FOREWORD

Kollam is etched deep in history with glorious and sustained commercial reputation and had great influence in the developments in and around the region. As of today, Kollam is the fourth-largest city in Kerala as far as population is concerned. Cities, the generators of economic momentum, need to cope up with the diverse and vibrant problems of varying magnitude and directions as a result of rapid urban sprawl. In order to sustain the high economic growth, cities have to be efficient and competitive. It is imperative to formulate strategies to counter the issues and channelize urban development in a fruitful way for the people as well as the area. Since the problems and issues in urban development are complex and multi dimensional, a Master Plan can help a long way in ensuring that the planning area meets the needs and requirements of current and future generations with sustained economic growth and better living conditions.

Kollam Municipal Corporation in its council meeting convened on 07.12.2021 had decided to adopt the draft Master Plan prepared by the Chef Town Planner as the draft Master Plan of Kollam Municipal Corporation prepared under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme with or without modification and also decided to constitute a Special Committee to give recommendations on the draft Master Plan. After publishing the intention on the adoption of draft Master Plan as per section 36(1) of Town and Country Plan Act, the Plan was thoroughly verified by the Special Committee in consultation with various stake holders including councillors, officials and other experts. Finally the draft Plan was modified by the Special Committee. The Municipal Council in its meeting held on 27.10.2022 have passed resolution to approve the draft Master Plan with the modifications recommended by the Special Committee.

GIS based Master Plan under AMRUT is prepared after reviewing the sanctioned Development Plan for Kollam, Detailed Town Planning Schemes and Greater Kollam Development Plan published in 2012. These plans were instrumental to certain extent in shaping the present day Kollam Town. The draft Plan was modified after conducting extensive discussions with various stakeholders including MP, MLAs, Division Councillors, officials in line departments, NGOs and other experts in planning. The Master Plan is formulated for a horizon period of 2041 with a vision for transforming the city more productive and sustainable. Various proposals for developing production sectors and for conserving environmentally sensitive

areas and infrastructure development were included in the draft Mater Plan other than proposed landuse map, transportation network and zoning regulations.

I am grateful to the Office of LSGD Planning, Kollam headed by Smt. Shary M.V, District Town Planner, for their guidance and technical support rendered for completing the draft Master Plan. Special Committee which have distinct roles and responsibilities in the multifarious task of modification of the draft Plan have sincerely involved in all stages. The contributions of the councillors in proposing various suggestions in the draft are praiseworthy symbolising their active involvement in the exercise. I compliment the Office of the Chief Town Planner, LSGD Planning, Government of Kerala for their technical guidance in the modification of draft Master Plan. The challenge now is to implement the Plan effectively and efficiently so that not only do we maximise the benefit from the proposals but also that we ensure people from all walks of life in the planning area see positive results from the anticipated developments consequent to realisation of the Plan proposals. I am certain that all divisions and Kollam Municipal Corporation area as a whole will rise to the occasion and reap maximum benefits from the plan.

Kollam

10/10/2023

Prasanna Earnest

Mayor, Kollam Municipal Corporation

PREFACE

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme was launched with a total outlay of 515.00 crores with 100% centrally sponsored funding. The scheme focuses on infrastructure creation that has a direct link to provision of better services to the urban citizens such as assured supply of water & sewerage connections, development of greenery & well maintained open spaces and promotion of public transport and Non-Motorised Transport (NMT). Preparation of Geographical Information System (GIS) based Master Plans for selected cities is one of the 11 reforms under AMRUT. The Local Self Government Department Planning (Erstwhile Department of Town and Country Planning) was entrusted to carry out the scheme of preparation of GIS based master plans for 9 cities under AMRUT scheme in which Kollam is also included. The officials were given extensive trainings and finally the most awaited Master Plan for Kollam City - 2041 is prepared.

The cities hold tremendous potential as engines of economic and social development by creating jobs and generating wealth through economies of scale. Planning intervention holds a pivotal role in bringing development in any area. While productivity growth will be the key driver of economic growth and prosperity, planning and management of natural resources and reduction of wastes are essential for sustainable development of cities. To be liveable, cities shall be equitable, socially inclusive, affordable, accessible, healthy, safe and resilient. They shall have attractive built and natural environments and shall provide a diversity of choices and opportunities to the people. The City of Kollam is a prominent commercial and industrial centre in the southern part of Kerala State and is well connected to important towns in Kerala and Tamil Nadu, both by roads and railways. It carries rich history of trade with foreign countries such as Babilonia, Mesapetamia etc from 4000 years back and the city possess a number of natural and manmade heritage precincts, tradition and culture.

Planners have recognized the need for a long term Development Plan for the Town considering the growth trend, resources potentials, locational aspects, etc. at very early stages, and prepared a Development Plan for the Town and environs for a period up to 2001 A.D. which was sanctioned by Government vide G.O. (MS) No. 219/86/LAD dated 03-11-1986. Vindicating the Planners judgment, the planning area delineated in this Plan has indeed developed into an influential urban centre in the District. The Plan has, to a certain

extent, been able to guide and control development of the planning area as envisaged. The Plan was further modified with reference to the socio-economic and political changes and the revised Development Plan for Kollam was sanctioned by Government vide G.O. (Ms) No. 69/2010/LSGD dated 06-04-2010. Further Greater Kollam Development Plan with Kollam Municipal Corporation as the mother city and Gramapanchayats of Kottamkara, then Thrikkadavoor and Neendakara as the constituent local bodies was published in the year 2012.

The new Master Plan under AMRUT was prepared through a systematic process comprising of extensive data collection and analysis, identification of development issues, setting up of goals and objectives, formulation of development concept and carving out policies & strategies followed by detailed sectoral proposals, priority action plan and zoning regulations. The Master Plan aims for a more productive, sustainable and liveable Kollam and introduces various new concepts which are considered as the need of the hour like Sponge City, Knowledge Economy, Disaster Management, Household Nano Industrial Zone etc. other than prioritizing the sectoral proposals. Priority projects are identified with the help of various stakeholders and a detailed report on each project is included in the report so that the decision makers can easily prepare the Detailed Project Report for implementing the proposal. Another important initiative brought in the Master Plan is that the Detailed Town Planning (DTP) Schemes found as obsolete were evaluated by the Special Committee and decided to revoke such schemes so that people can develop their parcel of land as per the provision of new Master Plan.

The Special Committee chaired by the Hon. Mayor of Kollam, Smt. Prasanna Earnest had extended all supports and exercised crucial role in the preparation of this draft Master Plan. An exclusive planning team was constituted in the Office of District Town Planner, Kollam in connection with the preparation of this Plan. I honestly place on record the sincere and devoted work done by Smt. Shary M.V. Town Planner and her dedicated team for completing the task on time. The sustained and collective efforts of the Special Committee and the Planning Team, culminated in the documentation of this Master Plan. I take this opportunity to appreciate the leadership provided by the Kollam Municipal Corporation officials headed by the former Secretary Sri. P.K. Sajeev and present Secretary Smt. Anu. R.S. As the planning exercise encompassed various sectors, it required the support and positive interaction with many public and private agencies and departments. It would be unfair

their collective contribution and cooperation are not acknowledged. I also appreciate the efforts of Late Smt. P.R. Ushakumari, former Senior Town Planner, Sri. S. Ajay Kumar, Senior Town Planner, Smt. Asha Ajay Ghosh, Town Planner, Smt. Isha P.A., Town Planner, Sri. T.K. Girish Kumar, Town Planner, Sri. Denzil Fernandez, Deputy Town Planner, Smt. Raji S.S., Deputy Town Planner and all other supporting staff of the Office of Chief Town Planner (Planning) for their efforts in vetting and finalisation of the Master Plan.

Certainly, the Master Plan will provide the frame work for coordinating developments in Kollam Municipal Corporation area for a more productive, sustainable and liveable Kollam.

Thiruvananthapuram
06/12/2023

Sri. Prasanth H
Chief Town Planner (Planning)

ACKNOWLEDGEMENTS

Preparation of Master Plan for Kollam City was initiated as part of Atal Mission for Urban Rejuvenation and Transformation (AMRUT) scheme. Planning process was completed through a series of activities in a scientific manner including preparation of base map with the help of National Remote Sensing Agency and using Geographical Information System (GIS), systematic data collection, wide range of analyses by means of GIS, evolving development vision, formulating detailed proposals and development regulations. All the steps were accomplished through active participation of officials from various government departments, NGOs, experts in developmental activities and the public through their elected representatives including MP, MLA and Division Councillors. Considering the stupendous nature of the planning task and the intricacy of details involved. The right leadership and direction is very significant for the effective and successful completion of the Master Plan. I acknowledge with gratitude the guidance and involvement of Smt. Prasanna Earnest, present Mayor of Kollam Municipal Corporation, Sri. Kollam Madhu, Deputy Mayor, Smt. Honey Benchamin, Town Planning Standing Committee, Sri. V. Rajendra Babu, former Mayor, Chairpersons of all other Standing Committees and all other Councillors during the process of preparation of Master Plan. I take this opportunity to acknowledge the whole hearted support provided by the KLMC officials headed by the former Secretary Sri. P.K. Sajeev and present Secretary and convenor of Special Committee Smt. Anu. R.S.

Sri. Pramod Kumar C.P, Chief Town Planner and former Chief Town Planners Sri. Shaji Joseph, Sri Gigi George and Smt. K S Girija, were a great source of constant motivation and inspiration in accomplishing this study. Their advices and patronage are gratefully acknowledged. The guidance, technical support and leadership provided by Sri. Prasanth.H, Chief Town Planner (Planning) was immensely helped in the successful completion of the Master Plan. I sincerely acknowledge the invaluable and timely support rendered by him. The consistent support and consultation rendered by Late Smt. P R Ushakumari, Senior Town Planner is indescribable. I overwhelmingly express my sincere gratitude and acknowledge her invaluable support at this juncture. Sri. S.Ajaykumar, Senior Town Planner, Smt. Asha Ajay Ghosh, Smt. Isha P.A and Sri. T.K.Gireesh Kumar, Town Planners, Smt. Raji.S.S and Sri. Denzil Fernadas, Deputy Town Planners and all other supporting staffs in the State Project Cell have meticulously helped in completing the plan on time. I am glad to acknowledge the help offered by them.

The guidance given by Sri. Jacob Easow, former Addl. Chief Town Planner who h involved directly in various planning works in Kollam for a long time including preparation Integrated District Development Plan which is considered as an umbrella plan for the spati planning of the local bodies in the district and Dr. Ramaswami, renowned Conservati Architect with vast knowledge in the history, tradition and culture of Kollam was not on significant but also laudable. Dr. Manoj Kumar Kini, an eminent Urban Designer and spec invitee of Special Committee who has been involving in various urban and regional plann activities in the district has extended technical support in shaping the plan highlighting t heritage and cultural values of the city. I am very glad to acknowledge the technical suppo provided by Sri. Jacob Easow, Dr. Ramaswami and Dr. Manoj Kumar Kini.

The concerted effort of the staff of the district office was incredible in the process preparation of Master Plan starting from base map preparation to the report writing. I wou like to express my sincere gratitude to Sri. K Baiju, former Senior Town Planner who had initiate the process and continued in giving suggestion during the process of preparation. I al acknowledge the service of Sri. Arun Joseph, former Deputy Town Planner, Smt. Priya Assistant Town Planner, Smt. Zahna Sheriff, former Planning Assistant and Smt. Neethimol.C Town Planning Surveyor, who had actively involved in field verification and preparation base map. I also express my sincere gratitude to Sri. Vishnu Ravi Moorthi, Assistant Tow Planner, Smt.Vijayalekshmi P, former Research Officer, Smt.Shiji P N, former Statistical Assistan Sri. Sreejith K. R, former Planner Associate, Smt. Anzy.A, former Planning Assistant (GIS) an Sri. Hari Suresh, former Computer Assistant (GIS) for their contribution in preparing th preliminary report. I highly appreciate the constant effort of Sri. Abhijith B, Assistant Tow Planner in modifying the preliminary report by incorporating various suggestions from th Special Committee after re visiting the information gathered previously and conducti various stakeholder discussions and field visits with the whole hearted support Smt. Deepthi R Nath and Smt. Sruthy Vijayan, Town Planning Surveyors, Sri. Sarath S S, Trace and Kum. Iyrin Anna Johnson, former Computer Assistant(GIS)and Ashma A, former Planni Assistant (GIS)and Sri. Kunjumon S, former Computer Assistant (office). I also acknowledg the special assistance provided by Smt. Divya.D.S, Planning Assistant (GIS), Office of th Chief Town Planner for final modifications of maps. I am very much grateful to the team f their consistent involvement in completing the revised draft of this Master Plan. I al acknowledge the assistance provided by Aswathi V, Ayesha Naushad, Chippy Nichola

Haridev M J, Josin Baby Mathew, Naheez Nazar, Roshni Ann, Swetha P Devassy, M. Plan (Urban Planning) students of TKM College of Engineering and Karthik S Kumar, M. Plan (Housing) student of College of Engineering, Trivandrum for their contribution in detailing priority projects. I extend my sincere gratitude to all other technical and non technical staff of this office and whole heartedly acknowledge their participation in various stages of the study, without which this work would not have been completed in the present form and within the scheduled time frame. The untiring efforts made by all the above mentioned personalities have helped me in completing the draft Master Plan meticulously in spite of all the issues including 2018 and 2019 floods and outbreak of pandemic Covid-19.

Kollam
10/10/2023



Shary M V
District Town Planner

CHAPTER - 1
INTRODUCTION

Process of preparation of GIS (Geographic Information system) based Master Plan is not new to Kollam. Greater Kollam Development Plan (GKDP) consists of the Kollam Municipal corporation (KLMC) and Grama panchayats of Thrikkadavoor, Kottamkara and Neendakara was prepared using GIS with technical support of Department of Town and Country Planning in 2009-2010. GKDP was published in 2012. However, GKDP was not sanctioned till date. In the meantime KLMC is selected as one of the 9 AMRUT cities in the State for the preparation of GIS based Master Plan under AMRUT sub scheme which is one of the 11 reforms insisted in the scheme. Satellite imagery from NRSC is purchased for preparing the base map. In the previous effort of preparation of GKDP, GIS based map was generated through geo referencing of available cadastral maps. As the Global Positioning System (GPS) survey was conducted using less accurate GPS instruments the level of accuracy was less. Now the GIS based Master Plan for KLMC area is prepared under AMRUT in a systematic manner. The report contains 34 chapters under 4 parts. This chapter being an introduction, explain about earlier planning effort, need for the new Master Plan, and planning process.

Kollam town was known for its trading linkages and industrial potential from ancient period. Due to natural ports at Neendakara and Thangassery, trading between foreign countries like Portuguese and Dutch were flourished along the side of sea coast. Settlements were developed near the ports and Kollam became a famous commercial centre in the southern part of Kerala. Like other towns of Kerala, Kollam had an organic growth and this has resulted in acute shortage of basic infrastructure, traffic congestion and clogged commercial areas. As Kollam Town is the headquarters of the revenue district, it acts as the service centre of the entire district. Hence large number of people from different parts of the district needs to visit the town for availing higher order services. This has further aggrieved the issues due to lack of urban infrastructure in KLMC.

1.1.EARLIER PLANNING EFFORTS

1.1.1. Town level

Planning was initiated both at town level and district level. A set of rules were enacted in 1878 for the improvements of the town. In 1893 the Towns Improvements and Conservancy (1069 M.E) Act was in force and Town Improvement Committee was appointed with power of taxation. In 1896, rules for regulating vehicular traffic were introduced. The permanent conservancy was strengthened during 1898 and the limits of Quilon was extended in 1900. The committee was empowered to introduce taxes by regulation III of 1076 M.E. House tax was levied from 1910 onwards. Power of appointment and punishment were conferred on the president of the committee by regulation V of 1085 M.E. The first attempt for preparing a comprehensive Development Plan was prepared by the District Town Planning unit, Kollam, of the Department of Town and Country Planning in the year 1980 with a horizon period of 2001. Detailed studies were carried out to assess the town resources, growth trends and development issues so as to estimate the future needs and functions of the town. The area of the then Kollam municipality was 18.48 sqkm. Realizing the necessity of integrating rural areas with urban centers for a planned growth with ample scope for employment generation and provision of social amenities, the planning area delineated for the first Development Plan encompassed Kollam Municipal town, parts of Kilikolloor, Vadakkevila, Eravipuram, Neendakara and Thrikkadavoor Gramapanchayats and whole of Sakthikulangara Gramapanchayat spread over an extent of 48.5 sq.km and an estimated population of 5 lakhs by the year 2001.

Proposed landuse plan (figure 1.1), circulation plan (figure 1.2), civic amenities plan, priority schemes (figure 1.3) and zoning regulations to ensure the desired developments in the designated use zones were included in the first Development Plan.

As per the proposed landuse plan, nearly 29.69 sq.km area (69.35% of developable area) was reserved exclusively for residential activities. The circulation plan was based on ring and radial road concept. The first Development Plan for Kollam town was sanctioned by the Government



Figure 1.1 Proposed Land use map - 2001



Figure 1.2 Circulation Plan 2001

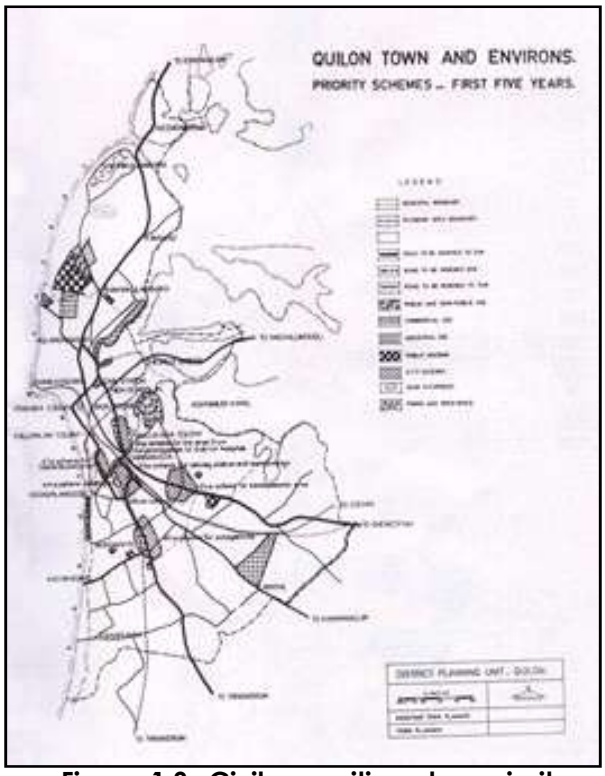


Figure 1.3 Civil amenities plan priority schemes

vide G.O (MS) No. 219/86/LAD dated 3.11.1986. Subsequent to the first perspective plan, based on the priority anticipated, 12 Detailed Town Planning (DTP) schemes were prepared (figure1.4) of which 4 schemes were sanctioned and development control is being enforced accordingly. The Kollam Development Authority (K.D.A) played a vital role in the enforcement of the Development Plan. Pallithottam housing colony scheme is a project taken up by the K.D.A by acquiring land in the public zone. Commercial complex project at Andamukkam is yet another project in the development project by the Kollam Development Authority. K.D.A also co-ordinated various governmental and non-governmental agencies involved in these projects to implement the Development Plan proposals and had taken up projects on road developments and junction improvements from the Development Plan. Now K.D.A is abolished and the responsibility of planned development of the area is vested with the respective local governments within the erstwhile K.D.A limits.



Figure 1.4 Detailed town planning (DTP) schemes

Even though the development control is expected to be exercised with the help of the sanctioned Development Plan it was not fully implemented due to certain development constrains such as lack of co-ordination among various functional departments, conflict between the planning perspectives and the interest of contemporary society. In addition to these, uncertainties on the development process due to change in government policies, external influence of socio-economic and legal forces, and lack of control of local government on subdivision of plots had resulted change in the designated landuse. As the number of owners increases with small extent of land it will be very difficult to control the conversion. Yet another constraint is that the lack of co-ordination between functional plan and economic plan / five year plan. Due to this most of the priority projects will be kept aside and the physical proposals were not materialized. Hence in the year 1996,

revision of sanctioned Master Plan was initiated by updating the landuses and reviewing the road widening proposals taking feasibility as the major yard stick. Based on the existing land use as on 1996 the Development Plan was revised and submitted to the government by K.D.A during the year 2000.

In the meantime, as an interim measure variation in zoning regulation of the first Development Plan was brought in force in the year 2008. The purpose of introducing this variation was to modify the existing regulations compatible to the changed development scenario in the planning area.

Later, the Revised Development Plan for Kollam town was sanctioned in the year 2010 (figure 1.5) with planning area same as that of the first Development Plan. In the Revised Development Plan marginal changes in the proportion of the areas in various zones to cope up with development trend were incorporated. The concept of circulation pattern of road network remains the same as ring and radial pattern for outside town center and grid iron pattern for the central area. The policies for future development

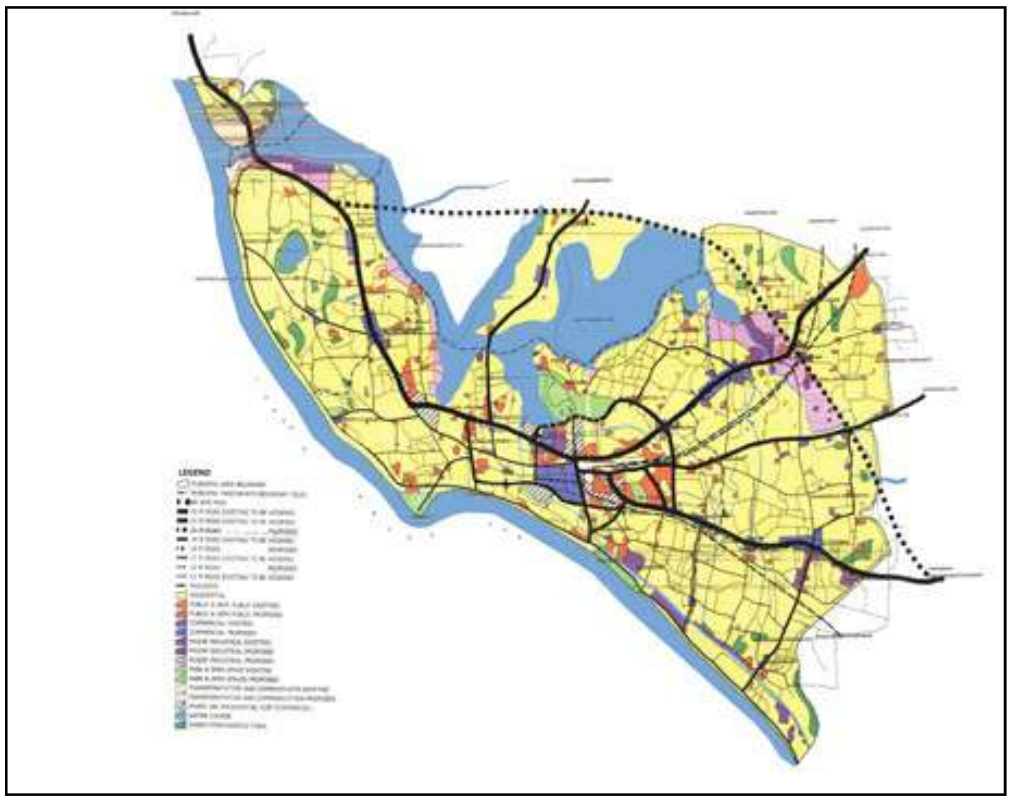


Figure 1.5 Revised Development Plan Kollam town

also more or less conform to that of the first Development Plan.

Further to the Revised Development Plan, preparation of Greater Kollam Development Plan (GKDP) was initiated within the umbrella plan namely, Integrated District Development Plan (IDDP) sanctioned in 2010. As the suburban local bodies have attained urban character, Government of Kerala delineated a joint planning area as KLMC as mother city and Neendakara, Kottamkara and Thrikkadavoor as constituent local bodies and a Joint Town Planning Committee (JTPC) was constituted for preparing the plan. Accordingly, the plan was prepared and published in 2012. However, it could not be sanctioned for want of government decision on the Joint Planning Committee as per the Town and Country Planning Act promulgated in 2016. The published GKDP is shown in figure 1.6. The concept of GKDP is evolved in such a way that KLMC is to perform the role of a first order settlement and first order commercial node of the district to deliver higher order public facilities and commercial services to all the people of Kollam District. Chinnakada and surroundings, the core of the city is visualised as the multi-functional zone

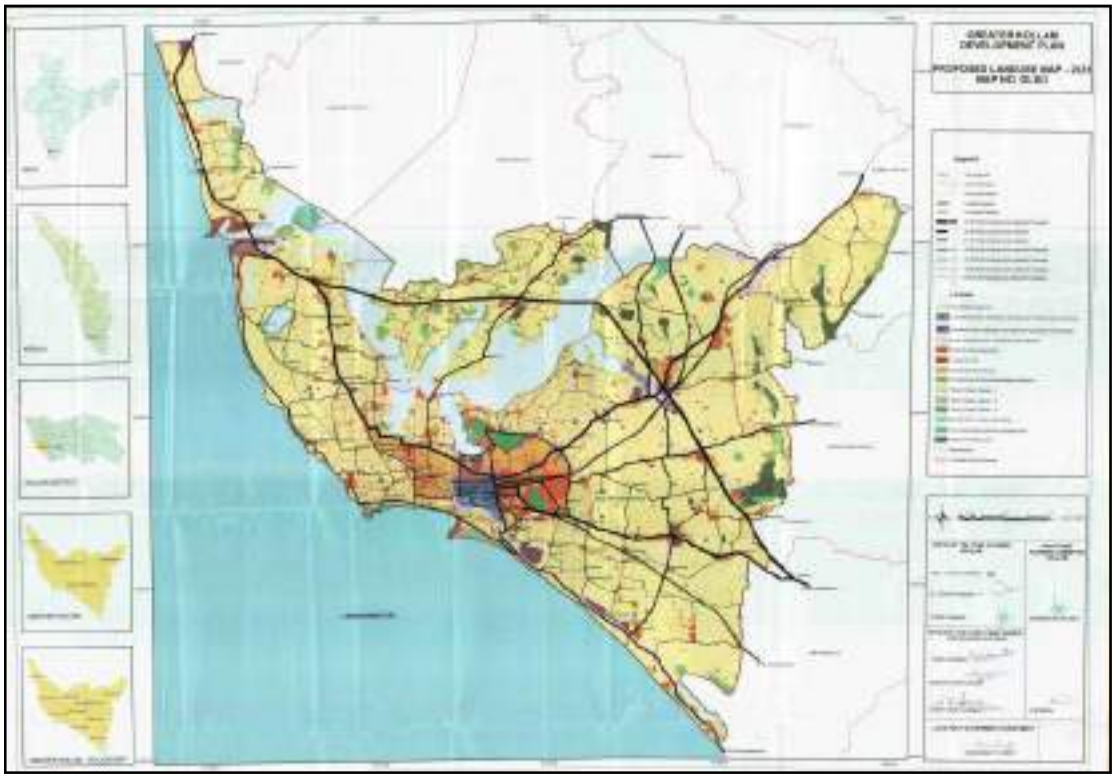


Figure 1.6 Publised Greater Kollam Development Plan

proposed in IDDP. For conserving the Aqua- Bio Reserve Zone as suggested in IDDP, dry agricultural area by the side of Ashtamudi Lake is conserved as such in the proposed landuse map (figure 1.7). Also, for attaining physical balance sub centres at Kavanad, Kadavoor, Kallumthazham, Ayathil and Pallimukku were also suggested in the plan. Concept of road network in the revised Master Plan was retained in GKDP also constituent LSGs were also planned for availing services from the mother city by improving the communications network.

1.1.2.District level

The project of preparation of Integrated District Development Plan (IDDP) and Local Development Plan (LDP) for Kollam, a pilot project by the District Planning Committee (DPC), Kollam is a remarkable achievement in the decentralized planning process in the district. Under this project the DPC with technical support of Town and Country Planning Department had prepared an Integrated District Development Plan for Kollam. The plan provides a development frame work

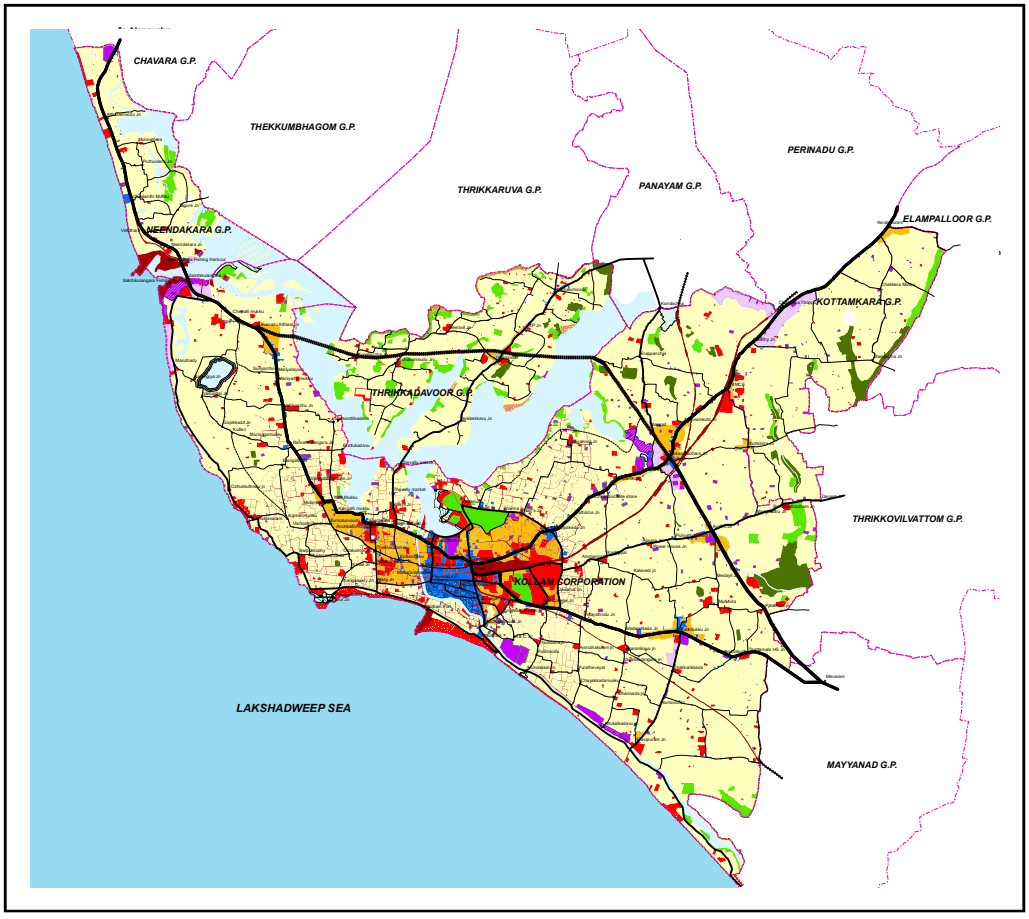


Figure 1.7 Proposed landuse (GKDP)

for the overall development of Kollam District. All the development partners like technocrats, politicians, NGO's, government departments, common men and other decision makers were involved in the planning process.

As per IDDP sanctioned in 2010, the entire district is divided in to six zones (figure 1.8) namely, 1. Aqua Bio Reserve Zone, 2. Multi-Functional Zone, 3. Special Development Zone, 4. Agro Development Zone, 5. Agro Allied Development Zone and 6. Bio Reserve Zone. Each Local Self Government Institution (LSG) located in respective zone is assigned specific role in the overall development of the district. Kollam Municipal Corporation (KLMC) and neighbouring Gramapanchayats (G.Ps) fall in Multifunctional, Aqua bio reserve and Special Development Zones. Being a part of first order multifunctional zone, KLMC and surrounding area has to perform all kinds of urban activities. Also higher order infrastructural facilities are to be provided in the Multi-functional Zone. Since the area partly falls in Aqua Bio Reserve Zone, strict enforcement of pollution preventing mechanisms are to be ensured for conserving the environmentally sensitive areas viz Astamudi Lake, Asramam, paddy field and other water bodies.

Part of the area falls in Special Development Zone where production / value addition of goods and services are anticipated. According to the development concept of IDDP, KLMC is conceived as first order settlement of the district. Punalur Municipality, Karunagapally, Kottarakkara,

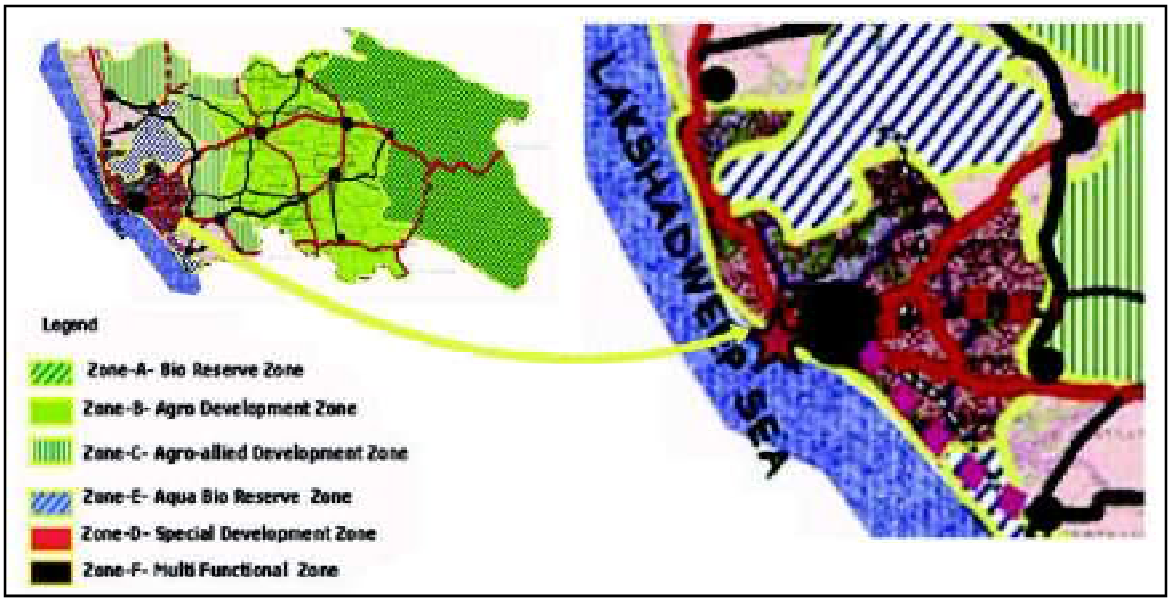


Figure 1.8 Development zones of Kollam District

Chathannur and Anchal Gramapanchayats are to be developed as the second order settlements. Karungappally and Kottarakkara were upgraded to municipalities in the year 2010 and 2015 respectively. Chinnakkada is considered as the first order commercial node in the district. Punalur, Karunagappally, Kottarakkara Chandamukku, Paripally, Anchal junctions are the suggested second order nodes in the proposed hierarchy of nodes as per IDDP. A transportation network is also planned for connecting the development zones, important nodes and settlements. Proposed transportation network includes four types of roads viz, National Highways and State Highways, Primary, Secondary and Tertiary roads.

1.2.NEED FOR A NEW MASTER PLAN

As referred in the earlier planning efforts, the entire area of KLMC was not fully covered in the Revised Development Plan. During the period from 1997 to 2011 Kollam town witnessed drastic changes in landuse. Promulgation of 73rd and 74th amendments in the Constitution has opened up the beginning of a new planning process in which various stake holders such as bureaucrats, technocrats, NGOs and common people to get opportunity to participate actively in various stages of formulating the Master Plan. Kollam is the only district where an Integrated District Development Plan was prepared and sanctioned with participatory spatial planning approach that conforms to the constitutional requirement of a District Plan. While preparing IDDP, it was observed that the surrounding LSGs along with Corporation area have important role in the development of Kollam District. Hence a comprehensive Development Plan for KLMC within the frame work of sanctioned IDDP is required for the orderly development of the area as well as for the integrated development of the district. Even though preparation of a new Development Plan viz Greater Kollam Development Plan was completed with KLMC as mother city and Grama panchayats Kottamkara, Thrikadavoor and Neendakara and published in 2012.

The plan could not be sanctioned till date. Hence the out-dated revised master plan is implementing in major parts of KLMC area, where the sanctioned plan is available. The rest of the area is covered under the

published GKDP. Thrikadavoor Gramapanchayat was merged with the mother city in the year 2015. Hence there is a need for preparing a new master plan for whole of KLMC area incorporating the recent developments.

In the meantime, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) launched for ensuring Water Supply, Sewerage and septage management, Storm Water Drainage, Non-Motorized Urban Transport and Green space/parks to cities. Among the 9 cities in Kerala, KLMC was also selected as AMRUT city. As preparation of GIS based Master Plan is mandatory for any AMRUT city, this plan is prepared under AMRUT scheme.

1.3. PLANNING PROCESS

The guidelines issued by the Government for the 'Scheme of preparation of GIS based Master Plan for AMRUT Cities' aim to prepare statutory town planning schemes for towns as per Town Planning Act in force in a time bound and participatory manner. The general process of preparation of Development Plan as per Town and Country Planning Act, 2016 involves four major steps other than the preparation of base map viz data collection, analysis, envisioning process and detailing. Planning process is thematically represented in figure 1.9.

The base map is prepared with the help of National Remote Sensing Centre, Hyderabad (NRSC). Prefield maps were prepared by NRSC using satellite imagery and handed over for ground truthing by the planning wing. After conducting the ground truthing, and verification by NRSC base map is prepared for starting planning process. In the meantime socio-economic surveys and other primary surveys, secondary data collection and compilation were completed. The second step is analysis in which two types of analysis – viz spatial analysis and local analysis were carried out. Consolidation of findings of both the analysis revealed the development issues. The third step is the envisioning process in which development goals and objectives were arrived based on the identified issues and potential. Thereafter development concept and policies and strategies were formulated for achieving the development goals. Last step is the detailing in which projections, proposed landuse map,

sectoral proposals and zoning regulations, preparation of draft report were included.

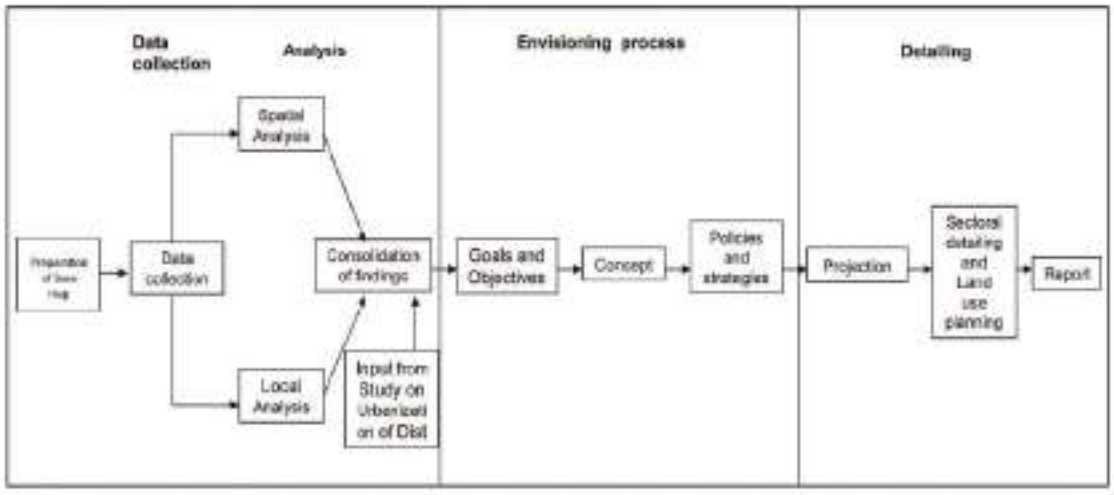


Figure 1.9 Process of preparation of Development Plan

CHAPTER - 2
PROFILE OF PLANNING AREA

Evolution, cultural histories and linkages define the uniqueness to an area. It defines and refines the area to the core. Planning area's profile with respect to location and regional linkages, evolution and growth of settlements, socio-cultural history, topography and physical features, climate and natural resources are analysed in this chapter.

2.1. LOCATION AND REGIONAL LINKAGES

KLMC is the first order settlement of the district in which the first order commercial node Chinnakada is located. The planning area is located at 8°53' North latitude and 76° 35' East longitude and situated at 72 km north of Thiruvananthapuram, the State capital and 152 km south of Kochi, the commercial capital of the State. It is situated almost midway at the western side of district with the coastal line of Lakshadweep as one of the boundary. Considerable area of Ashtamudi Kayal falls within the planning area. The planning area is well connected by all means of transport other than air. Three National highways, viz NH 66, NH 744 and NH 183 act as the backbone of road transportation network of the planning area. These National Highways provide linkage to other developed urban centres of the State like Kochi and Thiruvananthapuram as well as centres outside the state like Shenkottai. Kollam-Kannanallur and NH 66 bypass roads are the other major roads connecting the planning area to the eastern and north-eastern parts of the district respectively. Other major development centres within the district such as Karunagappally, Parippally, Kottarakkara, Punalur and Anchal are well connected to the planning area through a system of road network. Thiruvananthapuram – Ernakulam broad gauge railway passing through the planning area provides ample connectivity to other developed centres of the state such as Thiruvananthapuram to the south and Allapuzha to the north. Kollam – Shenkottai railway line for which gauge conversion has completed and

extended to Thambaram remain underutilised due to the non completion of further works.When this railway is fully functional it can connect the planning area to developed centres of Tamilnadu by rail. Functionally, this linkage can play a major role as most of the vegetables and other consumable items are transported to the town through this rail network. Kollam Thodu passing through the planning area provides connectivity by water ways to other commercial and industrial centres along the coast. State Water Transport Department operates boat services to provide connectivity between Kollam town and other areas situated along the side of Ashtamudi Kayal. The proposed National Waterway number III originates from the planning area and ends at Kozhikode. Figure 2.1 shows the location and regional linkages of the planning area.

2.2. EVOLUTION AND GROWTH OF SETTLEMENTS

The land of Kollam had a glorious past and it bears the pride of being an ancient prosperous town sustaining to this date. By virtue of its strategic location with naturally formed ports and rivers, the land mass of Kollam was sought after by traders and rulers from almost all parts of the world from time

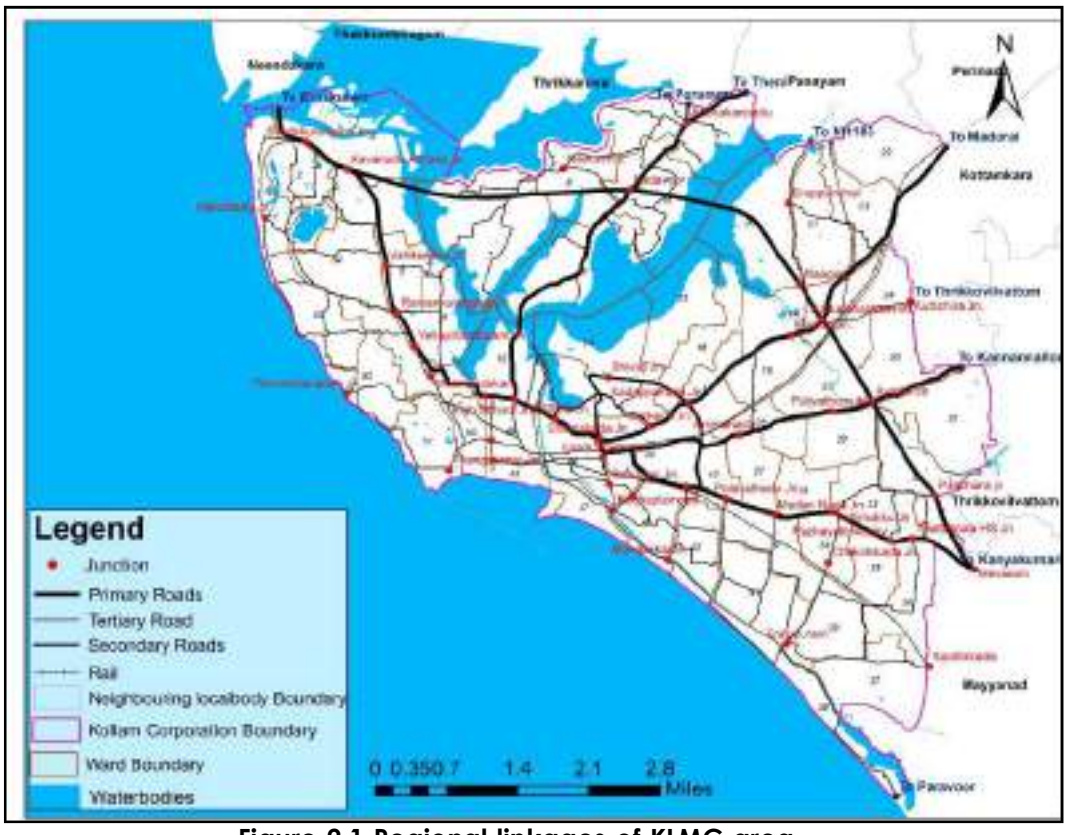


Figure 2.1 Regional linkages of KLMC area

immemorial. An agrarian culture was followed by native inhabitants of the city. South Indian traders and a host of other nationalities lived and traded here. The only south Indian port in the trade route was Nelcynda(old Kollam port located near Thevalakkara). Hence trading activities were flourished from old testament period in Kollam. The chronicle mentions Muziris (near present-day Kodungallur), Nelcynda, Bacare (Purakkad), Belita, and Komari as the ports of the Malabar Coast. Kollam had a sustained commercial reputation from the days of the Phoenicians and ancient Rome. The trade route from Arabia to China via southern coast of India is mentioned as Pepper route in the ancient trade routes.

The name Kollam seemed to have originated from the Sanskrit word for pepper - Kollam. Present Kallada by the side of river Kallada was the capital of agriculture produces. Traders visited this place for spices and other produces and might have led to the development of settlements along Neendakara and Thangassery and towards Kallada direction.

By around 3rd BC during the reign of Emperor Ashoka, Buddhism gained population in Kerala. In Kollam also there are evidences for this. ''Palli", the educational institutions established by them has reference to many current place names in Kollam District. The settlements might have concentrated along these pallis and along the routes to Kallada which existed earlier. The Eduppukuthira and Kettukazhcha, marked features of Buddhist religion got introduced here and are associated with many major temples like Thirumullavaram temple, Thrikkadavoor temple etc. The excavations carried out by the department of Archaeology in the year 1991 at Madankavu near Mangadu throw light on the long Iron Age in Kerala. The scientific dating of this site is 900 B.C. This also confirms that Kollam (early Nelcynda) was a prosperous town like Muziris.

The period from 1 A.D to 500 A.D was called as Sangham period in history or the lighted period. During this period, Kerala was at the heights of literacy and cultural activities. Five major temples were established in Kollam town during this period. They are

1. Manalileeswaram temple
2. Kapaleeswaram temple
3. Rameswaram temple
4. Golcandeswaram temple
5. Chittadeeswaram temple.

Later settlements developed around these temples.

The period from 500 A.D - 800 A.D is called as 'dark age' in the history of Kerala. The caste system got strengthened here. Brahmins who got an upper hand had invited Perumals of Chera dynasty to rule this piece of land. This led to furious blood shedding wars between Chola and Chera kings eventually resulting in the total destruction of the town. This land was constantly subjected to natural hazards which added to the destruction. Against all odds, trade with the Chinese flourished during this period.

In 825 A.D the Nestorian monks Mar Sapir Iso and Mar Proth arrived in Kollam as per the invitation of King Kulesekhara of the Venad Kingdom. The two monks received a land grant for an area called "Tarrish-a-palli" near 'Koruke Nikollam' from King Ayyanadikal, as described on the Tharisappli plates. The two monks were instrumental in founding christian churches in the Malabar coast. It is believed that the present Kollam town was rebuilt by Saber in a planned way. As per Rameshwaram silasaasanam written in 1102 AD, Malayalam era ie 'Kollavarsham' started and proclamation was made in Rameswaram temple. Hence it is believed that the name of Kollam is linked with the beginning of Kollavarsham. A conference of great astrologers from all over the country, convened at Kollam under the auspices of the King and the Sidham of astrological calculation was corrected and brought up-to-date in accordance with the directions contained in the Parahitha Sidha. The expansion of port at Thangassery also took place during the same period. Another historical event followed by Rameshwaram silasasanam is the establishment of Venad Kingdom. Rama Varma Kulashekhara Perumal took over the land after a furious war and established Venad Kingdom. Kollam became the capital of Venad Kingdom and it remained as the metropolis of the country and the seat of royalty till Raja Veera Marthanda Varma annexed the territory with Travancore. Venad Kingdom extended almost up to the present Thalavur, Kayamkulam and Thiruvananthapuram. During the period of Ravi Varma Sangrama-dheera many roads, water ways and bridges were constructed.

The period from 1500 AD to 1800 A.D may be called as European era. The Portuguese were the first European to establish a trading center in Thangassery, in 1502. In 1517, they built a colony and a fort (St. Thomas fort) at Thangassery, which was destroyed in the subsequent wars with the Dutch.

The remains of the fort and colony can still be seen in Thangassery. In 1661 the Dutch took over the administrative control of the town. In 1746 the British took over Kollam town and Venad Kingdom remained in history. In 1795 Travancore with Kollam as one of its administrative divisions was formed.

During 1801-1802 Veluthampi became Diwan when Bala Rama Varma was the King of Travancore. Kollam again became a centre of administration and trade under Veluthampi Dalawa. A Huzur catchery (present Collectorate) was established, Thevally Palace was built in this period. The Shenkottai pass was utilized to establish a road way (present NH 744). He helped to build new markets and invited merchants and traders from Madras and Tirunelveli to set up trade in Kollam.

In 1810 after the death of Veluthampi Dalawa, Rani Lekshmi Bai, appointed Colonel Munroe the British Resident as Diwan. Many administrative and social changes were made by Colonel Munroe during 1811 to 1814. The construction of Kollam thodu (T.S canal) was initiated during this period. Kollam thodu opened in 1880, posed a mile stone in the development of Kollam. Due to the opening of this waterway many industries especially coir by the side of the canal were established which triggered development of settlements by the sides of Kollam thoadu which continues to this date. It had also boosted the already existing fishing industry in and around the town. There after St. Joseph Convent (1875), Govt. Boys High School at Thevally (1879), Mount Carmel Convent (1885), Victoria hospital (1887) and St. Aloysius School (1900) were established.

The Thangassery light house was constructed by the British in 1902. Opening up of Kollam - Shenkottai railway line in 1904 is yet another important mile stone in the history of development of Kollam town. Due to the functioning of Kollam - Shenkottai railway and road, the development along Kollam thodu slowly shifted towards the eastern side and these links boosted up the trade and commercial activities between Kollam

town and eastern parts of district and Tamilnadu. The broad gauge railway line to Thiruvananthapuram was opened in the year 1918 establishing strong physical and functional linkages to other parts of the country. Quilon became a Municipality in the year 1921.

In 1940 the Infant Jesus Convent and School were established for the Anglo - Indian society. After the construction of broad gauge line from Kollam to Ernakulam, the railway station at Kollam was raised to the status of a junction. The construction of new civil station was also completed by the time. With the establishment of Sree Narayana College and Fathima Matha College, new avenues in higher education were opened up. Being the headquarters of the district, Kollam town became the hub of all governmental activities. The commencement of Neendakara Port and Titanium Complex fostered the developments at Kollam town there by acts as a major service centre in the district. Because of this high level trade, commercial, industrial and institutional activities, KLMC was elevated to the status of Corporation in the year 2000 by merging immediate surrounding areas into the jurisdictional area of the municipality.

2.3. SOCIO-CULTURAL HISTORY

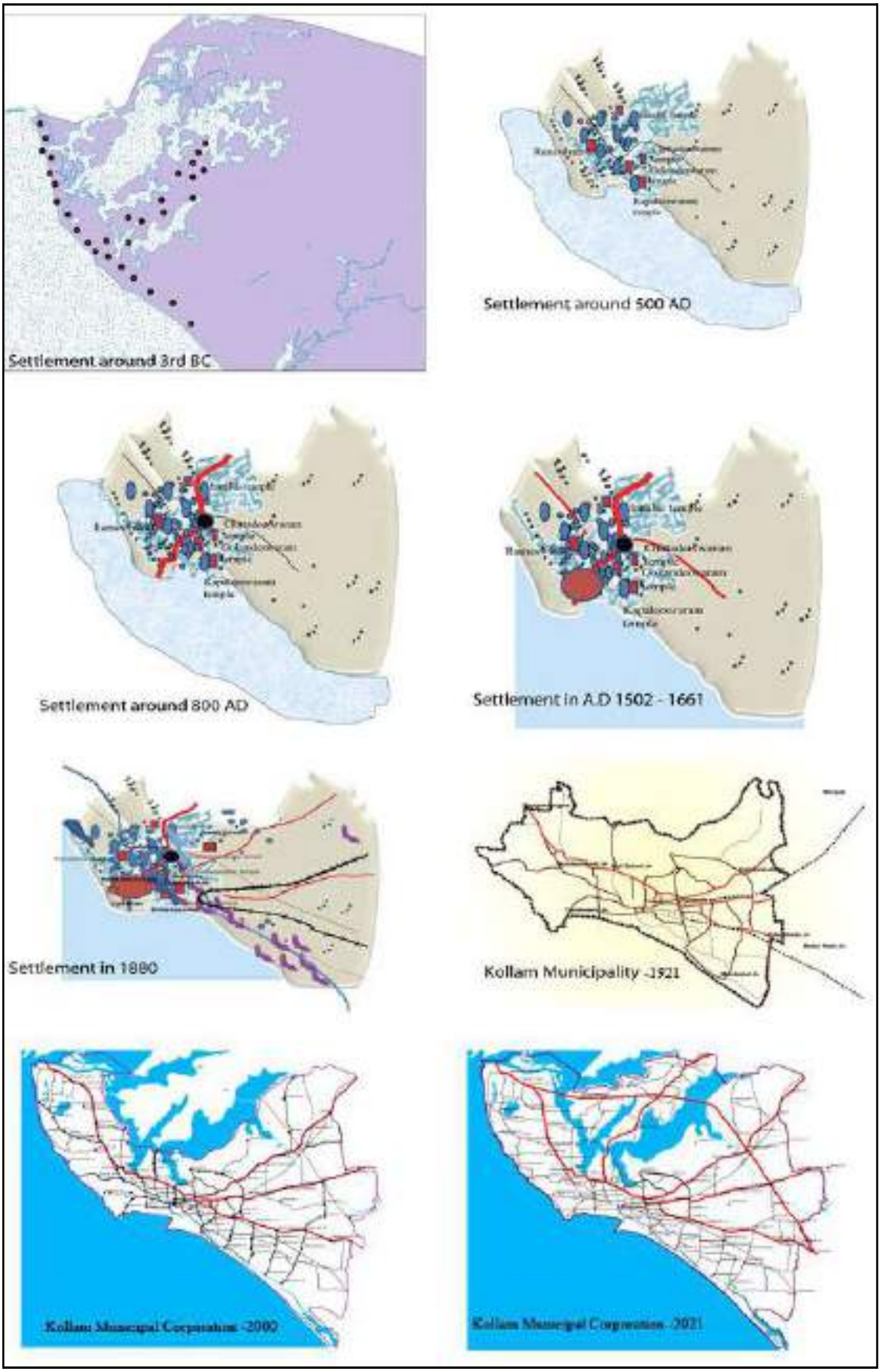
Kollam urban area has rich cultural mix due the blending of ancient tradition existed here and the European culture invaded to this area. Cultural remains of Budhism like Kettukuthira are seen in many places of the area. People belonging to various faiths, Hindus, Christians, Muslims and Anglo Indian live peacefully maintaining communal harmony in the area.

Kollam, the capital of the erstwhile Venad, was a great centre of learning and culture. It attracted distinguished scholars from all parts of South India. Leelathilakam and Unnuneeli Sandesam, two outstanding literary works of historical importance of 14th century are contributions from Kollam. The dance form of Kathakali in its new version of Ramanattam was the creation of Kottarakkara Thampuran, who had also improved Krishnanattam by substituting Malayalam for Sanskrit. Paravoor K.C.Kesava Pillai, a gifted poet, prose writer, dramatist and scholar, originated the musical play in Malayalam through his work Sadarama. His 'Kesaveeyam, a

Mahakavyam,' is of outstanding literary importance. In the history of Malayalam music, he has a prominent place as a gifted composer. Paravoor Kesavan Asan, another prominent literary figure, the founder editor of 'Sujananandini', was a journalist and a prose writer of eloquence. His 'Saratchandrika' is a contribution to the study of Ayurvedic system of medicine. C.V.Kunhiraman, editor of Kerala Kaumudi and Malayalarajayam was a poet, literary critic, prose writer and journalist of outstanding distinction. He was a man of letters, social reformer, founder of Kerala Kaumudi, journalist and leader. Kunhiraman opened his journalistic career in Sujananadini and his early writings were more on social affairs. He started a school for children belongs to then lower caste at Vellamanal, Mayyanad, Quilon and became its headmaster. Valmiki Ramayanam, a prose rendering of the great epic, was his first work to come out in print, in 1901. It won him wide acclaim prompting him to write Vyasabharatam and Panchavadi. His son-in-law Shri. E.V Krishna Pillai was also a renowned writer. He has etched his name in the field of humour and satire. Among his works are comedies, dramas, short stories and an autobiography. His works like Chiriyum Chintayum and Jeevithasmaranakal are considered as masterpieces.

Coming to modern times, Elamkulam Kunjan Pillai and Sooranadu Kunjan Pillai, noted literary luminaries hail from this district. Oyoor Kochu Govinda Pillai, the Kathakali artist, Paris Viswanathan and Jayapala Panicker also belong to this district. Leaders like T.M.Varghese, C.Kesavan and Kumbalathu Sanku Pillai, are considered as the pioneers of freedom movement in Kollam. R.Shankar, a prominent educationalist and social reformist, hails from Kollam. The district gave birth to well-known freedom fighters like Chandiran Kaliambi (Kadakkal Manthri) and Franco Raghavan Pillai.

Variety of cultural festivals are celebrated in the area. Kollam pooram, the biggest cultural festival of South Kerala is held on April 15th or 16th every year at Asramam maidan. Pooram consists of colourful display of elephants in two rows and it ends with fire display attracting thousands of foreign tourists to this area. Another cultural festival within the planning area is Srattu festival of Thrikkadavoor Mahadeva Temple. It is celebrated during the


Settlement around 3rd BC
Settlement around 500 AD
Settlement around 800 AD
Settlement in A.D 1502 - 1661
Settlement in 1880
Kollam Municipality -1921
Kollam Municipal Corporation -2000
Kollam Municipal Corporation -2021

month of February every year. Eight artificial horses (Kettukuthira) representing eight areas (Karas) around the temple moving towards temple through Ashtamudi Lake is the main attraction of this festival.

2.4. TOPOGRAPHY AND PHYSICAL FEATURES

The planning area falls mainly in low land area.Contour map of planning area is shown in figure 2.2. From the figure it is clear that elevation of portion of western boundary of planning area is same as MSL. The slope of planning area is depicted in figure 2.3. It is clear that the terrain is almost plain with slope varying from 0-5%. Maximum slope of 30 is observed in Thrikkadavoor area. Hence it may be assumed that considering the topographic features planning area is suitable for construction activities, agriculture and other allied activities.



Figure 2.2 Contour map of planning area

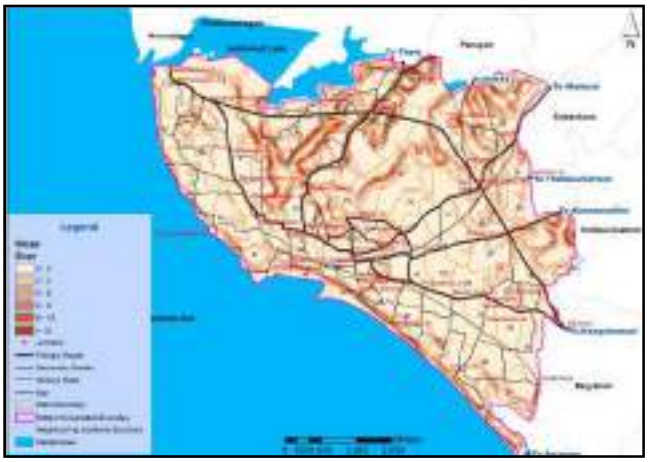
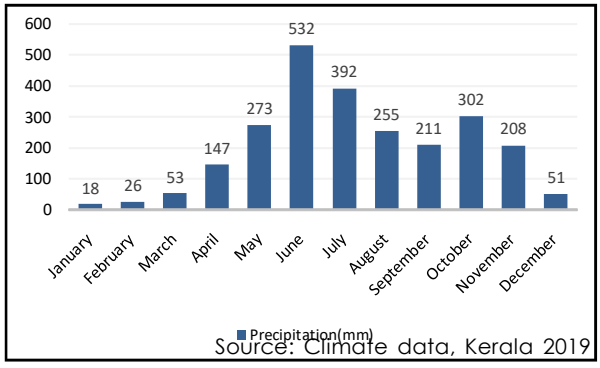


Figure 2.3 Slope of planning area

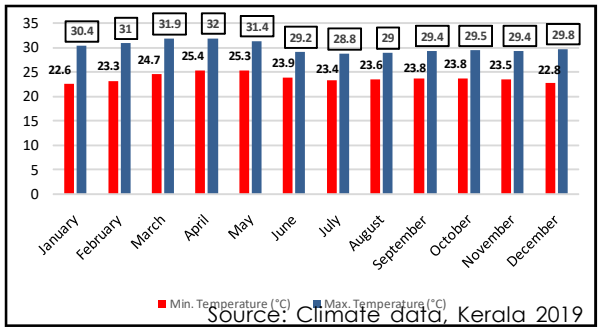
2.5. CLIMATE

Climate of planning area is atoning to that of the district. The district has a tropical humid climate with an oppressive summer and plentiful rain fall. Hot summer season is experienced during March to May. From June to September South West monsoon and from October - November the post monsoon season persist. North - West monsoon is experienced from December to February. The monthly variation of rainfall and temperature in Kollam District in the year 2019 are shown in figure 2.4 and 2.5 respectively. The maximum and minimum temperature reported is 32^0C and 22.6^0C respectively and the annual rainfall is 2505 mm. The average humidity in Kollam city is 90% and wind varies from 4 kmph to 6 kmph east. The difference in precipitation between the driest



Source: Climate data, Kerala 2019

Figure 2.4 Monthly variation of rainfall



Source: Climate data, Kerala 2019

Figure 2.5 Monthly variation of temperature

month and the wettest month is 514 mm. During the year, the average temperatures vary by 2.6°C. The annual rainfall is 2468 mm.

2.6. NATURAL RESOURCES

The planning area is gifted with natural resources such as sea, lakes, plains, backwaters, large green fields etc. Ashtamudi Lake, Lakshadweep Sea Vattakayal, Kattakayal and other water bodies, Asramam Bio Diversity Heritage Area and maidan are the main natural resources that are highly beneficial to the present and future development of the planning area.

Due to the presence of sea and backwaters, marine as well as inland fish wealth is available in the planning area. Large extent of green fields are available even within the city limit with coconut cultivation and other fruits bearing trees till recently. However as city grew these green fields got reduced considerably and now- a-days these fields are seen along the side of Ashtamudi Lake and outside city limits. Mangrove forests along the side of Ashtamudi Lake near the city centre are now almost destroyed. However rare species of mangroves and mangrove associates are still available in many part of the planning area. Large number of temples with traditional sacred grooves rich in bio diversities are also seen in the planning area.

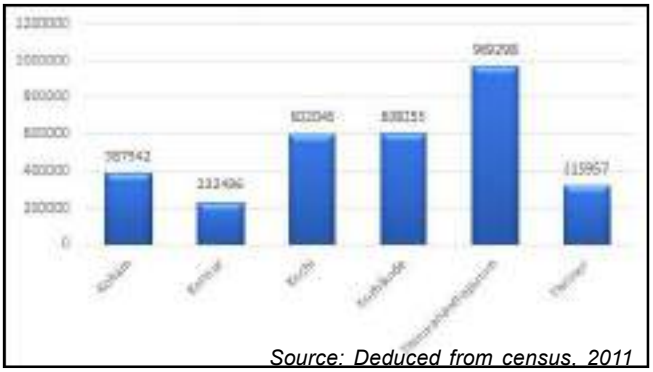
CHAPTER - 3
POPULATION

Scientific study of human population, their size, composition and distribution across space and the temporal change need to be studied thoroughly to understand the present issues of people and to suggest suitable solutions for assuring their development. Study and analysis of population in Kollam Municipal Corporation area plays a vital role in the preparation of GIS based Master-plan. This chapter includes the study of population with respect to Absolute population and its distribution, sex ratio, Population density, decadal growth rate, literacy rate and development issues based on Census 2011.

3.1. ABSOLUTE POPULATION

As per 2011 census, the total population of Kollam Municipal Corporation area is 3,48,657 (constituting 13.2% of the total population of Kollam District) which includes male population of 1,68,006 and female population of 1,80,651. In 2015, Thrikkadavoor Grama panchayat was added to the KLMC area. As a result the total population of present KLMC has increased to 3,87,942 consisting of 1,87,011 males and 2,00,931 females. This total population of the planning area accounts to 1.16% of the State population and 14.72% of the district population.

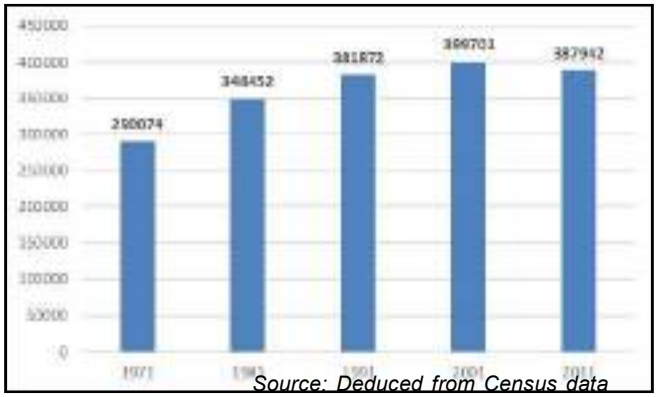
When the total population of the KLMC area is compared with other municipal corporations under AMRUT scheme in the State as shown in figure 3.1, the planning area ranks 4th in the State. The capital city viz Thiruvananthapuram Municipal Corporation has the highest population followed by Kozhikode and Kochi Municipal Corporations. Area of KLMC has increased while the surrounding area of Kollam Municipality is merged into it. Hence to consider an



Source: Deduced from census, 2011

Figure 3.1.Population comparison of KLMC with other AMRUT cities in the State

overall picture on change in population over a period of time population is deduced according to the area added. The decadal variation of population in the planning area is shown in figure 3.2 which shows increasing trend up to 2001 and has now declined for the census year 2011.

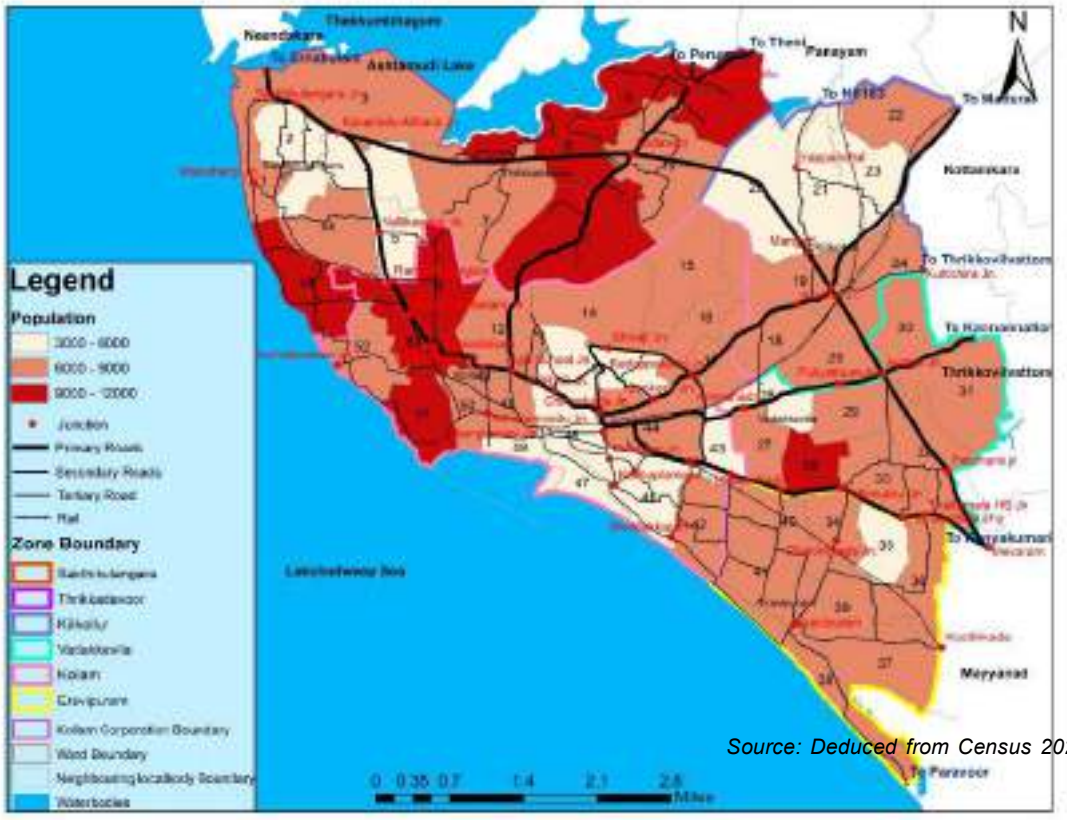


Source: Deduced from Census data

Figure 3.2. Decadal variation of total population in KLMC area

3.2. POPULATION DISTRIBUTION

Entire KLMC is divided into six zones:- Kollam, Sakthikulangara, Vadakkevila, Kilikolloor, Eravipuram and Thrikkadavoor consisting of 55 wards. The zone and ward-wise details of population is given in table 3.1 and spatial distribution of ward-wise population is shown in figure 3.3. Major share of the total population of KLMC (35%) is distributed in Kollam zone alone where as Sakthikulangara zone has least population distribution. In Kollam zone, Mulamkadakam ward has the highest population while Thamarakulam



Source: Deduced from Census 2021

Figure 3.3 Spatial distribution of ward-wise population of KLMC

Ward No.	Name	Population	Ward No.	Name	Population
Zone 1	**Sakthikulangara**		**Zone 5**	**Kollam**	
1	Maruthadi	6232	6	Kureepuzha west	9576
2	Sakthikulangara	5334	12	Thevally	7870
3	Meenathucherry	6081	13	Vadakkumbhagom	5754
4	Kavanad	5355	14	Asramam	6367
5	Vallikeezhu	5670	15	Uliyakovil	6006
54	Alattucavu	8379	16	Uliyakovil East	7611
55	Kannimel	9215	17	Kadappakkada	8354
Zone 2	**Thrikkadavoor**		42	Mundakkal	7890
7	Kureepuzha	7232	43	Pattathanam	5426
8	Neeravil	9001	44	Cantonment	6552
9	Anchalummoodu	10357	45	Udayamarthandapuram	5380
10	Kadavoor	7640	46	Thamarakkulam	4372
11	Mathilil	9040	47	Pallithottam	5279
Zone 3	**Vadakkevila**		48	Port	5438
26	Ammannada	5825	49	Kachery	8320
27	Vadakkevila	7195	50	Kaikulangara	7476
28	Pallimukku	9391	51	Thangassery	9090
29	Ayathil	7295	52	Thirumullavaram	7321
30	Kilikolloor	8316	53	Mulamkadakam	9668
31	Punthalathazham	7304	**Zone 6**	**Killikolloor**	
32	Palathara	7048	18	Koikkal	6216
33	Manakkad	7585	19	Kallumthazham	6594
Zone 4	**Eravipuram**		20	Mangad	5821
34	Kollurvila	6754	21	Arunoottimangalam	5884
35	Kayyalakkal	4868	22	Chathinamkulam	7081
36	Valathungal	6392	23	Karicode	4927
37	Akkolil	8165	24	College Division	7484
38	Thekkumbhagom	6518	25	Palkulangara	6724
39	Eravipuram	6720	**Total Population**		387942
40	Bharanikavu	7409			
41	Thekkevila	7140			

Table 3.1 Zone and ward-wise distribution of population

ward has the least population distribution. In Sakthikulangara zone, Kannimel ward has the highest population distribution and Sakthikulangara ward has least population distribution. While analyzing wards of KLMC, Anchalumoodu ward of Thrikkadavoor zone has the highest population and Thamarakulam ward of Kollam zone has least population distribution. The least population may be due to the presence of large number of commercial establishments in Thamarakkulam ward. Thrikkadavoor Zone is found as second largest populated zone in KLMC.

From figure 3.4 and figure 3.5 shows the spatial distribution of population concentration pattern of KLMC from which it is observed that one-third of total population of KLMC is concentrated in old settlements (municipal area) and two-third of the total population is concentrated along old settlements and in Maruthadi, Akkolil, Mundakkal, Kilikolloor, Punthalathazham division. This is mainly due to the growth potential of these areas.

3.3. SEX RATIO

Sex-ratio is an important social indicator for measuring the extent of equity prevailing between males and females at a given point of time. It is the number of females per 1000 males. The female population in KLMC is

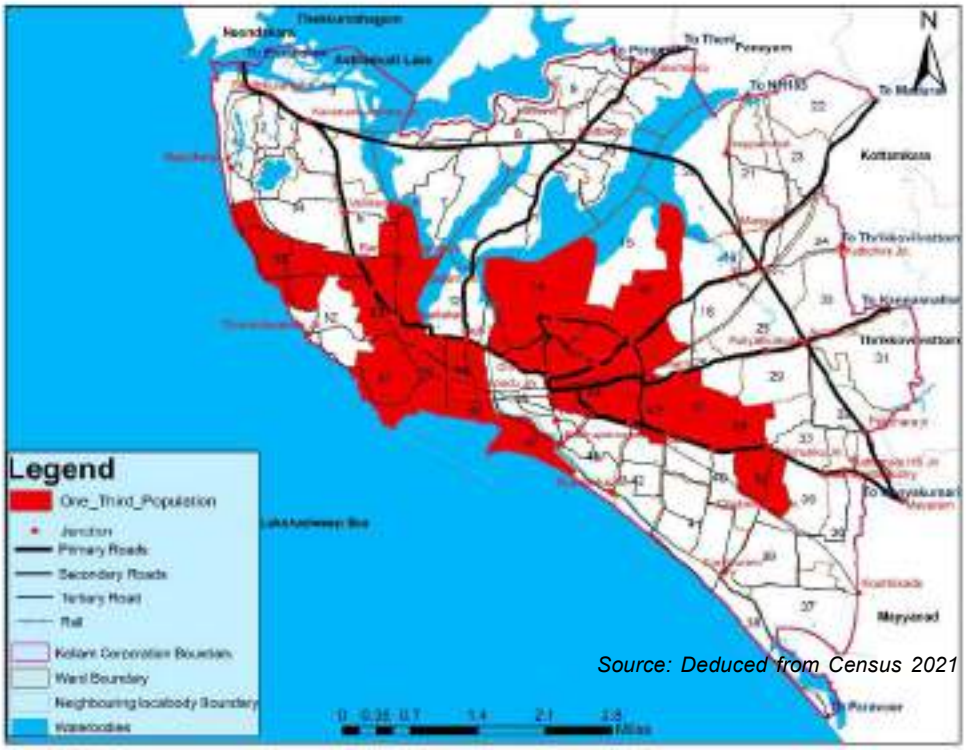


Figure 3.4 Spatial distribution of one- third population concentration of KLMC area

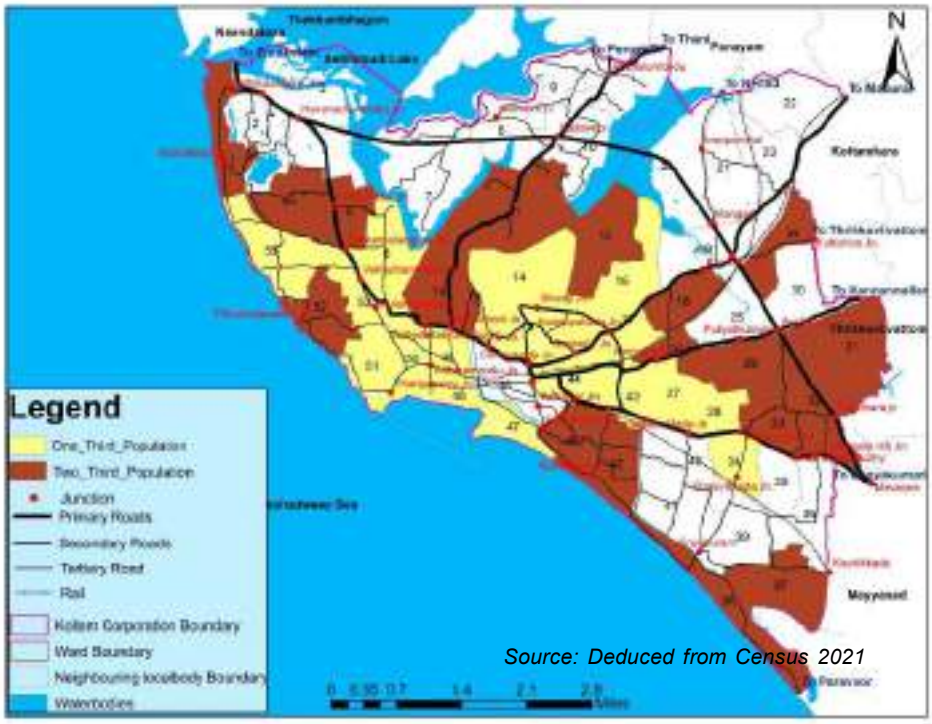


Figure 3.5 Spatial distribution of population concentration of KLMC area

2,00,931 and male population is 1,87,011. Hence the sex ratio in the planning area is 1074 which is comparatively less than that of the district (1113) and state (1084). Figure 3.6 shows the decadal change of sex ratio in KLMC. It is observed to be increasing from 1991 to 2011. Sex ratio of Kollam Municipal Corporation area compared with other Urban Local Bodies (ULBs) in the district is shown in figure 3.7. Paravur Municipality has the highest sex ratio followed by Punalur Municipality. KLMC is in the fourth position among other ULBs in the district. In figure 3.8, Sex ratio of KLMC area is compared with other AMRUT cities in the State. Sex ratio of KLMC is in the sixth position. Kannur, Guruvayoor, Kozhikode, Alappuzha and Thrissur have high sex ratio than Kollam Municipal Corporation area.

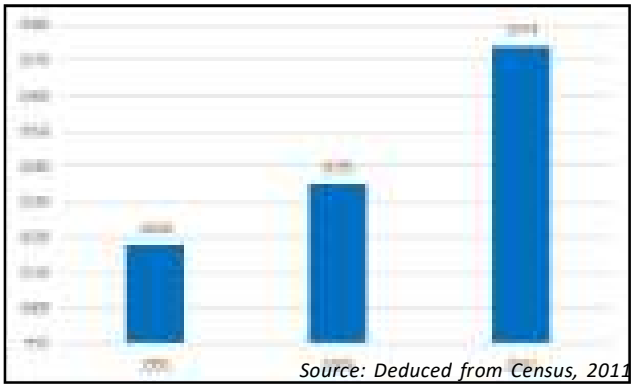


Figure 3.6 Decadal change of sex ratio in KLMC

3.4. POPULATION DENSITY

Gross density of population in an area is taken as the number of persons per square kilometer (pp.sq.km) of an area under consideration irrespective of actual developable area. It is an

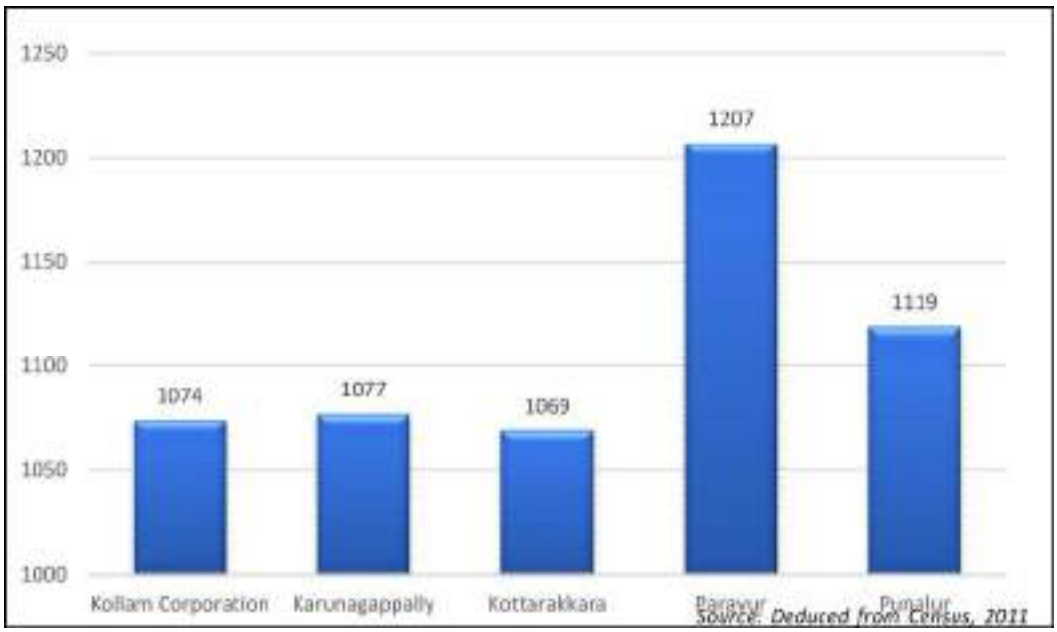


Figure 3.7 Sex ratio comparison of KLMC with other ULBs

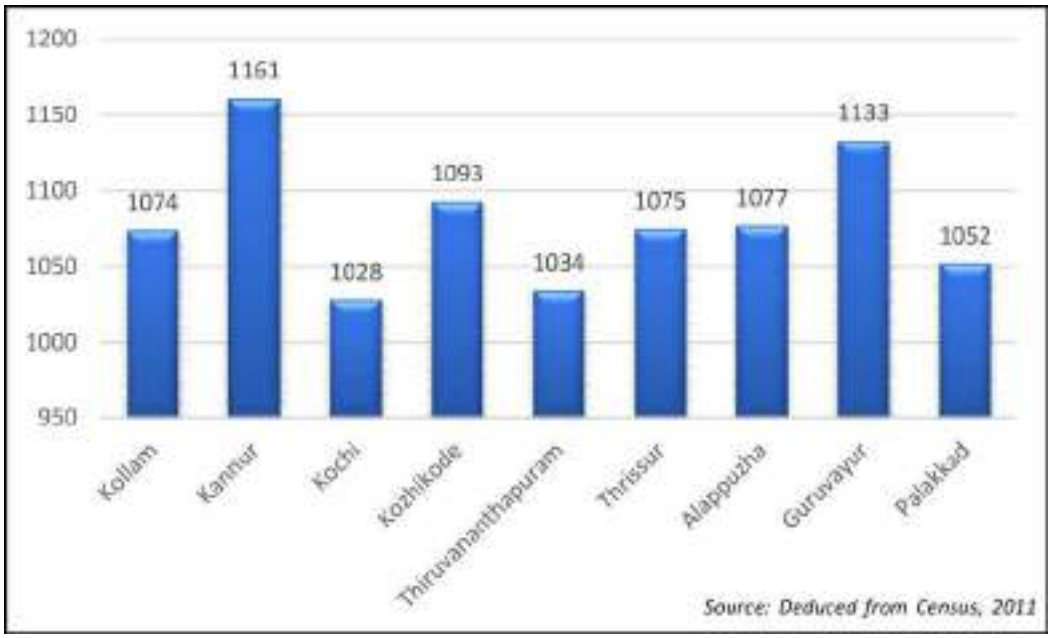


Figure 3.8 Sex ratio comparison of KLMC with other AMRUT Cities

important index of population which shows concentration of population within a particular area. As per 2011 census, gross population density of the planning area is 5408 persons per square kilometer which is more than five times the district average (1061pp.sq.km). The reason for this high density is that the KLMC area lies in the coastal belt of the district where the density is high when compared to other parts of the district. As per 2001 census gross density was 5572 this shows that urban sprawl is occurring in

the planning area. Similar trend is observed in Paravur and Punalur Municipalities. Spatial distribution of population density of the planning area is shown in figure 3.9. It shows that old settlements adjacent to Kollam Port have high density compared to other areas along the coast. Also along the side of National Highways (NH 66 & NH 744) to the east of KLMC areas like Pallimukku shows high population density due to more commercial developments together with residential activities taking place in those areas leading to decrease in attraction towards the core area of the corporation. Population density of the planning area is compared with other ULBs in the district and is shown in figure 3.10. From the figure it is clear that Kollam Municipal Corporation area has the highest population density even among the other coastal ULBs.

When compared with other AMRUT cities of the state, Palakkad has the highest gross population density followed by Kollam Municipal Corporation (figure 3.11).

From the analysis of change in population density of both core and peripheral areas of KLMC from 1981 to 2011 (figure 3.12), it can be seen that the density of core area is reduced

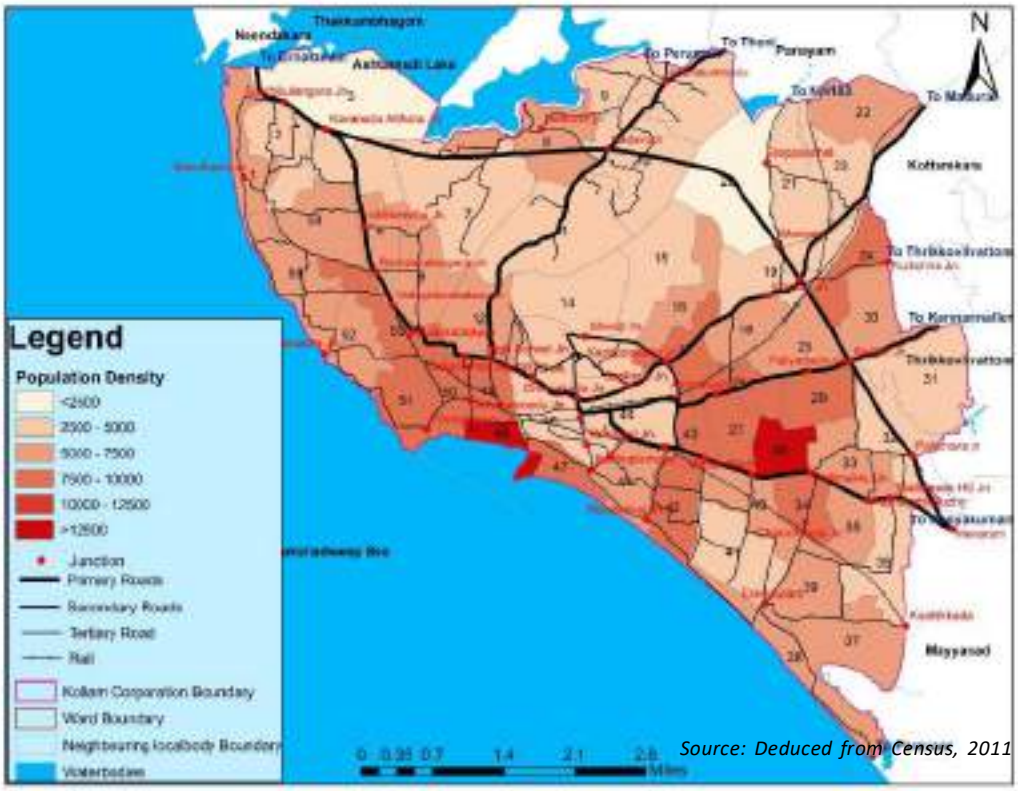


Figure 3.9 Spatial distribution of population density of KLMC

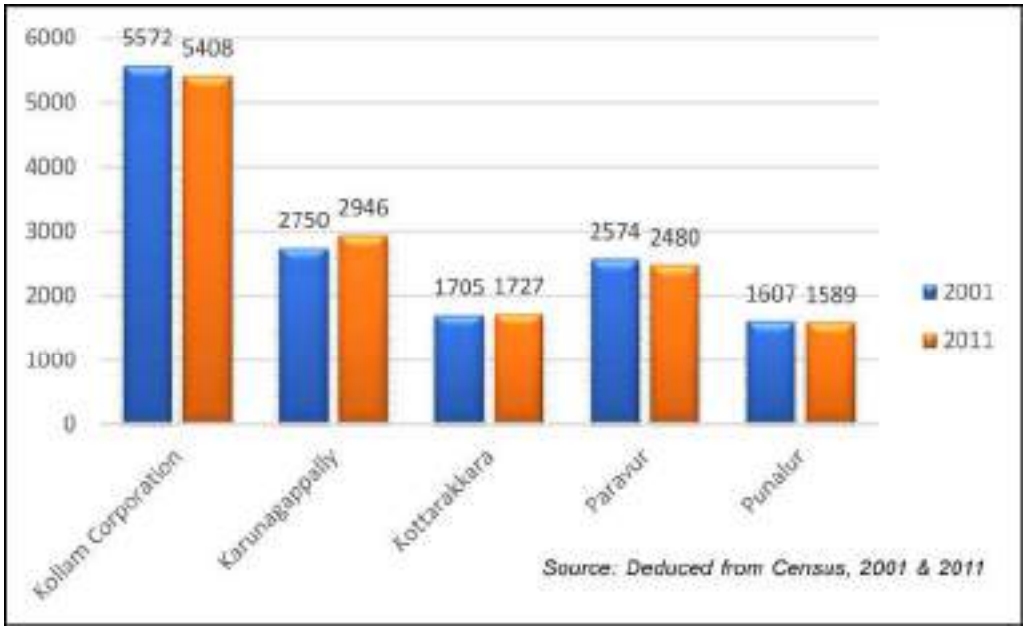


Figure 3.10 Comparison of gross population density of KLMC with other ULBs

from 7464 pp.sq.km to 7080 pp.sq.km, whereas density of surrounding area is increased from 4655 pp.sq.km to 6532 pp.sq.km. The trend shows that the density of core area and surrounding area will become almost equal in nearby future. From the analysis it can be concluded that people from the core area due to so many development issues may have migrated towards the peripheral area.

3.5. POPULATION GROWTH RATE

The decadal growth rate of population in KLMC area for the decades 1971-1981, 1981–1991, 1991–2001 were 20%, 9.5%, 4.6 % respectively

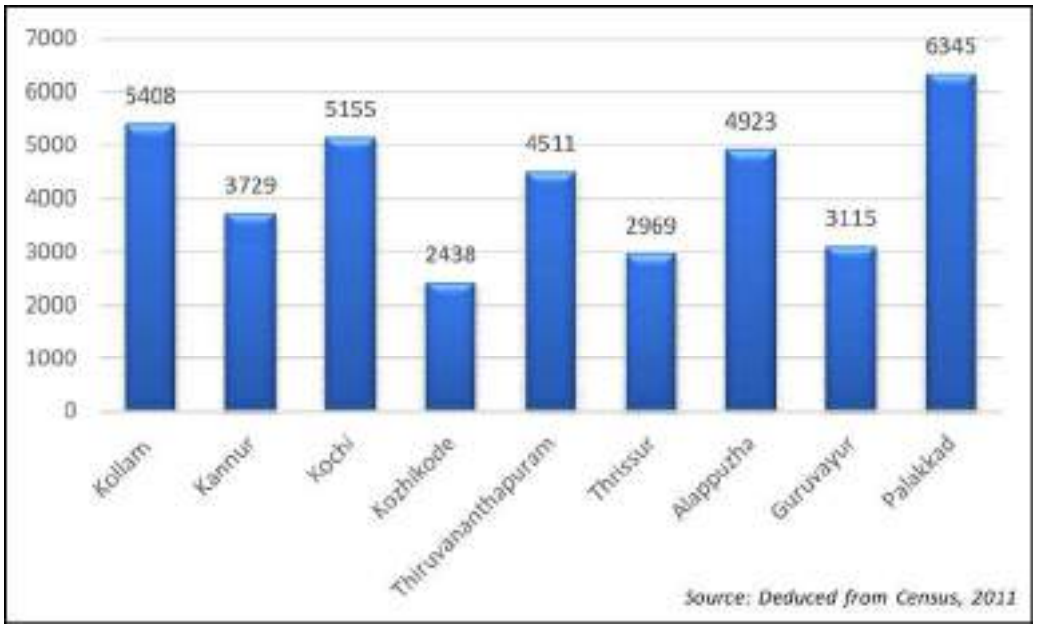


Figure 3.11 Comparison of gross population density of KLMC with AMRUT Cities

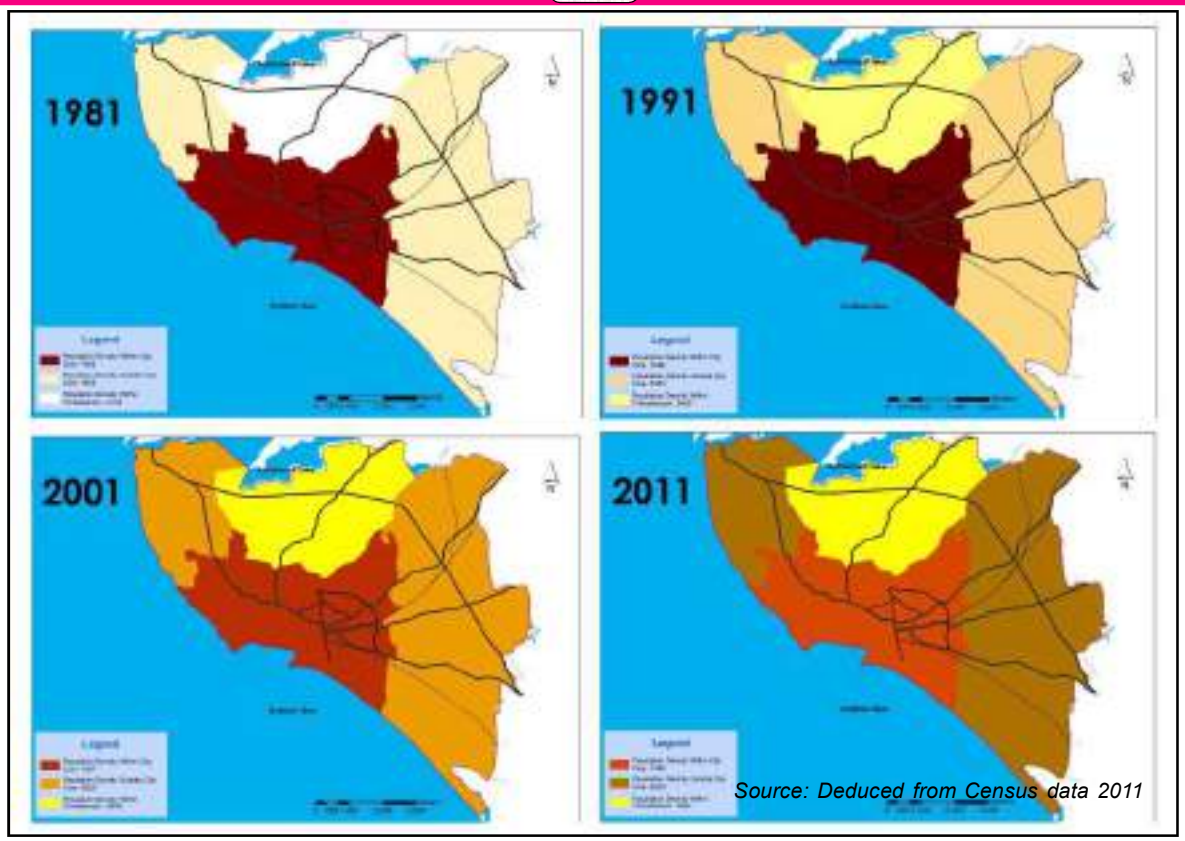


Figure 3.12 Change in gross population density within Core area and Surroundings

and in 2001-2011 it is drastically reduced to -2.94% (negative growth rate). Variation of population growth rate of KLMC, Kollam District and the State is shown in the figure 3.13. Though the growth rate of the district as well as the state is also showing a decreasing trend, the rate of decrease is found as highest for the KLMC area. Comparison of growth rate with other ULBs in the district is shown in figure 3.14. From this it can be seen that the growth rate of Paravur and Punalur Municipalities are also negative.

The trend shows that the growth rate of Kottarakkara Municipality will become negative in the next decade. Growth rate of Kollam Municipal Corporation reduces in a positive manner when compared with Punalur Municipality. The reduction in growth rate is mainly due to the development of more commercial,industrial and service establishments in the planning area.

From figure 3.15, it can be seen that Kollam Municipal Corporation, Alappuzha Municipality and Thrissur Corporation are having negative growth rates with highest rate of decrease in KLMC area (-2.94). Guruvayur Municipality shows the highest growth rate (4.49).

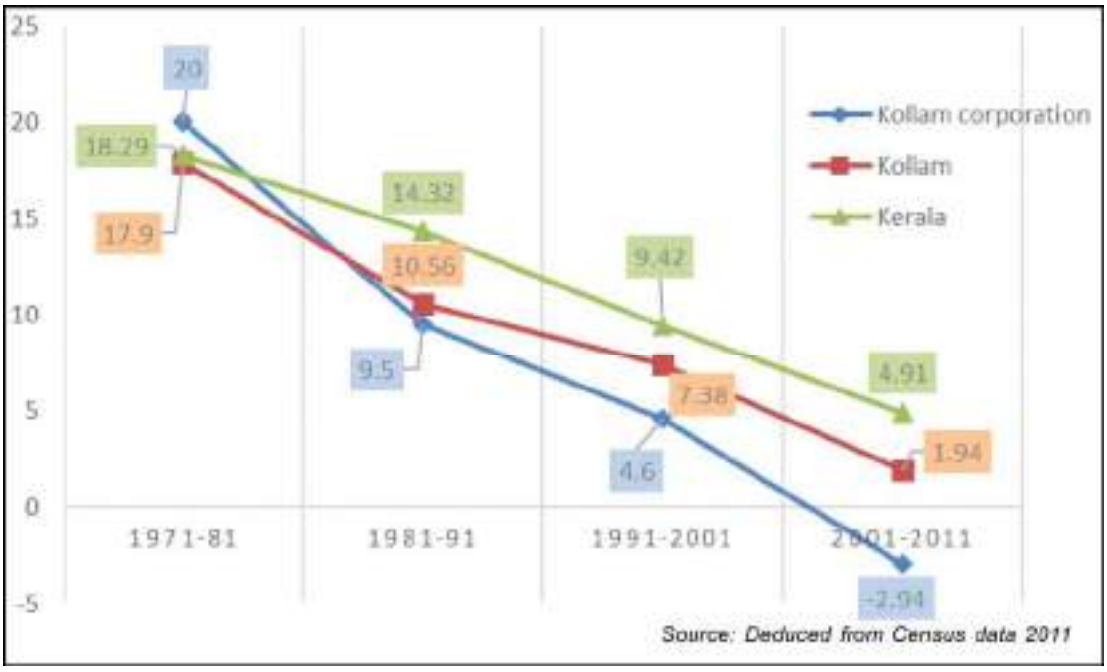


Figure 3.13 Variation of growth rate of KLMC, district & State

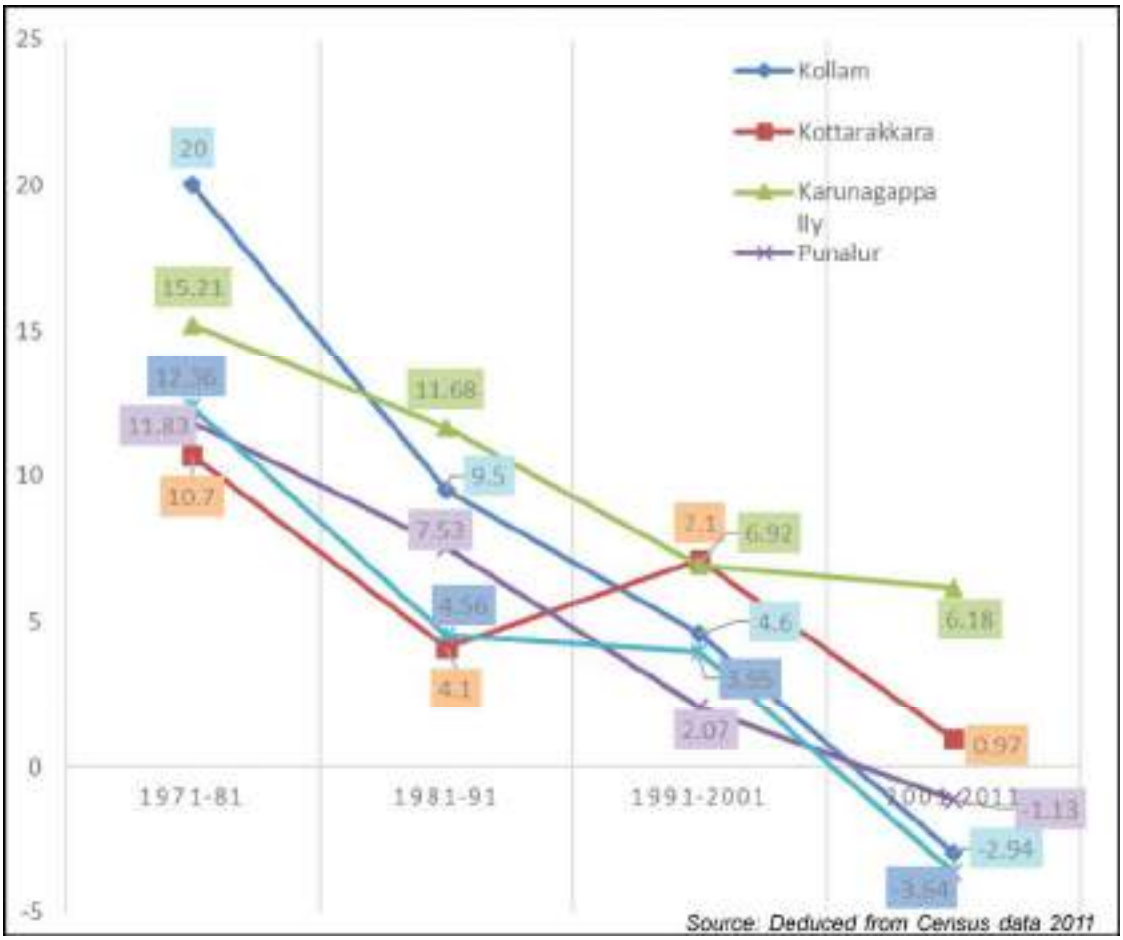


Figure 3.14 Growth rate comparison of KLMC with other ULBs

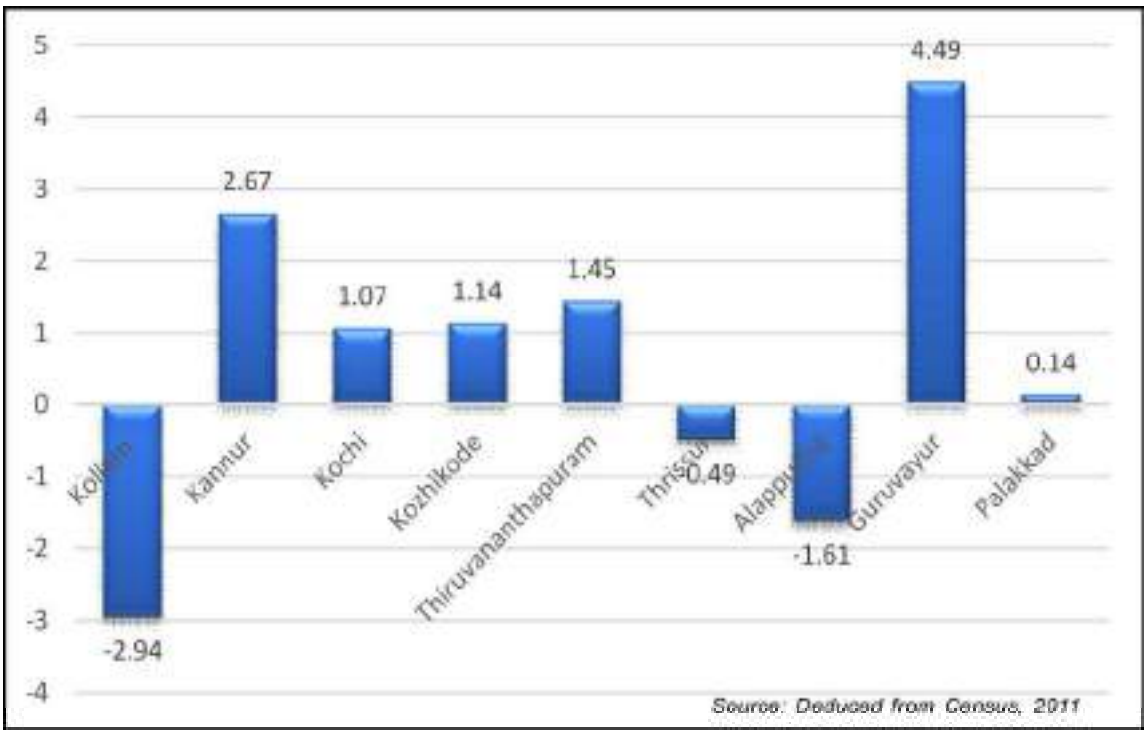


Figure 3.15 Growth rate comparison of KLMC with AMRUT Cities

3.6 AGE-SEX PYRAMID

A population pyramid, also known as age-sex pyramid is a graphical illustration that shows the distribution of various age groups in a population, which forms the shape of a pyramid when the population is growing. The age-sex structure of people in KLMC area as per socio-economic survey 2019 (10% of total households in each wards of KLMC was taken as sample) is shown in figure 3.16.

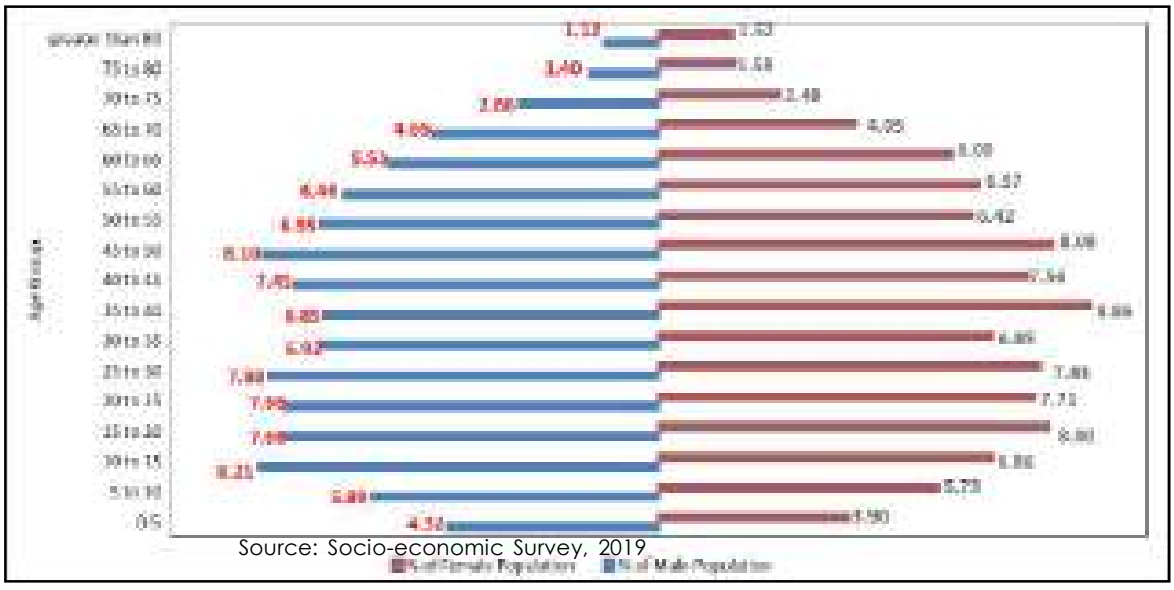


Figure 3.16 Age-sex pyramid of KLMC area

From the figure it is clear that highest number of male population is in the age group of 35-40 and females in 10-15 age groups. The percentages of the above age group of male and female population are 8.21% and 8.86% respectively.

Almost all age groups show similar values in male and female population indicating a healthy distribution of people in different age group in KLMC area. The effective working population (20 to 60 years) constitutes 59.13% giving a clear indication of the positive sign in the economic growth of KLMC area.

3.7 INFERENCE

The study on population within the planning area revealed that the population of the area is 3,87,942 contributing 14.72% of the total population of the district. The decadal variation of absolute population in the planning area shows that the increasing trend has now declined. Gross population density of the planning area (5408 pp.sq.km) is more than five times the district average gross population density (1061 pp.sq.km). The reason for high density is that the KLMC area lies in the coastal belt of the district where the density is high when compared to other parts of the district. It is observed that the growth potential of the core area of the planning area is declining whereas that of the peripheral area is increasing. People from the core area due to so many development issues have migrated towards the peripheral area. Even though the growth rate of the State, district and KLMC are showing a decreasing trend, the rate of decrease is highest for the KLMC area. Growth rate of KLMC reduces in a positive manner when compared with Punalur Municipality. More than 50% of working population shows a clear indication of positive economic growth in the planning area.

CHAPTER - 4
EMPLOYMENT

The study of employment opportunities within the planning area is very much essential to assess the economic as well as social status of people. Unemployment problem is considered as one of the main reasons for early decaying of cities due to out-migration. Sustainable employment opportunities are to be provided to the people for improving their quality of life. The ultimate aim of any planning effort is to bring development which is nothing but enhancement of the quality of life of people. Existing pattern of employment in the planning area, future needs, opportunities etc. need to be analyzed for suggesting better working environment in planning area. This chapter contains detailed analysis of the existing status of workers, work force participation rate, occupation structure, development trend for assessing various issues pertaining to employment in KLMC area.

4.1 WORKERS

As per 2011 census total number of workers within the planning area is 1,34,526. Workers are classified as main workers and marginal workers considering the number of working days per year. Those workers who get job for more than 180 days per year are termed as main workers or vice-versa. 85.16% of workers in the planning area are main workers and 14.84% are marginal workers as shown in table 4.1. As per 2001 census total no of workers was 1,29,110. Decadal variation of workers from 1981 to 2011 is shown in figure 4.1 and proportion of main and marginal workers in figure 4.2. From these figures it is observed that the number of workers is gradually increasing, but the share of main workers is reducing. This shows the need of providing more employment opportunities in KLMC for improving quality of life of people.

4.2 WORK PARTICIPATION RATE

Work Participation Rate (WPR) is a measure to evaluate how many out of the total number of people in an

Workers	Number
Main workers	114570
Marginal workers	19956

Source: Deduced from census 2011

Table 4.1 Classification of workers in planning area

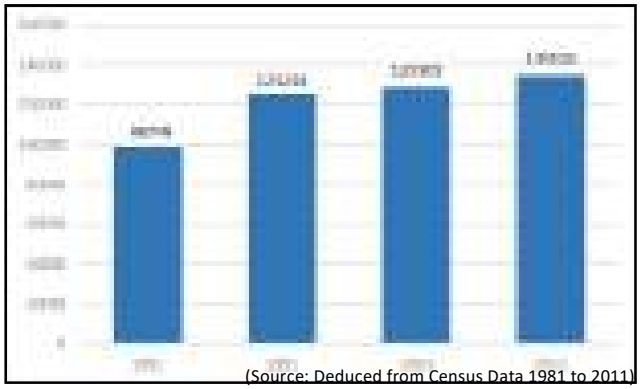


Figure 4.1 Variation of total number of workers in KLMC

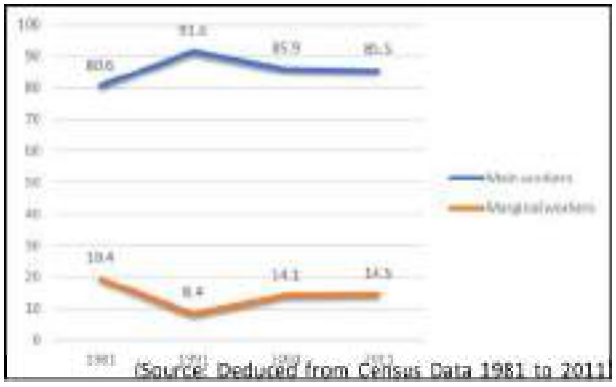


Figure 4.2 Variation in share of main & marginal workers in KLMC

area get employed of any kind. It is the ratio of total workers (main and marginal) to the total population. As per 2011 census, WPR of planning area is 34.67% which is at par with the WPR of the district (34.61%) and State (34.70%). Decadal variation of WPR in Kollam Municipal Corporation area from 1981 to 2011 is shown in figure 4.3. WPR has increased from 28% to 34.67% during the period from 1981 to 2011. While analyzing the data it can be seen that during 1991 to 2001period the WPR shows slight reduction in WPR. However considerable increase in WPR is observed in KLMC during the period from 2001 to 2011 which shows that employment potential of the area is increasing.

Comparison of WPR with other ULBs in the district is shown in figure 4.4. It is found that Kollam Municipal Corporation has the highest WPR. This may be due to increased job opportunities in different sectors.

When compared with other AMRUT cities (figure 4.5) it is seen that Kochi Municipal Corporation, the industrial and commercial capital of the State, is in the first position whereas Kannur being the last. KLMC is in fifth position among 9 AMRUT cities.

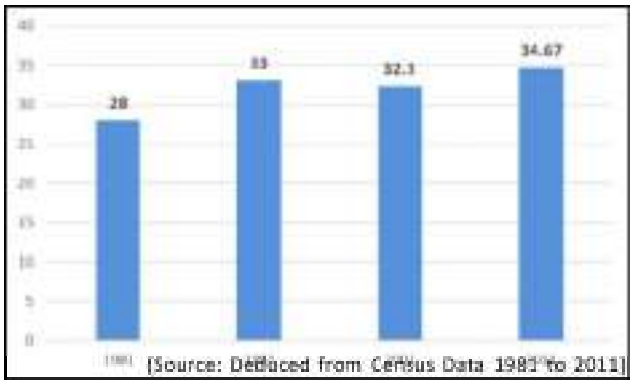


Figure 4.3 Decadal variation of WPR in KLMC

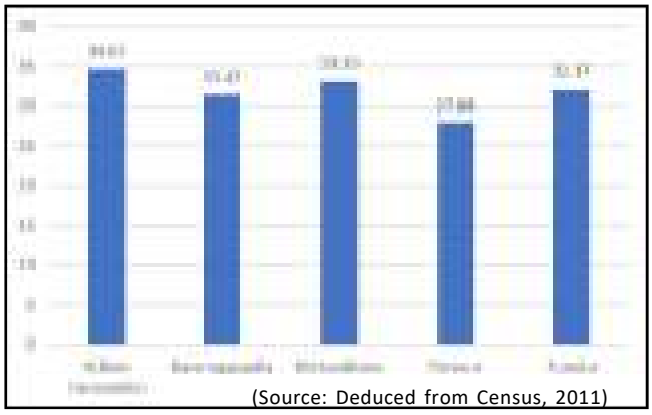


Figure 4.4 Comparison of WPR of KLMC with other ULBs in the district

Ward-wise spatial distribution of WPR of the planning area is shown in figure 4.6. From the figure, it is clear that WPR is high towards the outskirts of the city centre. This may be either due to the development of new work centres in the outskirts of city or due to strong functional linkage between city centre and outskirts.

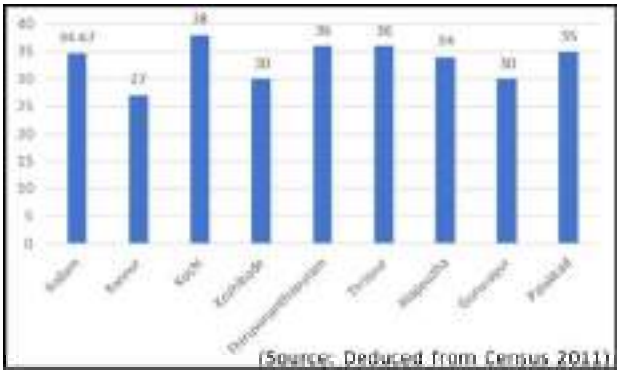


Figure 4.5 Comparison of WPR of KLMC with AMRUT Cities

4.3 OCCUPATIONAL STRUCTURE

According to Census 2011, the main workers are again classified as cultivators, agricultural labourers, household industrial workers and others. The fourfold classification of workers in the planning area is shown in table 4.2, and the occupational structure is shown in figure 4.7.

From the figure, it is evident that nearly 95.93% of workers in the planning area are in other workers category which includes workers in industrial sector, plantation, fishing, construction, engineering and other services. While analyzing the variation of occupation structure as shown in figure 4.8, the share of other workers

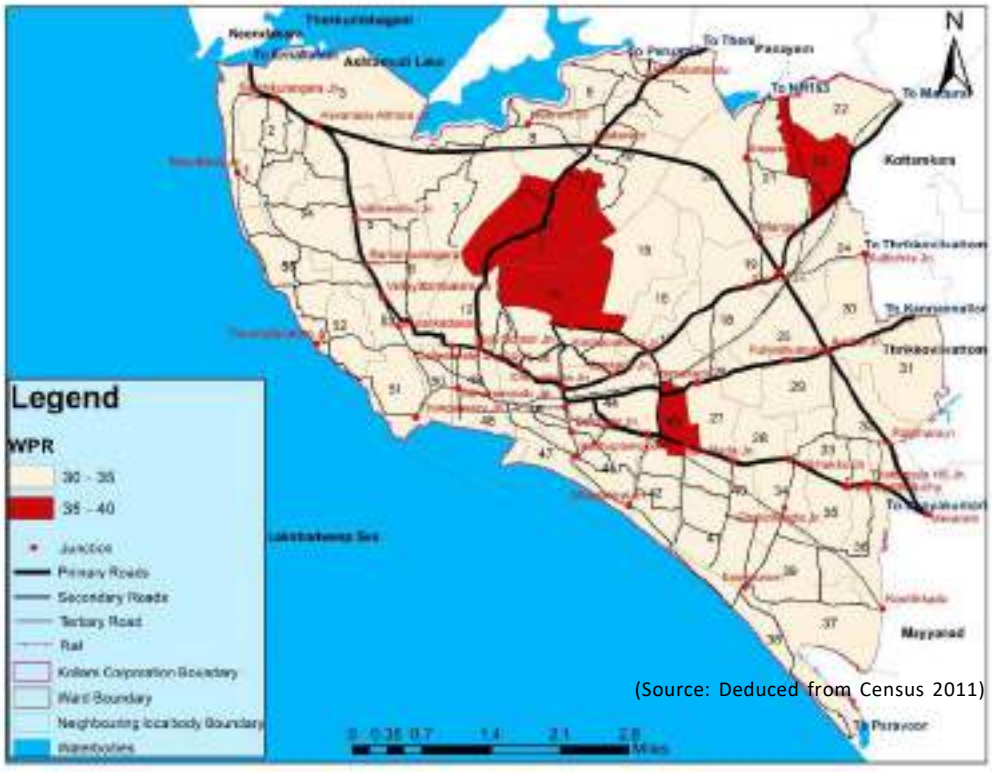


Figure 4.6 Ward-wise spatial distribution of WPR in KLMC

Category of workers	Number
Cultivators	513
Agricultural labourers	1999
Household industrial workers	2966
Other workers	129048
Total	134526

Source: Deduced from census 2011

Table 4.2 Category of workers

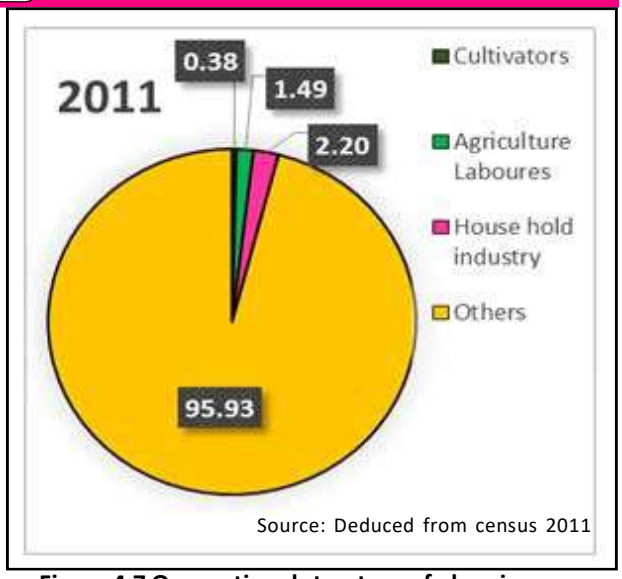
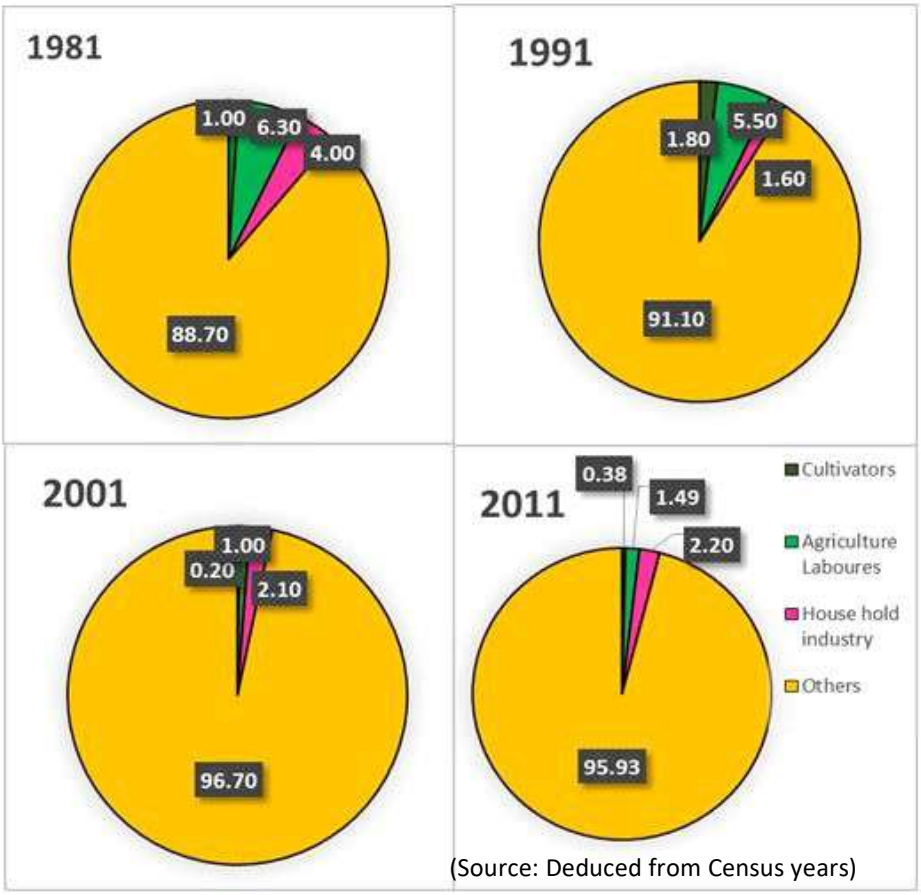


Figure 4.7 Occupational structure of planning area

was 88.7% in 1981, 91.1% in 1991 and 96.7% in 2001. Cultivators and agricultural labourers were reduced considerably in 2001 where as household industrial workers were increased from 1.60% in 1991 to 2.20% in 2011. This indicates the prominence of urban activities in the planning area. Comparison of occupation pattern of Kollam Municipal



(Source: Deduced from Census years)

Figure 4.8 Variation of occupational structure of KLMC from 1981 to 2011

Corporation area with AMRUT cities is shown in table 4.3.

The occupational structure of the planning area is almost similar to that of Thiruvananthapuram, Thrissur and Guruvayur as the share of other workers are almost same. However, Kannur, Kochi and Kozhikode Corporations shows more urban character as far as classification of workers is concerned. Other AMRUT cities are showing less urban nature.

4.4 DEVELOPMENT TREND

While considering the development trend, the share of other workers and cultivators increased during the period 1981 to 1991, but agricultural labourers and household industrial workers decreased. During the period 1991 to 2001, the share of other workers and household industrial workers increased, while the share of cultivators and agricultural labourers decreased. During the period 2001-2011 the share of other workers has decreased, but all other categories of workers have increased. While analyzing the development trend it can be observed that the share of workers in other categories has reduced from 96.7% to 95.93% and that of cultivation has increased to 0.38% from 0.20%. This indicates that people are becoming more and more aware that the primary sector cannot be ignored even in urban areas as far

Name of AMRUT city	Share of Cultivators (%)	Share of Agricultural Labourers (%)	Share of Household Industry workers (%)	Share of Other workers (%)
Kollam	0.38	1.49	2.2	95.93
Kannur	0.17	0.37	1.46	98
Kochi	0.2	0.5	1.8	97.5
Kozhikode	0.3	0.8	1.2	97.7
Thiruvananthapuram	0.5	1.5	1.8	96.2
Thrissur	0.5	1.4	2.4	95.7
Alappuzha	0.4	2.4	2.2	95
Guruvayur	0.5	1	2.1	96.4
Palakkad	0.5	1.8	2.4	95.3

(Source: Deduced from Census 2011)

Table 4.3 Comparison of occupation pattern of Kollam Municipal Corporation with AMRUT cities

as food sufficiency and security is concerned.

4.5 INFERENCE

Even though WPR of KLMC has increased from 28% to 34.67% from 1981 to 2011 there by increasing the job opportunities, the level of increase is quite lower that of preferred WPR of 40%. Work Participation Rate of KLMC area is almost equal to that of State and district. During the period from 1981 to 2011, WPR increased from 28% to 34.67%. While comparing with other ULBs in the district, WPR of planning area is in the first position which shows comparatively good employment opportunities in the planning area. However when compared with other AMRUT cities, KLMC is in the fifth position. As the preferred WPR of a balanced economy is considered as 40%, the WPR of the planning area (34.67%) is found as low and hence there is still a need for providing employment opportunities in the planning area. While analyzing the occupation structure, the share of the other workers category has reduced from 96.7% to 95.93%. The increase in cultivators share on account of reduction in other workers categories shows the awareness of people that even in urban areas the primary sector needs to be strengthened as far as food sufficiency and security is concerned.

CHAPTER - 5
LANDUSE

Landuse is the outcome of a series of activities carried out by the people on each parcel of land for different purposes. For formulating master plans, study of existing landuse patterns is highly essential to understand how effectively the land as a fixed resource is utilized. This chapter deals with study of existing landuse pattern, change in landuse pattern, concentration pattern of various landuses and development issues in existing landuse pattern.

5.1 LANDUSE PATTERN

The landuse break up of the area of KLMC is depicted in figure 5.1. Analysis of existing landuse shows that about 55.26% (39.64sq.km) of total area is put under residential activities. Due to the presence of large number of water bodies especially Ashatamudi Lake, Kattakayal, Vattakayal etc. share of water bodies is found as second largest (13.18%). Agricultural landuse contributes to 13.13% (9.415sq.km). Paddy land (both active and non-active) is also included in agriculture landuse as its share is very small comparing to other uses. Landuse under transportation is 5.57% (3.998 sq.km) followed by vacant land 2.88% (2.066sq.km). Commercial landuse share is only 2.82% (2.021 sq.km). Educational, industrial and religious landuse shares are found as 1.38% (0.989 sq.km), 1.22% (0.876 sq.km) and 1.11% (0.794 sq.km) respectively. Rest of other landuses such as recreational-1,mixed landuse, state government property, wetlands, health services, public & semi-public, central government property, recreational-2, traffic related, eco-sensitive areas, solid waste management, railway property, communication, public utilities, heritage etc. contribute to 3.45 % (2.476 sq.km) of total area. Existing landuse pattern is shown in figure 5.1. Landuse break up of planning area is shown in table 5.1 and figure 5.2.

When net area of KLMC (area excluding water body and other areas not suitable for developmental activities) is concerned, about 63.91 % of total net area is used for residential



Figure 5.1 Existing Landuse map of KLMC area

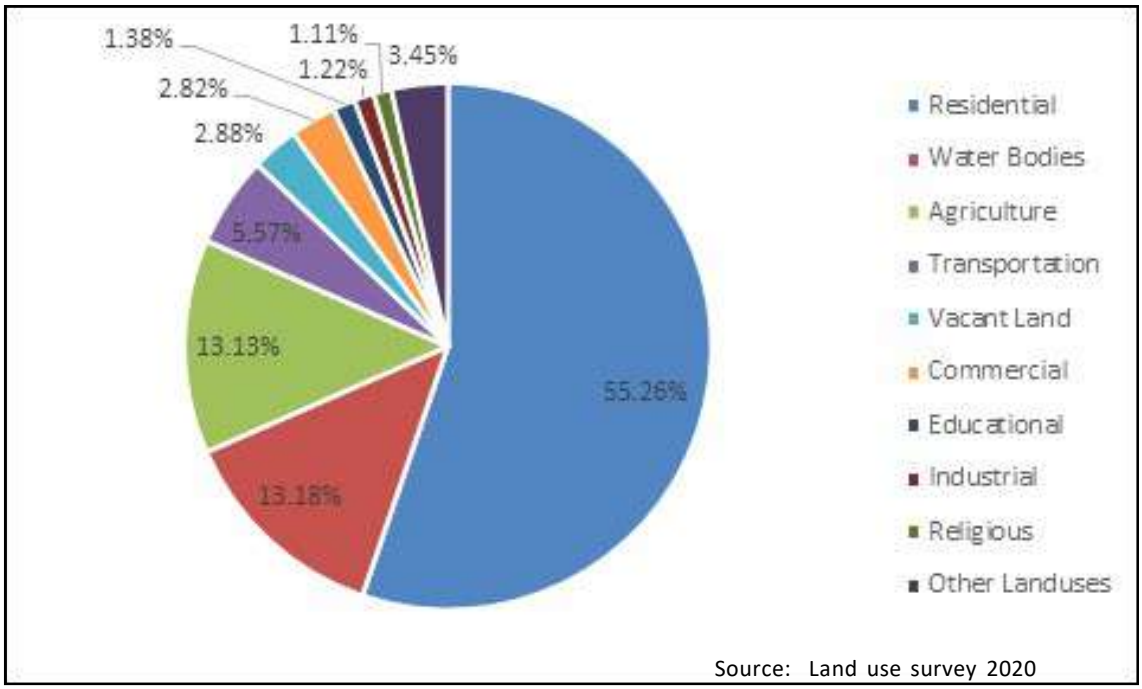


Figure 5.2 Landuse break up of KLMC area

Landuse	Area (sq.km)	Percentage (%)
Residential	39.638	55.26
Water Bodies	9.457	13.18
Agricultural Land		
(i) Dry land	8.249	11.5
(ii) Paddy active	0.98	1.37
(iii) Paddy inactive	0.186	0.26
Transportation	3.998	5.57
Vacant Land	2.066	2.88
Commercial	2.021	2.82
Educational	0.989	1.38
Industrial	0.876	1.22
Religious	0.794	1.11
Recreational_1	0.656	0.91
Mixed Landuses	0.414	0.58
State Government Property	0.366	0.51
Wetlands	0.252	0.35
Health Services	0.237	0.33
Public & Semi-public	0.143	0.2
Central Govt. property	0.123	0.17
Recreational_2	0.089	0.12
Traffic related	0.043	0.06
Eco-Sensitive Areas	0.042	0.06
Solid Waste Management	0.034	0.05
Others	0.028	0.04
Railway Property	0.014	0.02
Communication	0.013	0.02
Public Utilities	0.013	0.02
Heritage	0.009	0.01
Total	**71.73**	

Source: Land use survey 2020

Table 5.1 Landuse breakup of KLMC area

activities. Figure 5.3 shows the landuse break up of net area of KLMC.

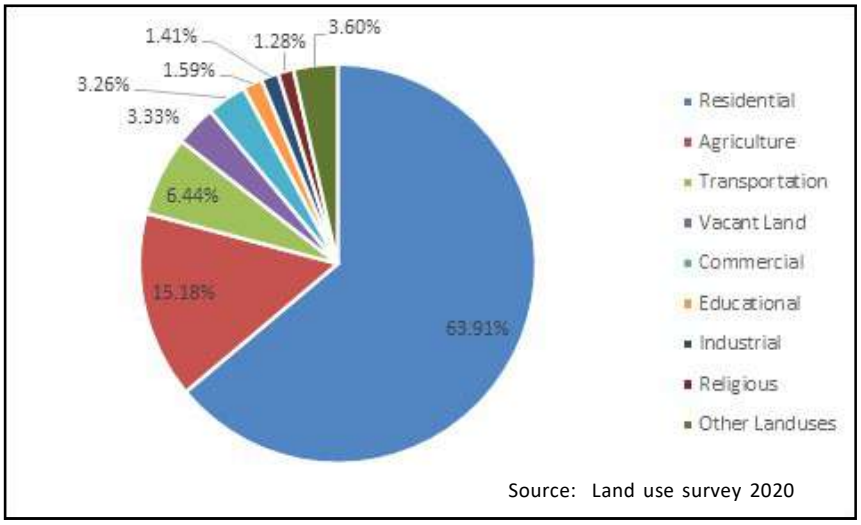


Figure 5.3 Net Landuse break up of KLMC area

5.2 CHANGES IN LANDUSE PATTERN

While comparing the present landuse map (figure 5.1) with landuse map-2011 (figure 5.4) prepared at the time of preparation of Greater Kollam Development Plan (GKDP),it is seen that landuse categories are not exactly similar as the symbology for existing landuse for AMRUT Master Plan which is a standardized one suggested in view of the guidelines of AMRUT. Various mixed landuse categories were introduced in AMRUT guidelines. Paddy fields are separately marked as active and non-active. Also homestead cultivation area is separated from residential landuse to dry agriculture landuse in the case of landuse survey for AMRUT Master Plan. Hence comparison of neither residential nor agricultural landuse is not possible. In the case of recreational landuse is introduced (instead of parks and open spaces) as recreational-1 (for open areas like park, maidan, beach) and recreational-2 (building related like stadium, gymnasium, sports center etc.).

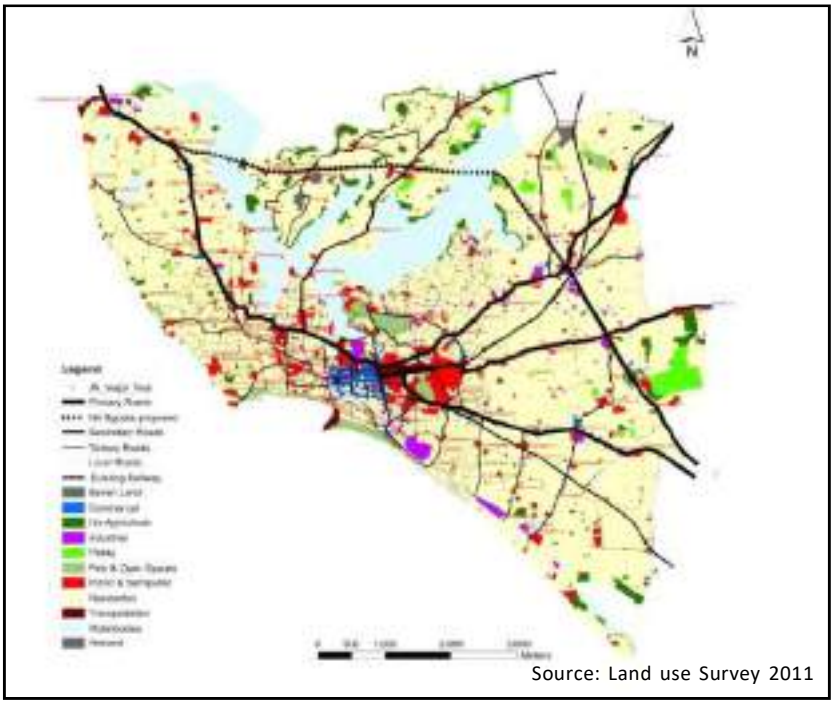


Figure 5.4 Landuse map of KLMC area (2011)

Another important change is in public and semi-public landuse classification. As per AMRUT guidelines health services, central government properties (both land and building), state government properties (both land and buildings), religious, public utilities, communication etc. are separately marked. But in previous plans all these uses were under public and semi-public use zone. Vacant land in this plan is categorized as private, government asset, municipal asset, reclaimed, accreted, island etc. as per the guidelines.

Landuse	Area (in sq.km) in 2011	Area (in sq.km) in 2020	Comparison
Residential & Dry agricultural	50.98	47.89	Reduced
Water body	9.49	9.46	Marginally reduced
Transportation	3.58	3.997	Increased
Commercial	1.31	2.02	Increased
Industrial	1.09	0.88	Reduced
Paddy	0.98	1.17	Increased

Table 5.2 Comparison of existing landuse with existing landuse of GKDP (2011)

After grouping similar landuses in GKDP and this plan as shown in figure 5.2 & 5.5 major changes observed are shown in table 5.2.

While analysing the changes, it is found that residential and dry agricultural landuse is reduced. However transportation and commercial landuse increased while industrial landuse is reduced. Area of water body is not changed considerable. However in the case of paddy landuse is slightly increased. Figure 5.6 shows the functional behaviour of all divisions within KLMC based on average plot size. If average plot size is above 70 cents rural activity is assumed as main function and if it is less than 25 cents urban activity is assumed as main function. The divisions near Ashtamudi Lake show more rural nature while all other divisions show urban nature.

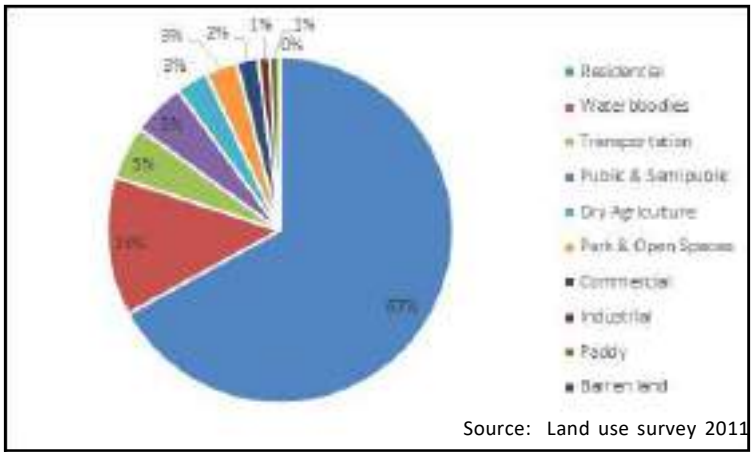


Figure 5.5 Landuse break up of KLMC area (2011)



Figure 5.6 Functionality of divisions

5.3 CONCENTRATION OF DIFFERENT LANDUSES

Concentration of residential, industrial, commercial and agricultural landuses are shown in figure 5.7, figure 5.8, figure 5.9 and figure 5.10 respectively. Concentration index is calculated as follows.

$$\text{Concentration index of a paricular landuse for a ward} = \frac{\text{(Area of a particular land use in the ward/total area of the ward}}{\text{(Area of that particular land use in the planning area/ total area of the planniang area)}}$$

While analyzing the residential concentration index (figure 5.7), it is observed that the central areas and nearby areas of Ashtamudi lake show less concentration as noticed in the concentration index map prepared in 2011.

In the case of industrial landuse concentration, (figure 5.8) it can be seen that higher concentration is observed in core area, Sakthikulangara and eastern portion of KLMC maintaining the pattern observed in 2011.

From figure 5.9 which shows the commercial index map 2011 and 2020, it is clear that core area of KLMC,

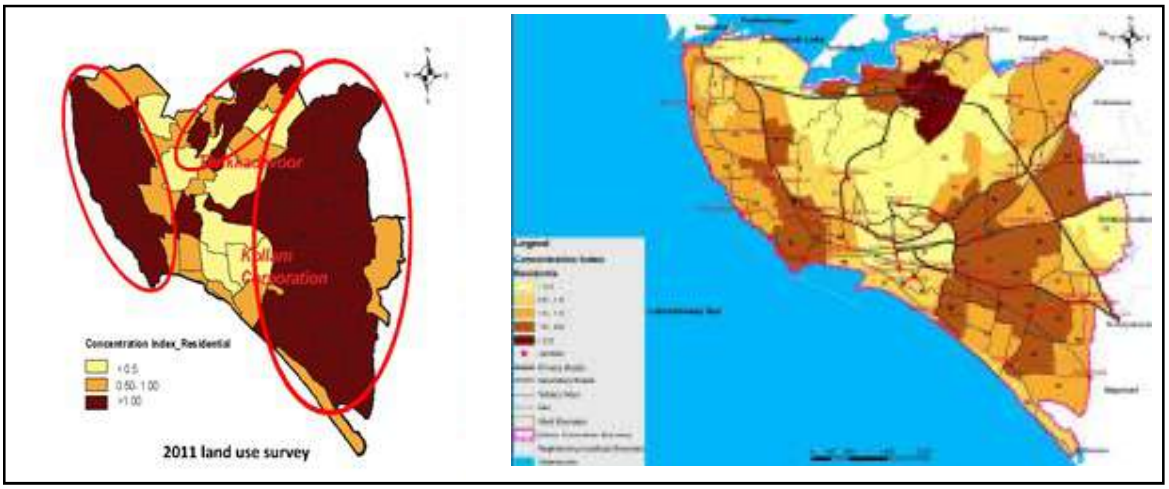


Figure 5.7 Comparison of concentration pattern of residential land area for the years 2011& 2020

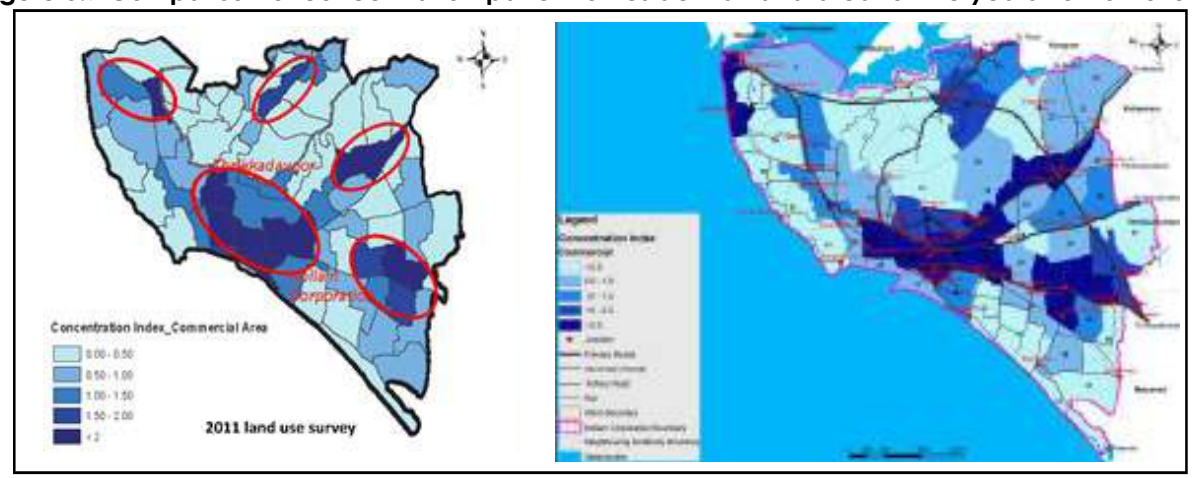


Figure 5.8 Comparison of concentration pattern of industrial land area for the years 2011 & 2020

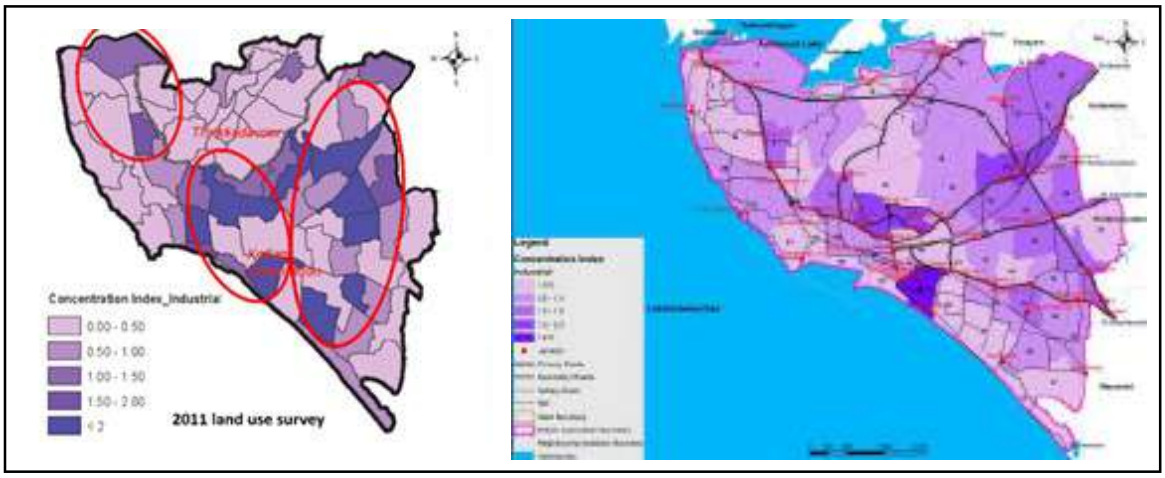


Figure 5.9 Comparison of concentration pattern of commercial land area for the years 2011 & 2020

Pallimukku, Ayathil, Kallumthazham, Kadavoor, Sakthikulangara shows higher concentration in commercial landuse similar to that of 2011 data.

From figure 5.10 agriculture concentration is seen in the outskirts of KLMC as in the case of agricultural concentration observed in 2011.

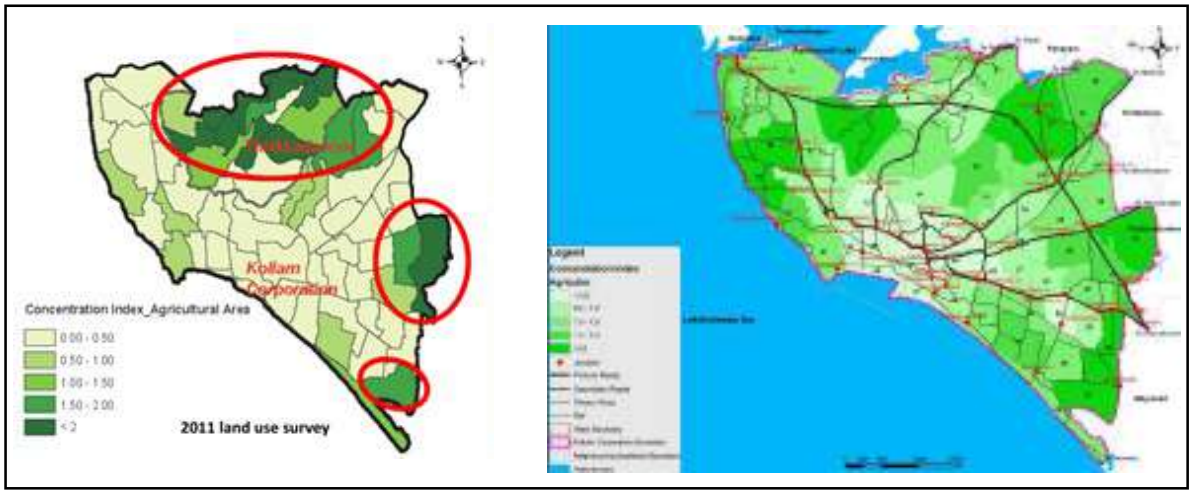


Figure 5.10 Comparison of concentration pattern of agricultural land area for the years 2011 & 2020

5.4 INFERENCE

From the analysis of landuse, it is observed that about 13.18% of the total geographical area is covered by environmentally sensitive water bodies namely the Ashtamudi Lake, Vattakayal and Kattakayal. At the same time about 63.91% of net area is used for residential activities. It is also found that commercial landuse is concentrated at the core of the city, Pallimukku and along the bypass road at Ayathil, Kallumthazham, Kadavoor and Sakthikulangara. Industrial landuse, area is decreased from 2011 and is concentrated in the core area and eastern portion of KLMC. Agricultural landuse area is also found concentrated to the outskirts of the planning area. From the analysis of landuse it can be concluded that landuse pattern of the planning area is not changed considerably during the past 11 years. As ecologically sensitive areas like water bodies of international importance, Asramam Bio Diversity Heritage Area are situated in the middle of the city centre, the challenge is maintaining a balance between high level urban activities and conservation of the ecosystem. In other words while ensuring higher order facilities and multifunctional activities in the city, ecologically sensitive areas need to be conserved for ensuring sustainability.

CHAPTER - 6
TRADE AND COMMERCE

Kollam is known as the cashew capital of the world and commercial headquarters of the State. It has very important role in the commercial development in the district as well as the state. Hence trade and commerce may be considered as one of the key sector of the planning area. The city centres viz Chinnakada and surroundings had been developed as the first order commercial node in the district so that the city needs to provide higher order commercial facilities to all the inhabitants of Kollam District. This chapter deals with the present status of commercial nodes, markets, street vending and financial institutions and issues in commercial sector in KLMC.

6.1 PRESENT STATUS OF COMMERCIAL CENTERS

In order to understand the activities of trade and commerce in KLMC area, a detailed survey of whole sale and retail shops, commercial offices, restaurants etc. was conducted by ODK (Open Data Kit) method. The level of service provided by each commercial node in KLMC area is also collected and depicted in table 6.1. From the table junctions/ nodes where maximum wholesale shops are concentrated is found as Chinnakada (783nos), followed by Pallimukku (64 nos) and Sakthikulangara (43nos). In the case of retail shops, maximum number of retail shops are at Chinnakada (1153 nos), followed by Kavanad (253 nos), Anchalummoodu (206 nos). Maximum commercial offices are concentrated at Chinnakada (90nos), followed by Kadappakada, Pallimukku (9nos), Ayathil, Polayathode (8nos). In the case of other commercial centers maximum is concentrated at Chinnakada (60nos), followed by Kadappakada (14 nos), and Polayathode and Kappalandimukku (7nos) and maximum number of other shops including barber shops, beauty clinics, tailoring shops, petty shops etc. are located at Chinnakada (118 nos) followed by Kappalandimukku (64nos) and Anchalummoodu (60nos).



Figure 6.1 Commercial landuse of planning area

Sl No	Name Of Node/Junction	Retail	Whole Sale	Commercial Offices	Commercial Centers	Others
1	Chinnakada	1153	783	90	60	118
2	High school	37	6	5	0	15
3	Kadappakada	129	6	9	14	44
4	Sakthikulangara	110	43	4	2	32
5	Moonnamkutty	109	2	6	3	24
6	Pallimukku	119	64	9	3	39
7	Mangadu	20	0	0	0	1
8	CP Jn	20	6	1	0	11
9	Mundalummoodu	53	0	2	1	28
10	Kavanad	253	42	5	4	40
11	Ramankulangara	103	17	3	6	39
12	Gopikkada	18	0	1	0	16
13	Ayathil	104	1	8	6	39
14	Polayathodu	109	1	8	7	25
15	Madannada	75	0	4	1	44
16	Apsara	59	0	2	1	27
17	Kappalandimukku	25	0	3	7	64
18	Mundakkal	24	0	1	1	9
19	Thangassery	58	0	4	2	18
20	Kuttichira	90	0	4	1	23
21	Anchalummoodu	206	1	6	5	60
22	Kadavoor	80	0	4	1	46

Source: Primary Survey-2019

Table 6.1 Details of Shops of KLMC area

6.2 EXISTING HIERARCHY OF COMMERCIAL CENTERS

While analysing distribution of commercial landuse in KLMC, (figure 6.1) it is seen that area used exclusively for commercial landuse is very low comparing to that suggested for a Medium Town as per Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines (4%-6%). However commercial landuse share of KLMC when compared with Kollam District is high. Land used for commercial purpose and available commercial facilities in a commercial center decides its hierarchy like Ist order, IInd order etc. For this weightage is assigned to commercial facilities in all the commercial nodes. Facilities like retails shops, other shops etc. are assigned by weightage 1 since these facilities are available in all the identified commercial centers. If some of the facilities are not available in all the centers more weightage will be assigned to that facility equivalent to the ratio of number of identified centers to that of number of centers having that particular facility. Accordingly weightage of 1.83 (22/12) for wholesale shops, 1.05 (22/21) for commercial offices, 1.22 (22/18) for other commercial centres etc. were assigned. By multiplying the number of facilities with weightage of facility CCFI (Cumulative Commercial Facility Index) is obtained for each commercial center and the CCFI multiplying with percentage of commercial landuse share is calculated as CCI (Combined Commercial Index). CCI for all the commercial centers are depicted in table 6.2. Chinnakada, being the higher order commercial node of the district, it is considered as District Centre. The existing hierarchy of all the commercial nodes except Chinnakada in KLMC area is shown in figure 6.2.

The junction with CCI higher than 30 is taken as 1st order nodes of KLMC area. Hence Sakthikulangara, Anchalummoodu, Pallimukku nodes are designated as Ist order nodes. IInd order nodes are those commercial centre with CCI value 20-30. Nodes coming under IInd order nodes are Monnamkutty, Kavanad and Kadappakada. Nodes with CCI values 10-20 are considered as IIIrd order nodes. They are Ramankulanagara and Ayathil. Remaining nodes are considered as IVth order nodes.

Name of Junction	CCFI	% of Commercial landuse	CCI	Order
Sakthikulangara	227.33	0.15	33.64	I
Anchalummoodu	280.23	0.12	33.35	
Pallimukku	288.23	0.11	31.99	
Moonnamkutty	146.62	0.18	26.39	II
Kavanad	379.99	0.07	24.70	
Kadappakada	210.51	0.12	24.42	
Ramankulangara	183.58	0.09	17.07	III
Ayathil	160.55	0.07	11.08	
High school	68.23	0.12	8.46	IV
Polayathodu	152.77	0.04	6.26	
Madannada	124.42	0.04	5.47	
Kadavoor	131.42	0.03	4.07	
Kappalandimukku	100.69	0.03	3.32	
Thangassery	82.64	0.03	2.81	
Kuttichira	118.42	0.02	2.01	
Mundalummoodu	84.32	0.02	1.60	
Apsara	89.32	0.02	1.43	
CP Jn	43.03	0.03	1.12	
Mangadu	21	0.04	0.78	
Gopikkada	35.05	0.01	0.49	
Mundakkal	35.27	0.00	0.04	

Source: Primary Survey-2019

Table 6.2 Hierarchy of commercial nodes/junctions in KLMC area

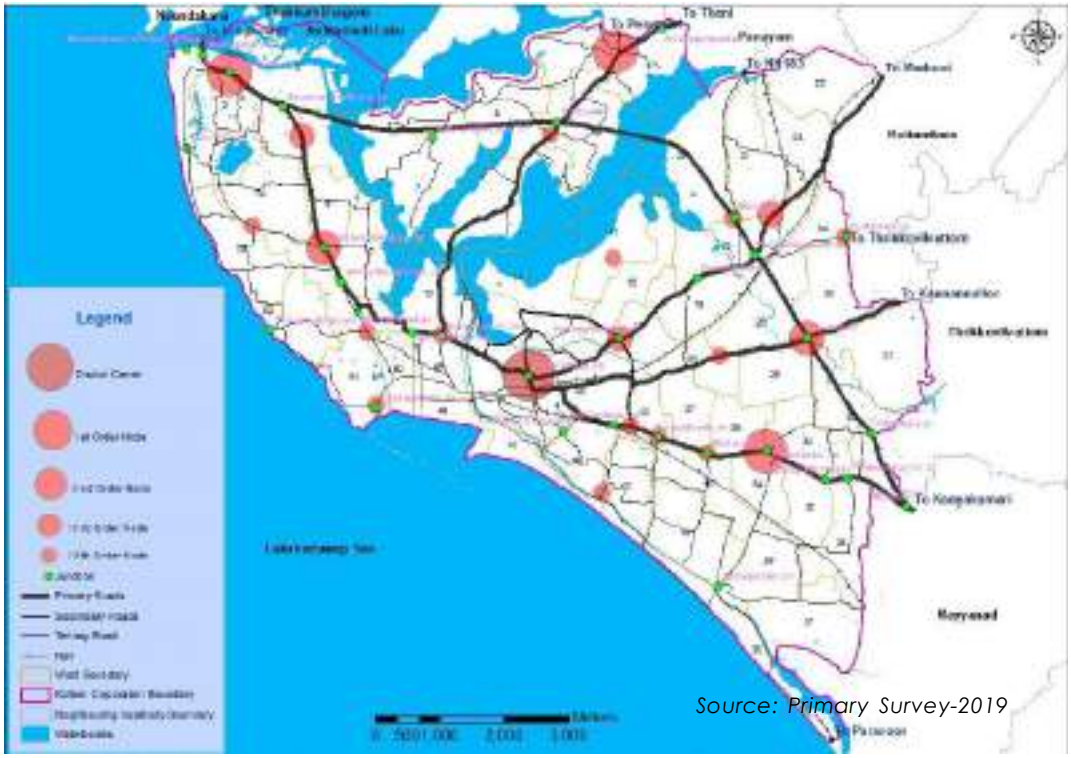


Figure 6.2 Hierarchy of commercial nodes/junctions in KLMC area

6.2.1 Issues with Commercial Nodes

While analysing the facilities available in all the commercial nodes as shown in table 6.3, parking facilities even in higher order commercial nodes are not found satisfactory. Lack of adequate number of car parking and lorry parking areas in Chinnakada market made traffic issues in the District Centre. Improper utilization of the existing lorry parking area at YMCA road and lack of adequate facilities to the drivers are some of the major issues. Among the 1st order nodes, Sakthikulagara is lacking car and lorry parking facilities and Pallimukku is not having lorry parking area.

	Name Of Node/Junction	Parking facilities (Nos)			Public comfort station	Solid waste management	Drinking water facility
		Auto	Car	Lorry			
1	Chinnakada	30	4	4	3	2	2
2	High school Junction	4	1				1
3	Kadappakada	4	2	1	1	1	1
4	Sakthikulangara	2				1	
5	Moonnamkutty	3	1	1			1
6	Pallimukku	11	1		1	1	1
7	Mangadu						
8	CP Junction					1	
9	Mundalummoodu						
10	Kavanad	3	1		1		1
11	Ramankulangara	4	1	1	1		2
12	Gopikkada	1					
13	Ayathil	2	1	5			
14	Polayathodu	1	1	2	1	2	1
15	Madannada	2	1				
16	Apsara	2					1
17	Kappalandimukku	1				2	1
18	Mundakkal	2					1
19	Thangassery	6	1			1	1
20	Kuttichira	1					2
21	Anchalummoodu	1	1	1	1	1	2
22	Thrikkadavoor	1	1				1

Source: Primary Survey-2019

Table 6.3 Parking facilities of commercial nodes/junctions

6.3 MARKETS

Total number of markets in Kollam Municipal Corporation area is 24. It includes Thangassery market the oldest market established in 1914. 15 numbers of them are owned by corporation and 8 numbers are privately owned. The main commodities of these markets are vegetables, fish, meat and groceries. The location of markets are depicted in figure 6.3.


Chamakada Market

6.3.1 Issues of markets

From the primary survey following issues are identified.

- 75% of these markets have no drinking water facilities
- 80% of these markets have not proper parking facilities
- 54% market places do not have toilets facility and drainage facility. The existing toilets are not maintained properly.



Figure 6.3 Location of markets in planning area

- Markets don't have any fire protection measures.
- 50% of these markets have no safe waste management facilities. Biogas plant on Thumboormuzhi model waste treatment facilities are installed in 50% markets . However most of them are not functioning properly.
- Most of the shops in market area encroaches foot paths thereby creating problems to pedestrians .

6.4 STREET VENDING

Street vendors are common in all major streets in KLMC area. Pedestrians are the main consumers of these traders.

Majority of these street vendors sell vegetables, fruits, sandals, bags, fancy items, lottery, cool drinks, coconut etc. The list of street vending (table 6.4.) and locations in KLMC area is shown in figure 6.4. Street vending was found as most thriving in railway land near Chinnakada over bridge at the time of survey. However street vending in that area is reduced considerably now a days due to Covid-19 pandemic. While analysing the spatial distribution of street vending activities, it is seen that core area of the city is accommodating maximum number of street vendors.

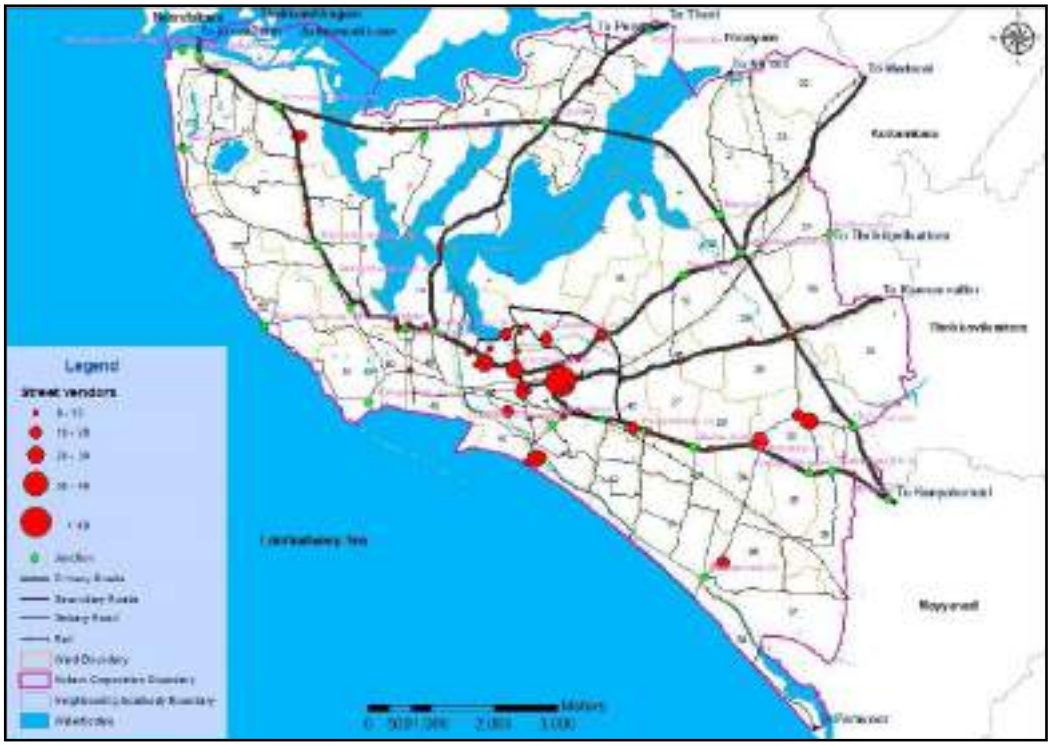


Figure 6.4 Major street vending areas in KLMC area

MAJOR STREET VENDING AREAS		
Sl.No	Place	No of Venders
1	Railway Quarters Road	48
2	Pallimukku Market	29
3	Post office road main road	26
4	Koonambaikkulam temple compound	25
5	Victoria Hospital	24
6	Beach	22
7	M.G. Park -Beach	20
8	Polayathodu Market	20
9	Thamarakkulam Road	20
10	Eravipuram Market	19
11	Municipal Building Front & Opposite	18
12	Near. St. Joseph Convent (Victoria Hospital)	18
13	Kavanad Market	16
14	Asramam Link Road	15
15	Contonment	15
16	Kadappakada Market	15
17	Mulluvila Bypass Road side	15
18	Vadakkumbhagam	14
19	Muzilyarl Building area - Beach road	12
20	CollectorateRaod	10
21	Kadavoor Church	10
22	Oppo. Railway	10
23	Parvathiyar Market- Parvathiyar Jn.	10
24	Ayathil- Kallumthazham Road	9
25	C.K.P. Market (Kollam-Kundara Road)	9
26	TKM road- TKM College	9
27	Highway- Kavanad	7
28	Asramam Play ground	7
29	Bypass Road MalikkaraJumaMazjid	7
30	Sankers	7
31	Thattamala Market	7
32	BSNL Office Chinnakada -Ashramam road	6
33	Kavanad	6
34	JawaharBalabhavan	5
35	H.S. Junction - HS Junction Bus stand	5
36	Parvathi Mills	5
37	Play ground	5
38	Polayathodu road side	5
39	Altharamoodu	4
40	Katchery	4
41	Inside Beach	4
42	Ayathil Cashew Factory Road	4
43	UshaTheator	4
44	Muneeswara Temple Ashramam	4
45	Gov. Hospital	4
46	Poovanpuzha Junction	4
47	Puliyathumukku Market	4
48	ThattamalaJumMazjid	4
49	Ayathil	3
50	Beach Road	3
51	Collectorate	3
52	Commissioner Office	3
53	Vendarmukku Cashew Factory	3
54	Kureepuzha	3
55	Dr.Muhammed Iqbal Memorial (Pallimukku)	3
56	SMP Road	3
57	Sangeethamukku	3

Source: NULM survey data-2020

Table 6.4 Street vending locations and number of vendors in planning area

6.4.1 Issues with Street Vending

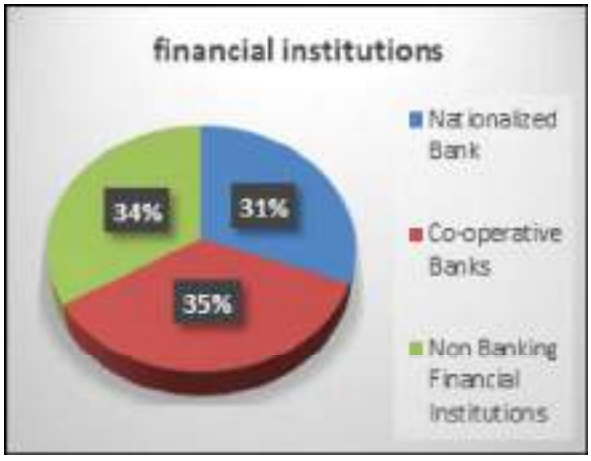
- Designated street vending areas are not earmarked in the planning area.
- Proper system for registering the details of street venders is not in place.
- Encroachment of footpath for vending causes disturbances to vehicle and pedestrian movement
- Absence of facilities for waste disposal, drinking water and sanitation facilities.

6.5 FINANCIAL INSTITUTIONS IN KLMC AREA

In KLMC area, around 104 financial institutions are available in which co-operative banks take the major share (35%) and then followed by non-banking financial institutions (34%), and nationalized banks (31%) (figure6.5).



Street Vending



Source: Primary survey-2019

Figure 6.5 Shares of financial institution

6.5.1 Issues

The financial institutions are concentrated in the core area. Hence equitable distribution of financial institutions is not available in the planning area.

CHAPTER - 7
FISHERIES

KLMC area is abundantly rich in marine, brackish water and fresh water resources. These water bodies 'are inhabited by a wide variety of aquatic fauna & flora. The long coastline and the extensive inland water bodies of the area together with supporting infrastructure like Thangassery and other fishing harbours along the coast have brought people belonging to different ethnic groups into fishing. Kollam city is situated by the side of Lakshadweep Sea sharing the coast of about 17.2 km within the planning area thereby creating tremendous potential for development of marine fisheries sector. The city is also known as the "Gateway to the backwaters of Kerala" as major parts of the second largest lake of Kerala, Ashtamudi Lake is available within the planning area along with other water bodies such as Kollam Thodu, Vattakayal, Kattakayal etc. Inland fishing, though not comparable with marine fishing activities, has also got tremendous potential in the planning area. Thus, fisheries have developed as the most flourishing primary sector of the planning area. This chapter deals with the details of marine and inland fisheries, human resources in fisheries sector, infrastructural facilities, marketing facilities etc. and various issues associated with fisheries sector.

7.1 MARINE FISHERIES

Marine fisheries are one of the key economic sectors of KLMC area as about 38,240 marine fishermen out of 1.3 lakh in Kollam District find their livelihood from marine fisheries sector. The total number of active fishermen who involve in fishing activity regularly comes to about 9885. Also, KLMC area in its 17.2 km coastal stretch consists of 9 Marine fishing villages and 12 Marine fish landings.

7.1.1 Fish Landings

Fish landings means total quantity of fish caught from all the landing centres within the area per year. Out of the 13 fishing harbours in Kerala coast, 3 are in Kollam District, of which 2 are located in the planning area i.e., at Sakthikulangara and at Thangassery. All the landing centres within the planning area is listed below and the location is depicted in figure 7.1.

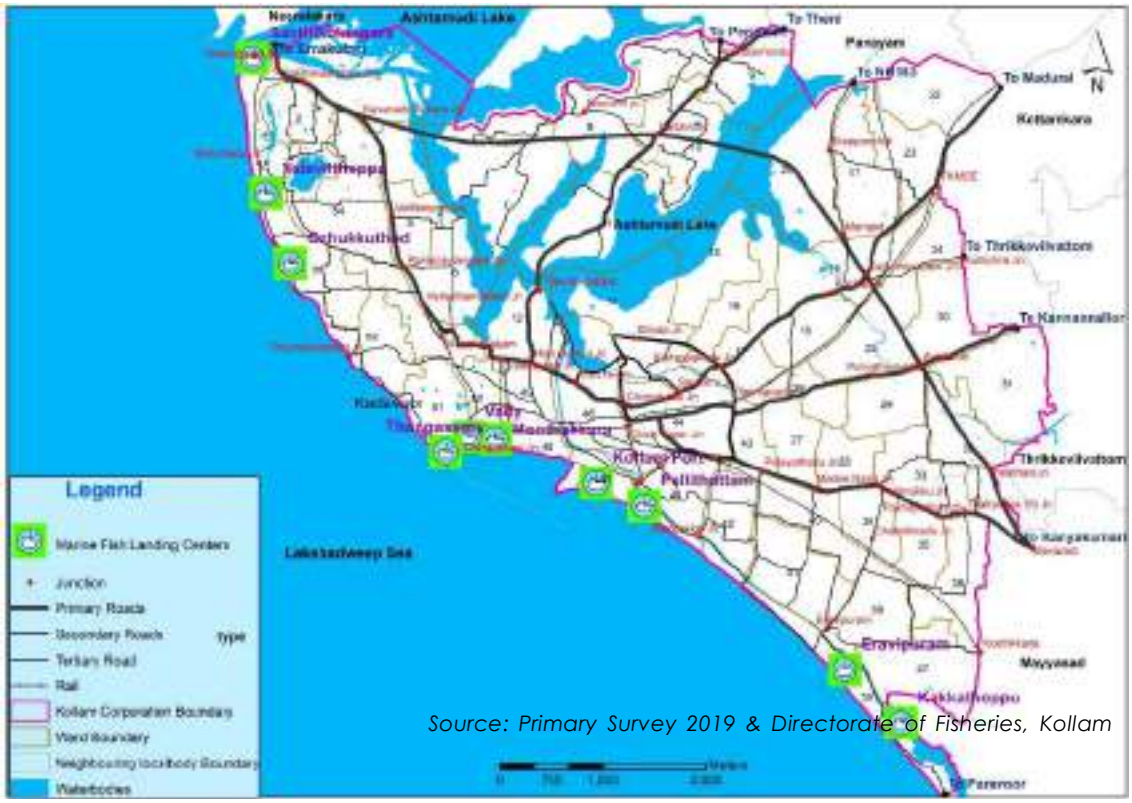


Figure 7.1 Location of marine fish landing centers in KLMC

Details of fish landing centers	Active marine fishermen	Number of boats landing/ day	Details of type of fish and quantity of catches
Sakthikulangara	3027	100-150	Metapeneopsis dobsoni, Parapeneopsis stylifera, Penaeus indicus, Aristius alkoki, octopus sp., Sepia sp., Loligo sp, Crab, Cyanoglossus sp, Decapterus sp, Rastrelliger kanagurata, Priacanthus sp, Saurida sp, Babylonia sp, Odonus niger
Valavilthoppu		20	crabs, lobsters, coral fishes
Ozhukkuthod		20	crabs, lobsters, coral fishes
Thangassery	975	-	no landings
Vaddy	846	75-100	Sardinella longiceps, stoliphorous spp, Thryssa mystax, Penaeus indicus, croackers, Lactarius lactarius, Tunas
Moothakkara	806	-	no landings
Jonakappuram (closed due to communal issue)		-	no landings
Port Kollam	570	200-250	Sardinella longiceps, stoliphorous spp, Thryssa mystax, Penaeus indicus, croackers, Lactarius lactarius, Tunas, seer fish, marlins, skates, rays, cephalopods, mackeral
Pallithottam	1469	-	no landings
Kakkathoppu	248	20	sardines, mackeral, lesser sardine, anchovies, croackers, crabs
Eravipuram	1462	20	sardines, mackeral, lesser sardine, anchovies,
Kannimel	482	-	no landings
Total	**9885**	**580**	

Source: Primary Survey 2019 & Directorate of Fisheries, Kollam

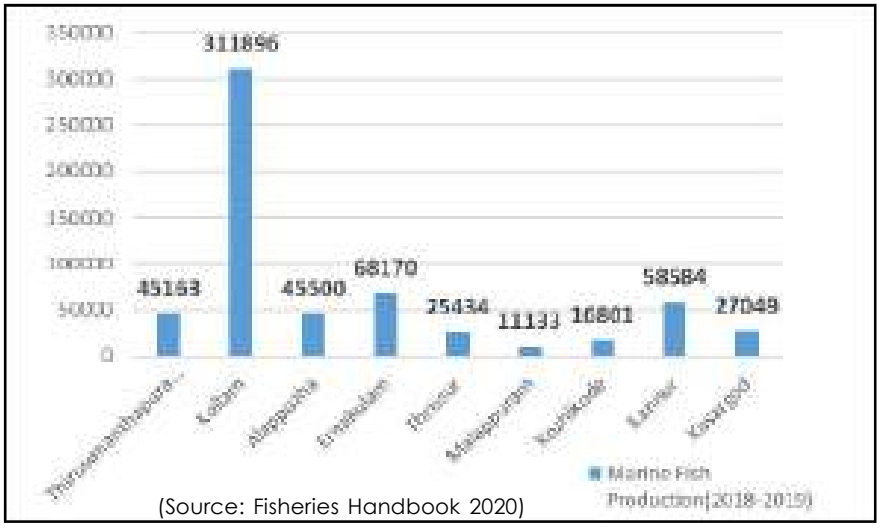
Table 7.1 Details of marine fish landing centers in KLMC

1. Sakthikulangara
2. Valavilthoppu
3. Ozhukkuthod
4. Thangassery
5. Vaddy
6. Moothakkara
7. Jonakappuram
   (closed due to communal issue)
8. Port Kollam
9. Pallithottam
10. Kakkathoppu (minor)
11. Eravipuram (minor)
12. Kannimel.

The total number of boat landings per day from the 12 fish landings are listed in table 7.1. It is approximately 580 boat landings/day. Common species of fishes in these landings are Sardinella longiceps, stoliphorous spp, Thryssa mystax, Penaeus indicus, croackers, Lactarius lactarius, Tunas, mackerel etc.

District-wise fish landings during 2018-19 are shown in figure 7.2. It can be seen that, Kollam District ranked 1st in marine fish landings with 3,11,896 tonnes of fish landings, which was also ranked 1st during 2017-2018 with 1,66,839 tonnes of fish landings. Hence Kollam is leading the fisheries sector of the State. Also about 50% of increase in marine fish landings is observed in recent times i.e., from the period 2018 to 2019.

The details of fish landings in KLMC area for the period 2010-2020 is given in table 7.2. From the table it is found that total fish catch in the KLMC area for the year 2019 is 1,67,033 tonnes comes to about 53.55% of total landings of the district. Hence the planning area alone is highly potential as far as the fisheries sector of the district is concerned.



(Source: Fisheries Handbook 2020)

Figure 7.2 District-wise comparison of marine fish landings (tonnes) during the period 2018-2019

Clupids i.e Oil sardine, lesser sardines, Hilsa shad, other shads, Anchovies, Coilia, Setipinna, Stolephorus etc are the main species caught in KLMC as shown in figure 7.3.

Type of Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
ELASMOBRANCHS	103	162	176	360	478	270	32	89	88	92
Eels	20	34	34	32	1	14	1	1	13	6
Catfishes		0	0	13	0		5	8	24	51
CLUPEIDS	3786	6702	9919	12374	7955	5426	10795	15712	10211	82879
BOMBAYDUCK	0	0	0	0	0	0	0	0	0	0
LIZARD FISHES	461	718	928	1435	2101	2210	2641	2471	2489	2513
HALF BEAKS&FULL BEAKS	46	94	68	65	64	31	176	60	111	62
FLYING FISHES			2							
PERCHES	1635	4547	2137	5267	3309	6408	6027	6976	9594	3835
GOATFISHES			2	87	144	107	177	58	17	44
THREADFINS				0	0		1			2
CROAKERS	511	1001	552	426	632	284	427	459	630	202
RIBBON FISHES	274	2148	1201	1546	1167	114	235	472	484	360
CARANGIDS	1013	932	1009	2748	2657	3400	2980	3966	8100	26804
SILVERBELLIES	254	587	941	364	691	336	271	143	285	142
BIG-JAWED JUMPER	423	253	101	62	40	29	262	141	121	80
POMFRETS	0	402	4	29	7	11	103	44	115	716
MACKERELS	1825	1802	742	3101	1776	1846	4015	3342	10143	2051
SEER FISHES	51	232	157	451	49	128	187	92	173	1522
TUNNIES	310	689	546	247	358	370	420	566	1173	4679
BILL FISHES	11	12	7	9			1	29	17	22
BARRACUDAS	134	176	107	144	176	110	175	112	278	286
MULLETS	15	7	2	3	1	0	31	15	3	16
UNICORN COD	0	0	0	0	0	0	0	0	0	0
FLAT FISHES	252	717	739	522	409	233	291	577	1241	1627
CRUSTACEANS	5127	9800	9471	13158	15133	11076	8831	15568	20506	13195
MOLLUSCS	4178	6295	8554	7656	7019	9002	9346	6788	10494	10638
MISCELLANEOUS	108	66	171	343	62	395	351	44	4214	15209
Total	**20536**	**37376**	**37571**	**50442**	**44227**	**41800**	**47781**	**57734**	**80522**	**167033**
Total fish production in KLMC area for the year 2019										**167033**

Table 7.2 Fish landings in KLMC area during the year 2010-2020 Source: CMFRI, Kochi

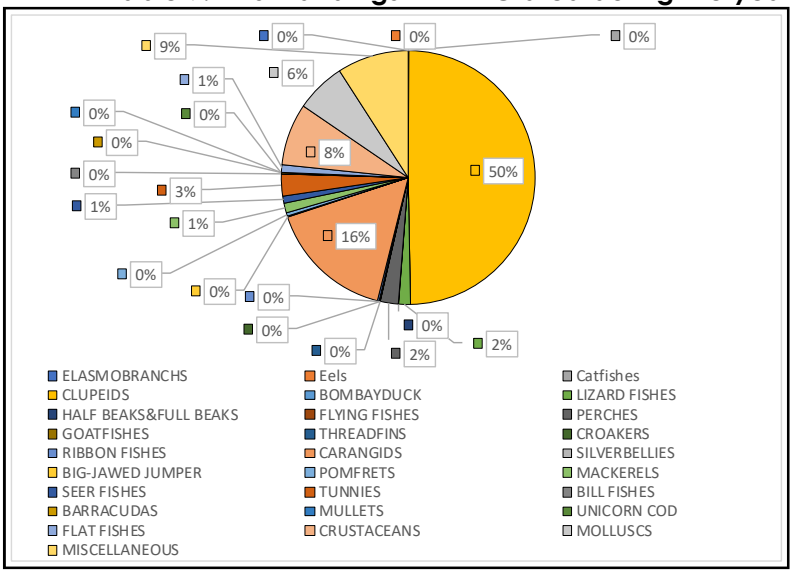


Figure 7.3 : Marine fish landings based on types of fishes

The temporal variation of marine fish landings in KLMC area is shown in figure 7.4. It is found that the total landings has increasing rate for the period 2010-2019 except for the years 2014 and 2015. Majority of fish landing is contributed from KLMC area, as the coastal stretch lies mostly within the planning area.



Source: CMFRI, Kochi

Figure 7.4 Marine fish landings (tonnes) of KLMC area for the period 2010-2019

7.1.2 Fishermen Population

About 38240 fishermen population as on 2019 are residing in 9 fishing villages in KLMC area and the total number of active marine fishermen (fishermen who are actively involved in fish catch) are 9885 (table 7.3). The spatial distribution of fishing villages is shown in figure 7.5.

Fishing villages	Active marine fishermen	Total marine fishermen
1. Sakthikulangara	3027	6252
2. Thangassery	975	4230
3. Vaddy	846	3470
4. Moothakkara	806	2950
5. Port Kollam	570	5774
6. Pallithottam	1469	2950
7. Kakkathoppu	248	4404
8. Eravipuram	1462	6628
9. Kannimel	482	1582
Total	**9885**	**38240**

Source: Directorate of Fisheries, Kollam

Table 7.3 Details of marine fishermen population in KLMC area

It is estimated that out of the total employment generated in the marine fisheries sector of KLMC area 32% of workers (38240) are from KLMC area. From the occupation structure the total number of main workers is found as 1,20,811. Hence fishing can be considered as thrust sector of economy in KLMC area.



Source: Directorate of Fisheries, Kollam

Figure 7.5 Marine fishing villages in KLMC area

7.1.3 Important Issues in Marine Fishery Sector

1. Socio economic issues

Socio-economic issues of fishermen in KLMC area as observed from primary survey are:

- Most of the fishermen lives near the coastal region living in small huts with large number of inhabitances causing high threat from unpredictable behavior of sea.
- Unhygienic living conditions.
- Lack of employment opportunities for fisherwomen.
- Lack of insurance for shrimp- fish culture.
- Lack of sea rescue facilities.
- Shortage of loan facilities and micro-credit.

2. Pollution

In June 2017 the Government of the Kerala State and the Kollam District Fishing Boat Operators Association in India launched the Suchitwa Sagaram project involving fishermen to collect the plastic entangled in the nets while fishing. The material brought from the sea by the fishermen is managed by some waste collection centres close to the fish landing points in Sakthikulangara. Nearly 2650 kg of organic and inorganic waste dumping in coastal area of KLMC as per IDDP perspective plan 2009. The observations on pollution study in KLMC leads to the findings such as

- Deterioration of coastal water quality.
- High pollution from the operation of vessels and boats.
- Liquid and solid wastes from processing units like body fluid and body organs of fish.
- Waste dumping into back waters affects the existence of back water biodiversity.
- Nearly 2650kg of organic and inorganic waste dumping in KLMC is occurring as listed in table 7.4.
- Increasing E-coli bacteria concentration of Ashtamudi lake.
- The fishermen have no responsibility for hygienic management of the landing centers and hence the present unhygienic condition.
- A large number of fish is wasted by being discarded at sea immediately after catch. In addition to the economic loss the issue of non-conservation of fish species is a threat to the sustainable development of fishery sector.

Name of Port	Nature of waste		Quantity
	Organic	Inorganic	
Sakthikulangara Harbour	Fish waste, Trash Fish, Squilla crab, Prawn waste, jelly fish, echinoderms, Molluscans, Human waste etc	Plastic. Net and Gear debris consumable wastes, soil, Shanku and other molluscan shells, gastrop dirty water -	2000 kg per day
Vaddy landing center	Trash fish, Jelly fish prawn dirty water, etc		100 kg/day
Moothakkara			50 kg/day
Thangassery			500 kg /day
Total Fish Waste(kg/day)			**2650 kg/day**

Source: Directorate of Fisheries, Kollam

Table 7.4 Quantity of organic and inorganic waste dumping in Kollam coast

7.2 INLAND FISHERIES

Inland fisheries sector has a great scope in Kollam, as the district is endowed with fresh water resources consisting of rivers, backwaters, fresh water lakes, and ponds well known for their richness of biodiversity of freshwater fishes. But in KLMC area due to less quantity of fish landings from Ashtamudi Lake, inland fishing has not developed as an important sector like marine fisheries. Majority of inland fish species have ornamental value also. Most of the inland landings are consumed locally and marketed domestically. Inland fishing of Kollam Municipal Corporation area consists of 6 fishing villages and 8 fish landings.

7.2.1 Fish Landings

Fish landings means total quantity of fish caught from all the landing centres within the area per year. There are 8 inland fish landing centres in KLMC area as listed below.

1. Mangad
2. Karikodu
3. Aravilakadavu
4. Kanyankadavu
5. Thoppil Kadav
6. Kureppuzha
7. Kottayath Kadav
8. Pattakadavu

Details of all the Inland landing centres within the planning area is listed in table 7.5 and the location is depicted in figure 7.6.

Sl. No.	Details of fish landing centers	Location	Details of type of fish
1	Mangad	Mangad	Chanos chanos, Etroplus suratensis Oreochromis niloticus, Paphia malabarica Scylla serrata, Metapenaeus monoceros Perna viridis, Horabagrus brachystoma Anodontostoma chacunda Megalops tarpon Oxyuricthys tentacularis Parupenaus, Monodactylus argentius Drepene puntata Scatophagus argus Puntius carnaticus
2	Aravilakadavu	Aravila, Kavanad	
3	Kanyankadavu	Kavanad	
4	Thoppil Kadav	Mamootilkadav	
5	Kureeppuzha	Kureepuzha	
6	Kottayath Kadav	Kadavoor	
7	Pattakadavu	Thevally	
8	Karikodu	Karikodu	

Source: Directorate of Fisheries, Kollam

Table 7.5 Details of inland fish landing centers in KLMC



Figure 7.6 Location of inland fish landing centers in KLMC

From figure7.7, it can be seen that, Kollam District ranked 8th in inland fish landings with 7313 tonnes of fish landings. This shows that inland fish landings is less compared to marine fish landings from the period 2018 to 2019. Alappuzha and Kottayam District has the highest inland fish landings.

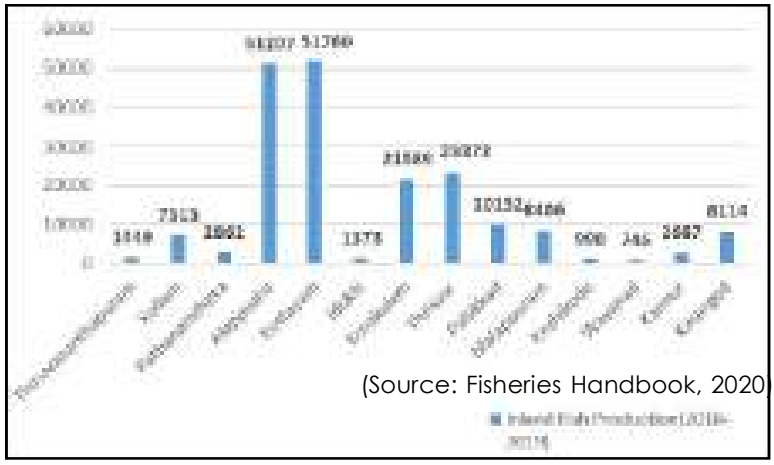


Figure 7.7 District-wise inland fish landings 2018-2019

The details of Inland fish landings in KLMC area for the year 2019 is given in table 7.6. From the table it is found that total Inland fish landings in the planning area is 506 kg/month.

The various types of inland species in KLMC area shown in figure 7.8 are Anodontostoma chacunda, Megalops tarpon, Oxyuricthys tentacularis, Parupenaus, Monodactylus argentius, Drepene puntata, Scatophagus argus Puntius carnaticus etc.

Variety	Quantity (in kg/month)	Variety	Quantity (in kg/month)
Chanos chanos	15	Metapenaeus monoceros	
Etroplus suratensis	35	Perna viridis	20
Oreochromis niloticus	30	Horabagrus brachystoma	20
Paphia malabarica	39	Anodontostoma chacunda	30
Scylla serrata	40	Megalops tarpon	32
Penaeus monodon	30	Oxyuricthys tentacularis	25
Fenneropenarus indicus	25	Parupenaus spp	18
Macrovranchium rosenbergi	30	Monodactylus argentius	30
Etroplus maculatus	10	Drepene puntata	10
Lutjanus spp	25	Scatophagus argus	12
Mystus gulio	10	Puntius carnaticus	20
Total Fish Landings in kg/month			**506 kg/month**

Source: Directorate of Fisheries, Kollam

Table 7.6 Inland fish landings in KLMC area during the year 2019-2020

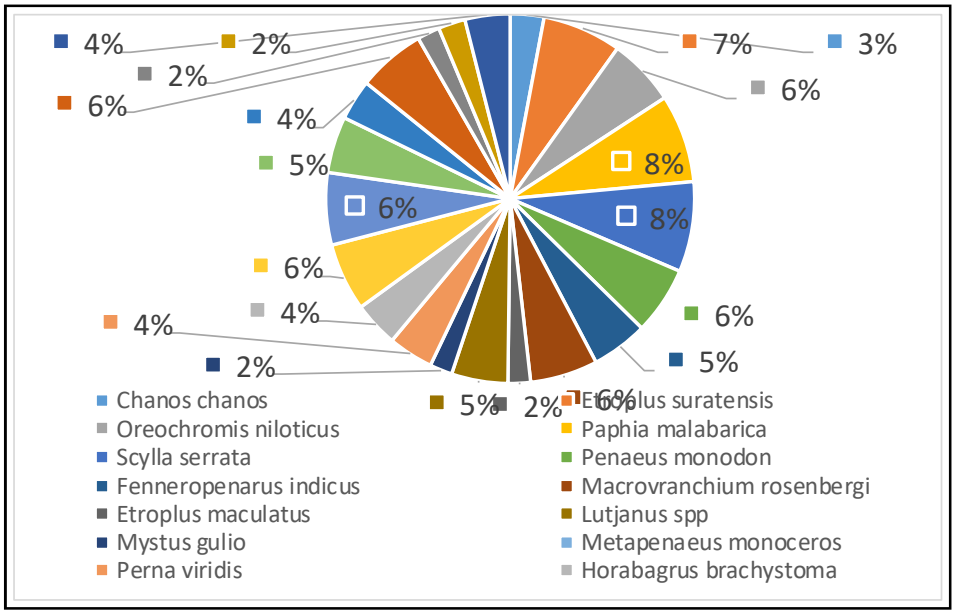


Figure 7.8 Inland fish landings based on types of fishes

7.2.2 Fishermen Population

Total 2067 Inland fishermen population as on 2019 are residing in 6 fishing villages in KLMC area is listed in table 7.7. The spatial distribution of fishing villages is shown in figure 7.9.

Total of 936 active inland fishermen (fishermen who are actively

	Active Inland Fishermen	Total Inland Fishermen
Mangad	30	111
Aravila	337	1029
Kureepuzha	197	631
Thevally	-	-
Kadavoor	-	-
Mukkad	372	1325
Total	**936**	**2067**

Source: Directorate of Fisheries, Kollam

Table 7.7 Inland fishermen population residing in fishing villages



Source: Directorate of Fisheries, Kollam

Figure 7.9 Inland fishing villages in KLMC area

involved in fish catch) are residing in the 6 inland fishing villages of KLMC area which is very low compared to those engaged in marine sector

7.2.3 Important issues in Inland fishery sector

- Inland fishery is perceived as a low important sector in the economic planning process. Even the budget allocation is kept mostly for welfare activities.
- Lack of effort for extension of appropriate and new technologies is the main problem.
- Lacks of support to strengthen and create institutional arrangements are one of the concerns in inland fishery sector.
- Inadequate database available on the status of production, consumption and marketing of fish in inland sector.
- Small scale, spatially diffuse inland fishery activities not getting organized and not reflected in the national statistics and accounting.
- Inadequate initiatives for infrastructure development for product diversification and market development.
- Lack of adequate incentives for promotion of export-oriented fishery enterprises.
- Inadequate support to the fishery cooperatives.
- Less number of facilitating organisations to promote inland fishery development.
- Only a fraction of water area such as rivers, canals, hills and tanks has been utilized for fishing culture.
- Poor extension services to the fisher communities for promotion of fish seed and feed production, fish farming and fish-based enterprises.
- No standards for quality of fish seed, feed and fish varieties and hence no certification initiatives on fish and fish product.
- Shrinking of back water due to sedimentation & human interference.
- Environmental and Ecological problems arising due to destruction of mangroves
- Indulgence of middlemen in the process of leasing and taking the water bodies on lease
- The greatest threat to the sustainability of inland fishery resources is environmental degradation. Aquatic pollution, destruction of fish habitats, water abstraction and impacts on aquatic biodiversity are all increasing. These trends must be reversed.



Mangrove forest alongside the link road near Ashtamudi Lake in Kollam

7.3 FISHERIES INFRASTRUCTURE

There are 2 fishing harbours and a port in KLMC area, they are Thangassey Harbour and Sakthikulangara Harbour. Details are listed below:

Thangassery Fishing Harbour

The type of Thangassery harbour is Artificial Basin. The area of harbour Basin is 150 ha. The location of harbour is shown below and area of auction hall is 1500 m², parking area is 6000 m², Length of breakwater is 2100m. Other facilities in harbour include locker room, shops, Workshop building, Toilet block, Inspection Bungalow and canteen.



Thangassery Fishing Harbour

Sakthikulangara Fishing Harbour

Sakthikulangara fishing harbour is an estuary type harbour. The area of harbour basin is 1.43 ha. The length of breakwater is 680m. Land area available is 4.94 ha. Quay length is 407m. Area of auction hall is 582m². Parking area is 4500m².



Sakthikulangara Fishing Harbour

Kollam Port

The basic details of Kollam port and other facilities of port is listed in table 7.8 and table 7.9.

Major means of fishing in the planning area includes mechanized boats, Out Board Motor Fitted Boats,

Kollam Port at Pallithottam	33.79 Acre
Latitude and Longitude	Lat. 8" 52.5'N Lons. 076" 34.8'E
wharf	178.5 meters
Draft	7.2 meters
Entrance channel width	350 meters
Entrance Draft	11.0 meters
Basin Area	100 Hectares

(Source: Primary Survey 2019)

Table 7.8 Basic details of Kollam port

small canoes, fibre crafts, thanguvalam, kattamaram and fishing nets. The different means of fishing practiced in various places of planning are shown in figure 7.10. Of the various means of fishing, fibre craft boats are mainly used especially in Vaddy landing centre followed by Ply wood canoe. Majority of fishing means are utilized in Vaddy landing centre. The highest number of boat landings per day is from Kollam Port.

The auxiliary facilities related to fishing sector in KLMC area is listed in table 7.10. There are 9 ice plants, 20 markets, 26 boat building yards, 1 fish drying unit and 1 fuel bunk for the fisheries sector in KLMC area.

Other Facilities	
Transit Shed [2nos	1450 sq.mts each
Yard	16000 sq.mts
Godowns(2 Nos)	450 sq.mts each
Wharf strength	5 Tonne per sq meter
Tug	MT Malabar
Container handling crane[1- noJ	Liebherr Mobile Harbour Crane (LHM 1201- 40 tonne capacity
Container handler(1 No)	Terex-40 tonne caPacity
Reach stackers	40TCapacity2Nos
Mobile crane(1 No)	Grove- 20 tonne capacity
Fork lift(1 No)	Godrej
Weigh bridge	Available [100 tonnes)
Fenders	Available
Channel Marking Buoys	Available
CCTV Surveillance	Available
Pilot	Available on request
Fresh water supply	Available

(Source: Primary Survey 2019)

Table 7.9 Facilities of Kollam port



Figure 7.10 Different means of fishing practiced in all the fish landing centers of KLMC area

Facility	Number
Markets	20
Drying yards	1
IDF plants	2
Ice plants	9
Boat building yards	26
Peeling Sheds	300(Approx.)
Fuel bunks	1

Source: Directorate of Fisheries, Kollam

Table 7.10 Auxiliary facilities related to fishing sector in KLMC area

7.4 EXPORTS

There are 22 export units functioning in KLMC for the period 2011-2020 and are given in table 7.11. Maximum number of export units in the district is located in KLMC area exporting about 18,121 tonnes per year on an average. The main species exported are Shrimp, Cuttle fish etc. However, the export from these units is not the fish caught from the planning area alone. The total number

Sl. No.	Name of Exportation	Quantity Exported per year (Tonnes)										Items Exported
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020*	
1	BABY MARINE EXPORTS	966.78	774.00	211.46	98.48	0.00	0.00	0.00	15.80	0.00	0.00	FROZEN SHRIMP, FROZEN FISH, FROZEN CUTTLE FISH, FROZEN SQUID, CHILLED ITEMS, DRIED ITEMS, LIVE ITEMS, OTHERS
2	BABY MARINE (EASTERN) EXPORTS	1,092	1,293	3,662	3,873	3,685	3,224	4,357	4,091	5,096	2,570	
3	BABY MARINE PRODUCTS	977	647	2,447	943	53	0	0	0	0	0	
4	CAPITHAN EXPORTING CO.	4,885	3,848	3,749	3,861	3,728	2,860	2,447	2,334	2,294	1,539	
5	KINGS MARINE PRODUCTS	1,120	807	983	1,013	830	751	1,015	928	591	273	
6	POYILAKADA FISHERIES	1	1	2	40	185	105	168	20	620	675	
7	INDIAN AQUATIC PRODUCTS	1,811	1,775	1,469	1,185	886	1,134	820	564	474	132	
9	DEEP SEA PRODUCTS. KOLLAM	0	163	296	95	0	0	0	0	0	0	
10	LUKE EXPORT	533	324	520	538	609	967	1,310	1,493	1,650	995	
11	ARAVIND EXPORTS	0	0	0	0	0	0	0	0	0	1	
12	MATSYAFED (KERALA ST. CO-OP.FED.FOR FISH.DEVT.)	1,408	1,119	747	724	169	474	627	565	679	322	
13	SEA BOY FISHERIES P. LTD.	652	580	881	832	1,097	1,399	1,108	1,227	1,170	605	
14	JOLLY MARINE EXPORTS	237	59	42	96	58	44	64	101	0	0	
15	CHARLY FISHERIES	1,130	942	1,318	1,176	1,338	1,921	2,324	3,371	2,851	1,076	
16	SAN MARINE EXPORTS	1,179	1,278	1,346	1,553	1,360	1,685	1,758	1,177	907	709	
17	MANNA SEA FOOD EXPORTS	1	26	33	39	20	1	0	0	0	0	
18	AVLA NETTOS EXPORTS	0	753	1,176	894	1,033	1,503	1,617	2,493	3,202	1,405	
19	KAMALA SEAFOOD EXPORTS	0	7	44	39	26	29	16	8	1	0	
20	KINGS SEAFOODS	0	176	1,010	1,025	1,383	1,478	2,041	1,330	670	406	
22	FATHIMA SEA FOODS	0	0	0	0	0	0	0	43	38	0	
	Grand Total	16,006	14,589	19,945	18,035	16,497	17,725	19,973	20,027	20,293	10,795	

Source: Mpeda 2020

Table 7.11 Details of fish exporters in KLMC

of workers engaged in export is very less compared to the total number of workers engaged in this sector.

Maximum quantity of exports for the period 2019-2020 are 20,293 tonnes. The export quantity is found to be increasing yearly from the period 2015 to 2019 as in figure 7.11. As the data of exports for the year 2020 is not completely available this data is not taken for analysis.



Source: MPEDA, Kochi

Figure 7.11 Exports in KLMC area for the period 2011 to 2019

7. 5 FARMS

Large number of privately owned fish farms are available in the KLMC area. 11 Brackish water fish farms are located in KLMC area and is listed in table 7.12.

From the analysis, it is understood that majority of farms is located along the marine coastal area and no farm is found in Thrikkadavoor region even though this area is highly potential due to presence of Ashtamudi Lake.

There is a Matsyafed Prawn Hatchery in Thirumullavaram with 334.6 lakhs of production yearly. A larvivorous fish seed production center run by Fisheries Department is available in Thevally with 0.60 lakhs of seed production per year.

7.6 DEVELOPMENT ISSUES

Problems

From the sectoral analysis carried out, following common problems are identified in fisheries sector

Fish farms locations	Brackish water fish farms	Fish farms	Oyster farms	Crab farms	Prawn Hatchery
Kollam	3	1	-	-	
Sakthikulangara	7	-	-	-	2
Thirumullavaram	-	-	-	-	1
Eravipuram	1	-	-	-	-

(Source: Primary Survey 2019)

Table 7.12 Details of fish farms

- Inadequate number of fish processing units and ice plants.
- Increasing price of kerosene and diesel resulting in increased cost of collection of fish.
- Absence of common toilet facilities along the coastal area.
- Unhygienic working atmosphere at Sakthikulangara harbour.
- Absence of periodic maintenance of coastal road.
- Non effective waste disposal.
- Inadequate number of fish farms.
- Absence of adequate value addition and export units.
- Absence of periodic dredging at estuarine areas creating accidents.
- The natural islands in Ashtamudi lake with high potential for fish farming area are not exploited.
- Destruction of entire fishery stack of deep sea and inshore water due to foreign vessels.
- Absence of control on mesh size causes depletion of fishery resources.
- Stationary gears make hindrance to the entry of marine fishes towards backwater for breeding.
- Silting and sedimentation of back waters.
- Spread of fish/shrimp diseases.
- Absence of disease monitoring system.
- Shortage of guide lights.
- Absence of possession certificate for the inhabitants in purampoke area prevents them from availing financial assistance for constructing homes, sanitation facilities etc.
- 'Thopum - padal' method of fishing causes environmental degradation.
- Unorganized marketing system.
- Weak extension network.
- Non availability of skilled manpower.
- Lack of value addition technology.

Potentials:

- Presence of considerable number of fish landing centers, harbours, Matsya bhavans.
- Kollam District having the highest marine fish production with 54% of fish production from KLMC area.
- Inland fish production has high potential for employment generation in KLMC area
- Potential for construction of artificial reefs along coastal area
- Backwaters are highly suitable for farming species especially along Ashtamudi Lake
- Scope for development of fisheries tourism.

CHAPTER - 8
TOURISM

Kollam District is considered as one of the most tourism potential districts in Kerala due to the availability of varieties of tourist attractions. To the west of the KLMC area, there are beaches throughout the boundary. Ashtamudi lake, Sastamkotta kayal, Eastern hills, Kallada river, Thenmala eco tourism area, Palaruvi, Jadayupara, Meenpidi para etc. are some of the important tourist attractions in the District. KLMC area accommodates major beaches, large extent of Ashtamudi Lake and other water bodies. Besides this, the presence of many heritage buildings and places and a number of religious and cultural activities in KLMC area provides ample scope to KLMC for tourism development. Within the district, Municipal Corporation attracts more number of domestic as well as foreign tourists as most of the potential tourism products are located within this area. The current scenario of the tourism sector with respect to the available tourism products, tourists arrivals, infrastructure, tourism circuit and the development trend and issues are discussed in this chapter.

8.1 EXISTING TOURISM PRODUCTS

KLMC area is rich in various types of tourism activities such as Beach tourism, Eco-tourism, Heritage tourism, Pilgrim tourism, Cultural tourism etc. Various natural and manmade attractions available in the planning area under different categories of tourism are explained below.

8.1.1 Beach Tourism

Following are the main beaches in KLMC area (figure 8.1)

- Kollam Beach
- Thirumullavaram Beach
- Mundakkal Beach
- Thangassery Beach
- Eravipuram Beach

Kollam Beach

Kollam beach, located merely 2 km away from the city centre is situated near Kochupilamoodu junction. It is a very busy beach especially during weekends and holidays. Many foreign as well as domestic tourists choose this place for enjoying sunset and other beach related activities such as beach football, flying kites, social gathering, basking etc. Mahatma Gandhi Park

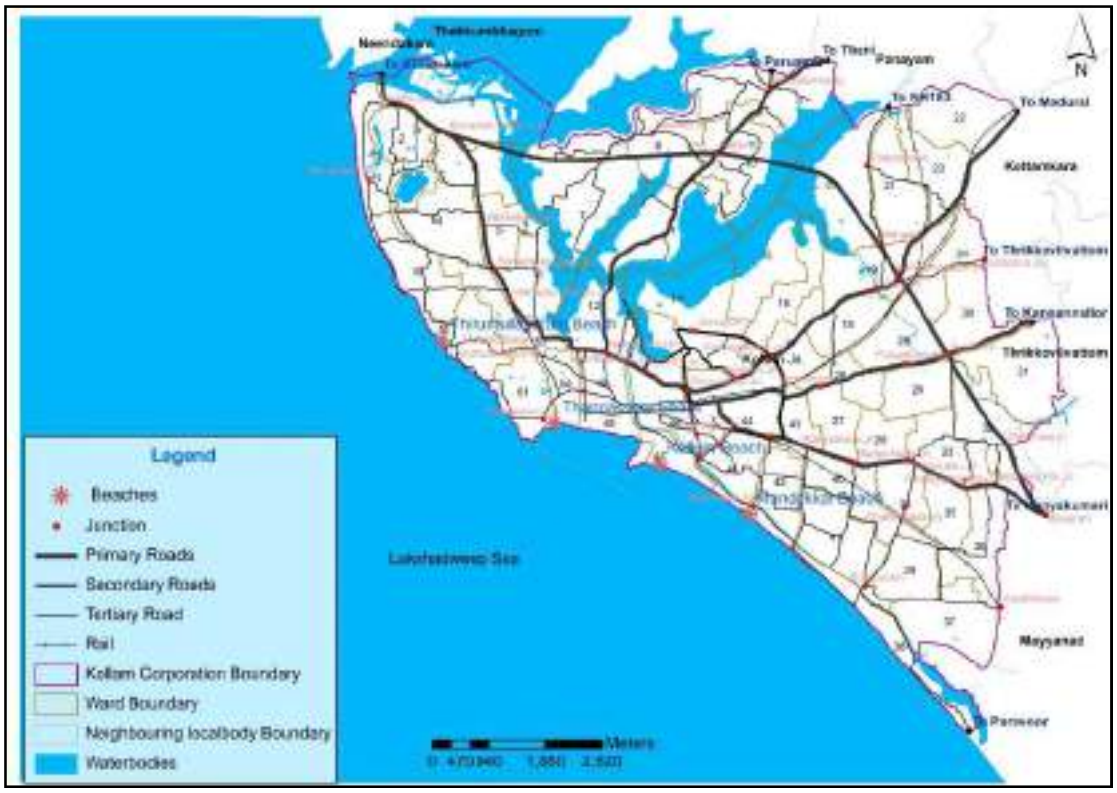


Fig. 8.1 Map showing beaches in KLMC area

with many playing equipment and a swimming pool, water fountain, garden etc. is functioning as the main attraction point in Kollam beach.

Thirumullavaram Beach

Thirumullavaram beach is considered as one of the safest beaches in Kerala as the sea coast is flat in Thirumullavaram. Scenic beauty of sea is the main attraction of this beach. However this beach is not developed as an active tourism centre due to lack of facilities available for active involvement of tourists such as beach game, swimming in sea waves etc. Huge boulder dumped as coast protection measures along the coast is preventing tourists in entering the beach. Public transport facilities are available for visiting the beach. This beach is famous for the yearly ritual of Karkidaka Vavu Bali. It is a beautiful picnic center (holiday spot). "Njarazhicha Para" literally known as


Kollam beach

"Sunday Rock" situated just one and a half kilometer into the sea, is visible from the shore at low tide. This beach if developed properly can attract many foreign as well as domestic tourist.



Thirumullavaram beach

Mundakkal Beach

Mundakkal beach, also known as Mundakkal Papanasam Beach, is situated about 1 km South-East of Kollam beach. Devotees believe that a dip in the waters of Mundakkal Papanasam beach will wash off the sins in one's life. It became famous after the arrival of dredger ship namely Hansitha washed ashore on 21st January 2016. Scrapping of the dredger ship started on 18th October, 2017. To see the ship itself many tourists visited this place. This beach is utilized by domestic tourists for spending their leisure time. Arrival of foreign tourists is found negligibly small compared to domestic tourists.



Mundakkal beach

Thangassery Beach

Thangassery beach is located at a distance of around 5 km from the city centre. It is an extremely popular beach as Thangassery village, one of the old settlements in Kerala preferred by the British, the Portuguese and the Dutch for trading. Silver colored sand and tall palm grooves are the prime attractions of the beach, Thangassery lighthouse and breakwater attracts many tourists. The lighthouse was constructed around a century ago for guiding sailors and fishermen. The 1.5 km long breakwater is used by the public for morning and evening walks.

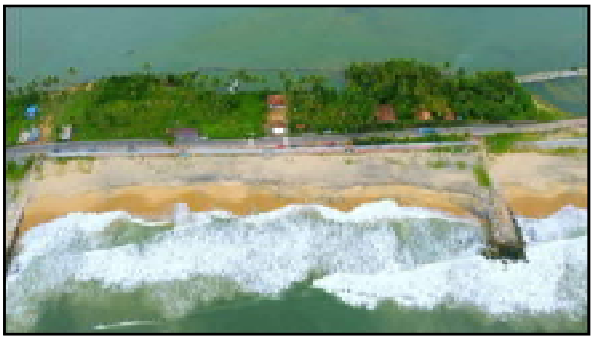
Eravipuram Beach

Eravipuram beach is a developing beach situated at about



Thangassery beach

1.5 km to the South- East of Mundakkal beach. Fast growing Thanni beach in Mayyanad Gramapanchayat is located about 5 km from this beach. Presently Eravipuram beach is visited by domestic tourists. If facilities are provided on this beach, it can be developed as a tourist attraction point.



Eravipuram beach

8.1.2. Eco-Tourism

Astamudi lake including various islands in the lake to mangrove areas adjacent to the lake, Vattakayal, vast paddy area etc. are the eco-tourism attractions in the planning area. However eco-tourism potential of these tourism products are not utilized effectively due to various reasons. One of the main reasons for not developing eco-tourism based on Ashtamudi lake is fond as the non-accessibility to the lake at many places for seeing the beauty of Ashtamudi lake. Also organized places for safe walking, siting etc. without affecting the ecology of the area are not yet developed along the side of Ashtamudi lake. The delta formed within the KLMC area near Sambranikodi in the middle of these islands are utilized by domestic tourists for swimming and other water based recreation purpose. Local inhabitants of islands provide necessary support to the tourists and earn small income. However the stability of delta or stainability of such tourism activity there is not assessed by any responsible agency. People commute through country boat from nearby kadav. There is no authorized boat jetty near the area. Inspite of the uncertainty of tourism consequent to the formation of delta there is considerable scope of developing island based eco-tourism activities. There are 11 number of inhabitated islands in Ashtamudi Lake within the planning area. Out of these, three islands namely St George Island, St Thomas Island, Cheekan thuruthu are under the verge of sinking. However eco-tourism activities are not available in any of these islands. Among all the islands St. George Island is found as sinking with buildings are below water table. Housing and living conditions in all the islands are found as substandard. Hence these island

are to be redeveloped without affecting the eco system so that tourism may be promoted in these islands. Inspite of eco sensitivity and international importance of Ashtamudi Lake dumping of solid and liquid waste into the lake, uninhabited islands and along the coastal area prevents tourists to visit Ashtamudi area. In the case of Vattakayal also though many projects are declared for the beautification of Vattakayal suitable proposals to develop eco tourism activities are not yet materialized.

Another area where eco tourism can be promoted in connection with Ashtamudi lake is Kandachira mukku area. Abandoned paddy land coupled with water logged area to the east of Mangad-Thannikkamukku road was famous for migratory birds. But due to human interventions such as dumping of wastes and encroachments, now a days rate of migration of birds has almost seized. Still the potential for developing eco-tourism activity remains in that area.

Karikuzhy ela near Eravipuram is blessed with natural beauty of greenery and waterbody on either side of bund road. New generation of urban and suburban areas even don't aware of the process of rice cultivation. Foreign tourists can be attracted to this area for knowing paddy cultivation and enjoy the scenic beauty of this place if planned attempt is made to promote paddy based eco-tourism in this area.

8.1.3 Cultural Tourism

Kollam has acquired a rich heritage and culture revealed by many monuments and cultural activities. Art and culture together act as tourism attractions. Off-season flow of tourists arrival is mainly due to such kind of tourist attractions. Various festival/cultural activities in Municipal Corporation limits that attracts tourists to the KLMC area are as follows:

Crafts Festival (December – January)

Ashtamudi Craft and Art festival called "Paramparya", is a traditional annual festival held at the Asramam Maidan at Kollam, organized by the Kollam District Tourism Promotion Council (DTPC). The festival takes place either in December or in January and artists from all over India come to participate in the event. This is an exhibition of the traditional arts, crafts and architectural themes of Kerala.

President's Trophy Boat Race (November)

The President's Trophy Boat Race is one of the famous boat races in the State. It is conducted in Ashtamudi Lake in connection with "Kerala Piravi" i.e. on 1st November every year. A large number of foreign tourists visit Ashtamudi lake in connection with this boat race. thereby increasing the foreign tourist arrival to the planning area. However, in 2020 President trophy boat races along with other cultural activities could not be conducted due to the spread of Covid-19 pandemic.

Kollam Pooram (April)

It is conducted in association with the Sreekrishna Swamy Temple festival at Asramam during the month of April every year. It is a famous cultural programme attracting thousands of foreign tourists. Kudamattam and traditional melam are the major attractions other than traditional folk music and dances performed in the open maidan. The Pooram is followed by a pyrotechnic display



Onam celebration

Onam celebration of the State has its own influence on the district as well as the KLMC area in attracting tourists. Atham ghosayatra, Pulikali, handicraft mela, shopping melas etc. attract a large number of domestic tourists along with a considerable number of foreign tourists to the city centre viz Chinnakada and surroundings during onam festival.

Sree Narayana Cultural Complex at Asramam

The upcoming Sree Narayana Cultural complex near Asramam Maidan and the heritage corridor planned along the East-West boundary of Asramam Maidan can boost the cultural tourism of the planning area.

Ashtami Rohini festival

Vadayattukotta Temple celebrates the 5-day Ashtami Rohini festival during August – September every year. Kathakali, Ottamthullal, Patakam, Kaikottikkali, Koothu, Harikatha,Kolattam are the major

performances associated with temple festivals. It attracts many tourists.

Museums

There are two museums in KLMC area. One is Chinnakada Police Museum and the other is Parampara museum at Asramam. These museums are also considered as tourist attraction points in KLMC area.

8.1.4 Pilgrim tourism

Pongala at Puthiyakavu Temple and Valiya Koonambaikulam temple, Kettukazhcha at Thrikkadavoor Temple (Eduppu Kuthira) are the most important events in which large number of pilgrims including foreigners visits the planning area thereby promoting pilgrim tourism here. Many cultural events, sports competitions, traditional games such as "Vadamvali" are performed in difference parts of KLMC area.

The main religious structures of historical relevance in Kollam Corporation area are mentioned below:

- Ananthavalleshwaram Temple
- Rameswarathu Temple
- Jonakapuram Masjid
- Chittadeshwaram Temple
- Tuet Church
- Siyarathumood Mosque, Kilikolloor
- Velankanni Matha Shrine
- Kapeleswaram Temple
- Thirumullavaram Temple
- CSI Church
- Thrikkadavoor Mahadeva Temple
- Infant Jesus Roman Catholic Cathedral
- St. Casimir's Church

8.1.5 Adventure Tourism

Kollam city is blessed with the world famous Ashtamudi Lake and Lakshadweep sea coast. The presence of these water bodies paves way to adventure tourism in the planning area. The main adventure tourism spots are listed below.

Asramam Adventure Park is the largest urban park of Kerala situated in the core of the city. It is located by the side of Ashtamudi lake. This place is popularly known as Asramam Picnic Village. It is the main center of adventure recreational activities in Kollam city. Kollam DTPC conducts regular backwater cruises in



Adventure park attractions

houseboats, luxury boats and speed boats from the Boat Club. The Children's Park situated near Adventure Park with more than 40 cycles and other playing apparels like Toy Train, Jumping Frog, Helicopter ride, and many multi-purpose play systems makes it a major gaming spot in the city for children. District Tourism Promotion Council, Kollam & Asramam Destination Management Council, Kollam in association with Alpha Adventures introduced Water Sports in Asramam Adventure Park. Aqua Parasailing for the first time in Kerala was introduced in the heavenly glory of its backwaters. Parasail and glide with the morning breeze, Paddle among the mystical mangroves of Munroe Island, Splash away on the crazy Banana-boat ride, slip-and-slide on the Towable Tubes, zip along on the Jet-ski are the important Sports activities associated with it. Price rates for each activity varied from Rs. 250 to Rs. 2000(for Parasailing).

Water Sports Centre in Kollam beach



Para- gliding

DTPC has started a Water Sports Centre near Kollam beach for engaging water based game activities for the domestic as well as foreign tourists. However, due to inferior quality of water, this facility cannot be uplifted fully.

8.1.6 Heritage Tourism

The planning area is rich in natural and manmade heritage assets. Natural heritage mainly consists of Ashtamudi lake and Asramam area. Ashtamudi lake is rich in various species of flora and fauna. Around 7 species of true and mangrove associates are seen there. The floristic diversity covers around 72 species of herbs, shrubs and grasses, of which about 35% are medicinal, 92 tree species have been identified from this area. It is an ideal habitat for fin fishes, prawns, crabs, and clams and offers livelihood to thousands of people. 97 species of fishes belonging to 39 families have been identified, of which 42 are marine, 11 are fresh water, and only 3 truly estuarine others are transient. 57 species of birds are identified in mangrove areas out of this 6 are migratory. It supports around 43 marsh mangrove species. More than 20000 waterfowl visit the lake annually.

The mangrove area along the side of lake together with other biodiversity in Asramam area is found as a silent zone in the middle of city. The mangroves in the Asramam area are very famous all over India. So many endangered species of trees are surviving in the park. Considering the biodiversity of this area, Asramam is declared as the first Biodiversity Heritage Centre of Kerala and a master plan for conservation of this area is under preparation by the KLMC.


SMP palace


Govt. guest house


Thangaserry fort

The man made heritage precincts include.

- 8-Point Art gallery
- British residency, Government Guest House building, Asramam
- Dutch/English cemetery
- Bishop Palace
- Chamakada market
- Cashew House, Mundakkal
- SMP Palace
- Thangassery Fort
- Thevally palace
- Cheena Kottaram
- Light House & Breakwater
- Chinnakada clock tower
- Pukayila Pandakasala

All the above precincts and natural heritage facilitates developing heritage tourism in the planning area.

8.2 TOURIST ARRIVAL

8.2.1 Present Status

Though the number of tourist arrivals in the planning area separately is not available, tourist available of Kollam District till 2018 is availability from Kerala Tourism statistics. As per the statistics, the total number of domestic and foreign tourists arriving in the Kollam District in 2018 is 400222 which includes 9086 foreign tourists.

Comparison of both domestic and foreign tourist arrival in Kollam District with other tourism potential districts is shown in figure 8.2. From the figure, it can be seen that the arrival of both domestic and foreign tourists in Kollam District is the least when compared with other districts.

From the analysis of tourist arrival, it is clear that the tourism potential of Kollam is not at all utilized to the expected level. As KLMC area is the main tourist attraction place in the district, it may be concluded that the planning area needs deliberate attempts to market the tourist products to develop tourism sector of the district.

Month wise foreign tourist arrival in Kollam District is shown in figure 8.3. From the figure, it is understood that the peak flow of foreign tourists is from November to March and least tourist arrival is in June.

Month-wise domestic tourist arrival is shown in figure 8.4. From the figure the peak flow of domestic tourists is from November to May and least tourist is in October. From the analysis, it can be seen that domestic tourists arrival is almost steady throughout the year though foreign tourist arrival has peak and off peak months.

8.2.2 Development Trend

The development trend is based on an analysis of the number of tourists (both domestic and foreign) visiting Kollam during previous years. Figure 8.5

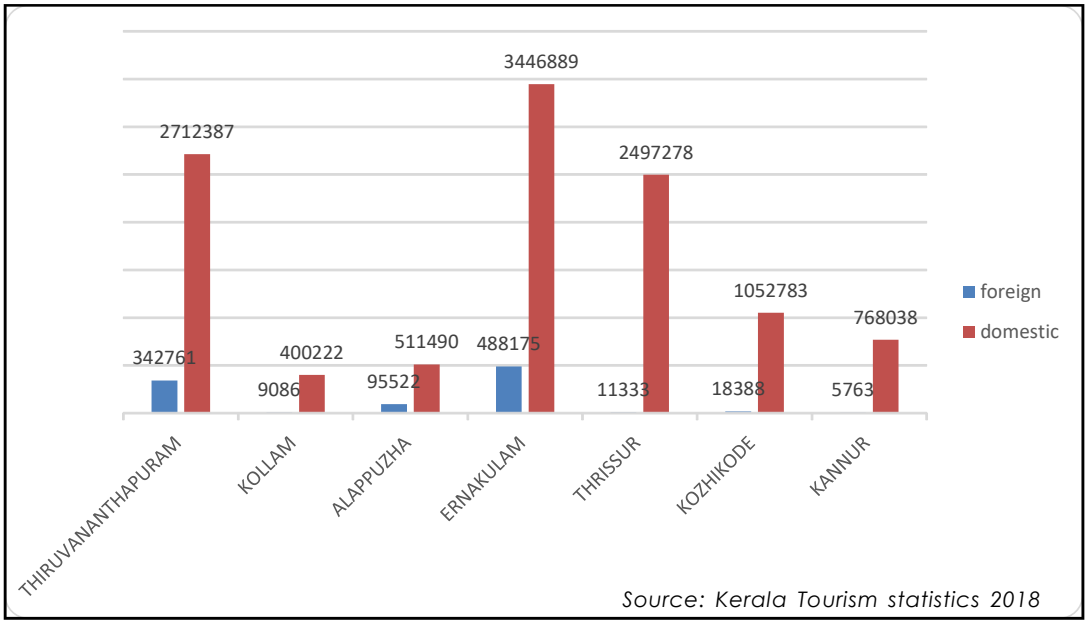
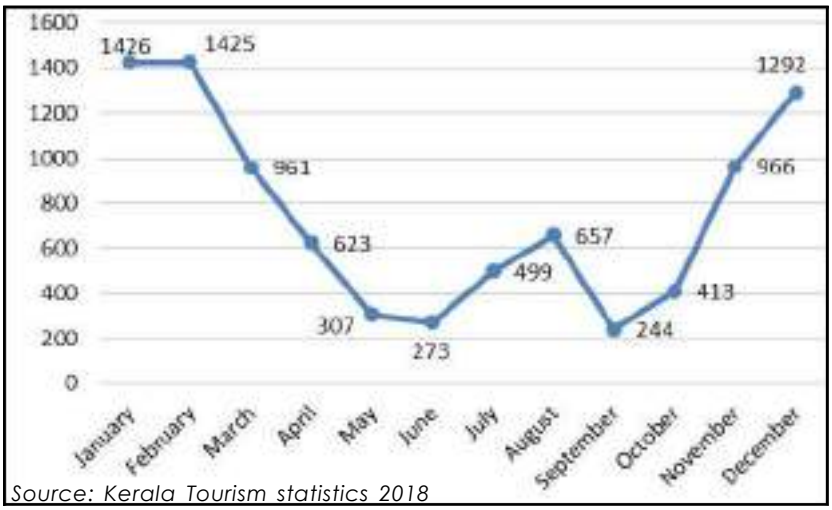
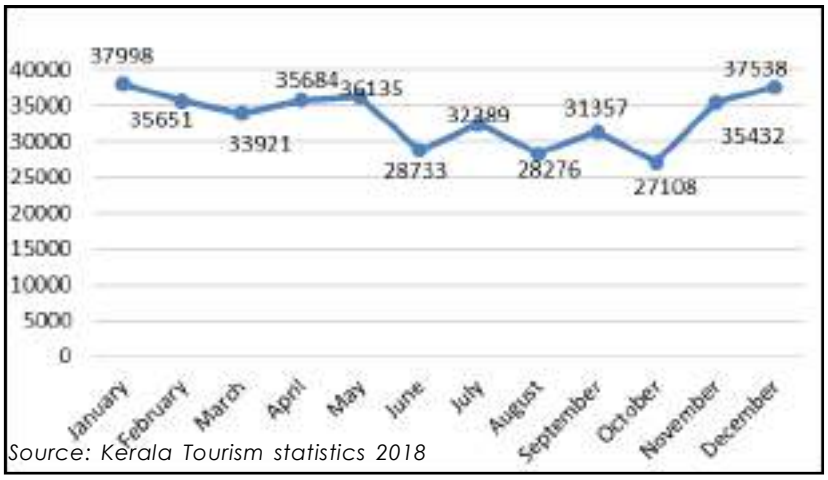


Figure. 8.2 Comparison of both domestic and foreign tourist arrival of Kollam District with other tourism potential districts in Kerala



Source: Kerala Tourism statistics 2018

Figure 8.3 Month-wise foreign tourist arrival in Kollam District

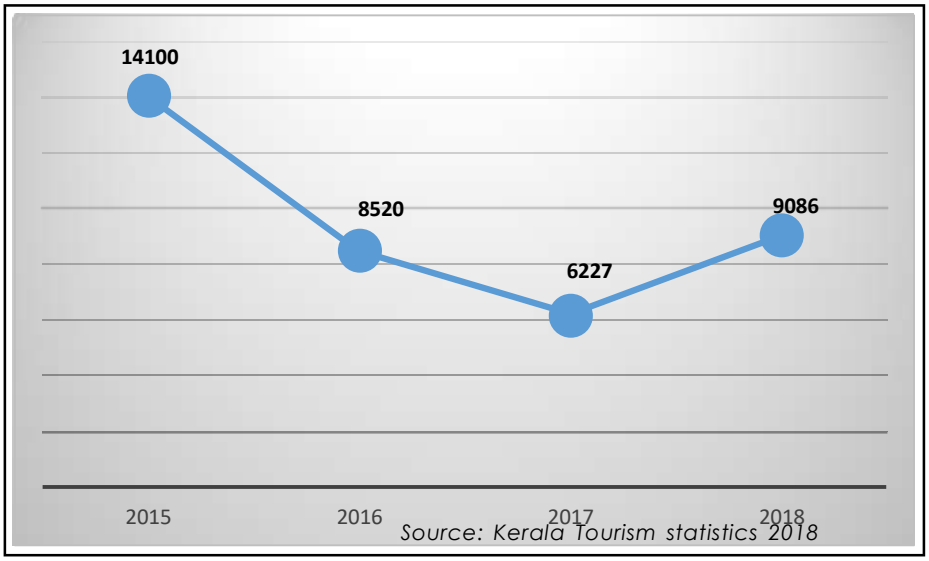


Source: Kerala Tourism statistics 2018

Figure 8.4 Month-wise domestic tourist arrival in Kollam District

shows the number of foreign tourists arriving in Kollam District from 2015 to 2018. From the figure it is seen that there is a reduction in the flow of foreign tourist arriving to Kollam for the last three years. However, there is an increasing trend during 2017-2018. As KLMC is the prominent tourist destination in the district it is assumed that the trend is the same for the KLMC area also.

Figure 8.6 shows the number of domestic tourists arrival in Kollam



Source: Kerala Tourism statistics 2018

Figure 8.5 Development trend in foreign tourist arrival at Kollam District

District from 2015 to 2018. From the figure it is seen that there is considerable growth in domestic tourist arrival in Kollam District.

8.3 INFRASTRUCTURE

8.3.1 Accommodation

KLMC area has the following types of accommodation facilities for tourists.

- Hotels, Resorts
- Homestays
- Ayurveda centers

Total number of rooms available in the district is 2727 as shown in table 8.1. Important hotels which provide accommodation to tourists are listed below.

- Govt. Guest House, Asramam
- PWD rest house, Chinnakada
- Raviz Resort & Spa Ashtamudi Thevally
- All season's Hotels, Thevally
- K.T.D.C Tamarind Easy Hotel Asramam
- Hotel Sea Bee, Jetty Road,Kollam
- Nani Hotels & Resorts, Opp. Clocktower
- Hotel Karthika Main Road, Kollam
- Hotel Sudarsan Parameswar Nagar,Kollam
- The Quilon Beach Hotel & Convention Centre

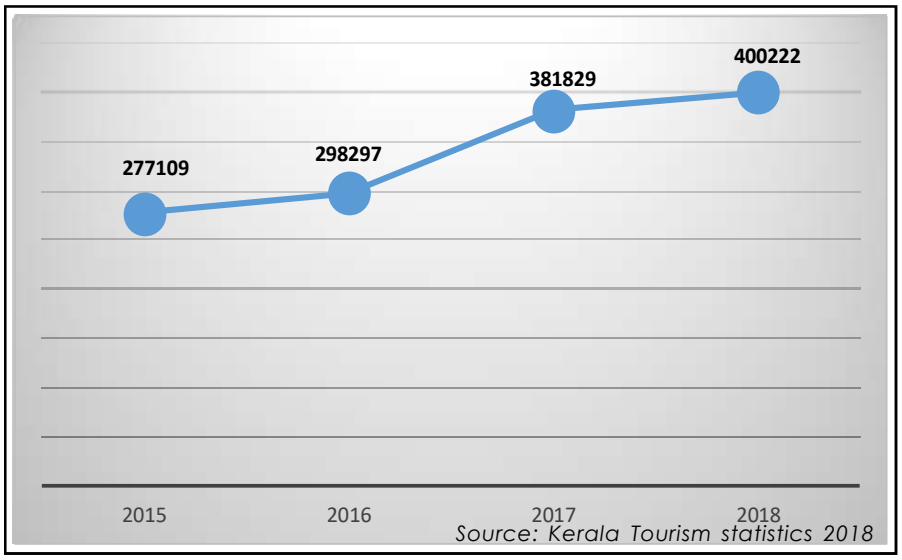


Figure 8.6 Domestic tourist arrival in Kollam District

District	Single		Double		Suit	Dormitory	Other	Total
	A/C	Non A/C	A/C	Non A/C				
Kollam	47	615	800	960	95	21	189	2727

Source: Kerala Tourism statistics 2018

Table 8.1 Available number of hotel rooms in Kollam District

8.3.2 Tourist Information Centre

One tourist information Centre in Kollam is located opposite to KSRTC bus stand.



8.3.3 Boating Facilities

District Tourism Promotion Council, Kollam (DTPC) offers innovative and customized backwater cruise packages. Kollam DTPC near the boat jetty has 8 Houseboats offering various journey packages as follows.

Round the Trip Cruise (Ordinary packages):

This houseboat cruise covers various islands in the Ashtamudi backwaters for the entire day. The package includes lunch.

Round the Trip Cruise (special package)

A houseboat cruise that covers various islands in the Ashtamudi backwaters for the entire day. The package includes lunch.

See & Sleep cruise

A day cruise with an overnight stay in blue water. This package includes dinner and breakfast.

Star night cruise

A houseboat cruise covering sunset hours in the backwaters & watching the starry night. This package includes dinner and breakfast.

Gateway city Packages

The Gateway City Packages connect the backwater cities in Kerala viz. Kollam/Alappuzha/ Kumarakom/ Kottayam & Kochi through the Kollam DTPC prestige houseboat cruises.

Kollam-Kollam

This is one full day & night stay and the duration of the trip is 22 hrs. If the trip starts at 11 am. from Kollam it will end back at Kollam by the next morning at 9 am.

Kollam – Amrithapuri

Timing: 10.00 am. to 03.00 pm

Kollam – Alappuzha

This is one full day one-way trip and the night stay package starts at 11.00

am to 09.00am.

Kollam-Alappuzha-Kumarakom/ Kottayam

This is a two-day city package with a night stay. The trip starts at 11.00 am to 04.00 pm.

Kollam-Alappuzha-Kochi

This is a two-day city package with two-night stays.

Route of trip from Kollam Boat jetty

Boat trips are available for the following routes.

- Kollam-Munroe Island
- Kollam –Alappuzha
- Kollam – Sambranikodi (TS Canal)

8.3.4 Transport Facilities

Public transport facilities in KLMC area for connecting various tourism points are minimal. In the case of beaches though public transport is available to Kollam beach, Thangassery beach and Thirumullavaram beach transport facilities are not adequate. Mundakkal beach is not connected by public transport. However Asramam area is accessible through public transport. For other destination tourists depend on other modes of transportation to reach there. For exploring Ashtamudi Lake and backwater beauty there are many private and public water transport facilities available. Once the redevelopment of National Water way III (NW-III) there will be tremendous scope in inland water transportation to boost the tourism activities in KLMC area. In order to revive the canal and make the stretch navigable and extend the National Waterway III up to Kovalam, dredging, widening, and reinforcement works need to be done. The proposal is to create a 14m wide, 2m deep waterway on the 12.7 km stretch for the vessels to cruise.

8.4. TOURISM CIRCUITS

Kollam acted as the transit zone for tourists in between Kochi and Thiruvananthapuram for a long period. Now Kollam won its own place on the tourism map. To achieve further developments in the tourism sector, development of tourism networks and infrastructure facilities are required. Figure 8.7 shows the details of the tourism network of Kollam and KLMC area.

8.5 DEVELOPMENT ISSUES

Even though tourism products in the form of beaches, backwaters, and heritage precincts are available in the district, Kollam is not fully developed as a tourism destination due to so many issues. Major issues are listed below.



Fig. 8.7 Tourism circuits in Kollam District and KLMC area

Lack of full-fledged tourism circuits

One of the main reasons for not flourishing tourism sector in the district as a whole and also in planning area is the lack of strong circuits connecting different tourism products. Due to the absence of well developed circuits, the length of stay of tourists could not be increased. There is enough potential to develop local circuits fully confined within the planning area and also circuits connecting other tourism attractions within the district as well as other districts.

Absence of deliberate attempts to showcase the products.

Many tourism products such as beaches, back waters, heritage precincts, traditional and cultural values, lakes etc. are not developed to the desired level of attracting domestic as well as foreign tourists. Maintenance of tourist spot is not found proper. Even though each type of tourism product can be branded by assigning suitable theme, deliberate attempts for value addition of all the available products are not done so far. Ashtamudi Lake which may be

considered the queen of eco-tourism spots in the district still remains as inaccessible as private land holdings along the banks do not permit public to reach the banks and experience the natural beauty of Ashtamudi.

Encroachment and pollution of waterbodies and other public places

With the development of rail and road transport networks, Kollam thodu became dysfunctional. The Kollam thodu now remains choked, and the much-publicized revival project has done nothing to change its state of condition so far. Slaughter house near Kollam thodu near Iron Bridge raised environmental issues. Water pollution by dumbing solid and liquid waste has completely destroyed the magic beauty of this water body. Shrinking of Kollam thodu due to the encroachment of nearby land owners needs to be restored fully so that it can act as a well-defined and clean water body attracting tourists.

Over the years, Ashtamudi lake became a dumping ground for garbage, hospital and abattoir waste, and even sewage. Though efforts for removing waste and preventing waste dumping into the lake have intiated by Kollam Municipal Corporation in association with all grama panchayats by the side of Ashtamudi under the slogan "Jeevananu Ashtamudi Jeevikkanam Ashtamudiyk". Continued projects and programs are required to be implemented for preventing waste dumping and thereby maintaining the aesthetics of the lake. Presence of a large number of kuttivalas erected at various locations in Ashtamudi Lake prevents the tourist boats from going closer to the fishermen villages. Dumping of waste along the roadside and low-lying areas still continue as eyesore to the tourists.

Other specific development problems in the tourism sector are listed below.

Issues related to Thirumullavaram beach.

- Thirumullavaram is one of the most promising beaches due to the



Waste dumping along the banks of Kollam thodu

absence of tidal forces, availability of flat terrain and scenic beauty. But dumping of big boulders to protect the coastal area prevents the tourists from entering the beach.

- Lack of promotional activities and infrastructure.
- Improper maintenance of most tourist destinations discourage tourists.
- Public transport facilities including NMT are not fully developed for promoting tourism.