in Kuthuparamba town

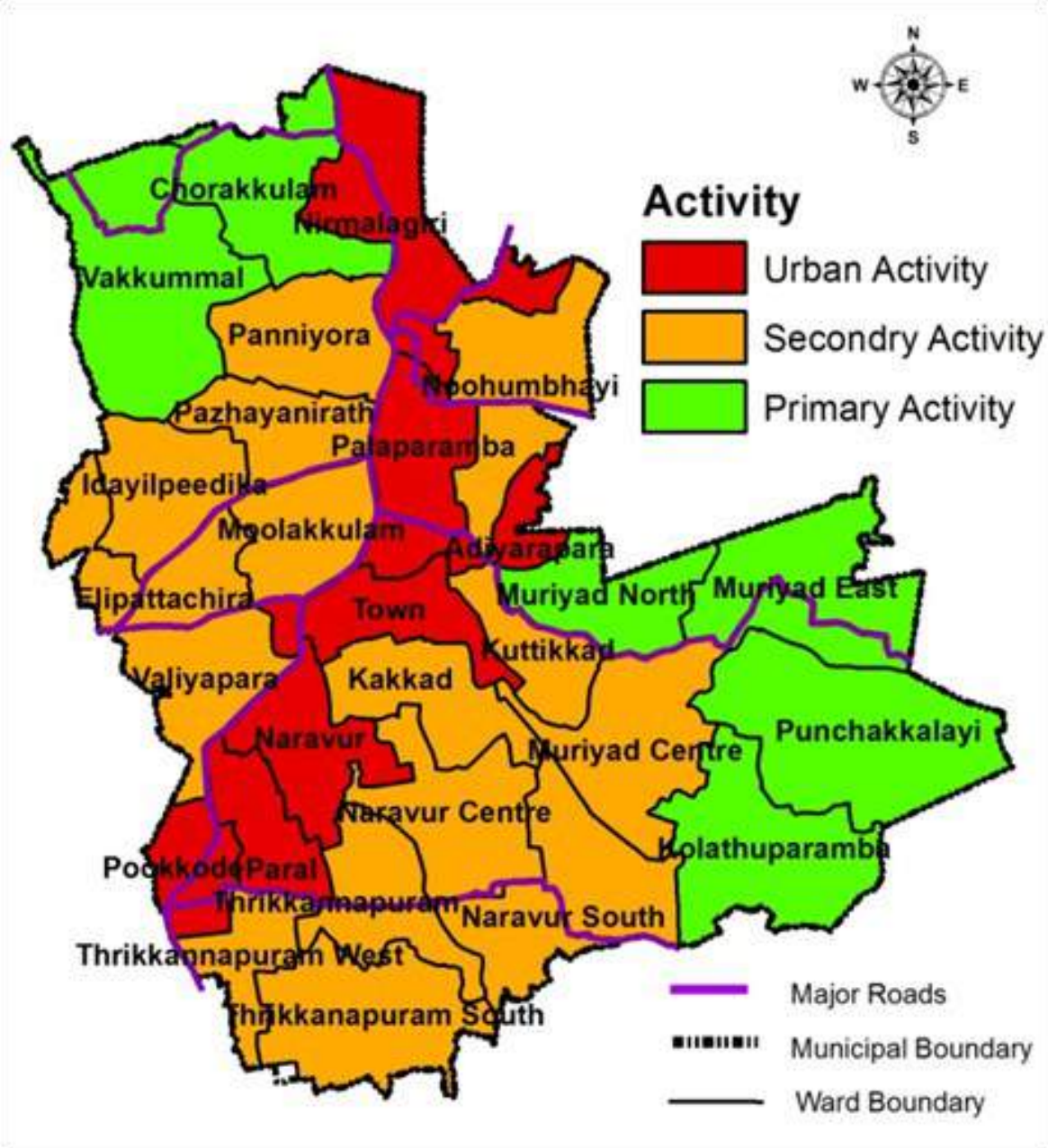


Figure 22.4 Activity Pattern of Kuthuparamba town

The activity pattern of Kuthuparamba town derived based on above criteria is shown in Figure 22.4. By combining the functional character of the planning area with major land use concentration pattern, the activity pattern is obtained. The derived activity pattern shows much resemblance with major land use concentration pattern of the town. Wards with urban activity is concentrated along TC road (SH - 30). Most of the wards are classified as wards with secondary activity and these wards are located on either sides of urban activity wards. Wards in the northern and south eastern periphery of Kuthuparamba town are categorised as primary activity wards. Ward wise activity pattern of Kuthuparamba town is shown in Table 22.3.

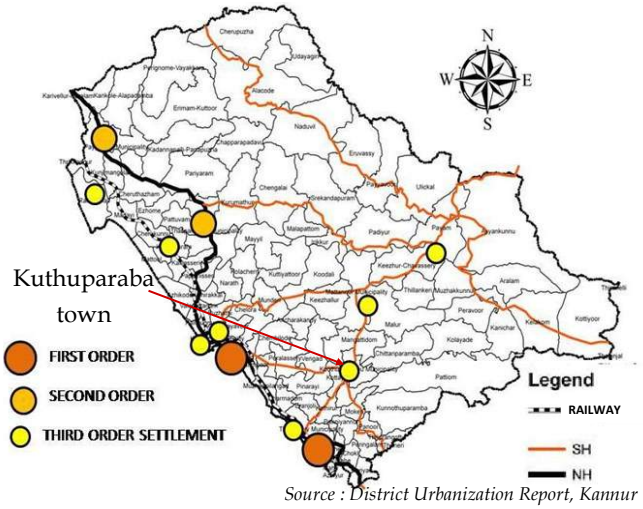
Table 22.3 Ward wise activity pattern of Kuthuparamba town

Ward No	Ward Name	Activity	Ward No	Ward Name	Activity
1	Vakkummal	Primary Activity	15	Kakkad	Secondary Activity
2	Chorakkulam	Primary Activity	16	Naravur Centre	Secondary Activity
3	Nirmalagiri	Urban Activity	17	Thrikkannapuram	Secondary Activity
4	Noohumbhayi	Secondary Activity	18	Thrikkanapuram South	Secondary Activity
5	Palaparamba	Urban Activity	19	Thrikkannapuram West	Secondary Activity
6	Adiyarapara	Urban Activity	20	Paral	Urban Activity
7	Muriyad North	Primary Activity	21	Pookkode	Urban Activity
8	Muriyad East	Primary Activity	22	Naravur	Urban Activity
9	Punchakkalayi	Primary Activity	23	Valiyapara	Secondary Activity
10	Kolathuparamba	Primary Activity	24	Elipattachira	Secondary Activity
11	Muriyad Centre	Secondary Activity	25	Moolakkulam	Secondary Activity
12	Naravur South	Secondary Activity	26	Pazhayanirath	Secondary Activity
13	Kuttikkad	Secondary Activity	27	Panniyora	Secondary Activity
14	Town	Urban Activity	28	Idayilpeedika	Secondary Activity

22.3 HIERARCHY OF SETTLEMENTS

Hierarchy of settlement is one of the important factor in developing the spatial structure of a town. In District Urbanization Report Kannur, during 2011 the hierarchy of settlements of LSG's based on the number and order of existing facilities are assessed and rural nodes and urban rural growth centers were identified.

Cumulative Functional Index (CFI) method is used to find out the hierarchy of settlement. CFI is based on educational facilities, health facilities, market, facilities in agriculture and allied sectors, physical infrastructural facilities and transport facilities. Figure 22.5 shows the hierarchy of settlement of LSG's in Kannur district. As per DUR Kuthuparamba is classified as third order settlement in the district and the proposed hierarchy of settlement is two.The CFI for the town is 135.0 as per DUR



Source : District Urbanization Report, Kannur

Figure 22.5 Hierarchy of settlement of LSG's in Kannur district.

22.3.1 EXISTING HIERARCHY OF SETTLEMENTS

Existing hierarchy of settlement in Kuthuparamba is based on urban settlement in the planning area. In order to identify the urban settlements in Kuthuparamba town, built up land use concentration map is used.

Figure 22.6 shows the existing hierarchy of settlement in Kuthuparamba town. Portion with highest built-up concentration index is categorized as major urban settlement. This settlement is seen in the core area of the town and along SH - 30 also. Here higher order facilities like transportation, trade and commercial activities, health, education and basic amenities are concentrated at large. Other urban settlement is seen adjacent to 1st order settlement where built up concentration is moderate. The remaining exterior portion of the town is categorized into semi urban settlement. In these portions, the built up concentration is comparatively very low.

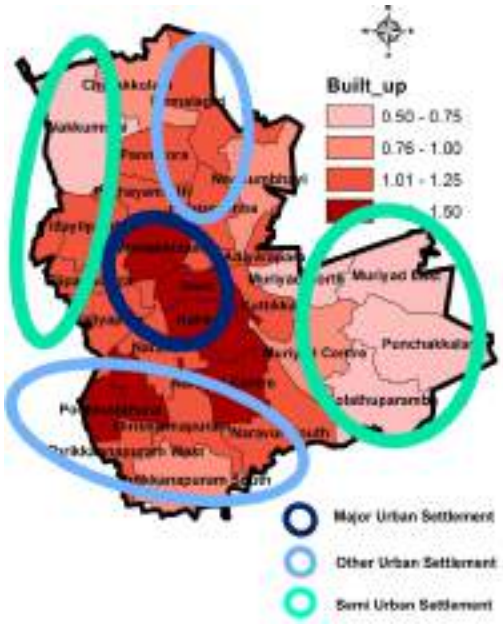


Figure 22.6 Hierarchy of settlements

22.4 HIERARCHY OF JUNCTIONS

Hierarchy of junctions in the planning area is identified based on the significance of each junction. Hierarchy of junctions in Kuthuparmba town is categorized into three, 1st order, 2nd order and 3rd order junctions.

1st order junction is the Town Square junction which acts as a meeting point of two State Highways namely SH– 30 and SH - 38. Other District Roads also meets at this junction. The two 2nd order junctions in Kuthuparamba town are Palathumkara junction and Pookkode junction, both of them being located along SH - 30. Palathumkara junction is located in the north of Town Square junction and Pookkode junction is located towards south. At Palathumkara junction, SH - 30 meets the Major District Road (MDR) towards Valiyavelicham. TC road (SH– 30) meets with Muriyadu road (Other District Road) at Pookkode junction. Thokkilangadi junction and Purakkalam junction are the 3rd order junctions of Kuthuparamba town. In Thokkilangadi junction, TC road meets with MDR (Manathavadi road). Purakkalam junction is located along SH - 38.



Figure 22.7 Hierarchy of junctions

22.5 EXTERNAL DEVELOPMENT THRUST

External factors influencing Kuthuparamba town are many and almost all sectors contribute to a certain extent. Kannur International Airport offers great development potential to Kuthuparamba town. Since Kuthuparamba town act as a gate way to airport for the passengers from east and south of the district. It offers enough scope for almost all sectors in Kuthuparamba town. Peralassery temple and Kottiyoor temple are major pilgrim centers located outside the planning area which act as an external influences in pilgrim tourism. Peralassery temple is located 10 km west of the town and Sree Kottiyoor Mahadeva temple is located 44 km north east of Kuthuparamba town. Valiyavelicham industrial plot is located outside the municipal area and it promotes industrial activities within the town . Another external development thrust is Nirmalagiri college which influences the higher education sector. Some portion of the college is located within Kuthuparamba town and remaining portion is in Mangattidam panchayath. Kannavam forest is located 21km north east of the town and is an important tourist attracting spot. External development thrust in Kuthuparamba town is shown in Figure 22.8.

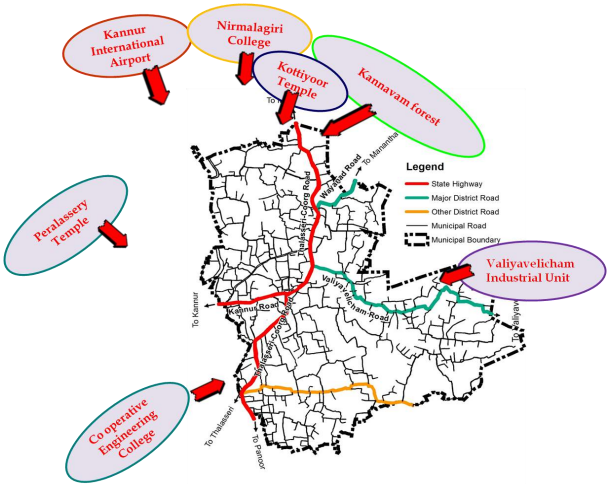


Figure 22.8 External development thrust

22.6 EXISTING ROAD NETWORK

One of the significance of Kuthuparamba town is its existing road network system. Even though the road network of Kuthuparamba town does not follow any specific path , the town is well connected with adjoining local bodies, district head quarters and other districts also. Existing road network of Kuthuparamba town connects almost all part of the Municipal town.

Two State Highways passing through the town are SH - 30 and SH - 38 and acts as major corridors of the planning area. SH - 30 is also known as TC road (Thalassery - Coorg road), connecting Thalassery with Coorg in Karnataka state. Manathavady road and Valiyavelicham road are the Major District Roads (MDR) passing through the town. Other District Roads (ODR) are located mainly in the southern portion of Kuthuparamba town.

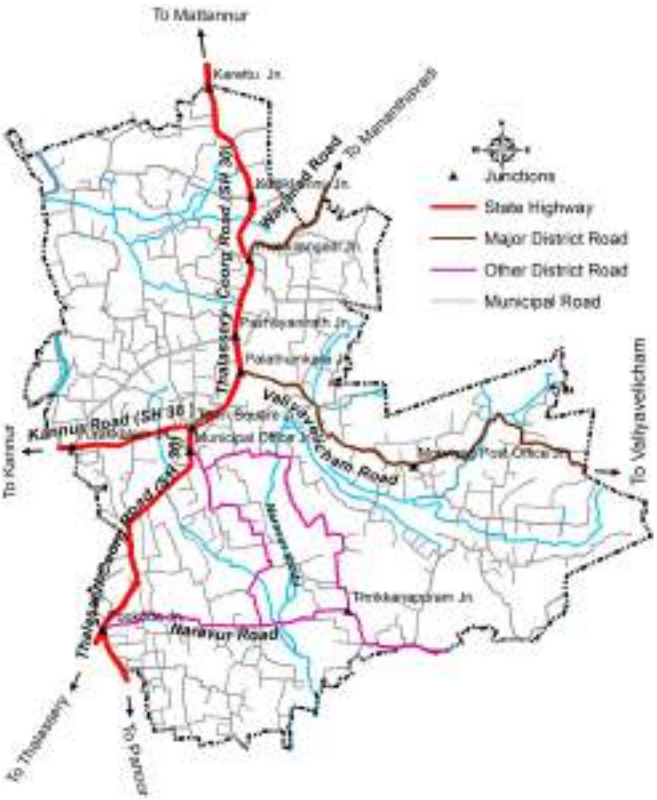


Figure 22.9 Existing road network

22.7 EXISTING SPATIAL STRUCTURE

Existing spatial structure of Kuthuparamba town is derived from the study and analysis of various factors such as activity pattern, hierarchy of settlements, hierarchy of junctions, external development thrust and existing road network. Formulation of spatial structure of Kuthuparamba town is shown in Figure 22.10.

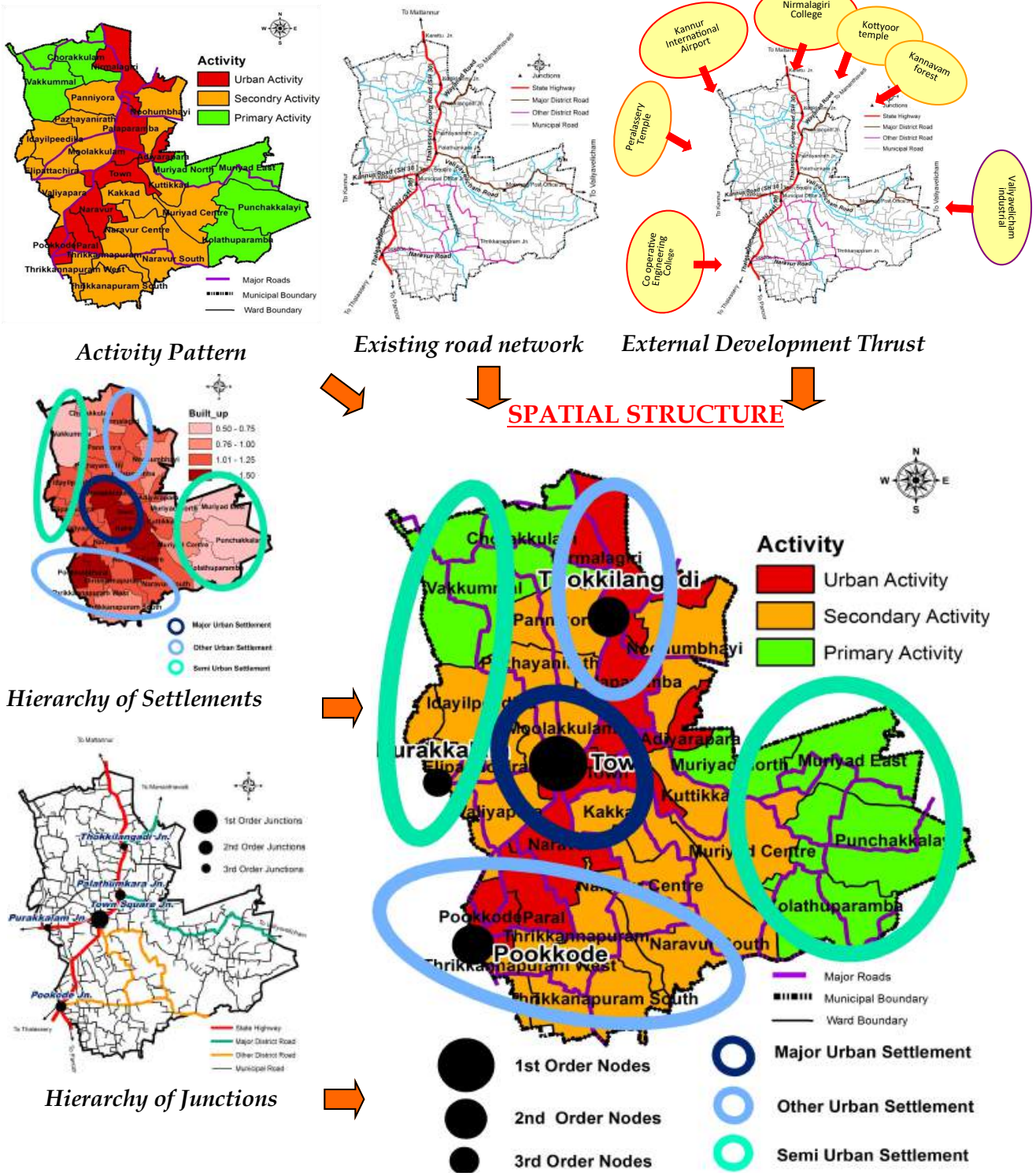


Figure 22.10 Formulation of existing spatial structure

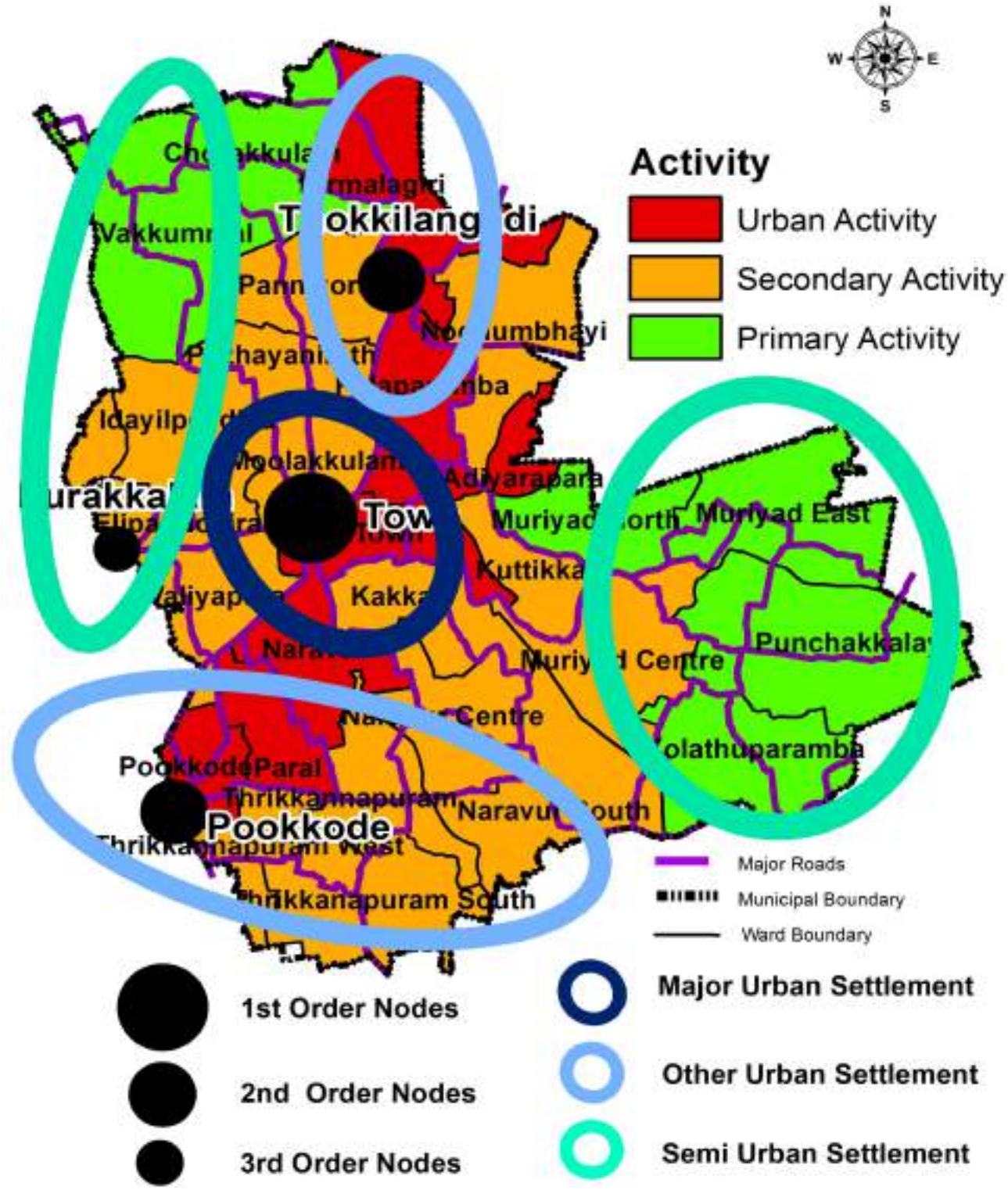


Figure 22.11 Existing Spatial Structure of Kuthuparamba town

From figure 22.11 it is clear that wards located along SH—30 (Thalassery—Coorge road) have urban character and possess higher order nodes as well as settlements. Other urban settlement is seen in wards having secondary activity and semi urban settlement is observed in wards with primary activity.

22.8 INFERENCE

The spatial structure of Kuthuparamba town derived after detailed studies and analysis of the major activities, functional character, existing road network and hierarchy of settlement and junctions reveals that the town has a unique spatial structure. Urbanization is taking place along the major corridors, especially along SH - 30 where 1st order settlement and nodes are identified. However, the primary activity still prevails in the peripheral portion of the town showing semi rural character. Kuthuparamba town, being a major transit centre with its good road network has tremendous scope for future development..

Chapter 23
PROJECTED REQUIREMENTS

Projected parameters in Kuthuparamba town are population, work force participation rate, , water supply, solid waste management, education, housing, health, traffic and transportation, energy and recreational facilities. Based on URDPFI (Urban and Regional Plans Formulation and Implementation) Guidelines, projected requirements of Kuthuparamba town in various sectors were forecasted.

23.1 POPULATION

Population projections are estimates of the population for future dates. Projections illustrate possible courses of population change based on assumptions about future births, deaths, net international migration and domestic migration.

Various methods adopted for population forecasting of Kuthuparamba town are arithmetic increase method, geometric increase method, incremental increase method and trend line method.

23.1.1 Arithmetic increase method

The arithmetic increase method for projecting population assumes that growth in future period will continue at a constant rate established by past growth. In this method, the average increase in population per decade is calculated from the past census records. This increase is added to the present population to find out the population of the next decade.

Table 23.1 Population projection - Arithmetic increase method

Arithmetic increase method formula - $P_n = P + n\,C$ $n \rightarrow$ decades

Year	Population	Increment
1981	24690	-
1991	28907	4217
2001	29532	625
2011	29619 (P)	87
Average increment of population, C →		*1643*
2021 (n=1)	**31262**	
2031(n=2)	**32905**	

Table 23.1 shows the population projection using arithmetic increase method. As per census data, population size in Kuthuparamba town shows an increasing trend during last four decades. Using arithmetic increase method, populations are projected for the year 2021 and 2031 and the values so obtained are found to be 31,262 and 32,905 respectively.

23.1.2 Geometric increase method

The method assumes that growth in a future period will continue at a logarithmic rate established by past growth. Graphical representation of population projection in Kuthuparamba town using geometric increase method is shown in Table 23.2.

As per geometrical increase method, projected population of Kuthuparamba town for 2021 and 2031 are 30,271 and 30,937 respectively.

Table 23.2 Population projection – Geometric increase method

Geometric increase method formula – $P_n = P(1+I_G/100)^n$
n→decades

Year	Population	Increment	Geometric increase rate of growth
1981	24690	-	
1991	28907	4217	(4217/24690) =0.17
2001	29532	625	(625/28907) =0.02
2011	29619 (P)	87	(87/29532) =0.003
Geometric mean I_G			*=(0.17*0.02*.003)^(1/3) = 0.022*
2021 (n=1)	**30271**		
2031 (n=2)	**30937**		

23.1.3 Incremental increase method

Incremental increase method is a modification of arithmetic increase method. In this method, growth rate per decade is not assumed to be constant as in the arithmetic or geometric increase method. But it is progressively increased or decreased depending on the past data.

Table 23.3 shows the projected population of Kuthuparamba town using incremental increase method. From the graph given below, it is clear that 29,197 and 26,710 are the projected populations for 2021 and 2031 which shows a decreasing trend.

Table 23.3 Population projection - Incremental increase method

Incremental increase method Formula -
$Pn = P + n.X + \{n(n+1)/2\}.Y$
n→decades

Year	Population	Increment (X)	Increment increase method (Y)
1981	24690	-	-
1991	28907	4217	-
2001	29532	625	-3592
2011	29619	87	-538
	Total	4929	-4130
	Average	*1643*	*-2065*
2021 (n=1)	**29197**		
2031(n=2)	**26710**		

23.1.4 Trend line method

Trend analysis uses a technique called least squares to fit a trend line to a set of time series data and then project the line into future for a forecast. Trend analysis is a special case of regression analysis where the dependent is the variable to be forecasted and the independent variable is the time.

Population projection of the planning area using trend line method is shown in Figure 23.1. From figure, it is clear that decadal variations in population size (as per census) shows an undulating trend and this trend is reflected in projected values also. According to trend line method, projected population of Kuthuparamba town for the years 2021 and 2031 are 32,040 and 33,581 respectively.

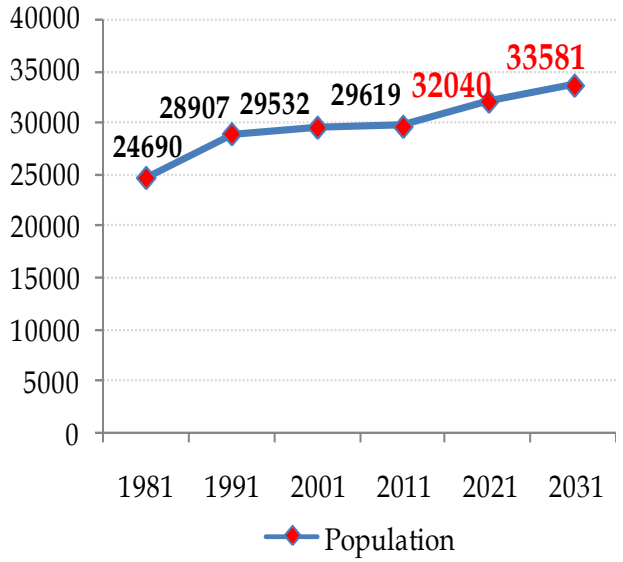


Figure 23.1 Population projection - Trend line method

Projected populations obtained by using the above four methods varies slightly. Hence average of these values are taken as the forecasted population. Table 23.4 shows the projected population of the planning area. From the table given below, it is clear that the projected population of Kuthuparamba town for 2021 and 2031 are 30,693 and 31,034 respectively.

Table 23.4 Final projected population

Methods	2021	2031
Arithmetic increase method	31262	32905
Geometric increase method	30271	30937
Incremental increase method	29197	26710
Trend line method	32040	33581
Average of above methods	**30693**	**31034**

23.2 WORK FORCE PARTICIPATION RATE (WFPR)

Work Force Participation Rate (WFPR) of planning area is projected by using trend line method. Line graph shown in figure 23.2 represents the forecasting of WFPR in Kuthuparamba town.

From the figure, it is clear that work force participation rate in Kuthuparamba town shows an increasing trend during last four decades as per census data. Hence projected values of WFPR also shows similar trend. Projected values obtained by using trend line method during 2021 and 2031 are 34.48% and 37.71% respectively.

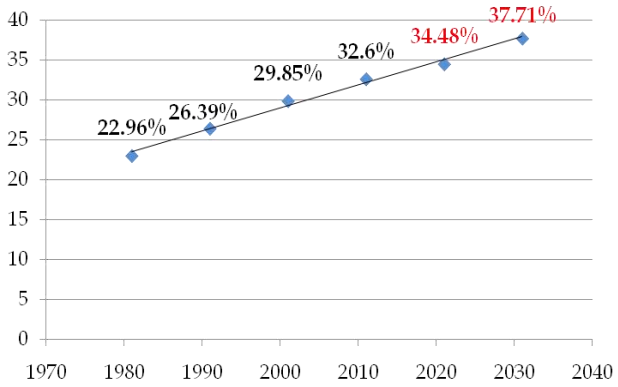


Figure 23.2 Projected WFPR using trend line method

23.3 TRAFFIC AND TRANSPORTATION

Road is the major mode of transportation in Kuthuparamba town. Hence volume capacity ratio (V/C ratio) of major corridors are projected.

Table 23.5 shows the projected volume capacity ratio of Kuthuparamba town during 2021 and 2031. Major corridors with projected V/C ratio greater than 1.5 is considered as critical in future. From table it is clear that at present, all roads in Kuthuparamba town have V/C ratio less than 1.5, which indicates that

Table 23.5 Projected V/C ratio on major corridors of Kuthuparamba town

Sl. No.	Road Link	Carriage way width (m)	Capacity (PCU)	2014		2021		2031	
				Vehicle (PCU)	V/C	Vehicle (PCU)	V/C	Vehicle (PCU)	V/C
I	***Thalassery - Coorg Road***								
1	Pookode Junction - Municipal Office	7.3	15,000	16,810	1.12	21,270	1.42	31,485	2.10
2	Municipal Office - Town Square Junction	7.3	15,000	20,228	1.35	25,594	1.71	37,886	2.53
3	Town Square Junction - Pala-thumkara Junction	7.3	15,000	21,055	1.40	26,641	1.78	39,436	2.63
4	Palathumkara Junction - Thokkilangadi Junction	7.3	15,000	15,585	1.04	19,720	1.31	29,190	1.95
5	Thokkilangadi Junction - Karetta (Rani Jai HSS)	7.3	15,000	8,363	0.56	10,581	0.71	15,663	1.04
II	***Wayanad Road***								
6	Thokkilangadi Junction - Palayi	7.3	15,000	7,520	0.50	9,515	0.63	14,085	0.94
III	***Kannur Road***								
7	Town Square Junction - Purakkalam	6.0	12,000	9,610	0.80	12,160	1.01	17,999	1.50
IV	***Valiya Velicham Road***								
8	Palathumkara Junction - Muriyad Junction	4.5	9,000	4,603	0.51	5,824	0.65	8,620	0.96
V	***Other Roads***								
9	Old Kannur Road	3.5	9,000	2,168	0.24	2,743	0.30	4,060	0.45
10	Thrikkannapuram Road (to Naravoor)	4.5	9,000	5,773	0.64	7,304	0.81	10,812	1.20
11	Municipal Office - Naravoor Road	3.0	9,000	3,418	0.38	4,324	0.48	6,401	0.71

existing roads in Kuthuparamba town are not under critical condition. The projected V/C ratio for 2021 and 2031 is found to be greater than 1.5 in 3 major road sections located along TC road (SH-30) and are therefore classified as critical. These roads are located in the core area of the town namely, Town Square junction—Palathumkara junction, Municipal office—Town Square junction and Pookode junction - Municipal office. Apart from these roads following roads are required to connect the areas at north and south east where very less connectivity to the developed areas.

23. 4 WATER SUPPLY

Kerala Water Authority serves most of the wards in Kuthuparamba town. RWSS (Rural Water Supply Scheme), MWSS (Mini Water Supply Scheme) and Accelerated Rural Water Supply Scheme (ARWSS) are the various existing water supply schemes in planning area. These schemes can meet the future demand to a certain extent.

Projected details of total water demand of the town and the required total storage capacity during 2021 and 2031 are given in Table 23.6.

From the table, it is clear that 5.81 MLD and 5.88 MLD are the projected water demand of the town during 2021 and 2031 respectively. Total storage capacity required in Kuthuparamba town during 2021 and 2031 are obtained as 7.73MLD and 7.82MLD respectively .

Table 23.6 Projection - Water supply

Year	2021	2031	
Projected Population	30,693	31,034	
a. Domestic Demand (MLD)	4.14	4.19	135 lpcd
b. Non Domestic Demand (MLD)	0.86	0.87	20.8 % of a
c. Fire Demand (MLD)	0.05	0.05	(1%(a+b))
Unaccounted water flow	0.76	0.77	(15% (a+b+c))
d. Total Water Demand for the town (MLD)	***5.81***	***5.88***	
Storage capacity required	1.92	1.94	33 % of supply
Total storage capacity required	***7.73***	***7.82***	

23.5 ENERGY

Projected requirements of various sources of energy in Kuthuparamba town based on URDPFI Guideline is given in Table 23.7.

The table given below reveals that at present a 110 KV substation exists in Kuthuparamba town which can serve almost 1.5 lakh people. Projected population of Kuthuparamba town is only 33,985 hence the existing substation may be adequate to serve the town in future also. As per planning standard, 1 LPG godown is required for population ranging from 40,000 to 50,000. The existence of an LPG godown in the town can fulfill the future demand.

Table 23.7 Projected requirements - Energy

Name of Section	As per planning standard	Existing Number	Demand 2031	Shortage
110KV substation	1/ 1.5 lakh	1	-	Nil
Petrol pumps		4	-	Nil
LPG gas godown	1/ 40,000 to 50,000	1	-	Nil

23.6 SOLID WASTE MANAGEMENT

Based on the planning standards recommended by URDPFI and existing land use pattern of Kuthuparamba town the waste generated is taken as 0.45 kg/capita/day. Details of existing as well as projected values of solid waste generation in the town is given in Table 23.8.

Table 23.8 Projected solid waste generation

Year	2011	2021	2031
Population	29,619	30693	31034
Solid Waste Generated (tonnes/day)	13.32	***13.81***	***13.97***

23.7 EDUCATION

Future demand of educational institutions in Kuthuparamba are forecasted for the years 2021 and 2031 according to URDPFI guidelines.

Table 23.9 gives the existing as well as projected requirements of educational institutions in Kuthuparamba town.

Table 23.9 Projected requirements of educational institutions in Kuthuparamba town

Sl. No.	Category	Existing Nos.	Standards Recommended	Demand 2031	Shortage
1	Primary School	16	1/5000 population	7	Nil
2	Senior Secondary School	2	1/7500	4	2
3	I.T.C/I.T.I	2	1/10 lakh population	Nil	Nil
4	Arts & Science	3	1/1.25 lakh population	Nil	Nil
5	Professional College	1	1/10 lakh population	Nil	Nil

Based on URDPFI Guidelines, the projected requirements in education sector is given in the above table which clearly reveals that almost all categories of educational institutions are far above the demand except Senior Secondary Schools. There is a shortage of 2 Senior Secondary Schools in Kuthuparamba town.

23.8 HEALTH

As per URDPFI planning standards, the requirements of health sector in Kuthuparamba town is forecasted. The projected requirements are shown in Table 23.10.

From the table given below, it is clear that there will be a shortage of dispensaries in the planning area . At present, 1 General Hospital is functioning in the planning area and is expected to meet the future demand also. And as far as bed facilities are considered, the existing number of 153 beds is sufficient and hence there is no shortage.

Table 23.10 Projected requirements of health sector in Kuthuparamba town

Sl. No.	Category	No. of units	No. of Beds	Existing no. of units	Demand of units by 2031	Shortage	Existing no. of Beds	Demand 2031	Shortage
1	Dispensary	1/20000 population	-	2	2	Nil	Nil	Nil	Nil
2	General hospitals	1/2.5 lakh population	500 beds	1	Nil	Nil	153	62 beds	Nil
3	Family Welfare Centre	1/50,000 population	-	2	Nil	Nil	Nil	Nil	Nil
4	Veterinary Hospitals	1/5 lakhs population	-	1	Nil	Nil	Nil	Nil	Nil

Table 23.11 Projected requirements in housing

Year	Population	Existing no. of houses	No. of houses required	Replacing of dilapidated and old houses (8% of total houses)	Existing housing shortage	Additional no. of houses required for the added population		Total shortage
						Added population	Required no. of houses	
2011	29,619	6331	6582	506	251			757
2021	30,693					1,074	239	996
2031	31,034					1,415	315	1072

23.9 HOUSING

Housing demand and shortage during 2021 and 2031 are given in Table 23.11. The household size is taken as 4.5 in order to compute the demand and shortage of houses in Kuthuparamba town. During 2011 itself, there was a shortage of 251 houses.

During 2021 and 2031 the added populations are 1,074 and 1,415 respectively. As per URDPFI guide line there is no shortage of houses during 2021. But during 2031 there will be a shortage of 64 number of houses.

23.10 RECREATION AND CIVIC AMENITIES

Projected requirements and shortage of recreation and civic amenities in Kuthuparamba town are estimated based on URDPFI guidelines.

Table 23.12 represents the projection of recreation and civic amenities in Kuthuparamba town. The existing number of Anganwadies, community halls, working men – women hostel, police station, fire station, cremation ground, and post office are far above the projected requirements of 2031.

Table 23.12 Projection– Recreation and Civic amenities

Sl. No.	*Name*	*Population served per unit*	*Existing Number*	*Requirement by 2031*	*Shortage by 2031*
1	Anganwadi – Housing area/cluster	1/5,000	35	6	Nil
2	Community Hall	1/15,000	5	2	Nil
3	Working Men- Women hostel	1/ 10 lakh	1	-	Nil
4	Police station	1/90,000	1	-	Nil
5	Fire station	1/2 lakh	1	-	Nil
6	Cremation ground	1/5 lakh	1	-	Nil
7	Post office	1/15,000	3	2	Nil

Chapter 24

SUMMARY OF ANALYSIS AND LINKAGE OF SECTORS

The main significance of Kuthuparamba town is the well connected existing road network to the major centres of the district and hence the town acts as a major transit centre. The unique characteristic of the traffic and transportation sector along with trade and commercial activities enhances the growth and development of various other sectors in Kuthuparamba town. The study and analysis part is broadly divided into two, spatial analysis and sectoral analysis. The spatial analysis includes the study on regional settings, demography, work force and occupational structure and existing land use. The sectoral analysis deals with the detailed study on the various development sectors of the town so as to identify the potentials and problems of each sector. Based on this, a detailed summary is prepared for developing the town in the most sustainable manner.

24.1 MAJOR SPATIAL ANALYSIS FINDINGS

The factors and data considered in spatial analysis are the regional study, demography, work force and existing land use. The findings of the analysis are summarized below.

» Regional Study

Kuthuparamba town lies in the midland region of Kerala and covers an area of 16.76 sq.km. It comprises of a single village and 4 Desoms. The town is surrounded by 4 panchayaths and is separated from Mattannur town by the adjacent panchayath, Mangattidam. The town acts as a service centre to the nearby panchayath. However, no major water bodies passes through the town and the existing water bodies includes ponds, thods, streams and part of the Pazhassi irrigation canal. SH-30 (Thaassery-Coorge road) and SH-38 (Chovva-Kuttiyadi road) are the major roads passing through Kuthuparamba town. The town has good road connectivity and hence serves as a major transit centre. There is no railway line passing through the town. Trade and commercial activities are mainly concentrated in the town centre and major urban developments are taking place along the major corridors.

» Demography

As per 2011 Census, the population of Kuthuparamba town is 29,619 and maximum population size is observed in wards namely, Chorakkulam, Vakkummal, Valiyapara, Kuniyilpaalam, Town, Muriyad Centre, Pookode and Thrikkannapuram West. The growth rate of population in Kuthuparamba town is the lowest when compared with the district and state and it shows stagnation. The population density of Kuthuparamba town is 1767 which is more than twice that of the district and state. Gross population density as well as net population density is highest in Adiyarapara ward located in the central part of the town. It is followed by Pookode ward located in the south west portion of the town.

All other wards have similar values of densities ranging from 1001 to 3000 except Kolathuparamba ward which posses lowest value (< 1000). It is located in the south eastern part of Kuthuparamba town. Sex ratio and child sex ratio of Kuthuparamba town are 1202 and 983 respectively and is the highest when compared to the district and state. The literacy rate in Kuthuparamba town with respect to total population is 96.76% and with respect to total female population is 95.61%. The population forecasted for the years 2021 and 2031 are 30,693 and 31,034 respectively.

» Work Force

In Kuthuparamba town, the Work Force Participation Rate (WFPR) is 32.60% which almost matches the district value, but less when compared to the state average. The female work force participation rate is 26.62% which is slightly higher when compared to district but slightly low when compared to state. However, WFPR shows an increasing trend during the last three decades and stands 3rd in position when compared with the six municipal towns of the district.

Out of the total 32.60% working population, 29.42% are main workers and the remaining 3.18% are marginal workers. The fourfold classification of workers reveals that the percentage of cultivators and agricultural labourers are less when compared to the district and state average. Moreover, during the last three decades, a declining trend is observed in the primary activities thereby giving much space for commercial, industrial and service sectors. Hence, at present, other workers constitutes major portion of the working population and has reached up to 92.24% as per Census 2011. Thus, there is a shift from primary activities to secondary and tertiary activities in Kuthuparamba town.

» Existing Land Use

The study and analysis on existing land use of Kuthuparamba town reveals that the built up land use is mainly concentrated in the core area of the town in the central portion and also along the major corridors. The wards include Moolakkulam, Town, Pookode, Paral, Kakkad and Naravoor Centre. In these wards, the agricultural concentration is the least.

The residential concentration is less in wards namely Vakkummal, Chorakkulam, Nirmalagiri located in the northern part of Kuthuparamba town. Muriyad North, Muriyad Centre, Muriyad East and Kolathuparamba ward located in the south western part and Thrikkannapuram located in the southern part also have low residential concentration. In these wards, the agricultural activity is high and built up concentration is low. Here, dry agriculture is predominant and some small paddy fields are identified in the southern portion of the town.

24.2 MAJOR FINDINGS OF SECTORAL ANALYSIS

Based on the function, the various development sectors are categorized into three groups, viz., sectors of economy, sectors of physical infrastructure and sectors of social infrastructure.

24.2.1 SECTORS OF ECONOMY

♦ Trade and Commerce

Kuthuparamba town has good road network which connects it with other LSGI's of the district and therefore serves as a major commercial node. SH - 30 and SH - 38 are the

major corridors which can promote the trade and commercial activities within the town. The presence of Kannur International Airport in the nearby town is yet another potential of the sector. It is located only 14 km away from the town and hence the export of various agriculture and allied products is easy. The major drawback of the sector is the congestion at commercial nodes due to less road width, vehicular as well as pedestrian traffic. The reason for the congestion is the lack of enough space for parking and insufficient road width. The commercial centres in the core area lies close to bus terminal and therefore aggravates congestion problems.

♦ **Industries**

At present, Kuthuparamba town possess only few industries, but is on the verge of advancement in the industrial sector with the emergence of Kannur International Airport. The town can advance in the field of agro based, electronics based, engineering based and forest based products with establishment of export oriented industries. The proximity to the Valiyavelicham industrial area will enhance the industrial activity. The existing road network comprising of SH - 30 (Thalassery-Coorge road) and SH - 38 (Kannur– Kuttiyadi road) also promotes industrial activities in the town. Ready made textile based industrial units can be introduced by enhancing the existing handloom unit. There are several beedi companies functioning in the town. However, the high concentration of residential area often hinders the development of large scale industries.

♦ **Tourism and Heritage**

One of the major potential of Kuthuparamba town regarding tourism sector is its proximity to Kannur International Airport. Though there are only few tourist spots within the town, it can function as an intermediate halting place for airport users and tourists visiting the surrounding tourism destinations like Wayanad, Coorg, Kannavam forest, Aralam Wildlife Sanctuary, Kottiyoor temple, etc. Ayurvedic resorts can be started to attract the foreigners thereby promoting health tourism in the town. The famous art forms in Kuthuparamba town such as Koothu, Theyyam and Thira may be promoted so as to attract large number of tourists. However, the sector can be developed only by providing good infrastructural facilities and creating tourism awareness among the public.

♦ **Agriculture and allied sectors**

Agriculture is one of the major sector in Kuthuparamba town. About 22.46% of the total land area is occupied by dry agriculture. Apart from dry agriculture, coconut groves comes to 2.24% and paddy field accounts to 2.91%. Almost all residential plots are partially filled with coconut groves. Moreover, coconut and banana are the major agricultural products.

The major thrust of the sector is the export of value added food products from jackfruit, coconut, etc. via Kannur International Airport. There is tremendous scope for floriculture too. Organic farming can be promoted under Co-operative sector and Kudumbashree units inorder to increase the productivity. There is a need to promote group farming methods under co-operative sector. But unfortunately, a declining trend is observed in agricultural activities in Kuthuparamba town which indicates uneconomic agricultural earnings. As the workers are getting shifted to tertiary sectors, agriculture sector faces the problem of

shortage of labourers. Now-a-days cultivable land is being used for construction purposes. Fragmentation of land and uncultivable paddy fields also hinders the growth of agriculture and allied sectors.

The livestock population is meager in Kuthuparamba town and hence animal husbandry is a weak sector. Due to the absence of major water bodies in Kuthuparamba town, fishing activities are also not prominent.

24..2.2 SECTORS OF PHYSICAL INFRASTRUCTURE

♦ **Traffic and Transportation**

Roadway is the only mode of transportation in Kuthuparamba town. The town is a major junction well connected by two state Highways and Major District Road to Wayanad. The two State Highways (SH—30 and SH—38) passing through the town provides inter state as well as inter district connectivity. The road connecting Wayanad district and Valiyavelicham industrial area are the other important roads in Kuthuparamba town. One of the road connecting Kannur International Airport also passes through the town area. The Volume Capacity ratio (V/C ratio) greater than 1, in certain road sections along Thalassery-Coorg road and in Kannur road between Town Square road junction and Purakkalam. All other roads have V/C ratio less than 1. In order to cater the future traffic , the road width can be increased based on the projected V/C ratios for the horizon years 2020 and 2030.

Rail does not pass through Kuthuparamba town. The nearest railway station is the Thalassery railway station, located 15 km away from the town. The Kannur International Airport is only 15 km far from Kuthuparamba town and is therefore a great potential regarding transportation sector.

Unorganised on-street parking in the absence of proper parking lots often causes chaos and confusion. Movement of inter city bus traffic through the central area of the town due to the location of bus station in the central area also hinders the easy flow of traffic. Absence of adequate design for major junctions, road markings and signs are the various problems faced by the sector.

♦ **Water Supply**

The existing water supply schemes in Kuthuparamba town includes Rural Water Supply Scheme (RWSS), Mini Water Supply Scheme (MWSS) and Accelerated Rural Water Supply Scheme (ARWSS). These schemes covers only 14 wards in the municipal area. The newly commissioned "Accelerated Urban Water Supply Scheme (AUWSS) to Kuthuparamba, Kottayam and Pattiam" is expected to cover the entire Kuthuparamba town as well as two nearby census towns, namely Kottayam and Pattiam. The ultimate demand by 2031 is calculated as 5.88 MLD and this can be met from the "AUWSS to Kuthuparamba ,Kottayam and Pattiam" having a total capacity of 11 MLD. There is a need to introduce proper conservation measures for surface sources so as to provide safe drinking water to public.

♦ **Energy**

In Kuthuparamba town, the distribution of electric power is carried out by the Kuthuparamba Section office. The power is supplied from 110KV Substation, Kuttikkunnu located near Kuthuparamba town. It possess 95 km long High Tension (HT) line, 498 km long Low Tension (LT) line and a total of 112

transformers.

Majority of the electric energy generated is consumed for domestic purposes. Voltage fluctuation is observed in wards located in the south eastern and south western periphery of the town. An alternative source of energy is solar energy and its potential is yet to be tapped.

♦ **Drainage and Sanitation**

There are no major issues regarding drainage in Kuthuparamba town. It is mainly due to the undulating terrain of the locality which enables easy drainage of storm water and hence prevents water logging. To prevent the overflowing of drains in rainy season, proper cleaning of drains is essential.

Kuthuparamba municipality has its own trenching ground and the solid waste collected is disposed by composting. There is a need to introduce modern techniques for improving vermi composting. Majority of the houses use leach pits and septic tanks. Most of the commercial establishments and offices do not possess the required number of toilets. There is no Sewage Treatment Plant in Kuthuparamba town. Sanitation facilities can be improved by introducing localized collection and processing techniques as well as public sewerage system within the town. Overflowing of drains at major nodes during heavy pours needs attention.

24.2.3 SECTORS OF SOCIAL INFRASTRUCTURE

♦ **Education**

Even though Kuthuparamba town possess adequate number of schools, there is a shortage of Higher Secondary Schools. The educational institutions upto graduate level offers only conventional courses and possess basic infrastructural facilities. Library, computer lab and internet facilities need to be provided in all educational institutions. The proximity of Kannur International Airport offers abundant scope for the starting of Aviation courses. Kuthuparamba town, being an agriculturally predominant area has great potential for the establishment of Agriculture Guidance and Research Centre. The proper co-ordination of the existing facilities can certainly develop the town as a higher order education centre.

♦ **Health**

The health sector of Kuthuparamba town needs improvement as the existing hospitals possess only basic infrastructural facilities. The modern techniques and medical instruments need to be introduced as there are no super speciality hospitals in the town. Most of the hospitals in the town are under private sector, hence the Taluk Hospital may be upgraded to safeguard the health of the public. The promotion of Ayurveda and starting up of ayurvedic resorts attracts foreign tourists and other tourists as the town is only 15 km away from Kannur International Airport.

Diseases such as chicken guinea and dengue fever are caused mainly due to improper waste management . Hence, proper waste management techniques and supply of safe drinking water should be ensured to the public.

♦ **Housing**

Residential land use constitutes almost 62.66% of the total land use which indicates the significance of housing sector in Kuthuparamba town. The household size of the town is 4.58 and almost matches the district value (4.55), but is high when compared with the state average (4.25). Household size is highest in Town ward

located in the central portion of Kuthuparamba town.

Majority of the houses in Kuthuparamba town are pucca buildings and are followed by moderate buildings. The standard of living is also moderate with all basic facilities.

Slums identified in Kuthuparamba town are 4 in number and are mostly located along the periphery of the town. Various slum improvement schemes were carried out and were effective in constructing new houses as well as renovating the existing buildings. The existing number of houses in Kuthuparamba town is 6331 and the number of households is 6465. Hence, there is no significant shortage of houses in the planning area.

♦ **Recreation and Civic Amenities**

The "Town Square" at Maroli Ghatt is one of the major potential of Kuthuparamba town and can be developed as an important Heritage site. Municipal Stadium in Kuthuparamba town has to be upgraded. The play grounds, community halls, theatre and libraries are the other recreational facilities available in the town. Organised Children's Park and other Amusement Parks may be started to attract the children and tourists. The existing infrastructural facilities in community halls need to be improved and maintained. Libraries should be upgraded with new facilities.

The civic amenities in the town includes Munssif Court, Magistrate Court, Police Station, Fire Station, Post Office and other public offices. It also includes 'Shanthivanam', the public crematorium at Punchakkal ward.

♦ **Social Welfare**

The existence of a municipality owned ladies hostel and rest house for the old aged in Kuthuparamba town, itself is a major potential of the sector. Apart from this, Kudumbashree units functioning in various parts of the town encourages the women population and helps in the economic growth of the town. Anganwadies provides good guidance to the little ones and promotes the development of the children. The infrastructural facilities in these units need improvement and maintenance.

SC and ST population are comparatively low in Kuthuparamba town. BPL families are also less and are scattered with the town. Separate coaching centres and training institutes offering job oriented courses may be started to promote the weaker sections of the society.

♦ **Environment**

The environmentally sensitive areas include water bodies, paddy fields, wetlands and kavus. In Kuthuparamba town, the environmentally sensitive areas are scarce due to the absence of major water bodies. Mangaluth kavu is the only one that needs conservation and can be developed as an eco tourist spot.

At present, there are no major issues regarding pollution in Kuthuparamba town. But, with urbanization the problem of pollution may arise. The promotion of industries and the increased vehicular traffic will definitely pollute the environment. Hence measures need to be taken by the Municipal Authority and Environmental Protection Agencies to protect the environmentally sensitive areas.

♦ **Municipal Finance and Administration**

The trade and commercial activities, agriculture and allied products and the transportation system are the major source of municipal income. An increasing trend is

observed in the surplus fund of Kuthuparamba Municipality. Proper planned utilization of fund is to be achieved.

⇒ ***Linkage of Development parameters of Spatial and Sectoral Analysis***

The study and analysis of various development sectors of Kuthuparamba town reveals that the urban activities are mainly concentrated in the core area of the town and along the major corridors (SH— 30 and SH— 38). The urban activities mainly includes trade and commercial activities, traffic and transportation, industries, public and semi public. In these portions, the primary activities are low, but the residential concentration is comparatively high. Dry agriculture is mainly concentrated in the north western and south eastern part of the town and paddy fields are found scattered in the northern and southern portion. The good road connectivity existing within the town enables proper utilization of available resources and facilities of service sectors.

24.3 INFERENCE

The available potentials of Kuthuparamba town are not yet fully tapped. The town has great potential regarding trade and commerce, traffic and transportation, education, housing, agriculture and allied sectors. These available resources and potentials requires optimum utilization. Thus the planning interventions shall focus on identifying such potentials and linking those synergies to enable the city to function as a multi functional city giving prior importance for the conservation of environmentally sensitive areas. Kuthuparamba town has enormous scope to flourish as an intermediate town serving the foreign and local tourists visiting the surrounding tourist destinations.

Chapter 25

VISION, GOALS AND OBJECTIVES

25.1 THE VISION STATEMENT

Based on the study and analysis, the "Vision Statement" has been formulated as:

"Kuthuparamba Town shall emerge as a major service town having integrated urban development with adequate infrastructure facilities and smooth mobility wherein the present natural environment is protected."

25.2 GOALS

Based on the vision evolved, the following goals are set for the development of Kuthuparamba town.

1. To develop the town as a service centre of the region supported with integrated infrastructure facilities

2. To strengthen the economic base of the town through successful economic development programmes utilising potential of proximity to Kannur International Airport

3. To provide for the smooth, safe and efficient movement of traffic within the town and to strengthen regional linkages

4. To preserve the natural environment of the town by protecting the agricultural areas and water courses

5. To ensure a quality living environment for the resident people of the town.

25.3 OBJECTIVES

In order to achieve the above mentioned goals, a set of objectives are formulated and are enlisted below.

1. In connection with the goal ***"To develop the town as a service centre of the region supported with integrated infrastructure facilities"***, the objectives set are:

⇒ Enhance and expand town centre with higher order facilities to cater to the demand of surrounding LSGIs.
⇒ Introduce new service nodes for decongestion of town centre.
⇒ Highlight Kuthuparamba as the service town catering to the demand of Kannur International Airport.

2. In connection with the goal "***To strengthen the economic base of the town through successful economic development programmes utilising potential of proximity to Kannur International Airport***", the objectives set are:

⇒ Promote commercial and light industrial development in the town utilising the potential of agro based resource from the region.
⇒ Promote industrial development at regional level including development of export oriented industrial units utilising the potential of proximity to airport.
⇒ Promote entrepreneurship and start ups.
⇒ Develop adequate tourism infrastructure in the hospitality sector.

3.In connection with the goal *"**To provide for the smooth, safe and efficient movement of traffic within the town and to strengthen regional linkages"***, the objectives set are:

⇒ Improve the regional connectivity considering the status as service town in the region and proximity to international airport.
⇒ Provide better intra- town transportation network and facilities ensuring safe vehicular and pedestrian movement.
⇒ Improve pedestrian facilities.
⇒ Provide sufficient parking facilities
⇒Introduce automated traffic signals and other junction improvements

4. In connection with the goal *"**To preserve the natural environment of the town by protecting the agricultural areas and water courses "***, the objectives set are:

⇒ Conserve existing paddy land and protect agricultural areas to the extend possible.
⇒ To strengthen agricultural sector by promoting agricultural activities and also by promoting value addition of agricultural produces.

5. In connection with the goal *"**To ensure a quality living environment for the resident people of the town"***, the objectives set are:

⇒ Provide adequate physical infrastructure such as water supply, solid waste and sewage disposal facilities, storm water drainage and power.
⇒ Improve existing recreational and entertainment facilities.
⇒ Provide social infrastructure facilities and additional recreational/ entertainment facilities in a hierarchical manner considering the requirement of the service population as a whole.

Chapter 26

DEVELOPMENT CONCEPTS, POLICIES AND STRATEGIES

26.1 SUGGESTED CITY FORM AND DEVELOPMENT DIRECTION

The analysis of existing land use pattern of Kuthuparamba town reveals that the commercial as well as urban activities are mainly concentrated at Kuthuparamba Municipal Bus stand central area where market and public offices are located. Pookkod and Thokkilangadi are the other major commercial activity areas secondary to central area . An Industrial estate by SIDCO, functioning at Ambilad is the only industrial estate in the town. Apart from educational institutions and public offices the remaining portion of the town remains as rural or semi rural without much development and have residential and dry agriculture areas as predominant land use.

Major development thrusts offered by external factors are also taken into account while formulating development concept. One of the most important external thrust to development potential is offered by the Kannur International Airport. An industrial growth centre by Kerala State Industrial Development Corporation Limited (KSIDC) is fast developing at Valiyavelicham which is just outside of Kuthuparamba municipality boundary limits. The presence of Nirmalagiri Arts and Science College in the northern boundary of Kuthuparamba town, although major portion of the instituition comes under Mangattidam Grama Panchayat, is a value addition to higher education of Kuthuparamba. Kottiyoor temple, Peralassery temple and Thrikkaikunnu Shiva temple are major religious centres near to town also attracts lots of people, even outside of Kannur district. Co-operative Engineering College which is 7 km away from the municipal boundary is definitely a thrust to the development of Kuthuparamba town. Kannavam Reserved Forest area which is 14 km away from Kuthuparamba town is a tourist attraction especially since major films like PazhassiRaja, Baahubali was shot here.

All the above said factors are to be considered while shaping the suggested city form and development direction. A pictorial representation of the suggested city form is shown in Figure 26.1. The existing Central commercial area of the town is confined around the existing bus stand and this can be further expanded so as to include the proposed bus stand at Kuthuparamba and the surrounding areas of the present commercial areas . For giving new development directions to the city, commercial centres are suggested at north and south parts ; ie at Pookkod and Thokkilangadi of the town utilizing the potentials offered by the major transport corridor, Thalassery Coorg State Highway .

A new industrial corridor in the east end of Kuthuparamba is proposed on Kuthuparamba Valiyavelicham corridor so as to benefit from the adjacent Valiyavelicham industrial growth

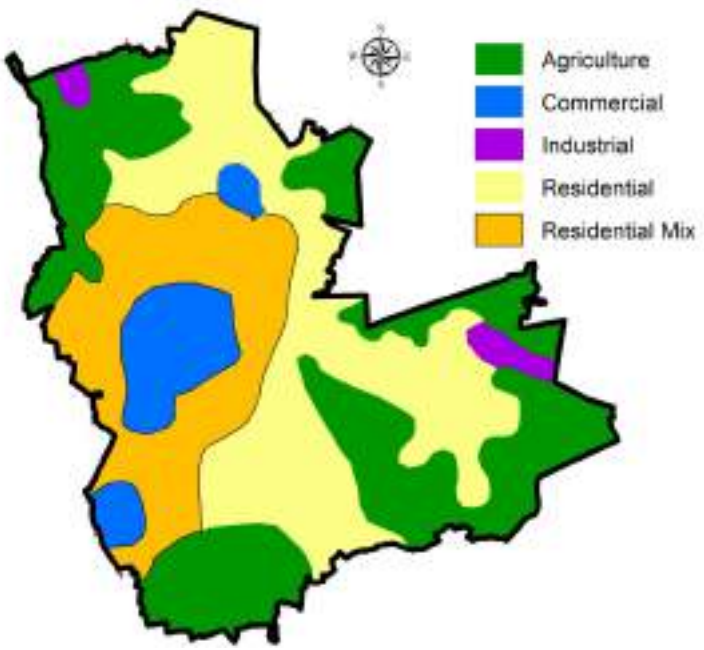


Figure 26.1 Suggested city form

centre. The existing industrial estate is situated on the northern portion of the town.

The area surrounding the commercial area is proposed as residential mix zone where residential as well as commercial activities are given equal importance. Thus mixed land use is proposed at the residential mix zone. The rest of the area of the town remains as either residential land or dry agriculture land and both these land uses are to be retained in the future plan also. Residential and dry agriculture land uses are essential in the suggested city form, the former for catering the future housing demand while the latter for creating a green environment. The existing paddy fields are retained as such to ensure the quality of environment.

26.2 SUGGESTED SETTLEMENT PATTERN

Based on the suggested city form and development direction, suggested settlement pattern is formed as shown in Figure 26.2.

Residential Settlement Patterns

Suggested residential settlement pattern includes residential area and residential mix area . Residential areas are located away from major corridors and are mainly intended for meeting the future housing demand. While residential mix areas are intended for a harmonious development of both residential and commercial activities as these mix areas are located along major corridors, preference is given for commercial activities but without any harm to the existing residential buildings there.

Urban Settlement Patterns

Urban activity areas are essential for a town to sustain itself as an urban body that attracts people from outside the town. As said earlier, the present bus stand area having markets and public offices can be considered as the core centre of the town and is suggested to expand further more in all directions for accommodating the future commercial needs as well as the public activities. Pookkod and

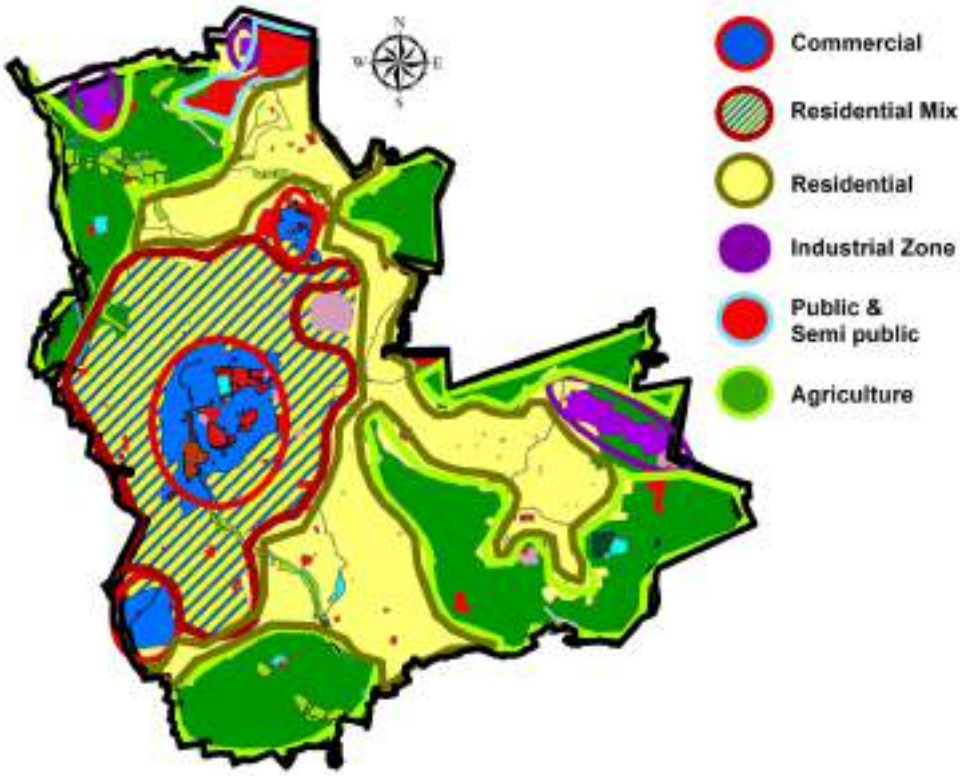


Figure 26.2 Suggested settlement pattern

Thokkilangadi junctions are suggested for commercial activity to support the central core commercial centre.

Residential mix areas are suggested along the Thalassery Coorg State Highway where residential as well as commercial activities are proposed.

Industrial growth centre can be considered as another type of urban settlement pattern. As far as Kuthuparamba town is considered, there exists an industrial estate by SIDCO at Ambilad. A new industrial corridor is proposed on Valiyavelicham corridor so that municipality can be benefitted from the fast developing Industrial Growth Centre at Valiyavelicham.

26.3 SUGGESTED HIERARCHY OF NODES

Analysis of the existing nodes and transport junctions reveals that the existing first order junction is Kuthuparamba municipal bus stand junction. The bus stand area located along Thalassery Coorg Road has markets and public buildings around it and is the most significant node for the Kuthuparamba town. Major commercial and public activities are focussed in this area and is therefore suggested as a First Order Node.

Thokkilangadi and Pookkode are suggested as Second Order Nodes which are on north and south side of town, respectively. These second order nodes compliment the commercial activity of the first order node. Pookkod and Thokkilangadi are the second order junctions in the existing urban profile.

Purakkalam on the west and Naravur on the east of town are suggested as Third Order Nodes.

26.4 SUGGESTED ROAD NETWORK

The suggested road network diagram for Kuthuparamba town is depicted as shown in Figure 26.3 along with suggested hierarchy of nodes.

The configuration of the existing road network within Kuthuparamba Town resembles more or less spine-and-spur pattern with a number of roads leading from Thalasserry-Coorg road which functions as the spine of the road network. This road passing through the centre of the town is forced to carry both intra-city and inter-city traffic.

On the basis of the projected volume of traffic and alternative network development schemes considered, a road development plan has been formulated for the town. The road development plan envisages hierarchical pattern of road network conforming to the following categories of road system.

- Primary distributor road
- Secondary distributor road
- Tertiary road

  Local road

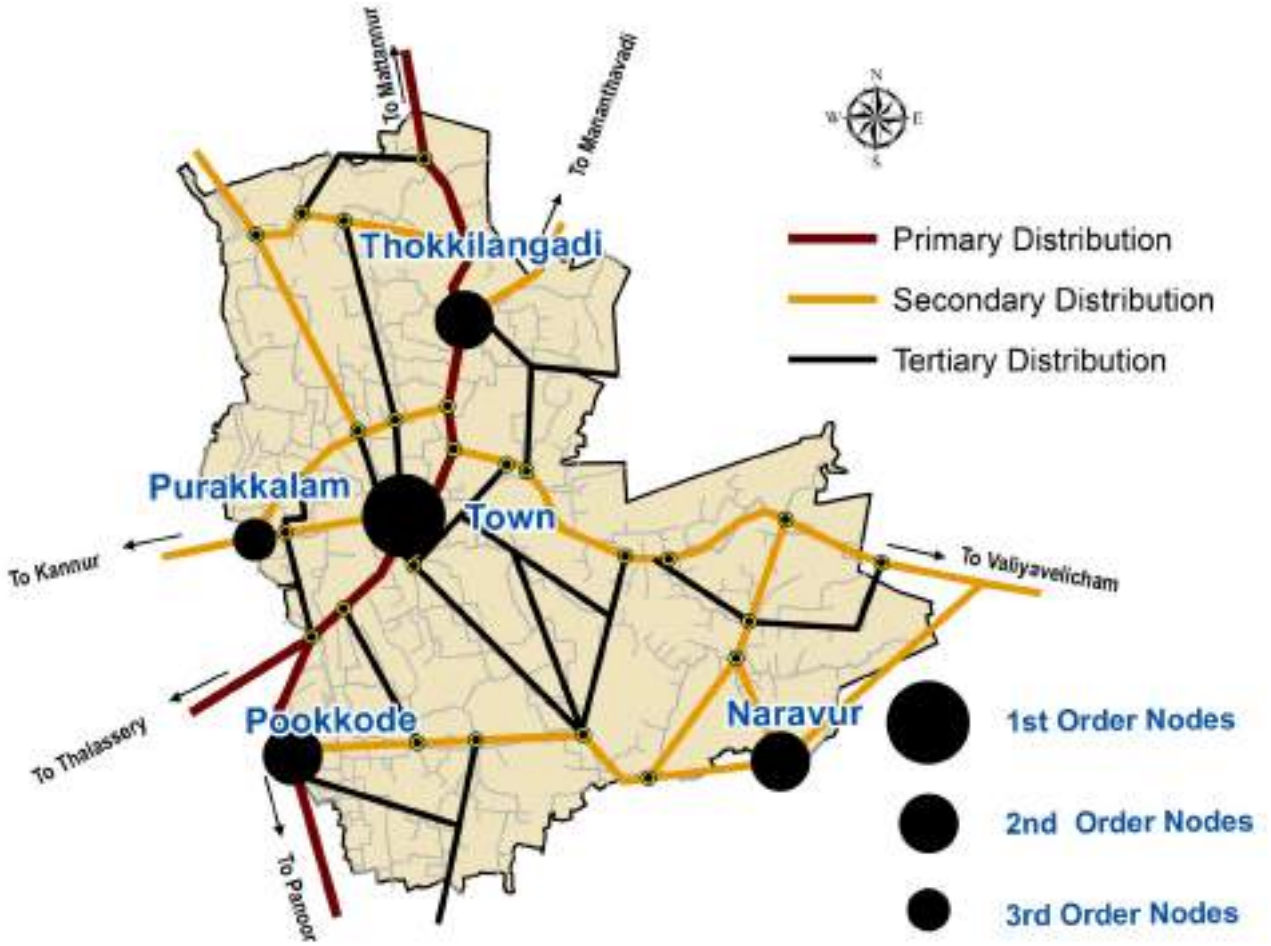


Figure 26.3 Suggested hierarchy of nodes

26.5 SUGGESTED SPATIAL STRUCTURE

The suggested spatial structure of the town is developed by overlaying the suggested hierarchy of nodes and suggested connectivity over the activity pattern as shown in Figure 26.4.

The activity pattern of the wards of the town is obtained by correlating the major land use concentration of the ward with its functional character. The suggested spatial structure of the town reveals that all three suggested first order nodes are located in the central portion of the town which constitutes the central commercial area of the town. The two suggested second order nodes are located along the Thalassery Coorg State Highway. For enhancing the developments in hinterlands two third order nodes are suggested in the west and east parts of the town. Moreover, all these suggested nodes are well connected to each other with a grid pattern road network woven across Thalassery Coorg State Highway.

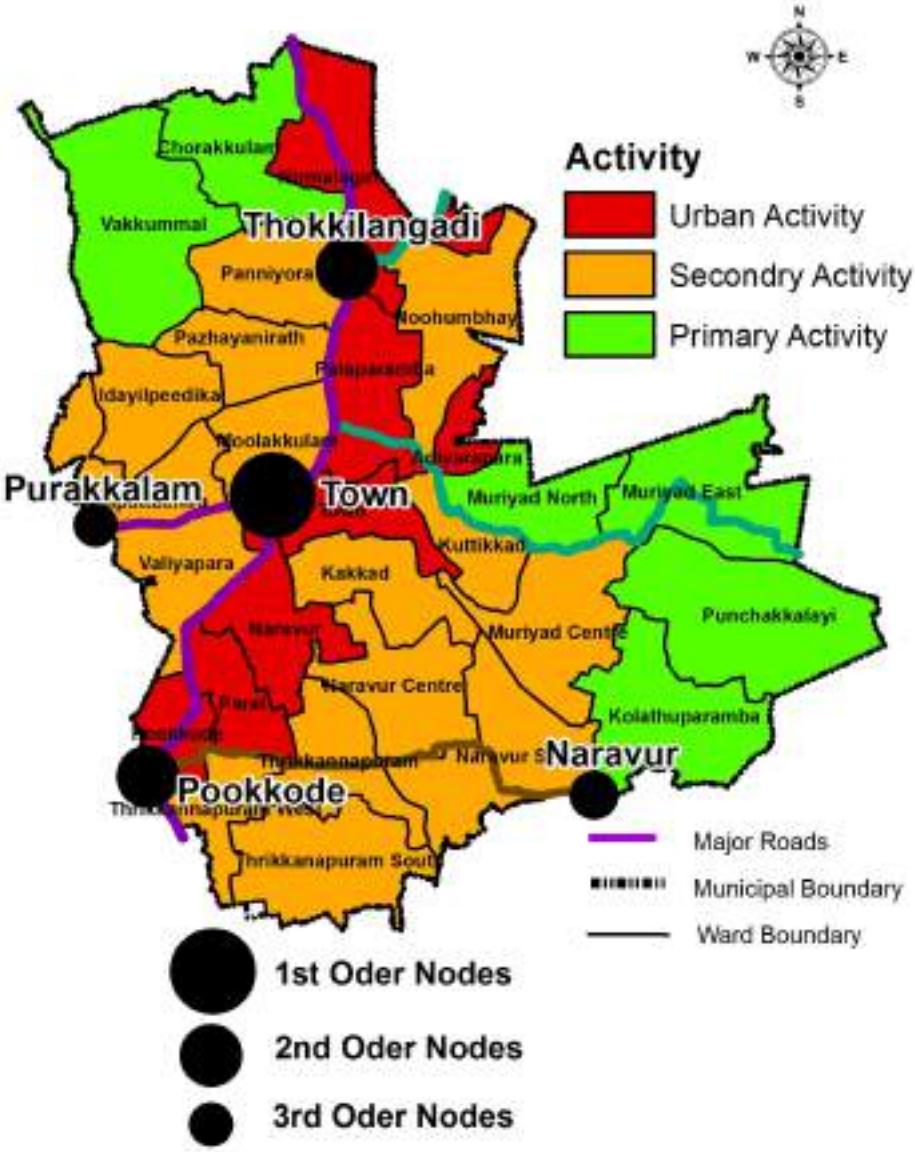


Figure 26.4 Suggested Spatial Structure

The urban activity wards are seen along the middle portion of town stretching in the North South direction. The functional character, population density, public and semi public type and commercial land use of the wards contribute for urban nature .Secondary activity wards are seen adjacent to urban activity wards where the predominant land use is residential. Wards in the north western parts and south eastern parts of the town show primary activity pattern in the suggested spatial structure which reminds that agriculture is an important sector in the development plan of the town. Due consideration is also to be given to the environmental conservation for achieving a better qualitative life for the citizens.

26.6 ENVISAGED CITY FUNCTIONS

The major envisaged city functions of Kuthuparamba town are formed according to the vision, goals and objectives.

Kuthuparamba town is envisaged :

⇒ ***As a service centre of the region supported with integrated infrastructure facilities***

⇒ ***As an attractive business centre especially utilising the potential of Kannur International Airport***

⇒ ***As a quality living environment for the resident people of the town***

⇒ ***As an industrially developing town***

26.7 DEVELOPMENT CONCEPT

Based on the vision, goals and objectives formed, a development concept is formulated for Kuthuparamba town with an intention to emerge as a 'smart city'. The major features of development concept are shortly described below.

1) Land Use Pattern and Zoning

Proposed land use pattern decides the future usage of available land within the town for different purposes whereas zoning regulations are the major tools for controlling the development in the desired manner. Keeping in mind for a balanced growth, the future land use pattern is designed.

2) Development of Nodes

- Kuthuparamba Bus stand junction is suggested as the first order node to enhance the commercial activities.
- Thokkilangadi and Pookkode junction areas are suggested as second order nodes due to its strategic location in the future development scenario.
- Third order nodes are suggested at Purakkalam junction and Naravoor junction for the overall development of the surrounding hinterlands.

3) Mobility Plan

- Widening of existing roads to accommodate the future traffic.
- Other transportation facilities like New Bus Terminal, Parking Plaza and parking lots, Pedestrian Crossing facilities, etc.
- Strengthening of Public Transport System

4) Sectoral Proposals and projects to accomplish the aim and objectives

- Focusing on production sectors for a stable economy

- Providing maximum facilities and amenities in the service sectors for the well being of public
- Recreation spaces like play grounds and sports academy
- IT Park
- Industrial corridor
- Due consideration on environment for sustainable development and qualitative life.

26.8 POLICIES AND STRATEGIES

Considering the development potential, demand for physical development and the need to conserve certain features and bring in synergy to the development process as a whole, the following policies and strategies are considered.

26.8.1 POLICIES

The plan aims at achieving an urban structure in which component development areas form an integrated system and each area allowed to expand in an orderly manner.

The proposal shall keep in view the optimum and exact utilization of land, a valuable and limited resource.

26.8.2 STRATEGIES

Environmental protection and sustainable development for surveillance of natural eco-system, conservation of paddy fields, water bodies, protection of flora and fauna.

- Exploiting in maximum of opportunities existing in sectors like tourism, trade and commerce, education, industry etc.
- Enhance the economic growth through optimum utilization of resources, promoting industrial and commercial growth centres.
- Enhance Recreational opportunities and entertainment facilities.
- Provision of equitable distribution of facilities.
- Provision of building rule relaxation to encourage industrial activity.

Chapter 27

PROPOSED LAND USE PLAN – 2031

27.1 EXISTING SCENARIO

The planning area of Kuthuparamba town is 16.76 sq.km. The analysis of existing land use survey reveals that the four major land uses identified are residential (62.66%), dry agriculture (22.45%), paddy fields including uncultivated areas (2.94%) and water body (0.37%). The other land uses are public and semi public (3.24%), traffic and transportation (4.23%), industries (0.17%) and commercial (0.60%). Figure 27.1 shows the existing land use map.

27.2 PROPOSED LAND USE PATTERN

To facilitate the future development as per the concept, the existing land use pattern is to be altered and the proposed land use pattern is to be located spatially. In this chapter, the proposed land use pattern for the horizon period is arrived and presented.

The proposed land use map and the area break up of each of the land use zones are given in Table 27.1 and Figure 27.2.

Table 27.1 Proposed land use break up

Sl. No.	Land use Type	Area in Sq.km	Percentage
1	Residential Zone	4.87	29.08%
3	Residential mix Zone	2.54	15.14%
4	Commercial Zone	0.76	4.56%
10	Industrial Zone	0.10	0.59%
6	Public and semipublic Zone	0.51	3.04%
5	Traffic &Transportation Zone	2.64	15.78%
2	Dry agriculture Zone	4.44	26.46%
7	Paddy field/Low lying area	0.46	2.74%
9	Hazardous Zone	0.07	0.42%
12	Parks & Open spaces	0.06	0.35%
14	Canal Land	0.05	0.28%
11	Waterbodies	0.06	0.37%
15	Sacred Groves	0.04	0.23%
16	Buffer Zone for Trenching Ground	0.06	0.36%
17	Industrial Promotion Zone	0.10	0.61%
	Total	16.76	100.00

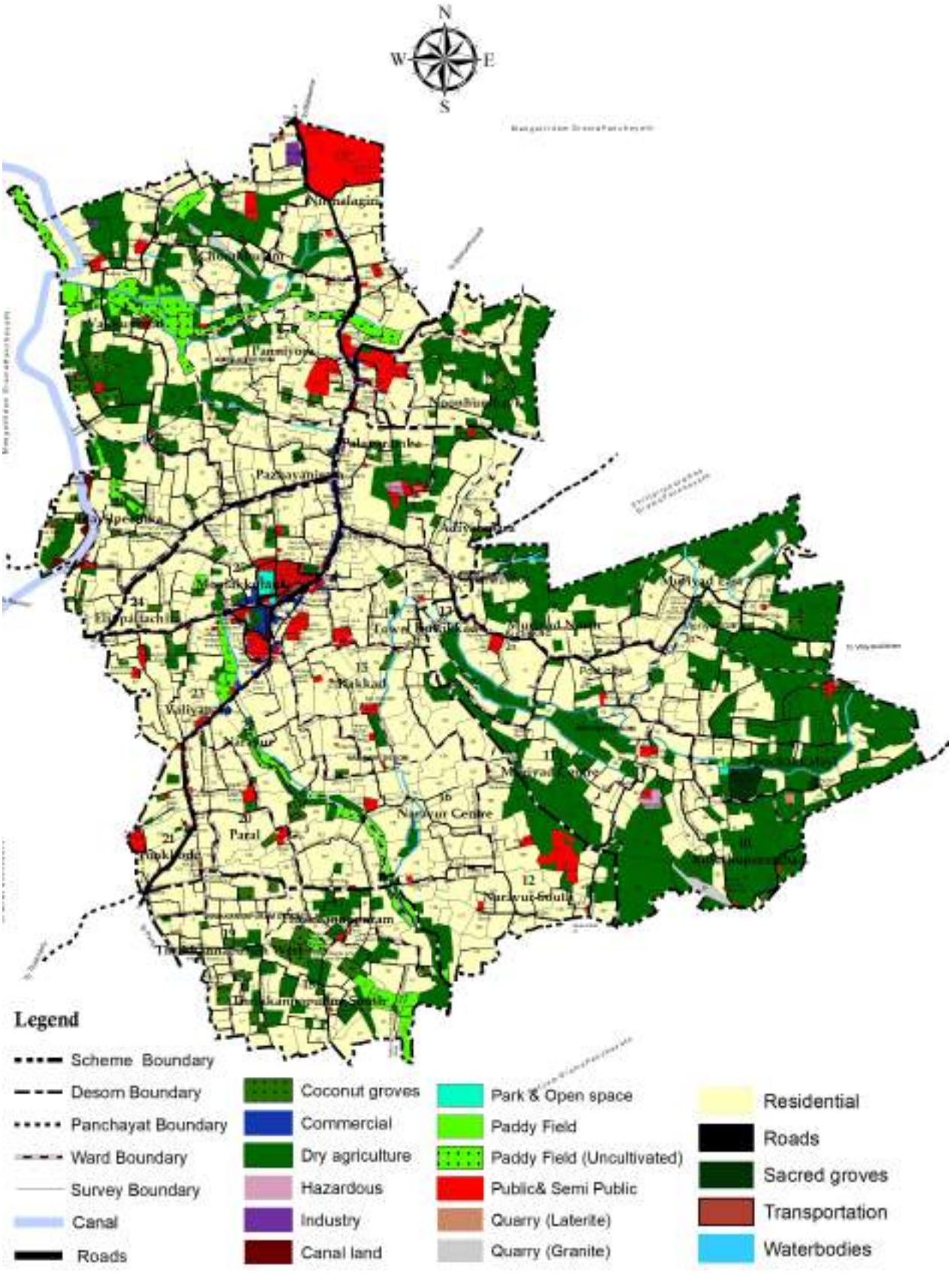


Figure 27.1 Existing Land use map

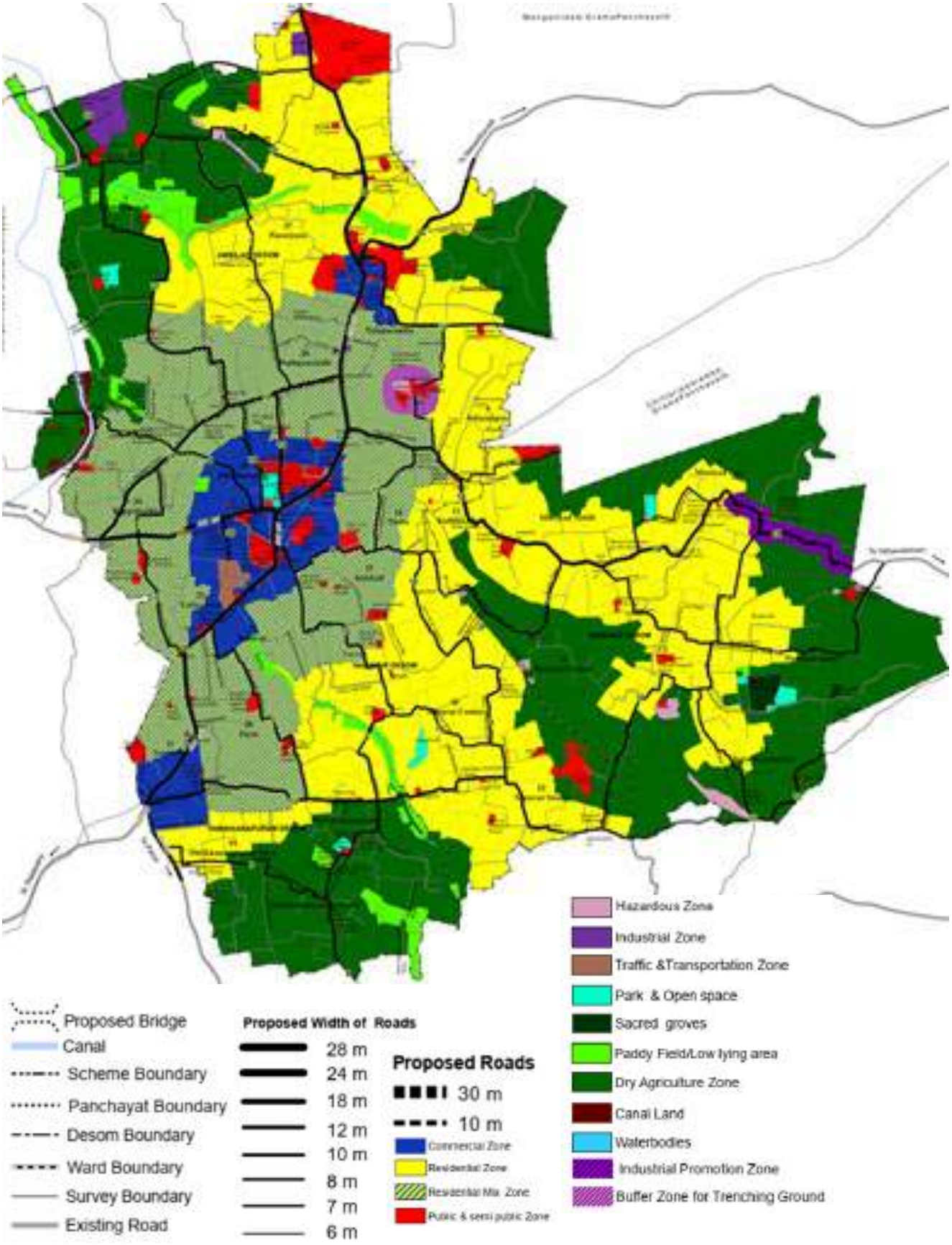


Figure 27.2 Proposed land use map

The category of land use proposed in line with development concept are as follows.

Residential zone
Residential Mix Zone
Commercial Zone
Public and Semi-public zone
Industrial zone
Industrial Promotion Zone
Traffic and Transportation zone
Park and Open Spaces
Water bodies
Sacred Groves
Paddy field/Low lying area
Dry Agriculture zone
Canal Land
Hazardous zone
Buffer Zone for Trenching ground

27.3 LAND USE ZONES

1. Residential Zone

The area set aside as exclusive residential zone in the proposed land use plan is 4.87sq.km and this constitutes 29.08% of total land use area of the town. Most of the existing residential areas located away from core centre of the town and major traffic corridors are retained as residential zone in the proposed land use plan also. All sort of residential developments including houses, apartments, flats, quarters, hostels etc. are permitted in this zone to cater all future housing demands.

2. Commercial Zone

The commercial zone is proposed in the central area of the town, Pookkode and Thokkilangadi junctions and along the major transportation corridors.

Commercial area at the heart of the city is exclusively for commercial and public activities. The existing commercial core centre at the bus stand area is to be expanded . Such an expansion of the existing commercial area is necessary for the town to function as a mother town and administrative headquarter for the surrounding region in the coming years.

Commercial zones are suggested at "Pookode"and "Thokkilangadi" which are at south and north side of the town respectively. Total area of this commercial zone is identified as 0.76 sq.km which has a share of 4.56% of total municipal area.

3. Residential Mix Zone

Residential mix zones are provided around the commercial area in order to utilize its commercial potentials. Both residential and commercial activities are encouraged here, but prime attention is given to the commercial development owing to the proximity of commercial area. Mixing of uses in the same building can also be encouraged in this zone if such option arises. The total land use area earmarked for this zone is 2.54 sq.km which is 15.14% of total land use area of the town.

4. Public and Semi-Public Zone

The importance of the town as a regional centre is to be enhanced by providing maximum public services within the municipal boundary. All existing public and semi-public land uses are to be retained as such and these

include the Govt. offices, public institutions, educational buildings, religious sites and hospitals scattered throughout the town. The total area for this zone is 0.51 sq.km and comes nearly 3.04 % of total land extent of the town.

5. Industrial Zone

In order to promote the industrial activities for the economic growth of the town all existing industrial premises are retained as such in the proposed land use. The total area for this zone is 0.10 sq.km and comes nearly 0.59 % of total land extent of the town.

6.Industrial Promotion Zone

A new industrial corridor is suggested at Valiyavelicham corridor by utilizing the potential offered by the Industrial Growth Centre at Valiyavelicham which is located just outside the town. More infrastructure facilities are to be provided and new industrial ventures are to be set up. The total land use area set aside as industrial promotion zone in the proposed land use plan is 0.10sq.km which has a share of 0.61% of total area of the town.

7. Traffic and Transportation Zone

As per the development concept, an efficient transportation network is to be provided for accommodating the heavy traffic flow expected in the coming years. Widening and improvement works of all major roads are essential for ensuring smooth mobility. In addition to this, the traffic and transportation zone includes the existing bus stand, proposed bus stand, link roads, new bridge to cross the Pazhassi irrigation canal at the west side of town, parking bays and lots, road junctions etc. The total area of traffic and transportation land use proposed is 2.64 sq.km which contributes to 15.78 % of total municipal land area. Details of road network and widening proposed are detailed in Chapter 28.

8. Park and open spaces

Parks and open space in a town provides the public the necessary facilities for amusement, leisure, recreation and refreshment. Proposal for new play grounds and sports academy, and up gradation of existing stadium at Town Square are suggested. The total land use area earmarked for this zone is 0.06 sq.km which is 0.35% of total land use area of the town.

9. Water bodies

Measures should be taken for retaining and protecting all existing water bodies within the town. Naravur thodu is the main minor irrigation system that runs through the town . Pazhassi irrigation canal is located in the west side of town. The total area of this zone is 0.06sq.km which is found as 0.37% of total area of the town.

10. Sacred Groves

This zone consists of Mangulath kaavu in the south east side of the town. The total area for this zone is 0.04sq.km and comes nearly 0.23% of total land extent of the town.

11. Paddy Field/Low lying area

Most of the paddy fields are lying uncultivated now but have scope for agriculture development. In order to conserve these areas, active paddy cultivation need to be promoted and also strict control on conversion of paddy lands need to be exercised. All land use in this zone should be in conformation with the Kerala conservation of Paddy land and Wetland Act in

force . The total area of paddy land is 0.46 sq.km which contributes to 2.74% of total municipal land area.

12. Dry Agriculture Zone

This land use zone consists of the coconut groves, cashew, rubber and other dry cultivations. Retaining of agricultural activities in the existing lands can bring economical growth through cash crops. In addition to this, the dry agriculture zone is helpful in enriching the greenery of the town. The strategy adopted is to discourage all land use conversion except for unavoidable circumstances. There also, floor area limitation is imposed as maximum of 250m² for residences. The total area of Dry Agriculture land is 4.44 sq.km which contributes to 29.46% of total municipal land area.

13. Canal land

A canal system of Pazhassi Irrigation Project passes through the western part of the town and takes the form of aqueduct when it crosses a drain or paddy fields. A total land area of 0.05 sq.km (0.28% of total area of the town) is now kept idle as the project is defunct and in the verge of winding up. Irrigation water was not available for a decade or so. This government land is to be preserved as an open space without encroachments. The land use is retained as such in the proposed land use map also but it is proposed that suitable land can be converted to any other land use with the concurrence of Irrigation Department, Chief Town Planner and concerned authorities. Utilizing the canal system for localized irrigation purpose with Minor Irrigation Department also can be sought out at ideal places.

14. Hazardous Zone

The hazardous zone includes existing trenching ground at Palaparamba, public burial ground at Santhivanam. The intention for such a zone is to isolate the health-hazard type land use from other land uses to avoid future conflicts. The strategies like exclusive usage of hazardous land use, prohibition of residential type land uses within certain vicinity, strict enforcement of guidelines of Pollution Control Board etc. can be adopted for this zone. Granite quarries are also included in the hazardous zone. The total area for hazardous zone is 0.07 sq.km and comes nearly 0.42% of total land extent of the town.

15. Buffer Zone Around Trenching Ground

A buffer zone of 50m width around the existing municipal trenching ground at Palaparamba is provided. Buffer zone given is to isolate the trenching ground from residential land uses to avoid future conflicts and also to reserve land for future expansion of the trenching ground. Buffering with tree plantations ideal for preventing pollution is suggested in this zone along with hazardous or industrial land use. Strict enforcement of guidelines of Pollution Control Board should be ensured in this zone. The total area of this zone is 0.06sq.km which contributes to 0.36% of total municipal land area.

Chapter 28
TRAFFIC AND TRANSPORTATION PLAN

Road network system is the major mode of transportation facility available to the Kuthuparamba town. The presence of SH-30 (Thalassery- Coorg road), State Highway-38 which connects Koothuparamba to Kannur and other Major District Roads form the main frame of the transportation network of the town. There is no railway line passing through the town . Thalassery railway station is the nearest railway station 15km to the town. The recently opened Kannur International Airport Limited at Mattannur brings a new link for air connectivity within a reasonable distance for the town.

28.1 TRANSPORT DEVELOPMENT PLAN FOR KUTHUPARAMBA TOWN

All the existing traffic problems as well as the future traffic and transportation problems likely to arise needs to be considered while formulating the long term road development plan for the horizon year. In addition, all the development proposals made by various agencies has to be taken into account.

The configuration of the existing road network within Kuthuparamba Town resembles more or less spine-and-spur pattern with a number of roads leading from Thalassery-Coorg road which functions as the spine of the road network. This road passing through the centre of the town is forced to carry both intra-city and inter-city traffic.

On the basis of the projected volume of traffic and alternative network development schemes considered, a road development plan has been formulated for the town. The road development plan envisages hierarchical pattern of road network conforming to the following categories of road system.

1. Primary road
2. Secondary road
3. Tertiary road
4. Local road

Major Town Roads

1)Primary Road

The road basically provides connectivity to State and District headquarters with a 'right of way' width ranging between 24 and 28 m. The stretch of the State Highway connecting Thalassery with Coorg, State Highway connecting Kuthuparamba with Kannur and and the road from Thokkilangadi Junction to Mananthavady will function as Primary roads and is proposed to be developed as 4-lane road within the municipal limits.

2)Secondary Road

This provides connectivity to nearby towns and Taluk headquarters. 'Right of way' width varies from 12 to 24 m. The following roads are proposed as secondary roads.

SD-1: The road from Palathumkara to Valiyavelicham/ Cheruvancherry is proposed as a two lane secondary road.

SD-2: Old Kannur road between Purakkalam and Pazhayanirathu is proposed as secondary road catering for four-lane traffic.

SD-3: Ambilad Mosque on Old Kannur road (Vakkummal Azad Gopalan road) linking

Manghimukku and Pulinkunnu junction.

SD-4: Kunhimayan Haji road starting from Thokkilangadi Junction

SD-5: The road from Town Square Junction to Old Kannur road (T.K Raju road). T.K Raju road further leads to the Treasury and Court complex in the central business area of Kuthuparamba town.

SD-6: The road from Pookkode Junction to Kolathuparamba (Paththalayi Kunhikannan road) via Naravoor Para leading to Cheruvancherry is proposed as a two lane secondary road

3)Tertiary Road

These roads provide connectivity to Kuthuparamba with other activity centres and hinterland. The 'right of way' width will vary from 8 to 12 m. The following roads are proposed as tertiary roads.

Tr-1: The road (N Padmanabhan road) connects Kuttikkunnu Junction on TC road with Kinattin Nada on Kinvakallal-Vengode road via Chorakkulam.

Tr-2: Kausalya Teacher Road

Tr-3: This is a major road connecting Kuthuparamba Taluk hospital/ Municipal office with Naravur named as Roshan road.

Tr-4: Kumaran Master road

Tr-5: Adiyeri Kunhiraman road from Mooriyad to Valiyavelicham is proposed as a tertiary road with two lane traffic.

Tr-6: Road from Naravur para Junction to Chullibhagam road Junction (Kandoth Abu road and Murikkoli Gopalan road)

Tr-7: Kinathi Govindan road

Tr-8: This road (Kaliyath Kunhiraman road) connects Pathalayi Kunhiraman road to Kandoth Abu road

Tr-9: Ambilad Mini Industrial Estate road

Tr-10: P K Chathukutty road

Tr-11: K V Koran Vaidyar road connecting N Padmanabhan road to TC road via Chorathumukku Chorakkulam Junction.

Tr-12: Government LP School Road connecting Thalassery road and Kannur road is proposed as a two lane road.

Tr-13: The road (Shanmugam road and N K Narayanan Master road) from Yuvajana Vayanasala at Chorakkulam in Kuttikkunnu road joins the Old Kannur road at T.K.Raju road junction.

Tr-14: The road connects Municipal Office junction to Palathumkara-Valiyavelicham road via Kuniyilpalam (Keloth Murikkancheri Gopalan road, Vandiyayi Janardhanan Road, Uchamballi Achuthan road).

Tr-15: C V Damodaran Nair road

Tr-16: Thavarayil Mandan road

Tr-17: Kizhakke Ambalam road

Tr-18: Padinjare Ambalam road

Tr-19: Koorumbakavu road

Tr-20: Pookkode School road

Tr-21: V P Nanu Master road

28.2 PROPOSED ROAD NETWORK

Figure 28.1 shows the proposed road network of Kuthuparamba town for the horizon year 2031 and gives a clear picture of the proposed width of various roads.

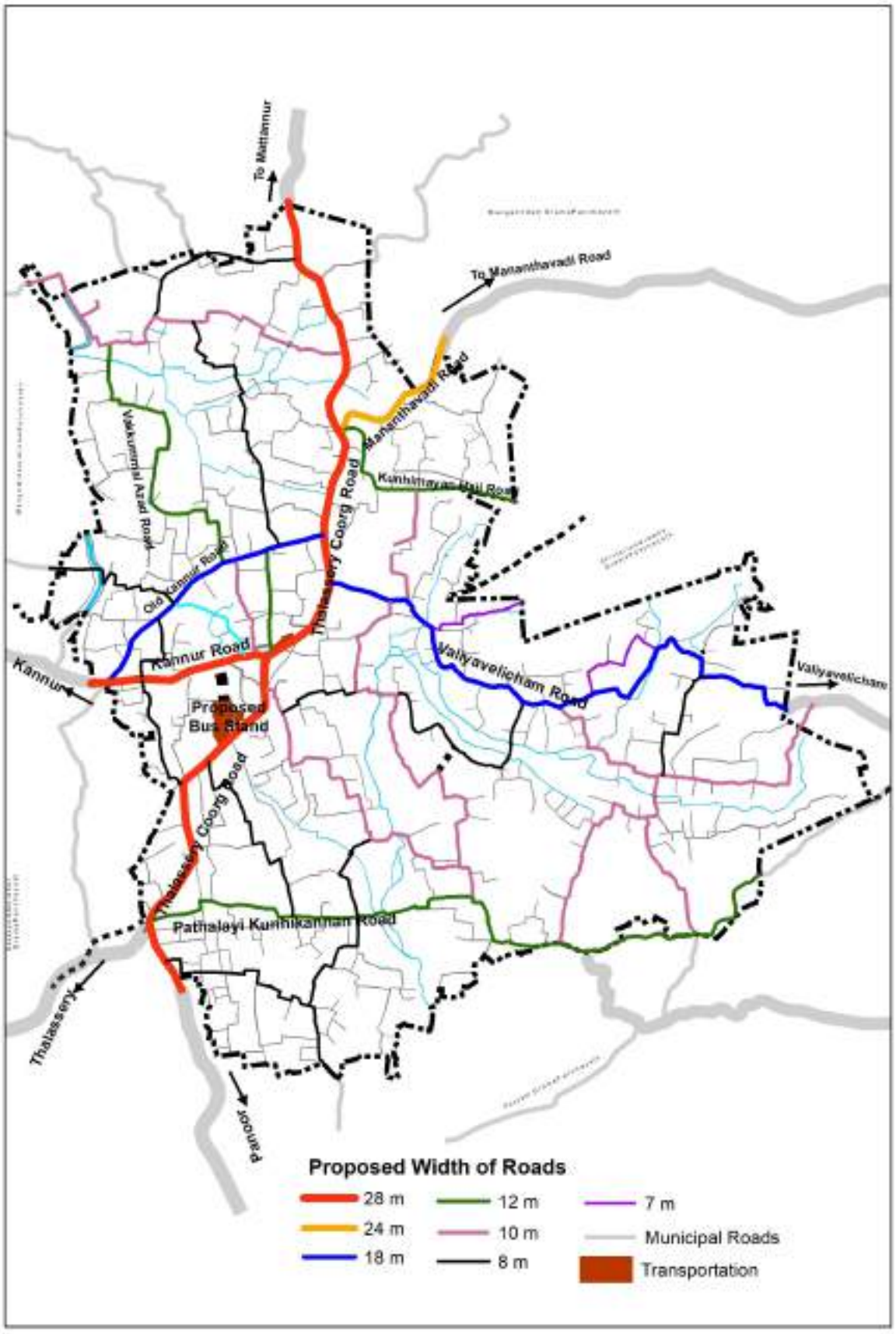


Figure 28.1 Proposed road network

The configuration of the existing road network within Kuthuparamba town is linked heavily with SH 30 (Thalassery Coorg Road) and most of the vehicles have to pass through this major corridor to reach different places in the Town. Based on the study and analysis, a proposed road network is prepared in the proposed road network map.

28.3 ROAD WIDENING PROPOSALS

The Volume/Capacity ratio study reveals that traffic volume passing through the major roads exceeds their capacity now itself and it will be many fold by the horizon year except for a few minor roads. Therefore, road widening is essential for getting a smooth transit without congestion and traffic blocks. Widening proposals of the major town roads are given in Table 28.1.

28.4 PROPOSED RING ROAD

A ring road is proposed in Kuthuparamba town so as to connect the existing roads viz. Kuthuparamba – Purakkalam -

Table 28.1 Widening proposals of the major town roads

Road Name	Proposed width (m)	Existing Avg. width (m)	Length (km)
Kannur Road	28	15	1.17
Thalassery-Coorg Road	28	20	5.70
Mananthavadi Road	24	15	0.96
Valiyavelicham Road	18	12	5.88(4.00)
Old Kannur road	18	16	1.79
Vakkummal Azad Gopalan Road	12	6	2.24
Kunhimayan Haji Road	12	9	0.65
T.K. Raju Road	12	5	0.67
Pathalayi Kunhikkannan road	12	7	4.67
N Padmanaban Road	10	6	2.70
Kausalya Teacher Road	10	9	1.00
Roshan Road	10	5	2.54
Kumaran Master Road	10	5	1.90
Adiyeri Kunhiraman Road	10	5	2.16
Kandoth Abu Road	10	5	1.65
Kinathi-Govindan Road	10	9	1.62
Kaliyath Kunjiraman Road	10	5	0.92
Ambilad mini industrial estate road	10	5	0.20
P.K. Chathukkutti Road	10	5	0.70
K V Koran Vaidyar road	8	6	1.17
Govt.LP School Road	8	5	0.82
Shanmukhan Road	8	5	1.74
N.K. Narayanan Master road	8	5	0.74
Keloth Murikkacheri Gopalan Road	8	5	0.87
C.V Damodaran Nair Road	8	5	0.60
Thavarayil Manthan Road	8	5	1.09
Vandiyayi Janardhanan Road	8	5	1.00
Uchambally Achuthan Road	8	5	0.45
Padinjare Ambalam Road	8	5	1.39
Kizhakke Ambalam Road	8	5	0.60
Koorumbakavu Road	8	6	0.79
Moorikkolli Gopalan Road	8	5	0.77
Pookode School Road	8	5	1.81
V.P. Nanu Master Road	8	5	0.52
Mundayath Balakrishnan Road	7	5	0.77
Adiyarapara-Cheruvod Road	7	5	0.65

Road New Road	Proposed width (m)	Length (km)
New Road proposal to Traffic and Transportation Zone	30	0.24
Kakkad Vayalum Bhagam Road	10	0.18

Pazhayanirathu – Vakkummal – Chorakkulam – Kuttikkunnu – Palathumkaram – Mooriyadu – Kolathuparamba – Naravoor para – Trikkannapuram – Pookkode. Figure given below shows the proposed ring road in Kuthuparamba town.

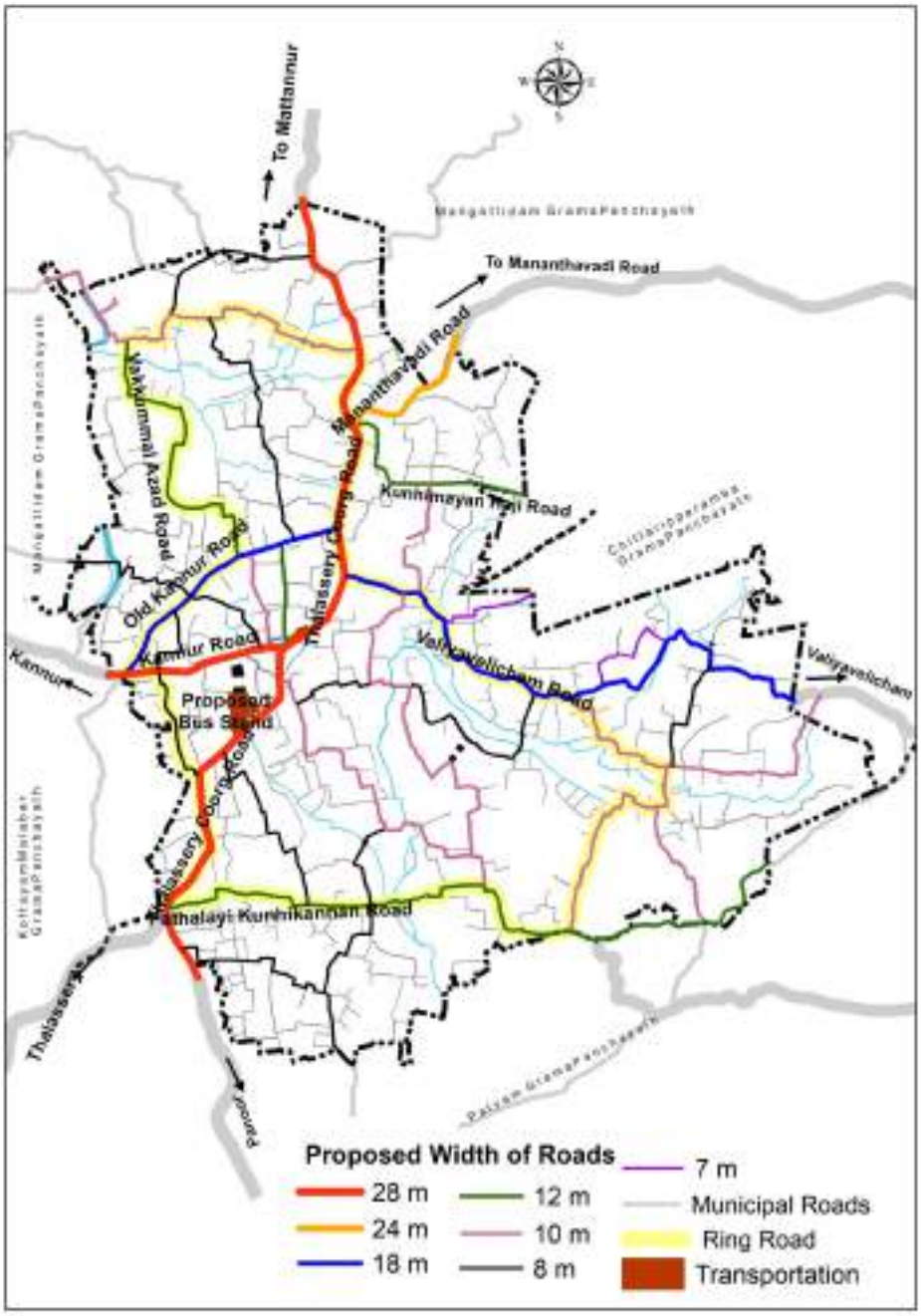


Figure 28.2 Proposed ring road in Kuthuparamba town

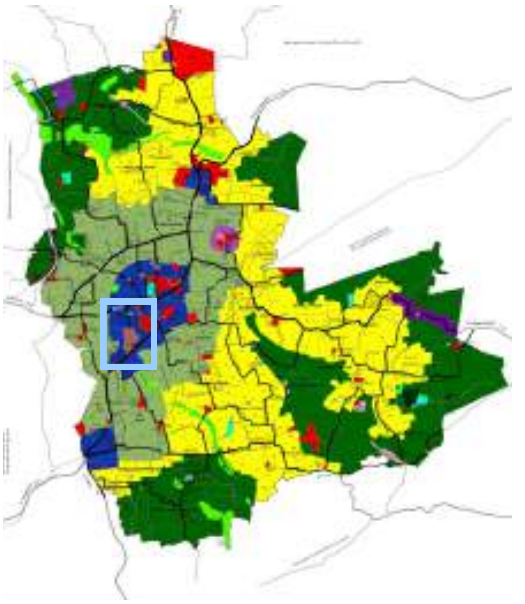
Table 28.2 Proposed ring road width

Proposed Ring roads	Width
Dr. D. Kumaran (Pazhayanirath) road	18
Vakkummal Azad Gopalan Road	12
K.V Koran Vaidyar Road	8
Thalassery-Coorg Road	28
Valiavelicham Road	18
Adiyeri Kunhiraman Road	10
Kandoth Abu Road	10
Kalliyath Kunjiraman Road	10
Govt. LP School Road	8

28.5 INTERSECTION IMPROVEMENTS

Intersections are the vehicle conflict points and are prone to accident risk. Therefore there is a need to properly design the intersections for streamlining traffic flow and minimizing conflict points. The following intersecting points in Kuthuparamba town need to be taken up for detailed design considering the existing traffic flow and the need for future road widening.

1. Pookkode Junction
2. Purakkalam Junction
3. Pazhayanirathu Junction
4. Thokkilangadi Junction
5. Town Square Junction
6. Palathumkara Junction



Desom	Naravur
Survey	85p,89p,86p,84p
Area	4.0 ha

Proposed Bus Terminal at Valiyapara Ward

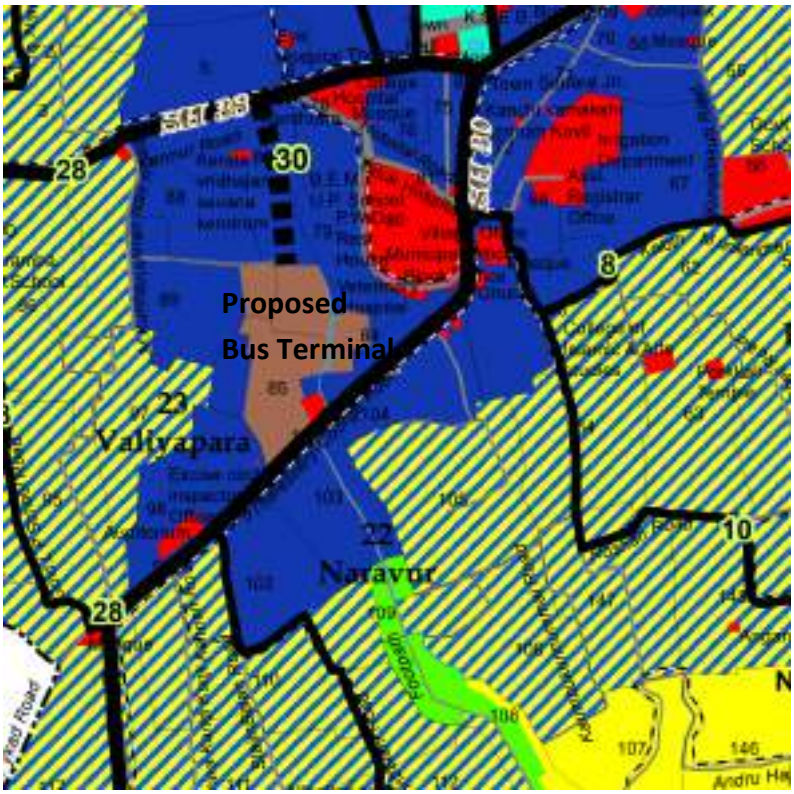


Figure 28.3 Location of Proposed Bus Terminal

7. Municipal Office Junction

Proposed facilities to augment bus transport system

28.6 NEW BUS TERMINAL

The Bus Stand located at the heart of Kuthuparamba town creates a lot of traffic congestion on TC road as each bus has to take right-turn while entering or leaving the bus stand thus blocking traffic flow on the main road. It is recommended that the bus stand be shifted to a new location on the TC road, about 500m from Municipal Office. In order to provide connectivity to the new bus station from Kannur road, a new link road is proposed from Kannur road to the proposed bus station along Thalassery road. The proposed road should have a right of way of 30m as the

proposed road passes under a HT electric line. The proposed bus station and link road is shown in figure 28.3.

>>New bus services: In Kuthuparamba town, the following roads have bus transport services

(i) TC road

(ii) Kannur road

(iii) Wayanadu road

(iv) Palathumkara-Valiyavelicham road

(v) Pookkode-Naravoor road

(vi) Muriyad PO to Kolathuparamba road

In some of the other roads in Kuthuparamba town, due to inadequate road width, buses could not be operated. Upgrading the width of the road has been suggested as part of this study, so that adequate bus services can be provided on those roads also.

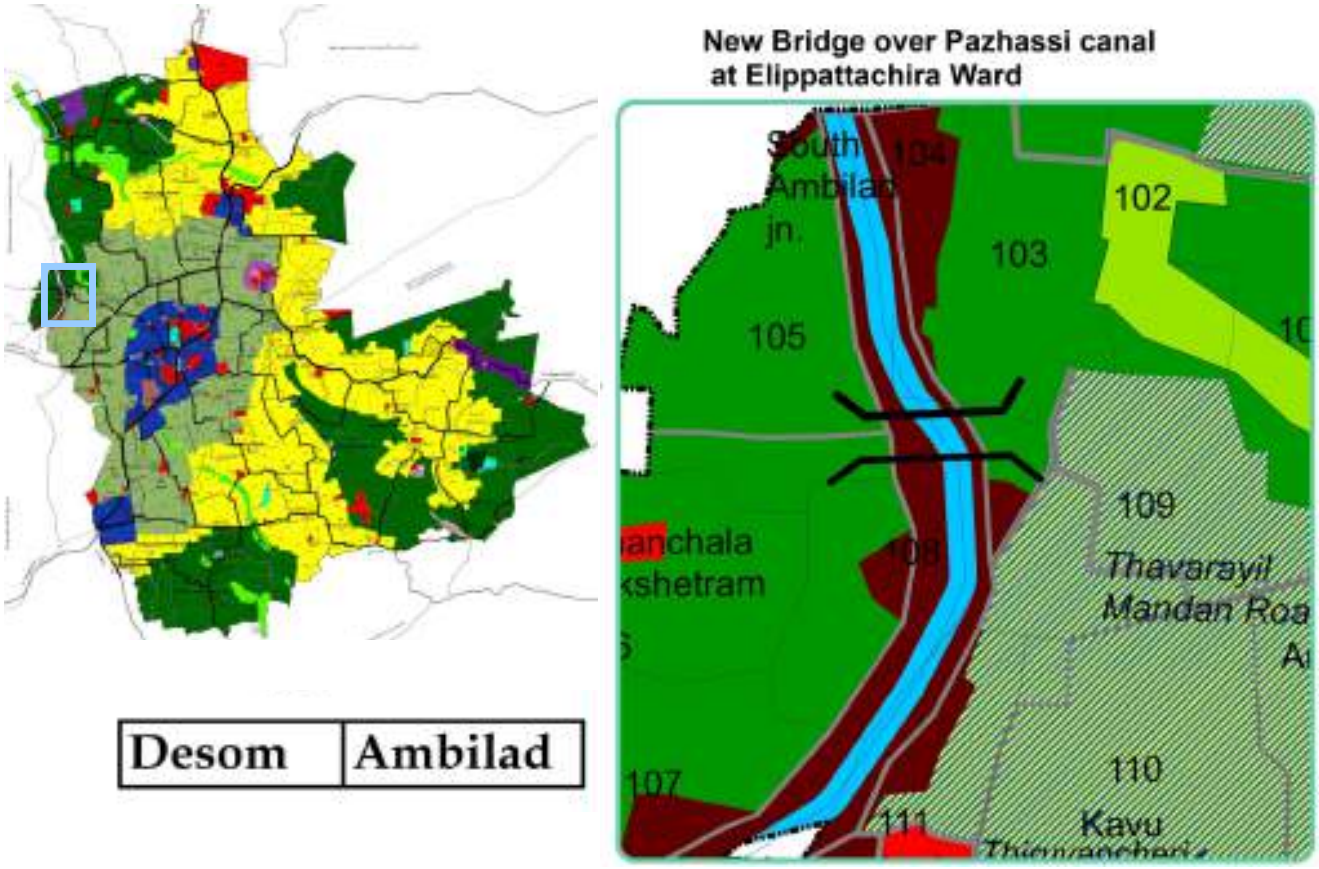


Figure 28.4 Proposed bridge at irrigation canal

28.7 NEW BRIDGE OVER PAZHASSI CANAL

A new bridge is proposed over Pazhassi canal at Elipattachira ward for better connectivity. Proposed bridge at irrigation canal is shown in figure 28.4.

28.8 PEDESTRIAN FACILITIES

The pedestrian facilities that need to be considered are:

28.8.1 Sidewalks or walkways

Sidewalks and walkways are "pedestrian lanes" that provide people with space to travel within the public right-of-way, that is separated from roadway vehicles. Sidewalks are

associated with significant reductions in pedestrian collisions with motor vehicles. For Kuthuparamba town, considering the existing pedestrian demand, sidewalks with a width of 1.5m to 2.5 m is proposed for all types of roads including primary, secondary, tertiary and local roads.

28.8.2 Marked crosswalks and enhancements

Marked crosswalks indicate optimal or preferred locations for pedestrians to cross and help designate right-of-way for motorists to yield to pedestrians. Crosswalks are often installed at signalized intersections and other selected locations. Marked crosswalks are desirable at some high pedestrian volume locations (often in conjunction with other measures) to guide pedestrians along a preferred walking path. For Kuthuparamba town, cross walk markings are desirable at the following intersections

(i) Stadium Junction

(ii) Municipal Office Junction

(iii) Purakkalam Junction

(iv) Palathumkara Junction

(v) Thokkilangadi Junction

Apart from these intersections, cross walk markings need to be proposed at major high pedestrian volume locations like educational institutions, hospitals and commercial centres.

28.8.3 Pedestrian overpasses/underpasses

Pedestrian overpasses and underpasses allow for the uninterrupted flow of pedestrian movement, separated from the vehicle traffic. However, they should be a measure of last resort, and it is usually more appropriate to use traffic-calming measures or install a pedestrian-activated signal that is accessible to all pedestrians. This is also an extremely high-cost and visually intrusive measure. Such a facility must accommodate all persons. These measures include ramps or escalators. Extensive ramping will accommodate wheelchairs, but results in long crossing distances and steep slopes that discourage use. Studies have shown that many pedestrians will not use an overpass or underpass if they can cross at street level in about the same amount of time. Overpasses work best when the topography allows for a structure without ramps. Underpasses work best when designed to feel open and accessible. Grade separation is most feasible and appropriate in extreme cases where pedestrians must cross roadways of high speed, high-volume arterials.

Considering the existing traffic and pedestrian movements, grade-separated facilities are not proposed for Kuthuparamba town.

28.9 PARKING FACILITIES

Considering the parking demand observed at many of the road stretches, a combination of commercial cum automated parking system can be considered in the long run for Kuthuparamba town. It could be located behind the bus stand where parking takes places at present.

28.10 PUBLIC TRANSPORT SYSTEM

Public transport system is the mode of transportation for ordinary people who cannot afford a taxi car or private vehicle and car owners are also compelled on many occasions to avail of the public transportation system. The system is to be strengthened in every possible manner as it possesses the following advantages.

1. It is cheap, economical and affordable to all income group of the society.

2. Reduces traffic congestion as number of cars on road is decreased.

3. Reduces consumption of fossil fuel.

4. It is eco-friendly as mitigation of private vehicles reduces emission of 'green house gases'.

5. Helps foster a sense of community. People travelling together are more likely to feel a community connection than those travelling in cars in isolation.

6. Encourages people to have a more active healthy lifestyle, particularly if they are walking or cycling to their station or stop.

7. Helps reduce injuries and fatalities caused by car accidents.

8. It is less stressful. Rather than driving in traffic or wasting time looking for an elusive car park, public transport passengers can relax and listen to music, play games in mobile or read a book.

1. Strengthening of Public Transport System

There are hinterlands and remote areas in Kuthuparamba town that have less connectivity to the town or major roads. For serving the public, the followings methods for strengthening the public transport system shall be adopted

- Extension of existing bus services to remote areas by mandatory provisions of transport authorities using methods of alternate service, alternate day services, weekly services etc.
- Circuit services connecting hinterlands
- Operation of more services of K.S.R.T.C buses
- Use of mini buses
- Sharing services of Jeep/Auto-rickshaw/Van

2. 'Sugama'- Mini Bus Service of Kuthuparamba Municipality

Considering the unique characters of Kuthuparamba Municipal town, its geographical nature, vast extent of remote hinterlands, interior roads having narrow width and the number of passengers, a public transport system with mini bus services seems to be ideal and suitable for Kuthuparamba town. Municipality should take initiatives to start such mini bus service to cover the entire municipal region with the assistance of financial institutions and co-operative banks and with co-ordination of Motor Vehicle Department, KSRTC, RTO, etc. The methods described in the above proposal can be adopted here also for covering all the remote portions of the town.

28.11 OTHER PROPOSALS

28.11.1 Bus bays with Hi-tech waiting shelters

The stopping of buses at bus stop on road

makes traffic block forcing vehicles behind for unnecessary halts and delay. Construction of bus bays along road side is the best remedial measure and should be adopted wherever possible. And modern waiting shelters with seating facility, display board of bus timings, Wi-Fi facility, F.M Radio, music system and waste bins are to be provided for the comfort of passengers. Methods like sponsorship, advertising etc. can be adopted for fund raising.

Municipality, PWD, Jilla Panchayath, Kerala Road Fund Board (KRFB), Kerala Roads and Bridges Corporation (Ltd.), MPLAD, MLALAD, Central and State Government Funding Agencies are the agencies involved.

28.11.2 Name boards and Sign boards for all roads

Name boards having street name and proper directions are necessary in a smart town for the road users especially coming from outside of the town to identify the location and destination. The installation of traffic sign boards at locations of accident prone areas is found as a cheap and effective measure for reducing road accidents. Similarly cheap safety measures like road markings, installation of reflectors etc. are helpful in avoiding road accidents and thus saving many valuable lives of the citizens.

28.12 INFERENCE

Based on detailed studies, base line data pertaining to traffic and transportation system for Kuthuparamba town has been compiled. The base line data comprises of transport network in the study area, volume and capacity utilization on major roads, parking demand and pedestrian volume, and inter-city passenger and goods traffic characteristics. In addition, projection of traffic on major roads has been carried out for various horizon periods considering the growth potentials of the study area. Based on traffic projection, a long term Transportation Development Plan has been formulated for the town. The proposals included in the long term plan would enable a balanced development of the Urban Centre in the coming years.

Chapter 29

SECTORAL PROPOSALS

Based on the primary and secondary data collected, local level analysis, spatial analysis of the data and discussions and suggestions of SIC working groups, the following projects and proposals are made in various sectors.

Many of the general proposals are people's aspirations raised in working groups and Spatial Integration Committee and are given here as guidelines. The Municipality can include these proposals in its future annual plan for implementation.

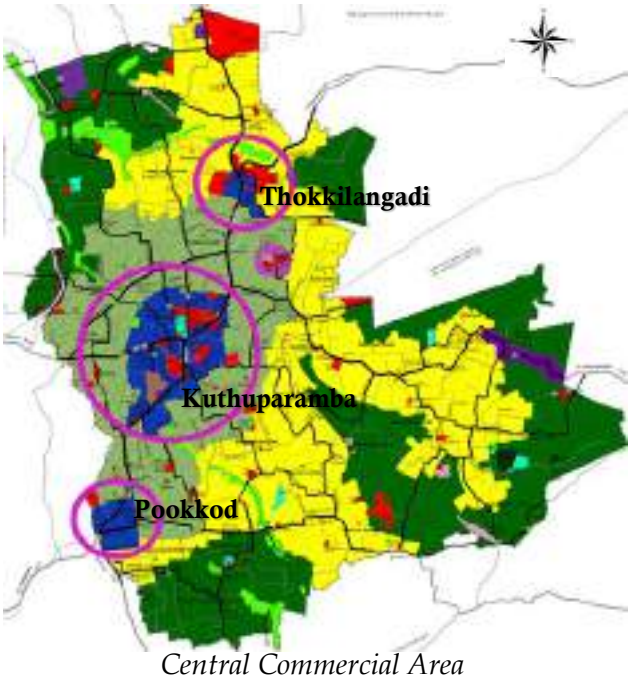
29.1 TRADE AND COMMERCE

Trade and commerce is one of the most important activity of any town. In Kuthuparamba, Central Commercial Area which includes the existing Bus Stand ,Taluk Hospital, Stadium, Public offices, etc. is the core commercial area acting as Central Business District (CBD), which needs to be expanded for future growth. The central commercial area is zoned as Commercial Zone to promote commercial activities.

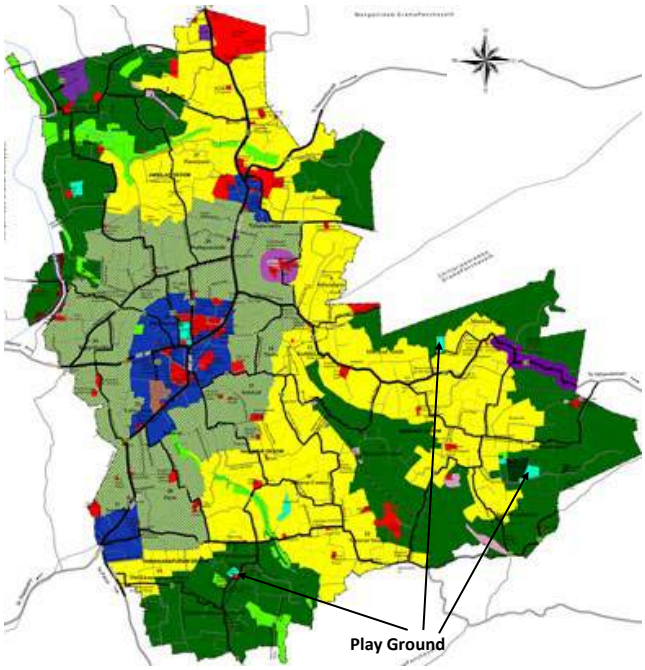
Thokkilangadi and Pookkod are proposed as commercial sub centres considering the future growth of the town. Commercial activities are given predominance in these zones.

29.2 CIVIC AMENITIES AND RECREATION

Civic amenities including recreational facilities are less in Kuthuparamba Municipal area. For emerging as an attractive urban town by giving all necessary amenities and recreation facilities with urban standards, following projects and proposals are suggested.



Central Commercial Area



Location of Play grounds

Play grounds and open spaces are necessary at different parts of the town for recreation and healthy living of citizen especially for children. Development of such play grounds are proposed and its location is shown in Figure above

Playgrounds are proposed at

(1) Punchakkalayi ward in Muriyad Desom in Survey Numbers 91(P),101(P),103(P) of area 1.4Ha.

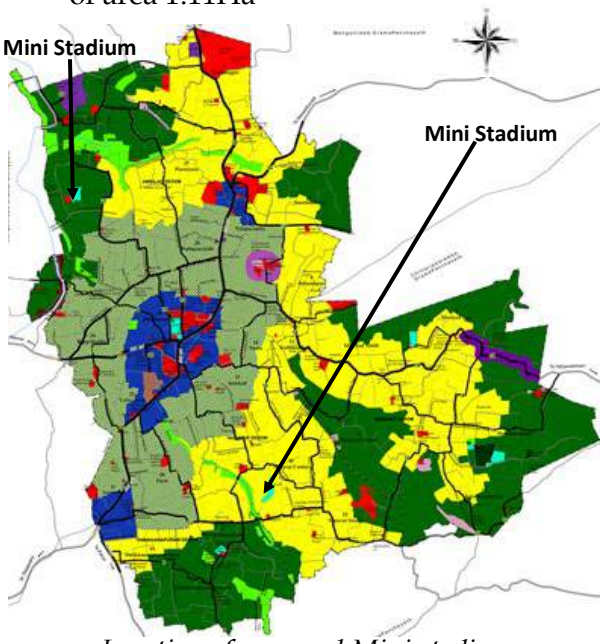
(2) Thrikkanapuram ward in Thrikkanapuram Desom in survey Number 31(P) of area 0.59Ha.

(3) Muriyad East ward in Muriyad Desom in survey Number 18 (P) of area 0.99 Ha.

Proposed Mini stadiums at

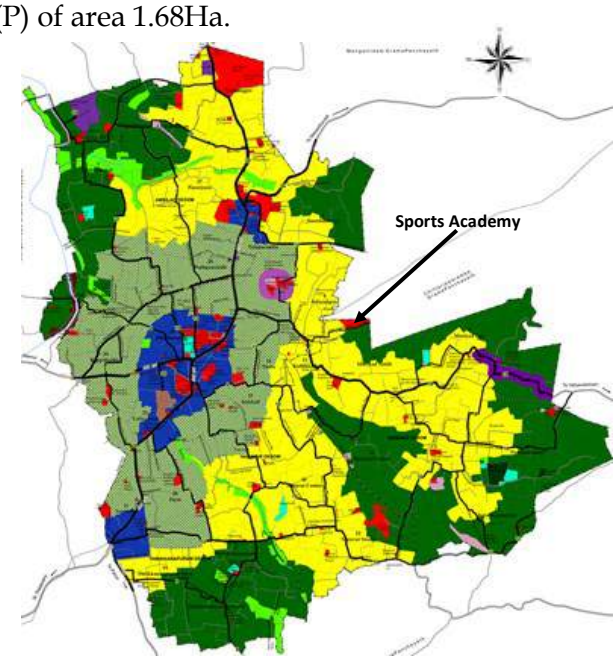
(4) Near MES School at Vakkummal ward in Ambilad Desom in Survey Number 81(P) of area 1.26Ha.

(5) Naravoor Central ward in Naravoor Desom in Survey Numbers 174(P),163(P) of area 1.11Ha



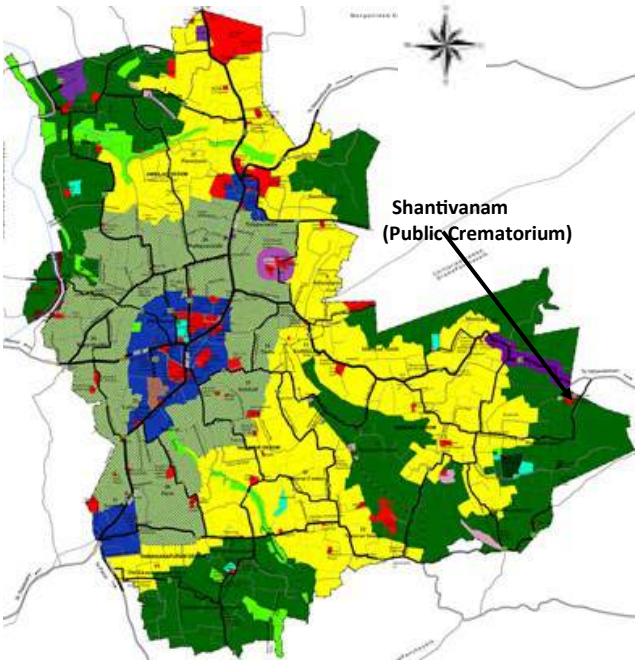
Location of proposed Mini stadium

(6) Sports Academy:- Which facilitates the sports activities is proposed at Muriyad North ward in Muriyad Desom in Survey Number 2 (P) of area 1.68Ha.



Location of proposed Sports Academy at Muriyad North ward

(7) Public Crematorium at Shantivanam:- Shantivanam is proposed as hazardous zone so as to discourage other activities, especially

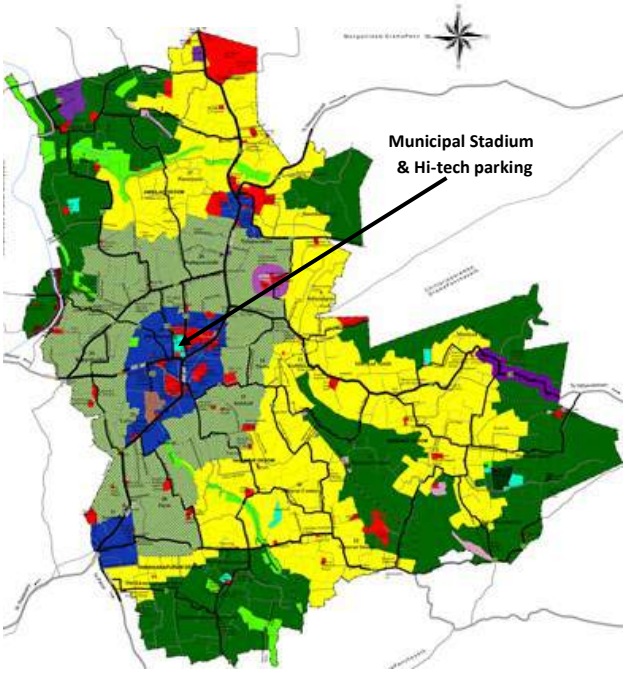


Location of Public Crematorium

residential activities. The hazardous zone of the public crematorium is located in Survey Number 42 (P) in Muriyad Desom.

(8) ***Modernization of existing Stadium at Kuthuparamba Town Square***

Stadium and Play ground are essential for creating a healthy and energetic society and for conducting sports events. A proposal of modernization of the existing Stadium at Kuthuparamba is suggested in this Master plan.



Modernization of Existing Stadium

(9) ***Recreation Park at Kuthuparamba***

A well equipped, well organized and well maintained park with all kind of recreational facilities is essential for a town like Kuthuparamba which is going to be a prominent urban centre. Such an organized park with facilities like walkways, jogging tracks, football ground lawns, children's play area, open air auditorium, food pavilions, comfort stations, landscaping etc. is proposed.

(10) ***Information Centre at Kuthuparamba***

An information centre providing the route details and tourist locations will be beneficial for the new visitors. Such an information centre will be helpful in promoting the tourist activities in the region. An ideal location is to be identified very near to Kuthuparamba Town Square.

OTHER PROPOSALS

(a) **Community halls at various locations**

Community halls with dining facilities are necessary for conducting public and private functions at major centres, residential areas as well as remote and hinterland areas of the town.

(b) Swimming Pools - Construction and Improvement

Swimming is the best sort of exercise prescribed for a healthy living. And now swimming classes are provided to children at schools. There exist a large number of ponds in the town which can be renovated and used for swimming.

(c) Weekly markets for farmers and cottage industries

Setting up of weekly markets at suitable locations can promote the selling of agriculture products of farmers, products of Cottage industries, etc.

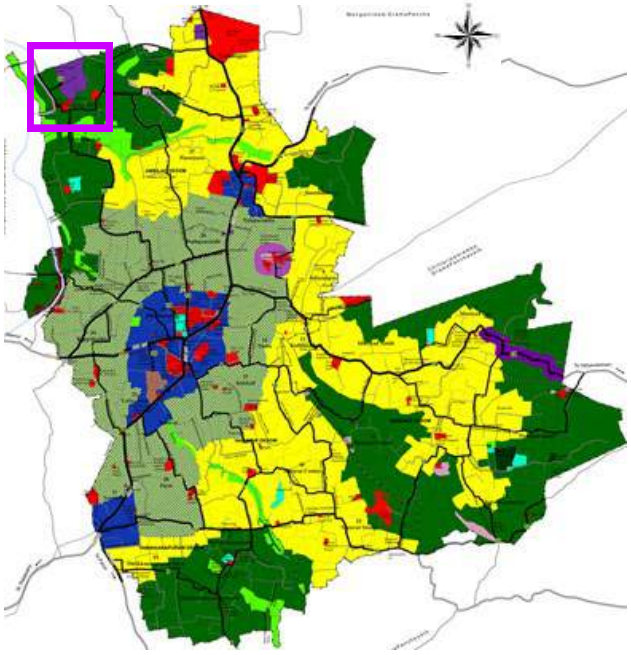
(d) Construction of Star hotels

Star hotel accommodation will be essential for attracting traders, business people and tourists and can be started in public/private/ co-operative sectors.

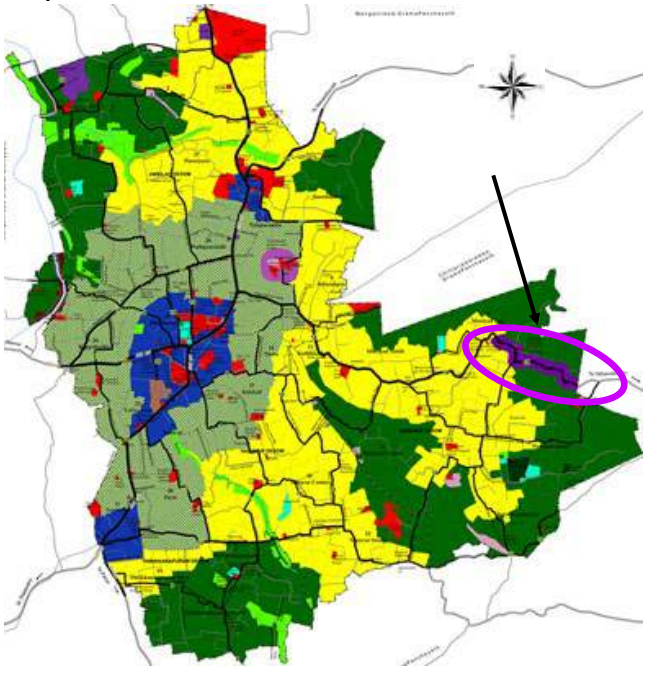
29.3 INDUSTRIES

At present, only one industrial estate is functioning in the town, the mini industrial estate by SIDCO at Ambilad. Other micro industries are scattered at different parts of the town. Focus is to be given for strengthening these units with all necessary infrastructure. Setting up of new industrial units are also to be given due consideration for raising an industrial city as envisaged.

An Industrial Promotion Zone is proposed along Valiyavelicham road so as to benefit from the industrial growth centre located at Valiyavelicham which is just outside the town.



Expansion of Mini Industrial Estate at Vakkummal Ward



Industrial corridor at Muriyad East Ward

SPECIFIC PROJECTS

(1) ***Information Technology Park at Kuthuparamba***

To make use of the development potential offered by the Kannur International Airport, an IT park can be proposed at a suitable location.

(2) ***Exhibition cum trading centre***

Marketing is the major problem faced by industrialists working in small scale and cottage industrial sectors. A permanent outlet for their products is necessary for strengthening these units. Such a marketing centre can be suitably located near the central commercial area where large number of passengers and tourists commute.

(3) ***Processing Units for Agro-products***

Agricultural activities are predominant in Kuthuparamba town and being a trade centre raw materials like coconut, cashew, jack fruit, rubber etc. are brought in large quantities to the town from surrounding panchayaths and remote hilly areas. Value addition of the products can be achieved by processing and its exporting can generate employment and

income to the local people.

29.4 TOURISM, HERITAGE AND CULTURE

Tourism, Heritage and Culture are linked sectors and most of the tourist spots are usually located at heritage centres. Tourism, with its strong potential, is one of the most important sectors in the development scenario of the town and has got a pivotal role to play. Kuthuparamba town can act as a facilitator of the surrounding tourist and religious institutions.

(1) *Historical museum and Art Gallery at Kuthuparamba*

To promote art & culture and to enhance the imageability and attraction of the town.

(2) *Tourist facilitation centres*

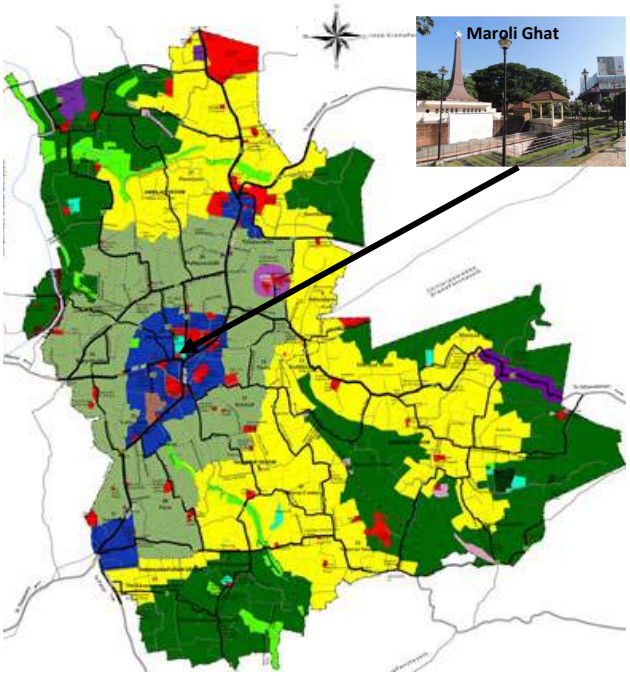
Tourists coming from outside the town promote the economic activities of the region. It is our duty to provide them with all necessary facilities in return. Tourist facilitation centres having information counter, rest place, toilets, dormitories, etc. are suggested at Kuthuparamba town centre.

(3) *Tourist resorts*

Hide outs and retreats are the new face of tourism as people wish to leisure themselves from the routine activities by spending holidays in remote resorts resting in the lap of nature. Ideal places are available in many parts of Kuthuparamba municipal town. Domestic food can be served with the help of Kudumbashree units.

(4) *Preservation of historically important site*

Municipal council has decided to establish Maroli Ghat Square as a historically important place in the town and to conserve it.



Preservation of Maroli Ghat

29.5 WATER SUPPLY

Some wards in Kuthuparamba municipal town face water scarcity during peak summer. Most of the people depend on well water and the ground water table is found depleting. Since majority of the population depends on ground water as source and the quality of ground water is becoming low, treated water supply to all must be attained in future and also measures for ground water recharge should be taken. Detailed water supply network must be planned to cover the whole town area incorporating existing network as well as on going. This may be done with the

help of KWA and other Government Agencies.

SPECIFIC PROJECTS

(1) ***Water Supply Scheme Malabar package***

As part of the "Accelerated Urban Water Supply Scheme to Kuthuparamba, Kottayam and Pattiyam"(AUWSS) and the project, it is proposed to ensure full time water supply to drought prone areas of the town.

(2) ***Extension of existing pipelines to drought areas.***

Municipality can consider the possibility of extension of existing water supply network and distribution system to the surrounding drought areas with the help of agencies like Kerala Water Authority.

(3) ***Construction of Public wells and deepening of existing wells and ponds***

The proposal includes activities like selection of locations, purchase/acquisition/ relinquishment of land, digging of wells, deepening of existing wells, repair and maintenance works etc., with the co-operation of Ground Water Department and KWA.

29.6 DRAINAGE AND SANITATION

SPECIFIC PROJECTS

(1) ***Construction of Sewage Treatment Plant***

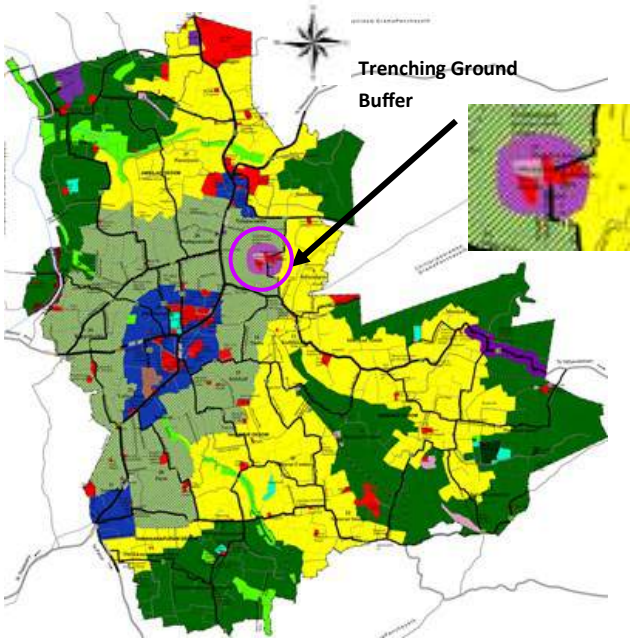
There has to be Sewage Treatment Plant at every town that carries waste discharges from the Market and other areas.

A Sewage Treatment Plant is proposed at Traffic & Transportation Zone (Naravoor Desom in Survey Number 86) as per this Master Plan. Ideal location for other STP's can also be proposed at suitable place any where in the planning area.

(2) ***Modernization of Solid Waste Management***

Modernization of Palaparamba trenching ground is of high priority, considering the existing solid waste management. Scientific solid waste treatment plant is proposed at Palaparamba.

Around the municipal trenching ground at Palaparamba a Special Zone namely 'Buffer Zone for Trenching Ground' is proposed as depicted in the Proposed Land Use Plan—2031. An industrial belt preferentially with hazardous



(3) ***'Clean City Mission' - Total and Segregated Collection of Solid Waste***

This proposal is for the total collection of entire solid wastes generated in the municipal area through segregated collection methods. The segregation of solid wastes, once got mixed, is a difficult and time consuming task. The practice of using different coloured bins for different types of wastes such as biodegradable, non-biodegradable and recyclable, wastes, etc.

for each type is helpful for proper management of solid wastes. industries is suitable in this portion.

plastic wastes, etc. for each type is helpful for proper management of solid wastes.

(4) ***Recycling unit for plastic and other wastes***

The recycling of plastic wastes helps in environmental protection and making the city clean. A recycling unit can be set up in or near the Municipal trenching ground at Palaparamba.

OTHER PROPOSALS

(a) ***Comprehensive City drainage and sewerage project for future***

At present, Kuthuparamba town does not come across with serious issues relating to drainage, owing to its terrain and due to the presence of natural drains. But in the next decade, as the present town grows to a smart commercial city with higher population and rapid developments all around, there is chance of polluting ground water along with drainage and sewerage related issues to occur. To tackle such situation a city drainage and sewerage project is proposed in the Master Plan now, but the designing of the drainage and sewerage system and preparations of the Detailed Project Report must be done joining with KWA and to be implemented.

(b) ***Drains and Cover slabs to major roads***

Roads without side drains are easily vulnerable for deterioration due to the stagnation of storm water in monsoon season. And drains without proper cover slabs make several health hazard issues and cause accidents to passengers. A well designed cover slab system with pavements can be used as sidewalks for pedestrians and also for the beautification of the town.

(c) Decentralized Waste Management Scheme

For the treatment of waste at source itself, decentralized waste management schemes like biogas plants, mini sewage treatment plants, pipe compost, vermi compost, etc. are proposed.

Bio-gas plants at Markets, Slaughter house, farms, etc.

29.7 EDUCATION

Kuthuparamba town can be developed as an 'educational city' with a variety of academic institution and sufficient number of schools distributed throughout the municipal area. The sectoral proposals are to be aimed at strengthening and modernization of existing facilities. Similarly all infrastructure facilities and all modern Hi-tech facilities should be provided to all schools through schemes like Promoting Regional Schools to International Standards through Multiple Interventions (PRISM).

The proposals made in education sector as mentioned above are listed below.

(i) Transform all schools in town as smart

(ii) Internet facility to all schools

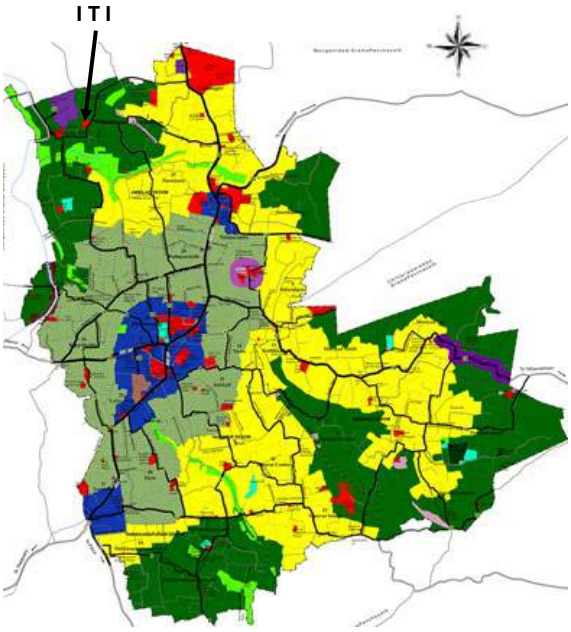
(iii) Swimming training to all students

(iv) Strengthen the public education system

(1) Industrial Training Institute at Vakkummal

An Industrial Training Institute is proposed at Vakkummal ward in Ambilad desom in

Survey Number 13(P) of area 0.52 Ha. etc. for each type is helpful for proper management of solid wastes.



(2) Academic and Career facilitation Centre

For improving the performance of students in All India level and State level competitive examinations and for better employment opportunities, a project named Academic and Career Facilitation Centre is Suggested. For this, a building with necessary facilities is to be constructed as the facilitation centre.

(3) Referral Library

A referral library is an essential facility to be provided for Kuthuparamba town. Reference books from all branches of knowledge are to be made ready for the students to be available at any time.

- Existing libraries and reading rooms are to be developed as E-learning centres also.
- Paththalaayi Kunhikannan Memorial Library and Municipal Library are to be upgraded to Digital libraries.
- All libraries affiliated to Library Council are to be upgraded to digital libraries.

(4) Set up of Buds School for the differently abled children.

(5) International Co-operative Research Institute at Kuthuparamba as co-operative sector is predominant here. This would help improve the scale, capability and efficiency of co-operative sector.

(6)Agricultural Research Institute at Kuthuparamba.

(7) Set up of Aviation related institutes will increase the job opportunities of the residents.

29.8 HEALTH

Health sector has to be improved as far as Kuthuparamba town is considered. Public and private hospitals and clinics are working in different branches of medicine like Allopathy, Ayurveda, Homoeopathy, etc. Strengthening of these existing facilities along with new proposals are given in the health sector.

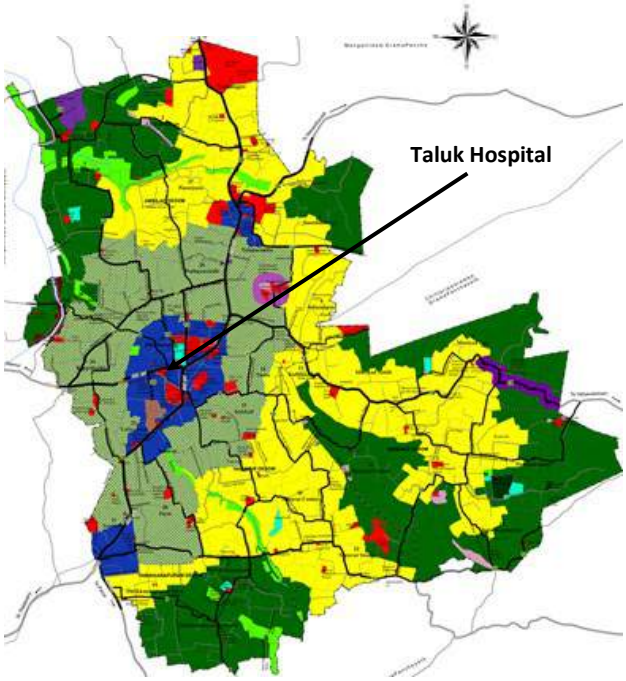
SPECIFIC PROJECTS

(1) Expansion and Up gradation of Taluk Hospital

The Taluk Hospital at Kuthuparamba is a major hospital in the region and patients from even remote and hilly area of the District rely on this hospital. The facilities in Taluk hospital has to be upgraded so as to meet the future demand.

(2)Trauma care / Trauma centre

A trauma care /trauma centre, equipped to provide care for patients suffering from major



Up gradation of Taluk Hospital at Naravur Ward

traumatic injuries such as falls, motor vehicle collisions, or cardiac arrests.

(3) Modern Hospital

A well equipped hospital with all modern facilities is essential for the growth of the town as an urban centre.

(4) Blood Bank and Lab Facility

A full fledged blood bank is essential for saving many lives and a laboratory with all modern equipments is necessary for diagnosing the diseases in time. These facilities can be attached with Taluk Hospital.

(5) Mobile Detection Unit for Life style diseases and Infectious diseases

Most of the people are suffering from lifestyle diseases and outbreak of new types of infectious diseases is a common phenomenon nowadays. Early detection of these diseases can be helpful for preventive measures and for better treatment. This project can be attached to the Community Health Centre.

(6)Sub-centre for cancer detection and care

The number of cancer patients are increasing in the society day by day. As said above, early detection is necessary for treatment and remedial measures. A sub-centre for cancer detection and care is proposed in the Master Plan and co-ordination with R.C.C., Cancer Care Societies, and Charitable Organizations, etc. are essential for the effective functioning of the project. This project can also be attached to the Community Health Centre.

(7) Counselling centre for teenagers

Teenagers of new generation face a lot of problems like depression, lack of confidence, drug abuse, alcoholism, etc. For giving them proper guidance and awareness, a counselling centre is proposed and can be attached to the Taluk Hospital

(8) 'Life Care' Project - Emergency Medical Service

Major traffic corridors, State Highways are passing through Kuthuparamba Town. Road accidents increases day by day and due to the inertness and carelessness of public many people lose their lives without getting timely medical services. Most of the victims are youth or middle aged persons, the bread winners of the family and their death create irreplaceable loss and serious long lasting after effects to the family. Every life is important and being a civilized society, it is our duty to save the life of accident victims by emergency medical services that include provision of first aid and medical care to the victims at the road side, the transport

of the victim to a hospital and subsequent provision of a more definitive treatment.

For this, a voluntary forum is to be formed with necessary training and the co-ordination of Municipality with NGO's, Social workers, Health Department, Ambulance services, Police Department and Fire and Rescue Department and is essential for the successful service of this project.

The service of the 'Life Care Project' can further be extended to bring destitute persons and aged people to the hospital, to attend the needs of the deserving patients, and also to give food and medicine to poor and BPL patients admitted in the hospital, etc.

(9) Strengthening of Ayurveda Hospital at Kuthuparamba

The facilities at Ayurveda Hospital should be enhanced.

(10) Ayurvedic Health Care Treatments and Resorts

Ayurvedic treatment and healthcare centres in Kerala are popular among foreigners and this can be linked with tourism sector. New ventures can be started in public, private or co-operative sectors at suitable locations.

(11) Disease Preventive Programmes

As it says **"Prevention is better than cure"**, Municipal authorities should take all possible preventive measures like training and awareness programs, immunization programmes, mosquito eradication programs, sanitation programs, etc. with the involvement of agencies like Health Department, Social Welfare Department, NRHM, Zero Waste Program, Kudumbashree units, etc.

29.9 HOUSING AND SLUM IMPROVEMENT

House hold size (average number of persons living in a house) of Kuthuparamba is 4.58 which is higher than the district and state average values. The higher value indicates the need for more houses in the near future. Municipality can play a pivotal role in helping homeless poor people to make their shelter. The existing infrastructure facilities and living standards in colonies have to be improved. Land is a limited resource that can never be reproduced or multiplied. This valuable resource should be reserved judiciously for the future generations to meet their housing demand, and hence communal living should be encouraged.

OTHER PROPOSALS

(a) Proposals for improvement/ redevelopment of slums and other colonies at Nirmalagiri, Thrikkannapuram, Thokkilangadi, Pookkod

(b) House Construction Schemes for the homeless families

29.10 ENERGY

There are no unelectrified areas within the municipal town and serious problems of voltage fluctuations are not reported. But the increasing population and the existing and proposed industrial establishments etc. will cause more consumption in the future and therefore power distribution system should be improved to meet the future demand. Focus is also to be given on non-conventional energy resources.

SPECIFIC PROJECTS

(1) ***Solar lighting system***

Solar energy is an infinite non-conventional energy resource and should be utilized in all possible manners to avoid future energy crisis. Government offices and public buildings are the best places to install solar lighting arrangements as an illustration for the public. Installation of Solar heaters for hospitals can also be included in this project.

OTHER PROPOSALS

(a) Improvement of power distribution system

(b) Underground Cable System

'Energy saved is energy generated' is a basic principle of energy conservation. Transmission losses through distribution lines can be reduced to a large extend by the adoption of UG Cables. But it is expensive and complete replacement will take due time and cost. As a first phase, UG Cable system can be introduced in Town centre areas and later extended to interior areas.

(c) Solar Street lights

Solar street light systems are helpful for energy conservation and provide the look of a smart city when installed on major roads and tourist spots.

(d) Modernization and Beautification of Street lights

Modernization and beautification of street lights can improve the aesthetic beauty of town. This may be done mainly in the core area of the town.

(e) Homestead Bio-gas plants

Bio-gas plants serve as a new energy resource and also help in waste management leading to urban sanitation. Homestead bio-gas plants should be promoted in the municipal areas by giving mobilization of funds, financial grants and subsidies.

29.11 SOCIAL WELFARE AND SPECIAL CONCERN AREAS

The welfare of women, children, aged people, BPL families, differently abled persons, SC/ST population, etc. deserve special concern and separate projects are required for uplift of these weak sections of the society and to bring them in the mainstream.

Similarly people living in hazard prone areas are also to be taken into account and disaster management planning is to be prepared in advance to meet emergency situations.

The proposals include sustainable lively hood opportunities, development of basic infrastructure, other social welfare measures and disaster management.

SPECIFIC PROJECTS

(1) ***Providing shelters for children, women and old aged people.***

The welfare of old aged people is the responsibility of a civilized society. In most of the houses, the elder people are living alone in day time as younger generations are forced to go outside for work and education.

(i) A day care centre for old aged people will be useful for the social, physical and their overall wellness. Similarly there is a large number of working female population from outside

working in the town which is increasing day by day.

(ii) A ladies hostel or working women hostel will be beneficial for them and Municipality can take initiative for starting one.

(iii) Creche or day care centre for kids is also necessary for nuclear families with both parents working. Such day care centre, old age home, ladies hostel, etc. can be arranged in a single compound.

(2) ***Ladies Rest rooms and She-toilets at major centres***

Ladies rooms, feeding room and toilet facilities are essential for female passengers and working groups. It is the duty of a developed community to arrange such facilities at different parts of the town like Bus stands, Taluk Hospital, Mini Civil Station, etc. and hence the project is proposed.

(3) ***Motor vehicle Training Centre for Women at Kuthuparamba***

(4) ***Martial Arts and Yoga Training Centre for women***

(5) ***Textile training centre for women*** can be started at Kuthuparamba for giving necessary training for them to ensure job opportunities in the textile field.

(6) ***Floriculture*** to be promoted among women so as to benefit from its export as Kannur International Airport is nearby.

OTHER PROPOSALS

(a) Rehabilitation centre for differently abled students with job oriented courses.

Conducting suitable short term job oriented courses to differently abled students through rehabilitation centre aims for creating sustainable livelihood opportunities for the special concerned section of the society.

(b) Buds School

School for the differently abled children.

(c) Strengthening of Kudumbashree Units

The working of Kudumbashree units in Kerala is a grand success not only in women empowerment but also in income generation and many families now find sustainable livelihood income with the functioning of Kudumbashree units. Kudumbashree members are now involved in all sectors of the society like agriculture, animal husbandry, industry, trade, catering, sanitation, transportation and many more. Kudumbashree units must be equipped themselves to exploit the development opportunities coming ahead. In projects mentioned in Master Plan and other municipal projects, priority and consideration should be given to Kudumbashree units, wherever possible. Municipality can create a platform for the success of Kudumbashree units by arranging financial aids and loans, industrial subsidies, training programme, etc. Women empowerment through Kudumbashree units helps in poverty alleviation and for uplift of the weaker section of the society.

(d) Strengthening of Anganawadies

At present, Anganawadies are not only play schools for kids. The multifunction activities of Anganawadies include serving as a venue for small public meetings like Ward Sabha, Kudumbashree, Ayalkoottam, etc. serving as a centre for health programmes like vaccination,

inoculation, distribution of food and nutrients, class rooms for awareness programmes and many more functions. Anganawadies can play a pivotal role in women empowerment and literacy campaign.

In short, the Anganawadies serve as municipal sub centres and the basic facilities here should be improved by acquisition or relinquishment of more land from neighbourhood, by giving financial aids, by providing more seating arrangements, study aids and play equipments, etc.

Community centres for women attached to anganawadies also exists.

(e) Proposals for sustainable livelihood opportunities for SC/ST population

For creating platform for generating sustainable income, the proposals suggested are special tuition for students, promoting self help groups, reservation for unskilled works, literacy campaign, special nursing schools, training institutes for making handicrafts, short term technical courses, etc.

(f) Improvement works for SC/ST Colonies

The proposal includes construction, repair and maintenance of approach roads, construction and repair of houses to deserving families, installation and maintenance of water supply schemes, community septic tank, construction and repair of community halls, burial grounds and compound walls.

(g) Disaster Management Programme

Disaster management plan should be formulated in advance, for a quick response in any emergency. Co-ordination with disaster management team of Revenue Department and Fire and Rescue Department is essential for the effective implementation of the project.

(h) Modernization and strengthening of Fire and Rescue Unit.

The proposal includes modernization of the fire and rescue unit with new equipments, increasing staff strength, construction of new sump tanks at town.

29.12 AGRICULTURE AND ALLIED SECTORS

Agriculture and related sectors like animal husbandry and fisheries have to play an unavoidable role in the development scenario of Kuthuparamba town.

As a matter of policy, organic farming and homestead cultivation practice are to be encouraged for better health and environment of the people.

Paddy cultivation needs to be promoted for maintaining the environmental balance. Active paddy cultivation is to be brought back to all paddy fields which are now kept idle and uncultivated.

Shortage of labourers is also a major problem in paddy cultivation. Fragmentation of land, small scale farming, etc. result in less profit and methods like group farming and collective farming are the remedial measures for it. Cultivation of rice varieties like Basmati rice, Nhavara rice, etc. can be experimented with arrangement for sufficient processing and marketing facilities.

Coconut, cashew and rubber are the major cash crops cultivated. Production, productivity and processing of these cash crops with value addition are to be enhanced for the economic growth of the town.

The high demand for vegetables from organic farming both at domestic and outside should be utilized and the near by Kannur International Airport is a major thrust for export of vegetables.

Existing irrigation facilities are to be improved and new projects are to be set up for supporting the agriculture activities.

Animal husbandry and agriculture sectors are complementary to each other and Kuthuparamba town has high potentials for animal husbandry sector with its vast agricultural back ground.

Considering these facts following projects and proposals are made.

(1) Expo centre for Organic Farming and Traditional farming

An expo centre for organic farming and traditional farming is proposed. The methods of organic farming can be illustrated to public here along with some traditional farming methods and equipments practiced in Kerala in the yester years. The location needs to be finalized.

(2) Agriculture Labourer Bank

Shortage of labourers is one of the main problems faced by agriculture sector at present. But, in contrast, the problem of unemployment also exists in Kerala. In this context, an agriculture labourer bank can be formed with the labourers interested in agriculture sector and can be made readily available for the agriculturalists. The labourer bank can be attached to the Krishi Bhavans in the Municipal area.

(3)Agriculture Information Centre

A knowledge sharing centre namely, 'Agriculture Information centre', with facilities for training and coaching for farmers, sales and hiring of tools and implements, introduction of new trends and methods of agriculture, etc.

(4)Vegetable Cultivation at Uncultivated lands

Kerala State which was once self sufficient in vegetable production, is now in a miserable condition to depend other States for the availability of vegetables. And often, these vegetables coming from outside are reported to have over dosage of harmful insecticides and pesticides that cause diseases like cancer. The available fields in the town that are kept idle without cultivation can be used for promoting vegetable cultivation. The land can be obtained on lease from the owners and the involvement of farmer's societies and school children can be effectively utilized for the success of the project. If any land is available in the school premise, that can also be used for this project. The participation of children can develop a new culture of agriculture among the new generation and to make them aware of the benefits of agriculture.

(5) Mobile Clinic Unit to Veterinary Hospital

Agriculture areas and therefore livestock population are mainly concentrated in interior wards. In this context, a mobile clinic unit is necessary and can reduce the inconvenience and hardships of farmers to take sick animals to the veterinary hospital.

(6) Slaughter house near Trenching ground

Unauthorized slaughter houses working in unhygienic conditions are often a threat to the health of the people. A modern and hygienic slaughter house does not exist in Kuthuparamba town or in the region. A slaughter house is therefore proposed in the Municipal Land adjacent to the trenching ground.

OTHER PROPOSALS

(a) Restoration of Paddy cultivation in uncultivated paddy fields

Identification of uncultivated paddy fields, formation of 'PadaShekara Samithees' at paddy fields where Samithees are not constituted already, making land suitable for paddy cultivation including irrigation facilities, procurements of high yield variety and local variety of seeds and manure, training on new techniques of farming including mechanization, active cultivation, formation of processing units, arrangements for collection and marketing.

(b) Homestead Vegetable Cultivation

All possible measures and promotional activities are to be adopted for homestead vegetable cultivation to avoid the use of poisonous vegetables obtained from the market. The methods like grow bags, terrace cultivation, etc. can be adopted to overcome the problem of land constraint.

Selection of households, identification of farmers, formation of Horti-clubs, flexi credit linking of NABARD for implementing the project, training to trainers and farmers, supply of seeds, manure, active cultivation, formation of processing units and arrangements for collection and marketing facilities are part of homestead vegetable cultivation.

(c) Organic farming

Organic farming can be defined as an agricultural activity done mainly to maintain the fertility of the soil and for pest control. It does not involve the use of synthetic fertilizers and pesticides, genetically modified organisms, or any kind of plant growth regulators in it. It uses the technology of crop rotation and biological pest control methods. It also strongly prohibits the use of synthetic fertilizers. Products yielded through organic farming have been in great demand since the last decade or so. And now it is a Government policy to promote organic farming for the better health of the citizens and also for making self sufficiency in vegetable production.

(d) Apiculture (Bee-keeping)

The advantages of bee keeping are many as mentioned below

It promotes crop yield by pollination. A worker bee will harvest pollen from one plant until it exhausts that supply while other insects flit between different plants and fruits. Some research says that nearly half of the world pollination is being done by honey bees alone.

Honey is a medicine as well as the best nutrient. It offers livelyhood income opportunities to many families as self employment scheme.

Apiculture can be considered as a good hobby too.

(e) Ornamental pisciculture

(f) Mushroom culture

(g) Small scale Dairy farms

(h) Small scale Goat/ Rabbit/ Pig Farm units

(i) Poultry farm units

(j) Fodder cultivation

(k) Retail and wholesale marketing facilities for all the above mentioned ventures is important for the feasibility of the projects.

29.13 ENVIRONMENT

The very existence of mankind and his settlements depends upon the surrounding environment and its quality.

(1) ***Conservation of Naravur stream***

Cleaning, removing grass and weeds,

increasing depth and edge protection of the stream are important to maintain the stream in a healthy condition.

(2) *Laterite and granite quarries*

Laterite and Granite quarries exist in Kuthuparamba town. Over exploitation of granite and laterite quarries would lead to environmental deterioration. So the judicious exploitation of quarrying must be practised.

OTHER PROPOSALS

(a) Go Green Project

The aim of the project is to encourage and promote everything that is eco-friendly. The components of the projects are encouraging eco-friendly ventures, green buildings, green fencing, avoiding and substituting of plastic, installation of bio-gas plants, solar lighting, etc.

(b) Street side Plantation and Social Forestry

The manifold benefits of street side plantation and social forestry are beautification of streets, increase of oxygen level in the atmosphere, income generation through commercial trees and fruit bearing trees, pharmaceutical usage of medicinal trees, nesting facilities for birds, soil conservation, etc. Road sides and vacant lands like canal banks etc. can be utilized for this project.

(c) Rejuvenation of streams and thodus.

Deepening of streams by cleaning and removing grass and weeds reduces soil erosion and help in effective use for irrigation.

GENERAL PROPOSALS FOR REDUCING POLLUTION

Air Pollution

- **Automobile**

Reduction of air pollution by conversion of public transport vehicles to CNG/LNG/LPG.

Reduce the number of private vehicles on road by implementing efficient and convenient public transport system like mini bus services to all remote routes with adequate time interval.

- **Household and Institutions**

Burning of waste without segregation along road sides and open plots should be regulated to curb plastic fumes from polluting the atmosphere. Burning of leaf litter should be avoided to protect ozone layer and this can be alternatively used for composting, bio-gas production and making manure.

- **Industries**

Industrial norms are to be abided by and Kerala State Pollution Control Board has to strictly implement it. Shift from fossil fuel based engines to clean technology like solar, electricity, battery powered, CNG , etc. should be encouraged by reducing tax for those who implement it.

Adequate green belt should be provided around all industrial units/buildings/roads to reduce pollution by dust as well as carbon emissions.

Water pollution

- Promotion of organic farming and use of organic manures instead of chemical fertilizers.
- Use of biological control of pests instead of pesticides.
- Replacing of existing leach pit tanks with septic tanks.
- Mandatory use of septic tanks for new houses and buildings.
- Installation of sewage treatment plants at major drains and streams.
- Frequent testing of ground water and rivers

for contamination and adopting remedial measures to control water pollution as per the directions of Kerala State Pollution Control Board, KWA, Ground water Department.

- Monitoring of industries and hospitals for abiding norms of Kerala State Pollution Control Board.

Land Pollution

- Adherance to 3-R, Reduce waste, Reuse any item that we can and Recycle Possible things.
- Personal litter should be disposed properly. We can separate household waste at home for recycling. More than half of the household waste could be recycled or re-used but once it is mixed up, it becomes more difficult to separate different components for recycling.
- Prohibition and ban on plastic items of hazardous type.
- Promoting the culture of using paper bags and cloth bags.
- Promoting organic farming.
- Avoiding use of pesticides.
- Installation of collection point for colleting e-wastes including batteries.
- Promoting and buying of bio-degradable products.
- Active participation of Kudumbasree units for the collection of solid waste.
- Installation of more dust bins at various parts of the town.
- Use of different coloured dust bins for the segregated collection of solid waste.

Noise Pollution

a) Transport

- Noise level norms need to be strictly enforced for vehicles and monitored regularly. Restrict the running of heavy vehicle during day time.
- Public transport buses should be properly maintained and lubricated to avoid noise pollution.
- Resurfacing roads with low noise materials for areas with extremely high traffic.
- Public and private official buildings near busy roads should install noise insulation for the comfort of employees there.
- Planting of trees at road sides and residential areas is a good way to reduce noise pollution as they absorb sound.

b) Public and Private Functions

- Use of loud speakers/crackers for public and private functions (rallies, demonstrations, religious rituals in temples, cultural programmes and festivals) should adhere to the noise pollution norms and it should be strictly enforced. Use of modern laser shows should be encouraged in place of large scale fireworks.
- Proper training and equipments should be provided to police to ensure noise control.
- Plantation of trees around buildings (schools, houses, offices) should be encouraged.
- Noise zoning should be established as described to in Chapter 30 (Silence Zone) and awareness among residents should be generated.

c) Industries.

- Ensure that all industries corporation should abide by CPCB (Central Pollution Control Board) specifications for noise standards.

• Proper maintenance of mechanical components of equipments should be strictly followed in all industries.

29.14 MUNICIPAL FINANCE AND GOVERNANCE

Sustainable income generation proposals and financial aids from various funding agencies are essential for developing a stable financial background for the municipality in the coming years. Some proposals for income generation are as follows.

- Plantation of commercial trees like Teak, Mahagony, Jackfruit Tree , Tamarinds, etc. on Municipal lands, vacant lands and on road sides.
- Conducting mini bus services.
- Paid parking systems.
- Construction of commercial and residential buildings for rent.
- Promoting tourism activities.
- Preparation of resource plan.
- Reforms in tax collection, etc.

Good Governance

For becoming a smart city, smart governance is required and the components include

- Starting of Municipal Sub-centres at hinterland areas
- Strengthening of E-governance, RTI Cell, RTS Cell, Citizen forum etc.
- Renewal and Publication of brief-lets for municipal services.
- Awareness and training programme for public participation and co-ordination.
- Monitoring cell for accountability and transparency.
- A modern complaint redressal application preferably mobile based, should be developed by the municipality so as to enable anyone from anywhere at any time to register or inform specific complaints/ suggestions pertaining to the town.

SPECIFIC PROJECTS

(1) *Municipal Staff Quarters*

Many of the employees in the Municipal office are coming from different parts of the State. And there are not much accommodation facilities available in Kuthuparamba town. Therefore, a municipal staff quarters is essential in the town and will be helpful for municipal administration.

(2) *Municipal Guest House*

A Guest House is necessary for the town to give accommodation facilities. The Guest House can also be used for accommodating official guests and municipal staff coming from other districts. Municipality can also get additional income by renting the available rooms to tourists and other people.

Chapter 30

SILENCE ZONE

As per GO (P) No. 64/02 of Local Self Government (G) Department, Govt. of Kerala, dated 20th April, 2002 Kerala State has been notified into two categories namely 'Area covered under Town Planning Schemes' and 'Areas not covered under Town Planning Schemes' with respect to the Noise Pollution (Regulation and Control) Rules, 2000 for categorizing, residential or silence areas / zones for the purpose of implementation of noise standards for different areas.

Since there is no Detailed Town Planning Scheme area in Kuthuparamba town the entire municipal area can be included in the second category, ie, 'Areas not covered under Town Planning Schemes'.

The areas where the following land area predominantly exists, shall be categorised under respective categories of areas/zones prescribed in the Noise Pollution (Regulation and Control) Rules 2000 as in the following table.

Sl. No.	**Category of Area/Zones Under Noise Pollution (Regulation and Control) Rules, 2000**	**Areas with the following land uses predominantly existing which shall be brought under Noise Pollution (Regulation and Control) Rules 2000**
1	2	3
1	A) Industrial Areas	Industrial activities where products or materials of all kinds and properties are fabricated, assembled or processed which includes Workshops, Assembly Plants, Laboratories, Dry cleaning Plants, Power Plants, Pumping Stations, Smoke Houses, Gas Plants, Refineries, Dairies, Saw mills and other small industrial unit/areas, Industrial Growth Centres, Industrial Development Areas, Small Scale Industrial Estate, Industrial Parks etc.
2	B) Commercial Areas	Areas and buildings which are used for display and sale of merchandise such as Shops, Stores, Markets either wholesale or retail. Banking & Financial Institutions, Public and Private Business Houses, Engineers, Architects, Lawyers, Pathological Laboratories, Tailor Shops, Audio-Video shops, Barbar shops, Beauty parlours. New stands, Milk Booths, Restaurants. Non-nuisance types of Small Scale Industrial Establishments such as Armature winding shops using motor or machine capacity not exceeding 3 Hp. Lodges Rooming Houses, Tourist Home, Dormitories, Hotels, Hostels. Buildings or parts of Buildings used exclusively for parking of vehicles (Parking Buildings), Parking Plazas. All transportation uses.

Sl. No.	Category of Area/Zones Under Noise Pollution (Regulation and Control) Rules, 2000	Areas with the following land uses predominantly existing which shall be brought under Noise Pollution (Regulation and Control) Rules 2000
1	2	3
3	C) Residential Area	Areas and buildings which is used for sleeping accommodation is provided for normal residential purposes with or without cooking or dining facilities and shall also consist of one or multifamily apartments, Residential flats. Ancillary uses in residential activity such as small professional officers (for Advocates, Doctors, Engineers, Architects, Chartered Accountants, Beauticians, Tailors, Electrical and Electronic Equipment Service Professionals, Photographers, Videographers, Telephone Booth Operators), Creche, Day care centres, Children's Nursery, Reading rooms, Libraries, other educational buildings. All other uses not covered under the four categories.
4	**D) Silence Zone**	**Areas comprising one hundred metre around.** **Hospitals, Educational Institutions and Courts as defined in the Noise Pollution (Regulation and Control) Rules, 2000.** **Religious places** **Reserve forests, wild life sanctuaries. Any other areas notified by Government of Kerala from time to time.**

The Major extracts regarding silence zone from the Noise Pollution (Regulation and Control Rules), 2000 are reproduced as below:

1. AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE FOR DIFFERENT AREA ZONES:-

(1)The ambient air quality in respect of Noise for different areas/zones shall be such as specified in the following schedule.

SCHEDULE

Ambient Air Quality Standards in respect of Noise

Area Code	Category of Area Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40

Note:-

1) Day time shall mean from 6.00 a.m to 10.00 p.m

2) Night time shall mean from 10.00 p.m to 6.00 a.m

3) Silence zone is an area comprising not less than 100 metres around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.

4) Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

*dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A "decibel" is a unit in which noise is measured.

"A", in dB(A) Leq. Denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq: It is an energy mean of the noise level over a specific period.

Note:- The principal rules were published in the Gazette of India vide number S.O 123(1), dated 14th February, 2000 and subsequently amended vide S.O 1046(E), dated 22nd November, 2000. S.O 1088(E), dated 11th October, 2002, S.O 1569(E), dated the 19th September, 2006 and S.O.50 (E), dated 11th January, 2010.

2. RESPONSIBILITY AS TO ENFORCEMENT OF NOISE POLLUTION CONTROL MEASURES:-

(1) The noise levels in any area/zone shall not exceed the ambient air quality standards in respect of noise as specified in the Schedule.

(2) The Authority shall be responsible for the enforcement of noise pollution control measures and the due compliance of the ambient air quality standards in respect of noise.

(3) The respective State Pollution Control Boards or Pollution Control Committees in consultation with the Central Pollution Control Board shall collect, compile and publish technical and statistical data relating to noise pollution and measures devised for its effective prevention, control and abatement.

3. RESTRICTIONS ON THE USE OF LOUD SPEAKERS /PUBLIC ADDRESS SYSTEM AND SOUND PRODUCING INSTRUMENTS:-

(1) A loud speaker or a public address system shall not be used except after obtaining written permission from the authority.

(2) A loud speaker or a public address system or any sound producing instrument or a musical instrument or a sound amplifier shall not be used at night time except in closed premises for communication within like auditorium,

conference rooms, community halls or during a public emergency.

(3) Not withstanding anything contained in sub -rule (2), the State Government may subject to such terms and conditions as are necessary to reduce noise pollution, permit use of loud speakers or [public address systems and the like during night hours] (between 10.00 p.m to 12.00 midnight) on or during any cultural or religious festive occasion of a limited duration not exceeding fifteen days in all during a calendar year.] [The concerned State Government shall generally specify in advance, the number and particulars of the days on which such exemption would be operative.].

(4) The noise level at the boundary of the public place, where loud speaker or public address system or any other noise source is being used shall not exceed 10 dB(A) above the ambient noise standards for the area or 75 dB(A) whichever is lower.

(5) The peripheral noise level of a privately owned sound system or a sound producing instrument shall not, at the boundary of the private place , exceed by more than 5 dB(A) the ambient noise standards specified for the area in which it is used].

4. RESTRICTIONS ON THE USE OF HORNS, SOUND EMITTING CONSTRUCTION EQUIPMENTS AND BURSTING OF FIRE CRACKERS.

(1) No horn shall be used in silence zones or during night time in residential areas except during a public emergency.

(2) Sound emitting fire crackers shall not be burst in silence zone or during night time.

(3) Sound emitting construction equipments shall not be used or operated during night time in residential areas and silence zones.]

5. CONSEQUENCES OF ANY VIOATION IN SILENCE ZONE AREA:-

Whoever, in any place covered under the silence zone/area commits any of the following offence; he shall be liable for penalty.

(i) Whoever plays any music or uses any sound amplifiers.

(ii) Whoever, beats a drum or tom-tom or blows a horn either musical or pressure, or trumpet or beats or sounds any instrument.

(iii) Whoever exhibits any mimetic, musical or other performances of a nature to attract crowds.

(v) Whoever, bursts sound emitting free crackers, or

(v) Whoever, uses a loud speaker or a public address system

6. COMPLAINT TO BE MADE TO THE AUTHORITY:-

(1) A person may, if the noise level exceeds the ambient noise standards by 10 dB(A) or more given in the corresponding columns against any area/zone [or if there is a violation of any provision of these rules regarding restrictions imposed during night time], make a complaint to the authority.

(2) The authority shall act on the complaint and take action against the violator in accordance with the law.

7. POWER TO PROHIBIT ETC., CONTINUANCE OR MUSIC SOUND OR NOISE:-

(1) If the authority is satisfied from the report of an officer in charge of a police station or other information received by him [including from the complainant] that it is necessary to do so in order to prevent annoyance, disturbance, discomfort or injury or risk person who dwell or occupy property on the vicinity, he may, by a written order issue such directions as he may consider necessary to any person for preventing, prohibiting, controlling or regulating:-

(a) The incidence or continuance in or upon, any premises of

i. Any vocal or instrumental music,

ii. Sounds caused by playing, beating, clashing, blowing or use in any manner whatsoever of any instrument including loudspeakers. [Public address systems, horn, construction equipment, appliance or apparatus, or contrivance which is capable of producing or reproducing sound.]

iii) Sound caused by bursting of sound emitting fire crackers, or

(b) The carrying on in or upon, any premises of any trade, a vocation or operation or process resulting in or attended with noise.

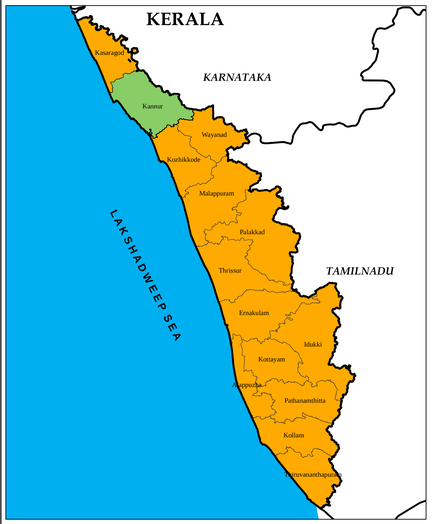
(2) The authority empowered under sub-rule (1) of the rule may, either on its own motion, or on the application of any person aggrieved by an order made under sub-rule (1) of the rule, either rescind, modify or alter any such order.

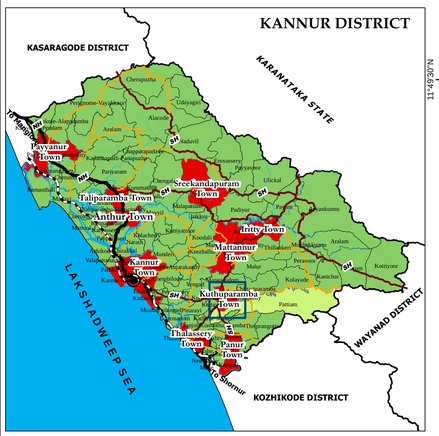
Provided that before any such application is disposed of the said authority shall afford to the applicant [and to the original complainant, as the case may be] an opportunity of appearing before it either in person or by a person representing him and showing cause against the order and shall, if it rejects any such application either wholly or in part, record its reasons for such rejection.

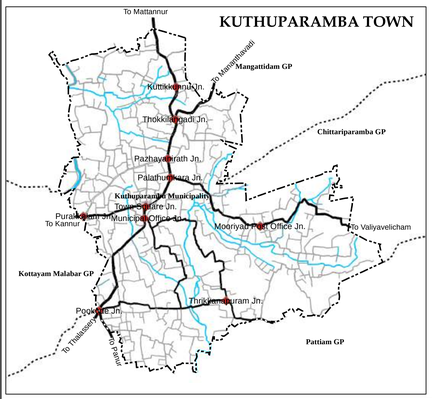
MASTER PLAN FOR KUTHUPARAMBA TOWN

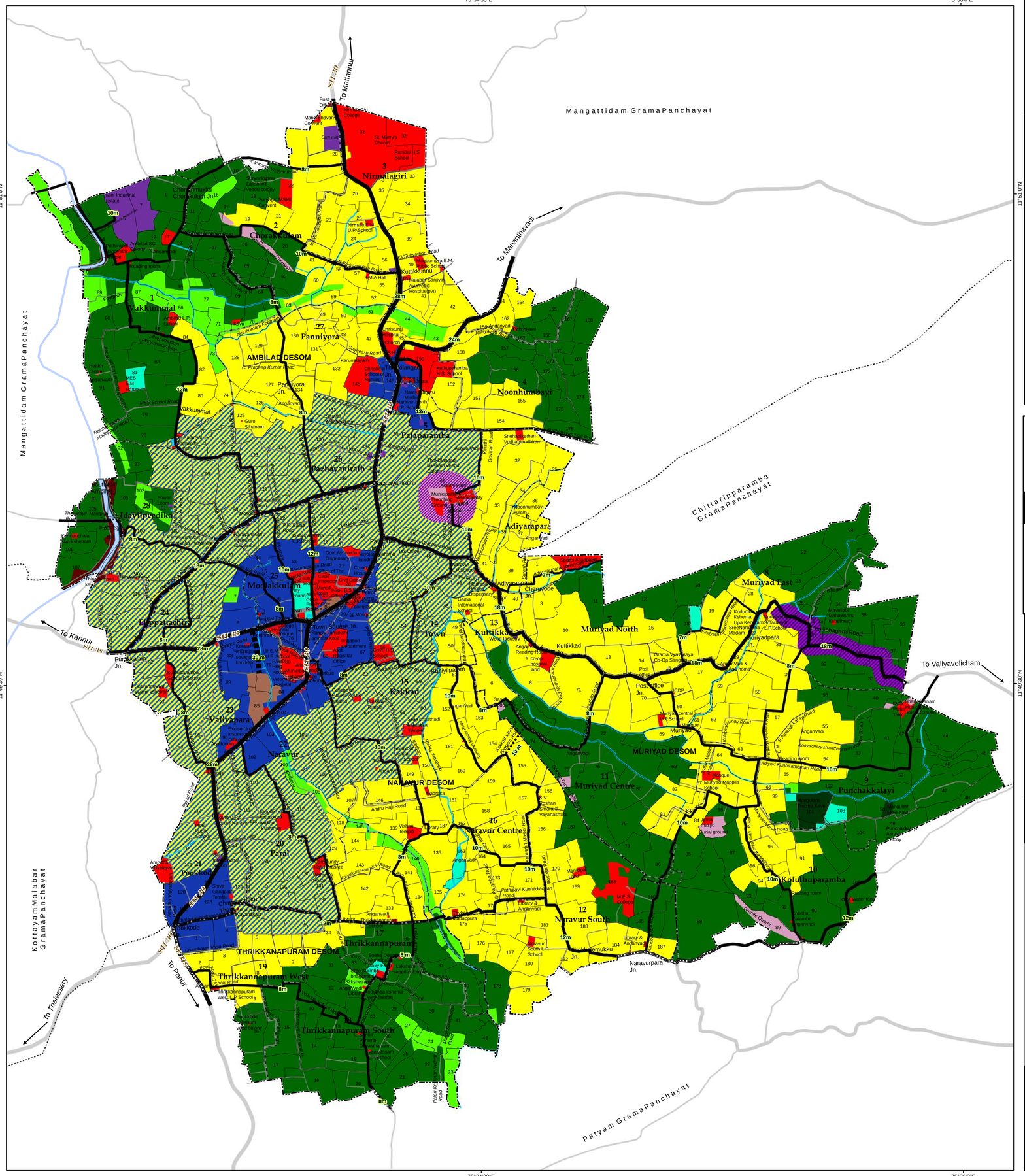
MP/04 - I PROPOSED LAND USE MAP 2031









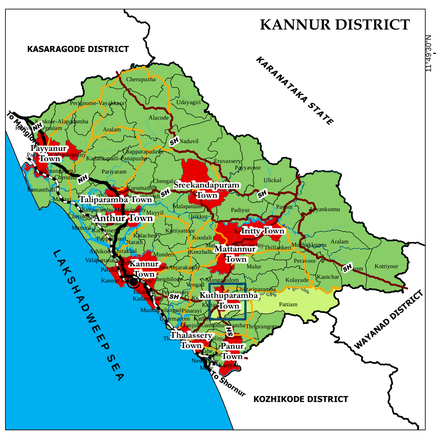

75°34'30"E
75°36'0"E
11°51'0"N
11°49'30"N
To Mattannur
To Manantheri
To Kannur
To Valiyavelicham
To Thalassery
To Panur
Mangattidam GramaPanchayat
Chittariparamba GramaPanchayat
Kottayam Malabar GramaPanchayat
Patyam GramaPanchayat
1 Vakkunnmal
2 Chirakkalam
3 Nirmalagiri
4 Noonhumbayi
5 Palaparamba
6 Adiyaraparamba
7 Muriyad East
8 Muriyad North
9 Punchakkalayi
10 Kuthuparamba
11 Muriyad Centre
12 Naravur South
13 Kuttikkad Town
14 Kuttikkad
15 Kakkad
16 Naravur Centre
17 Thrikkannapuram
18 Thrikkannapuram South
19 Thrikkannapuram West
20 Taral
21 Pookkode
22 Modakkulam
23 Valiyapara
24 Kuppattathil
25 Idayilpeedika
26 Pazhayanirath
27 Panniyora
28 Padiyora Jn.
30 Naravur
AMBILAD DESOM
PANNIYORA DESOM
NARAVUR DESOM
THRIKKANAPURAM DESOM
MURIYAD DESOM
Kuttikkunnu
Kuttikkad
Naravurpara Jn.
Thrikkannapuram Jn.
Town Square Jn.
Municipal Office
Police Station
Fire Station
Civil Station
Govt. Hospital
Govt. Ayurveda Dispensary
Govt. Registrar Office
Sub Registrar Office
Govt. Higher Secondary School
Govt. Vocational Higher Secondary School
Govt. Fisheries Technical High School
Govt. Fisheries Technical Training Institute
Govt. Fisheries Polytechnic
Govt. Fisheries Polytechnic Hostel
Govt. Fisheries Technical High School Hostel
Govt. Fisheries Technical Training Institute Hostel

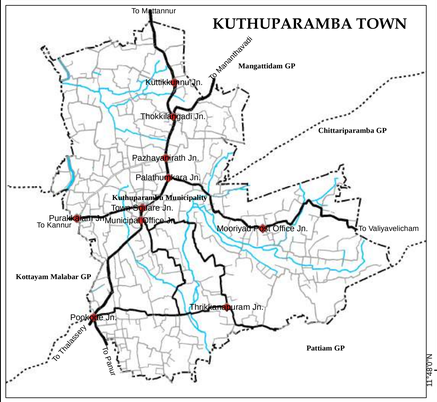
MASTER PLAN FOR KUTHUPARAMBA TOWN

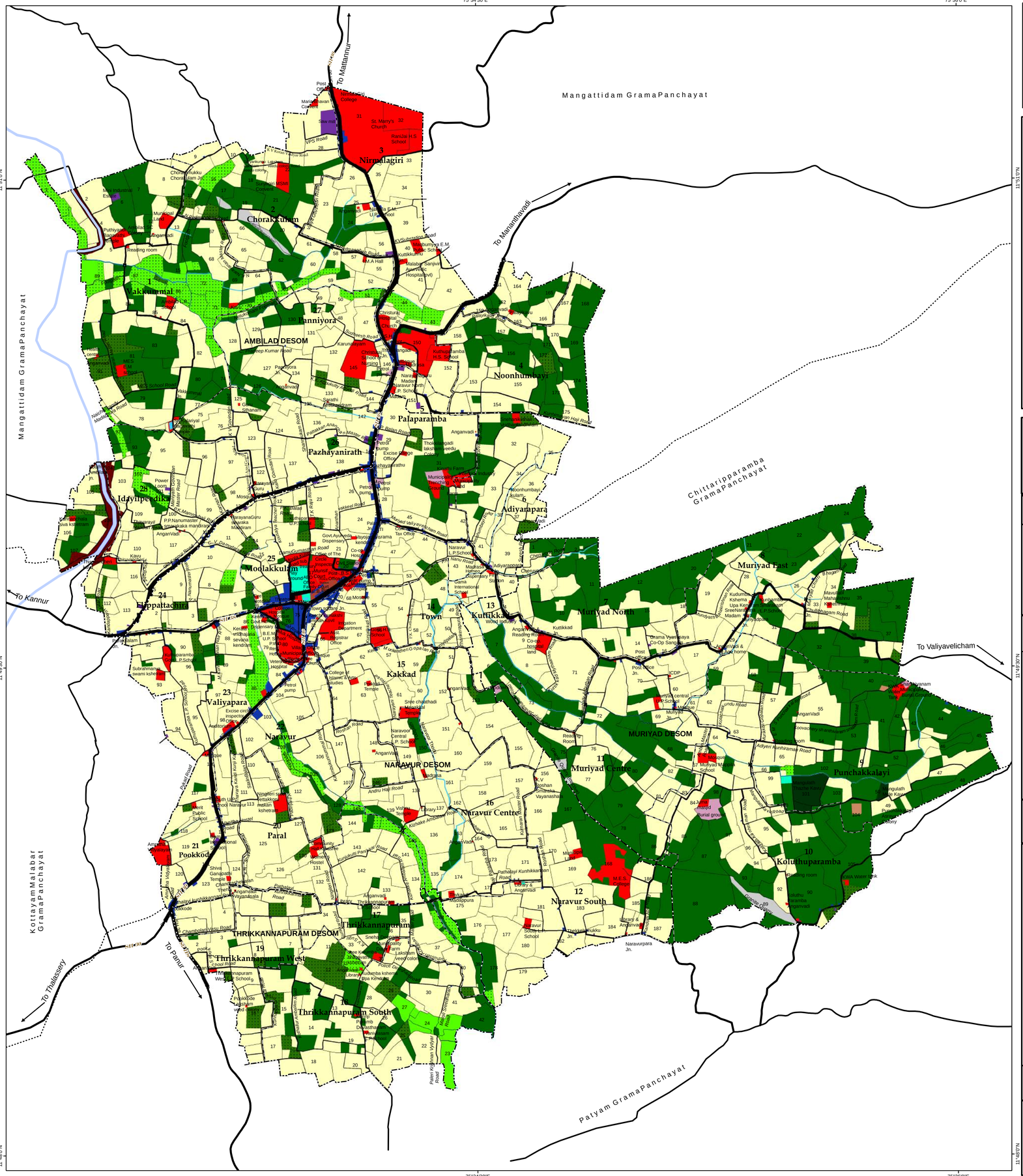
MP/01 - EXISTING LAND USE MAP











LEGEND

- Bridges
- Scheme Boundary
- Desom Boundary
- Panchayat Boundary
- Ward Boundary
- Survey Boundary
- Canal
- Roads

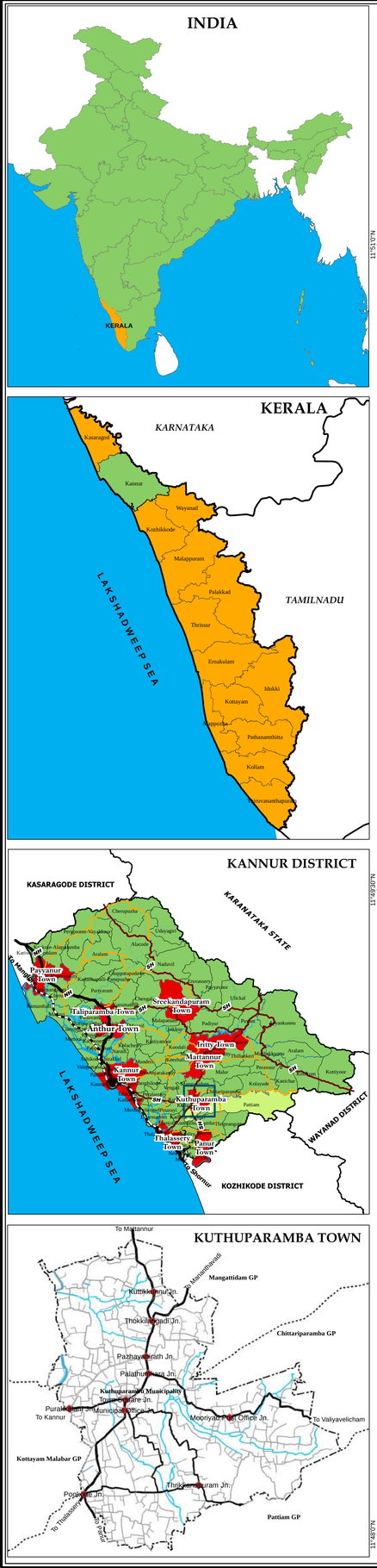
- Coconut groves
- Commercial
- Dry agriculture
- Hazardous
- Industry
- Canal land
- Park & Open space
- Paddy Field
- Paddy Field (Uncultivated)
- Public& Semi Public
- Quarry (Laterite)
- Quarry (Granite)
- Residential
- Sacred groves
- Transportation
- Water Bodies

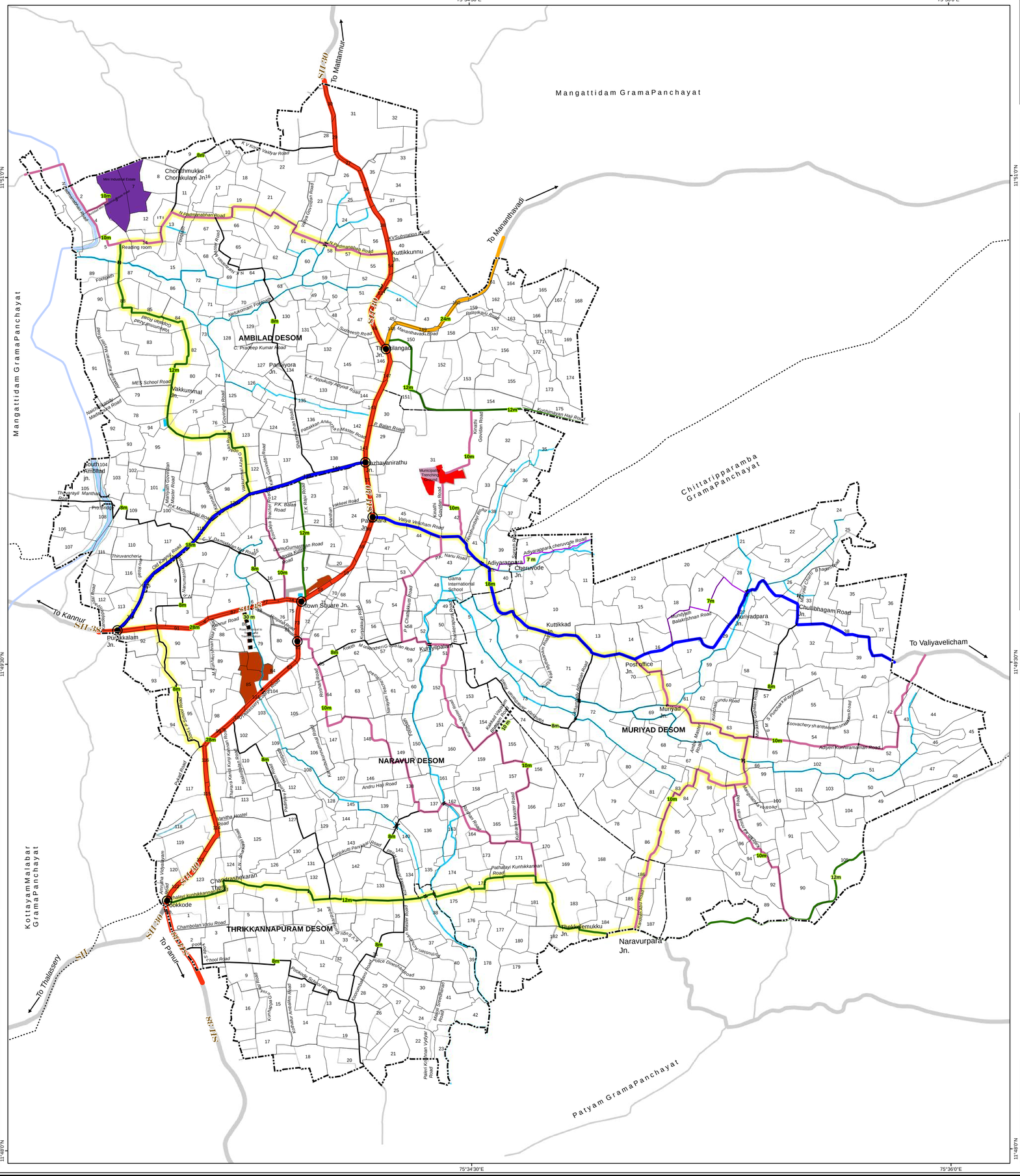
0 0.25 0.5 1 Kilometers

N W E S

MASTER PLAN FOR KUTHUPARAMBA TOWN

MP/04 - II PROPOSED TRANSPORTATION NETWORK-2031





LEGEND

- Bridge
- Proposed Bridge
- Canal
- Scheme Boundary
- Panchayat Boundary
- Desom Boundary
- Survey Boundary
- Existing Road
- Water Bodies
- Traffic and Transportation
- Ring Road

Proposed Width (m)

- 28 m
- 24 m
- 18 m
- 12 m
- 10 m
- 8 m
- 7 m

Proposed Roads

- 30 m
- 10 m
- Proposed Intersection Improvement

0 0.25 0.5 1 Kilometers

N S E W

KUTHUPARAMBA MUNICIPALITY	
Secretary	Chairman

LOCAL SELF GOVERNMENT DEPARTMENT (PLANNING) KANNUR DISTRICT

Draftsman

Assistant Town Planner

Deputy Town Planner

Town Planner

LOCAL SELF GOVERNMENT DEPARTMENT (PLANNING) GOVERNMENT OF KERALA

Assistant Town Planner

Deputy Town Planner

Town Planner

Senior Town Planner

Chief Town Planner (Planning)

LOCAL SELF GOVERNMENT DEPARTMENT GOVERNMENT OF KERALA

Additional Chief Secretary to Government



