MASTER PLAN

FOR

OTTAPPALAM TOWN

Prepared by

OTTAPPALAM MUNICIPALITY

LOCAL SELF GOVERNMENT DEPARTMENT (PLANNING), GOVERNMENT OF KERALA

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OTTAPPALAM MUNICIPALITY
LOCAL SELF GOVERNMENT DEPARTMENT (PLANNING)
GOVERNMENT OF KERALA

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FOREWORD

In the last two decades our towns have been growing rapidly. The rapid growth of town brings prospers and concern over the future. This leads to the concern on planned growth of the town. A peek into the history of Ottappalamdoes show its congruence with urbane nature as well as a rich socio-cultural history.

It is not unknown that a planned growth and a sustainable development requires the input of not only various stakeholders but experienced professionals. Ottappalam is no less hungry in her growth ambitions and surely wishes to grow leap and bounds.

The Town and country planning department has done a fruitful job in assisting us with their expertise as per the mandate GO (Rt) No 1376/2012/LSGD dated 17.05.2012. The master plan for Ottappalamhas come out with a slew of innovative ways to solve the current problems especially in addressing the decongestion of central area of the town and spatial allocation for infrastructure facilities.

It is indeed a delight in having been a part of this comprehensive, taxing yet fruitful product. This wonderfully crafted document is an outcome of several iterations of extensive consultations between the Town& country planning department and various stakeholders including the Spatial integration committee (SIC) that was formed within the Municipal council.The SIC were able to chip in the ground facts for a better understanding of the problems. The physical infrastructure sector, economic aspects and social infrastructure were scrutinised for its underlying problems and solutions to propel the growth momentum for the next twenty years were formed.

Every effort has been taken to tap the maximum potential that this municipality has to offer for the future development course. It is imperative to note that no development can happen in silos, and to realise this document into fruition we need the active participation of all stakeholders. A participative, proactive development of the maximum populace should be our motto. I am sure all the beneficiaries will pitch in to make this a reality.

Janakidevi

JANAKI DEVI

Chairperson
OttappalamMunicipality

Ottappalam
Date :18/04/2022

PREFACE

Urban areas have been the driving force in economic and social development. Cities emerged as a focal point of transport, trade, business, education, religion and governance. Unprecedented urbanization and migration result in multifold growth of urban areas. Large resources are spent on the development of various urban settlements but the condition of these towns continues to deteriorate because of piecemeal nature of expenditure and lack of definitive development schemes. Adhoc efforts neither result in better environment nor strengthen the economic base.74th Constitution Amendment Act envisages empowerment of the Urban Local Bodies (ULBs) with planning functions, which is enshrined in the Twelfth Schedule to Article 243 – W of 74th Amendment. The first three functions - urban planning including town planning, regulation of land-use and construction of buildings, planning for economic and social development related to spatial planning.

Master Plans are expected to give impetus to the development and economic potential of the towns. In view of this, Government of Kerala has undertaken the preparation of the Master Plans for all towns in a phased manner which envisages total development of these towns. In the first phase, Master Plans for 32 towns were prepared. The district headquarters, Palakkad Municipality had been taken up in that phase which was followed up by second phase of preparation of Master Plans for 29 towns as per Go. (Rt)No 1376/2012/LSGD dated 17/5/2012 in which Master Plan preparation for Ottappalam Town was included. The studies involved in the preparation of Master Plan for Ottappalam Town have concern to the areas crucial to planning and development of the region. Essentially in this Draft Master Plan, the issues that are regarded as very crucial in framing the development proposals to achieve better living and economic conditions in the urban areas, have been considered after carefully weighing the opportunities and constraints offered by the town. The comprehensive efforts have established a framework for physical and socio-economic development and upliftment of the town its constituent elements and the development policy mechanism by which these goals can be achieved.

I would like to appreciate the leadership provided by the Ottappalam Municipality for this endeavour under the chairmanship of Smt. Janaki Devi. I also like to appreciate the former chairpersons Smt. P Parukutty, Smt.Subaida and the former Chairman Sri N. M. Narayanan Namboodiri, are reckoned with gratitude which was crucial in the time bound preparation of this Plan. The contributions of the Spatial Integration Committee constituted for the preparation of the Master Plan as well as the Working Groups were significant in the task. I take this opportunity to appreciate the officials of the Palakkad District office of the Town and Country Department, especially Smt. Deepa V.P, District Town Planner and Sri. Renjith K.S, former Deputy Town Planner, for their sustained efforts in the time bound preparation of this plan. The State Project Cell played anchor role in this regard, right from conceptualization to completion. I also appreciate the consistent efforts of officials of the State Project Cell. I also appreciate the officials of the circle for their efforts in vetting and finalizing the Master plan for Ottappalam town. Certainly, the Master Plan for Ottappalam town will provide a vision for use by all agencies with an interest in the future development of Town.

Prasanth H.
Chief Town Planner (Planning)
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Thiruvananthapuram
03/09/2022

OFFICE OF THE CHIEF TOWN PLANNER
THIRUVANANTHAPURAM

ACKNOWLEDGEMENTS

The master plan delivers a coordinated strategy to guide future development, transport and public utility investments over the next 20 years to ensure our town as safe, attractive and a continued source of pride. The preparation of the Master Plan for Ottappalam Town was started in July 2012 as per Go. (Rt)No 1376/2012 /LSGD /dated 17.5.2012 under Phase II programme for Scheme of preparation of Master Plans and Detailed Town Planning Schemes.

The process of preparation of this Master plan included extensive data collection, local level and spatial analysis of collected data, identification of problems and potentials, envisaging the future integrating the results of scientific analysis and the aspirations of people and finally transferring that vision into a Plan. Considering the intricacy of the details involved and multi-disciplinary 'technical knowhow' required, the plan preparation process would not have been realized without the dedicated leadership of the local government and the participation of various stake holders. In this regard, I am sincerely acknowledging thevaluable guidance and involvement of Municipal Chairperson **Smt. Janaki Devi** and the former Chairman**Sri.N. M. Narayanan Namboodiri,**the former Municipal Chairpersons**Smt.ParukuttyP&Smt. P. Subaida**during the preparation of Ottappalam Master plan. I gratefully acknowledge the contributions of all councillors of the Municipality for their support.

Further, I am extremely grateful to the encouraging leadership, support and motivation extended by our department head, **Sri.Pramod Kumar C.P**, Chief Town Planner, and**Sri. Prasanth H.** Chief Town Planner (Planning) beyond which the plan would not have been realized in time. The plan was finalized after a series of discussions, revisions, editing and modifications. I would like to thank all those who have participated in the discussions and moulding of the plan to the present stage. In this connection, I am extremely thankful to **Sri. Giji George, Smt.K.S.Girija** (Former Chief Town Planners), **Sri. Jayakumar J** (Additional Chief Town Planner) and **Smt.Usha Kumari P.R** (Former Senior TownPlanner)for their immense support, creative guidance, valuable assistance and efforts taken for carving and vetting the plan. I also express my deepest gratitude for the creative and valuable advice extended by Smt. Asha Ajoy Ghosh Town Planner and other officials of office of Chief Town Planner (Planning)

The dedicated effort put by **Sri. K. M.Gopakumar, Sri. V.K.Mohandas and Sri. V.A. Gopi** during their respective tenure in the capacity of District Town Planner for the successful timely completion of the plan need special acknowledgement.

Special thanks also go to all Department persons who gave their valuable support without which the compilation of this vital documentwould have been difficult to realize. The plan has been prepared in a participatory way having several consultations with Stakeholders at all stages. I offer special thanks to members of SIC, working groups and other stakeholders for offering their views, comments and recommendations in developing the plan. I would like to extend special thanks to the residents and people of Ottappalam Municipality who provided substantial input that helped to shape the Ottappalam Master Plan vision for future generations to enjoy.

Ottappalam Master Plan preparation is the culmination of several months of dedicated work by the Planning team members.Isincerely appreciate the dedicated efforts of **Sri Renjith K.S**, Deputy Town Planner for heading the planning team. **Sri Subash A N,** Assistant Town Planner have spear-headed office and field activities in the project. The assistance offered by the statistical wing of this office is also remarkable. I extend my sincere gratitude all members of planning team, special mention to **Sri.Govind Ramdas, Smt.Chaithanya M, Sri Harishankar M,Sri.Ashar Salih Planning Assistants, Smt.Syamini C, GIS Assistant and Smt.Sheeja V, Smt.Ambili V, Computer assistants who involved in the various stages of plan preparation.**

Finally, but not the least, special thanks to all staffs of District office for their tireless efforts without which this plan would not have been completed.

Deepa V.P.
Town Planner

Palakkad
18.04.2022

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LIST OF SYMBOLS AND ABBREVIATIONS

ADS	Area Development Society
AC	Asbestos Cement
AD	Anno Domini
ADS	Area Development Society
ARWSS	Accelerated Rural Water Supply Scheme
AT & C	Aggregate Technical and Commercial
ATM	Automatic Teller Machine
AUWSP	Accelerated Urban Water Supply Program
BOD	Biological Oxygen Demand
BOT	Build, Operate and Transfer
BPL	Below Poverty Line
BPL	Below Poverty Line
BRGF	Backward Regions Grant Fund
BSNL	Bharath Sanchar Nigam Limited
BSY	Balika Samrithi Yojana
BW	Bore well
CAA	Constitution Amendment Act
CAGR	Compounded Annual Growth Rate
CBD	Central Business District
CBD	Central Business District
CBO	Community Based Organization
CBSE	Central Board of Secondary Education
CC	Cement Concrete
CDP	City Development Plan
CDS	Community Development Supervisor
CESS	Centre for Earth Science Studies
CFL	Compact Fluorescent Lamp
CHC	Community Health Centre
CI	Concentration Index
CNC	Computer Numerical Control
CPHEEO	Central Public Health Environmental Engineering Organization
CT	Computerized Tomography
D& O Trade	Dangerous and Offensive Trade
DIC	District Industrial Centre
DMS	Data Management System
DPR	Detailed Project Report
DRW	Drought Relief Work
DTP	Detailed Town Planning
DTPC	District Tourism Promotion Council
DWCUA	Development of Women and Children in Urban Areas
DYSP	Deputy Superintendent of Police
E - Coli	Escherichia coli
ECG	Electro Cardio Gram
EDEICD	Early Detection And Early Intervention of Childhood Disabilities
EEG	Electro Encephalon Gram
EIUS	Environmental Improvement in Urban Slums
ENT	Ear, Nose and Throat
ESA	Environmental Sensitive Areas
ESI	Employees State Insurance
EWS	Economically Weaker Section
FFDA	Fish Farmers Development Agency
FOP	Financial Operating Plan

FY	Financial Year
GLSR	Ground Level Storage Reservoir
GLSR	Ground Level Storage Reservoir
Gm	Grams
GO	Government Order
GOI	Govt.of India
GOI-UNDP	Govt.of India- United Nations Development Programme
GOK	Government of Kerala
GP	Grama Panchayat
gpcd	Grams per Capita per Day
GPF	General Provident Fund
GPS	Global Positioning System
GPS	Global Position System
GWT	Ground Water Table
H_2S	Hydrogen Sulphide
Ha	Hectares
hect	Hectares
HH	Households
HP	Horse Power
HS	High School
HS	Health Supervisor
HSC	House Service Connection
HSS	Higher Secondary school
HT	High Tension
HUDCO	Housing and Urban Development Corporation
ICDS	Integrated Child Development Scheme
ICSE	Indian Council of Secondary Education
ICU	Intensive Care Unit
IDDP	Integrated District Development Plan
IDSMT	Integrated Development for Small and Medium town
IGMSY	Indira Gandhi Mathruthva Sahayog Yogana
IHSDP	Integrated Housing and slum Development Project
ILFS	Infrastructure Leasing & Financing Society
IMAGE	Indian Medical association Goes Eco friendly
IP	In Patiant
IPSASB	International Public Sector Accounting Standards Board
IPT	Intermediate Public Transport
IRCTC	Indian Railway Catering and Tourism Corporation
ISP	Integrated Sanitation Program
IT	Information Technology
ITC	Industrial Training Centre
ITES	Information Technology Enabled services
ITI	Industrial Training Institute
IWEP	Integrated Women Empowerment Programme
JN	Junction
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KFDC	Kerala Film Development Corporation
kg	Kilograms
KILA	Kerala Institute of Local Administration
KINFRA	Kerala Infrastructure Development Corporation
KMs	Kilometre
KPCB	Kerala State Pollution Control Board
KSEB	Kerala State Electricity Board
KSRTC	Kerala State Road Transport Corporation

KSTP	Kerala State Transport Project
KSWDC	Kerala State Women's Development Corporation
KSY	Kishori Sakthi Yojana
KUDFC	Kerala Urban Development Finance Corporation
KVA	Kilo Volt Ampere
KW	Kilo Watt
KWA	Kerala Water Authority
KWH	Kilo Watt Hour
LCS	Low Cost Sanitation
LDP	Local Development Plan
LED	Light-Emitting Diode
LIC	Life Insurance Corporation
LIG	Low Income Group
LIS	Lift Irrigation scheme
Lit	Liters
LL	Lakh Liters
LP	Lower Primary
lpcd	Liters Per Capita Per Day
LPG	Liquefied Petroleum Gas
LSGD	Local Self Government Department
LSGI	Local Self Government Institution
LSGs	Local self Governments
LSN	Lady Sankaran Nair
LT	Low Tension
m	Meters
MCW	Maternity and Child Welfare
MDR	Major District Road
METIND	Metal Industries Limited
ML	Million Liters
MLA	Member of Legislative Assembly
MLD	Million Liters per Day
MoEF	Ministry of Environment and Forest
MoUD	Ministry of Urban Development
MP	Member of Parliament
MSL	Mean Sea Level
MSW	Municipal Solid Waste
MT	Metric Tonne
NABARD	National Bank for Agricultural and Rural Development
NATPAC	National Transportation Planning and Research Centre
NCD	Non Communicable Disease
NGO	Non-Governmental Organizations
NH	National Highway
NHAI	National Highway Authority of India
NHED	Nutrition and Health Education
NHG	Neighborhood Group
NICU	New Born Intensive Care Unit
NMAM	Model National Municipal Accounting Manual
NNM	National Nutrition Mission
Nos	Numbers
NPAG	Nutrition Programme for Adolescent Girls
NRW	Non-Revenue water
NSDP	National Slum Development Program
NSS College	Nair service Society College
NSSKPT	Nair Service Society Kuthiravattathu Prabhakara Thambhan

NUIA	National Institute of Urban Affairs
O&M	Operation & Maintenance
O-D	Origin & Destination
OG	Out Growth
OH	Over Head
OHSR	Overhead Service Reservoir
OHT	Overhead Tank
OP	Out Patient
PCU	Passenger Car Unit
pH	Potential of Hydrogen
PHC	Primary Health Centre
PMRY	Prime Minister's Rozgar Yojana
PPP	Private Public Participation
PSP	Public Stand Post
PSU	Public Sector Undertaking
PTA	Parent Teacher Association
PVC	Poly Vinyl Chloride
PWD	Public Works Department
R&D	Research and Development
R-APDRP	Restructured Accelerated Power Development and Reforms Programme
RBMC	Right Bank Main Canal
RCC	Reinforced Cement Concrete
RFPF	River Forest Protection Fund Scheme
RGGVY	Rajiv Gandhi Grameen Vidyutikaran Yojana
RMF	River Management Funds
ROB	Road Over Bridge
RWSS	Rain Water Supply System
SC	Scheduled Caste
SCADA	Supervisory Control and Data Acquisition System
SFC	State Finance Commission
SH	State Highway
SHG	Self Help Group
SIC	Spatial Integration Committee
SIDCO	Small Industrial Development Corporation
SIFL	Steel Industrial Forgings Ltd
SJSRY	Swarna Jayanthi Shahari Rozgar Yojana
SNP	Supplementary Nutrition Program
SPAC	State Plan of Action for the Child in Kerala
SPEM	State Poverty Eradication Mission
SPM	Suspended Particulate Matter
Sq. km	Square Kilometers
SSA	Sarva Siksha Abhiyan
SSI	Small Scale Industries
ST	Scheduled Tribe
STP	Sewage Treatment Plant
SVL	Sodium Vapour Lamp
SWM	Solid Waste Management
T &CS	Thrift and Credit Societies
TB	Town Bus stand
THRS	Take Home Ration Scheme
TPD	Tonnes per day
TTC	Teachers Training Centre
TWSS	Town Water Supply Scheme
UA	Urban Agglomeration

UDPFI	Urban Development Plan Formulation and Implementation
UGD	Underground Drainage
UIDSSMT	Urban Infrastructural Development Scheme for Small & Medium Towns
UK	United Kingdom
ULB	Urban Local Body
UNESCO	United Nations Educational, Scientific and Cultural
UP	Upper Primary
USEP	Urban Self Employment Program
UST	Urban Skill Training
UWEP	Urban Wage Employment Program
V/C	Volume to Capacity
VAMBAY	Valmiki Ambedkar Awas Yojana
W	Watts
WBM	Water Bound Macadam
WPR	Work Participation Rate
WSS	Water Supply Scheme
WTP	Water Treatment Plant

1. INTRODUCTION

1.1 THE CITY IN BRIEF

Urban planning plays an important role in shaping a city. Without prior or appropriate planning, the city may grow or change in an obstreperous manner due to social, economic and environmental changes. Such changes are of course fundamental in planning. Towns in the past have not received much attention in terms of their planning, development and management despite the fact that cities and economic development are inextricably linked. Planning to provide for present needs and future growth has been an important task of urbanization and urban development. Development Planning and Control mechanisms in the cities and towns calls for comprehensive Master Plan for orderly, systematic and efficient development and usage of all land within the urban area. A Master Plan is comprehensive document keeping in view of the long term requirement of the town. This document will help in assessing the long term requirements both in physical and financial terms and shall act as a vision document for all future activities of Ottappalam Municipality.

Palakkad is one of the fourteen revenue districts of Kerala. Its geographical position, historical background, rural nature, educational status, tourist attractions and above all, the developmental activities are wide and varied. Palakkad situated almost in the centre of the state and opens the state to the rest of the country through the Palakkad gap. This 32 to 40 kilometers wide natural gap in the western ghats is perhaps the most influential factor for the unique characteristics of the district such as climate, commercial as well as cultural exchanges between the state and the rest of the country. Palakkad district is bordered on the northwest by the Malappuram district, on the southwest by the Thrissur district and the east by the coimbatore district of Tamilnadu state. The geographical area of the district is 4480km² which is 11.5% of the state's area. The district is one of the main granaries of Kerala and its economy is primarily agricultural. The proximity and easy approach to Tamilnadu have caused the blend of Malayalam and Tamil cultures here.

Ottappalam town located on the banks of Bharathapuzha has a historic background as old as urbanisation history forms in Kerala. Ottappalam is a municipal town in Palakkad District which is the revenue divisional and Taluk headquarters of Ottappalam and Mannarkkad Taluk. Formerly the municipality was cultural capital of Valluvanad taluk in Malabar District. World civilisation had grown up in the cradle of river bank. So naturally this land which in the bank of river Nila might to be a center of primitive agricultural society. During that time there were plenty of paddy, plantain tree, coconut tree, mango tree and many other trees. Location of Ottappalam Municipality is shown in Fig 1.1

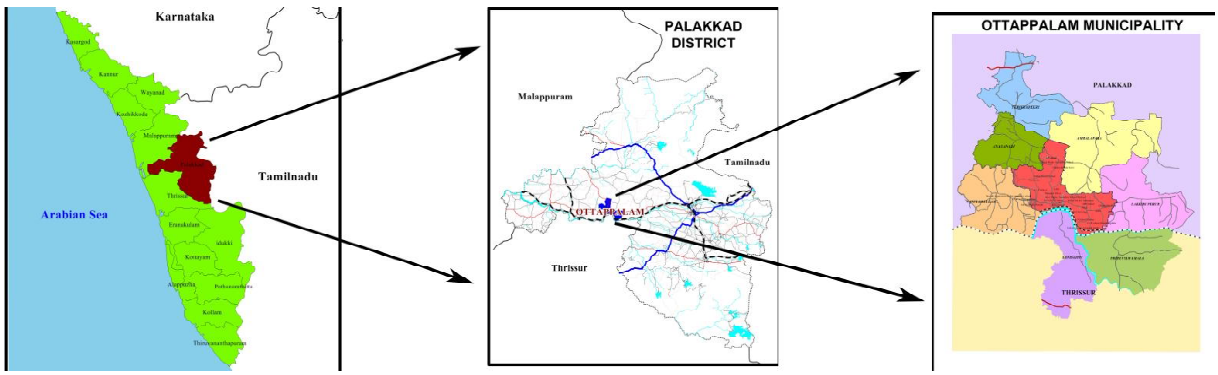


Fig 1.1 Location of Ottappalam Municipality

1.2 EARLIER PLANNING EFFORTS AND STUDIES

The earlier planning effort in this area can be addressed in two levels i.e. district level and town level.

1.2.1 District Level

The decentralized planning system was implemented in India through the 73rd, 74th constitutional Act of India on December 1992. Accordingly the Kerala State legislative assembly enacted the Kerala Panchayath Raj Act 1994 and the Kerala Municipality Act 1994 repealing the previous Acts. The 74th Amendment Act of the Constitution of India mandated District Planning Committee to prepare a draft development plan for the district. As per the rule 243 ZD of the constitution; the District Planning Committee shall consolidate Panchayath/ Municipality Plans in the district and prepare a draft development plan for the district as a whole. By realizing the above fact, Government have accorded sanction to prepare an Integrated District Development Plan (IDDP) and Local Development Plan (LDP) for Palakkad district vide Order No.354/07/LSGD dated 01.02.2007. The District Planning Committee of Palakkad decided vide decision dated 26.05.2007 to prepare an Integrated District Development Plan (IDDP) Palakkad along with local development plan (LDP) for each and every local Governments in the district in an integrated manner. The District Planning Committee in its meeting held on 31.12.12, approved IDDP for Palakkad. Kerala Town and Country Planning Ordinance 2015 gives a statutory backing to the preparation of Perspective Plan for District as per section 13.

1.2.2 Town Level

Interim Development Plan for Ottappalam Municipality was prepared in 1998. The development plan aims at preparing a broad framework for future development of the town in a planned manner. The plan also aims to de congest the central area of the town by widening of existing narrow roads and providing bye-pass roads and also shifting the commercial activities from the central area. The location and spaces for different infrastructure facilities in the town are identified in this plan. This also identified projects which the local body can include in their annual plans for implementation. There are three Detailed Town Planning schemes covering central CBD area viz, DTP Scheme for Central area Ottappalam, DTP Scheme for Central area (West) and DTP Scheme for Taluk Hospital and Environs. DTP Schemes were published in 1994.

1.2.3 Review of Town Planning Schemes

Review of Interim Development Plan

Demography

An Interim Development Plan was prepared (not published) taking base population of census 1991 and the population was projected for 2001, 2011. The total population of Ottappalam town was 44186 as per the 1991 census report which was 1.85 % of the total population of Palakkad District. The projected total population for the year 2001, 2011 were 51462, 59491 respectively. The actual population of the town in 2001, 2011 were 49242, 53735 respectively which were below than anticipated .

Occupational Structure

Projected WPR for 2001, 2011 were 29.28% ,30.28% respectively ,but actual WPR were 30.64 in 2001, 32.92% in 2011. More thrust was given to primary and secondary sector. But workers in Tertiary sector increased to 78% in 2001 and then to 90% in 2011 as against the anticipated rate of 46% in 2001 and 53% in 2011.

Land USe

Table 1.1 Evaluation of proposed land use in interim development plan for Ottappalam town,1998

Land use	Proposed land use 2011(km2)	Percentage	Existing land use 2012 (km2)	Percentage
Residential	2075.83	63.51	1882.43	57.59
Commercial	18.72	0.57	23.78	0.73
Public & Semi Public	55.84	1.71	93.77	2.87
Industrial	8.20	0.25	28.66	0.88
Park and open spaces	3.95	0.12	1.07	0.03
Transport & Communication	142.49	4.36	164.66	5.04
Commercial & residential	64.99	1.99		0.00
Industrial & Residential	14.48	0.44		0.00
Paddy field	581.42	17.79	722.74	22.11
Waterbodies	161.20	4.93	76.81	2.35
Forest	141.27	4.32	141.27	4.32
Vaccant		0.00	133.42	4.08

Source : Interim development plan for Ottappalam town,1998, Land Use Survey 2012

Table 1.1 explains comparison of land uses proposed as per Interim Development Plan for Ottappalam Town 1998 and existing land use 2012 to assess the extent to which changes occurred in land use. Since Municipality did not control land uses as per the interim development plan, the growth of the town was natural one. The existing land use classification for the Master Plan area obtained by land use survey conducted in 2012 is taken for comparison. Increase in commercial, public and industrial land uses are seen and shows decrease in area of water bodies.

Interim Development Plan envisaged small scale agro based industries , timber based industries etc and 8.20 hectors of land was kept apart for industrial development alone , 14.48 hectors for mixed use of residential and industrial use in the proposed land use plan for 2021. At present nearly 28 hectors of land is developed for industrial use.

Total area of all existing roads in the town is 69.90 hectare .In the Development plan it was proposed to widen some of the existing roads and also to provide some new roads. The total area of 93.28 hectare is earmarked for road development for this town. The proposed road development plans include the formation of link road from proposed market to railway station, widening of Sundara Iyer road up to the link road from bus terminal, widening of Palakkad Ponnani State Highway, widening of Ottappalam - Mannarkkad road and many other roads. But majority of roads were not developed as envisaged in the interim Development Plan.

Review of DTP Schemes in Ottappalam Town

There are three published DTP schemes in Ottappalam Town and location of scheme areas are shown in Fig1.2. Three DTP schemes are DTP Scheme for Central area Ottappalam, DTP Scheme for Central area (West) and DTP Scheme for Taluk Hospital and Environs.

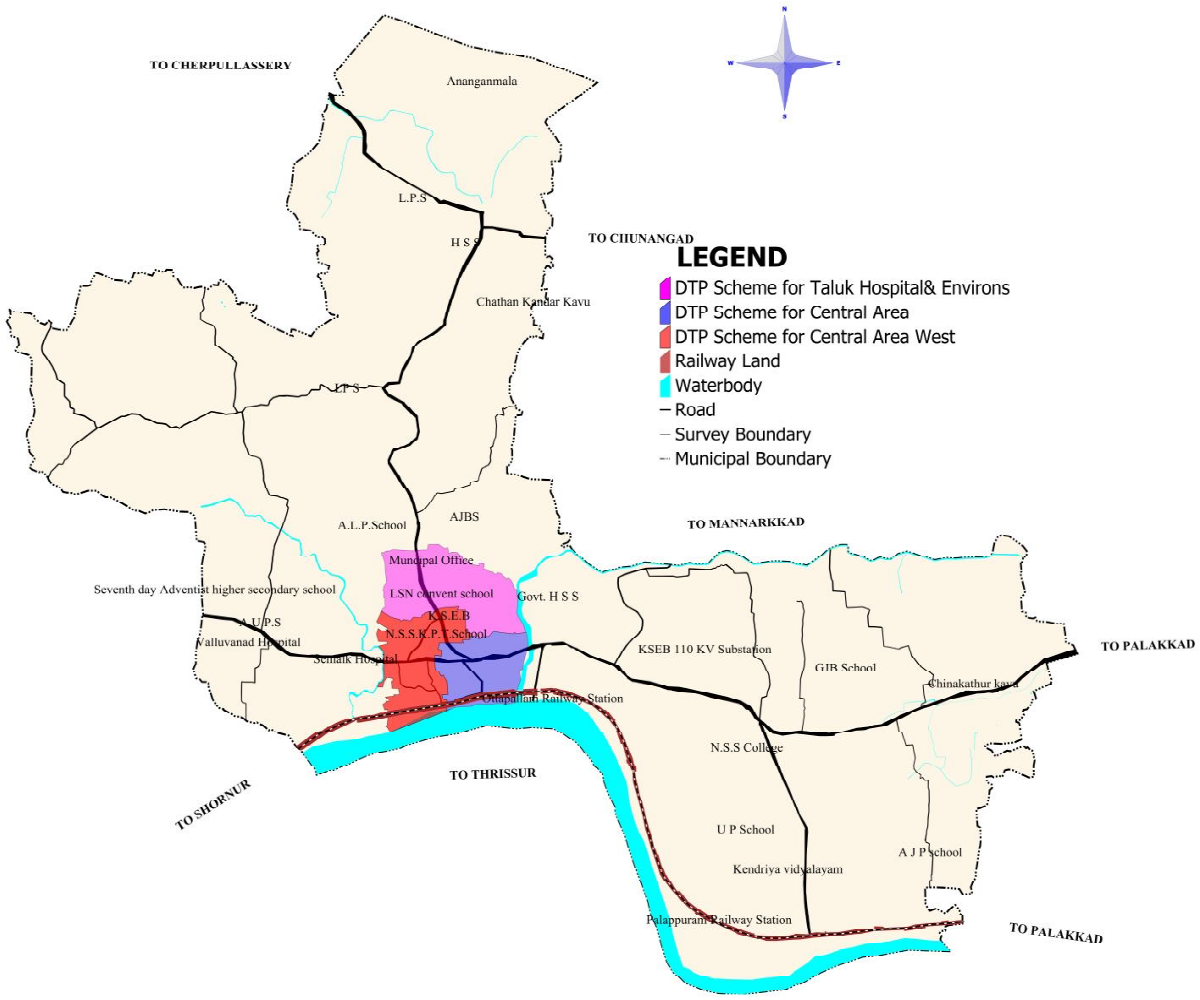


Fig 1.2 Location of DTP schemes in Ottappalam Town

DTP Scheme for Central Area

DTP scheme for Central area was published on 1/9/1994. The area of scheme is 48.00 hectare and it includes CBD area of Town.The major objective of this scheme is the planned development of central area of town. The scheme envisaged a city centre with all commercial and shopping activities to cater the entire town. Major road proposals is a link road of 15m wide connecting Palakkad Shoranur road and Railway station road. Proposal for expansion of bus stand and shopping complex and an area of 0.25 hectatre proposed as taxi –auto stand on the side of proposed 15m link road. An area of 1.70 hectare was proposed for Market facilities near railway station. Other major road proposals are widening of Palakkad – Shoranur road and Ottappalam-Chepulassery road to 22 m. None of the road proposals of the DTP scheme were implemented. It was proposed to acquire 1.50 hectare of land for a full-fledged Municipal bus-stand since it was observed that the existing bus-stand was not enough to cater to the needs of the town. Expansion of existing bus stand works is ongoing. Since the proposed roads are not implemented, the commercial development is not fulfilled according to the proposals.

DTP Scheme for Central Area West

DTP scheme for Central area west was published on 1/9/1994. The area of scheme is 52.30 hect. The major objective of this scheme is the planned development of central area of town. The scheme envisaged a city centre with all commercial and shopping activities to cater the entire town. Major road proposals is a new link road of 15m wide to the proposed commercial cum bus stand complex and a parallel road to Palakkad Shoranur road by widening existing Sengupta road- Palattu road to 18 m and widening of Palakkad – Shoranur road and

Ottappalam- Chepulassery road to 22 m. Other proposals are widening and improving residential access roads to 7 m and Reservation of land for Park and open spaces.

None of the road proposals of the DTP scheme were implemented. Expansion of Taluk hospital did not happen as envisaged in the scheme. Major portion of this scheme area is developed with residential buildings widening and improvement of residential access roads to 7m is one of the major objective of the scheme. These access roads are not widened to 7 m.

DTP Scheme for Taluk Hospital and Environs

DTP scheme for Taluk Hospital and Environs was published on 1/9/1994. The area of scheme is 64.61 hect. The major objective of this scheme is the planned development of activity centre of town comprising Taluk hospitals, Govt Ayurveda hospital, PWD rest house, Municipal Office, Lady Matriculate Convent etc. Major road proposals are widening of existing Palat Senguptha road to 18 M and widening of Ottappalam- Chepulassery road to 22 m. None of the road proposals of the DTP scheme were implemented. Another major proposal is expansion of Taluk Hospital. Expansion of Taluk hospital did not happen as envisaged in the scheme. Major portion of this scheme area is developed with residential buildings. Widening and improvement of residential access roads to 7m is one of the major objective of the scheme. These access roads are not widened to 7 m. Present trend of development is compatible with the proposed land use of DTP scheme.

1.3 NEED FOR MASTER PLAN

Ottapplam Municipality is one among the four municipalities of Palakkad district and functioning as Ottappalam Taluk head quarter. Ottappalam town is also a regional centre for people in the surrounding rural areas and thus provides facilities to support them also. The town centre is presently seen lacking appropriate and effective planning and urban design strategies to support and attract further growth and investment. The Palakkad - Kulappully State Highway passes through Ottappalam, but the town still remains congested with less space for road development and lack of parking spaces. Traffic congestion is at its worst during the peak hours or during festival seasons.

Ottappalam Municipality does not have a sanctioned Master Plan. Municipality has an Interim Development Plan prepared by Department of Town Planning, Kerala in 1998 with a horizon period up to 2011. There are three Detailed Town planning schemes in published stage and not sanctioned by government till date. Hence there is a dire need for a comprehensive Master Plan that provides an overall vision to guide future development of town by wiping out the deficits and exploring the potentials of town.

1.4 LEGAL FRAME WORK FOR MASTER PLAN

As per the section 30 of Kerala Town and Country Planning Ordinance 2015, Notwithstanding anything contained in the Kerala Municipality act,1994 or the Kerala Panchayath Raj act 1994,The Municipal Corporation, Municipal Council, Town Panchayath or Village Panchayath shall have the following additional function "Prepare or get prepared a Master Plan for the Local Planning area or past there of". It contributes sufficient statutory backing to the preparation of Master Plan for town .As per G.O. (Rt.) No.1376/2012/LSGD dated: 17.05.12 Administrative Sanction and Financial Sanction was accorded for the implementation of the second phase of the Scheme of preparation of Development Plans and Detailed Town Planning Schemes which includes Ottappalam Town. The Municipal Council has taken resolution to prepare Master Plan for the town as per resolution No 18 dt 29.6.2012.

As per section 34 of Town and Country planning ordinance 2015, the matters that may be dealt with in the Master Plan are as follows

1. The Master Plan shall be prepared through a participatory process and shall generally indicate the manner in which development of the Local Planning Area shall be carried out and also the manner in which the use of land shall be regulated.

2. The Master Plan may include the following, namely;-

(a) Development Concept and strategy with a long term vision; approximately for a period of 20 years, having regard to the policies and strategies for the Local Planning Area or past thereof concerned as laid down in the Perspective Plan for the State, the Perspective Plan for the district and the Perspective Plan for the Metropolitan Area if any . It may also incorporate goals, objectives, policies, strategies and priorities pertaining to all or some of the sectors of development with focus on spatio-economic development;

(b) Master Plan documents with land use proposals, development control regulations and Plans for infrastructure development; and

(c) Statement of community involvement in the preparation, implementation and monitoring of the Master Plan.

(d) situational analysis including history of development, present status and trend of development , regional context, physiographic and demographic characteristics, influence area and its characteristics including settlement pattern, rural –urban relationship and fringe area developments etc.;

(e) Existing land use;

3. In particular, the Master Plan shall provide for current issues ,prospects and proposals , regarding all or any of the following, namely:-

(i) economic base and employment in sectors like agriculture, trade, commerce and industries in both formal and informal sectors;

(ii) hierarchy of commercial areas, dispersal of commercial activities and related issues;

(iii) dispersal of industries and restriction on specific type of industries in both formal and informal sectors;

(iv) population assignment,space requirement for various activities and designating the use of land for such purposes;

(v) housing, including affordable housing, informal sector housing, resettlement strategy and slum upgradation;

(vi) educational facilities, including specialised education and research centres, health facilities, including specialized hospitals, cultural and religious facilities, public and semi-public institutions;

(vii) system of open space, play fields and recreation areas, conservation areas, ecologically and environmentally sensitive areas, natural hazard prone areas and public gathering grounds;

(viii) transportation covering roads, railways, waterways, pedestrian pathways and related activity centres, parking and terminal facilities, mass transportation system and its integration with activity nodes, integration of land use with activity nodes and land use pattern, airport and seaport etc;

(ix) utilities and services such as water supply, drainage, sewerage, solid waste management, energy, communication, fire protection, cremation and burial grounds, slaughter houses etc;

(x) tourism, environmental conservation, heritage, coastal area development and the like; and

(xi) proposals for Transferable Development Rights, Accommodation, Reservation, Land Pooling Schemes or any other similar technique for promoting planned development;

(xii) development control regulations for promoting and regulating the use and development of land including regulations for natural hazard prone areas, imposition of conditions and restrictions in regard to the building line, open space to be maintained about buildings, Floor area Ratio, coverage, height, number of stories and character of buildings and density of built-up area allowed in specified area, the use and purpose to which buildings or specified areas of land may or may not be appropriated, the sub-division of plots, the discontinuance of objectionable uses of land in any area in reasonable periods, parking spaces, and the size of projections and advertisement signs and the like; and

(xiii) such other proposals for public purpose as may, from time to time, be approved by the Municipal Corporation, the Municipal Council, the Town Panchayat or the Village Panchayat concerned, or as may be directed by the Government or the District Planning Committee or the Metropolitan Planning Committee, as the case may be, in this behalf;

1.5 METHODOLOGY

With the help of guide lines issued by the Government of Kerala in the title "Scheme of preparation of Preparation of Development Plans" the Master Plan preparation process can be divided into many steps listed as follows:

As the first step, existing town planning schemes are to be evaluated to justify the need for a new master plan

A seminar on development can help to analyze stake holder's views on the plan.

1.5.1 Preliminary Efforts

- Constitution of SIC.
- Delineation of planning area.
- Collection of cadastral maps
- Global Position System (GPS) Survey
- Preparation of Digitized maps.

1.5.2 Data collection and Compilation

Two types of data collection are involved

- **Primary data:** Primary data collection involves land use survey, socio economic survey and traffic survey.
- **Secondary data**: Secondary data collection involves sectoral data collection by SIC through working groups.
- **Data Compilation**: Collected data is compiled in specified format so as to make the analysis easy.

The responsibility of secondary data collection and compilation vest with the SIC. The process of data collection and compilation is enriched and monitored by conducting a series of workshops. The District Town Planner ensures that the data collection and compilation are completed within the stipulated time frame even if the SIC fails to accomplish the task within the said time frame.

1.5.3 Analysis

Two types of analysis are done

- **Local analysis**: The objective of Local Analysis is to analyze the development trend of each sector, its potential and development problems associated with each sector. It also includes a study on people's development aspirations from the earlier development reports. SIC has the responsibility of local level analysis. The process of local analysis is enriched and monitored by conducting series of workshops.

- **Spatial analysis**: The spatial analysis focuses upon regional setting of the settlement as well as the distribution pattern of activities & population, land use and infrastructure net work within the local body.

The findings of both the analysis and findings from the urbanization study of the District are then integrated to facilitate the envisioning process.

1.5.4 Envisioning process

The outcome of the envisioning process comprising of Setting up of goals and objectives, Formulation of Development Concept and Formulation of Policies and Strategies is the integrated development vision of the planning area.

- **Setting up of goals and objectives:**

The major development problems and potentials of planning area will be clear from the consolidated findings of the analysis. Accordingly the development goals and objectives will be formulated.

- **Formulation of Development concept.**

A development plan has to look in to the development perspective of the area for a future period. This is accomplished through the formulation of development concept of the area.

- **Formulation of policies and strategies**

General Development Policy based on the development concept is formulated. Then sectoral policies and strategies are framed inconformity with the general policy. The development concept and sectoral policies are presented in the council which is then finalized taking into account, the feasible suggestions of the council.

1.5.5 Detailing

- **Projected Requirements**

The future requirements in each sector are assessed in this step. Inter-sectoral integration is also ensured while assessing the future requirements in each development sector.

- **Sectoral Detailing, Land Use Planning**

Sectoral development suggestions are formulated to achieve the projected requirements. Detailing is a joint activity of both Local Self Governement Department Planning and SIC. A proposed land use plan is also prepared with zoning regulations.

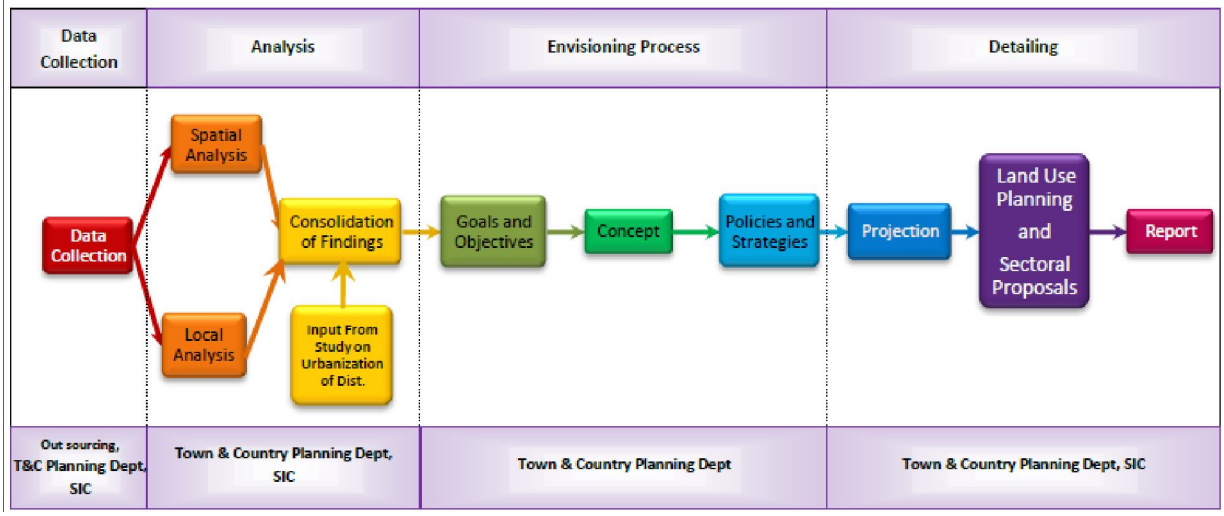


Fig 1.3 Stages and responsibilities of preparation of Master Plan

1.5.6 Draft Plan and its legal processing

The following statutory steps have been enjoined in the The Kerala Town and Country Planning Ordinance, 2015 with regards to the preparation, publication and regulation aspect of a Master Plan .

Section 36 (1) of the The Kerala Town and Country Planning Ordinance, 2015 envisages that the Muncipal Council may, by a resolution decide to prepare a Master Plan in respect of the whole land under its jurisdiction or past thereof . Municipality has to notify the intention to prepare draft Master Plan in the official Gazette and in at least one news paper having wide circulation in the prescribed manner stating the boundaries of planning area and the purpose for which plan is to be prepared

As per section 36(2) The Municipal council shall prepare or get prepared a draft Master plan

Draft Master plan has to be forwarded to Government along with Council resolution. As per section 36 (3) Government on receipt of Master Plan in consultation with Chief Town Planner accord approval within a period of 60 days from the date of receipt of draft Master Plan. As per section 36(4)Municipal Council within a period of 60 days from the date of receipt of approval for publication, publish the same in the Website and a notice of publication in the official Gazette and in at least two news papers having wide circulation within Municipality (one must be in Malayalam language) inviting objections and suggestions to be submitted within 60 days from the date of publication of notice specifying the place or places where a copy shall be available for inspection by the public.

Immediately after publication of the Master Plan, a copy of Master Plan should be forwarded to District Planning Committee for their remarks as per section 36(5). As per section 36(6)Municipal Council shall appoint a special committee formed under section 32 of the ordinance. Special committee shall process the objections and suggestions and hear all such persons who have made request in writing for being so heard and submit report in prescribed format to Municipal Council.

As per section 36 (7)Municipal Council within a period of 60 days from the date of receipt of report of Special Committee consider such objections and suggestions and the report of the subcommittee modify the plan as may be considered necessary and shall forward Master plan together with objections and Suggestions, report of special Committee and the recommendations to Government for Sanction.

As per section 36 (8) within a period of 60 days from the date of receipt of Master plan ,Government may accord sanction to the plan after ensuring compliance with the provisions of Perspective Plans or any other Plans prepared under the ordinance and publish a notice in the official Gazette intimating the fact of sanction of Master Plan. Government may obtain technical remarks from Chief Town Planner. If Master Plan is returned for incorporating modifications suggested by Government same shall be resubmitted within 90 days to Government for sanction as if plan is submitted afresh.

As soon as Master Plan has been sanctioned by the Government, Municipal Council shall forward a copy to District Planning Committee and shall publish a notice regarding sanction of Master Plan by Government and in at least one news paper having wide circulation within Municipality specifying the place or places where a copy shall be available for reference or sale .Sanctioned Master Plan or its extracts shall be published in the website of Municipality.

1.6 COMMUNITY INVOLVEMENT

There can be no meaningful development in any society, if the people themselves are kept out of the planning process. People's participation, therefore, is essential and must be introduced at relevant stages in the planning Process and to "listen to the people", both to understand their needs and to assess how their lives are actually being affected by development projects and policies. The suggested indirect participation of the people is ensured through elected representatives in the Municipal Council / Corporation and Ward Committees (74th CAA). This kind of participation has appropriately been provided in the plan formulation process. The direct participation can be through individuals, citizens groups, neighborhood groups, business groups, consumer groups, and such other Stakeholder Groups. NGOs and CBOs can also play a vital role, as an intermediate link between the people and the government. It should be mandatory to present the salient features of a Master Plan in a public meeting, organized by the local authority, just after the public notice, inviting their comments and suggestion, before its approval. All land pooling schemes should be formulated with direct active participation, of the people.

Municipality has taken resolution to prepare the Master Plan for Ottappalam Municpality as per resolution No 18 dt29.6.2012. A spatial integration committee was constituted under the Chairmanship of MunicipalChairman as per Council resolution No 12 dt 20.9.2012. The Municipal Secretary is the Convenor of the Committee and the Municipal Engineer acts as the joint convenor. The members of the committee includes one representative from each working group, District Town Planner and the resource person. A separate Planning Team was constituted in the District office of the Local Self Government Department (Planning) exclusively for the technical aid of the Scheme. A development seminar was conducted on 14/11/2012 at Vyapara Bhavan Ottappalam . The Seminar was inaugurated by Municipal Chairperson Smt. Parukutty. The meeting was chaired by the Municipal Vice Chairman Mr S.Selvan. The Master Plan was presented before the people by the District Town Planner. The participants from various walks of life like Municipal Councillors, representatives of various political parties, service organizations etc attended the same. The participants expressed their opinions and aspirations about the development of Ottappalam Municipality besides highlighting the present problems and potentials. The Municipal chairperson invited written suggestions from thecommunity as a whole to be considered while preparing the Master Plan and a box for the purpose was placed in the Municipal Office and Town Planning Office.

A number of representations from individuals and organizations were received by the department during the Preparation of the draft Master Plan. Further the New Municipal Council with Chairmanship of Smt. Subaida was taken charge of the Municipality .Planning Assistants and Computer Assistant were posted in the planning team and various surveys and data collection were done in 2012. The land use survey and socio economic survey was conducted by the surveyors appointed on daily wages. The survey materials and necessary training were given by the District Office of the Local Self Government Department (Planning).

The traffic and transportation survey was entrusted to NSS College of Engineering , Akathethara, Palakkad under the supervision of the Department. Combined work shop of SIC members, working groups and Planning team were conducted on different occasion for local analysis. During the meetings the local level analysis dealing with the problem and potentials of the various development sections were completed.

Further, the Municipal Council has made various suggestions for inclusion in the Master Plan for Ottappalam Town. The draft Master Plan was discussed with Municipal Chairman and other Councillors prior to submission to Chief Town Planner for vetting in order to ensure that the Draft Master Plan submitted reflects the needs of the community, identifies its aspirations, addresses the perceived problems and take advantage of the identified potentials.

2. PROFILE OF THE TOWN

2.1 LOCATION

Ottappalam is a municipal town in Palakkad District which is the revenue divisional and Taluk headquarters of Ottappalam and Mannarkkad Taluk. City is situated 35 Km west of Palakkad and 18 Km east of Shoranur. It lies in between 10° 47' north latitude and 76° 23' east longitude. Ottappalam is bounded by Ananganadi, Thrikkadeeri and Amabalappara Grama Panchayats on north, Lakkidi Peroor Grama Panchayath on east, and Vaniyamkulam Grama Panchayath on west and Bharathapuzha river on south.



Fig 2.1 Boundaries of Ottappalam Municipality

2.2 AREA,POPULATION AND ADMINISTRATIVE DIVISIONS

Area of the municipality is 32.66 km^2 which is approximately 0.73% of the total area of the district. Ottappalam municipality have 7 desoms i.e. Panamanna, Palappuram, Varod, Kanniyampuram, Vadanamkurissi, Tottakkara and Ariyur thekkumuri.

As per 2001 Census , population was 49242 and as per 2011 population was 53755. The population of Palakkad District as per Census 2011 is 2617482 and Census population of Ottappalam accounts to 2.05% of the total population of the district. The total population of Ottappalam includes 25337 males and 28418 females.The decadal growth is 9.16% and the population density is 1646 persons per km^2.

The total No. of electoral wards as per the ward division in 2010 is 36. There are 29 wards as per 2001 census As per the 2011 census, there were 33 wards. For the study and analysis, ward division of 36 is considered. The spatial location of 36 wards of Ottappalam Municipality is shown in Fig 2.2

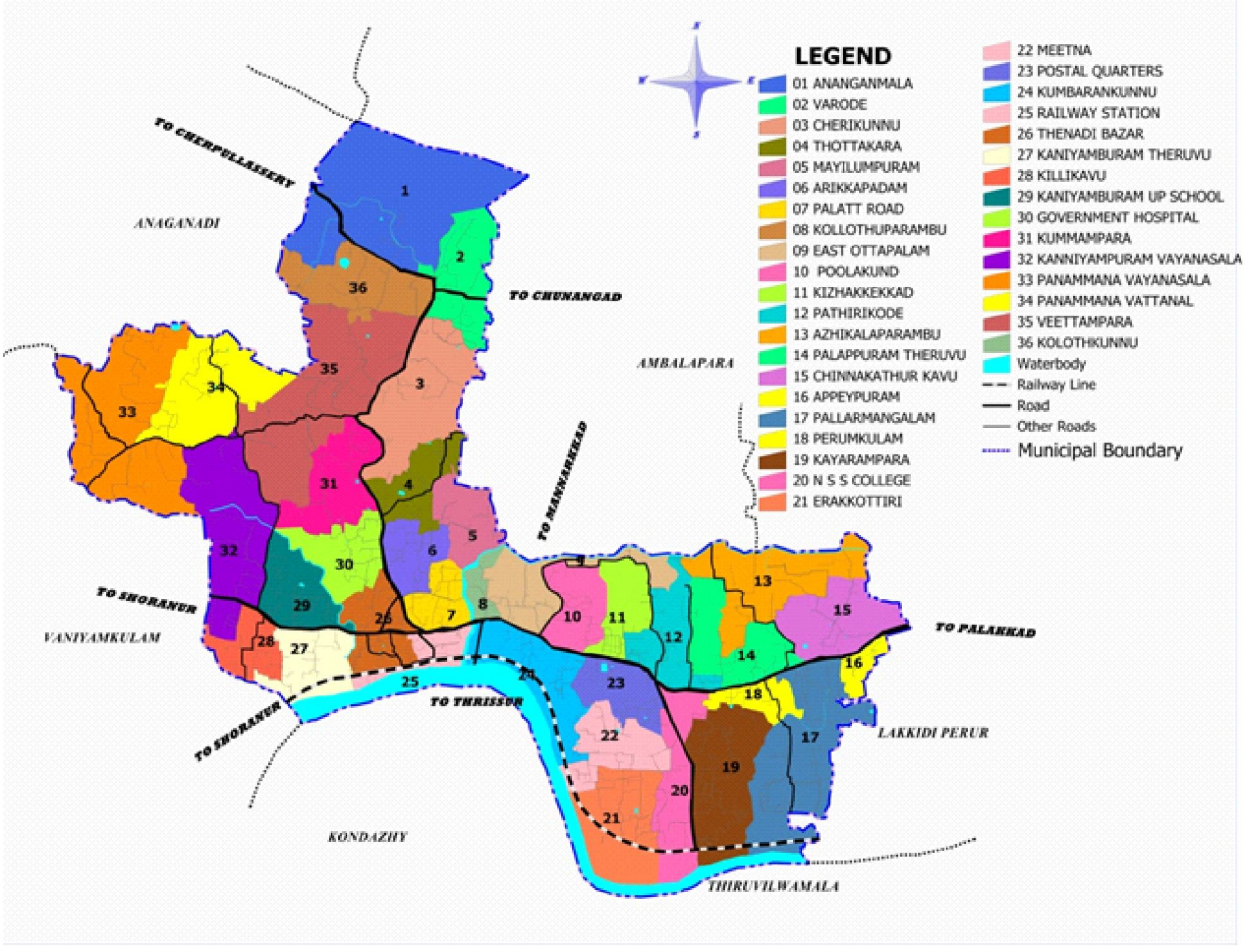


Fig 2.2 Administrative map with 36 Wards

2.3 CLIMATE

Ottappalam gets moderately hot humid climate due to the presence of agricultural land. In this town the rain from south west monsoon gets from June to September followed by the rain from south east gets from September to the middle of November.

The average annual rainfall is 2836 mm. From February to May are generally the hottest months. Winds are generally light but in December and January it strengthens to 35 to 45 km/hr. Average temperature of the town is 29 °C and maximum of 42 °C. The relative humidity is greater than 70 %.

2.4 PHYSIOGRAPHY AND RELIEF

Depending upon the topography, Kerala State is divided in to three regions namely high land, mid land, and low land from east to west. The Ottappalam town comes in mid land region. Figure 2.3 shows physiography of the district showing ottappalam town. Mid land region consists of valleys and plains. Ottappalam is having an undulating terrain with knolls and isolated hills here and there sloping towards west. The peripheral areas of the town are agricultural lands cultivating with paddy and cash crops.

Municipal area lies between Anangan hills at North end and Bharathapuzha river at the south side of town. Ottappalam municipality have a relief with in 10 and 50 m(Fig 2.4). Contour map of Ottappalam Town is shown in Fig 2.5. Ottappalam municipality having percentage of slope of 3 to 15% and comes under moderately to steeply sloping ridges(Fig 2.6).

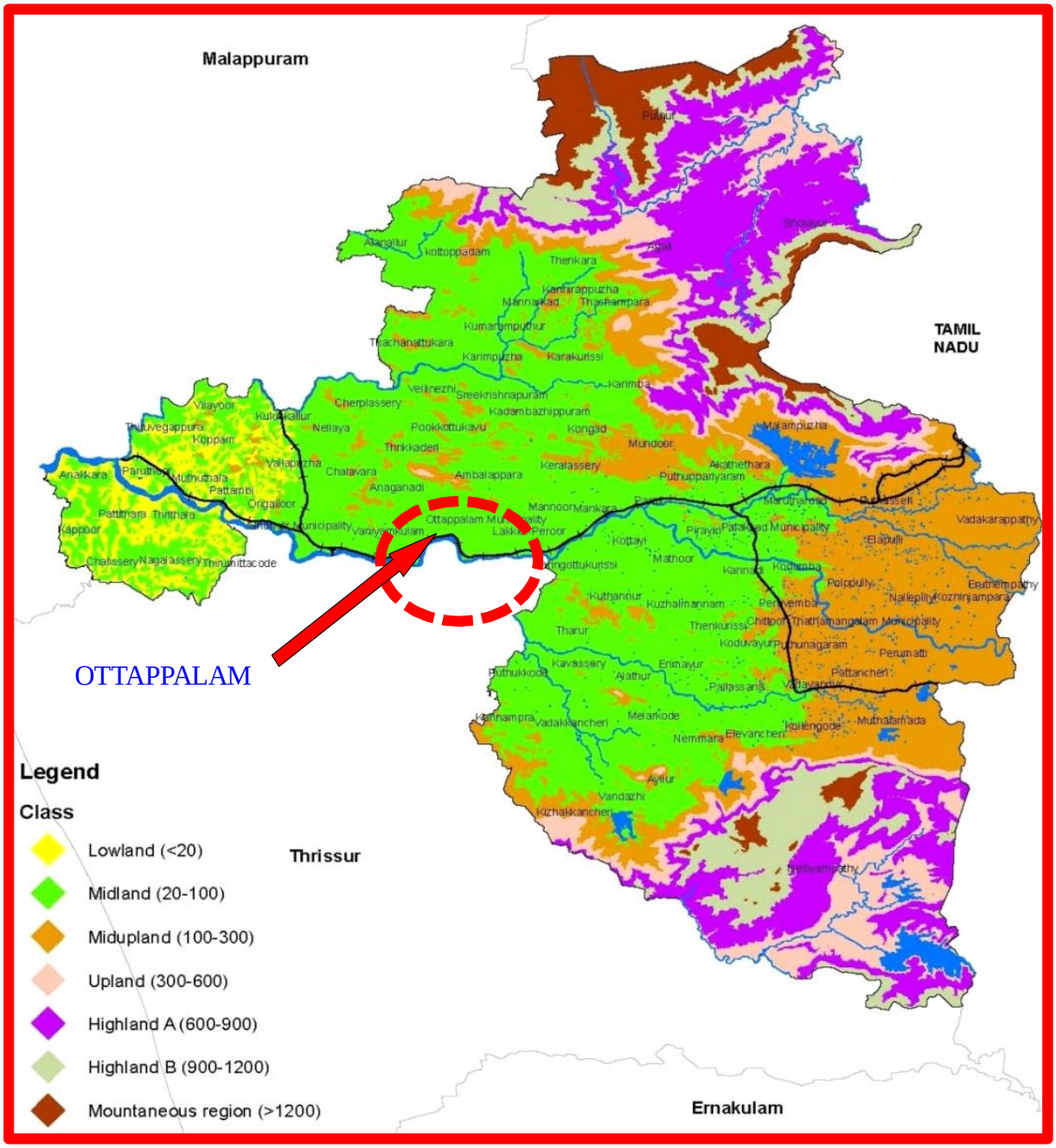


Fig 2.3 Physiography of Palakkad district showing Ottappalam town

Soil

Ottappalam municipality contains mainly laterite soil. Alluviam soil is found on the riverside and it is suitable for the cultivation of rice. In plains the soil is fertile and muddy. In high lands the soil is gravel mixed with 75 % fertility. Major types of soil in the town include sandy clay and sandy clayey loam,Gravelly sandyloam,Gravelly clay loam, Gravelly sandy clay. Predominant soil found in the region is Gravelly clay loam. However, sandy clay loam is also quite prevalent in this town. Different types of soil present in municipalty is shown in Fig 2.7.

Geomorphology

Geomorphology means a "discourse of earth landforms" and it is generally defined as a Science of Landforms" which are the products of various exogenetic and endogenetic forces.It is a systematic study of landforms in relation to the climatological, geological and structural aspects. Landforms play vital role in land resource mapping, terrain evaluation and soil classification in addition to groundwater studies.Geomorphologically the area is classified as Pediplane ,Flood Plane Pedimont zone ,Plateau, Pediments, Strctural hills and water bodies(Fig 2.8).Pedimont zone ,Plateau are the most prominent geomorphic units occurring in study area.

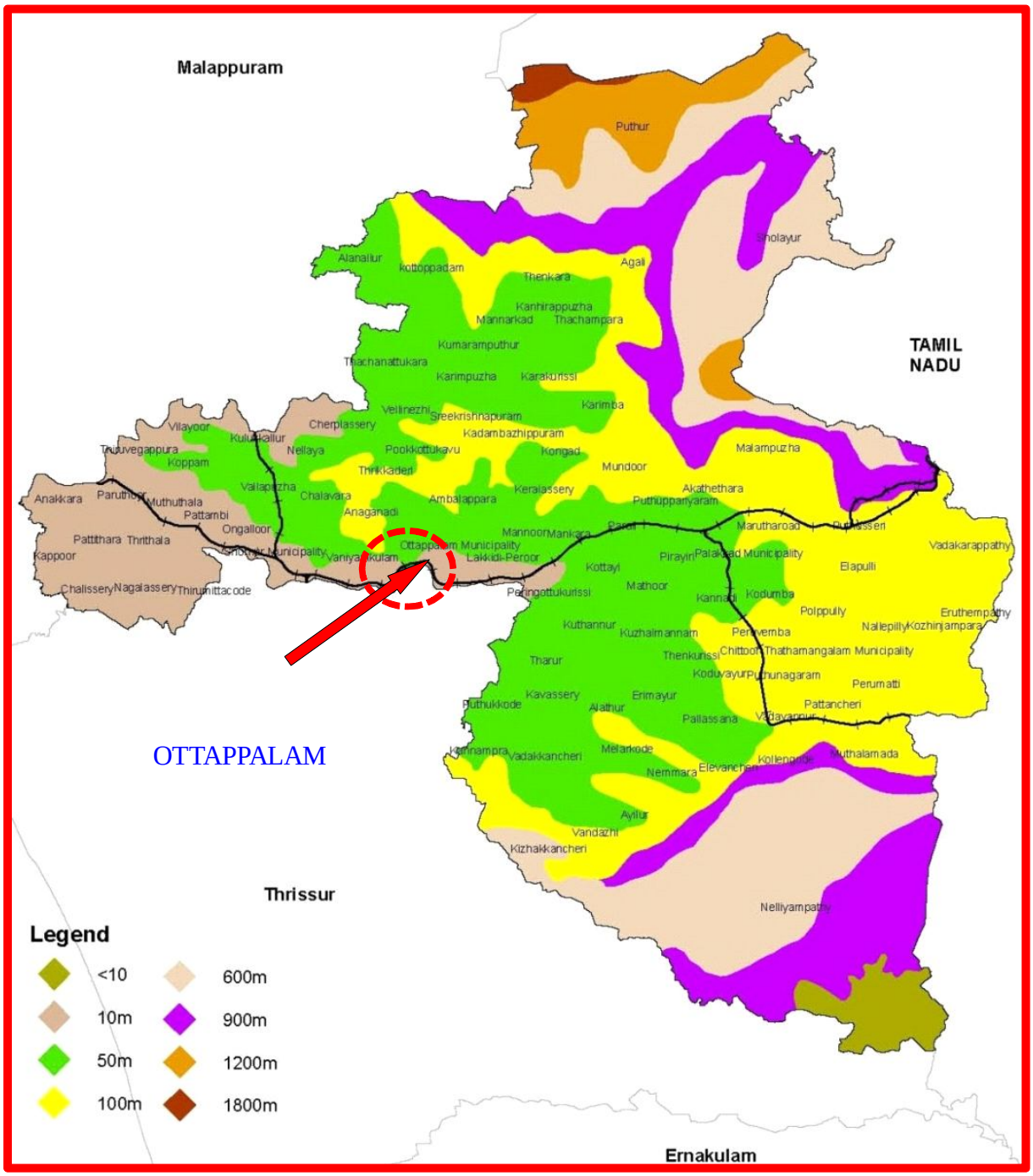


Fig 2.4 Relief of District showing town

Geology

The Municipal area is covered with Charnockite group of rocks and migmatite complex rocks. About 80% of the area is underlain by Charnockite group of rocks and remaining area is covered with the migmatite complex (Fig 2.9)

Lithology

The lithology of a rock unit is a description of its physical characteristics visible at outcrop, in hand or core

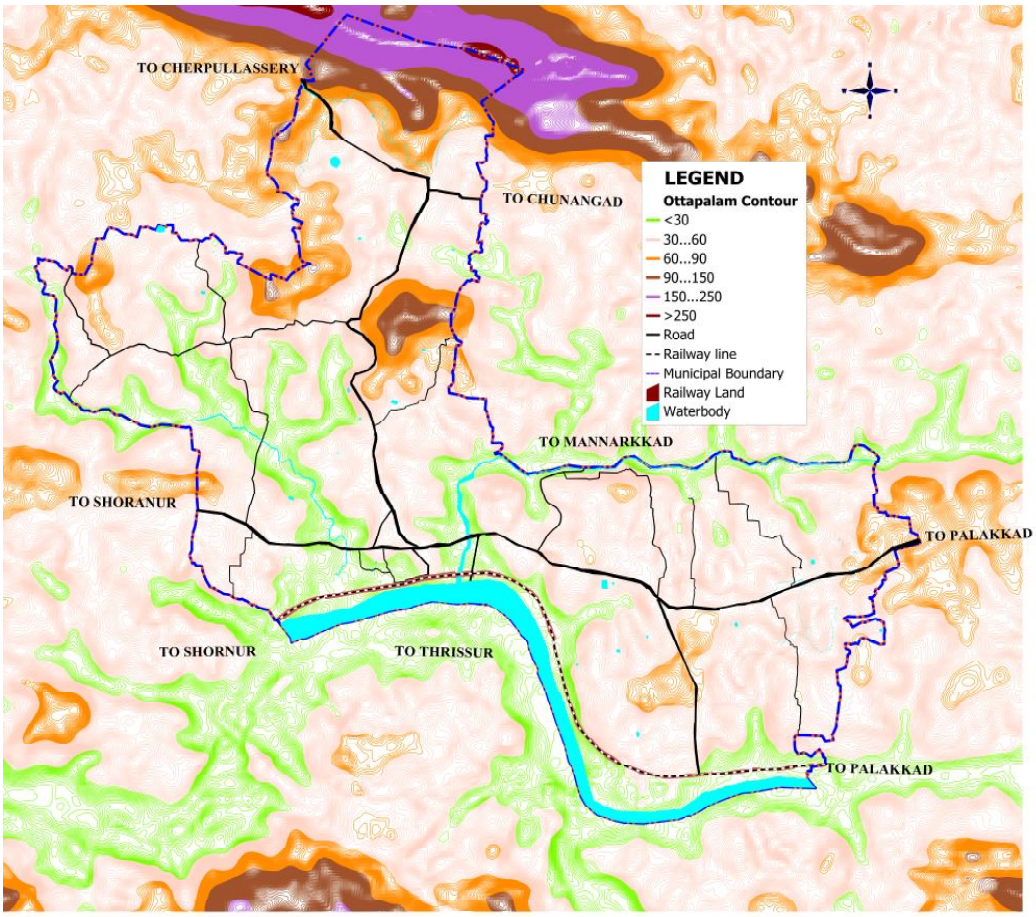


Fig 2.5 Contour Map of Town

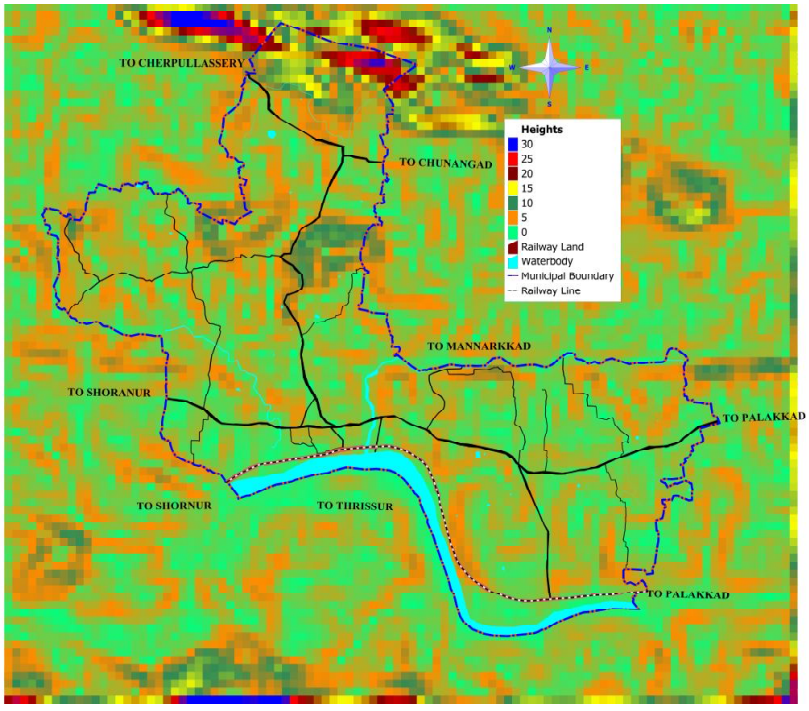


Fig 2.6 Slope of Town

samples or with low magnification microscopy, such as colour, texture, grain size, or composition. In the study area lithology of rock units covers Charnokite and Hornblende gneiss. The major portion of the area covered with charnakite rocks. The remaining west parts are covered with Horn Blend gneiss. (Fig 2.10)

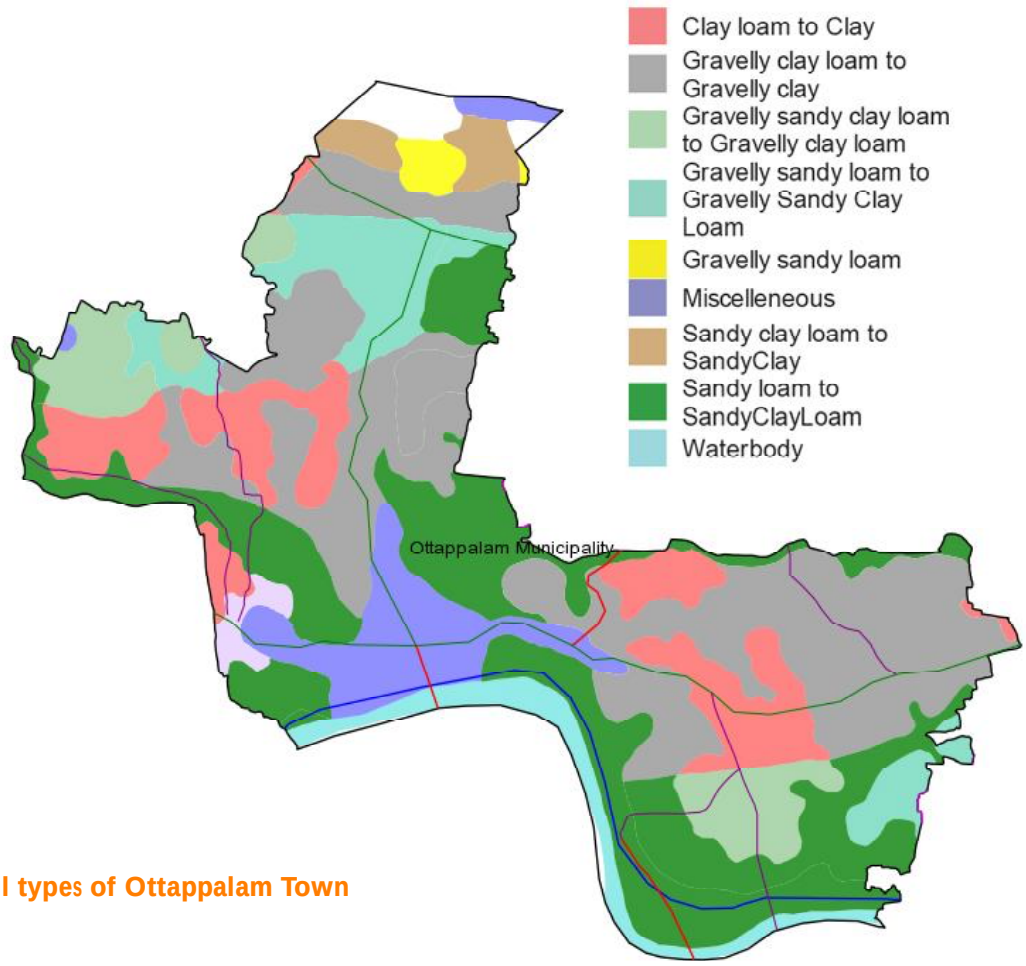


Fig 2.7 Soil types of Ottappalam Town

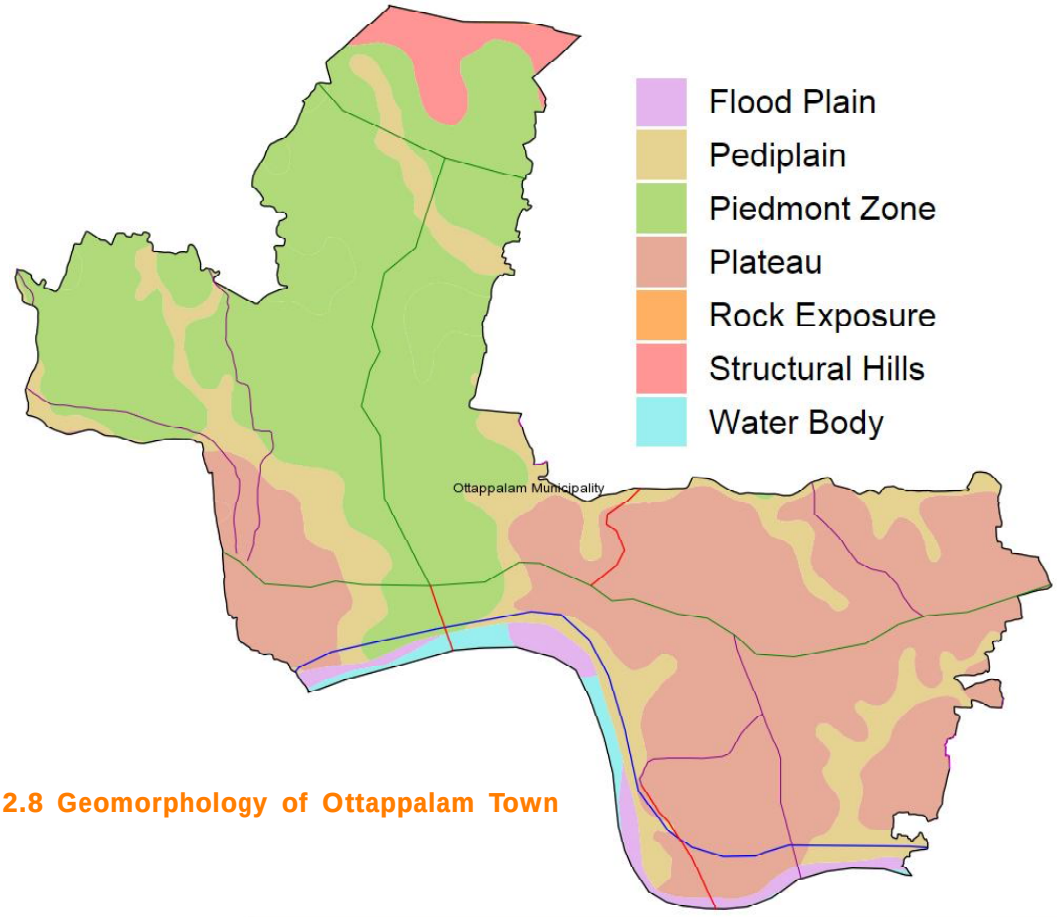


Fig 2.8 Geomorphology of Ottappalam Town

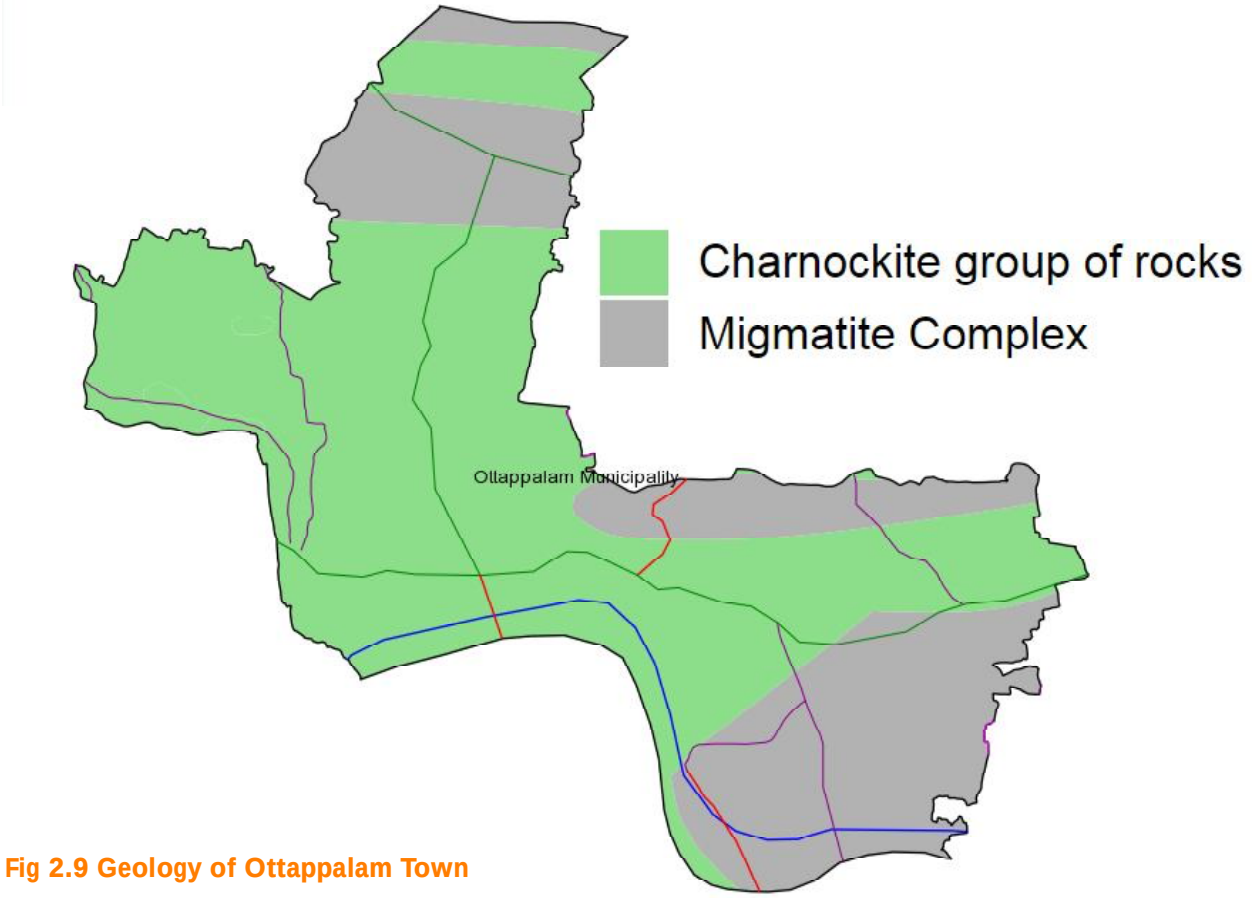


Fig 2.9 Geology of Ottappalam Town

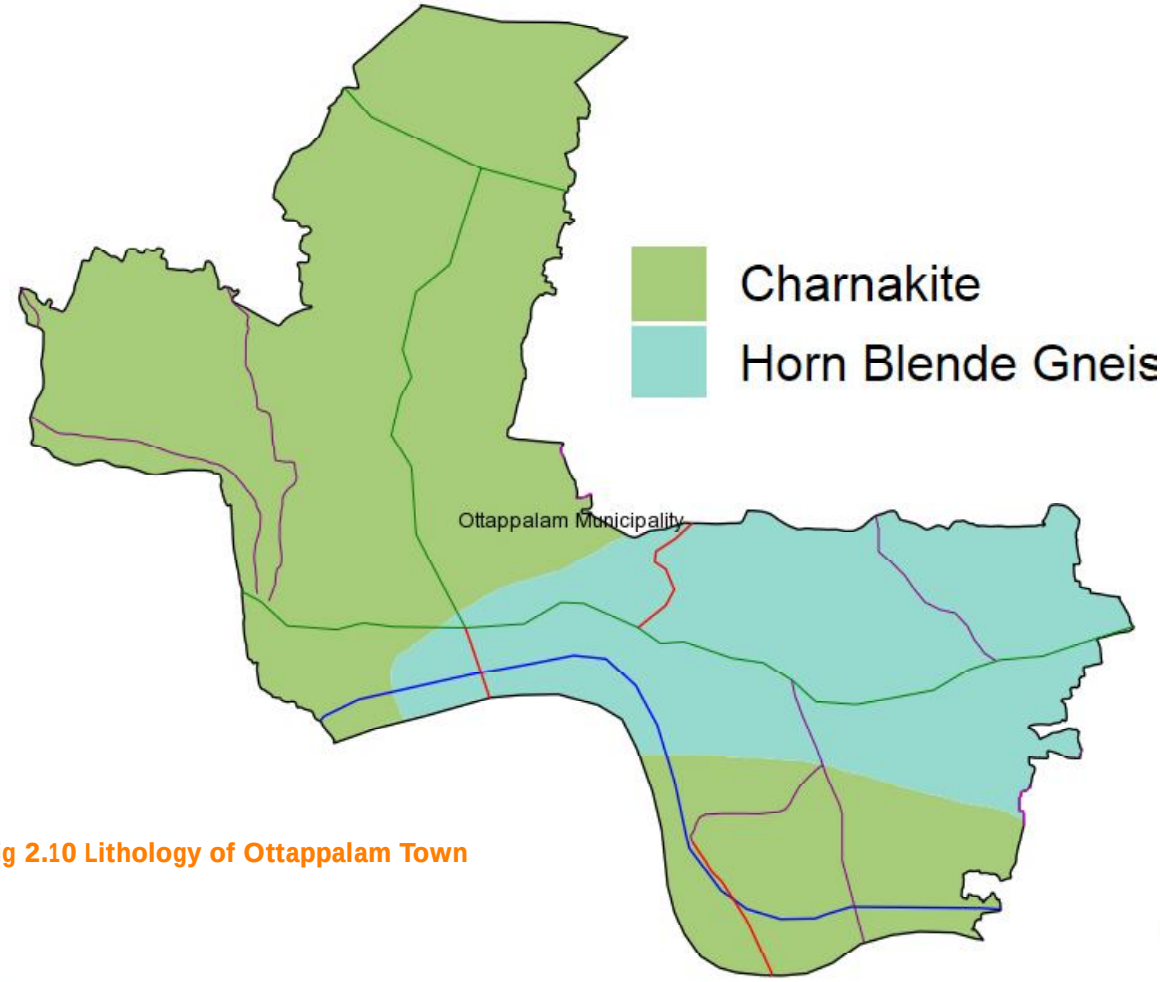


Fig 2.10 Lithology of Ottappalam Town

2.5 BIODIVERSITY

The flora of Ottappalam is characteristically tropical, owing to the seasonal rainfall and moderate temperature. Some of the dominant trees in the region are Coconut Tree (Cocos Nucifera), Plaintain (Musa Paradisiaca), Mango Tree (Mangifera Indica), Cashew Nut Tree (Anacardium Occidentale), Jackfruit Tree (Artocarpus Heterophyllus) and Bamboo Palm (Rhapis excelsa). Plain lands are utilised for Paddy cultivation. No animal can be mentioned peculiar to this area. Birds like Crows, Pigeons, Sparrows, Woodpeckers, Kingfishers, Parrots, Myna, etc. are seen in all areas.

2.6 HISTORY/EVOLUTION AND GROWTH

On 1st January 1957, Malabar District trifurcated into three districts viz. Kannur,Kozhikode and Palakkad. Palakkad District thus formed consisted of old Valluvanad Taluk, Palakkad taluk, portion of Ponnani taluk of Malabbar District and Chittur taluk of earst while Travancore Cochin state. This section tries to explore the history and evolution of the Ottappalam.

2.6.1 History of Governance

Ottappalam was part of Valluvanad dyanasty having an ancient history going back to the days of the Second Chera Empire. At one point of time the Valluvakonathiri exercised sovereign powers over a considerable portion of South Malabar. Valluvanad comprised the whole of the Perinthalmanna and Ottapalam taluks and also parts of Ponnani, Tirur and Eranad taluks. When Zamorins(Samoothiri) of Calicut became a major force on the western coast, they captured a large portion of Valluvanad. Till then Valluvakonathiri was the strongest of the kings and had the right of presiding over the Mamankam Festival held once in 12 years at Thirunavaya. This right was usurped by Samoothiri, when he captured the town in the latter half of the 13th century. The severe and frequent wars on Valluvanad by the Zamorin continued. Even after the loss of his ally Kochi Raja, Vellaattiri did not submit to Samoothiri. By now all that was left to Vellaattiri were Attappadi valley, parts of Mannarkkad, Ottapalam and Perinthalmanna. Zamorin invaded these territories but could not make much progress, because these regions were sparsely populated and most parts were dense forests and hills. It was impossible for Zamorins's large army to march forth through these areas. The fights with Vellaattiri's men became more and more difficult for Zamorin. Vellaattiri's smaller army in turn made the most of the landscape and successfully kept the armies of Zamorin at bay. Later during the Mysore invasion, Valluvakonathiri sought asylum in Travancore. On the cessation of Malabar to the British by Tipu Sultan, Vellaattiri entered into an agreement with the British, and ottappalam became a part of British India. During British rule, the capital of Valluvanad was Perinthalmanna (3km from Angadipuram). Perinthalmanna's importance went up because the treasury, court, subjail, etc were all located there. On the 21st May 1800 Malabar became a part of Madaras Presidency under the administration of Principal Collector at Calicut.

Even though District could achieve significant progress in various fields under British Administration , the period also witnessed some of the violent disturbances known as 'Mappila Riots' .Those outbreaks took place in various parts of Valluvanad and Eranad taluks ,but it did not effect Ottapalam very much. The formation of Congress organisation in 1910, the first Malabar district conference held at Ottappalam on 23rd April 1921, was an important turning point in the political movement of the country. The active participation of people of Ottappalam in freedom struggle carried on till the achievement of Indian independence on the 15 th August 1947.

The history of Ottapalam town begins with the formation of the erstwhile Ottapalam Panchayat as early in 1934 under the administrative control of Malabar District Board. Consequent to the formation of the states on the linguistic basis under the State Reorganisation Act, 1956 Ottapalam came under the administrative jurisdiction Palakkad District. Palakkad District was formed in 1 – 1 – 1957 and Ottappalam became part of this Distrcict.

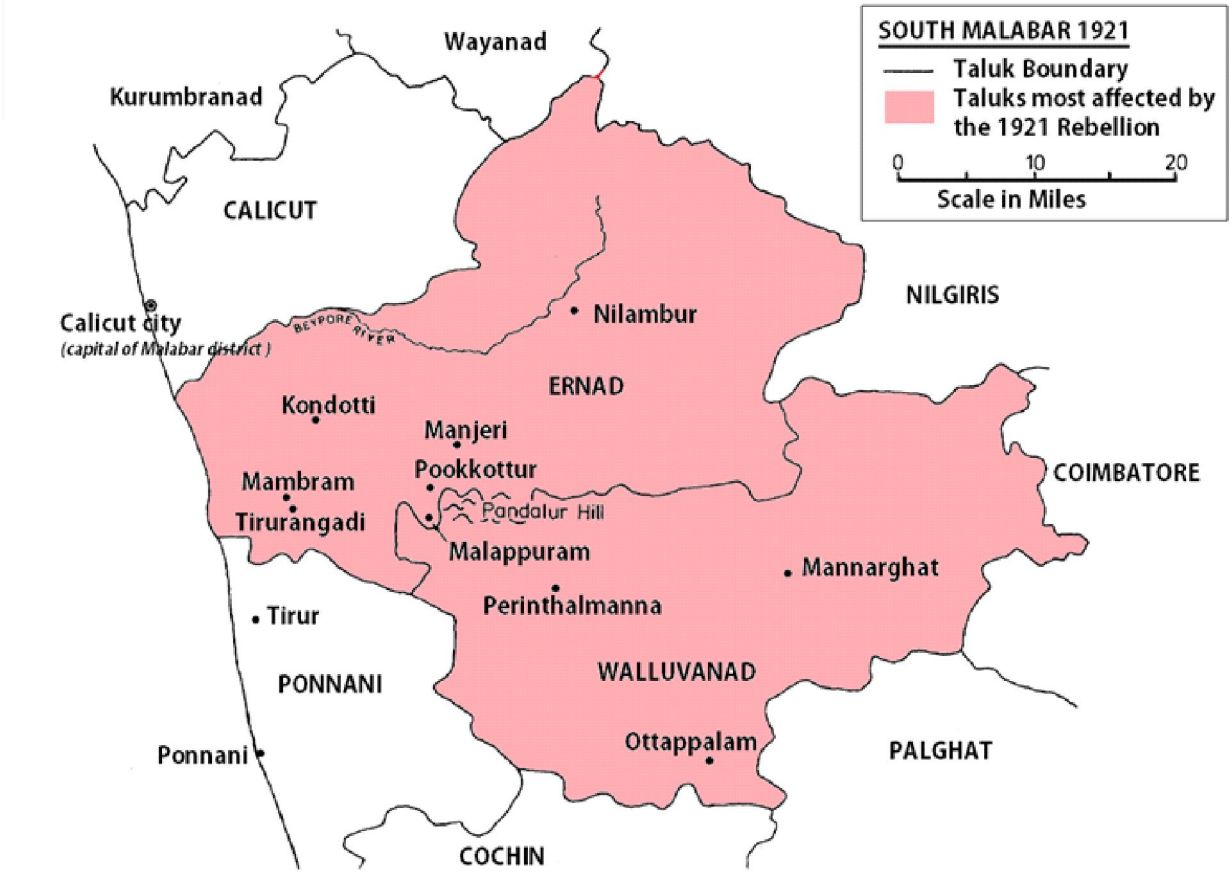


Fig 2.11 South Malabar 1921

From 1957 to 1990 the revenue division exist as a special panchayath. In 1960 Kerala Municipality Act came into effect. The Ottapalam Panchayat was converted in to a Municipal town with effect from 1-4-1990. First electrol body took charge on 1.10.1995. In 2001 there are 33 numbers and it increased to 36 wards in 2010.

Different versions are given to the origin of the name of Ottappalam. Out of these a more sensible argument derived from the physical features of the place. A branch of the Bharathapuzha river separates the area into two. The road links between these two places was along by a single bridge only. Considering the role and importance of the bridge, the place became to know in its name Otta (Single) + Palam (Bridge) = Ottappalam. But another version as described by V.K Valath in the history of Place names is that this name originated from the concept of landlord and tenant , the place (palam)gifted by Otti (Land lord) ie Ottipalam "Panaya nilam"later changed as Ottappalam.

2.6.2 History of development

During the 18th century when Tippu Sultan led the Padayottam, a road was constructed from Palakkad to Ponnani through Ottapalam. In 1862 Palakkad Shornur railway line was built in which has given boost to the development of this town. And this town became the Taluk headquarters. AJB School which started in 1893 was the first primary school in Ottappalam. In 1897 first high school was started functioning at Kuthira vattam by Sri Prabhakaran Thampan and later transferred to NSS. School started by Malabar District Board was later named as LSN Girls school. First High Schools were established by the end of 19th century as a part of Christian missionary activities. Then Malabar District Board started schools in different areas in the first half of 20th century itself. Many of those run "Padasalas" transformed into schools. Formation of National Congress strengthened this process. In

1962 NSS college , Ottappalam was born out of the dreams of the great visionary and social reformer, Bharata Kesari Sri. Mannath Padmanabhan. First modern hospital was started by Dr M.J Joseph and later it was taken over by District board. Ganesh Tile works, West Cost Match factory were the industrial units developed earlier.

2.6.3 Socio Cultural History

Ottappalam was a part of Valluvanad having a prestigious cultural tradition worth mentioning. The green foliage of nature and various art forms play a vital role in attracting thousands to know more about this land. Coming to art forms, Kathakali, Kaikottikali, Thiruvaathirakali, Thumbithullal, Tholppaavakuuthu, Carnatic Music, Melam and Thayambaka (classical percussions) are a part and parcel of every Valluvanadans life. People celebrate festivals in a great spirit and unity and certain arts forms are performed on such special occassion. Religious events like Pooram, Nercha, Vela, Ayyappan Vilakku and other festivals like Onam, Vishu, Id-ul-Fitr, Christmas, etc. are celebrated by all in great spirit and harmony. Temples of valluvanad add beauty to the land. The paintings and sculptures found incarnated in old temples can be mentioned as the greatest epitome of talents. People belonging to different communities and religions living in a great peace and harmony is a real beauty to watch. Population of the land is equally shared between the Hindus and the Muslims. Christians are minority in the area. The relation between communities are very good and there is an excellent communal harmony between them.

Ottapplam has a rich cultural heritage and played host to many historic events. KR Narayanan, India's first President from the Dalit community, represented Ottapalam constituency thrice. Killikurissi mangalam, the birth place of Kunchan Nambiar, who was the father of Ottan thullal, is 8 kms away from Ottapalam. It is also the hometown of various diplomats like Sir C Sankaran Nair, Sri V P Menon, Sri KPS Menon (Junior & Senior), Sri Sivasankara Menon, Prof. MGK Menon, etc. The last classical song performance (kacheri) of noted carnatic musician, Chembai Vaidya Natha Bhagavathar, was held at the Poozhikkunnu Sree Krishna temple here. The place where the temple is located was renamed as Chembaipuri. Blessed with a number of educational institutions for decades, Ottapalam is a also a district educational centre. The century-old NSSKPT high school, Kendriya Vidyalaya, LSN Convent, NSS College, NSS Training College, GHSS, Seventh Day Adventist school, Amritha Vidyalaya, Mannam Memmorial school, etc. are the important educational centres here.

Sociocultural Festivals

There are a number of places of worship at Ottapalam. Some of the important temples are Vengeri Mahadeva Temple, Poozhikunnu Sreekrishna Temple, Chinakkathur Bhagavathy Temple, Thottakkara Parthasarathy Temple, Killikkavu Bhagavathy Temple, etc. The most famous festival of Valluvanad, Chinakkathoor Pooram is a prominent festival of Ottapalam Taluk. It is the most glorious and georgeous festival of Ottapalam which was noted as the cradle of art Malabar.

Chinakkathoor pooram is celebrated on Makam Day in the Malayalam month of kumbham which recollection is the vigour and spirit of Mamankam. Valluvanad, the cultural capital of Malabar offers the exquisite beauty of customery arts and Folklores on this occasion in a grand manner. The spectacular procession of 27 caparisoned tuskers with the accompaniment of panchavadyam and pandimelam provide a colourful show to the viewers of Valluvanad. We can see a torrential flow of traditional arts and folklores like pootham, Thira, Pulikkali, Kumbhamkali, Kudakkali, Theru (chariot), Thattinmelkooth (Dance on the platform) with inexhaustible energy and indomitable enthusiasm to the much acclaimed soil of Chinakkathoor Temple on the same day. The celebration of the above arts provides a footstomping music and influential step which pervade the artistic vision of valluvanad. The swashbucking performance of pulikkali & Ox Play (kaalakali), ear-breaking sound of para (drum) of Thira & Pootham, Variety of attractive illuminated Panthals, intensive movement of jubilant mob to chinakkathoor neglecting the penetrating heat of kumbham which reveals that nothing else can substitute

this festival. On the pooram day, people of Chinakkathoor Thattakam (place) would assemble on the temple ground irrespective of caste and religion to celebrate the festival bidding farewell to their crisis and struggles. Chinakkathoor Temple is situated at palappuram, i.e 5 KMs from Ottapalam and 30 KMs from Palakkad. There are 7 desams (areas) participating in this festival which includes Ottapalam, Pallarmangalam, Palappuram, Erakkottiri, Meetna, South Mangalam & North Mangalam who are striving hard for making the festival a grandeur occasion which shows Keralas rich and vibrant culture.

The festival at Chathan Kandar Kavu is also very famous one in Ottappalam. The legend goes that the temple was built by the local Kanjoor Namboodiri family at a place where a scheduled caste person called Chathan found a stone bleeding while he was sharpening his knife on it. The deity of this temple is Durga. The annual festival is Talapoli which is celebrated on Avitam day in Meenam.

Ottappalam Nercha Festival. Juma prayers are held in Ottappalam mosque on Fridays. To commemorate the death anniversary of a saintly person by name Uthman Auliya, an annual festival is held in January-February. The special feature of this festival is the grand procession which ceremoniously brings various things such as rice, coconuts etc. to the mosque as offerings. On the next day, a feast is held where the various articles received will be cooked and distributed to the poor.

2.7 REGIONAL SETTING

The regional setting of a Town can be arrived from the Regional Plan which spells out hierarchy of the town in the District Scenario, the activity of the town has to perform and its connectivity with different settlements. Regional linkage of the Ottappalam town with surrounding district/ state and its regional setting within the district are detailed below.

2.7.1 Regional Connectivity

Ottappalam municipality is having a good road and rail connectivity to neighboring LSGI s, other parts of the state and to metro cities in India. Ottappalam is connected to India's railway network by Shoranur – Palakkad Railway line. The railway line link the town to southern parts of Kerala and northern parts of the country. Most of the main line trains operating in Kerala towards Chennai side pass through Ottappalam Railway station. Two railway stations Ottappalam and Palappuram are existing within the municipal limit.

The Palakkad – Ponnani State Highway No 23 passing through the town connecting 3 districts viz. Thrissur, Malappuram and Palakkad. Palakkad Ponnani road connect the town with District headquarters and Ponnani of Malappuram District. Mayannur bridge connects Ottappalam town to Thrissur District Cherpulassery road and Mannarkkad road gives access to Malappuram District and other areas of Palakkad District respectively. Government buses as well as private bus services operate between Ottapalam and other major towns such as Thrissur, Palakkad, Pattambi, Guruvayoor, Mayannur (through the Ottapalam-Mayanuur Bridge) and Thiruvilwamala.

Thrissur is the nearest Corporation and is situated at 47 km south of the town. The port towns Kozhikode and Kochi are 109 km and 108 km respectively away from Ottappalam town. Coimbatore city second largest city after Chennai in Tamil Nadu is located at 88 km east of Ottappalam. Nearest air ports are Kozhikode -79 km, Kochi – 98 km and Coimbatore – 97 km.

2.7.2 Hierarchy of Settlements based on Integrated District Development Plan (IDDP)

As per the settlement analysis of IDDP, the settlements of the district are grouped in to four hierarchies. The Palakkad Municipality is the first order settlement. Alathur, Shoranur are the existing and Mannarkkad, Chittur

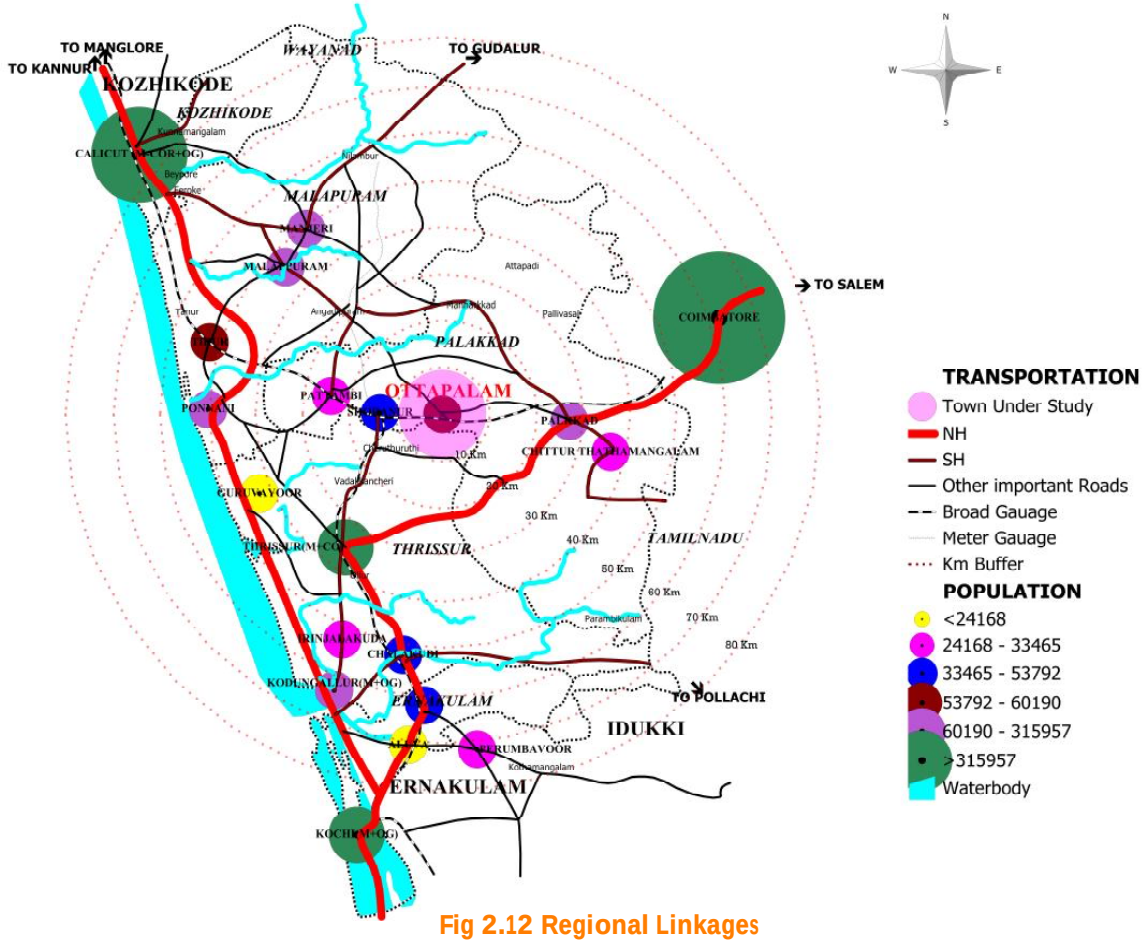


Fig 2.12 Regional Linkages

Thathamangalam are proposed second order settlements. Ottapalam Municipality is suggested as third order Settlement (sub regional centre) and supposed to provide second order facilities like Taluk Hospitals ,Marketing facilities to the LSGIs in their respective service areas (Vaniyamkulam GP ,Ananganadi ,Chalavara ,Ongallur) etc.Fig 2.13 shows heirarchy of settlements

2.7.3 Hierarchy of nodes

Ottappalam town junction in Ottappalam Municipality is coming as second order node and service population is taken as approximately 1.5- 2 lakhs according to the suggested road network for the distict Proposed road – Ottapplam Mannarkkad stretch is to be strengthened .Heirarchy of nodes is given in Fig 2.14.

2.7.4 Functional character

The spatial distribution of the settlements based on its character shows a clear demarcation in the pattern of the settlements in into Urban, Semi Urban, Semi Rural and Rural. Ottappalam municipality shows urban character (Fig 2.15).

2.7.5 Future Urban Profile

There are four existing urban local bodies (four Municipalities) in the District. Based on the analysis, it is clear that 6 local bodies will attain urban character in the next two decades. The future urban profile is shown in figure 2.16. The existing urban bodies are Palakkad, Shoranur, Ottappalam and Chittur Thathamangalam. The Panchayaths namely Alathur, Pattambi and Mannarkkad will attain urban character in 2011. The Panchayaths of Pudussery, Koduvayur, and Cherppulassery will attain urban status in 2021.

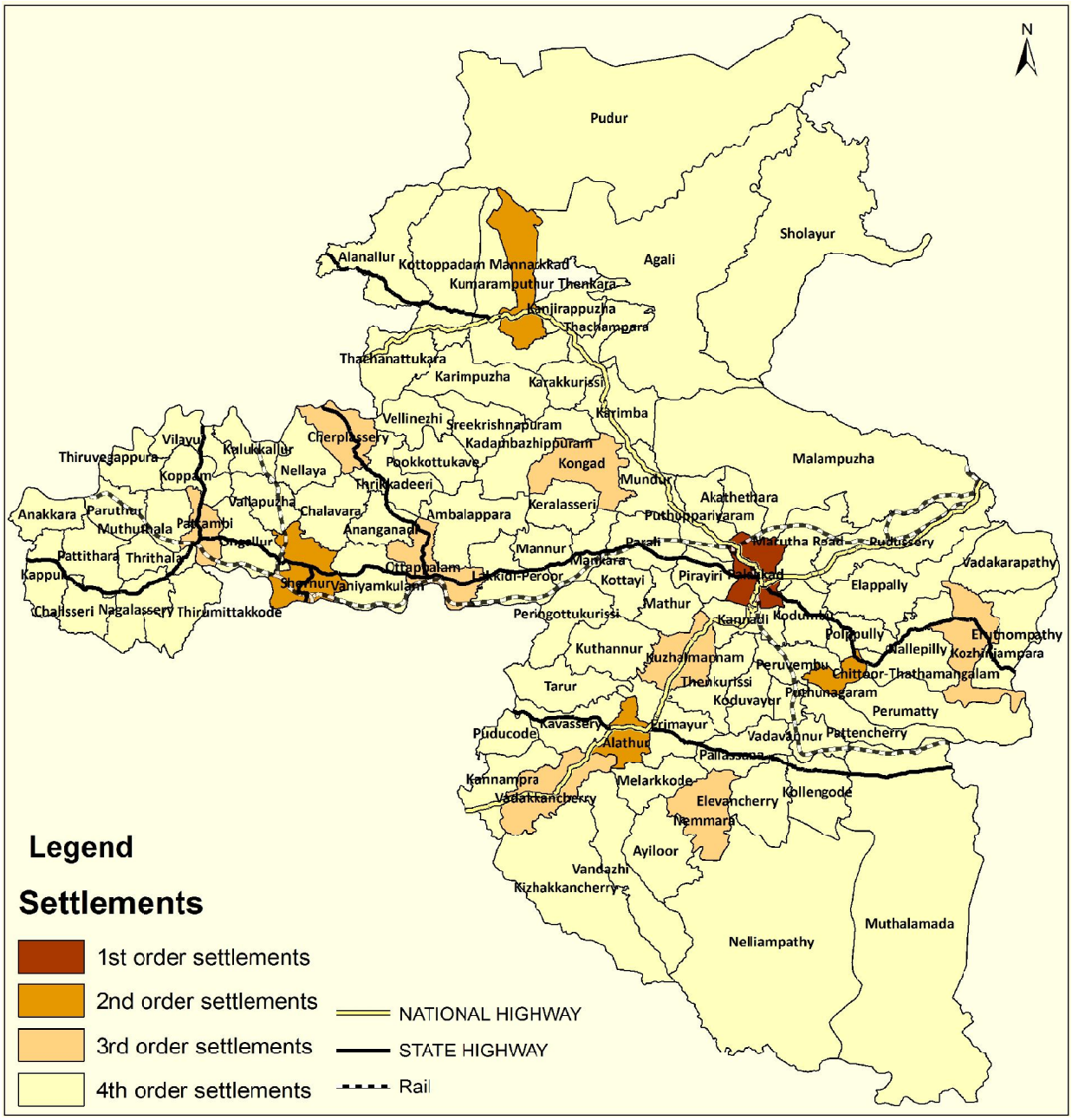


Fig 2.13 Hierarchy of Settlements

2.7.6. Activity pattern

The Activity Pattern of the district is analyzed based on the land use concentration pattern, functional character and future urban profile. Accordingly the major activities of the settlements of the district are identified to be urban activity, primary activity, secondary activity, agriculture and allied activity or activity non detrimental to forest. The final activity pattern of the district emerging out by superimposing the activities is shown in fig 2.17. Ottappalam municipality shows the activity pattern as Tertiary.

2.7.7 Development Concept of the District

The spatial structure of the district is evolved by integrating the activity pattern, regional connectivity and hierarchy of settlements. The development goals and objectives of the district were derived based on findings of various studies. The development concept of the district is formulated by synthesis of findings of studies in the orbit of goals and objectives over the district platform. The development concept will provide the required frame work for integrated development of the district.

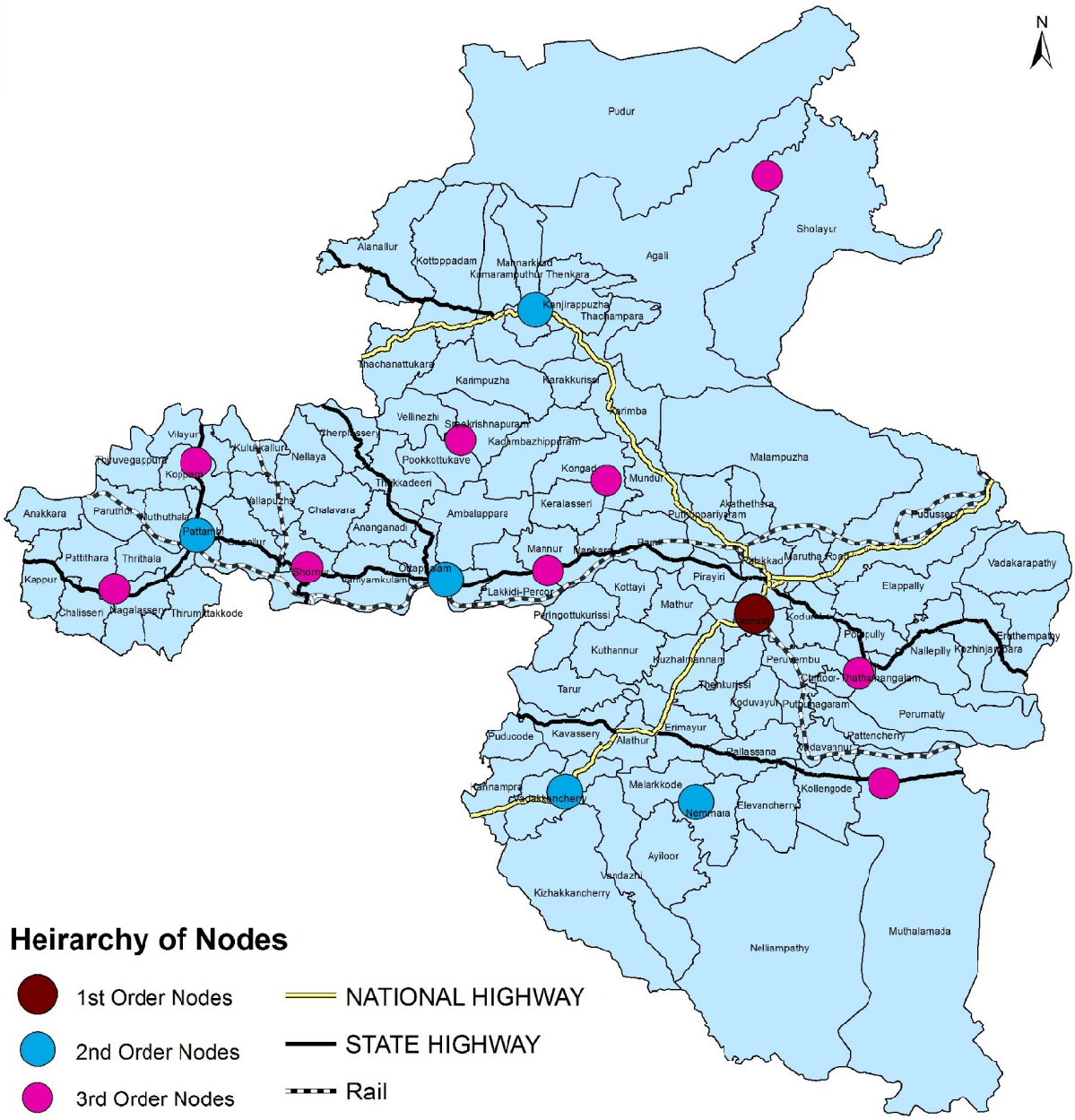


Fig 2.14 Hierarchy of nodes

As per development concept of IDDP (Fig 2.18), Ottappalam Municipality comes under Multi functional Zone (2nd Order) and should act as a service centre for the hinter land and this zone is considered very much suitable for industries utilizing agricultural produces of hinter land.Second order urban facilities are to be provided in this zone.

2.8 SERVICE AREA OF OTTAPPALAM TOWN

Based on the Hierarchy of Settlements derived out in the "Integrated District Development Plan" Ottappalam Municipality comes as the one of theeight third order settlements in the district. Service area of Ottappalam Municipality includes the following LSG's and its area and population is shown in Table 2.2 and in Fig 2.19. The service population of the Ottappalam town being a third order settlement in the district is 214787.

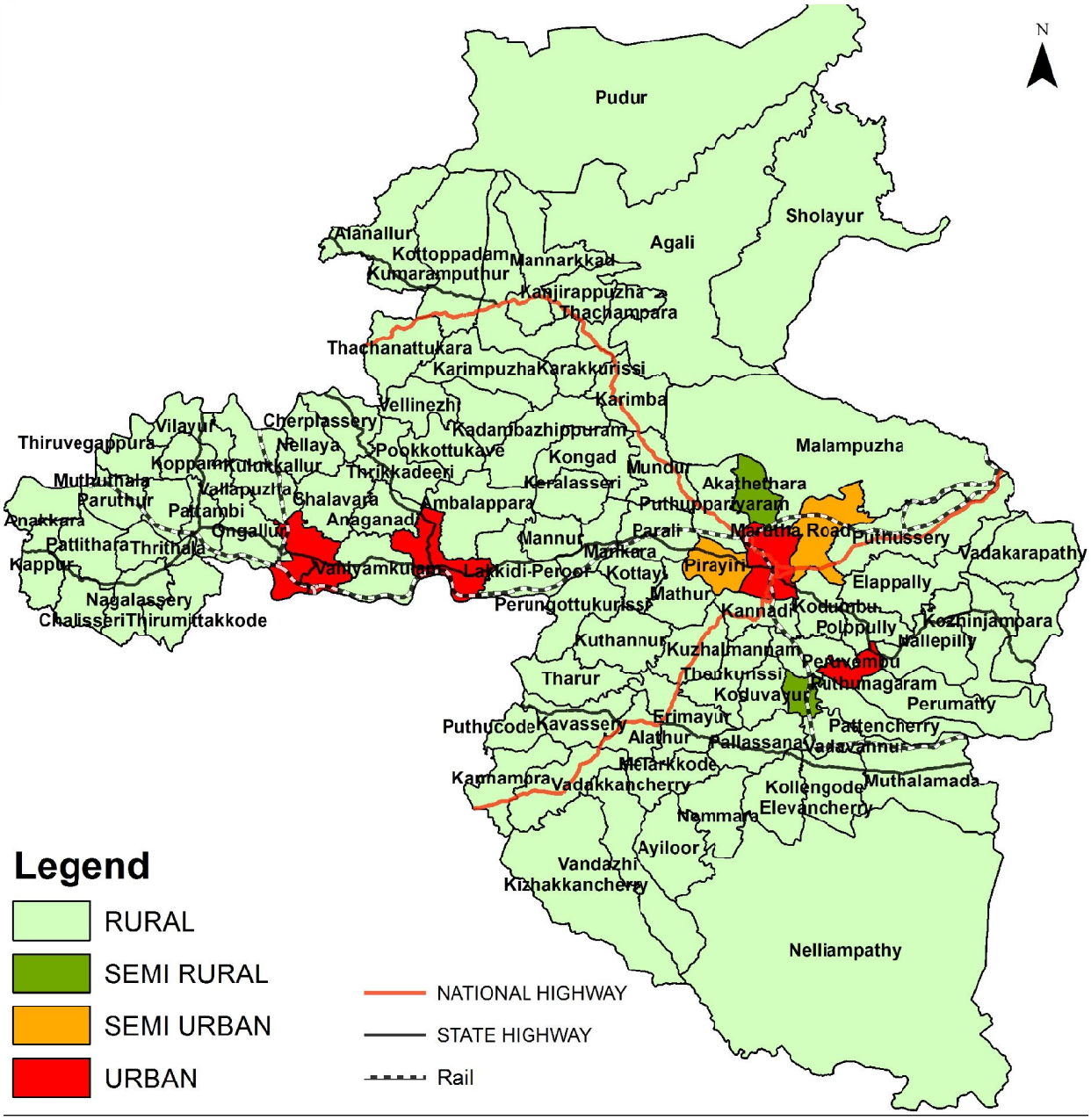


Fig 2.15 Functional Character

Table 2.1 Area and population of LSGs included in Service area of Ottappalm Town

Sl No	Name	Area in km^2	Population 2011
1	Ambalappara	50.08	38276
2	Pookottukavu	22.01	14427
3	Kadampazhipuram	39.71	31506
4	Lakkidiperur	30.79	32528
5	Ottappalam	32.66	53792
6	Ananganadi	20.78	24445
7	Mannur	18.51	19813
	Total	214.54	214787

Source: Census 2011

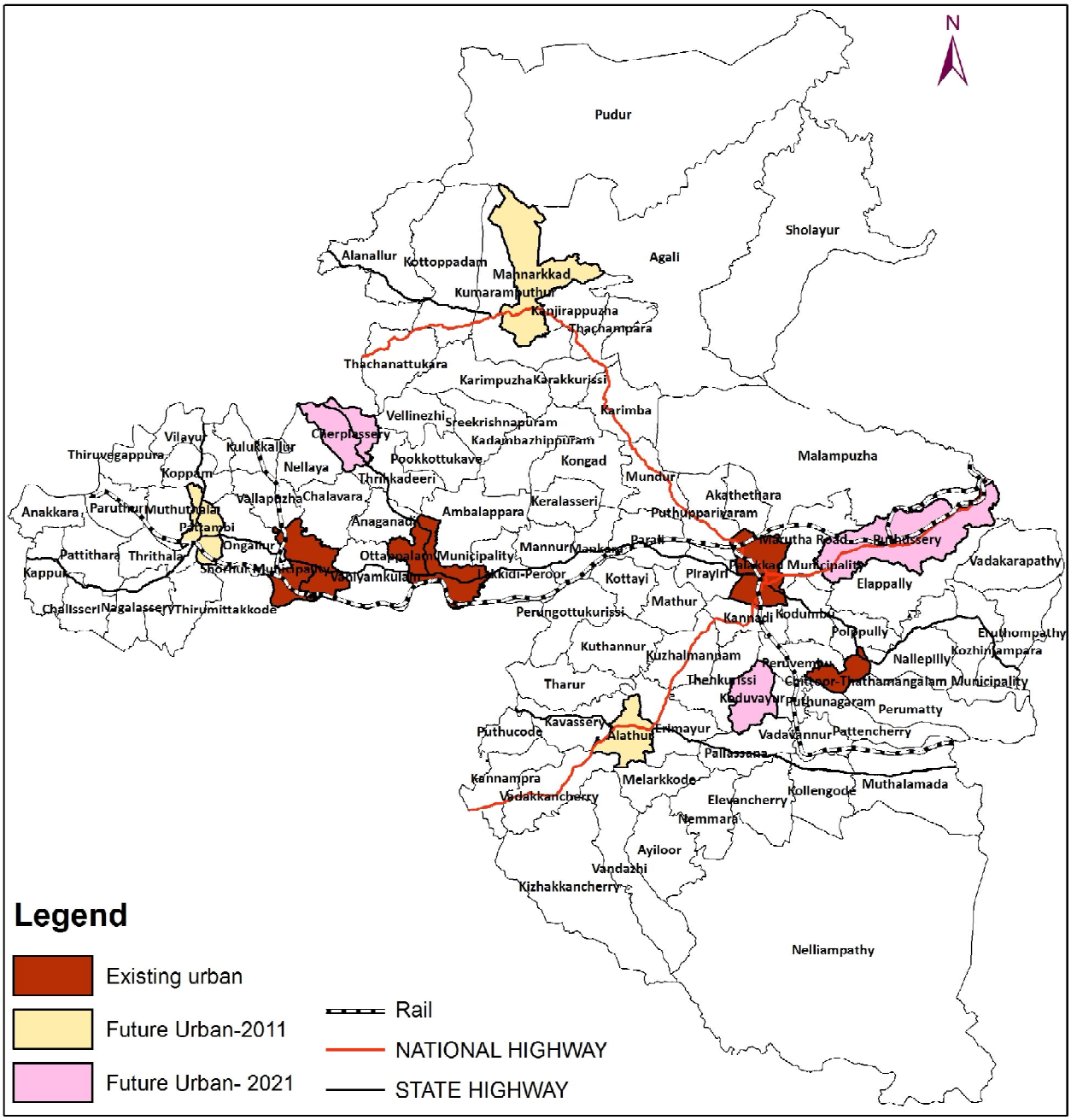


Fig 2.16 Future Urban Profile

2.9 OTTAPPALAM TOWN AND ITS IMMEDIATE INFLUENCE ZONE

There are seven panchayats which surround Ottappalam town.The surrounding panchayats are Ambalappara, Ananganadi, Lakkidiperur, Vaniyamkulam, Kondazhy, Thiruvillwamala and Thrikkadeeri . Table 2.2. gives the demographic details of the immediate influence zone.

The population of Ottappalam and its immediate influence region grew from 156703persons from 1971 to 259030 persons in 2011 constituting a growth rate of 11.83 % during the decade of 1991-2001 and 8.67% during 2001-2011. Regional setting studies conducted in connection with preparation of Master Plans for towns in the district, documented as District Spatial Plan as well as draft IDDP for the district, revealsthat all the adjoining panchayats exhibit rural nature. Ottappalam Town has good road connectivity to adjacent local bodies and to District head quarter. Due to this connectivity with all the adjoining areas,all neighbouring LSGI's depend on

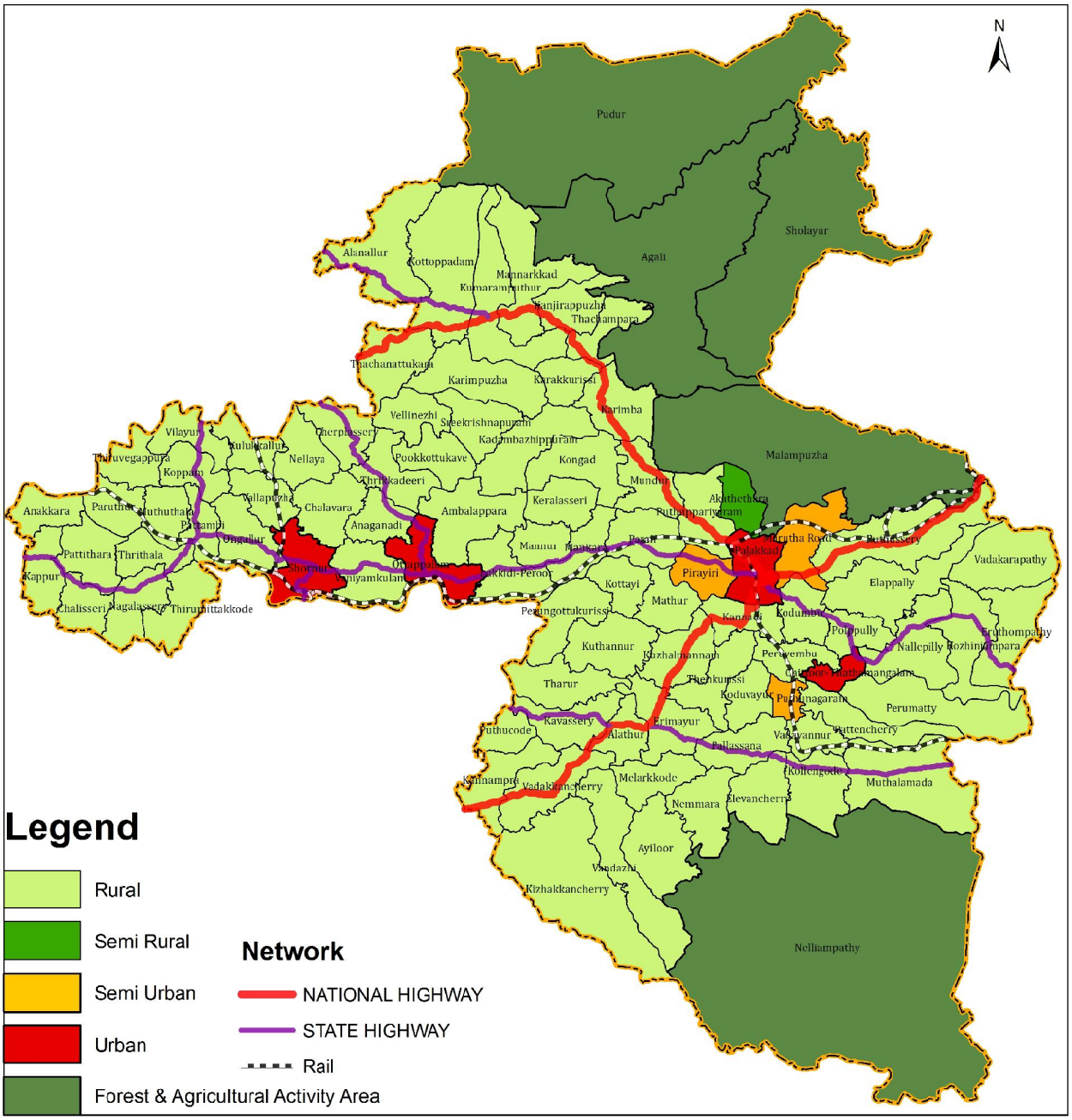


Fig 2.17 Activity Pattern

Ottappalam town for their daily needs.The economy of Ottappalam Town is characterized by Tertiary activity and its immediate influence zone is characterized by primary activities like agriculture. Activity pattern of Ottappalam town and surrounding LSGI's is shown in table 2.3.

Table 2.2 Demographic Details of Immediate Influence Zone

Sl No	Name of LSGI	Area in sq km	Population					Population Density					Growth rate			
			1971	1981	1991	2001	2011	1971	1981	1991	2001	2011	1971-81	1981-1991	1991-2001	2001-2011
1	Ambalappara	50.08	22969	27058	31525	34969	38276	459	540	629	698	764	17.80	16.51	10.92	9.46
2	Ananganadi	20.78	14218	16292	20284	22078	24445	684	784	976	1062	1176	14.59	24.50	8.84	10.72
3	Lakkidi Perur	30.79	18633	22236	26571	30333	32858	605	722	863	985	1067	19.34	19.50	14.16	8.32
4	Vaniamkulam	35.52	20123	22787	26153	29496	32050	567	642	736	830	902	13.24	14.77	12.78	8.66
5	Thrikadeeri	26.28	17300	18037	21304	23718	26662	658	686	811	903	1015	4.26	18.11	11.33	12.41
6	Kondazhy	29.9	13876	16344	18821	21266	22403	464	547	629	711	749	17.79	15.16	12.99	5.35
7	Thiruvillwamala	98.3	18483	21212	24175	27405	28544	188	216	246	279	290	14.76	13.97	13.36	4.16
8	Ottappalam	32.7	31101	37541	44186	49242	53792	951	1148	1351	1506	1645	20.71	17.70	11.44	9.24

Source : Census 1981,1991,2001,2011

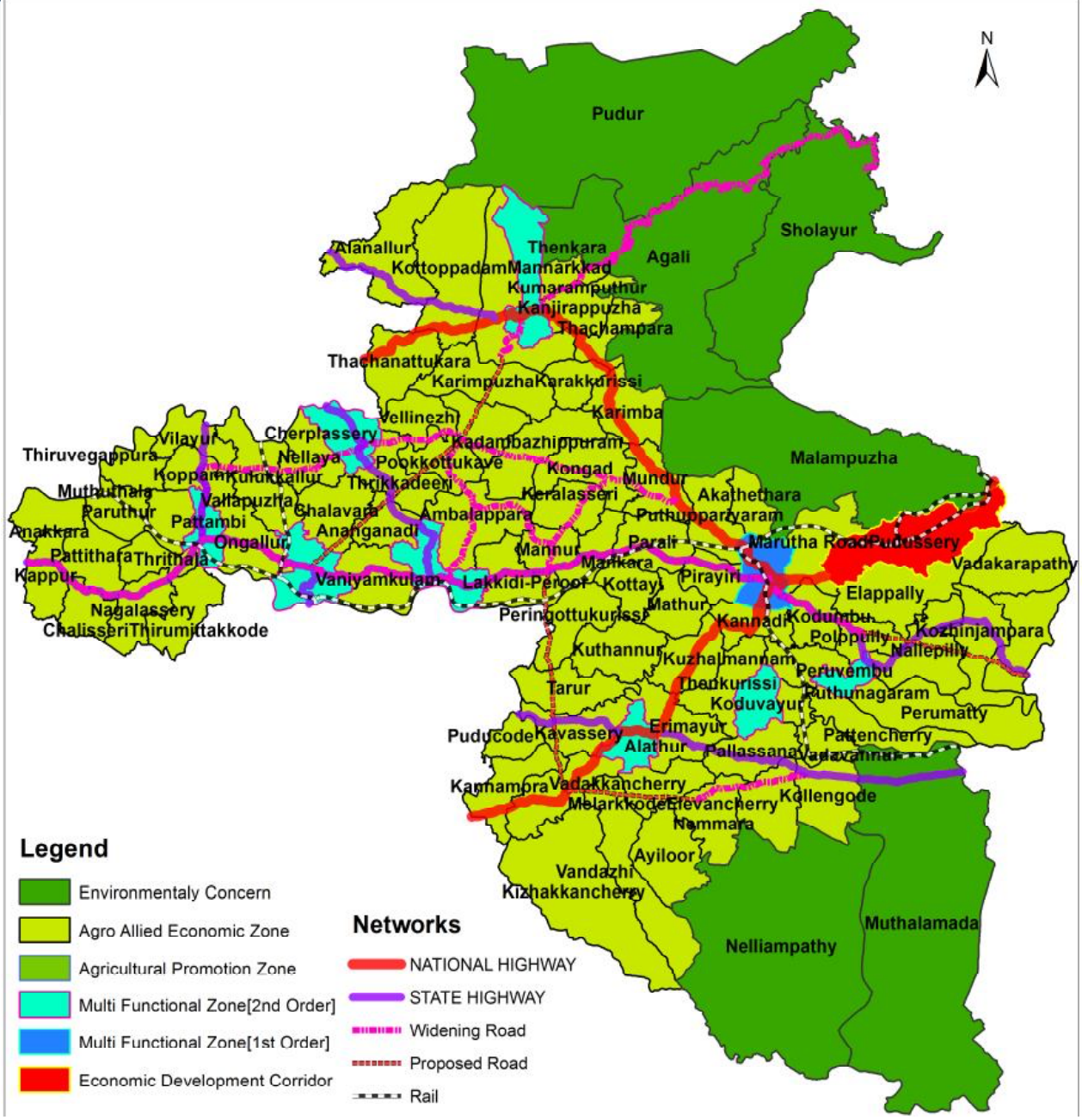


Fig 2.18 Development Concept

Table 2.3 Activity pattern of Ottappalam Town and surrounding LSGI's

Sl.no	Name of LSGI	Urban profile	Functional Character	Landuse Concentration	Activity Pattern
1	Ananganadi	NON URBAN	RURAL	Agri	Primary Activity (Agri)
2	Lakkidi-Perur	NON URBAN	RURAL	Agri	Primary Activity (Agri)
3	Ambalapara	NON URBAN	RURAL	Agri	Primary Activity (Agri)
4	Vaniyam kulam	NON URBAN	RURAL	Agri	Primary Activity (Agri)
5	Thrikaderi	NON URBAN	RURAL	Agri	Primary Activity (Agri)
6	Kondazhy	NON URBAN	RURAL	Agri	Primary Activity (Agri)
7	Thiruwalamala	NON URBAN	RURAL	Agri	Primary Activity (Agri)
8	Ottappalam (M)	Urban	Rural	Agri	Tertiary

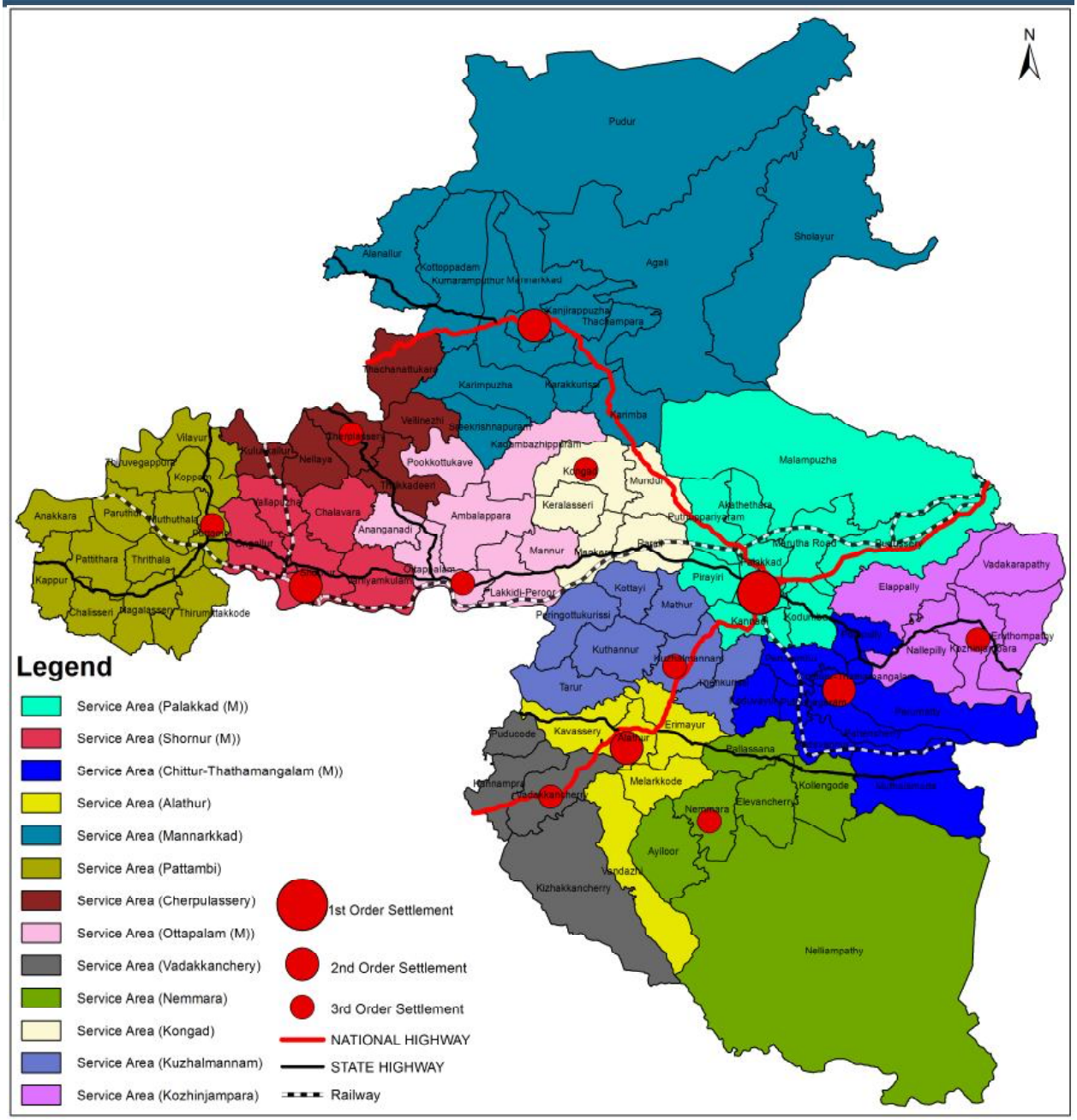


Fig 2.19 Service area of Third order settlements as per IDDP

Fig 2.20 shows a pictorial representation of Activity Pattern of Ottappalam Town and surrounding local bodies. From these data, we get a clear view of thetertiary character of Ottappalam Town. All the neighbouring LSGI's fall under primary activity zone.It can be seen that the immediate surrounding settlements show rural nature. Hence the planning area for Master plan was confined to Ottappalam Municipal area. The analysis of Regional linkage of the town with surrounding District/State and Regional setting of the town within the district based on the "Integrated District Development plan" clearly points out the fact that the Ottappalam municipality is well connected with surrounding District/State, Airport, Port, tourist spots, growth centres within the district by road and rail network. The analysis also reveals the fact that the Ottappalam Municipality has to function as Taluk head quarter and as a third order settlements, the town has to perform the function of an urban centre with due consideration to service sector activity.



Fig 2.20. Activity Pattern of Ottappalam and surrounding LSGI's

2.10 INFERENCE

Based on the Hierarchy of Settlements derived out in the Integrated District Development Planfor Palakkad, Ottappalam Town is one of the third second order settlements in the district. The service population of the town being a third order settlement in the district is 2,59,030.Hence development of Ottappalam Municipal area with more improved infrastructural facilities and job opportunities are required to satisfy the needs of the increasing population. Since none of the neighbouring LSG's show urban character, the Master Plan area is delineated to be the Ottappalam Municipal Area.

3. DEMOGRAPHY

3.1 POPULATION AND ITS GROWTH PATTERN

The total population of Palakkad District as per Census 2011 is 28,09,934 which accounts 8.41% of the State population. Palakkad district ranks 7th position in terms of population among other districts of Kerala state where 3rd position in population growth rate during 2001-2011 with Malappuram and Kasargode districts in the 1st and 2nd positions . Decadal variation of total population of Palakkad District is shown in Fig 3.1 and comparison of Population growth rate 2001-2011 of all Districts and Kerala state is shown in Fig 3.2.

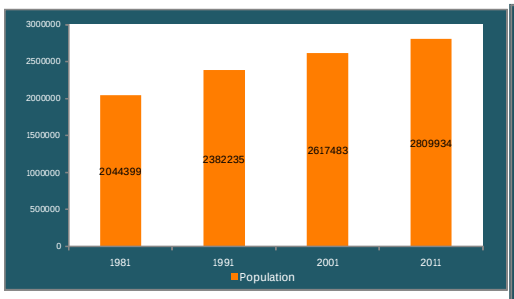


Fig 3.1 Decadal variation of total population of Palakkad District

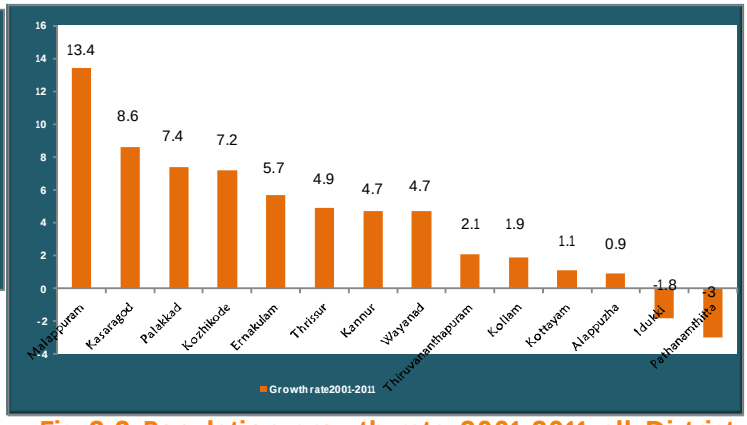


Fig 3.2 Population growth rate 2001-2011 all Districts and Kerala state

Population of Ottappalam municipality is 53755 as per Census 2011 which includes 25337 males and 28418. It contains 1.09 % of District Population and 16.38 % of urban population of district. Total population of the municipality for the years 1981, 1991, 2001 and 2011 shown in the Table 3.1. Temporal variation of total decadal and gender wise Population of Ottappalam (M) is shown in Fig 3.3.

Table 3.1 Decadal total and genderwise population of Ottappalam Municipality

Year	1991			2001			2011		
Category	Male	Female	Total	Male	Female	Total	Male	Female	Total
Ottappalam M	20813	23373	44186	23186	26056	49242	25337	28418	53755

Source :Census 1991,2001,2011

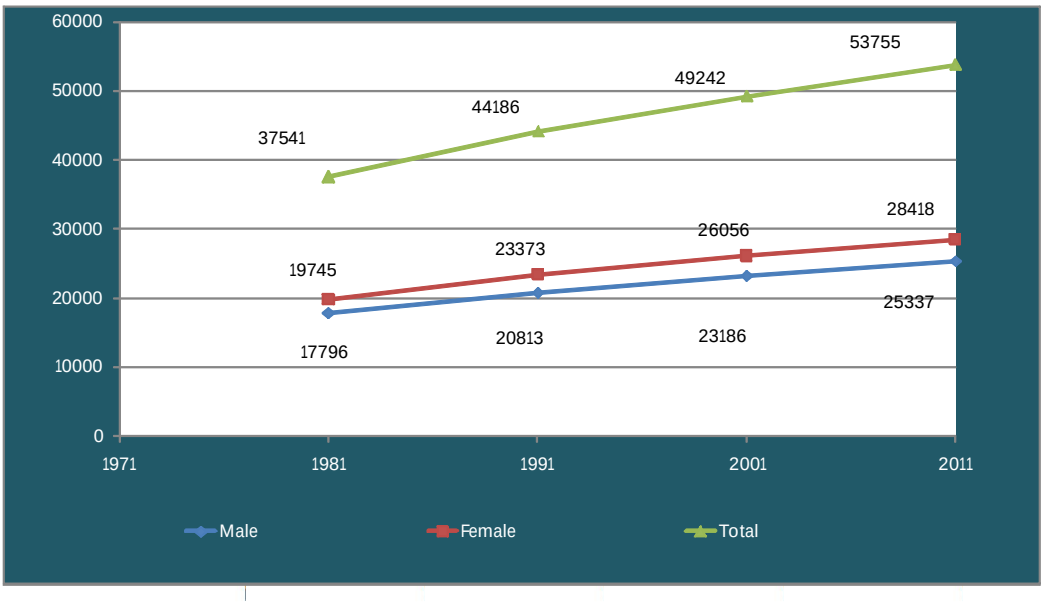
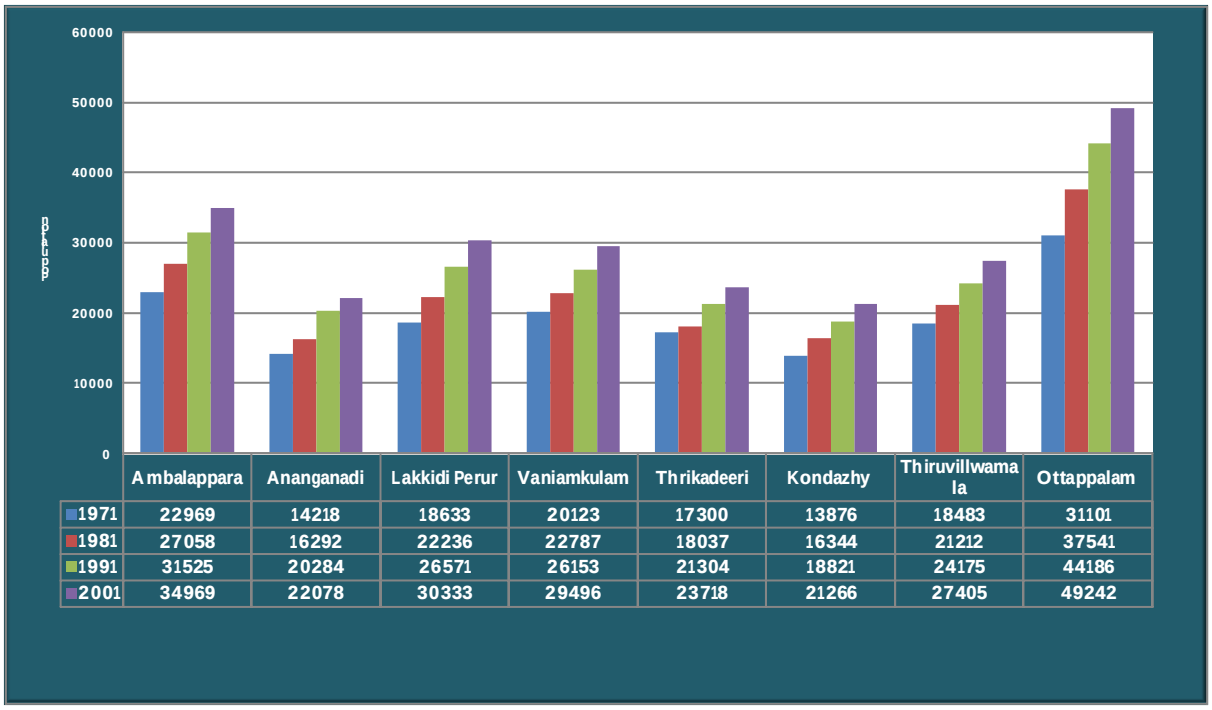


Fig 3.3 Temporal variation of total decadal and gender wise Population of Ottappalam (M)

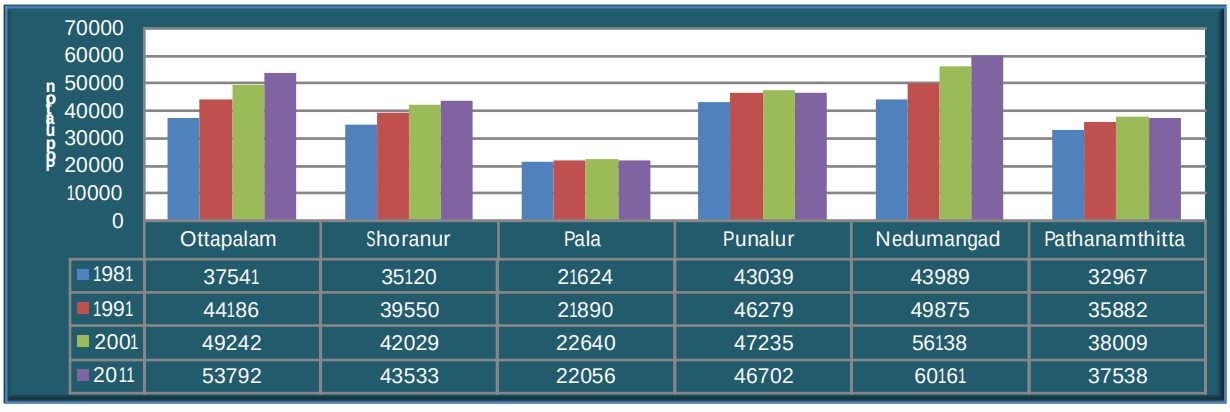
Population comparison with nearby local bodies is shown in fig. 3.4 while comparing population of nearby local bodies, Ottappalam is having highest population. The population of Ananganadi Grama panchayath is lowest compared to all other LSGIs.



	Ambalappara	Ananganadi	Lakkidi Perur	Vaniamkulam	Thrikadeeri	Kondazhy	Thiruvillwamala	Ottappalam
1971	22969	14218	18633	20123	17300	13876	18483	31101
1981	27058	16292	22236	22787	18037	16344	21212	37541
1991	31525	20284	26571	26153	21304	18821	24175	44186
2001	34969	22078	30333	29496	23718	21266	27405	49242

Fig 3.4 Population comparison with nearby LSGI s

Fig.3.5shows comparison of population of town with towns having similar growth pattern as of Ottappalam Town. The decadal growth rate in total population of town for the decades 1981 – 1991, 1991 – 2001 and 2001 – 2011 were 17.7%, 11.4% and 9.16 % respectively. Variation of growth rate of population for the municipality and its comparison with district is shown in the Fig 3.6. Even though the growth rate of the municipality as well as district shows a decreasing trend, the growth rate of municipality is higher than that of the district. Fig 3.7 and Table 3.2 shows the comparison of growth rate with nearby LSGs while comparing the growth rate with nearby LSGs, it is seen that the growth rate of the Ottappalam municipality is highest in all decades . The growth rate comparing with other towns in the district is shown in Fig 3.8



	Ottapalam	Shoranur	Pala	Punalur	Nedumangad	Pathanamthitta
1981	37541	35120	21624	43039	43989	32967
1991	44186	39550	21890	46279	49875	35882
2001	49242	42029	22640	47235	56138	38009
2011	53792	43533	22056	46702	60161	37538

Fig 3.5 Population Comparison with Similar Towns in 1981,1991,2001,2011

Comparing growth rate of Ottappalam with other municipalities shows that Ottappalam municipalityis having highest growth rate. Growth rate of Ottappalam municipality during 2001-2011 reduced to almost one fourth as that of the 1981-1991.

Comparing population growth rate of Ottappalam Municipality with nearby LSGs, Ananganadi grama panchayath stands in 1st position with 10.72% population growth rate during 2001-2011.

Table 3.2 Decadal Population Growth rate of Nearby LSGI's and Ottappalam (M)

Name of Local body	Population Growth Rate			
	1971-81	1981-1991	1991-2001	2001-2011
Ambalappara	17.80	16.51	10.92	9.45
Ananganadi	14.59	24.50	8.84	10.72
Lakkidi Perur	19.34	19.50	14.16	8.32
Vaniamkulam	13.24	14.77	12.78	-17.12
Thrikadeeri	4.26	18.11	11.33	12.41
Kondazhy	17.79	15.16	12.99	5.34
Thiruvillwamala	14.76	13.97	13.36	4.15
Ottappalam	20.71	17.70	11.44	9.16

Source :Census 1971,1891,1991,2001,2011

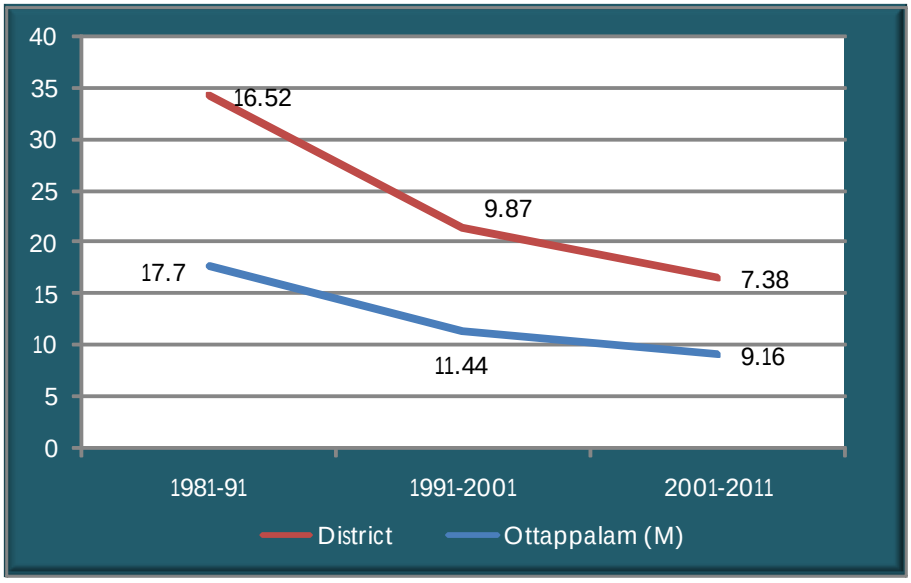


Fig 3.6 Growth rate of town comparison with District

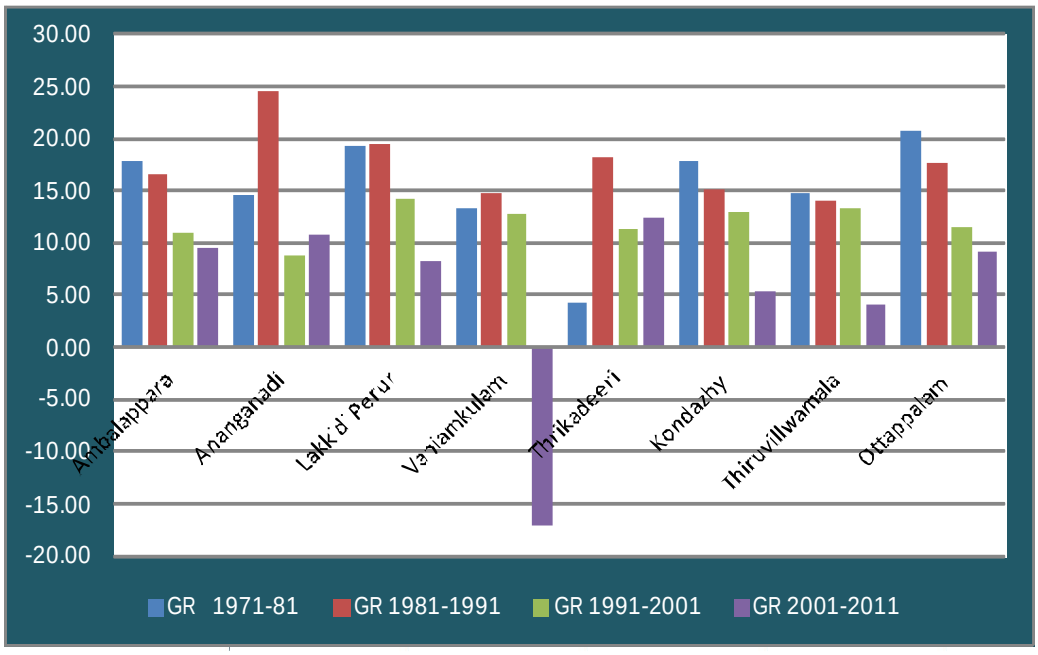


Fig 3.7 Comparison of Population Growth Rate 2001-2011 with nearby LSGIs

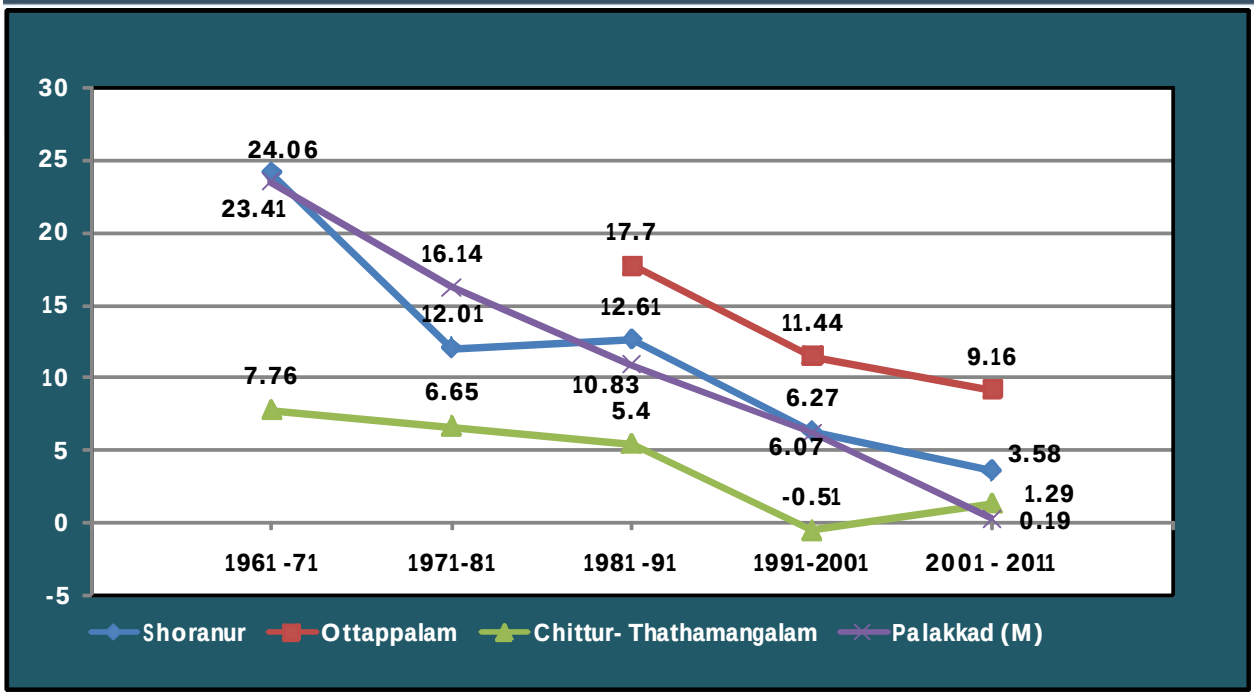


Fig 3.8 Population Growth rate Comparison with other municipalities of Palakkad District

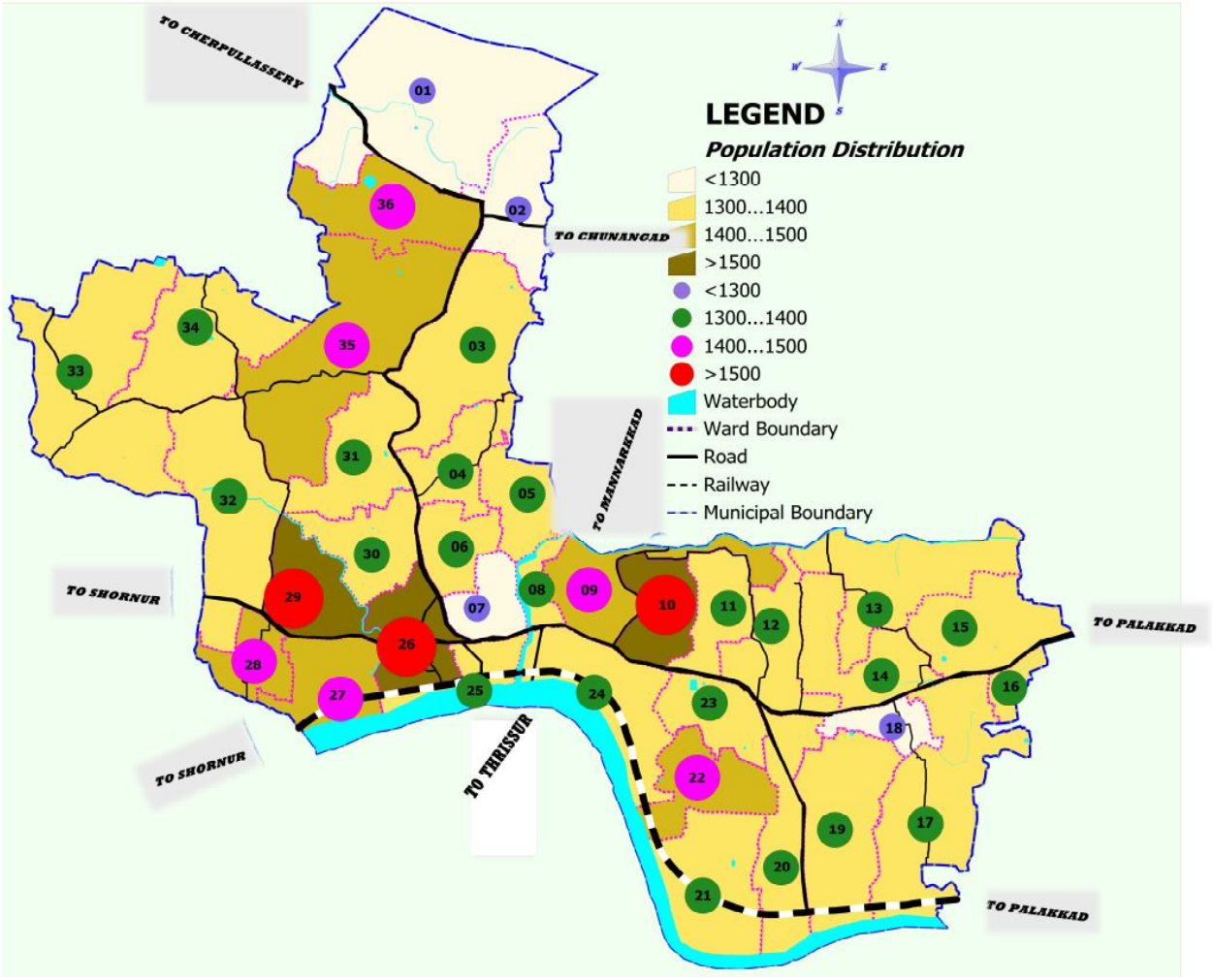


Fig 3.9 Ward wise spatial distribution of population

3.1.1 Spatial Distribution of Popualtion

The ward wise spatial distribution of population in Ottappalam Municipality is shown in fig.3.9 From the figure we can see that the wards Poolakundu(Ward 10), Kanniyampuram Vayanasala (Ward 29) and Thennadi bazar (Ward 26) have higher population. These wards are located along the sides of major District road – Palakkad Ponnani road.Table 3.3 shows ward wise population of Ottappalam Municipality.

Table 3.3 Ward wise population of Ottappalam Municipality

Ward No	Name of Ward	Population	Ward No	Name of Ward	Population	Ward No	Name of Ward	Population
01	ANANGANMALA	1286	13	AZHIKALAPARAMBU	1303	25	RAILWAY STATION	1336
02	VARODE	1289	14	PALAPPURAM THERUVU	1399	26	THENNADI BAZAR	1553
03	CHERIKUNNU	1366	15	CHINNAKATHUR KAVU	1339	27	KANIYAMBURAM THERUVU	1470
04	THOTTAKARA	1309	16	APPEYPURAM	1336	28	KILLIKAVU	1496
05	MAYILUMPURAM	1309	17	VALLARMANGALAM	1323	29	KANIYAMBURAM VAYANASALA	1500
06	ARIKKAPADAM	1336	18	PERUMKULAM	1263	30	GOVERNMENT HOSPITAL	1366
07	PALATT ROAD	1283	19	KAYARUMPARA	1363	31	KUMMAMPARA	1356
08	KOLLOYHKUNNU	1313	20	NSS COLLEGE	1323	32	KANNIYAMPURAM UP SCHOOL	1353
09	EAST OTTAPALAM	1480	21	ERAKOTTIRI	1363	33	PANAMMANA VAYANASALA	1332
10	POOLAKUND	1503	22	MEETNA	1456	34	PANAMMANA VATTANAL	1342
11	KIZHAKKEKKAD	1356	23	POSTAL QUARTERS	1319	35	VETTAMPARA	1419
12	PATHIRAKODE	1343	24	KUMBARANKUNNU	1329	36	KOLOTHPARAMBU	1430

Source : Ottappalam Municipal Office

3.2 POPULATION DENSITY

Population density is a measurement of population per unit area. Population Density of Palakkad District as per Census 2011 is 627 Persons/km^2 and that of the municipality is 1645 persons/km^2. Palakkad District has 12th position in the case of population density with in state. The net population density of Ottappalam municipality is 3158 persons/km^2. Decadal variation of population density of Ottappalam Municipality is shown in Fig 3.10.

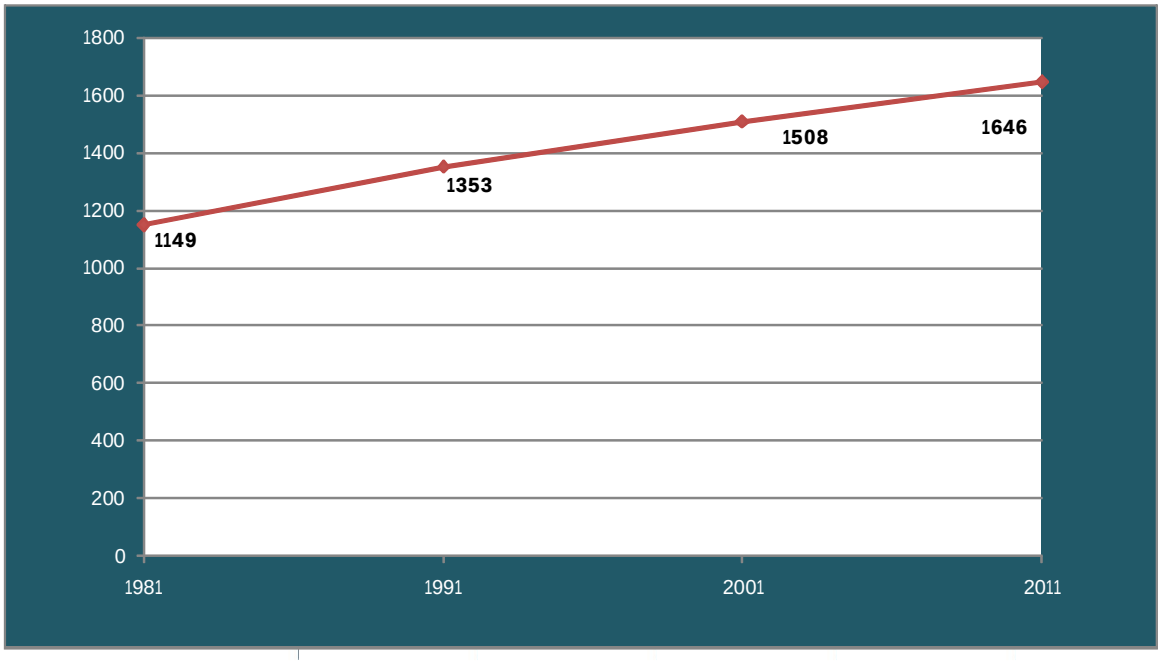


Fig 3.10 Decadal variation of population density of Ottappalam Town

Comparison of Population density with nearby LSGIs are shown in the fig 3.11. The population density of Ottappalam Municipality is very high compared to nearby LSGI. Population density comparison withother municipalities within district is shown in the fig 3.12.The population density of Ottapalam Municipality is greater than Shoranur Municipality ,but lesser than Palakkad,Chittur Thathamangalam Municipalities within the district as per 2011 census. Population density comparison with similar towns is shown in the fig 3.13.

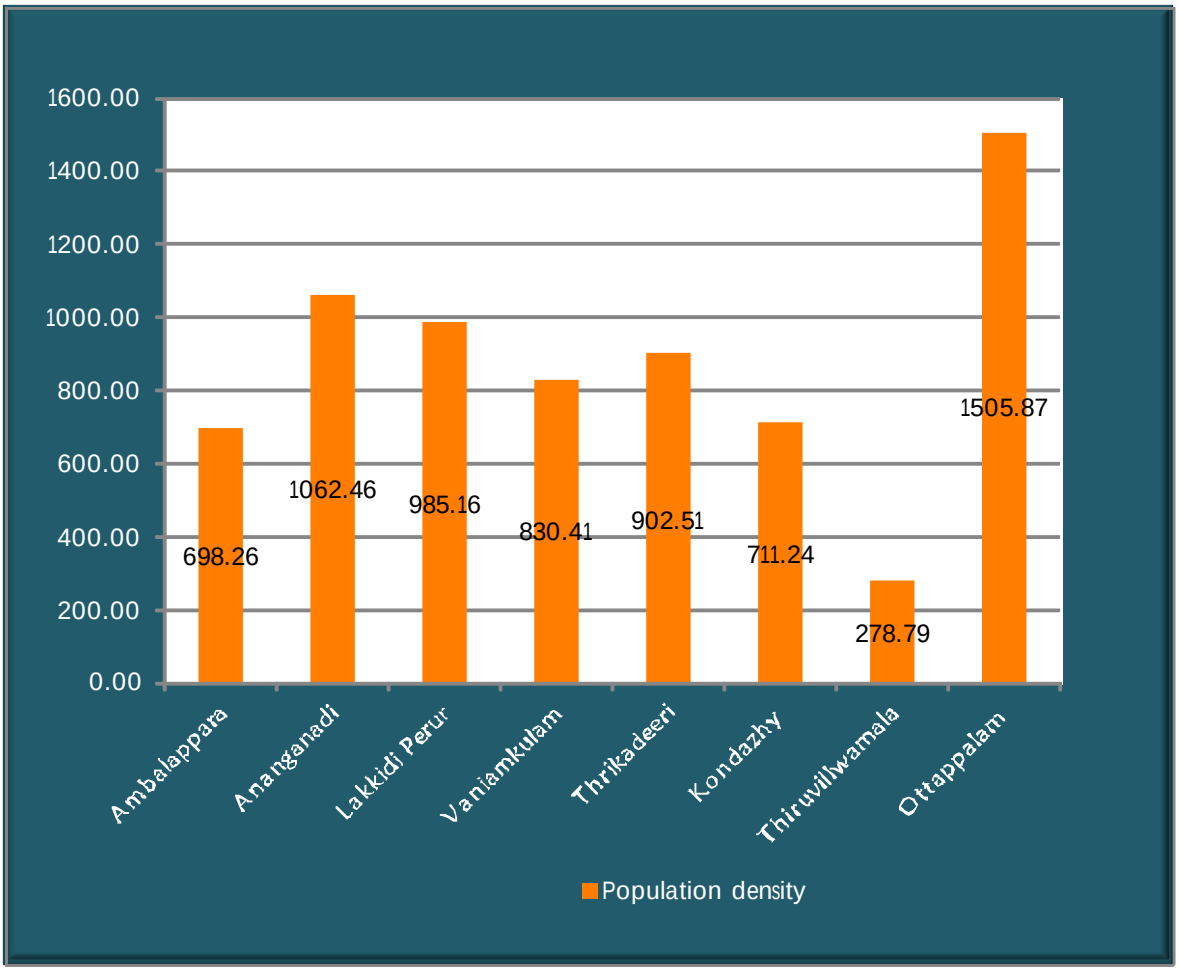


Fig 3.11 Population Density Comparison with near by LSGs -2011

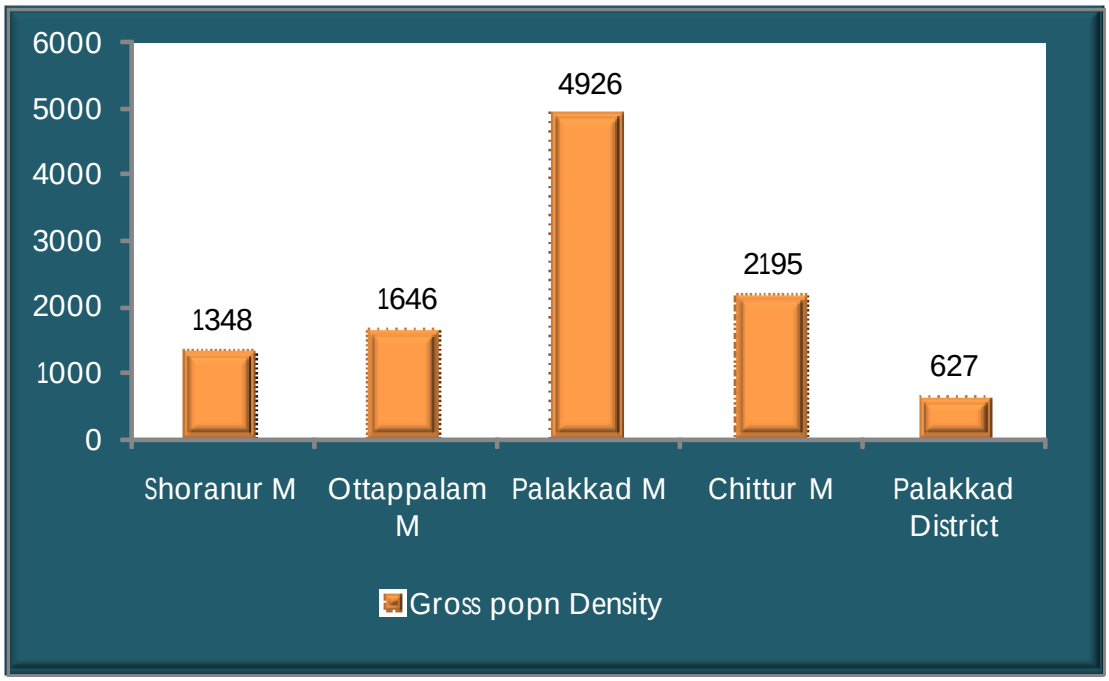


Fig 3.12 Population Density comparison with other Municipalities - 2011

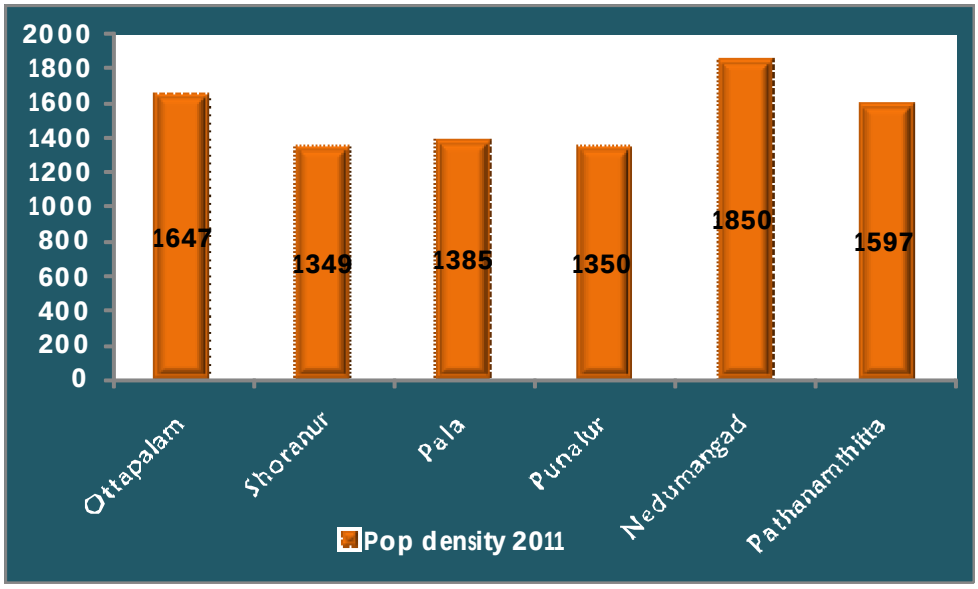


Fig 3.13 Population Density comparison with similar towns - 2011

Ward wise gross population density and net population of municipality are shown in the fig 3.14 and fig 3.15 respectively. From the figures it is seen that the wards Appeypuram, Kolloyhkunnu and Perumkulam are having the high population density. Low population density is seen in Anangamala ward which is a hilly area. Higher population density in the central part of the municipality indicates that land available for new development is in the peripheral area than in core city.



Fig 3.14 Ward wise gross population density

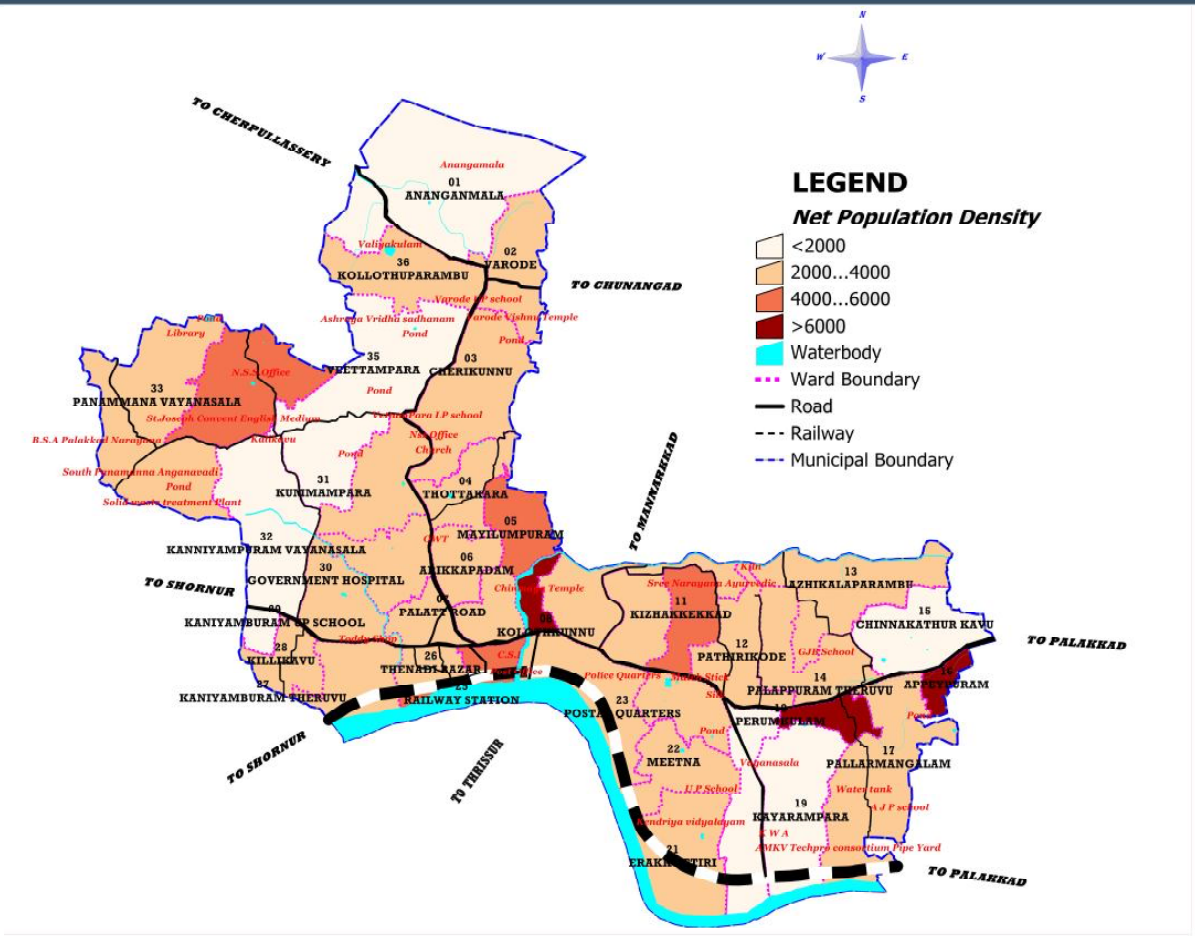


Fig 3.15 Ward wise net population density

3.3 SEX RATIO AND AGE STRUCTURE

According to 2011 Census, Sex ratio of Palakkad district is 1067. Sex ratio of Palakkad District is less than that of the state (1084). Palakkad shows less sex ratio by comparing with nearby districts. As per 2011 Census the Municipality having sex ratio 1122 which is higher than that of the District. When comparing with other Municipalities (Fig 3.17)Ottappalam shows higher sex ratio. This indicates the higher migration of males for jobs.

The age-sex structure of a population is the cumulative result of past trends in fertility, mortality, and migration . According to the socio economic survey 2012, sex pyramid shows low population growth rate and majority of people are within the age group 30 – 25. The percentage of working population of Ottpappalam is strong in position. Sex ratio of Ottappalam municipality compared with that of nearby local bodies is in third position . Age sex pyramid based onthe Socio economic survey 2012 is shown in Fig 3.18. Variation of sex ratio for Ottappalam municipality in the previous decades is given in Table 3.4. From the table we can see that sex ratio of Ottappalam is approximately equal in last 3 decades.Sex ratio comparison of Ottappalam municipality with nearby local bodies, with similar towns and se ratio for children comparison of Ottappalam municipality with nearby local bodies, with similar towns are given in Fig 3.19, Fig 3.20 ,Fig 3.21 and Fig 3.22 respectively. The sex ratio for children (0-6 age) as per 2011 Census is 997 in Ottappalam Municipality against district average of 967.

Table 3.4 Sex Ratio of Municipality 1991 – 2011

Year	1991	2001	2011
Sex Ratio	1123	1124	1122

Source :Census 1991,2001,2011

3.4 POPULATION CONCENTRATION

Population concentration of municipality is shown in figure. 1/3rd population is concentrated in wards cherikkunnu, Poolakundu, Palappuram Theruvu, Meetna, Thennadi bazaar, Kummampara, veettampara and Kollothuparambu. 1/2nd population is concentrated in wards Kizhakkekkad, Pathirikode, Kayarampara, Erakkottiri and Kanniyampuram vayanasala. 2/3rd population is concentrated in wards Arikkappadam, Chinakathurkavu, Appeypuram, Panamanna vayanasala and Panamanna Vattanal. The remaining population is concentrated in the other wards.

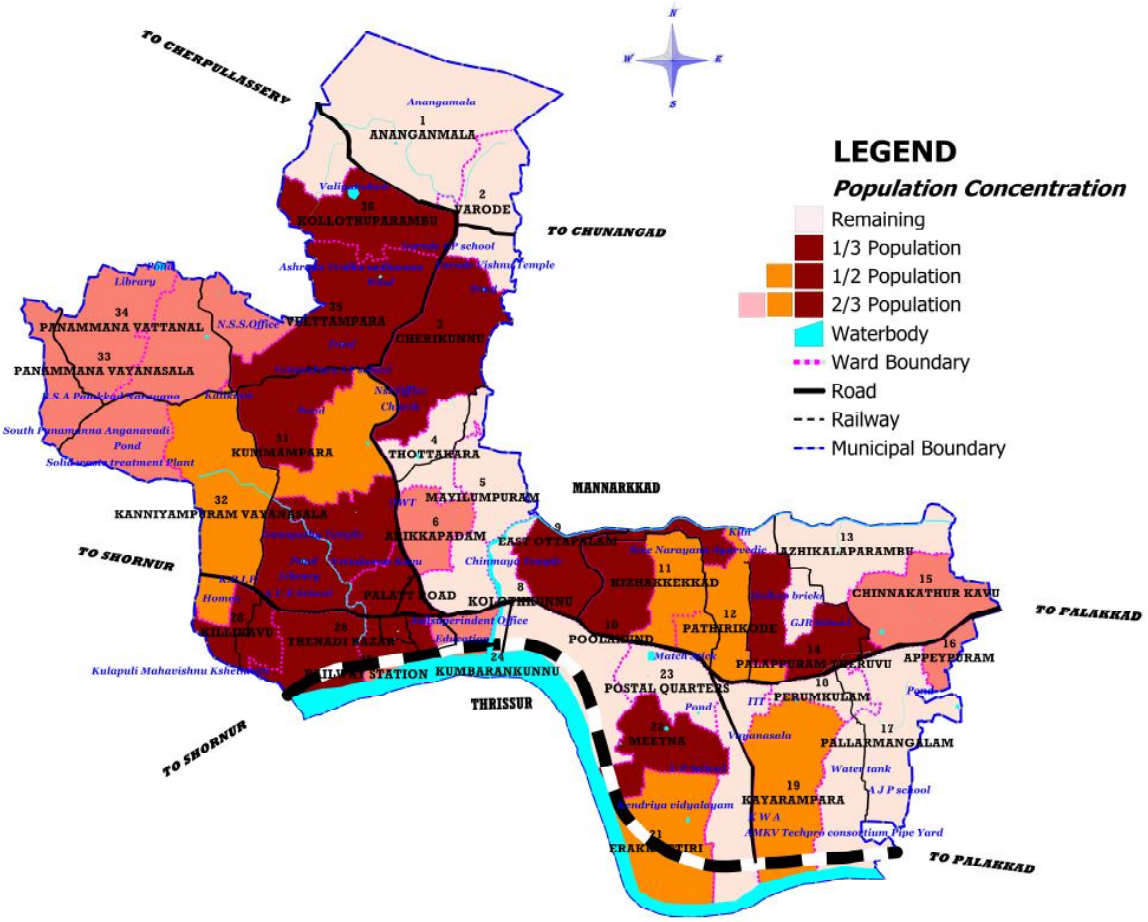


Fig 3.16 Population Concentration

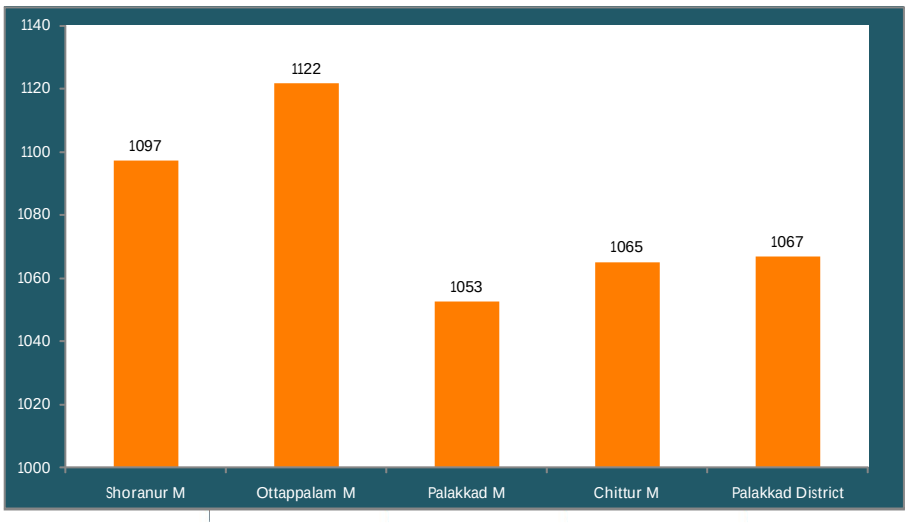


Fig 3.17 Sex ratio comparison with district and other Municipalities 2011

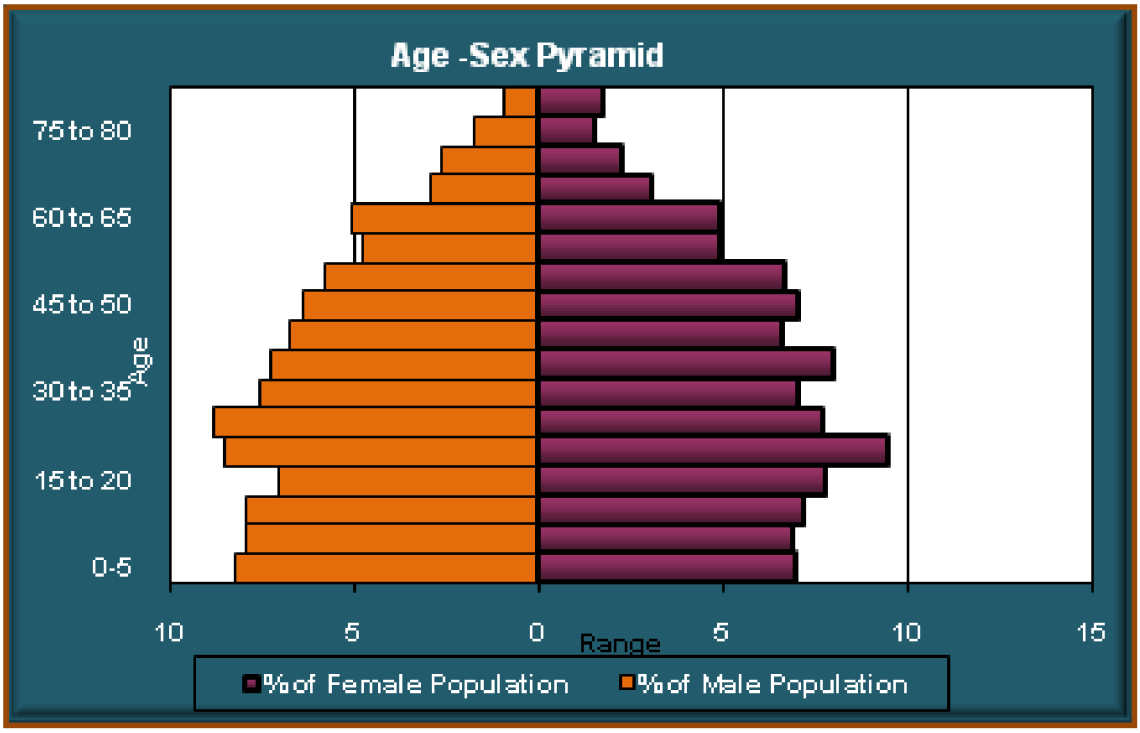


Fig 3.18 Age Sex Pyramid 2012

Source: Socio Economic survey 2012

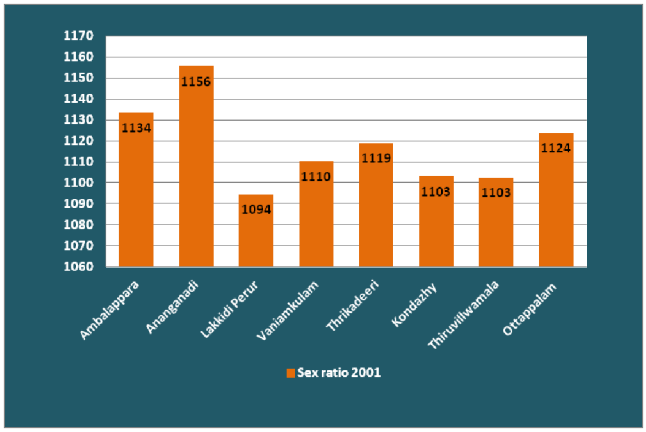


Fig 3.19 Sex ratio comparison with nearby LSGs 2001

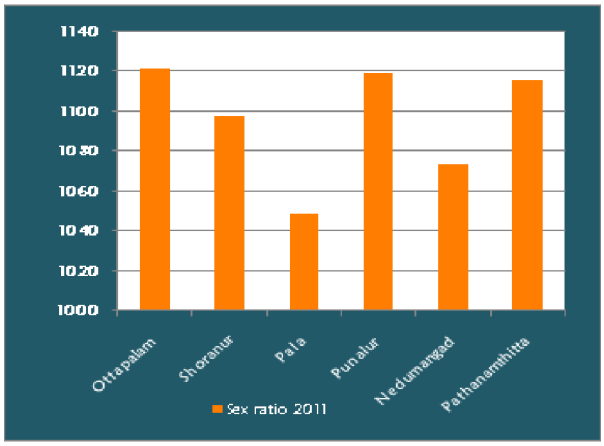


Fig 3.20 Sex ratio comparison with similar Towns

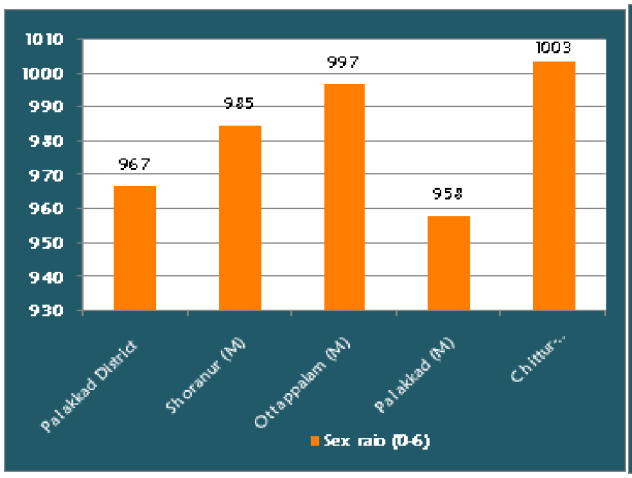


Fig 3.21 Sex Ratio of children comparison with other towns 2011

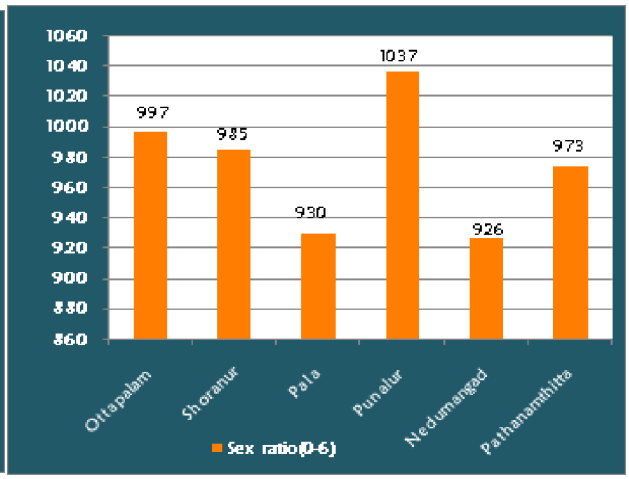


Fig 3.22 Sex Ratio of children comparison with similar towns 2011

3.5 LITERACY

As per Census 2011 the Literacy rate of Palakkad District is 89.3%. Literacy rate of Ottappalam Municipality in 2011 is 94.63% which is above district (89.3) and State Literacy level (94.0). Even though the District rate is less than the state level, Municipality having a literacy rate higher than the state rate. This shows the forwardness of the town in educational field. Males have a higher literacy rate of 96.68% than the female literacy rate (92.95%).

Comparing with other municipalities in the district, Ottappalam has second highest literacy rate. Comparison of literacy rate with other municipalities and district shown in the Fig 3.23.Comparison of decadal variation of literacy rate of the municipality with the district is shown in Fig 3.24. The literacy rate has increased over the past decades.

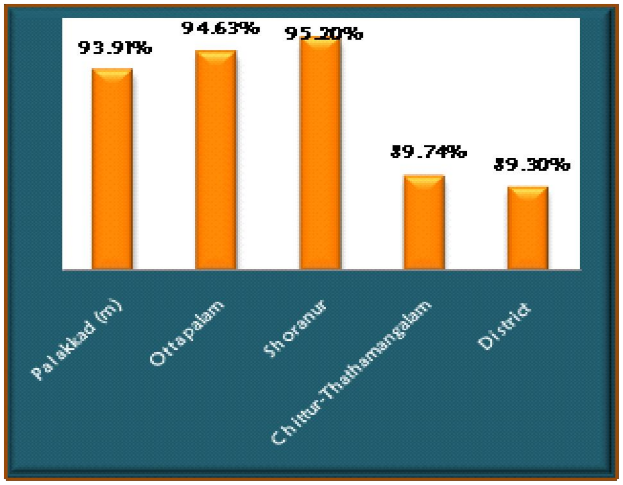


Fig 3.23 Literacy Rate comparison with district and other Municipalities 2011

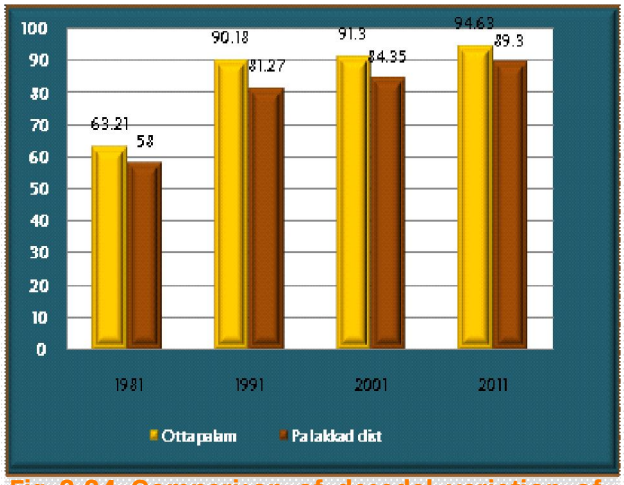


Fig 3.24 Comparison of decadal variation of Literacy rate with district 2011

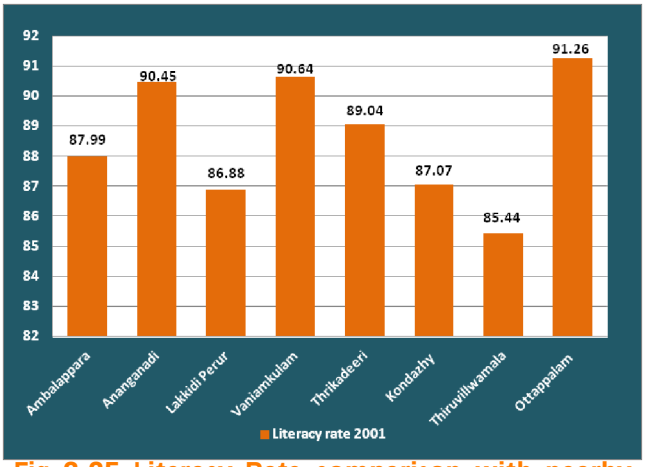


Fig 3.25 Literacy Rate comparison with nearby LSGs 2001

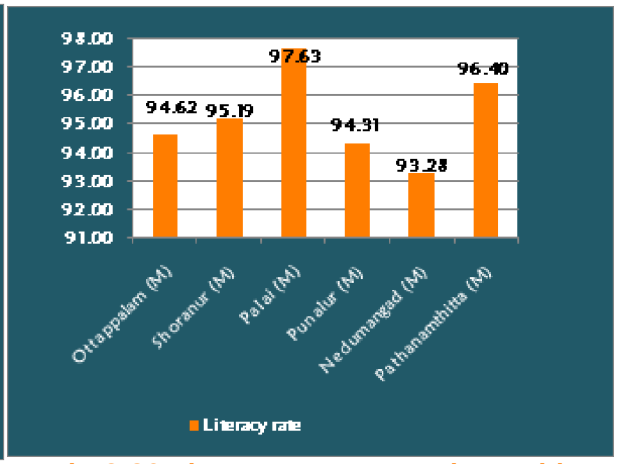


Fig 3.26 Literacy Rate comparison with other similar towns 2011

Fig 3.25 shows that the literacy rate of Ottappalam is high when compared to nearby LSGs followed by Vaniyamkulam and Ananganadi. Fig 3.26 shows that the literacy rate of Ottappalam is lesser than Pala and Pathanamthitta and shoranur Municipality.

3.6 SIZE OF HOUSE HOLDS

According to Census 2011 Palakkad District has total house hold of 6,37,220 and average house hold size is 4.40. As per 2011 census total number of house holds in Ottappalam Municipality is 12484. Total population of municipality is 53755 and the average house hold is 4.31. The average size of house hold of other municipalities in the district is similar to that of Ottappalam. Average HH size decreased from year 1981 to 2011.

Decadal variation of No of HHs comparison with other towns in Palakkad district is shown in Fig 3.27. It can be seen that the house hold size of municipality is highest compared to other municipalities within district . Comparison of House hold size of Ottappalam with similar towns (Fig 3.28) shows that the house hold size Ottappalam municipality is also more.

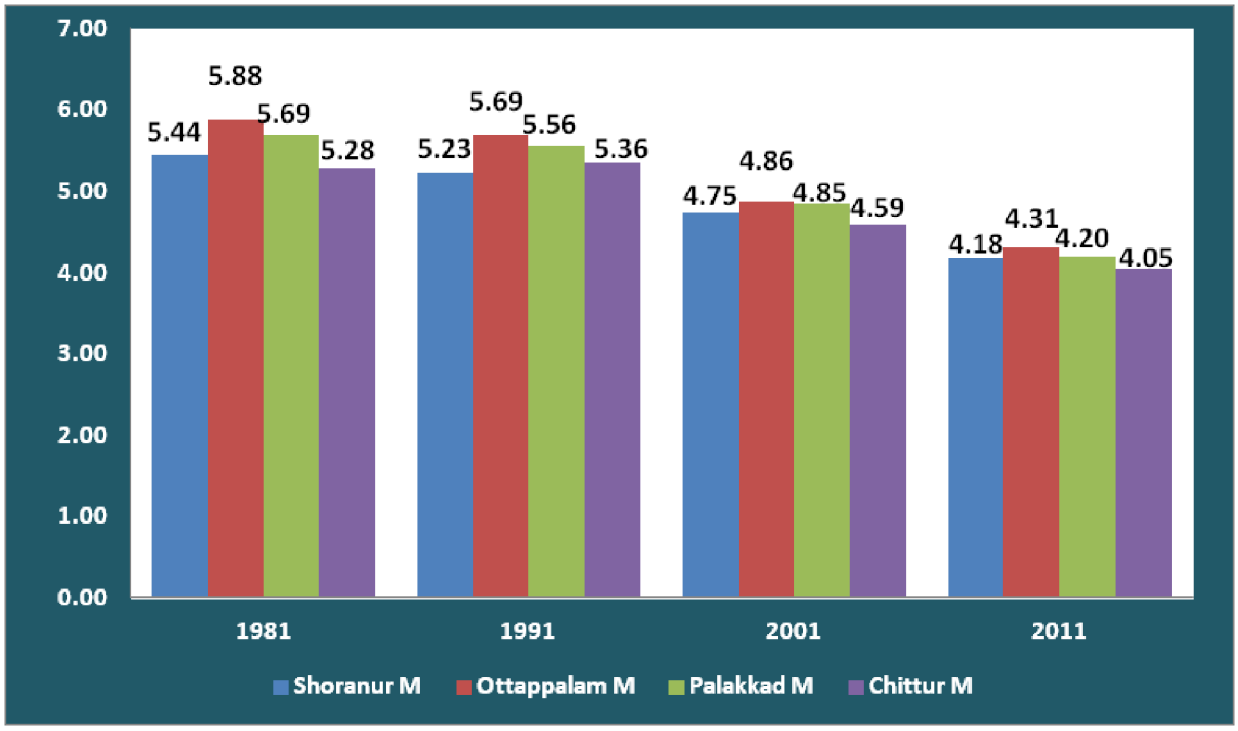


Fig 3.27 Decadal variation of HH size comparison with other towns in Palakkad district

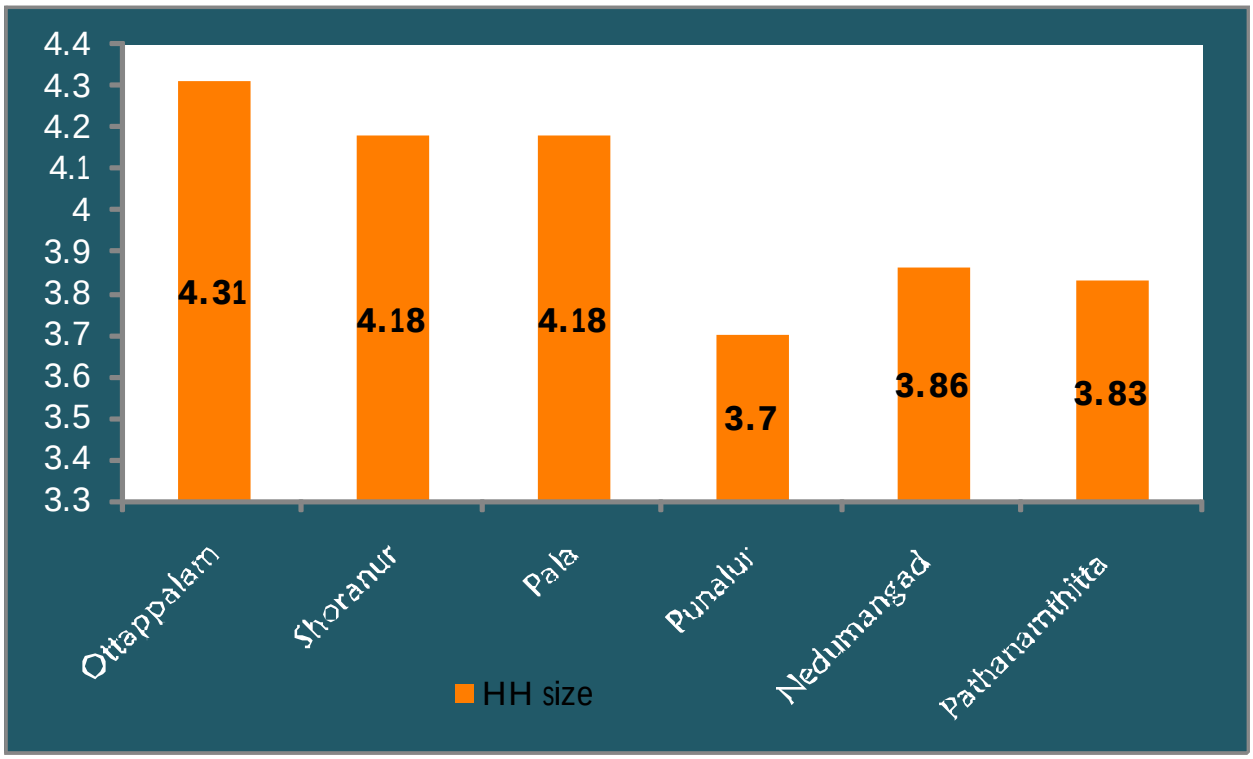


Fig 3.28 Comparison of HH size with similar towns 2011

3.7 SOCIAL COMPOSITION

Population composition of Ottappalam is given in Fig 3.29 and 3.30. Census 2011 shows, 91.72% of total population of the Ottappalam Municipality is general . Out of this SC population is 8.13% and ST population is 0.15%. Religion wise population of municipality is shown in Fig 3.29. It shows that nearly 73.22% belongs to Hindu, 24.61% belong to Muslims and 2.17% belongs to Christian according to Socio Economic Survey 2012.

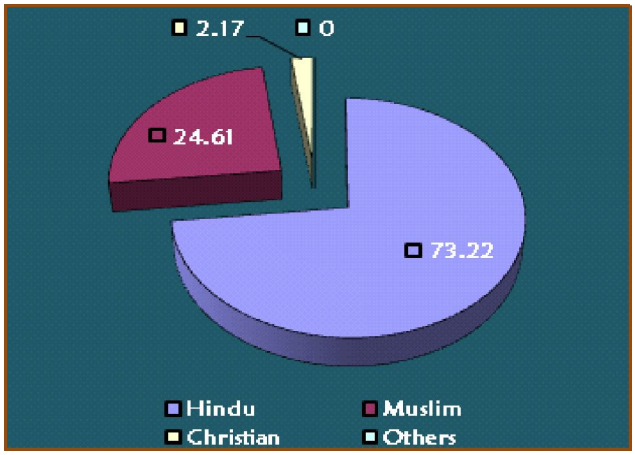


Fig 3.29 Religion wise population

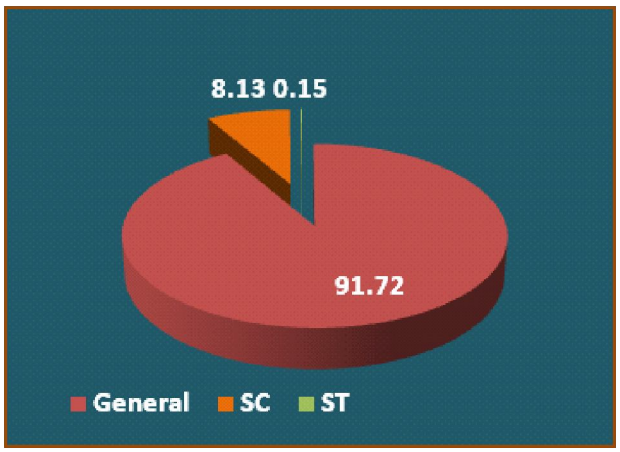


Fig 3.30 Population composition of municipality as per Census 2011

3.8 MIGRATION

Human migration is movement by humans from one place to another, sometimes over long distances or in large groups. People who migrate into a territory are called immigrants, while at the departure point they are called emigrants. Census of India defines migration in two ways. They are migration by place of birth and migration by place of last residence. Number of families migrated from Ottappalam Municipality within the last 5 year origin wise and reason wise are given in the Fig 3.31 and Fig 3.32 respectively.

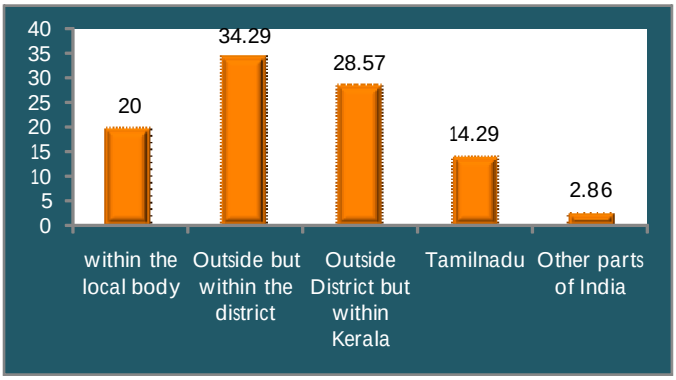


Fig 3.31 Origin wise migration within last 5 years

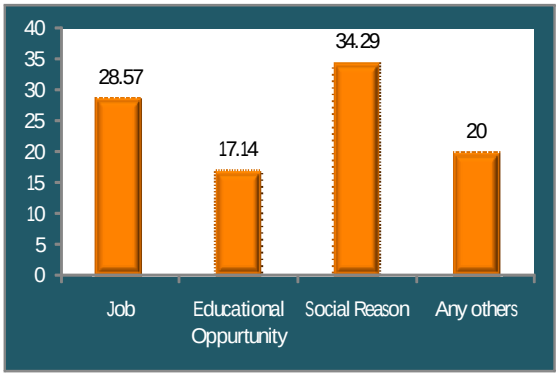


Fig 3.32 Reason wise migration within last five year of municipality

Source : Socio Economic survey 2012

3.9 INFERENCE

By comparing with the district, Ottappalam shows a higher growth rate of population. But the population growth rate of town shows a declining trend from year 1991 to 2011. Population is distributed mainly in ward located along the sides of Palakkad Ponnani road and population density is very less in peripheral wards. Both Sex ratio and child sex ratio shows inclining trend. The literacy rate of the municipality is higher than that of the district. HH size shows a decreasing trend.

4. OCCUPATIONAL STRUCTURE

4.1 WORK FORCE AND OCCUPATIONAL STRUCTURE

Occupational structure plays an important role in a diversity of studies, including those related to the level of economic development and social inequalities. In modern society, with its characteristic division of labour, specialization of functions, new methods of exchange and the impact of prevailing ideology, the overwhelming majority of the people engage in a specific and relatively continuous activity in order to earn their livelihood and maintain a definite social status. The total workers are classified in to Main Workers and Marginal Workers. A person who has worked for major part of the reference period (i.e., in the last one year preceding the date of enumeration)in any economically productive activity is named as 'Main Workers', while those who have worked for less than six months of reference period is referred as "Marginal workers''. As per Census 2011, total number of workers in Ottappalam Municipality is 17700 which include male workers of 13125 and female workers of 4575. Total workers are approximately 33 % of the total population. Total workers include 27% of Main workers and 6% of marginal workers(Fig 4.1). 82.22% of total workers are main workers. The male workers constitute 74.15% of the total workers, which indicates the clear dominance of male workers in all sector. Percentage of Main, Marginal and non workers of Ottappalam (M)– 2011 is shown in fig 4.1 and Decadal variation of Main, Marginal and non workers of Ottappalam (M) is shown in fig 4.2. It shows that percentage Main workers decreased so that Marginal workers increased in 2001.In 2011 percentage of non workers decreased.

Table 4.1 Decadal variation of Workers

Year	1981		1991		2001		2011	
Main Workers	10515	28.01%	12496	28.28%	11782	23.93%	14552	27.05%
Marginal	857	2.28%	753	1.70%	3310	6.72%	3148	5.85%
Non workers	26199	69.79%	30937	70.02%	34150	69.35%	36092	67.10%
Total Workers	11372	30.29%	13249	29.98%	15092	30.65%	17700	32.90%

Source: Census 1981, 1991,2001,2011

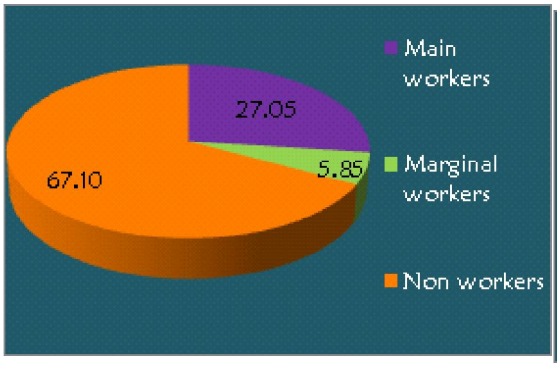


Fig 4.1 Percentage of Main, Marginal and non workers of Ottappalam (M)– 2011

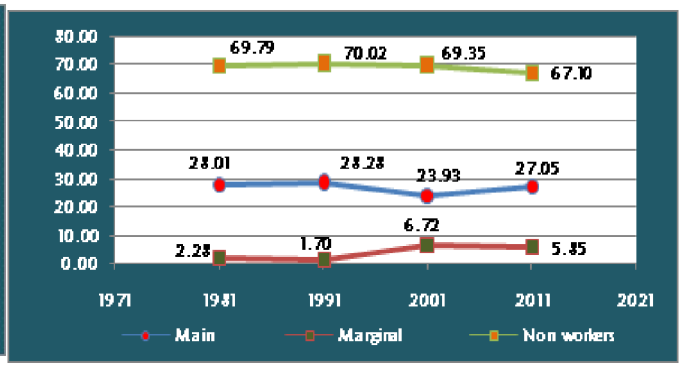


Fig 4.2 Decadal variation of Main, Marginal and non workers of Ottappalam (M)

4.2 WORK PARTICIPATION RATE

According to 2011 Census total workers in Ottappalam Municipality are around 17700. Thus the Work Participation Rate of Municipality is 32.92% as per census 2011. Variation of WPR for decades is shown in Fig 4.3. The figure shows that the work force participation rate has shown an inclining trend during the last decades. This indicates that job opportunities are increasing and the economic base is gaining momentum.

Fig 4.4 shows the comparison of WPR of Ottappalam Municipality with state, district and other municipalities according to 2011 Census. WPR of Ottappalam is lower than that of the State, District and other municipalities in Palakkad District . Palakkad District ranks 7th position in the state.

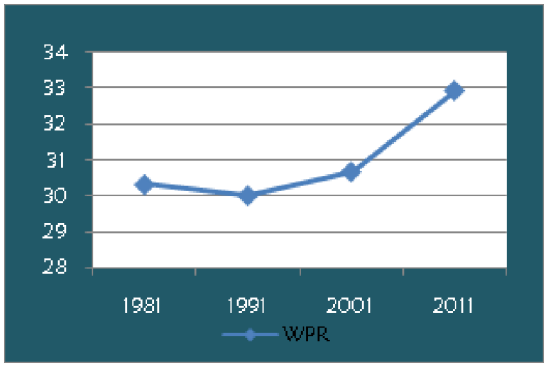


Fig 4.3 Decadal Variation of WPR 1991 – 2011

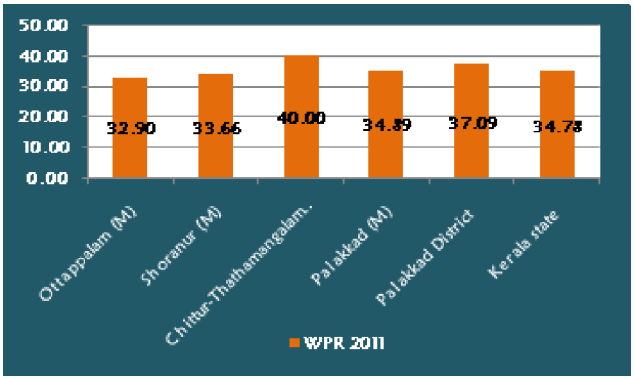


Fig 4.4 WPR comparison with state, district and other municipalities – 2011

WPR value of Ottappalam (M) is in 3rd position compared to similar towns. WPR is lower than than the nearby local bodies except Thrikkadeeri and Ananganadi panchayaths .Comparison of WPR of Ottappalam (M) with nearby LSGs and similar towns are shown in Fig.4.5, 4.6 respectively.

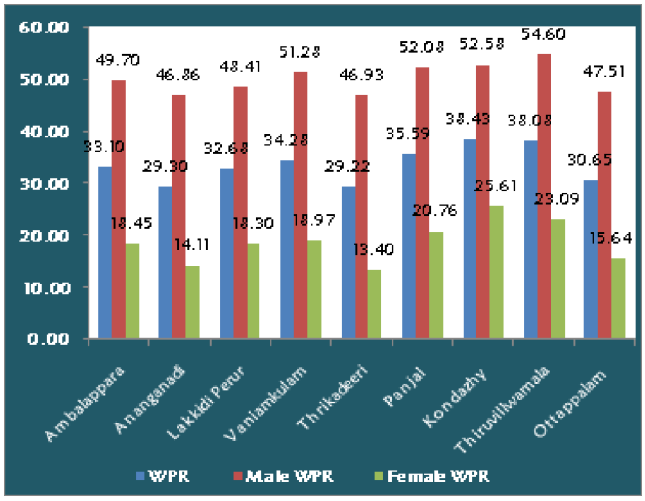


Fig 4.5 Comparison of WPR , Male WPR, Female WPR with nearby LSGs2011

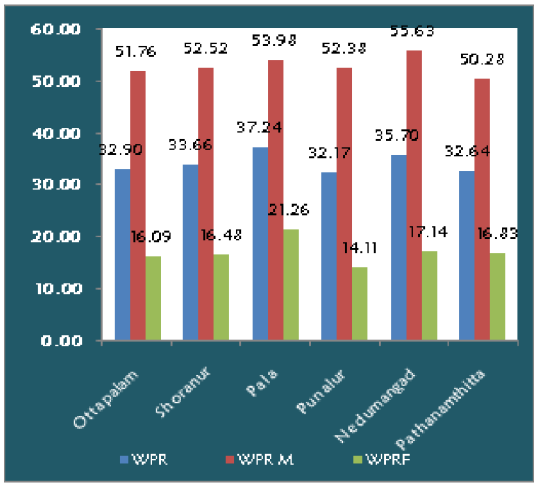


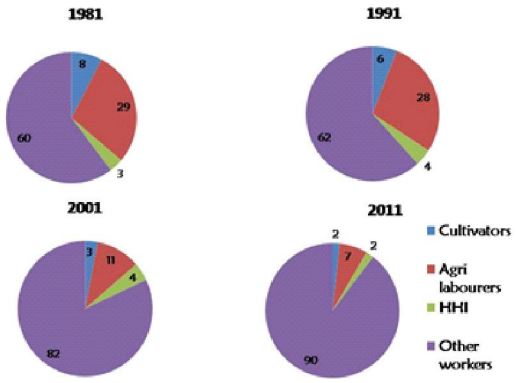
Fig 4.6 Comparison of WPR , Male WPR, Female WPR with similar towns 2011

4.3 OCCUPATIONAL STRUCTURE

Workers are classified into Cultivators, Agricultural Labourers, House Hold workers and Other workers. Fourfold classification of workers as per census 1981, 1991, 2001 and 2011 is shown in Table 4.2 and Fig 4.7. The figures show that there is a gradual decline in cultivators and agricultural workers between 1981 and 2011. This shows the decrement in the agricultural activities of the Municipality. 74.15% of the total workers are male workers according to Census 2011. Male workers are very high in each section of workers. But in agricultural workers the difference between male workers and female workers are very less. Majority of workers are under the category "other workers". The increment of other workers category indicates the declining trend in the primary sector and a shift towards service sector in the municipality.

Table 4.2 Decadal variation of main workers

Occupation structure	1981	1991	2001	2011
Cultivators	806	736	355	245
Agri labourers	3002	3542	1250	988
HHI	365	507	514	274
Other workers	6342	7711	9663	13045



Source: Census 1981, 1991,2001,2011

Fig 4.7 Fourfold classification of workers 1981 – 2011

Workers are also classified into primary, secondary and tertiary workers. The workers in other category can be considered as tertiary workers and therefore the increase in the total number of workers is due to an increase in the number of tertiary workers. From Socio Economic Survey analysis, it was found that majority of workers are engaged in Tertiary sector which shows the urban character of town. Occupation structure of the town shows that most of the people are engaged in service followed by trade and commerce. The percentage of workers is shown in the Fig 4.8.

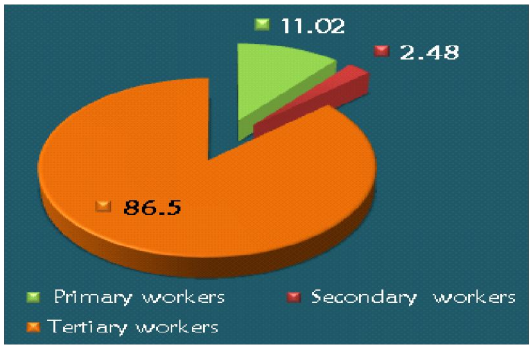


Fig 4.8 Workers Classification in Ottappalam Municipality (Source:Socio economic survey 2012)

4.4 SPATIAL DISTRIBUTION OF THE MAJOR CLASSES OF WORKERS

Cultivators are concentrated in the wards Veetampara PAnamanna Vattanal ,Panamanna Vayanasala , Kolothumparambu ,Cherikunnu ,Chinakkathur kavu ,Perumkulam ,Pallarmangalam , Kayarampara etc (Fig 4.9) . Agricultural labours are concentrated in the wards Pallarmangalam and Panamanna Vayanasala and we can see that the wards are located along the periphery of the municipality (Fig 4.10) . Presence of large agricultural lands in these wards results the high concentration of agricultural labours.

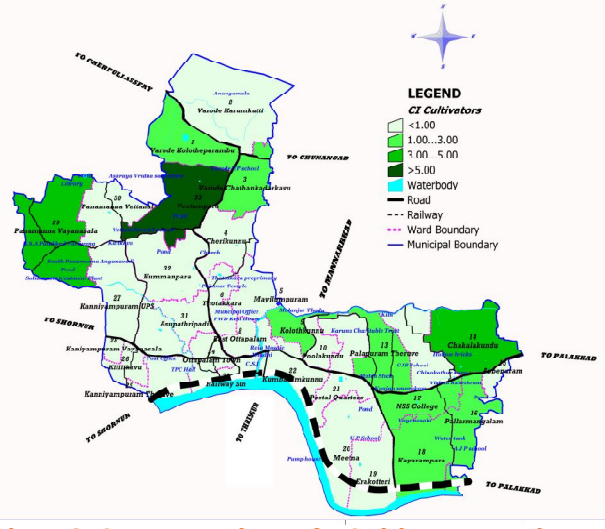




Fig 4.9 Concentration of Cultivators **Fig 4.10 Concentration of Agricultural Labourers**

Fig 4.11 shows House Hold workers mainly concentrated in the wards Kanniyampuram Vayanasala and NSS College. Fig 4.12 shows the concentration of other workers which is seen in majority of wards. Percentages of workers in each category as obtained from socio economic survey 2012 are shown in Fig 4.13. It is seen that 12.03% of workers are in Government sector. 9.6% of workers are working outside the country. This indicates the lack of job opportunities in the Ottappalam Municipality.



Fig 4.11 Concentration of HHI Labourers

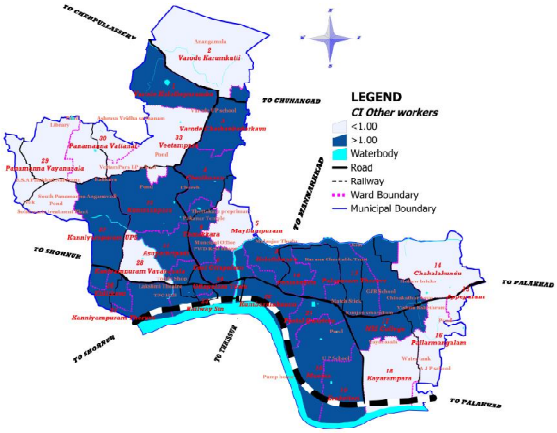


Fig 4.12 Concentration of other Labourers

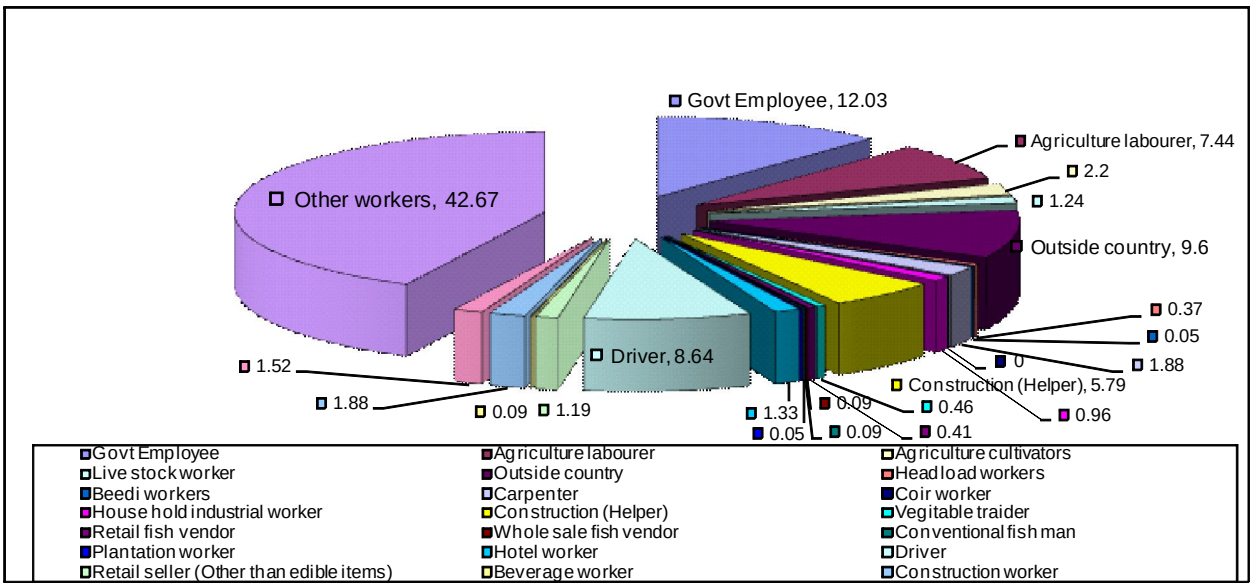


Fig 4.13 Percentage of workers in each category

The status of employment as per Socio economic survey 2012 (Fig 4.14) shows students and unemployed and not trying for employment constitutes nearly 45% of people . 12.36% of people are found as job seekers. Total unemployed people are 32.52% .

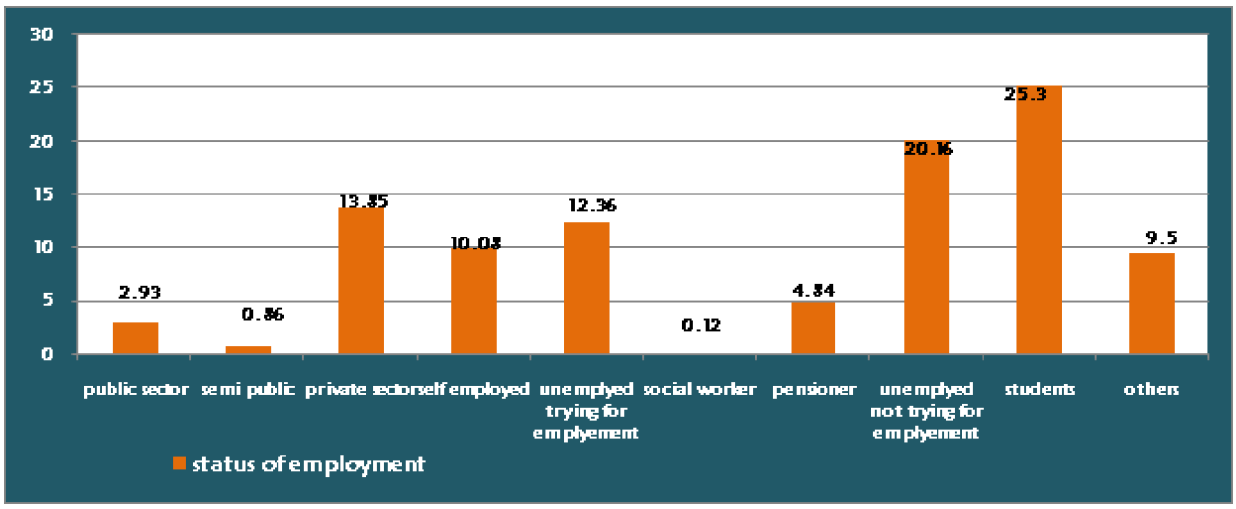


Fig 4.14 Status of employment

4.5 DEPENDENCY RATIO

The dependency ratio is an age-population ratio of those typically not in the labor force (the dependent part) and those typically in the labor force (the productive part). It is used to measure the pressure on productive population. Table 4.3 shows the dependency ratio of State, District and Municipality as per Census 2011. The dependency ratio of Ottappalam Municipality is 2.03. This is higher than that of the State and District that is 1.87 and 1.69

Table 4.3 Dependency ratio comparison with State and district – 2011

	Workers	Non Workers	Dependency Ratio
Kerala State	11619063	21786998	1.87
Palakkad District	1042340	1767594	1.69
Ottappalam (M)	17700	36092	2.03

4.6 INFERENCE

The growth rate of population of the Municipality is higher when compared with the District, Even though WPR is less when compared with other municipalities, it shows an inclining trend from year 1991 to 2011. The economy of the town mainly depends on service sector.

5. ECONOMIC ASPECTS

5.1 TRADE AND COMMERCE

The economic base of Ottapppalm town is mainly trade and commerce, industries and agriculture . Real estate business, financial and banking services, other commercial establishments,etc. also contribute to the economy of the town to some extent . The transport corridors in the town have become the main centres of economic activity based on trade and commerce. For stabilising the economic base of the town, trade and commercial activities have to be strengthened.

5.1.1 Present Scenario

Ottappalam town is the important commercial centre of the Municipality area. It is a major centre of wholesale and retail trade. Main commercial nodes of the municipality are railway station road Jn and Ottappalam Town junction (Ottappalam – Ponnani road). As per UDPFI standards, for medium cities the commercial land required varies from 2 – 3% of the total land. In Ottappalam town only 1.08 % of the total municipal area is under commercial land use, indicates that commercially the municipality has to be developed more. Lack of space for efficient circulation is the main problem faced by town. Commercially developed wards comprises of Thennadi bazaar, Palat road and Kollothkunnu.

5.1.2 Important Centres and Nodes

Commercial nodes are located along the major transport corridors. Important nodes and their hierarchy in Ottappalam Municipality are shown in the Table.5.1. Nodes are identified on all important intersection of roads where there is a concentration of commercial activity as linear development. The important commercial centres are Town JN, Railway station road JN, Jass JN, Ambalappara JN, Lakshmi theatre JN and Mayannur Bridge JN. Important nodes and their hierarchy are given in the Fig 5.1. Commercial developments along T.B road and Market at Thenadi Bazar is shown in Fig 5.2 and Fig 5.3 respectively.

Table 5.1 Important nodes and their hierarchy

Sl. No	Commercial Centres	Hierarchy
1	Town JN	1st Order
2	Railway station JN	1st Order
3	Lakshmi Theatre JN	2nd Order
4	Jass JN	2nd Order
5	Ambalappara JN	2nd Order
6	Mayannur Bridge JN	2nd Order
7	Varode JN	3rd Order
8	Valluvanadu Hospital Jn	3rd Order
9	NSS - KPT JN	3rd Order
10	Kayarampara JN	4th Order
11	Veetampara JN	4th Order
12	Kanniyamburam Vayanasala	4th Order
13	BSA Narayana JN	4th Order

Source : Primary survey by DT&CP office ,Palakkad

5.1.3 Street Vendors/Informal sector

Street vendors are a common sight in many towns. "National Policy on urban street Vendors" 2009 recognized the positive role of street vendors in providing essential commodities to people at affordable prices and at convenient places There are about 50 street vendors throughout Ottappalam Municipality. The margins of major roads and the footpaths are encroached upon in several sections by small time street vendors. The distribution of street vendors is not uniform. Majority of the street vendors sell fruits, tender coconuts and runs tea shops. These activities are located near terminal points and important offices like Railway station road and Bus stand . Higher concentration of street vendors is seen in Ottappalam – Ponnani road. Spatial Distribution of street vendors is shown in Fig 5.4

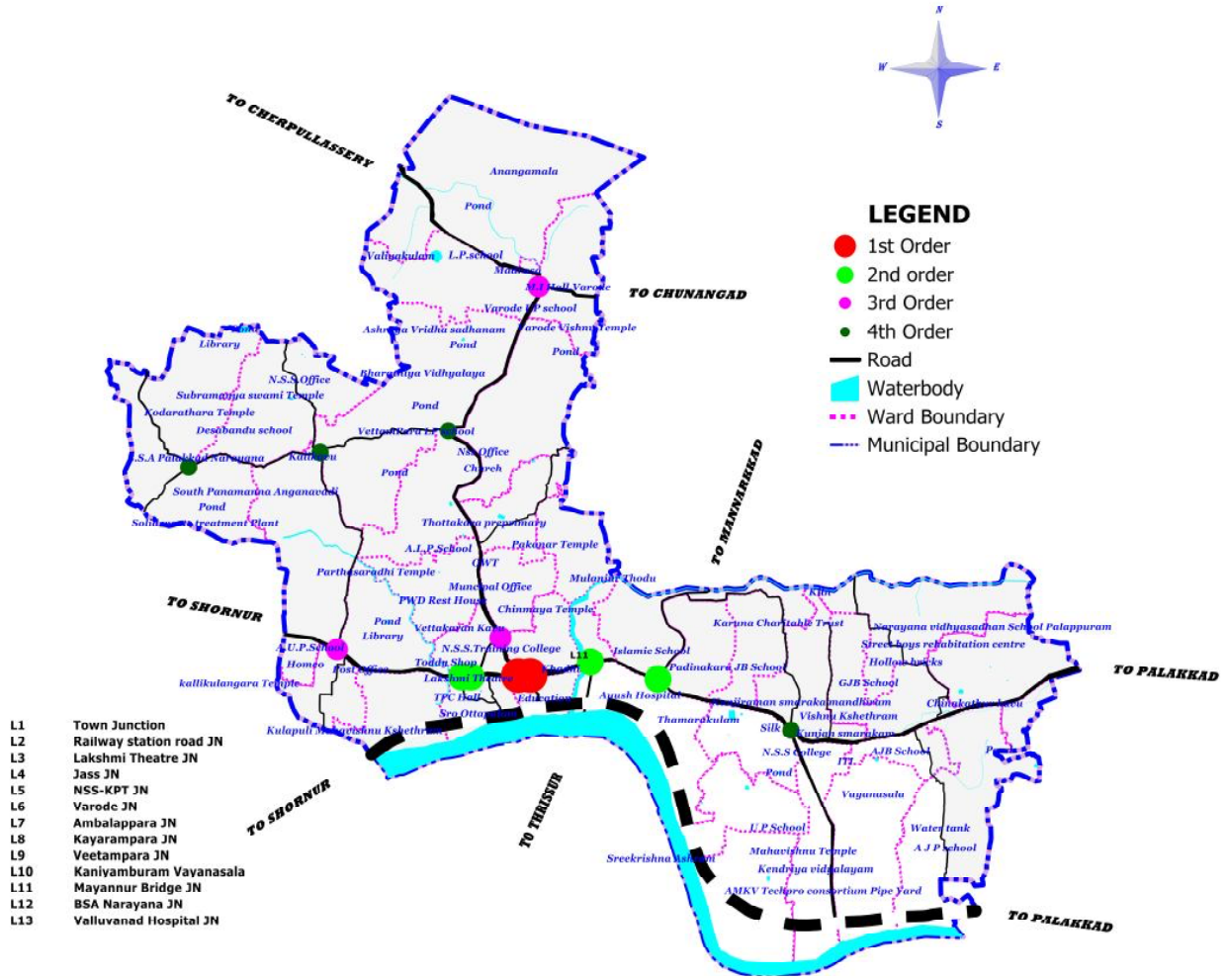


Fig 5.1 Nodes and their hierarchy



Fig 5.2 T B Road

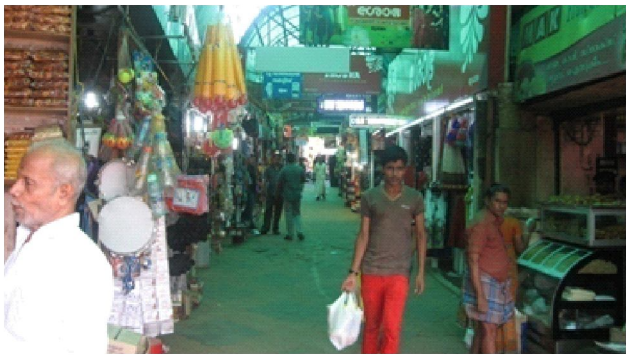


Fig 5.3 Thenadi Bazar

5.1.4 Financial Institutions

About 24 financial institutions are available in the municipality of which 29 % are scheduled banks. Table 5.2 shows the available financial institutions in various sectors in the municipality. There are 9 Nationalised Banks and 7 scheduled and commercial banks .

Table 5.2 Financial institutions in various sectors

Financial Institution	Nos
Nationalised Bank	9
Scheduled and Commercial Banks	7
Urban Co-operative Bank	1
District Co-operative Bank	2
Kerala state Agri& Rural Development Bank	2
Employees credit Societies	3

Source: Panchayat Level Statistics 2011



Fig 5.4 Spatial Distribution of street Vendors

5.1.5 Problem and Potentials

Ottappalam town is the main commercial node and it is highly connected to other LSGI in the district and nearby districts. But as a commercial node the town is mostly characterized by congestion due to vehicular and pedestrian traffic. Lack of enough space and road width is the major reason for congestion. It prevents smooth manoeuvrings of vehicles causing frequent traffic block. Commercial activities on one side boost the economy of the town and on other side their extensions, informal sector and on street parking have encroached the major areas of the town, thereby creating traffic congestion/jams . There is a need for regulation of street vending by way of assigning designated 'Restriction free vending, 'Restricted vending and No vending zones based on objective principles .Such restrictions are with the imperative to ensure smooth flow of traffic, smooth movement of pedestrians and maintenance of cleanliness and public hygiene while facilitating vendors to sell goods and services at convenient locations.

5.1.6 Inference

For stabilizing the economic base of the town, trade and commercial activities have to be strengthened. Ottappalam town serves as a collection and distribution centre for the different commodities. Lack of space for efficient circulation is the main problem faced by the commercial nodes. Providing proper parking facilities and waste management will help the town to augment commercial activities.

5.2 INDUSTRY

For a strong economic base industrialisation to be accelerated by utilising the raw materials from the natural resources. Town do not show the existence of a good number of industries. The High potential of this sector has not been effectively utilized. Ongoing project of KINFRA industrial park at Ottappalam will give more thrust in this sector.

5.2.1 Existing industrial base

Enterprises under MSMED Act 2006 are classified into two types such as Enterprises engaged in the manufacture or production of goods and enterprises engaged in in providing or rendering of services, both types are again classified on the basis of investments into three such as Micro, Small and Medium. Earlier, enterprises are broadly classified into agro based, Rubber based, Forest based, Animal Husbandry based, Textile materials, Chemical, Engineering, Electronics, Minerals, Plastic based, Building and Others.

An IT Infra park is being constructed by Kinfra at Lakkidi Perur and as it is commissioned Ottappalam will get a significant role in Industrial development. Only 0.22% of the total municipal area was under the industrial use in 1988 which have increased to 0.86 % on 2012. The numbers of Industrial units have increased in Ottappalam Municipality. Variation in the number of industries is shown in Fig.5.5.

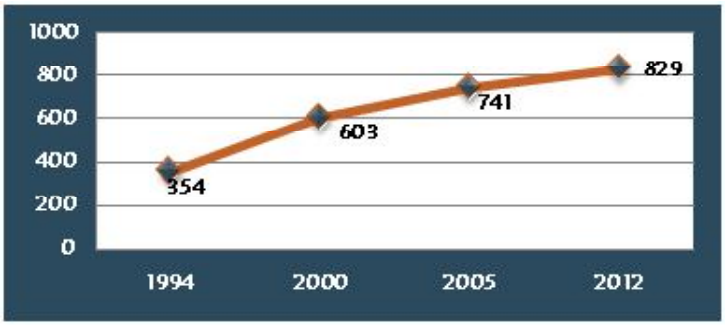


Fig 5.5 Variation in the number of industries

The total number of SSI registered up to 1994 is 354 and up to 2001 is 603.Up to 1994 the maximum numbers of units are in agro based, textile, engineering and forest based where up to 2001 maximum number of units are in textile and engineering.

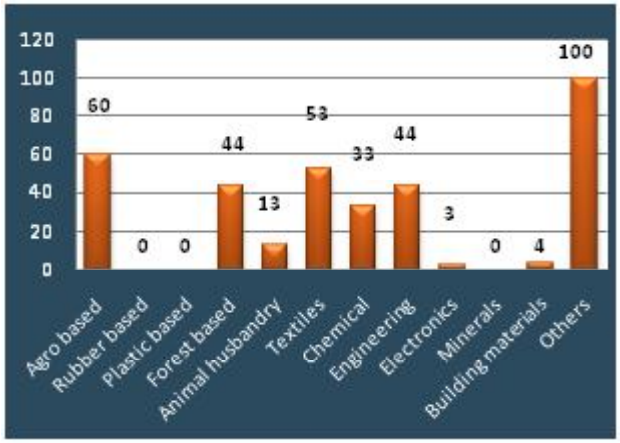


Fig 5.6 SSI registered up to 1994

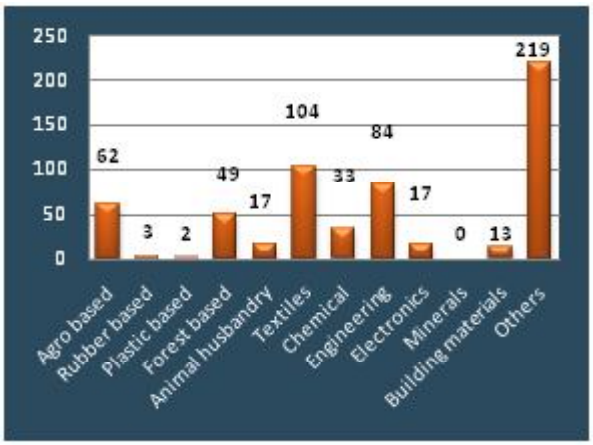


Fig 5.7 SSI registered up to 2001

From the figures 5.6 and 5.7, it is clear that the number of textile units have constant increase from 1994 to 2005 and after that, only marginal increase up to 2012 in Ottappalam municipality. There is a steady increment in the number of forest based units.There are 17 group enterprises and 323 nos of individual ones under Kudumbasree units. Details of Small scale Industrial units in Ottappalam Town is shown in Table 5.3. There are 560 nos of persons working in SSI units out of them 60% are male workers and 40 % are female workers.

Traditional Industries

Stone Sculpting

There are nearly 60 artisan families at Mooppanthara in Ottappalam who are engaged in stone sculpting works . Traditional form of stone carving requires a degree of erudition that comes only through years of study and practice and it is a hard and demanding craft. Rocks are selected on the basis of a number of traits: they must be black in color; they must be hard; and they need to be free of cracks. Once these large stones are sculpted into the idols of gods and goddesses, they are usually placed in temples and shrines.





Despite being a profession that is centuries old, stone sculpting has never had a large number of practitioners. Sculptors have always been few in number. Practiced in the confines of the house and transferred in most cases from father to son, the skills of the art have been inaccessible to most. The number of families involved in stone sculpting are reduced. It has to impart the skill of stone sculpting outside the family circle. There is a need for a college of fine arts having a course in stone sculpting to preserve this form of art .

Sculptors are still working with old tools and stone art industry needs to use the available technology. The machines will only be used to do the things that involve ordinary tasks such as cutting and polishing, not the artistic ones of etching details. Machines usage will reduce the cost of producing a sculpture and enable sculptors to be more prolific.

Manufacturing Metal vessels

Bronze vessels are also manufacturing by some families like household industry in Ottappapalam . Craftmen are manufacturing products like Varpu a large cauldron made from cast bronze was used to make Ayurveda Medicines.



5.2.2 Industrial estate

There is a Mini Industrial Site of SIDCO situated at Kaniyampuram ,Ottppalam .Total area of the estate is 1 acre 9.88 cents of land and 12 working sheds having a total builtup area of 8700 sq ft were allotted. Of the 12 working units , number of units manufacturing food products are seven and others include cosmetics, Ayurvedic medicine , Plastic products, Die products, Building materials and one bakery products manufacturing unit as defunct unit.

Table 5.3 Details of Small scale Industrial units in Ottappalam Town

Sl No	Category	Total No of Industrial units	Total workers		Total
			Male	Female	
1	Wooden based	3	10	0	10
2	Food processing	3	4	20	24
3	Leather products manufacturing	6	18	0	18
4	Steel furniture	1	9	0	9
5	Tile manufacturing	1	9		9
6	Plastic products	2	6	10	16
7	Match box	14	26	0	26
8	Agro based	22	66	86	152
9	Ready made dresses	4	6	0	6
10	Brush	1	3	10	13
11	Cutlery manufacturing	1	3	0	3
12	Soda	1	3	0	3
13	Agricultural implements	1	3	0	3
14	Hospital instruments	1	3	0	3
15	Printing Press	8	10	0	10
16	Engineering based	23	69	0	69
17	Bakery manufacturing	4	10	2	12
18	Industrial societies	1	4	0	4
19	Handloom	0	30	50	80
20	Pottery	2	26	16	42
21	Basket making	1	4	26	30
22	Computer based	3	10	8	18
	Total	**103**	**332**	**228**	**560**

Source :Development Plan for Ottappalam Municipalty 2012-17

5.2.3 Spatial Distribution Industrial land use

Spatial distribution of industrial area is shown in Fig 5.10. From the figure it can be seen that Industries are concentrated in the wards Chinakathurkavu (Ward15) and Azikalaparambu (ward 13). The concentration of industries in ward 15 is due to the ongoing project of Kinfra industrial park and in ward 13 due to presence of brick kilns. Industrial estate of SIDCO situated in ward 29 Kaniyampuram and SILK unit is in ward 14 Palappuram . The concentration of industries is relatively low in the remaining wards.

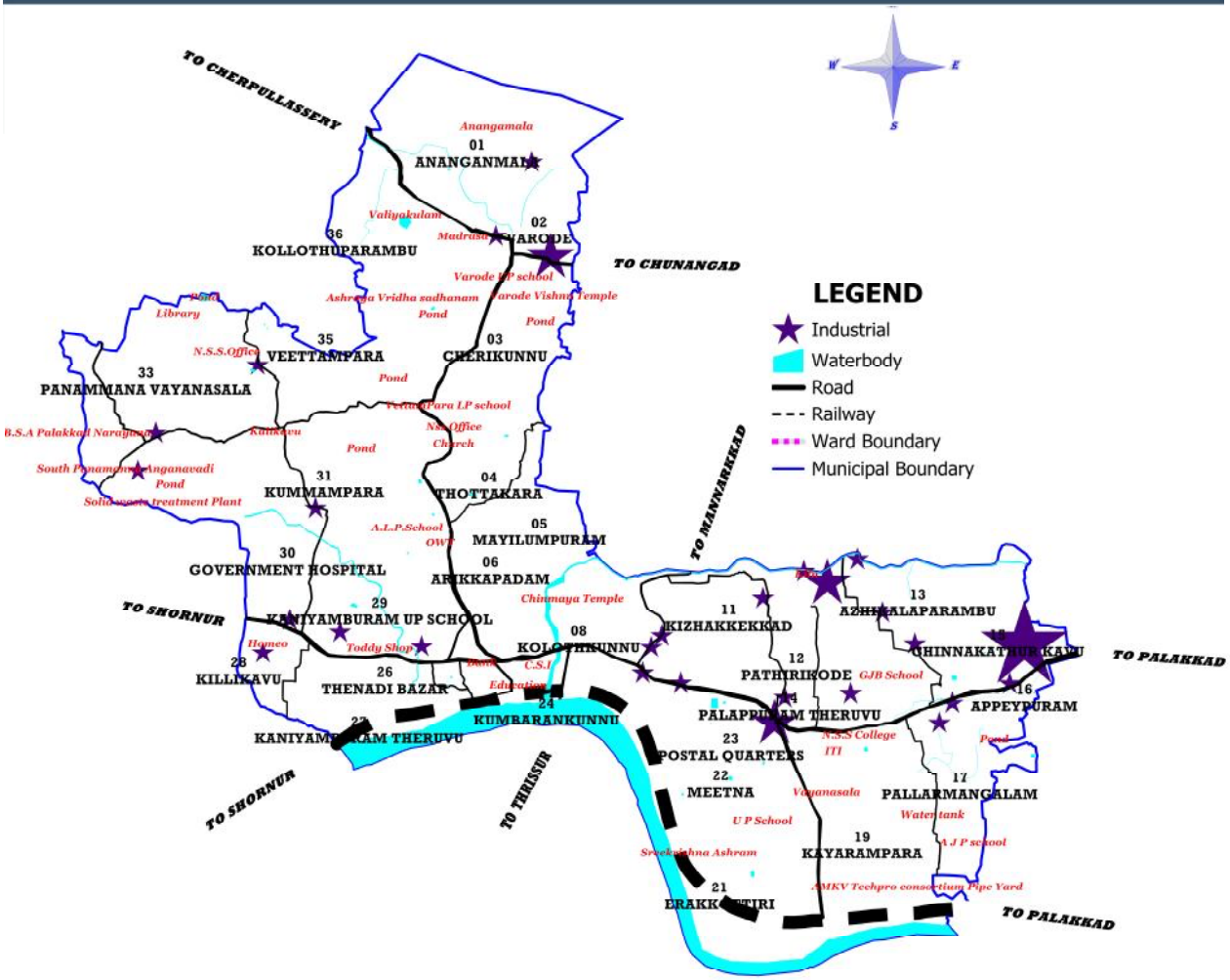


Fig 5.8 Spatial distribution of industries

5.3 ONGOING PROJECTS /COMMITTED PROJECTS

5.3.1 KINFRA Industrial Park, Ottappalam

The Industrial Park at Ottappalam, Palakkad in an area of 85 acres of land would cater to the needs of industries in sectors like rubber based products, general engineering, ceramic products etc. KINFRA has acquired a land of 85 acres in Lakkidi Perur I and Ottappalam II villages. The project cost is approximately 66 crores .It is proposed to provide land on lease basis for 30 years for general industries and is expecting functioning of 100 units and to give employment opportunity to 8000.Work include land development,standard design factory as green building with golden rating having a built up area



KINFRA industrial Park at Ottappalam

of 1.25 lakh sq feet with four floors, Park, office building ,compound wall, entrance gate etc. It is proposed to do rain water harvesting using 2 acres of land . It is expected to complete the project by 2015.

5.3.2 Expansion and reviving of Foundry Unit of Steel Industrials Kerala Limited situated at Ottapalam

An amount of 280 lakhs were released to the expansion and reviving of **Foundry Unit** of Steel Industrials Kerala Limited situated at Ottapalam along the Palakkad Ponnani state highway, which is established in late 60's and inherits a lot of experience, goodwill and reputation. The unit is geographically located in an ideal place with ease in proximity to its major raw materials and power.



SILK unit at Ottappalam

Facilities available are skilled labour force to the desired level, most modern induction furnace with digital technology and sand plant to feed the requirements of value added castings of industrial customers as well as conventional customers. Wide range of products primarily required for water supply scheme. Cast Iron specials, bends, tees, Manhole covers. Precision castings for automobile sector are manufactued in this unit.

5.3.3 Problems and potentials

Municipality is not utilizing its resources especially agricultural products. Once Ottppalam was very famous for Match factories ,Handlooms, Timber and leather based industries . The problem faced by Match box industry is the shortage of raw materials, particularly match quality soft woods, but also chemicals, match wax and wax paper and that of pottery is non availability of sufficient clay soil due to legal constraints imposed by Mining and geology Department . There are no proper markets to sell agriculture products .Constraint in the availability of sufficient and suitable land, lack of infrastructural facilities and skilled labourers are the major problems facing in this sector.

5.3.4 Inference

Although geographically and socially Ottapalam municipality is similar to Shoranur Municipality it has not developed as an industrial hub as that of the Shoranur Municipality. It has industrial development potential mainly for processing units (value addition) for agricultural products coming from adjacent local bodies within district and even from Tamilnadu &Industry related to IT, ITES and Engg based and electronic based. An Industrial park is being constructed by Kinfra at Lakkidi Perur and as it is commissioned Ottapalam will get a significant role in industrial development. The importance and contribution of the MSME sector to the economic growth and prosperity of Ottappalam town is well established. Their role in terms of employment creation, upholding the entrepreneurial spirit and innovation has been crucial in fostering competitiveness in the economy.

5.4 TOURISM

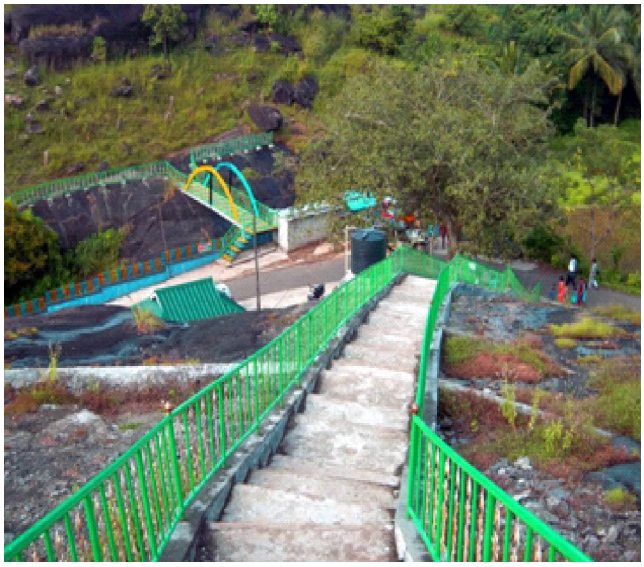
5.4.1 Present Scenario

In Palakkad district tourism has improved over the past five years especially in the number of domestic tourists. The main tourist destinations of Ottappalam Municipality are Anangamala Eco Park, religious festival like Chinakkathoor pooram ,the bank of Bharathapuzha River and Private Ayurvedic Resorts . Tourism is weak in Ottappalam Municipality. The major reason is lack of tourist destinations and infrastructure facilities.

5.4.2 Places of Tourist Interest

Eco tourism

A medium sized hill area famous as a film location posses the nature of a calm village area. Ananganmala Eco Tourism Site is a beautiful place to visit, who like nature in its own beauty. This is situated less than 1 km from Cherpulassery-Ananganadi Road from Kizhur bus stop, on the Kizhur-Melur-Ambalapara RoadHill extends up to 18 km through Kizhur, Kothakurssi, Panamanna, Varode, Ambalappara .Anangan Mala is located 10 Km from Ottappalam, along Cheruppulassery road. The area immediately following the mountain, the Adivaram, is called Ananganadi. It is a common sight to see goats that sometimes climb the full height of the mammoth hill. The highest point is 400Metre above MSL .Anangamala is situated at Kizhur village near Ottappalam in Palakkad district. The hillock has an extent of 2500 acre and is under the Kerala Forest Department. One can trek to the hill top, which offers a panoramic view of Palakkad's rural landscape brimming with palm trees and paddy fields. A small seasonal waterfall adds to the scenic charm of the hills. The vegetation of the hillock includes many medicinal plants as well. Its scenic beauty has made it a regular location for commercial film shooting. Recently, Anaganmala is being developed as an eco tourism destination with facilities like a footpath to the top of the mountain. It comes under Ottappalam Forest Range under Palakkad Forest Division.





Ananganmala Eco Tourism Site

Religious Tourism

Chinakkathoor Pooram is a prominent festival of Ottapalam and is celebrated every year in February-March. The highlight of the evening festivities is a grand procession of 33 tuskers. Traditional performances of the Panchavadyam or the temple orchestra and various other art forms like Vellattu, Theyyam, Poothanum thirayum, Kaalavela, Kuthiravela, Aandi Vedan, Karivela, and so on are shown. The Tholppavakkoothu, a ritualistic shadow puppet show, is performed at the temple premises every evening for the 17 days preceding the concluding festival. The festival starts with kuthira (horse) game and ends next day with Theru(Ratham),a beautiful sight is the decoration of theru(Ratham) by Palappuram, and the procession of sixteen well-decorated 16 models of the kuthira (horse) and the kaala (bull) brought ceremoniously to the temple by devotees.The temple is in the middle of a huge ground where the Chinakkathoor pooram is conducted ever year. There are two shrines namely 'thazhekkavu'and 'melekkavu'. The upper shrine, 'melekkavu' is believed to be older than the lower shrine, 'thazhekkavu'. The priests of the upper shrine traditionally come from the 'kulangara nair' family of Palappuram. Namboothiri priests do the pujas in the lower shrine and in the ten days of Pooram, they will be in charge of the upper shrine as well.





Tourism Spots in nearby locality

Recently Ottapalam, particularly Manissery, has become a popular shooting spot for Malayalam and Tamil movies. Manissery is famous for Varikkaseri Mana, where many Malayalam movies are picturised. Lakkidi and Perur Panchayaths are famous as the birthplace of renowned and famous poet Mahakavi Sri Kunchan Nambiar. He was born at Kalakkath Bhavan near Killikurssi Mangalam. The house of Mahakavi Kunchan Nambiar - Kalakkath Bhavanam is now under the supervision of Cultural Affairs Department. Vaniamkulam Panchayath is famous for it Cattle fair - "Kali Chantha". The very old and famous Chantha is successfully conducted Every Thursday, since the year 1910th, hundreds of cattle being traded every week.

5.4.3 Tourism Infrastructure

The infrastructure for tourism includes basic infrastructure components like transport facilities , electricity, water supply, drainage, sewerage, solid waste disposal systems and services. Moreover, facilities like accommodation, restaurants, recreational facilities and shopping facilities also comes under the ambit of Tourism Infrastructure. Planning for sustainable development of Tourism Infrastructure, therefore, involves the integrated development of basic infrastructure and amenities along with all the tourism facilities in a balanced manner. There are only three hotels (Aramana ,Kottaram ,Kelco) of 2/3 star facilities. There is no tourist information centre and no home stay facilities within town.

5.4.4 Committed Projects

It is proposed to set up a mini film city with latest amenities at Ottapalam as a joint venture of tourism department and Kerala State Film Development Corporation. Four acres of land from the irrigation department have been allotted for this film city. Shoestring-budget producers who cannot afford lavish sets can use the facilities. Recently many traditional houses like Varikkasseri Mana in the Ottapalam region were constantly being used for film shooting.The film city's recording, editing and dubbing studio and boarding facilities will be a good back-up for artistes and technicians. It is proposed to set up a police station, jail and an office, among other things, on trolleys so that they can be dismantled and converted into houses and rooms. The Film Development Corporation will be setting up a studio as well. Accommodation will also be made available.

5.4.5 Problems and Potentials

Tourism is weak in Ottappalam Municipality. The major reason is lack of tourist destinations and infrastructure facilities. The municipality has immense potential for development of tourism sector with a clean and bountiful environment. The town has water frontage of 8km which is ideal for development of recreation activities. The town lacks in tourist infrastructure. The marketing efforts are minimal. A two pronged strategy of development of tourist sites along with adequate marketing efforts shall boost the sector to a great extent in the town.

5.4.6. Inference

It is clear that tourism in Ottapalam (M) is very weak and the main reason for it is lack of tourism destinations. The quality of infrastructure required for promoting tourism is not satisfactory. Hence the infrastructure development needs special attention. Majority of hotels are of Economy class and there are no home stay facilities. Town can function not only as a tourism destination but also as an intermediate halting station. Anangamala eco-park is not much known to many outside Palakkad district and hence publicity campaign should be provided to promote tourism at Anangamala.

5.5 ANIMAL HUSBANDRY

5.5.1 Population

The main livestock are cattle, buffaloes, goat, sheep, hen and duck. The products obtained from livestock are mainly egg, meat and milk. Ottappalam municipality having 5 dairy farms and hence the municipality is self sustained in milk production. The Fig 5.9 shows the livestock population of the municipality for years 1991, 2001, 2006 and 2012. From the figure we can see a decreasing trend in the number of livestock and one of the main reasons is the decline of green pastures. There is a considerable decrease in the number of fowls from 2006 to 2012.

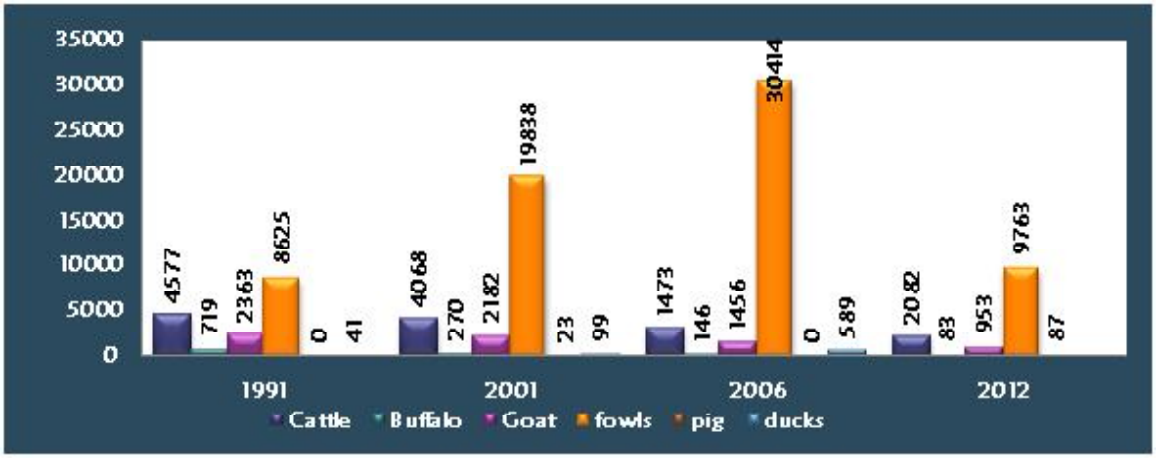


Fig 5.9 Livestock population of the municipality

5.5.2 Milk Production

There are 5 dairy farms in Ottappalam Municipality,details of which is shown in Table 5.4. They are located near Varode, East Ottapalam, Kanniyamburam and Palappuram. There are 2 numbers of milk co – operative societies which are located near south Panamanna and varode. The demand of the milk is increased day by day. Data collected from Co – operative societies shows that availability of milk per month is 24750 liters.

5.5.3 Physical Infrastructure

Physical Infrastructure in Ottapalam (M) is satisfactory.

- 2 no of Milk Societies
- 1 Veterinary poly clinic
- 1 Veterinary hospital

5.5.4 Problems and Potentials

- Presence of agriculture sector gives ample availability of agricultural land , hence Agriculture by-product availability, like hay as cattle feed

Table 5.4 Details of Dairy farms in Ottappalam Town

Sl No	Ward No.	Name of Ward/Place	Name of Dairy Farm	No. of Cattle	Quantity of Milk produced per day in ltrs
1	3	Varode	Haridas Kattumoochikkal	15	70
2	9	East Ottapalam	Jayakumar Estate Farm House	15	60
3	32	Varode	Suresh Kumar, Kizhakkethil	7	50
4	32	Kanniyam puram	Sivasankaran, Brindavan	30	100
5	14	Palappuram	Koshy, Kuzhiyiieth kizhakkethil	18	175

Source: Local Body, Veterinary Dept,Diary Dept

- Availability of government sponsored insurance scheme & subsidy schemes
- Availability of Veterinary aid in municipality like Veterinary hospital and veterinary polyclinic
- Upcoming self help groups enables more interest in livestock sector
- High cost of concentrate feed
- Low availability of good quality green fodder
- Less labour availability especially for organized farms
- Possibility of manufacturing value added products
- Inflow of poor quality milk from other States

5.5.5 Inference

Animal husbandry is a potential sector in Ottappalam. In Ottappalam due to urbanisation the shrinking of grazing land and fodder availability has pushed animal production to its limits. The numbers of animal husbandry institutions are found satisfactory in Ottappalam. More farmers have to be brought under the cover of this strong network to make milk production more organized. Incentive based dairying has to be promoted to encourage farmers and augment production. Dairy cooperatives have to be provided more infrastructure and automation of milk collection and marketing has to be encouraged. Technology has to be brought into different aspects of animal production since conventional methods of animal production does not yield much and are not sustainable.

5.6 AGRICULTURE

5.6.1 Area under Cultivation

Palakkad is said to be the “Rice Bowl of Kerala”. In Ottappalam municipality agriculture constitute nearly 39.25% of the total Municipal area. The major agricultural crop is paddy which covers about 21% of the total land area. Other than paddy, coconut, plantain, pepper, rubber etc are also cultivated. The agriculture land is facing fast depletion.

5.6.2 Important Crops and Production

Important crops and their productions in Ottappalam municipality are shown in table 5. 5 . From the table it can be seen that the cropped area has decreased from 2007 to 2008 for paddy first crop, second crop, plantain and coconut and the production has also decreased. Use of high yield variety seeds for cultivation is the reason for increasing trend of the productivity.

In Ottappalam municipality autumn and winter paddy production has decreased. This indicates the declination of agricultural production sector. When we analyse the coconut production we can see that there is a stagnant growth. Even though the pepper production area has decreased pepper production shows a stagnant growth. Banana production has decreased drastically from 2010 to 2012. Areca nut production shows an initial decrease from year 2009 to 2011 and then an increase from 2011 to 2012. Cashew nut production is decreasing. Temporal variation of production and area of production of paddy ,coconut,Banana, Rubeer are shown in Fig 5.10, Fig 5.11, Fig 5.12, Fig 5.13 respectively

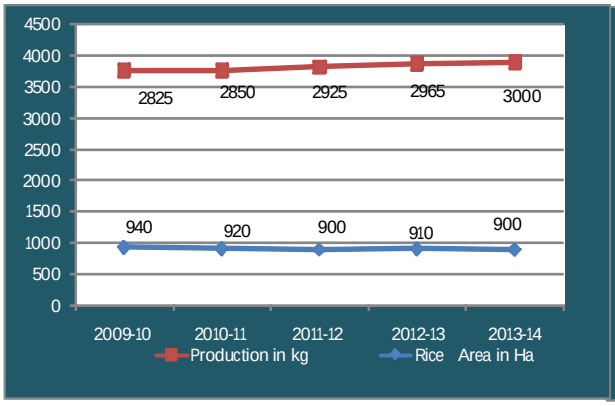


Fig 5.10 Temporal variation of production of paddy and area of production

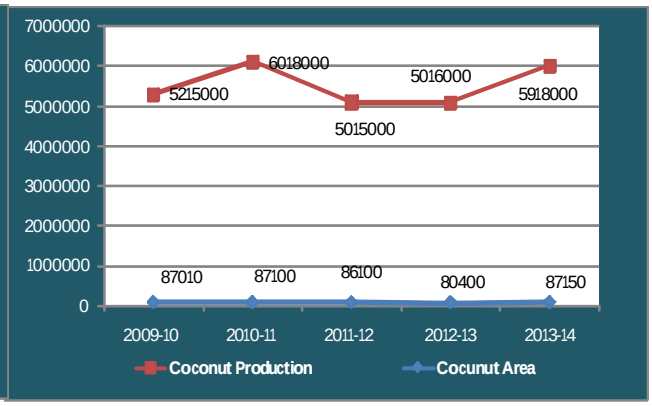


Fig 5.11 Temporal variation of production of coconut and area of production

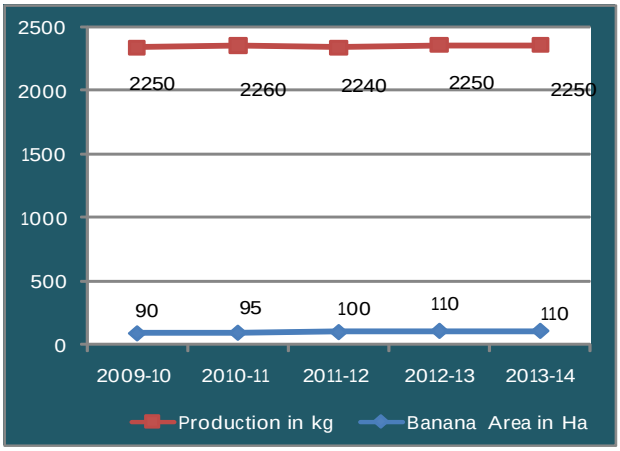


Fig 5.12 Temporal variation of banana production and area

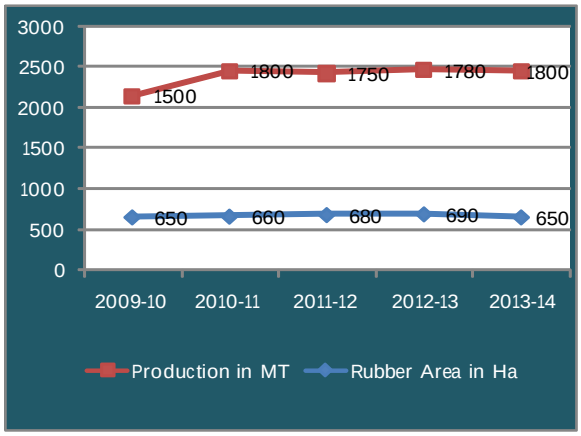


Fig 5.13 Temporal variation of Rubber production and area

5.6.3 Spatial Distribution

The spatial distribution of agricultural area is shown in the Fig.5.14. Agricultural land is mainly distributed towards north western region of the municipality. Concentration Index of the agricultural land is high in wards Panamanna vayanasala, Veetampara, Cherikkunnu, Kummampara, Thottakkara, Pallarmangalam, Azhikkaparambu and Mayilampara.

5.6.4 Agriculture inputs and Marketing facilities

Agriculture input include fertilizer shops, market, units supplying machineries, seed farms etc. There are one Krishi bhavan office , 2 fertilizer shops and 3 pesticides depot in the town. There are two markets, one is located at Thenadi and other one is located near Ottapplam bus stand. Fish,vegetables and meats are selling in these markets. There are no wholesale markets for selling agriculture products like rice, coconut, banana etc within the municipal area. There is no facility for value addition of the agriculture produces.

Table 5.5 Important crops, area, productions and productivity

Type of crop	Area (Ha)					Production (Kg)					Productivity (Kg/ha)				
	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14
Paddy 1st Crop(kg)	450	420	400	400	390	1300 T	1300 T	1325 T	1315 T	1350 T	3 MT	3 MT	3.5 MT	3.5 MT	3.5 MT
Paddy IInd Crop(kg)	490	500	500	510	510	1525 T	1550 T	1600 T	1650 T	1650 T	3.5 MT	4 MT	4 MT	4 MT	4.2 MT
Coconut (nos)	87010	87100	86100	80400	87150	5215000	6018000	5015000	5016000	5918000	65/palm	60/palm	60/palm	65/palm	70/palm
Rubber (kg)	650	660	680	690	650	1500 MT	1800 MT	1750 MT	1780 MT	1800 MT	3.5 MT	3.5 MT	3.5 MT	3.6 MT	3.6 MT
Areca nut (nos)	75	80	75	80	85	11.5 MT	11.6 MT	11.6 MT	11.7 MT	11.5 MT	1 MT	1.2 MT	1.5 MT	1.6 MT	1.5 MT
Cash nut (nos)	20	21	19	18	18	22000	25000	21000	24000	20000	1 MT	1 MT	1.1 MT	1.2 MT	1.3 MT
Pepper (kg)	50	52	60	65	68	31	31	31.2	31.3	31.2	3.2 MT	1 Kg	1 Kg	1 Kg	1 Kg
Banana (kg)	90	95	100	110	110	2250	2260	2240	2250	2250	8 Kg	9 Kg	8 Kg	10 Kg	10 Kg
Plantain (kg)	25	26	25	30	35	700	740	701	720 MT	700 MT	12 Kg	11 Kg	10 Kg	13 Kg	15 Kg
Tapioca (kg)	20	25	25	25	28	440	480	460 MT	460 MT	460 MT	20 MT	21 MT	20 MT	20 MT	20 MT

Source :Krishi Bhavan ,Ottappalam

Type of crop	Productivity (Kg/ha)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Paddy 1st Crop(kg)	3 MT	3 MT	3.5 MT	3.5 MT	3.5 MT
Paddy IInd Crop(kg)	3.5 MT	4 MT	4 MT	4 MT	4.2 MT
Coconut (nos)	65/palm	60/palm	60/palm	65/palm	70/palm
Rubber (kg)	3.5 MT	3.5 MT	3.5 MT	3.6 MT	3.6 MT
Areca nut (nos)	1 MT	1.2 MT	1.5 MT	1.6 MT	1.5 MT
Cash nut (nos)	1 MT	1 MT	1.1 MT	1.2 MT	1.3 MT
Pepper (kg)	3.2 MT	1 Kg	1 Kg	1 Kg	1 Kg
Banana (kg)	8 Kg	9 Kg	8 Kg	10 Kg	10 Kg
Plantain (kg)	12 Kg	11 Kg	10 Kg	13 Kg	15 Kg
Tapioca (kg)	20 MT	21 MT	20 MT	20 MT	20 MT

Source :Krishi Bhavan ,Ottappalam

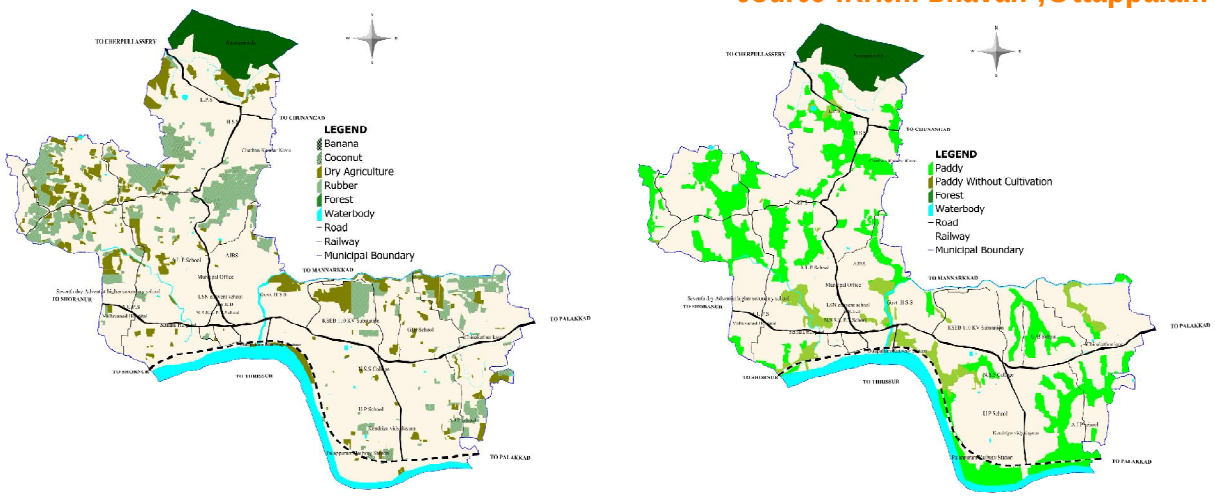


Fig 5.14 Spatial distribution of agricultural area

5.6.5 Agriculture Infrastructure

For tackling the problem of labour shortage in agriculture sector, farm mechanisation is giving more importance nowadays. The availability of machineries under Ottappalam Krishibavan is detailed in Table 5.6

Table 5.6 Details of Machineries in Ottappalam Town

Type	Tractor	Power Tiller	Power Sprayer	Harvester	Pump set	Thresher	Sprayer
Quantity (Nos)	6	7	9	3	986 (electric) 624(Diesel)	3	434

Source :Krishi Bhavan ,Ottappalam

Padasekhara samithies form the driving force for group farming activities .There are fifteen active padasekhara samithies and the details of them are shown in Table 5.7 and in Fig 5.15.

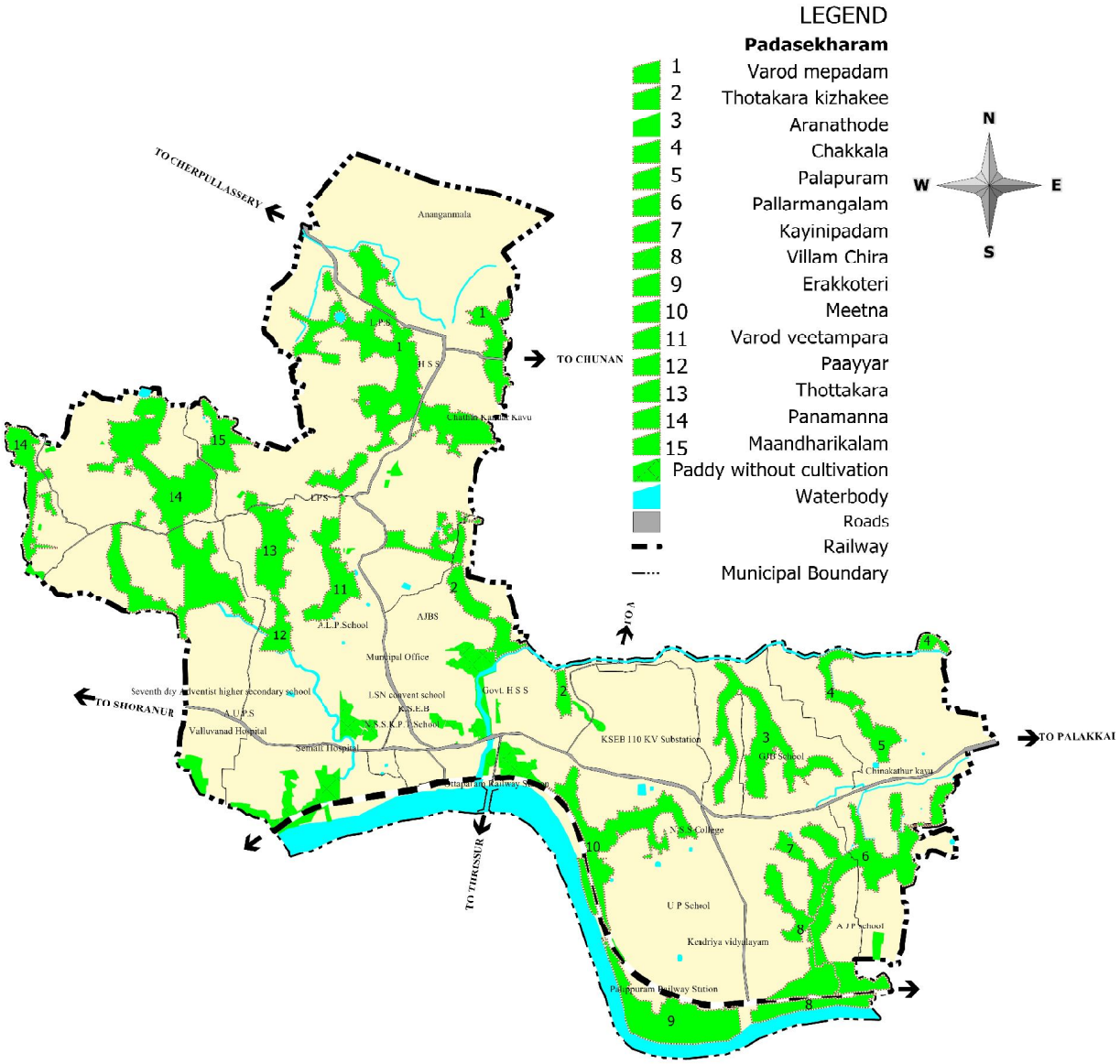


Fig 5.15 Spatial distribution of Padasekhara samithies

Table 5.7 Details of Padasekhara samithies

Sl. No.	Name of Padasekhara samithies and other Agencies	Location and Ward No.	Production (Ton)					Cultivated Paddy Area (ha)					No. of farmers
			2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14	
1	Palappuram	14	60	66	63	66	66	20	22	21	22	22	118
2	Chakkala	15	57.3	57	57.3	57.6	57.6	19.1	19	19.1	19.2	19.2	83
3	Villanchira	18	36	33	39	39	39	12	11	13	13	13	247
4	Pallarmangalam	17	60	57	60	60	60	20	19	20	20	20	50
5	Kaniyampadam	19,20	48	48	48	48	48	16	16	16	16	16	85
6	Aranathode	12,14	204	204	201	204	204	68	68	67	68	68	85
7	Erakkottiri	21	93	90	93	93	93	31	30	31	31	31	43
8	Meetna	21,22	48	48	48	48	48	16	16	16	16	16	52
9	Meppadam	36	120	125	130	130	135	40	40	40	40	40	52
10	Thottakkara Kizhakku	6,7	240	237	234	240	240	80	79	78	80	80	50
11	Veetampara	3,4	138	141	141	141	141	46	47	47	47	47	165
12	Thottakkara	35	96	90	93	96	96	32	30	31	32	32	65
13	Panamanna	34,33	234	240	237	240	240	78	80	79	80	80	17
14	Manthattikulam	32	36	36	36	36	36	12	12	12	12	12	51
15	Payar	26,29	30	30	30	30	30	10	10	10	10	10	28

Source :Krishi Bhavan ,Ottappalam

5.6.6 Irrigation facilities

Paddy is the major crop in Ottappalam municipality. There is first crop and second crop paddy cultivation in almost equal area. First crop depends on monsoon rain and no irrigation is required. For second crop, irrigation is required. Major source of irrigation are Kanjirapuzha and Malampuzha dams .There are two lift irrigation schemes supplying water to 100 hectors of land at Erakkottiri and Palappuram .Temperoray dams are constructed in every year in Kizhakke thodu near bridge , Kaniyampuram –Panamanna ,Kakathodu near to Ayyappan kavu There is a Vented Cross Bar was constructed at Mulanjur thodu by irrigation department that helps to give irrigation facilities to nearly 36.50 hectors of agricultural land . There are also ponds using for irrigation purpose. Details of the irrigation facilities are shown in the Table 5.8

Table 5.8 Details of irrigational facilities

Source	Ayacut area	Canal/Thodus	Period of water availability
Kanjirapuzha Dam	145.26 acre	Ottappalam Distributory	Dec - Jan - Feb - May
Kanjirapuzha Dam	309 acre	Varode Distributory	Dec - Jan - Feb - May

Source ,Irrigation office ,Ottappalam

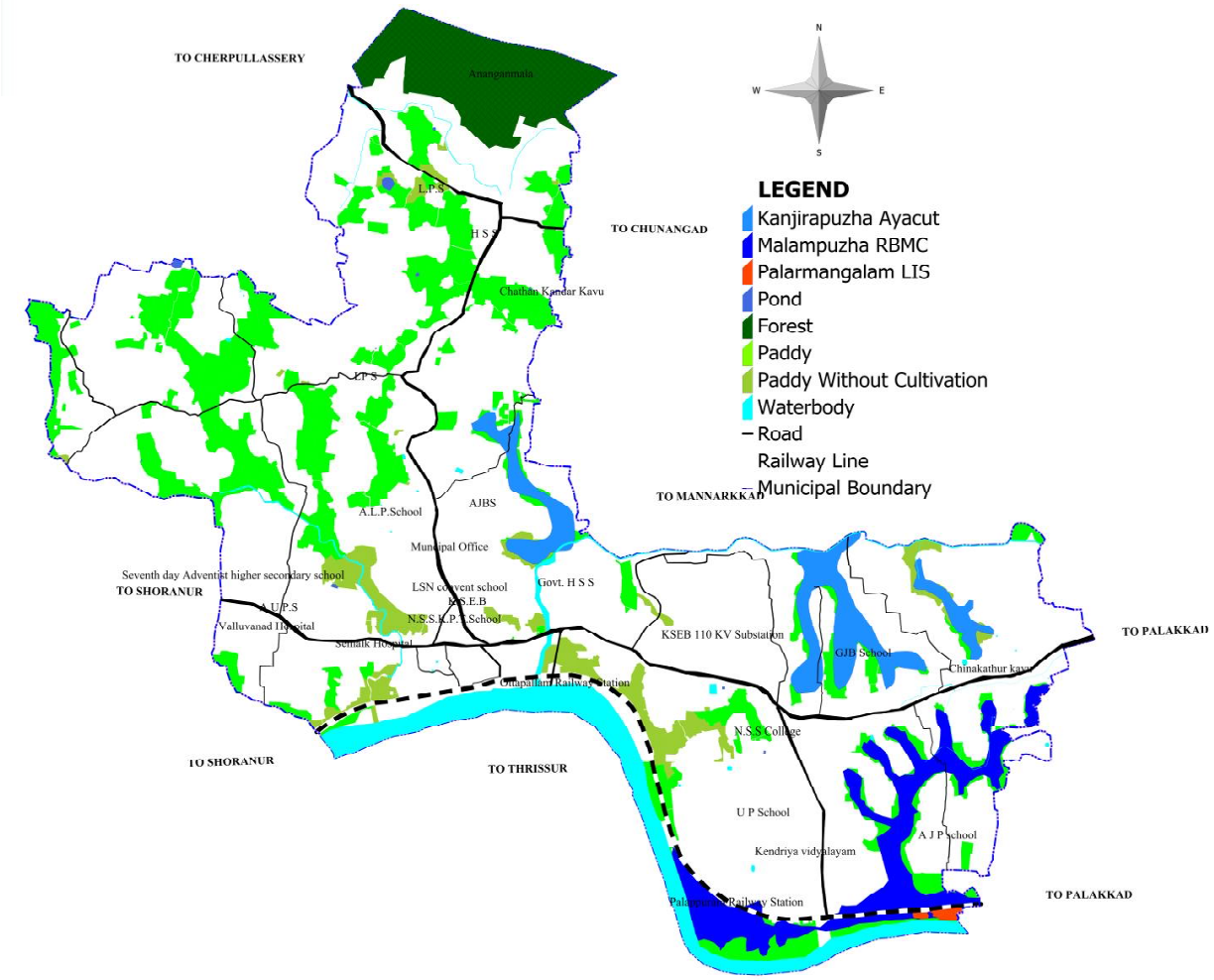


Fig 5.16 Spatial distribution of Ayacuts

Table 5.9 Area of Ayacuts

Ayacut	Area in Hectares
Kanjirapuzha Ayacut	101.52
Malampuzha RBMC	131.82
Palarmangalam LIS	4.65

Table 5.10 Details of thodus

Sl No	Name of thodu	Length in km
1	Kaniyampuram thodu	3.4161
2	Mulanjur thodu	6.040
3	Mambatta	
4	Panamanna	
5	Varode thodu	2.916

5.6.7 Watersheds

Watershed is an extent or an area of land where surface water from rain or ice converges to a single point in lower elevation. These water bodies supply drinking water, water for agriculture and manufacturing,offer opportunities for recreation and provide habitat to numerous plants and animals. Unfortunately various forms of pollution, including runoff and erosion, can interfere with the health of the watershed and hence its protection is important. The details of water sheds are given in Table 5.10 and their spatial location is given in Fig 5.17 .

Table 5.10 Details of water sheds

Sl No	Name of W/S	Local bodies	Area in Ha	Priority
1	Pavukonam w/s.	Vaniyamkulam,Ananganadi Ottappalam	2694	High
2	South Panamanna w/s.	Ananganadi, Ottappalam	420	Medium
3	Panamanna w/s.	Vaniyamkulam, Ottappalam	755	Medium
4	Kaniyampuram w/s.	Ottappalam	441	High
5	Kanjirakadavu w/s.	Ambalappara, Ottappalam	1548	High
6	Chunangad w/s.	Ambalappara, Ottappalam	643	Medium
7	Palappuram w/s.	Lakkidiperur, Ottappalam	727	Medium
8	Lakkidi w/s.	Lakkidiperur, Ottappalam	749	High

Source ,Soil Survey office ,Ottappalam



Fig 5.17 Location of water sheds

5.6.8 Problems

- For irrigation facilities, Ottappalam depends on Malampuzha and Kanjirappuzha irrigation project. Since the canals area passing through the east ,south west ,south parts of municipality, municipality as a whole is not getting the benefits of these irrigation projects. Only Pallarmangalam area alone is getting water from Malampuzha Project in the tail end of the supply canals,maintenance defects and accumulation of waste reduces the quantity of water available.

- Lift irrigation schemes for water supply are existing in Bharathapuzha River. Hence it is affected by Shortage of water in River in summer season .

- Conversion of paddy field for banana cultivation and brick kilns are another problem causing reduction in agricultural fields.
- Shortage in availability of labourers and machineries.
- Even though Labour bank is formed within the municipality, it is not functioning properly
- Timely help from government declared schemes are not available.
- Absence of markets for the agricultural products.
- Farmers are exploited by intermediates, which in turn reduces profit of farmers.
- Attack from Pigs, Peacocks and other animals also adversely affect the production.

5.6.9 Potentials

- Presence of active groups like "*Padasekhara Samithy"* can enhance the growth of agriculture in the field.
- Irrigation facilities can be improved by extending existing right Bank Canal of Malampuzha projects and constructing Mini heck dams in thodus
- Scope for vegetable cultivation in the banks of Bharathapuzha can improve agriculture to great extent.
- Roof top agriculture along with ground agriculture can be promoted in house compounds.
- Inter linking of agriculture and industry will create opportunities for diversified product preparation.
- Yield of bio-organic farming have great demand in export market.
- Major research station at Pattambi is in close proximity of our town. Facilities available in the research station can be well utilised.

5.7 INFERENCE

In Ottappalam municipality 19.19 % of land is used for Dry Agriculture and 20.82% is used for Wet Agriculture, as a whole constitutes 40%of the municipal area. The number of cultivators and agricultural labourers are seen decreasing and majority of workers are entering into tertiary sector. There is no organized market in the town. The product diversification system and value addition of hill produce have tremendous scope in the sector.

6. EXISTING LAND USE

Land use is the essential and perhaps the most precious of all physical possessions, which is not only the source of almost all the material resources but also base on which the human activities take place.Land has various competing and conflicting demands. As the settlement grows, various use of land compete each other, ultimately the competition between uses and consequent conversation create problems in the utilization and management of land. The existing mixed pattern of land use of the town creates a number of physical problems. An analysis of the existing land use pattern helps in identifying and simplifying these problems.

6.1 GENERAL ANALYSIS OF LAND USE

Ottappalam town has an area of 32.66 km^2. In order to understand the breakup of the developed urban area of Ottappalam town under various uses (residential, commercial, industrial, traffic and transportation, recreational utilities, public and semi public uses) detailed analysis of the town structure has been done on the basis of existing land use plan. Breakup of the existing land use, 2012 based on the manual survey is presented in table 6.1

Table 6.1 Land use break up 2012

Sl. No	Land Use	Area (Km^2)	Percentage of total area	Percentage of developed area
1	Residential	12.27	37.56	80.02
2	Commercial	0.23	0.71	1.52
3	Industries	0.28	0.86	1.83
4	Public & semipublic	0.92	2.81	6.00
5	Park & Openspace	0.01	0.02	
6	Paddy	7.08	21.69	
7	Dry Agriculture	6.18	18.94	
8	Cemation & Burial Grounds	0.01	0.02	
9	Vested Forest	1.38	4.24	
10	Traffic & Transportation	1.61	4.94	10.53
11	Solid Waste Treatment Plant & Slaughter House	0.00	0.01	
12	Hillock	0.00	0.00	
13	Vaccant	1.27	3.90	
14	Waterbody	1.40	4.30	
	TOTAL	32.66	100.00	

Source: Land use survey by DTCP, Palakkad.

Land use breakup in percentage is shown in the Fig 6.1.

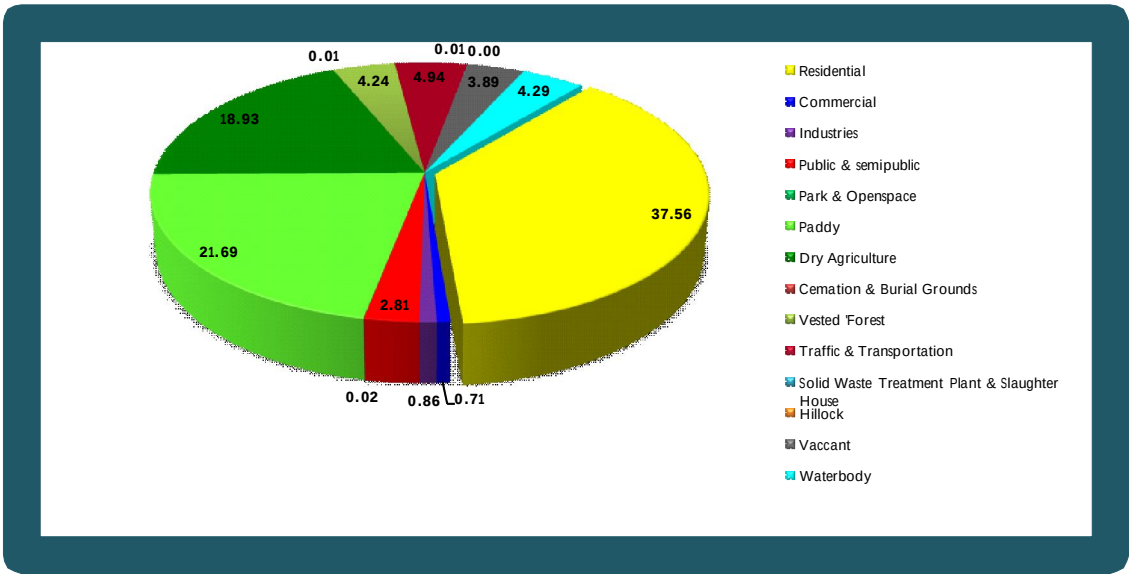


Fig 6.1 Land Use Break up 2012

As per the existing land use plan 2012 shown in the Fig 6.2, it has been observed that 45.93% of the total municipal area is developed while the remaining 54.07% of the area is under agriculture use or is kept as vacant at present. Around 80% of the developed area is under residential land use. Nearly half of the municipal area have already been developed for various uses such as residential, commercial, industrial etc which are discussed below.

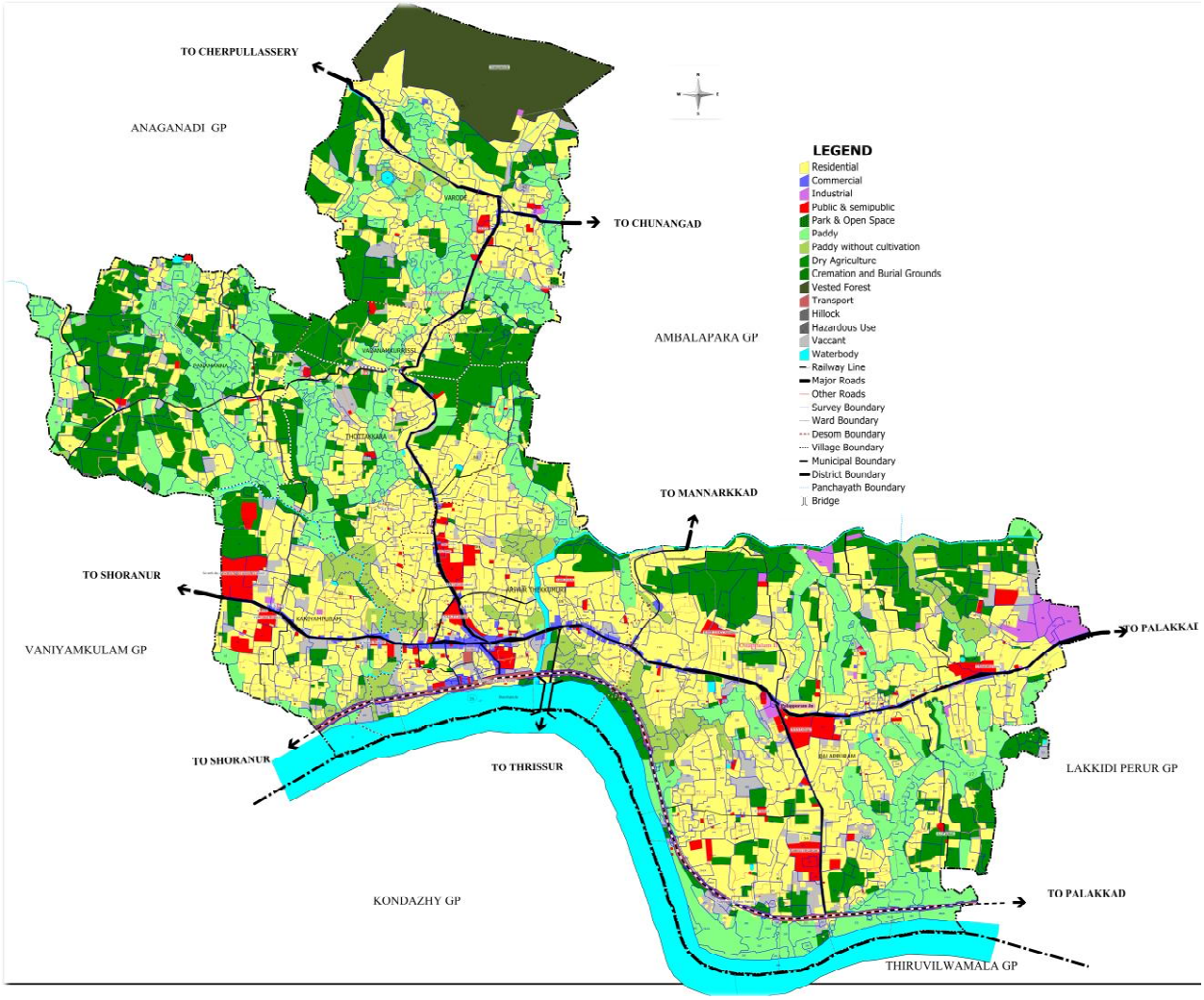


Fig 6.2 Existing land use 2012

6.1.1 Residential

As per the existing land use 2012, the major land use is residential. 36.69 % of land in the municipality is under residential use. This include an area of 11.98 km^2. Residential use covers about 80% of the total built up or developed area. As per UDPFI standards 45 - 50% of area can be developed for residential land use. Residential land use is mainly concentrated in wards Killikavu(28), Meetna(22), Poolakund(10) and Palatt road(7) (Fig 6.3).

6.1.2 Commercial

The commercial activities are mainly concentrated in the centre of the town. 0.71% of land in the municipality is under commercial use. Commercial use covers 1.55% of the total built up area. As per UDPFI standards 2 -3 % of area can be developed for commercial land use. So land available under this use is below the prescribed norms. Commercial land use is concentrated mainly in Thennadi bazar(26) followed by railway station(25), Palatt road(7) and Kolothukunnu(8) (Fig 6.4)

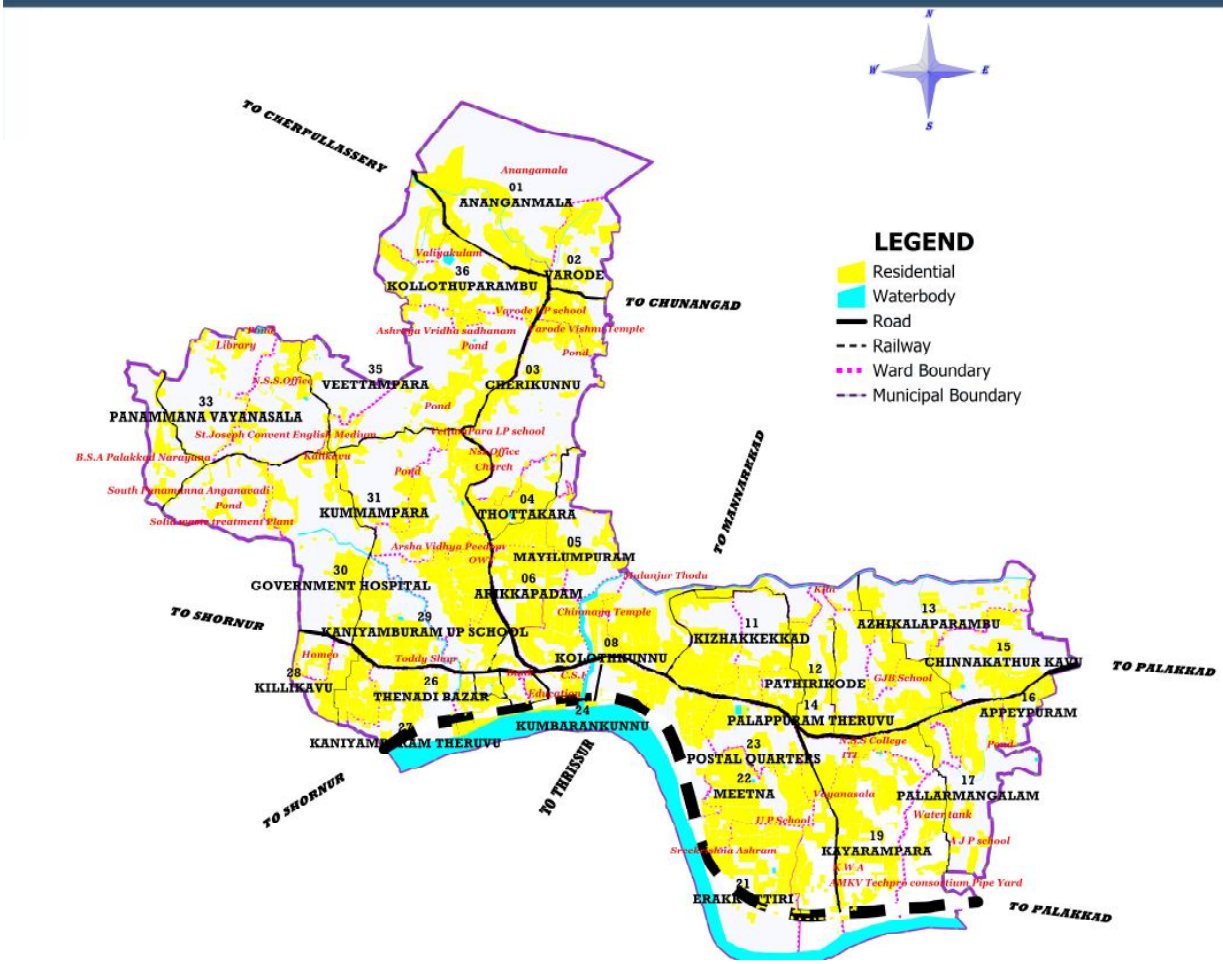


Fig 6.3 Spatial distribution of residential land use

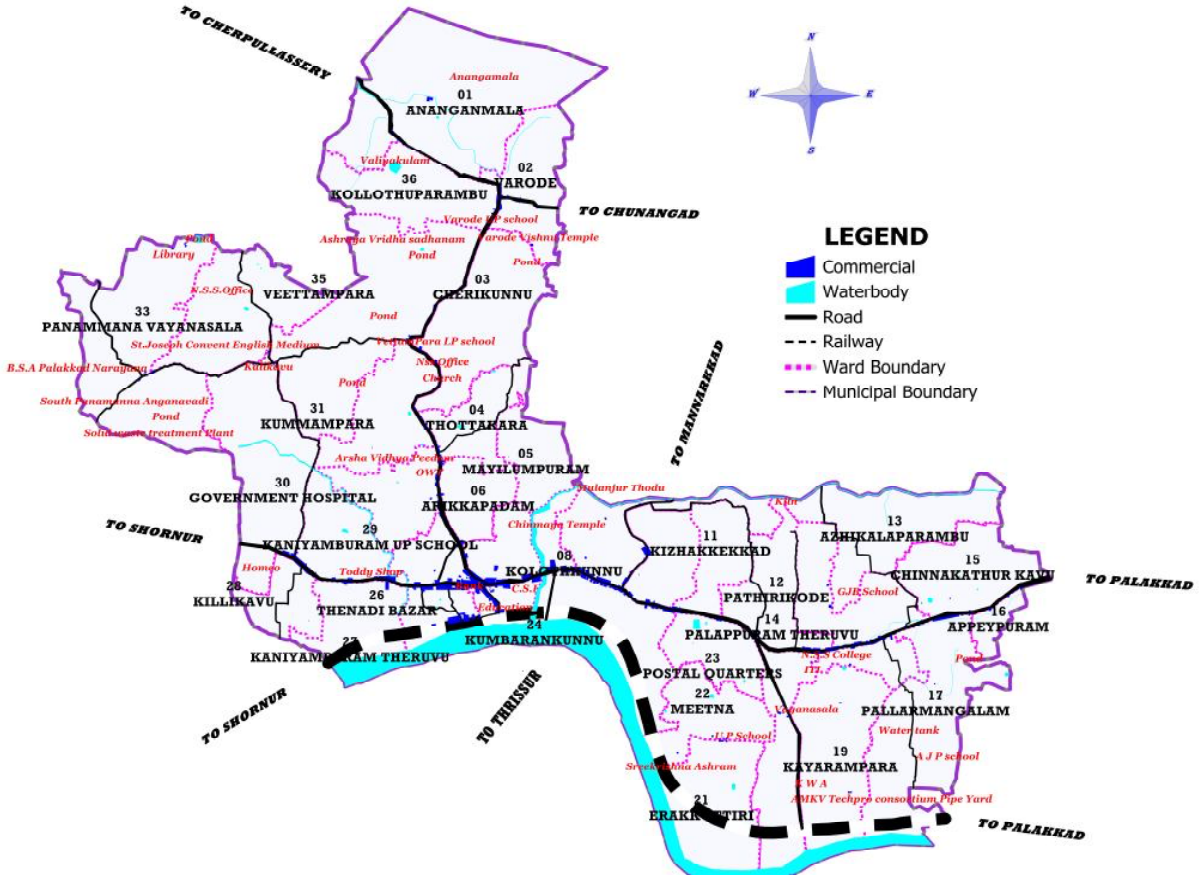


Fig 6.4 Spatial distribution of commercial land use

6.1.3 Industrial

At present the area under industrial use is around 28 Ha, which is about 0.85% of the total area of town. Industrial use covers 1.85% of the total built up area. As per UDPFI standards 8 - 10% of area can be developed for industrial land use. Industrial use is very less compared to the norms of the UDPFI guidelines. There are no medium and major scale industries in Ottappalam town and the existing industries are of small scale type. As per the spatial distribution the major industrial land use is shown in wards Chinakathur kavu(15) followed by Azhikalaparambu(13) and Postal quarters(23) (Fig 6.5)



Fig 6.5 Spatial distribution of Industrial land use

6.1.4 Public & Semi public

Govt. /Semi Govt. offices, educational and research institutions, medical and health institutions, social, cultural and religious institutions, cremation and burial grounds, Govt. lands etc. are grouped under this category. An area 91 hectares which is 6.07% of the total developable area and 2.79% of total municipal area of the city is under public and semi public use. As per UDPFI standards 6 - 8% of area has to be developed for public use. It is clear that the area under this land use is in the range of prescribed norm. Public use is concentrated in wards NSS College(20) followed by Arikkappadam(6) and Kaniyamburam vayanasala(32) (Fig 6.6).



Fig 6.6 Spatial distribution of public & semi public land use

6.1.5 Park and Open Spaces

Recreational facilities like parks, play ground, stadium, club etc. are important for leading quality social life in any city. Major recreational facilities present in Ottappalam Municipality are municipality play ground, open air auditorium and KPS Menon indoor stadium. There is lack of recreational facilities in town and existing ones are poorly maintained. The total area under recreational use in the city comes out to be 0.07% of the total Municipal area. The developable area under this use is much less than the prescribed norm of 12 - 14%, reflecting that the city badly lacks in the provision of recreational spaces which requires attention.

6.1.6 Agriculture

Agricultural land use covers cultivated land and nurseries. 19.19% of land in the municipality is used for dry agriculture and 20.82% is used for wet agriculture. Agriculture as a whole constitute about 40% of the total municipal area. The major crop is paddy which is concentrated along the north west and south east part of the Municipality. Agricultural use under paddy cultivation includes paddy cultivating land and uncultivated paddy fields which are cultivable. Agricultural use is concentrated in wards Panamanna vattanal(34), Panamanna vayanasala(33) and Cherikkunnu(3). Agricultural activities are concentrated on the peripheral area. The depletion of agricultural land use is not very severe in the municipality even though paddy fields have been extensively filled up for various other purposes. Fig 6.7 shows the present paddy land distribution in ottappalam municipality.

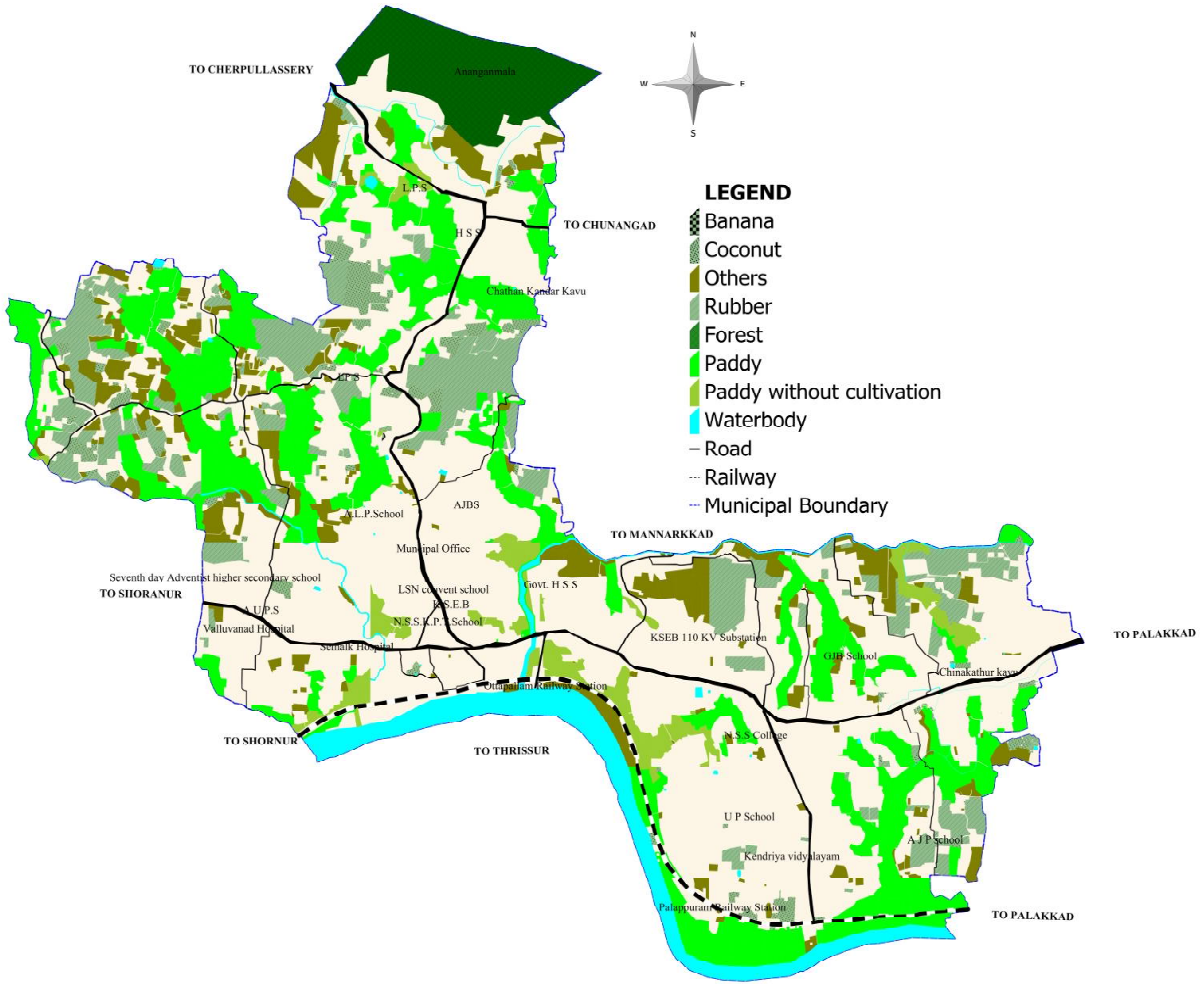


Fig 6.7 Distribution of Agricultural Land Use

6.1.7 Transportation

System of transportation has evolved as a result of the intersection between various land use functions. Its requirement is the physical manifestation of the mobility requirement of people. The area covered by transportation comes to 4.89% of total Municipal area. The developable area under this use is 10.64% and it is in the range prescribed by the UDPFI standards which is 10- 12%. Palakkad - Ponnani road passing through the centre of the town has good condition where other roads in the municipality are characterized by poor geometry and surface quality. Fig 6.8 shows transportation network of Ottappalam municipality. All regions of the municipality are well connected by roads but their condition need immediate improvement.

6.1.8 Water Bodies

Water bodies in the town accounts for 1.39% of the total area of town. Major water bodies are Bharathapuzha river flowing through southern boundary of Municpality Other water bodies are ponds ,thodus etc In the existing ponds, five ponds owned by the municipality are Varode valiya kulam , Mannadi kulam, Perumkulam at Palappuram , Nurumbiyam kulam Thamarakulam .The remaining are private ponds . Major natural darins are Kizhakke thodu, Panamanna thodu, Thottakkara Thodu , Varode thodu , Mulanjur thodu , Mambatta thodu Kaniyampuram Thodu ,Koleri Thodu etc .

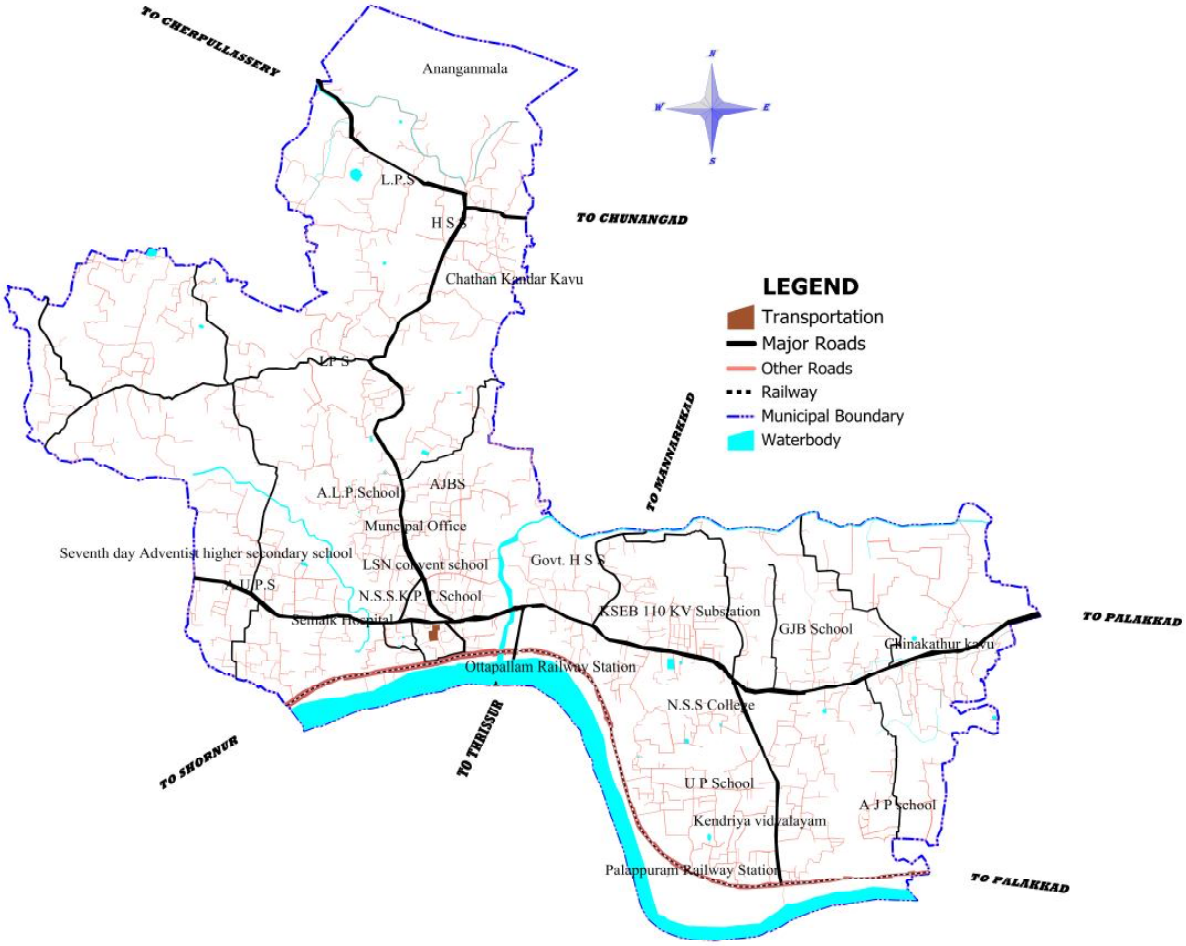


Fig 6.8 Distribution of transportation land use

6.1.9 Forest Land Use

In the municipality, Vested Forest is located at Ananganmala, northern end .Total extent of vested forestarea comes to 137 hectors which constitutes 4.19% of the total municipal area. Social forestry activities are going along Kulappully - Vadanamkurissi road side. Table 6.2 shows details of forest in Ottappalam Town . Fig 6.9 shows spatial distribution of forest area in the municipality. Abundance of trees in these area increases rainwater interception thereby supplying more water in the valleys.

Table 6.2 Details of forest in Ottappalam Town

Sl. No	Type	Name of Forest	Species wise flora	Species wise fauna	Forest resources for commercial production - Timber, firewood, poles etc	Forest Resources for Industrial Production- Eucalyptus, Acacia, Bamboo, Reeds
1	Vested	Anthimahakalan forest	Deciduous forest	Peacock, Snake, Wild pig etc	Nil	Nil
2	Vested	Parakkalam	Deciduous forest	Peacock, Snake, Wild pig etc	Nil	Nil

Source: Forest Range Office ,Ottappalam



Fig 6.9 Distribution of forest land use

6.1.10 Undeveloped Areas / Vacant Lands

Vacant land includes the area which is presently not being developed and is under no use. In municipality, at present 1.80 sq km of lands are seen vacant that is neither occupied by residents nor used for any other development purposes (Fig 6.10)



Fig 6.10 Distribution of Vacant land

6.1.11 Land use analysis

The analysis of land use in the 36 wards of municipality shows that majority of wards have higher residential percentage. Fig 6.11 shows ward wise land use split up of Ottappalam municipality.

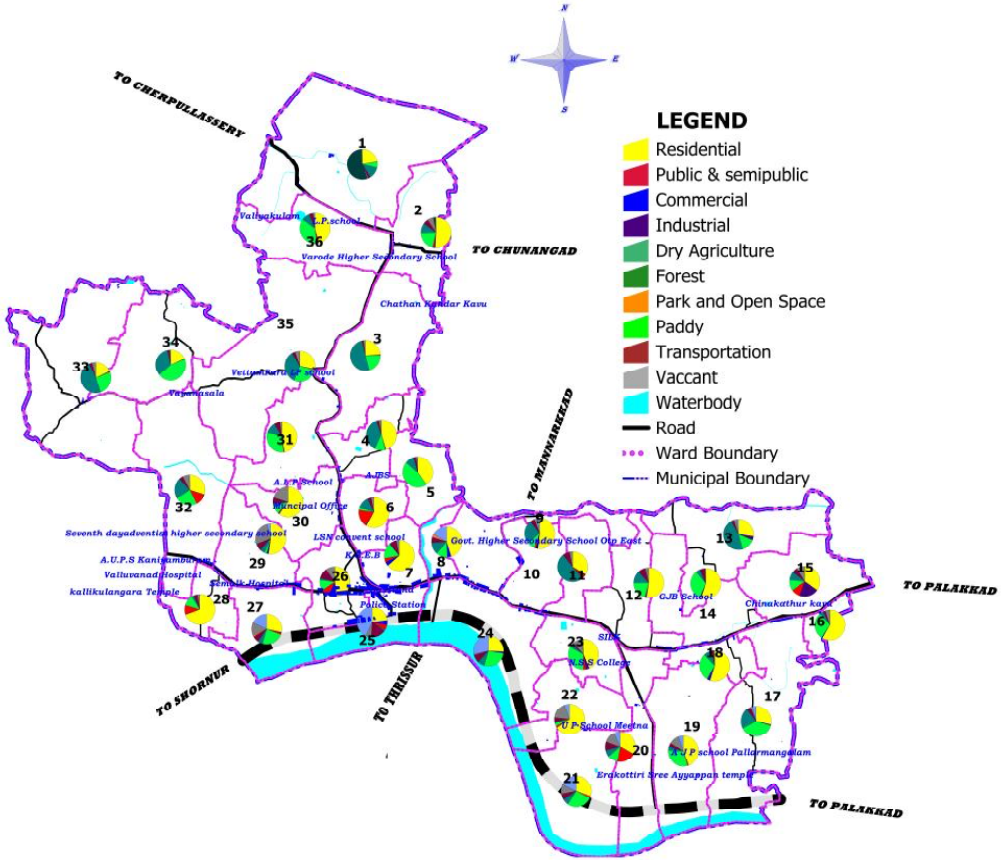


Fig 6.11 Ward wise land use split up of municipality

6.2 ANALYSIS OF THE LAND USE PATTERNS - 1990 & 2012

Spatial distribution of land use s in the year 1990 and 2012 is shown in Fig 6.12 and 6.13

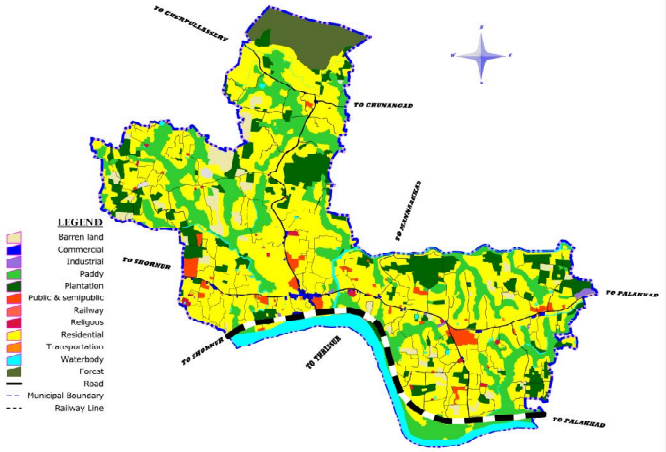


Fig 6.12 Land use in the year 1990

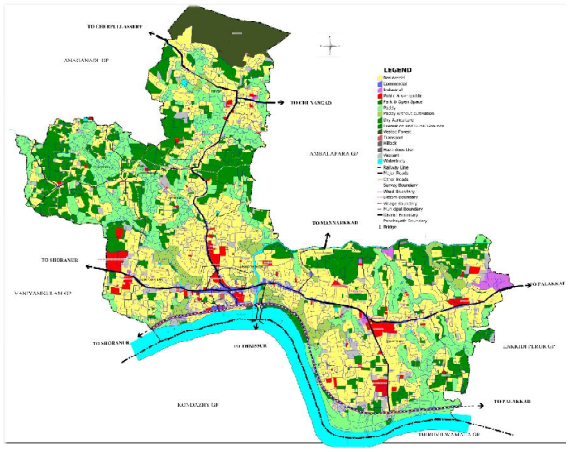


Fig 6.13 Land use in the year 2012

Table No 6.3 shows the comparison of change in land use in the year 1990 nd 2012.

Table 6.3 Comparison of land use in 1990 and 2012

Land Use	UDPFI Standards	2012 Land Use	Land use in %	1990 Land Use	Land Use in %	Increase of area in Sq. Km	Decrease of area in Sq. Km
Residential	45 - 50	11.98	36.69	18.34	56.15		6.36
Commercial	2 - 3	0.23	0.71	0.19	0.58	0.04	
Industrial	8 - 10	0.28	0.85	0.07	0.21	0.21	
Public & Semi public	6 - 8	0.91	2.79	0.52	1.60	0.39	
Park and open spaces	12 - 14	0.02	0.07	0			
Vacant land		1.80	5.50	0.07	0.21	1.73	
Transportation	10 - 12	1.60	4.89	1.09	3.38	0.51	
Paddy		6.80	20.83				
Forest		1.37	4.20	10.76	32.94		9.39
Agriculture		6.27	19.21				
Cemetery		0.01	0.02				
Water bodies		1.39	4.24	1.61	4.93		0.22
Total		**32.66**	**100**	**32.66**			

Existing land use map of 1990 and 2012 clearly shows that the area of paddy fields has reduced considerably. Urbanization and the need for land for urban uses have forced the conversion of the agricultural land. Strict law enforcement must be carried out to prevent further damages that may happen to the existing paddy fields. Decrease in residential use indicates that conversion of paddy fields might be for urbanisation purposes and not for residential use.

6.3 LAND USE CONCENTRATION PATTERN

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

Concentration index (C.I) of a particular land use in the municipality

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

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

Spatial distribution of concentration of agricultural land use is shown in Fig 6.13 . From the map it is clear that agricultural area is mostly concentrated along the north west and south east part of the Municipality.

Ottappalam town being a city with more commercial activities possess more potential for commercial activities. Spatial distribution of concentration of commercial land use is shown in the Fig 6.15 Commercial land use is mainly concentrated along the ward Palatt road(7), Koloth kunnu(8) and Perumkulam(18). Commercial use is concentrated mainly in the central region of the Municipality. The important commercial centres are Town JN, Railway station road JN, Jass JN, Ambalappara JN, Lakshmi theatre JN and Mayannur Bridge JN.

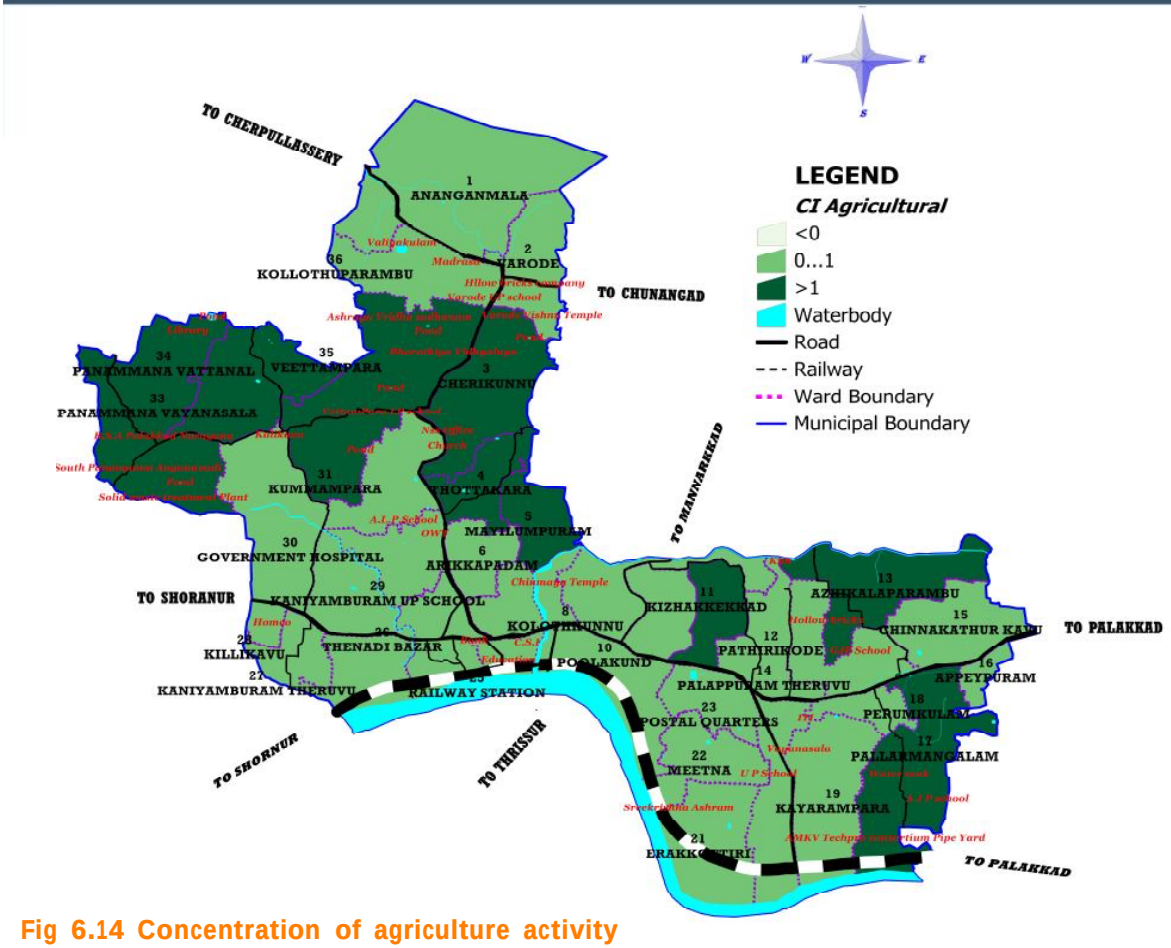


Fig 6.14 Concentration of agriculture activity



Fig 6.15 Concentration pattern of commercial land use

Spatial distribution of concentration of industrial land use is shown in Fig 6.16. Industrial land use is mainly concentrated in the wards Chinakathurkavu(15), Azhikalaparambu(13) and Postal quarters(23). Chinakathurkavu and Postal quarters are along the side of Palakkad Ponnani SH. Proposal for the under construction project of KINFRA park will increase concentration indices in the chinakathur kavu region. Major industries in these region include silk industries, KINFRA industrial estate at palappuram, and some kilns.



Fig 6.16 Concentration pattern of industrial land use

Fig 6.17 shows distribution of concentration index of public and semipublic land use . Majority of public buildings are located in the wards Kaniyamburam vayanasala, arikkapadam and NSS college. Public buildings like NSS college, schools and other educational institutions, Irrigation head quarters, KSEB 110 KV substation, Kerala Water authority office , Govt. Taluk hospitals, other govt offices etc are contributing for this concentration of public uses in wards.

Fig 6.18 shows ward wise residential concentration index of Ottappalam Town . Central areas of town are highly concentrated with residents. On moving to the periphery, residential dwellings gradually decreases. Wards Thottakkara, Arikkapadam, Killikavu, Pathirikode, Palappuram, Kayarampara, Meetna etc have more inhabitants than the peripheral wards. Easy access to the major Palakkad - Ponnani road stretch makes these wards more attracted to residents.

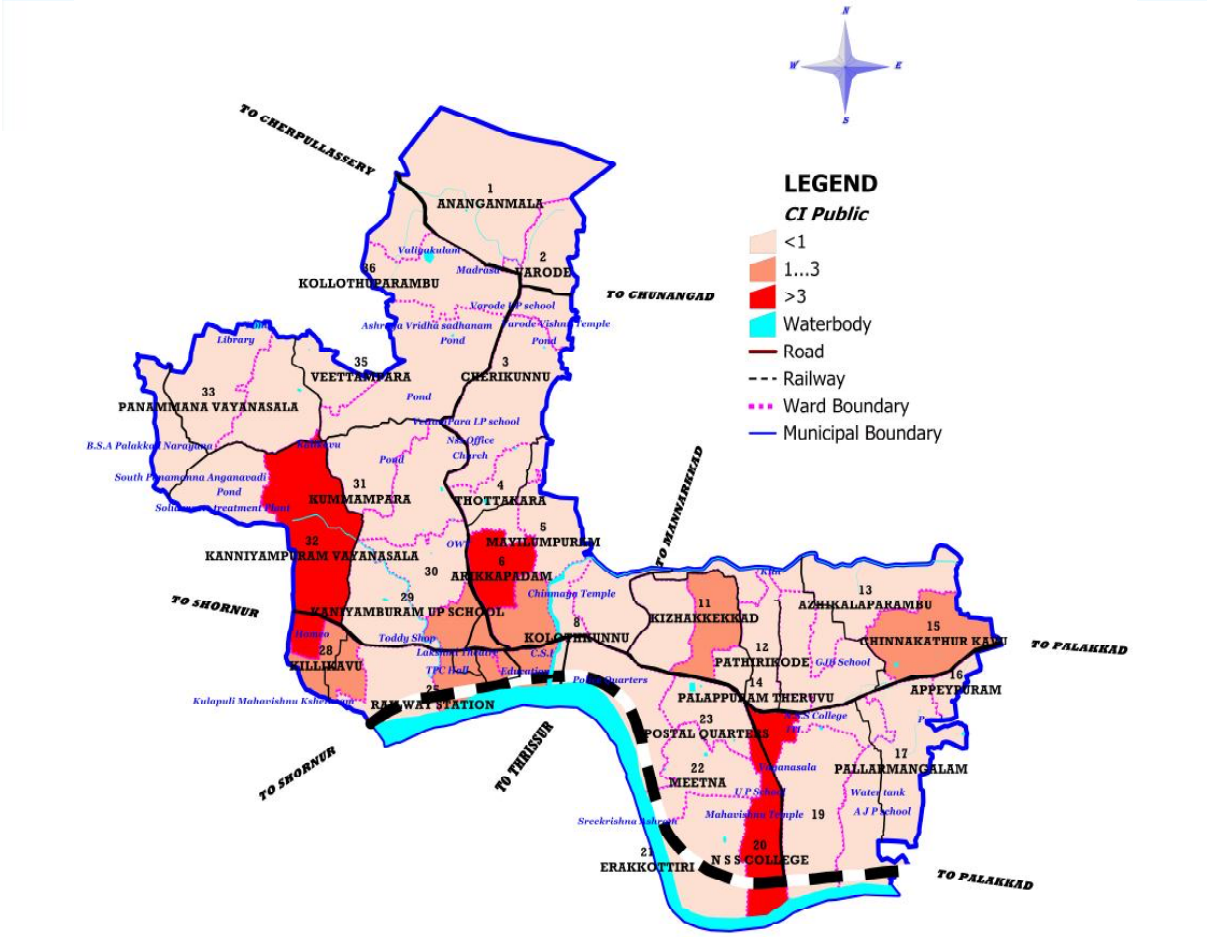


Fig 6.17 Concentration pattern of Public and semipublic land use



Fig 6.18Concentration pattern of residential use

6.4 DIRECTION OF GROWTH

As in most of the cases, growth of this town is also radiating towards the periphery. Concentration of residents are higher in the core of the city and decreases as on going to the municipal boundary. Central crowding occurs mainly due to easy access routes, commercial activity and presence of public units.

6.5 INFERENCE

Nearly 50 % of planning area is covered by by Forest, water bodies and agriculture. Urban land uses are concentrated in the remaining 50 % of geographical area of town. Southern boundary being Bharathapuzha river which act as a physical barrier for growth of town and Railway line also divide the town in east west direction. As per the existing land use, majority of land area is in residential use. The second highest land use is agriculture, which is spread along the peripheral area of the Municipality.

7.TRAFFIC AND TRANSPORTATION

Growth of urban transport along a sustainable path in cities is the foremost need of the country and is an important part of the nation's economy. The development of cities largely depends upon their physical, social, and institutional infrastructure. In this context, the importance of intra urban transportation is paramount. This chapter provides an over view of the role of transport in the present scenario of the town and the surrounding and to understand the existing potentials, strengths, weakness and constraints of the transport sector and consequently arrive at strategies and projects which will form an integral part of the town development strategy.

7.1. AN OVERVIEW OF TRANSPORTATION SYSTEM

Ottappalam has a wide range of regional transport links. Since Ottappalam is centrally located and Palakkad Ponnani road passing through the master plan area, large number of buses destined to north and south Kerala passes through the area. The two main roads which serve the town is Palghat – Ponnani road which passes in the east west direction and divide it into two parts and the other being Ottappalam Thrissur Road through Mayannur bridge .The other major roads are Ottappalam - Mannarkkad Road and Ottappalam- Cherpulasseri road .The town has a total road network of length of 417.56 km out of which 398.26 km are municipal roads. 37 % of the total municipal roads are bituminous surfaced .Table 7.1 shows the municipal road split up on the basis of surface type. The undulating terrain of the town calls for particular attention while formulating a traffic and transportation plan.

The municipal roads account for 95.33 % of the total road length of the town while PWD roads contribute to 4.67 %. The Ottapppalam town is an important railway station and most of the main trains operating in Kerala pass through the station.The railway track has a length of 7.33 km. The split up of various road categories are shown in Table 7.2.Municipal road split up on the basis of sroad width is shown in Table 7.3

Table 7.1 Municipal road split up on the basis of surface type

Type of Road	Length in km
Bitumen	144.95
WBM	126.37
Earthern	31.30
Cement Concrete	95.74
Total	**398.36**

Table 7.2 Category of transportation network based on ownership

Sl. No	Category	Length in km	Description
1	PWD Roads	17.34	MDR
		1.96	Other roads
2	Municipal Roads	398.36	Municipality
3	Railway Tracks	7.33	Railways

Table 7.3 Municipal road split up on the basis of road width

Sl No	Width(m)	Total Length(km)	Percentage
1	<3	33.712	8
2	3-6	357.13	90
3	6-8	7.524	2
	Total	**398.366**	**100**

Out of 398.36 km of road maintained by the municipality, 90% of the roads have width between 3 – 6 m while 8% has the width lesser than 3m. Only 2% of the roads have width between 6 to 8 m. The width wise distribution of roads is presented in Fig. 7.1. The transportation network map of Ottappalam town is shown in Fig. 7.2.

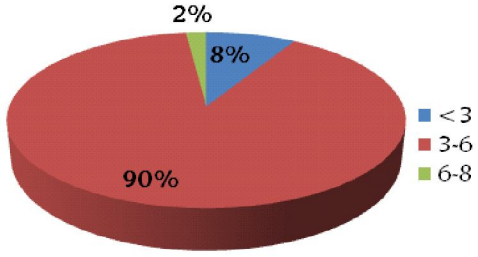


Fig 7.1 Width wise distribution of roads

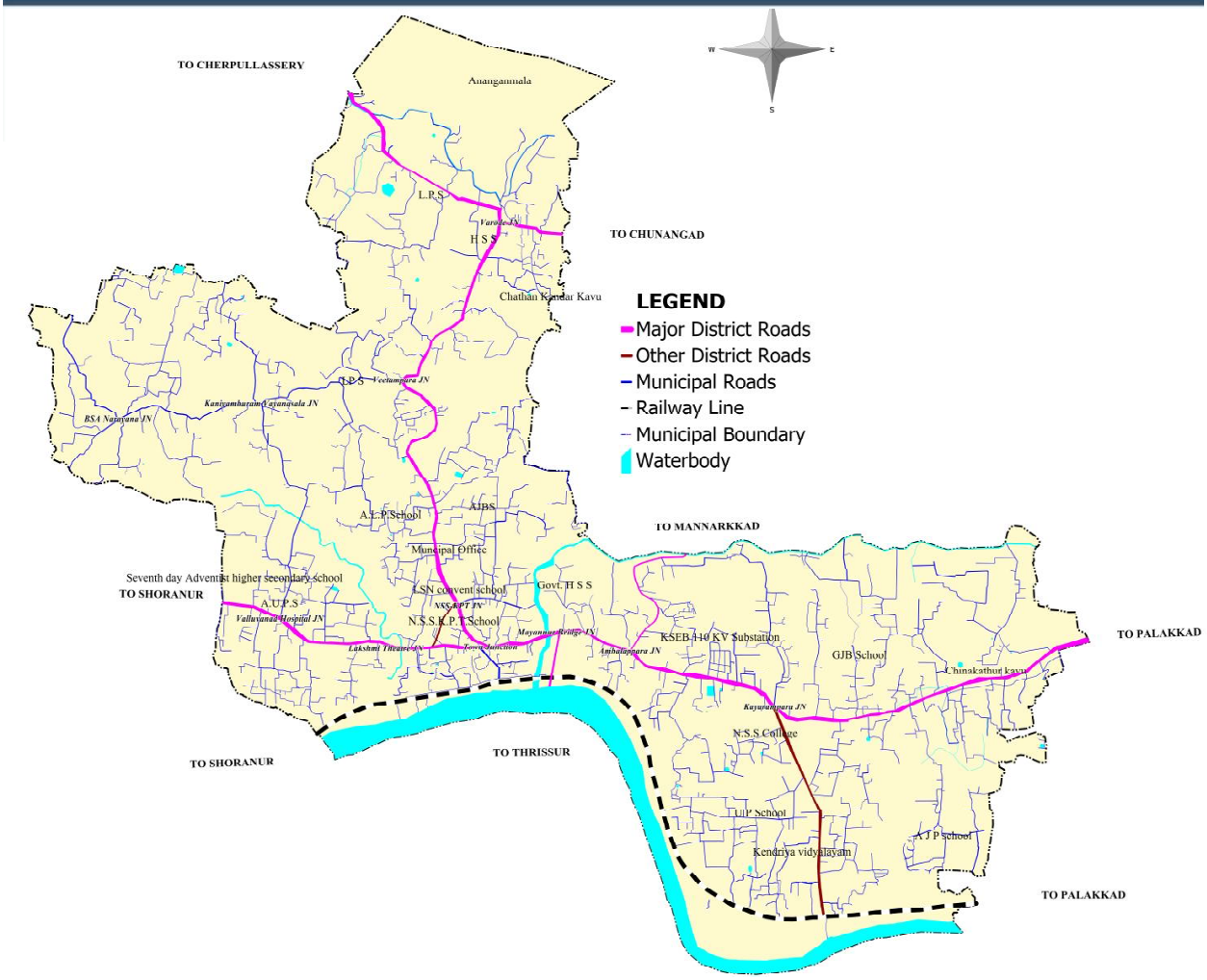


Fig 7.2 Transportation network of Ottappalam town

7.2 VEHICLE POPULATION

Growth trend

The trend in vehicular growth has been phenomenal all over the country and Palakkad district is no exception to this. The growth of motor vehicles in Palakkad district during the period from 2000 to 2012 is given in Table 7.4; Ottappalam municipality also follows this trend.

Fig 7.3 shows during last decade the number of vehicle in Palakkad District has 3 times increased.

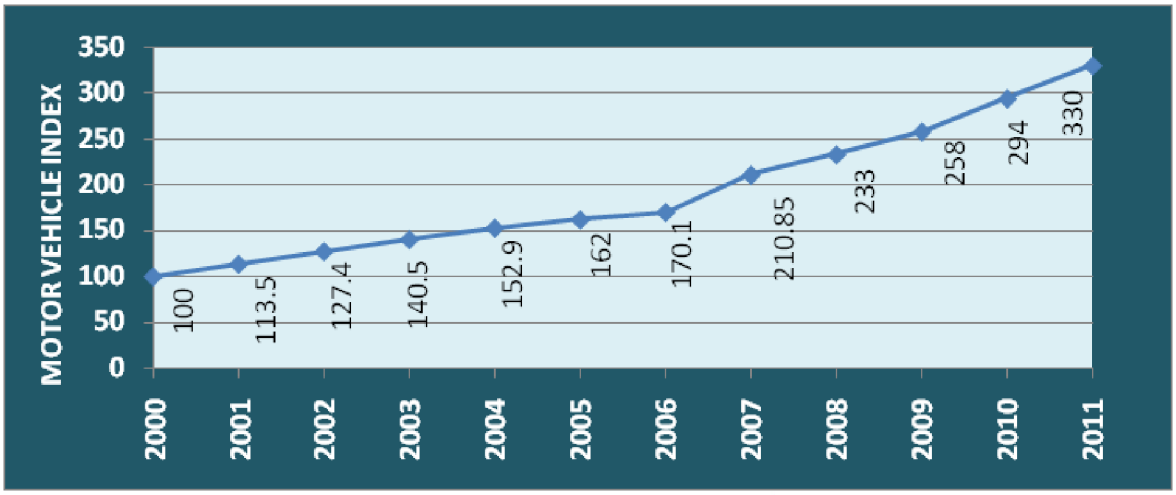


Fig. 7.3. Temporal variation of growth index of vehicles in Palakkad district

Table 7.4 Growth of population of motor vehicle in Palakkad District

Sl. No.	Year	Palakkad District	
		Motor Vehicles	Index
1	2000-2001	134,363	100.00
2	2001-2002	152,539	113.50
3	2002-2003	171,217	127.40
4	2003-2004	188,722	140.50
5	2004-2005	205,434	152.90
6	2005-2006	217,703	162.00
7	2006-2007	228,496	170.10
8	2007-2008	283,308	210.85
9	2008-2009	313,847	233.00
10	2009 -2010	348,248	258.00
11	2010 - 2011	397,134	294.00
12	2011 - 2012	446,083	330.00

Source: Economic Review 2012

Table 7.5 gives the number of motor vehicles having valid registration in Palakkad district as on 31-03-2012. An analysis of the existing vehicle population shows that the major share of about 65 per cent of the total vehicle population in the district continued to be two-wheelers (288,074) followed by cars (50,648) and Auto rickshaws (42361). Fig 7.4 gives the percentage of motor vehicles having valid registration in Palakkad district as on 31-03-2012.

Table 7.5 Growth of population of motor vehicle in Palakkad District

Sl. No	Type of Vehicle	No.(as on 31-03- 2012)	Sl. No	Type of Vehicle	No.(as on 31-03- 2012)
1	Four wheelers & above	22100	7	Jeeps	3739
2	Three wheelers	7536	8	Auto rickshaws	42361
3	Stage carriages	1176	9	Scooter/ motor cycles	288074
4	Contract carriages	9670	10	Tractors	4713
5	Cars	50648	11	Tillers	969
6	Taxis	9964	12	Trailers	121
			13	Others	4632
				TOTAL	445703

Source: Economic Review for 2012

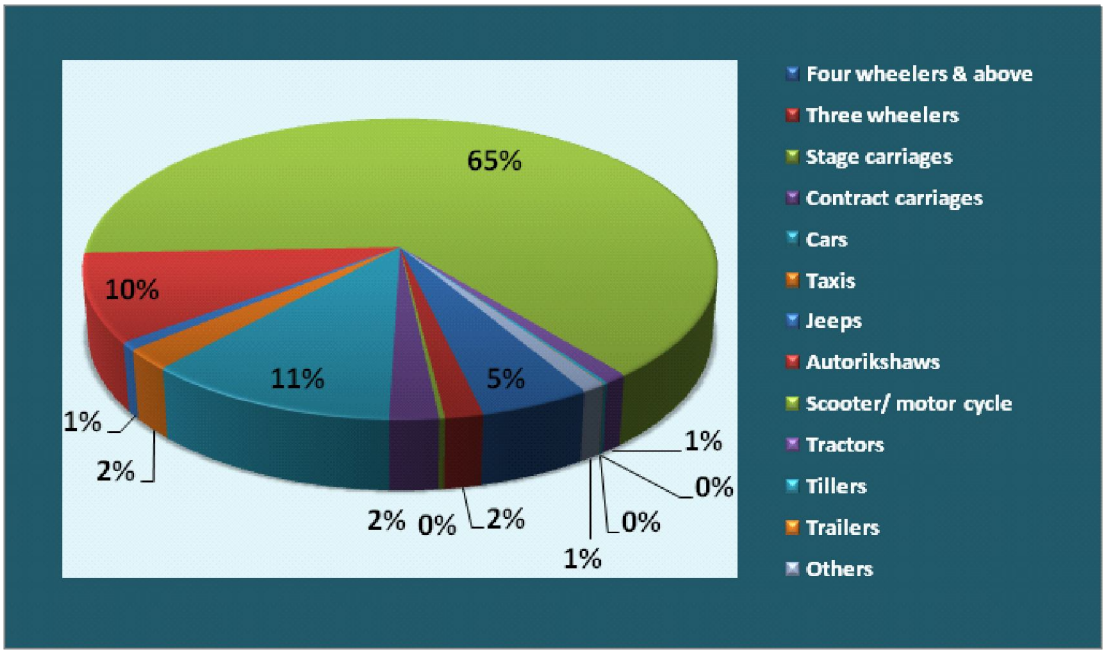


Fig 7.4 Percentage of registered motor vehicles in Palakkad District in 2012

7.3 ROADS

The road network is studied in terms of length of roads, cross section of roads (divided and undivided carriageway, footpath and right of way) etc. and major road intersections. The road network in the study area is of grid iron pattern with limited inter linkages. The roads are maintained by PWD and municipality. Apart from Palakkad Ponnani Road that passes through the town, the following are the important roads in the municipality. All imporant roads and junctions are shown in Fig 7.3. Important roads are listed below

1. Town Junction - NSS KPT Junction
2. Lakshmi Theatre Junction - Varode Junction
3. Jass Junction - NSS College
4. Jass Junction - Western outlet
5. Kaniyampuram Vayanasala Junction - BSA Narayana(Panamanna)
6. Kaniyampuram Vayanasala Junction - Valluvanad Hospital
7. Kanniyampuram Vayanasala Junction - BSA Narayana
8. Veetampara Junction - Kanniyampuram Vayanasala Junction
9. Varode - Cherpulassery Outlet
10. Varode - Chunangadu Outlet
11. Kayarampara - Meetna Junction
12. Kayarampara - Palakkad Outlet
13. Mayannur Bridge Junction - Thrissur side Outlet
14. Ambalappara Junction - Mannarkkad Outlet

7.3.1 Road Inventory Studies at major Road Stretches

Summary of inventory details of major road links in the study area are given in Table 7.6. The salient features of road inventory survey including right of way widths, carriageway widths, drainage condition, surface condition and adjacent land use are illustrated in this table. The important observations made are discussed below. NSS College road to Jass Junction which forms a part of the State Highway from Palakkad to Ponnani is an important road in the town giving access to Railway Station and related establishments. The road has a length of 4.2 km and a carriageway width ranging from 7.3m to 9.7m. Lakshmi Junction - Varode Junction is another arterial road through the town centre having a total length of 5.0 km leading to Thrissur. The carriageway width of the road is 5.2m in the first stretch of about 200m up to NSS-KPT Junction and 7.2m in the remaining stretch of 4.8km. NSS KPT Junction to Town Junction road is the major arterial road 400m long with a carriage way width of 7.2m.

Table 7.6 Summary of road inventory carried out on major roads of Ottappalam town.

1. Town Jn - NSS KPT Jn	Length	m	400
	Right of Way	m	14.6
	Carriage Way	m	7.1
	Adjacent Land Use	L	Commercial
		R	Commercial
	Junctions without signalling and Town junction with heavy traffic due to insufficient width of Palakkad Ponnani road in that area		



2. Lakshmi Jn - Varode Jn

Length	m	5000
Right of Way	m	14.18
Carriage Way	m	6.76
Adjacent Land Use	L	Residential/ Agricultural
	R	Residential/ Agricultural



Sharp bends and presence of junctions at bend

3. Jass Jn - NSS College

Length	m	4200
Right of Way	m	18.35
Carriage Way	m	7.76
Adjacent Land Use	L	Commercial
	R	Commercial



Widening of Road stretch between Kizhakke thodu and Padinjare thodu could not be completed , hence creates bottle neck to traffic

4. Jass Jn - Western Outlet

Length	m	2400
Right of Way	m	9.87
Carriage Way	m	8.77
Adjacent Land Use	L	Commercial
	R	Commercial



Road geometry satisfactory

5. Kaniyampuram vayanasala Jn- BSA Narayana (Panamanna)	Length	m	1900	
	Right of Way	m	8.06	
	Carriage Way	m	3.48	
	Adjacent Land Use	L	Residential/ Agricultural	
		R	Residential/ Agricultural	
	Road conditions Satisfactory for present traffic volume			

6. Kaniyampuram vayanasala Jn - Valluvanadu Hospital	Length	m	3000	
	Right of Way	m	8.13	
	Carriage Way	m	3.73	
	Adjacent Land Use	L	Residential/ Agricultural	
		R	Residential/ Agricultural	
	Presence of Sharp bends and uncontrolled junctions			

7. Kaniyampuram vayanasala Jn - BSA Narayana	Length	m	1800	
	Right of Way	m	6.23	
	Carriage Way	m	3	
	Adjacent Land Use	L	Residential/ Agricultural	
		R	Residential/ Agricultural	
	Narrow road			

8. Veetampara Jn - Kaniyampuram Vayanasala Jn			
	Length	m	1800
	Right of Way	m	6.1
	Carriage Way	m	3
	Adjacent Land Use	L	Residential/ Agricultural
		R	Residential/ Agricultural
	Narrow road		



9. Varode - Cherpulassery Outlet			
	Length	m	2500
	Right of Way	m	16.08
	Carriage Way	m	7.13
	Adjacent Land Use	L	Residential/ Agricultural
		R	Residential/ Agricultural
	Un controlled junctions		



10. Varode - Chunangad Outlet			
	Length	m	**700**
	Right of Way	m	14.8
	Carriage Way	m	7.5
	Adjacent Land Use	L	Residential/ Industrial
		R	Residential/ Industrial
	Road geometry satisfactory ,Land for widening of road available		



11. Kayarampara - Meetna Jn	Length	m	1500	
	Right of Way	m	19.6	
	Carriage Way	m	6.27	
	Adjacent Land Use	L	Residential/ Public & Semi public	
		R	Residential/ Public & Semi public	
	Road geometry satisfactory and Land for widening of road available			

12. Kayarampara - Palakkad Outlet	Length	m	3700	
	Right of Way	m	14.2	
	Carriage Way	m	9.6	
	Adjacent Land Use	L	Residential/ Public & Semi public	
		R	Residential/ Public & Semi public	
	Road geometry satisfactory			

13. Mayannur Bridge Jn - Thrissur side outlet	Length	m	1100	
	Right of Way	m	10.56	
	Carriage Way	m	7.46	
	Adjacent Land Use	L	Residential/ Agricultural	
		R	Residential/ Agricultural	

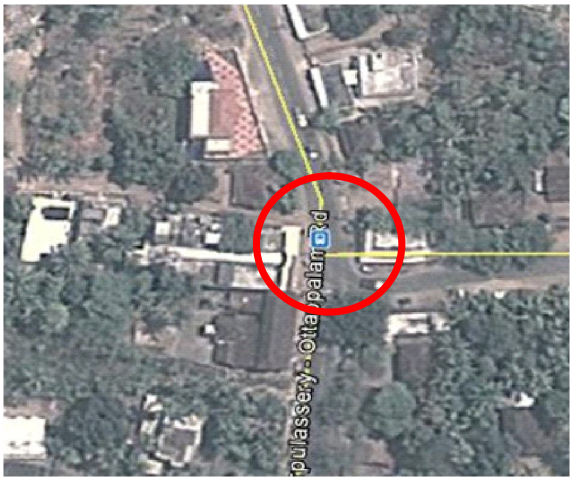
14. Ambalappara Jn - Mannarkkad Outlet	Length	m	1440
	Right of Way	m	7
	Carriage Way	m	4.13
	Adjacent Land Use	L	Residential
		R	Residential



7.3.2 Road Intersections

While examining the road network of the town, 8 road intersections have been identified with in the municipality, which remains busy throughout the day. These intersections are

1. Varode Junction
2. NSS - KPT Junction
3. Town Juncttion
4. RS Road Junction
5. Lakshmi Theatre Junction
6. Jass Junction
7. Abmalappara Junction
8. Kayarampara Junction



Varode junction satellite view

Varode Junction

Varode Junction is three legged intersection and foot path is only on one side. Bus stop located at the junction itself. KPSMM high school located close to the junction. Zebra crossings are not provided.

NSS KPT Junction

All the four arms are bus routes. No footpaths and road marking are provided in the junction. Carriage way width provided is insufficient. Medium traffic flow is prevailing in this junction.



NSS-KPT junction satellite view



Town junction satellite view

Town Junction

Town Junction is a three legged congested junction and the pedestrians facing difficult to cross this junction. This junction falls on SH No: 23. Carriageway width provided is insufficient. Sign boards, zebra crossings and parking spaces are not provided. One way traffic is permitted on Palakkad - Cherpulassery road. Right turn is not allowed to Cherpulassery road.

RS Road Junction

All roads are heavily congested. No road markings and sign boards are provided. Signal is not working. This junction falls on SH No: 23. Parking space is not provided. So the road side parking causes problems. No space is provided for auto rickshaw parking. Road widening is needed.



RS Road Junction



Lakshmi Theatre Junction

Lakshmi Theatre Junction

Lakshmi theatre junction is a three legged medium traffic volume junction. This junction falls on SH No: 23. The signals are available, but it is not working. No road markings provided in Sengupta road.

Jass Junction

This junction is a medium traffic volume junction. Parking facility is available on one side of the road and foot path is also available in only one side. This junction falls on SH No: 23. Carriage way width is insufficient on jass theatre road. Road markings are provided.



Jass junction satellite view



Ambalappara junction satellite view

Ambalappara Junction

Ambalappara junction is a four legged medium traffic volume junction. This junction falls on SH No: 23. Markings are provided on Shoranur Palakkad road.

Width of Ottappalam - Mannarkkad road is insufficient.

No parking space is available.

Kayarampara Junction

Junction having medium traffic volume and it falls on SH 23. Side roads have inadequate width and it creates congestion in the junction. Wide right of way of Palakkad - Ponnani road enables easy movement through that stretch.



Kayarampara junction satellite view

7.4 CHARACTERISTICS OF TRANSPORT NETWORK

In order to understand the existing travel characteristics, number of traffic surveys are carried out so as to enable estimation of travel demand in Ottappalam Municipality. Various surveys done includes traffic volume count at identified locations in inner cordon, outer cordon and intersections, origin destination surveys for goods, passenger movement and travel characteristics and modal choice. Analysis of the various parameters has been detailed in following sections.

7.4.1 Traffic volume at outer cordon points on roads

Link volume counts on outer cordon points are required for assessing inter- city passenger movement through the study area covering external-internal, internal- external and external - external trips. Five outer cordon points were considered for this survey. Classified volumes of vehicles were recorded according to their direction of ravel.

Fig 7.5 shows the inbound and outbound traffic of Ottappalam Municipality. From the figure the maximum hourly traffic volume of 1558.5PCU/Hr was observed on west outlet - Palakkad Shoranur road on SH - 23 which consists of 942.5PCU/Hr of inbound vehicles and 616PCU/Hr of outbound vehicles. Inbound vehicles were more in this station. 1350 PCU/Hr of vehicles were observed in East outlet - Palakkad Shoranur road and it consists of 670.5PCU/Hr of inbound vehicles and 679.5PCU/Hr of outbound vehicles. Traffic volume is least in Varode - Cherpulassery outlet and it is 26.5PCU/Hr. Peak hour outer cordon volume count is given in the Table.7.7

Table 7.7 Traffic volume at outer cordon points

Location	Direction	Peak Hour Volume (PCU/Hr)	Peak Hour Time
West outlet - Palakkad Shoranur road (Seventh day school)	Inbound	942.5	12:10 pm to 01:10 pm
	Outbound	616.0	12:10 pm to 01:10 pm
Kanjirakadavu - Mannarkkad outlet	Inbound	231.5	11:45 am to 12:45 pm
	Outbound	256.5	11:45 am to 12:45 pm
Varode - Chunangadu outlet	Inbound	8.5	11:30 am to 12:30 pm
	Outbound	18.0	11:30 am to 12:30 pm
East outlet - Palakkad Shoranur road (St. Marys Church)	Inbound	670.5	10:30 am to 11:30 am
	Outbound	679.5	10:30 am to 11.30 am
Varode - Cherpulassery outlet	Inbound	312.5	11:45 am to 12:45 pm
	Outbound	274.5	11:45 am to 12:45 pm

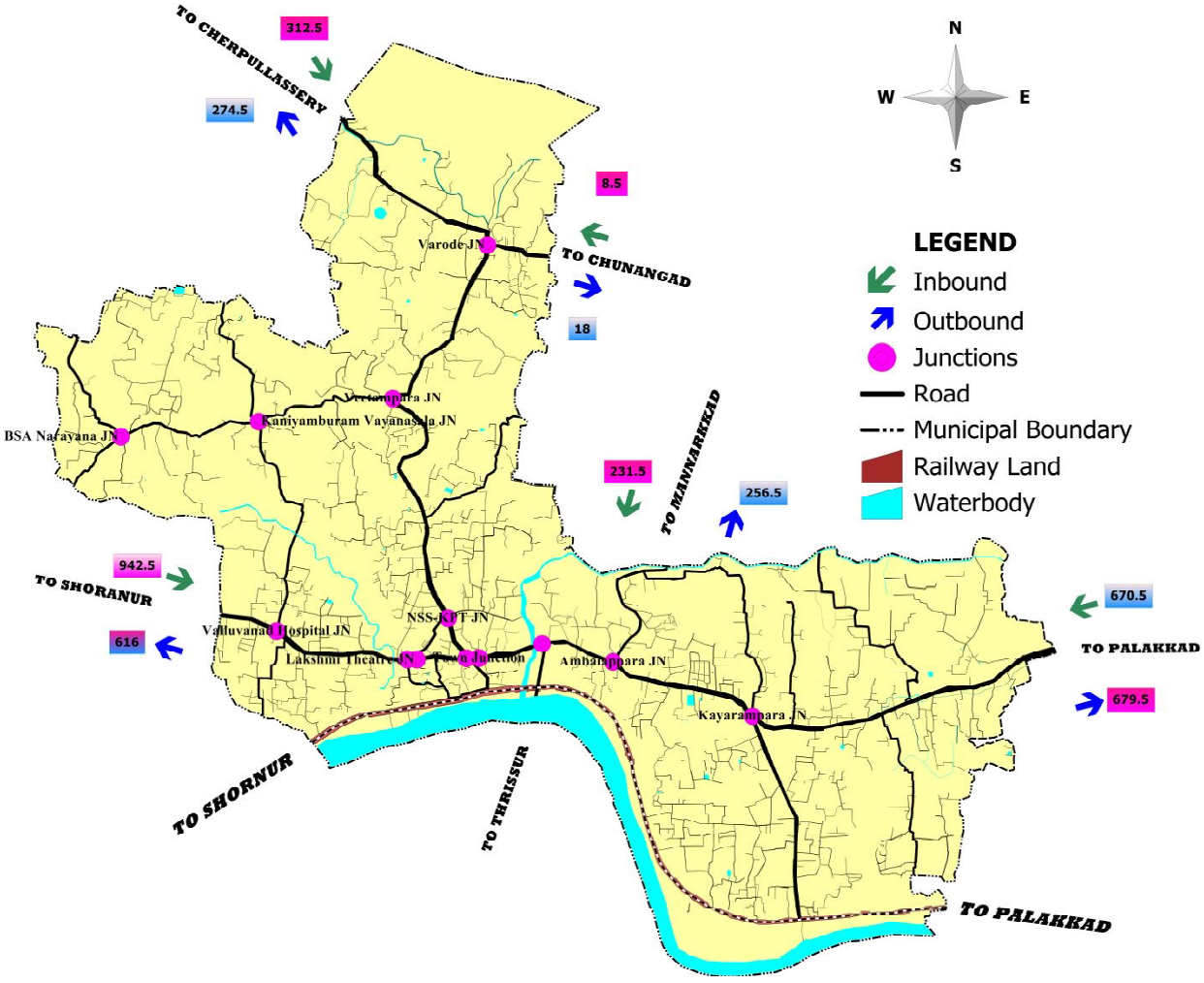


Fig 7.5 Inbound and outbound traffic of Ottappalam town

7.4.2 Traffic V/C studies

Capacity utilization of the road stretches was measured by volume-to-capacity ratio (V/C Ratio). It is the ratio of volume of traffic plying on the road stretch to the capacity of the road stretch.For working out the capacity of different road sections, the information compiled during the road inventory survey was compared with the specifications of IRC-106-1990 (Guidelines for capacity on urban roads). While working out the capacities due consideration was given to carriage- way width, junctions, parking, lateral clearance, shoulder, surface condition etc. The traffic volume observed at different road stretches were compared with the capacity of road sections, to calculate the volume-capacity ratio (V/C ratio) of different road sections within the study area.The V/C ratio of major roads within the study area is given in Table 7.8

Some of the road stretches within the study area were over utilized with a traffic volume exceeding their carrying capacity which are Town - RS road junction, RS road junction - Lakshmi junction, Lakshmi junction - Jass junction, Jass junction - Valluvanadu hospital junction, Town junction - NSS KPT junction, Town - Mayannur bridge junction, Valluvanadu hospital - Seventh day school outlet, Ambalapara junction - Kayarampara, Kayarampara - Old post office junction, Ambalapara junction - Mannarkkaad outlet and Mayannur bridge junction - Ambalappara junction.

7.4.3 Speed and delay studies

The speed and delay studies give the running speeds, overall speeds, fluctuations in speeds and the delay between two stations of a road spaced far apart. They also give the information such as the amount, location, duration, frequency and causes of the delay in the traffic stream. The results of the speed and delay studies are useful in detecting the spots of congestion, the causes and in arriving at suitable remedial measures.

Table 7.8 V/C ratio of major roads with in the study area

Sl. No	NAME OF ROAD SECTION	V/C Ratio	Nature of Congestion
1	Kaniampuram Vayanashala Junction - BSA Narayana	0.11	Low Congestion
2	Veettampara Jn - Kaniampuram Vayanashala Jn	0.12	
3	Kayarampara - Meetna Junction	0.16	
4	Varode-Chunangad Outlet	0.20	
5	Town - Mayannur Bridge Junction	0.38	
6	Veetampara Junction - Varode Junction	0.49	
7	Varode - Cherpulassery Outlet	0.50	Moderate Congestion
8	NSS KPT - Veetampara	0.66	
9	Old Post Office Junction - St.Mary's Church Outlet	0.74	
10	Lakshmi Junction - NSS KPT Junction	0.88	
11	Ambalapara Junction - Mannarkad Outlet	1.04	Heavy Congestion
12	Kayarampara - Old Post Office Junction	1.15	
13	Valluvanad Hospital - Seventh Day School Outlet	1.23	
14	Town Junction - NSS KPT Junction	1.34	
15	Jass Junction -Valluvanad Hospital	1.38	
16	Ambalapara Junction - Kayarampara	1.43	
17	Mayannur Bridge Junction - Ambalapara Junction	1.70	Severe Congestion
18	Town- RS Road Junction	1.73	
19	RS Road Junction - Lakshmi Junction	1.75	
20	Lakshmi Junction-Jass Junction	1.77	
21	Town - Mayannur Bridge Junction	1.77	

During the reconnaissance survey the locations were identified for conducting the Speed and Delay survey. They are as follows:

a) Valluvanad Hospital to NSS College [Hero Honda Show Room – Palappuram Kavu] – 6.3 km
b) Town Junction to Varode Junction [Town Jn – Way to Ashrayam] -5.2 km
c) NSS College to St. Mary's Church – 3.75 km

Details of speed and delay characteristics on these roads are given in Table.7.9.Overall journey speed is maximum in Sr.Marys - NSS college road stretch which is 44Km/Hr with an average delay of 4.32 seconds. Speed is minimum between NSS College and Valluvanadu hospital with an overall speed of 32.7Km/hr and average delay of 15.5 seconds.

Table 7.9 Speed and delay characteristics on major roads

Road No	Road stretch	Overall speed (Km/Hr)
1	NSS College - Valluvanadu Hospital	32.7
2	Town Junction - Varode Junction	33.3
3	St.Marys Church - NSS College	44

7.4.4 Turning movement at intersections

Based on the reconnaissance survey, turning movement surveys at fifteen major intersections in the study area were conducted to ascertain the peak hour demands. The peak hour approach volumes observed at the intersections along with the peak hours are detailed in Table.7.10

Table 7.10 Peak hour traffic flow at major intersections in Ottappalam study area

Sl. No	Name of Junction	Type of Junction	Peak Hour	Peak Hour Traffic
1	Town Junction	Three arm	10:25amto11:25am	3777
2	Railway Station Junction	Three arm	10:30amto11:30am	3062.7
3	Lakshmi Junction	Three arm	04:00pmto05.00pm	3093
4	Jass Junction	Three arm	11:00amto12:00am	2680.5
5	NSS KPT Junction	Four arm	03:40pmto04:40pm	1683.5
6	Varode Junction	Three arm	11:50amto12:50pm	870.5
7	Ambalapara Junction	Three arm	10:30amto11:30am	2912
8	Kayarampara Junction	Four arm	03:45pmto04:45pm	2210.5
9	Veetampara Junction.	Three arm	11:00amto12:00am	623
10	Kaniampuram Vayanashala Junction	Four arm	05.10pmto06.10pm	172
11	Mayannur Bridge Junction	Three arm	10:30amto11:30am	2878
12	Bsa Narayana Junction	Three arm	03:40pmto04:40pm	68.5
13	Valluvanad Hospital Junction	Four arm	04:40pmto05:40pm	1894.5
14	Old Post Office Junction	Three arm	11:15amto12:15pm	1554.5
15	Meetna Junction	Three arm	10:25amto11:25am	100

7.4.5 Pedestrian survey

Pedestrian surveys were conducted at major locations where the pedestrian cross movements were found to be high. Six junctions were selected for pedestrian volume survey Table 7.11 gives the peak hour pedestrian volume at various locations.

Table 7.11 Peak hour pedestrian cross movements at major locations in Ottappalam study area

Sl. No.	Name of Location	No. of Pedestrians/hr			Junction Total	Peak Hour Timing
		Up	Down	Total		
1	**Town Junction**				**1106**	2:30pm to 3:30pm
	1. Palakkad Road	106	169	275		
	2. Shoranur Road	157	126	283		
	3. Cherpullaserry	282	266	548		
2	**Valluvand Hospital**				**233**	3:15pm to 4:15pm
	1.Palakkad road	47	32	79		
	2.Shoranur Road	53	62	115		
	3.Cherpulassery	18	21	39		
3	**JASS Junction**				**229**	10:30am to 11:30am
	1.Palakkad road	32	23	55		
	2.Shoranur Road	23	24	47		
	3.Theatre Road	75	52	127		

Table 7.11continued

Sl. No.	Name of Location	No. of Pedestrians/hr			Junction Total	Peak Hour Timing
		Up				
4	**NSS KPT Junction**				**193**	3:15pm to 4:15pm
	1.Ottapalam Road	37	23	60		
	2.Cherpulassery Road	41	52	93		
	3.Theatre Road	19	21	40		
	4.By pass	12	9	21		
5	**Lakshmi Theatre**				**208**	10:30am to 11:30am
	1.Ottapalam Road	36	56	92		
	2.Shoranur Road	33	57	90		
	3.By pass	14	12	26		
6	**RS Road Junction**				**836**	2:30pm to 3:30pm
	1.Palakkad road	96	107	203		
	2.Shoranur Road	236	264	500		
	3.Railway station Road	61	72	133		

7.4.6 Parking Survey

Parking surveys were carried out on major road sections of Ottappalam Town to obtain the peak parking demand and parking duration of various categories of vehicles on these road sections. Table 7.12 gives the summary of peak parking accumulation observed on major parking corridors in Ottappalam study area. Parking accumulation is highest in road stretch Town junction to Lakshmi junction. Majority of the vehicles parked at most of the parking corridors were found to be for short duration of less than 30 minutes. Nearly 90 per cent of the vehicles parked on selected parking corridors were found to be parked for duration less than 30 minutes. Less than 10 per cent of these vehicles were parked for a period ranging between 30 minutes and one hour. Long duration vehicles constituted only around 5 per cent of the total vehicles.





Table 7.12 Peak hour parking accumulation observed on major corridors

Sl. No	Location	2 wheeler	3 wheeler	Car	Bus	Truck	Cycle	Others	Total
1	Town Jn to Laxmi Jn	555	263	122	1	3	0	1	945
2	Town Jn to Bridge Jn	219	66	106	0	0	0	4	295
3	Town Jn to NSS KPT	187	58	38	0	11	0	0	294
-4	RS jn to Railway Station	264	76	24	0	0	0	0	364
5	Laxmi-Jass Jn	33	25	33	1	13	0	0	105
6	Jass Jn to Valluvanad	129	49	98	7	5	0	0	279
7	Valluvanad Hospital to Shorannur	17	77	37	0	0	0	0	131
8	Valluvanad Hospital to School	13	5	3	0	0	0	0	21
9	Kayarampara to Palakkad	4	1	8	0	2	0	0	15
10	Kayarampara to Ottapalam	22	4	3	0	0	0	0	29
11	Kayarampara to Meetna	18	36	2	0	0	0	0	56
12	Varode to Ottapalam	49	60	25	0	12	0	0	146

7.4.7 O - D Survey

Origin destination (O D) surveys provide a detailed picture of the trip patterns and travel choices of a city's or region's residents. These surveys collect valuable data related to households, individuals and trips. This information allows stakeholders to understand travel patterns and characteristics; measure trends; provide input to travel demand model development, forecasting, and planning for area wide transportation infrastructure needs and services; and, monitor progress in implementing transportation policies

For a meaningful analysis of O-D survey data, the study region was divided into 12 traffic zones, which includes 7 internal zones and 5 external zones. The boundaries of zones form the combined boundary of many wards. In a similar way, outside study region was divided into 5 traffic zones, which included the immediate surrounding areas, adjoining Districts and neighbouring States. The traffic-zoning pattern adopted for the study area is given in Table 7.13 and geographically shown in Fig 7.6

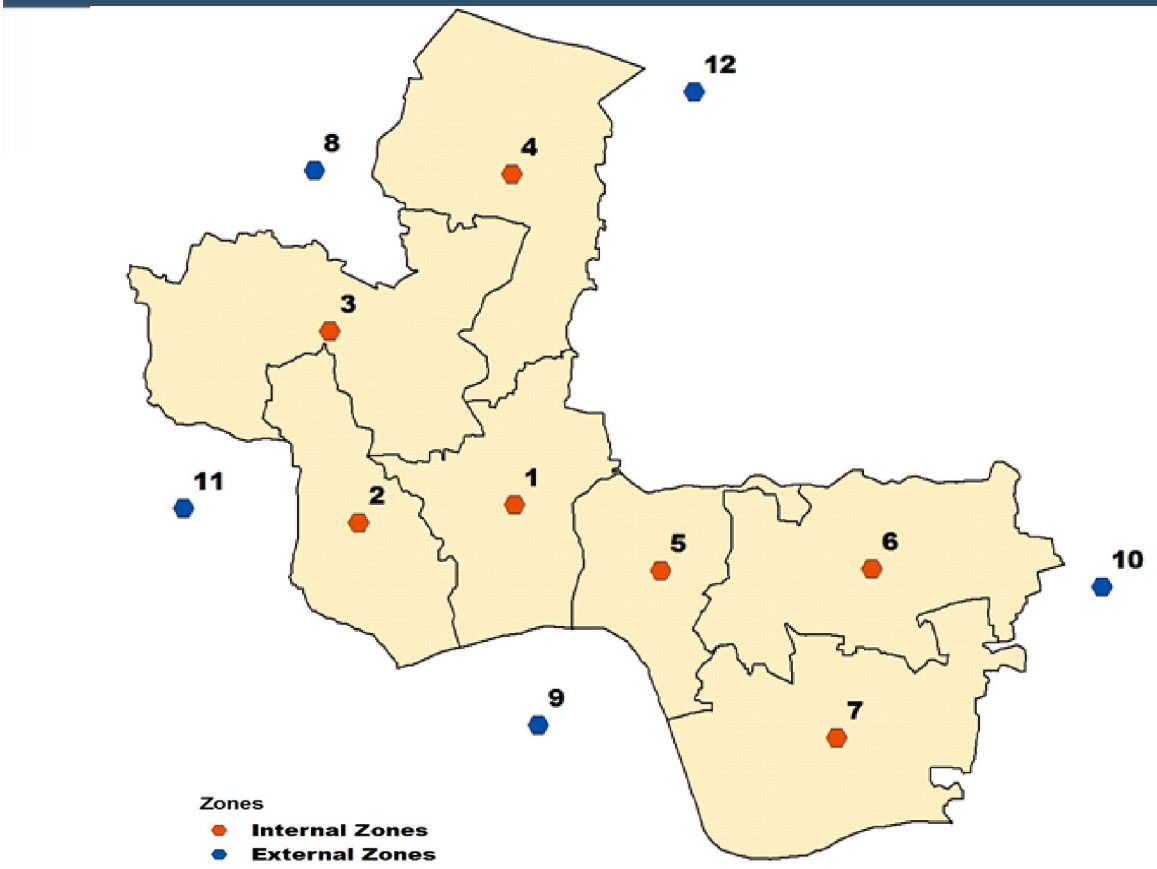


Fig 7.6 Traffic zone pattern adopted in Ottappalam study area

Table 7.13 Traffic zones adopted in Ottappalam town study area

Code. No	Name of places included (with ward No.)
Internal Zones	
1	Areas of Railway station, Thennadi bazaar, Municipal Office, Arikkapadam, Govt. Hospital, Thottakkara, Mayilumppuram (4, 5, 6, 7, 25, 26, 30)
2	Killikavu, Kaniyampuram Theruvu, Vayanasala, AUP School (27, 28, 29, 32)
3	Panamanna vayanasala, Vattana, St. Joseph's Convent, health Centre, Kumanpara (31, 33, 34, 35)
4	Ananganmala, Varode, Cherikunnu, Kolathuparambu (1, 2, 3, 36)
5	Koluthukunnu, Islamic school, Municipal Shopping Complex,Kumbarankunnu, Poolakundu (8, 9, 24, 10)
6	Kizhakkekadu, Pathirikode, Azhikkalaparambu, Postal Quarters, Perumkulam, Palappuram, Chinakkathurkavu, Appeyppuram (11, 12, 13, 14, 15, 16, 18, 23)
7	Vallarmangalam, Kayarampara, NSS College, Erakkottiri, Meetina (17, 19, 20,21,22)
External Zones	
8	Places at North – Cherpulassery/Malppuram/Kozhikode side
9	Places at South – Thrissur side
10	Places at East – Lakkidi-Koottupatha/ Palakkad side
11	Places at West – Shoranur / Pattambi side
12	Places at North – Mannarkkad, Chunangad side

Origin - Destination of passenger trips



From the Home interview survey data, the existing inter - zonal as well as intra-zonal trip distribution is tabulated as the present OD Matrix in Table 7.14. It is observed that at present a total number of 65140 trips are produced in the study region on a day. Among the internal zones, the major trip producing zones are Zone No. 6 and Zone No. 1 producing 36.78 % and 21.9 % respectively of the total trips/day. Considering the trip attractions of the study region, the maximum number of attractions observed is towards Zone No.1 (60.8%), followed by Zone No.6 (11.3%). Zone No.5 produces the least number of trips (2.6%) and also it has the least number of attractions (0.32%).

The major trip production area, Zone 6 is an important residential area comprising Postal Quarters at Palappuram, whereas Zone 1 is the major trip attracting zone including the areas of Railway station, Municipal Office, Govt. Hospital, Thottakkara etc. The desire line map drawn for the present OD matrix is shown in Fig 7.5.

Table 7.14 OD matrix of Ottappalam town study region

Zone	1	2	3	4	5	6	7	8	9	10	11	12	Total Trips
1	11506	1512	1154	1211	728	6898	2849	114	265	424	280	0	**26941**
2	1512	1432	183	29	0	119	46	29	57	193	157	7	**3764**
3	1154	183	992	113	0	14	7	21	35	126	196	7	**2848**
4	1211	29	113	2732	8	137	20	39	62	93	23	31	**4498**
5	728	0	0	8	158	9	0	0	0	40	7	0	**950**
6	6898	119	14	137	9	6260	601	104	237	787	493	9	**15668**
7	2849	46	7	20	0	601	1372	59	137	386	268	20	**5765**
8	114	29	21	39	0	104	59	0	0	0	0	0	**366**
9	265	57	35	62	0	237	137	0	0	0	0	0	**793**
10	424	193	126	93	40	787	386	0	0	0	0	0	**2049**
11	280	157	196	23	7	493	268	0	0	0	0	0	**1424**
12	0	7	7	31	0	9	20	0	0	0	0	0	**74**
Total Trips	**26941**	**3764**	**2848**	**4498**	**950**	**15668**	**5765**	**366**	**793**	**2049**	**1424**	**74**	**65140**

7.4.8 O - D of goods transportation

The modal split of inter - city daily goods traffic in Ottappalam study area is detailed in Table 7.15. From the table it can be seen that a total of 17689 vehicles are used in the Ottappalam town to carry a load of 63432 tons. Total vehicles consists of 5670 trucks, 7464 tempos and 4554 goods autos.

Table 7.16 shows that total of 6617 tons of goods were originated and 19576 tons of goods are terminated in the municipal area. This amounts 10.43% and 30.86% of the total.

The distribution of intercity goods traffic in tonnes according to commodity carried in Ottappalam study area is detailed in Table.7.17 From table it can be seen that maximum volume of goods traffic is observed in construction materials (39%) followed by industrial goods (23.7%).Desire line diagram for the present OD matrix for Ottappalam Study area is shown in Fig 7.7

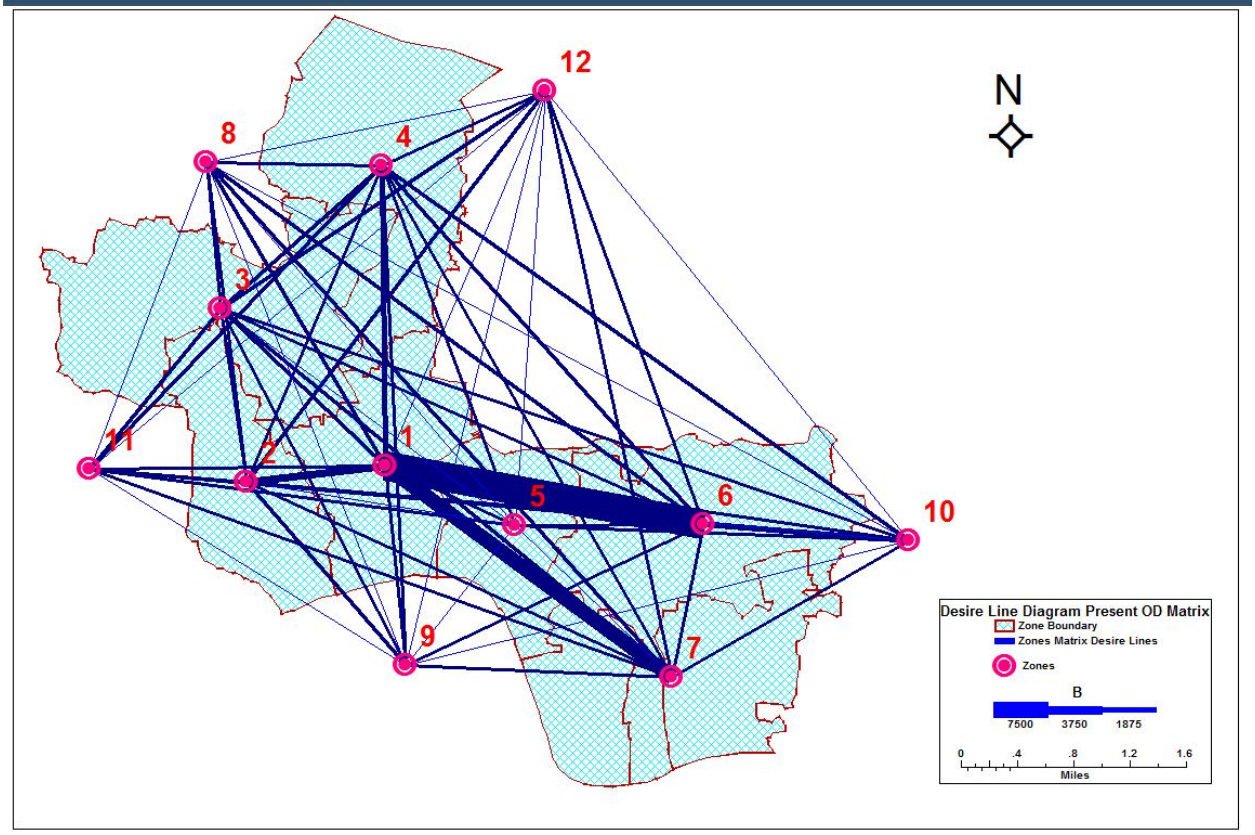


Fig 7.7 Desire line diagram for the present OD matrix for Ottappalam Study area

Table 7.15 Modal split of inter-city daily goods traffic in Ottappalam study area

Sl. No.	Mode of travel	Number of vehicles		Quantity carried	
		No.	Per cent	Tons	Per cent
1	Truck	5,670	29.36	40,827	64.36
2	Mini-truck/ Tempo	7,464	44.29	17,914	28.24
3	Goods Auto	4,554	26.35	4,691	7.40
	Total	**17,689**	**100**	**63,432**	**100**

Table 7.16 Pattern of inter-city daily goods traffic (in tonnes) in Ottappalam study area

Sl. No	Originating Zone	Terminating Zones				Total	Percent
		Ottappalam study area	Palakkad District	Other districts	Other states		
1	Ottapalam study area	0	5950	648	19	6617	10.43
2	Palakkad district	13252	2500	1407	2620	19779	31.18
3	Other districts	2550	246	0	13021	15817	24.94
4	Other States	3774	1804	15402	239	21219	33.45
	Total	19576	10500	17457	15899	63432	100.00
	Per cent	30.86	16.55	27.52	25.06	100	

Table 7.17 Distribution of inter-city goods traffic in tonnes commodity wise in Ottappalam study area

Sl. No	Name of Commodity	Total
1	Food grains	6271
2	Agricultural products	10897
3	Construction materials	24732
4	Industrial goods	15037
5	Petroleum products	603
6	Miscellaneous	5892
Total		63432

7.4.9 Characteristics of Passenger Traffic Modal Split

The passenger transport in Ottappalam Town area is predominantly met by road based KSRTC buses and private buses, i.e. nearly 43.5 per cent. Another special feature noted is that walk trips also constitute a significant share (25%). Next important mode is auto rickshaw (13%), followed by Minibus (7%) and 2-wheeler (5 %). Train passengers constitute only 3%, whereas other personal mode 3.5 % only. Table 7.18 gives the mode split of passenger traffic in the study area. Fig 7.8 presents the same in a pie diagram.

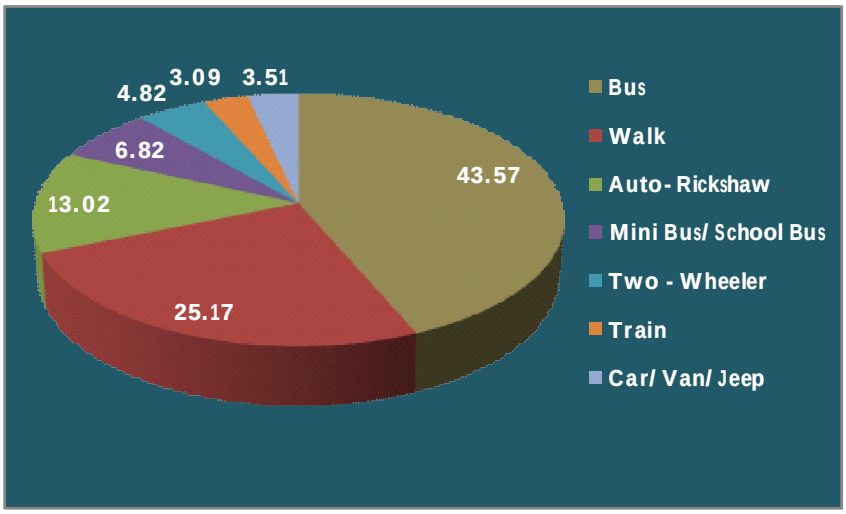


Fig 7.8 Modal split of daily passenger trips in Ottappalam study area

Table 7.18 Modal split of daily passenger trips in Ottappalam study area.

Sl. No	Mode of travel	No. of passengers	% of passengers
1	Bus	13562	43.57
2	Walk	7835	25.17
3	Auto- Rickshaw	4054	13.02
4	Mini Bus/ School Bus	2122	6.82
5	Two - Wheeler	1500	4.82
6	Train	962	3.09
7	Car/ Van/ Jeep	1091	3.51
Total		31126	100.00

Gender Split-up of Trip Makers

Among the trip makers males dominate in travel (54%), whereas females are 46%. Fig 7.9 presents the same in a pie diagram.

Age Split up of Trip Makers

With regard to the age wise distribution of trip makers, it is observed that nearly 30 per cent of the trip maker fall under the age group of 7-25 years, followed by 41 – 60 years (25%) and 26 – 40 years (24%). Those who are with age above 60 years come to about 13%, while children below 7 years age is only 8%. Pie diagram in Fig 7.10 depicts the age split up

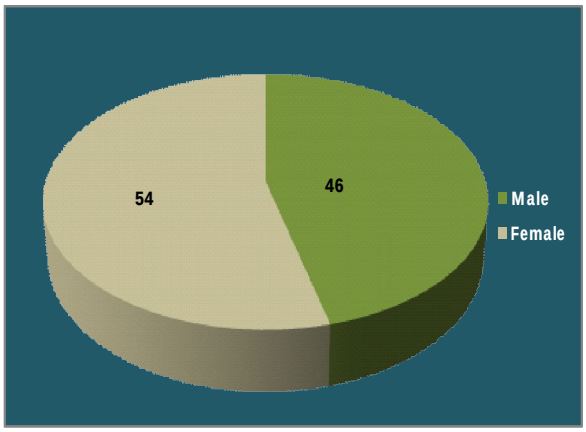


Fig 7.9 Distribution of passenger trips according to gender

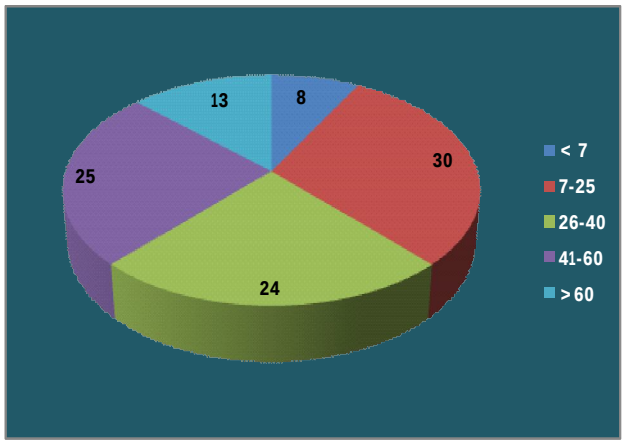


Fig 7.10 Age Split up of Trip Makers

Income Split up of Trip Makers

When the income level of trip makers was analyzed, it is observed that the majority of the trip makers (42%) have a monthly income in the range of Rs. 3000-8000, whereas 37% are of income above Rs.8000. Rs.1000 -3000 category constitutes 14%, while less than Rs.1000 is only 7%. See Fig 7.11

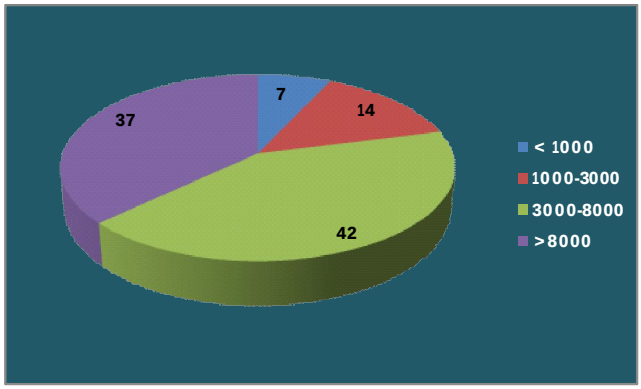


Fig 7.11 Distribution of passenger trips according to income

Purpose of Trip

In the study region nearly 41 per cent were work and work related trips, whereas 32 per cent is made for education purpose. Shopping trips constitute 11 per cent while social and recreational trips make less than 1 percent. Table 7.19 presents the distribution of passenger trips for different purposes as per mode of travel. Fig 7.12 illustrates the same with pie diagram.

Occupation of Passengers

The occupational characteristics of passengers were ascertained from the O-D survey. It is observed that students (25%) constituted the major segment of the total travelers. The next predominant group is persons working in the service sector of whom 15 per cent worked in the private sector and 5 per cent in the Government sector whereas self employed group makes 14 percent. Pensioners, social workers and unemployed group putting together constitutes 18 per cent, whereas 'Other category' forms 25 per cent. These details are presented in Table 7.20 and Fig 7.13

Table 7.19 Distribution of daily passenger trips according to mode of travel and purpose

Sl. No	Purpose of Trip	Type of Vehicle							Total (Trips/ day)	Percent
		Bus	Walk	Auto-Rickshaw	Mini Bus/ School Bus	Two - Wheeler	Train	Car/ Van/ Jeep		
1	Domestic	1477	250	182	8	30	8	61	2016	6.48
2	Work	4394	3090	773	23	993	583	492	10348	33.25
3	Work related	970	743	189	15	235	129	91	2372	7.62
4	Education	3598	2553	1243	2046	61	242	197	9940	31.93
5	Shopping	1818	788	568	8	91	0	152	3425	11.00
6	Personal	386	152	152	23	45	0	53	811	2.61
7	Medical	871	197	886	0	38	0	23	2015	6.47
8	social	30	8	38	0	8	0	0	84	0.27
9	Recreation	8	15	8	0	0	0	23	54	0.17
10	others	8	38	15	0	0	0	0	61	0.20
	Total	13560	7834	4054	2123	1501	962	1092	31126	100.00
	Per cent	43.56	25.17	13.02	6.82	4.82	3.09	3.51	100 .00	

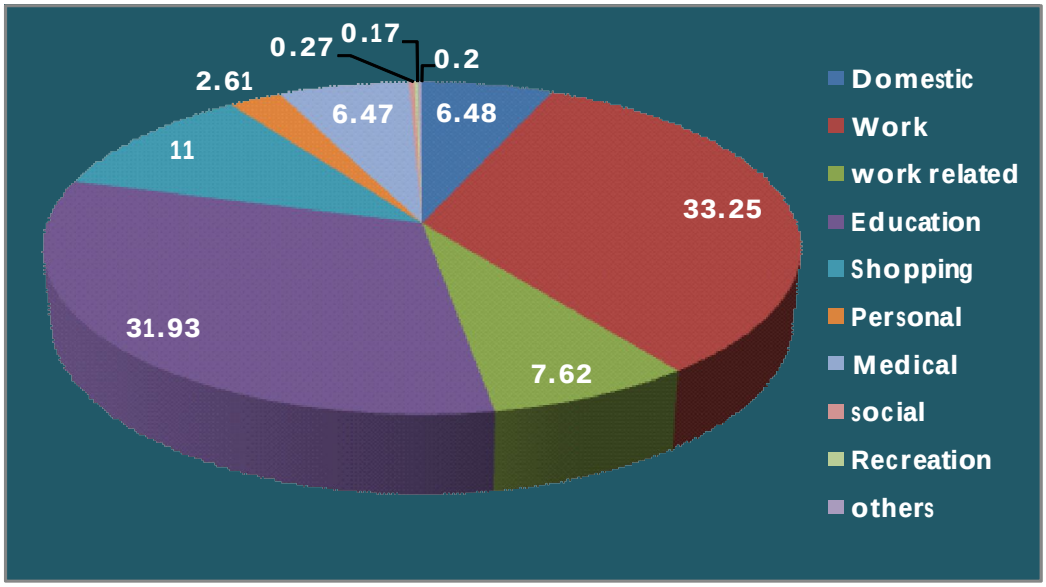


Fig 7.12 Distribution of passenger trips according to Purpose of trip

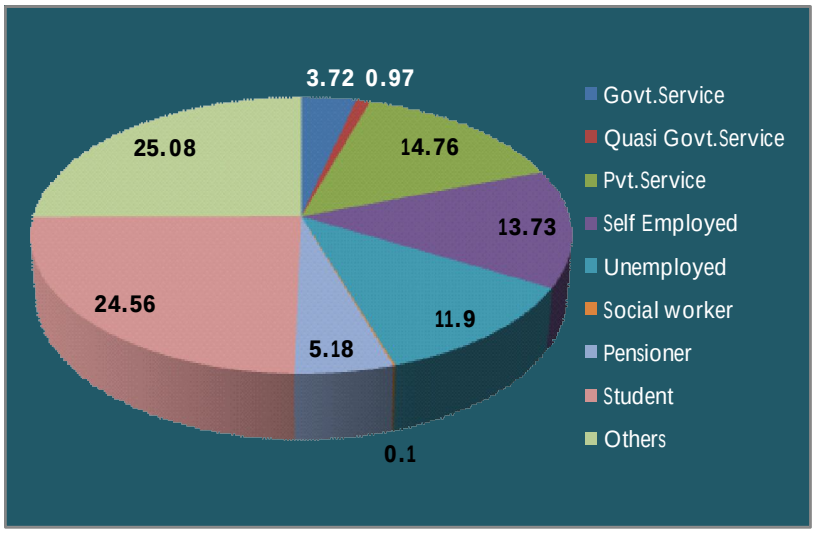


Fig 7.13 Distribution of passenger trips according to mode of travel and occupation

Table 7.20 Distribution of passenger trips according to mode of travel and occupation

Sl. No	Occupation	Type of Vehicle							Total (Trips/ day)	Per Cent
		Bus	Walk	Auto-Rickshaw	Mini Bus/ School Bus	Two - Wheeler	Train	Car/ Van/ Jeep		
1	Govt Service	515	197	136	8	136	83	83	1158	3.72
2	Quasi Govt Service	159	45	45	0	23	23	8	303	0.97
3	Pvt Service	2099	1061	402	205	318	250	258	4593	14.76
4	Self Employed	1553	1288	561	53	492	121	205	4273	13.73
5	Unemployed	2235	492	652	114	98	45	68	3704	11.90
6	Social worker	23	0	0	0	0	0	8	31	0.10
7	Pensioner	659	250	439	0	83	30	152	1613	5.18
8	Student	2668	1985	985	1652	45	174	136	7645	24.56
9	Others	3654	2516	833	91	303	235	174	7806	25.08
	Total	13565	7834	4053	2123	1498	961	1092	31126	100.00
	Percent	43.58	25.17	13.02	6.82	4.81	3.09	3.51		

7.5 ACCIDENT PRONE AREAS



Fig 7.14 Accident spots in Ottappalam Town

Accident spots in Ottappalam town is shown in fig 7.14 .All spots are located in the Palakkad Ponnani road. However the number of accidents are showing a declining trend .

7.6 TRANSPORT TERMINALS



Fig 7.15 Spatial Distribution of existing transport terminals and bus stops

Terminals are central and intermediate locations in the movements of passengers and freight. The study of terminals is also important in traffic and transportation as these act as nodal points in transportation network. The need of daily commuting, moving to and fro from office, school and recreational events is fulfilled by a dedicated bus service. Fig 7.15 shows distribution of all existing transportation facilities present in the municipality. Bus stands, Railway station, Bridge, Bus stops and parking are marked in the map.





Taxi Stands in the municipality

At present there is only one bus station functioning in Ottappalam town. Entry and exit of bus stand to the Palakkad Ponnani road within a span of 50m cause traffic congestion .Now a new bus station is under construction behind of the existing municipal bus stand and with the completion of this new bus station traffic congestion will be reduced considerably. Many road side parking locations are seen in the municipality, which accommodate taxi cars and Lorries.



New bus stand under construction



Municipal bus stand

7.7 RAILWAY

Ottappalam is connected to India's railway network by Shoranur - Palakkad railway line. Most of the main line trains operating in Kerala towards Chennai side pass through Ottappalam railway station. Most of the major passenger and express trains stop here. It is a major station between Palakkad and Shoranur in the Konkan route and Wadakkanchery in the Kanyakumari/ Alapuzha route. There are train services to major cities of Kerala and the rest of India, particularly South India.



Ottappalam Railway Sation

The existing rail passenger traffic volume in terms of number of passengers per day observed and the estimates of projected traffic volume in the horizon years are presented in Table 7.15. From the table 7.18 , it can be seen that 963 passengers boards at Ottappalam railway station in a day.

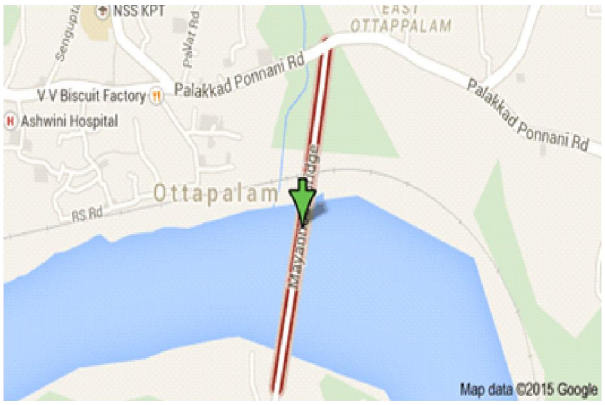
Table 7.21 Average daily rail passenger traffic volume in Ottappalam study area

Item	Year 2013	Year 2021	Year 2031
Average daily rail passenger traffic volume	963	3388	8788

Source: NSS College of Engineering, Palakkad

7.8 BRIDGES

Mainly there are 2 bridges each of them designed for crossing river. Both Mayannur Bridge and bridge over mulanjoor thodu enhances connectivity in Ottappalam town. Many more minor bridges are also present which are depicted in the fig.7.13. Fig below shows image of Mayannur Bridge that connects Thrissur district with Palakkad. 1.5 kilometres long bridge known as "Mayannur palam" which is the longest ever built over the river of "Bharathapuzha" & in the region of Malabar and is a by-pass to reach the city of Thrissur from the Valluvanad region.





View of Mayannur Bridge

7.9 INLAND WATER TRANSPORT

Scope for developing inland water transport is limited. In summer there is no sufficient water in Bharathapuzha and there are no dams in municipal area for developing the inland water transport.

7.10 FREIGHT TRANSPORT

Study of the goods traffic pattern observed within the study region revealed that total of 6617 tons of goods were originated and 19576 tons of goods are terminated in the municipal area. Considering the composition of goods traffic, maximum volume of 24732 tonnes was observed in the case of construction materials (40%).

7.11 MAJOR CORRIDORS

Major road passing through the municipal area is SH 23 from Palakkad to Ponnani which passes through the centre of Ottappalam town. Other important roads are Ottappalam - Cherpulassery and Ottappalam - Mannarkkad road. The intersectional parts of these roads are the focal points of the town.

7.12 PARKING FACILITIES

Parking is one of the major problems that are created by the increasing road traffic. It is an impact of transport development. The availability of less space in urban areas has increased the demand for parking space especially in areas like Central business district. This affects the mode choice also. This has a great economical impact. On street parking means the vehicles are parked on the sides of the street itself. At major commercial junctions such as Town junction, Railway Station junction, JASS junction, Lakshmi theatre junction and in front of the bus stand organized parking spaces are not found sufficient, hence results into on-street parking. There is one off-street pay parking lot near the town managed by Municipality.



Off street parking near town junction



Unauthorised on street parking at town junction

7.13 TRUCK TERMINALS

The terminal facilities available in municipality are inadequate. The trucks are being parked on either side of the roads. This creates traffic bottlenecks in the town. Almost all the loading and unloading activities are done on either side of roads. Hence adequate truck terminal facilities have to be provided in the town.

7.14 PROBLEMS

At present the development of town is concentrated at Town junction where the State Highway and Major District road intersects. The trucks are being parked on either side of the roads. This creates traffic bottle necks in the town. Almost all loading and unloading activities are done on either side of roads. In adequate width of road at Town Junction creates parking problems. The presence of bus stand adds to the problem of traffic congestion in the core area. Rail way station road faces the problem of lack of sufficient width and it is to be developed and to be provided proper widening and traffic signals. Many long distance trains coming from different parts of their area is not benefited due to non-stoppage of most of them.

Fig 7.16 shows bus routes and buffer distance of 500m (normal walkable distance) of bus routes in the municipality,it can be seen that some areas are not connected by buses. But most of the places being at lesser distance from main road is not at heavy need of bus routes. Due to inadequate supply of off street parking lots, supply is predominantly met on street with excessive use of road space meant for traffic movement leading to haphazard parking and slow traffic movement.

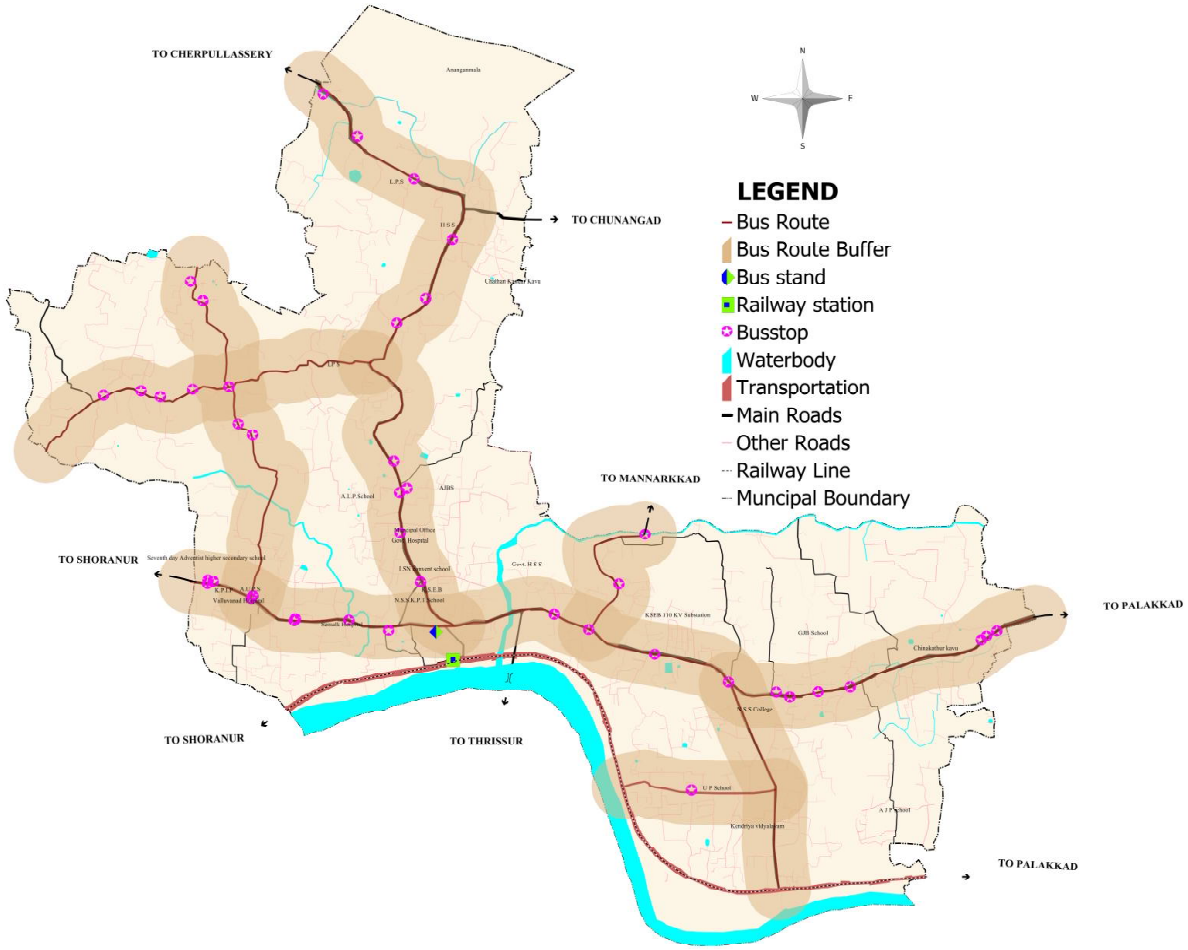


Fig 7.16 Bus routes in Ottappalam Municipality

7.15 POTENTIALS

Palakkad - Ponnani road passes through the centre of the town and it well connects the town to neighbouring towns. As environmental constraints create much lesser threats to development in Ottappalam municipality, city transportation network can be effectively modified.

Ottappalam railway station can also help in the improvement of town if proper steps are planned. Travellers to different tourist locations situated nearer to Ottappalam will also get benefitted if all these problems are avoided.

7.16 INFERENCE

In order to reduce the traffic hazards and congestion new link roads are to be proposed within the town limit. If congestion in the town junction premises can be avoided by any means lot of improvement can be seen in the traffic congestion in that road. High growth of private vehicles, narrow and overcrowded roads and inadequate parking facilities have affected the urban mobility to a great extent. A comprehensive traffic and transportation plan, addressing all these issues are to be envisaged for the city that will cater to the needs of the horizon year.

8. PHYSICAL INFRASTRUCTURE

Infrastructure can be defined as the set of interconnected structural elements that provide framework supporting an entire structure of development. It is an important term that judge quality of a region's development. The sustainability and quality of life in urban centres is closely linked with the efficiency of Physical infrastructure, which includes water supply, drainage, sanitation & sewage system, solid waste management and energy.

8.1 WATER SUPPLY

8.1.1 Existing water supply system

Water is one of the major urban services and lack of it will result in unhygienic condition and deterioration of living standards. Kerala Water Authority is the agency responsible for planning, design, construction, implementation, maintenance, operation and management of water supply system within the entire Kerala state. The board works on commercial basis by generating usage tariff so as to meet the operational cost and capital expenditure.



Bharathapuzha river

Important Sources

Major source of water in Ottappalam municipality is well. In addition to ground water, piped water from Bharathapuzha is also used. Figure.8.1shows source of water in the municipality. It can be clearly seen that well water is mostly used compared to all other sources. Piped water supply by water authority stands next to the well water usage. Location of water sources for water supply schemes and their yied is shown in table 8.1. Infiltration well in Bharathapuzha is the main source for WSS. Other sources are borewells .

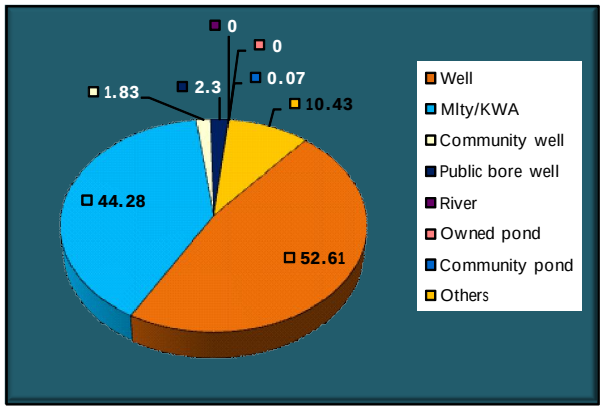


Fig 8.1 Source of water in Ottappalam Municipality

Table 8.1 Details of Source

Sl. No.	Source of Water	Location	Yield from the Source (MLD)
1	Bharathapuzha	RWSS to Ottappalam	1.50
2	Bharathapuzha	RWSS to Ottappalam Augmentation	1.62
3	Kanniyampuram Bore well	Kanniyampuram	0.1
4	Thottakkara Bore well	Thottakkara	0.1
5	Kanjirakadavu Bore well	Kanjirakadavu	0.1
6	Pallarmangalam Bore well	Pallarmangalam	0.1
7	Varode Bore well	Varode	0.1

Source: KWA ,Ottappalam

Existing Transmission, distribution and storage capacities

As per the above data it is revealed that major share of population depends (52.61 %) upon open well and 44.28 % depends KWA water. 2.3 % people depends on public bore well and 1.83 % population using Community well. The existing water supply scheme commenced as RWSS to Ottappalam, commissioned in 1962 which was augmented in 1988. Two Infiltration galleries in Bharathapuzha is the source of this WSS.Other sources are borewells at Thottakkara, Kaniyampuram, Kanjirakadavu , Pallarmangalam and Varode The water is collected in service reservoirs of capacity 4.5Lakh litresof GLSR situated at Ottappalam TB compound , OHSR of 2.50 Lakh litres situated at Meetna 2.0 Lakh litres capacity OHSR , 16.05Lakh litres capacity OHSR at palappuram 18.06Lakh litres capacity OHSR at Cherikkunnu .The total length of distribution network will be 106.98 km after completion of Accelerated Rural Water Supply Scheme (ARWSS) under UIDSSMT scheme including existing lines of 55 km. Now pipes ranges from 200 mm AC to 50mm PVC .and 1310 No. of service connections provided. The total quantity of water supplied is 3.07 MLD litres/day and the coverage is 80%. Construction of 13 MLD capacity treatment plant is progressing under UIDSSMT programme .Details of WSS is shown in in Table 8.2 and their spatial distribution is shown in Fig.8.2.

Table 8.2 Details of WSS

Sl. No	Network	Sources	Area of Coverage	No. of Houses Covered/ No. of Connections	No. & Capacity of OH tank	Total Quantity Supplied per day	Quality of water (Properly treated/ only chlorination/ no treatment)	Tariff Structure
1	Total length of distribution network will be 106.98 (under completion of UIDSSMT including existing lines of 55km. Now pipes range from 200mm AC to 50mm PVC	Bharathapuzha	80% of Coverage	Domestic connections- 5157, Non Domestic – 0, Industrial – 1, Public & Semi public– 31, Public Taps - 572	45L capacity GLSR, 2.5L capacity OHSR, 2L capacity OHSR, 16.05 L capacity OHSR at Palappuram (work completed not commenced) , 18.06L capacity OHSR at cherikkunnu (work completed not commenced)	3.07 MLD	Only Chlorination	13 MLD capacity treatment plant under construction by UIDSMT
2		Bharathapuzha						
3		Kanniyampuram BW						
4		Thottakkara BW						
5		Kanjirakkadavu BW						
6		Pallarmangalam BW						
7		Varode BW						

Source: KWA ,Ottappalam

Of the total water connections , 5157 numbers are domestic connections. The remaining 604 connections are distributed among industrial, public and other uses. Within Town there are five reservoirs, four Pump houses and fifteen bore wells. There are four zones ,Zone I serving Ottappalam town and Thottakkara ,Zone II includes Kayaram para, Meetna areas , Zone II -Palappuram ,Pallarmangalam , Kanjirakadavu, East Ottappalam, Zone IV -Kaniyampuram ,Varode ,Panamanna .

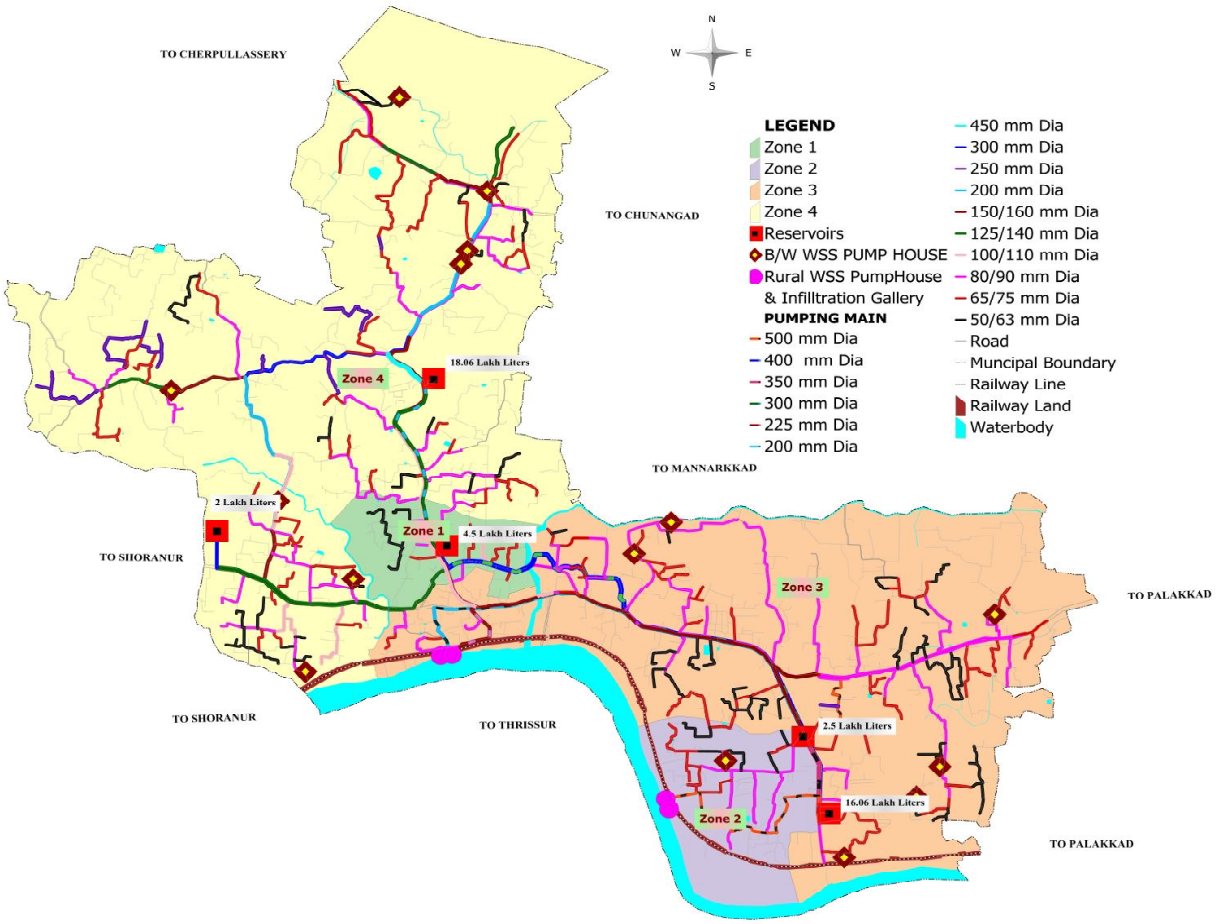


Fig 8.2 Water Supply distribution system of Ottappalam Town

8.1.2 Distance to water sources

From the socio economic survey 2012 ,it is observed that more than 85% of water sources are located within the compound of dwellings. Fig.8.3 clearly depicts accessibility of water in terms of distance to it.

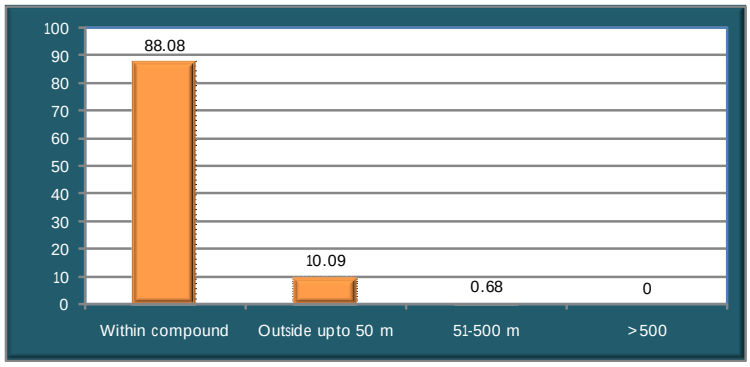


Fig 8.3 Distance to water sources

Source: Socio Economic Survey 2012

8.1.3Duration of Water supply

According to data collected in the Socio-Economic Survey about 59.85% of the houses are not having water shortage, 14.76% of houses having scarcity for 1-2 months, 9.34 % of houses having scarcity 2-3 months, 6.64% of houses having scarcity 3-6 months and 9.41 % of houses having scarcity more than 6 months.The nature of water scarcity as per Socio-Economic survey is shown in Fig.8.4

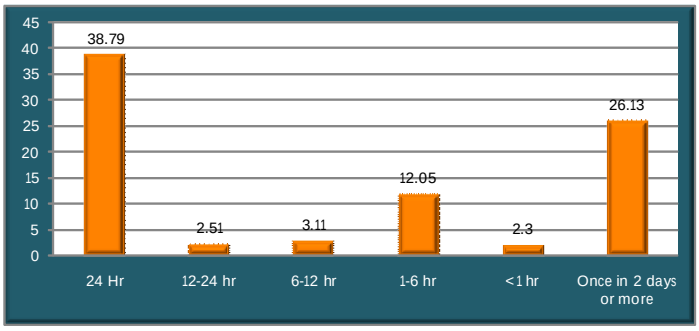


Fig 8.4 Duration of water availability





Reservoir at Palappuram

8.1.4 Ground water table depth

Depth of water table from ground level in open well near Taluk Supply Office Ottapalam which is the observation well of Ground water department is 7.34 m average of 10 years in peak summer . Hydrograph of observation well is shown in the Figure 8.5.

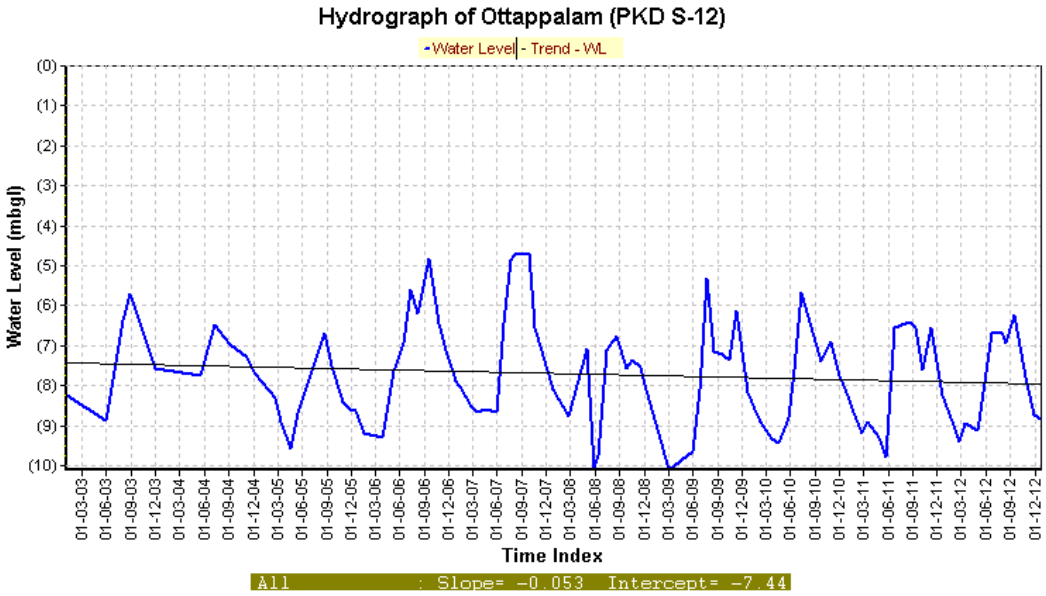


Fig 8.5 Hydrograph of observation well near Taluk supply office

8.1.5 Water Scarcity

In summer water scarcity is an issue in the town. High temperature in the district causes draught in majority of the portions; some part of Ottappalam municipality also gets affected by this heavy climate. Water level in wells falls beyond usable limit in some regions of the city. Water availability from Bharathapuzha is nil in summer season, it forces inhabitants to depend on some other means especially in summer.

According to data collected in the Socio-Economic Survey about 59.85% of the houses are not having water shortage, 14.76% of houses having scarcity for 1-2 months, 9.34 % of houses having scarcity 2-3 months, 6.64% of houses having scarcity 3-6 months and 9.41 % of houses having scarcity more than 6 months.The nature of water scarcity as per Socio-Economic survey is shown in Fig.8.6

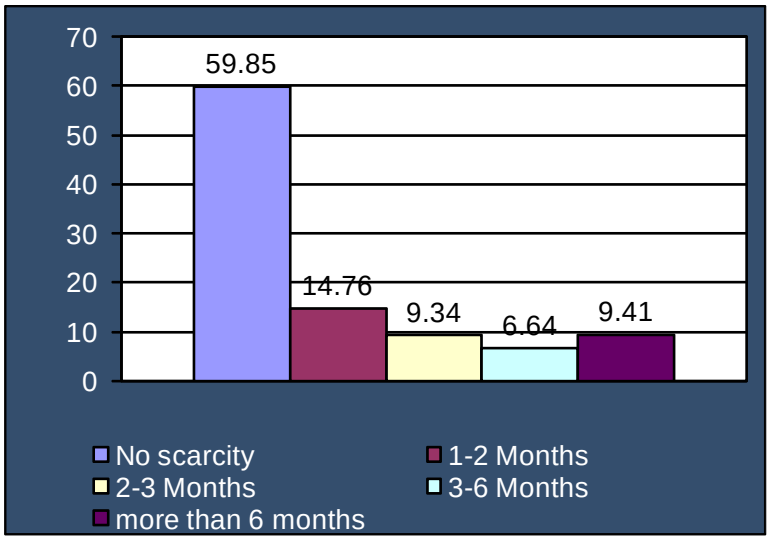


Fig 8.6 Nature of water scarcity

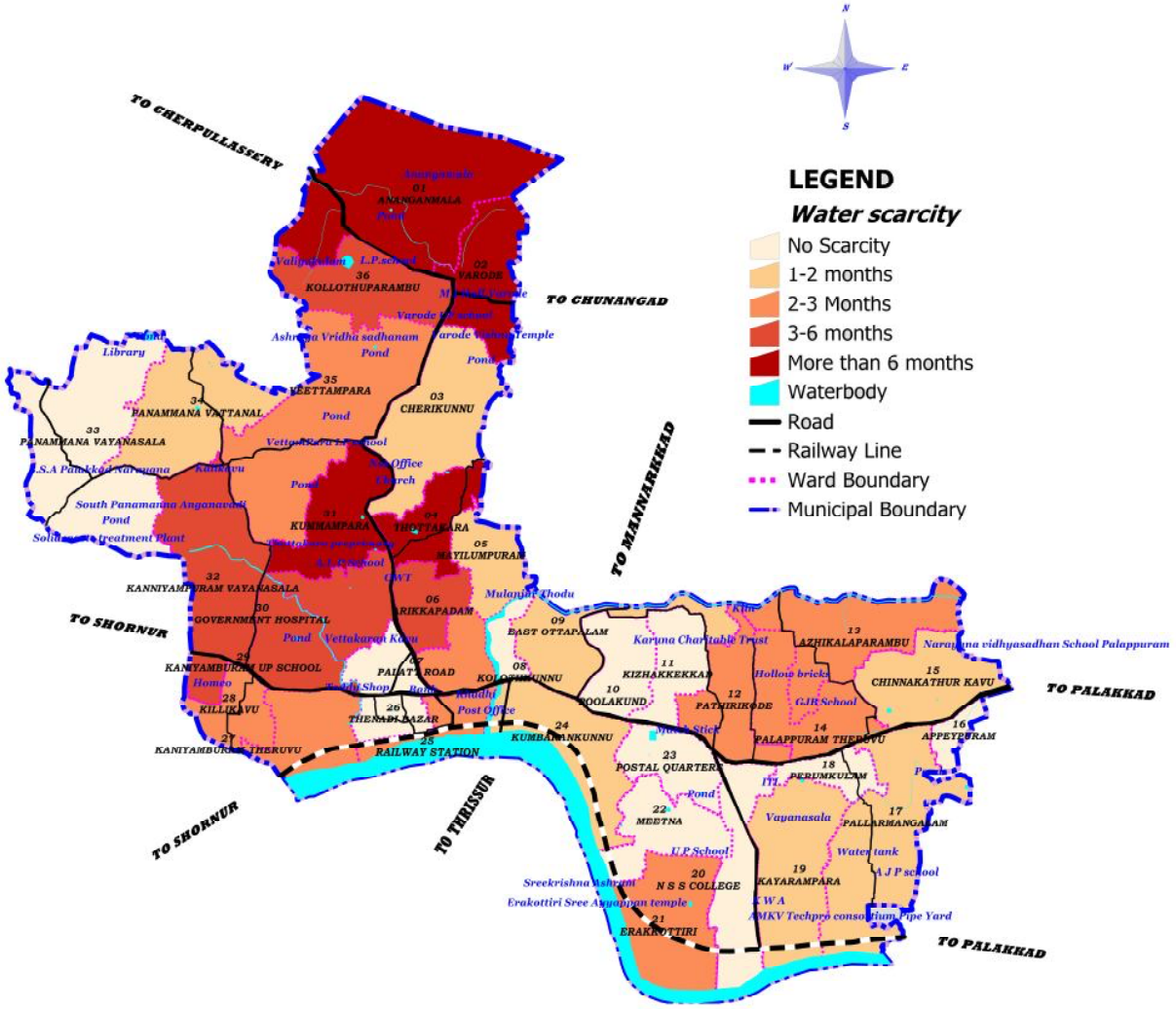


Fig 8.7 Spatial distribution of water scarcity

As per the above Fig 8.7 it is seen that the wards 1,2,4, and 31 Ananganmala , Varode ward, Kummampara Ward and Thottakkara ward are experiencing acute water scarcity. If water supply project under UIDSSMT scheme being implemented in the municipal area,It is expected to fulfil the requirements under this sector.

8.1.6 On Going /Committed Projects

The major project on going in water supply sector in Ottappalam Town is a water supply scheme based on Bharathapuzha river as source under UIDSSMT scheme shown in table 8.3. The major components of WSS under UIDSSMT scheme are construction of weir across Bharathapuzha at Koottilamukku and water supply scheme based on river and a treatment plant. Componet wise Estimate of Water supply scheme is shown in Table 8.4

Table 8.3 On Going Projects

Sl. No	Name of project	Estimated cost	Target no of beneficiaries	Present stage	Expected year of completion
1	UIDSSMT Ottapalam Municipality	3000L	77481 (2039)	40% completion	Mar-16

Source : KWA ,Ottappalam



Table 8.4 Componet wise Estimate of Water supply scheme under UIDSSMT

Sl No	Components	Amount in lakhs
1	Raw water Pumping main	243.75
2	Construction of 13 MLD Water treatment Plant	313.995
3	Construction of RCC weir across Bharathapuzha at Koottilamukku	1278
4	Clear Water Pumping Main	422
5	Supply and erection of raw water and clear water pumpsets	97
6	Providing distribution system 55.84 KM (Original 62.21 Km)	304
	Total	2980.745
	Add Contigencies ,establishmant charges	19.255
	Grant Total	3000

Source : KWA ,Ottappalam

8.1.7 Problems and Potentials

Sand mining has affected water supply schemes in Ottapalam which depend on the Bharathapuzha water.Source is not adequate during themonth of December to May. The present intake arrangement is an intake cum pump house with infiltration gallery. In the present system there is no other method of water treatment than disinfection. Due to the unscientific sand mining the sand depth over the gallery is decreasing dayby day. This will effect inversely on the physical characteristics of water.After the completion of the water supply scheme under UIDSSMT works and 13 MLD capacity treatment plant under construction will help to solve the water supply issued in near future both in terms of quantity and quality.

8.1.8 Inference

By the commissioning of UIDSSMT project, major problem of water supply sector in Ottapalam town will be solved. Existing water sources should be protected and water conservation techniques should be implemented to meet the water demands of people in the municipality. Source of surface water supply should also be explored so as to minimize dependence on the ground water and to minimize the fast depletion of water table. Appropriate strategies and mechanism needs to be explored including recycling of the wastewater. Mechanism of rain water harvesting should also be encouraged at the household/ commercial/institutional/ industrial level in order to reduce dependence on the ground water. Transmission and distribution lossess and unaccounted for water need to be minimised.

8.2 DRAINAGE

There is no organized drainage network in the town. The drainage network along the Palakkad-Ponnani KSTP road is continuous. Drainage facility on other roads is not continuous and this causes water logging in many of the roads during rainy season. Overflowing of drains in rainy season due to improper cleaning also exists at many commercial nodes. The waste water from houses, shops and hotels are also disposed into the storm drains.

The flooding in market area is due to improper drainage network and lack of connectivity to the secondary drains and its connection to the primary canal. The area between bus stand and railway station get flooded during rainy season.

8. 2.1 Existing Drainage Network

The drainage system consists of natural and artificial drains that ultimately discharge into Bharathapuzha flowing through the southern territory of the town. Canals and thodu existing in the municipality plays an important role in draining out the rain water to river and ponds.

A planned drainage system is a necessary ingredient of an urban area for creating a clean and conductive atmosphere for healthy urban habitation. But there is no such drainage system seen in the municipality. Existing drainage network in town is shown in Fig 8.8. The natural drainage system of municipality is shown in the Figure 8.9. Municipality shows an undulating topography and presently the major drainage system is natural drainage system. Only major roads have drains and most of them are not continous. Based on the covering the drainage system is classified in to covered drain and uncovered drain. The domestic and kitchen wastes from nearby houses fill the drainage channel and this will adversely affect the water flow through the drain. There are 9.008km of covered drains and 7.942 k m of uncovered drains in Municipality .The total road length of Municipality is 227.869 km,hence only 3.95 % of roads are having covered drains and 3.49 % of road having drains but uncovered. Details of the drain of the municipality are shown in the Table 8.5.

Table 8. 5 Details of drains

Type	Length in Km	% with road length
Drain covered	9.008	3.95
Drain Uncovered	7.942	3.49
Total drain length	16.950	7.44



8.2.2. Problems and Potentials

- No organized drainage network.
- Only 7.44% of roads having drains out of that only 46.86 % covered drains.
- Municipality have an undulating terrain with isolated hills and slopes towards west.
- Water logging and flooding problem during monsoon season.
- Poor coverage of drainage system.
- Majority of drains are unlined and uncovered.

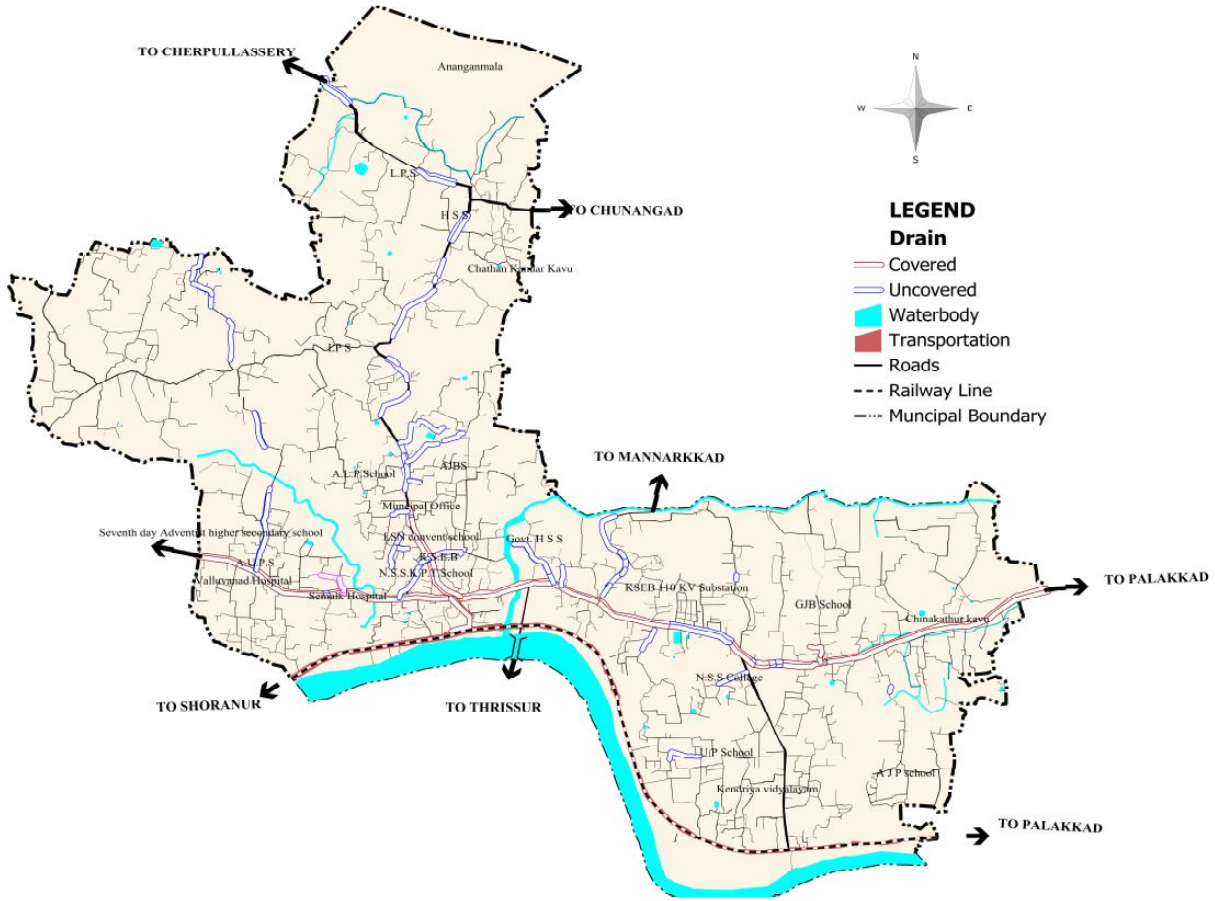


Fig 8.8 Existing drainage system

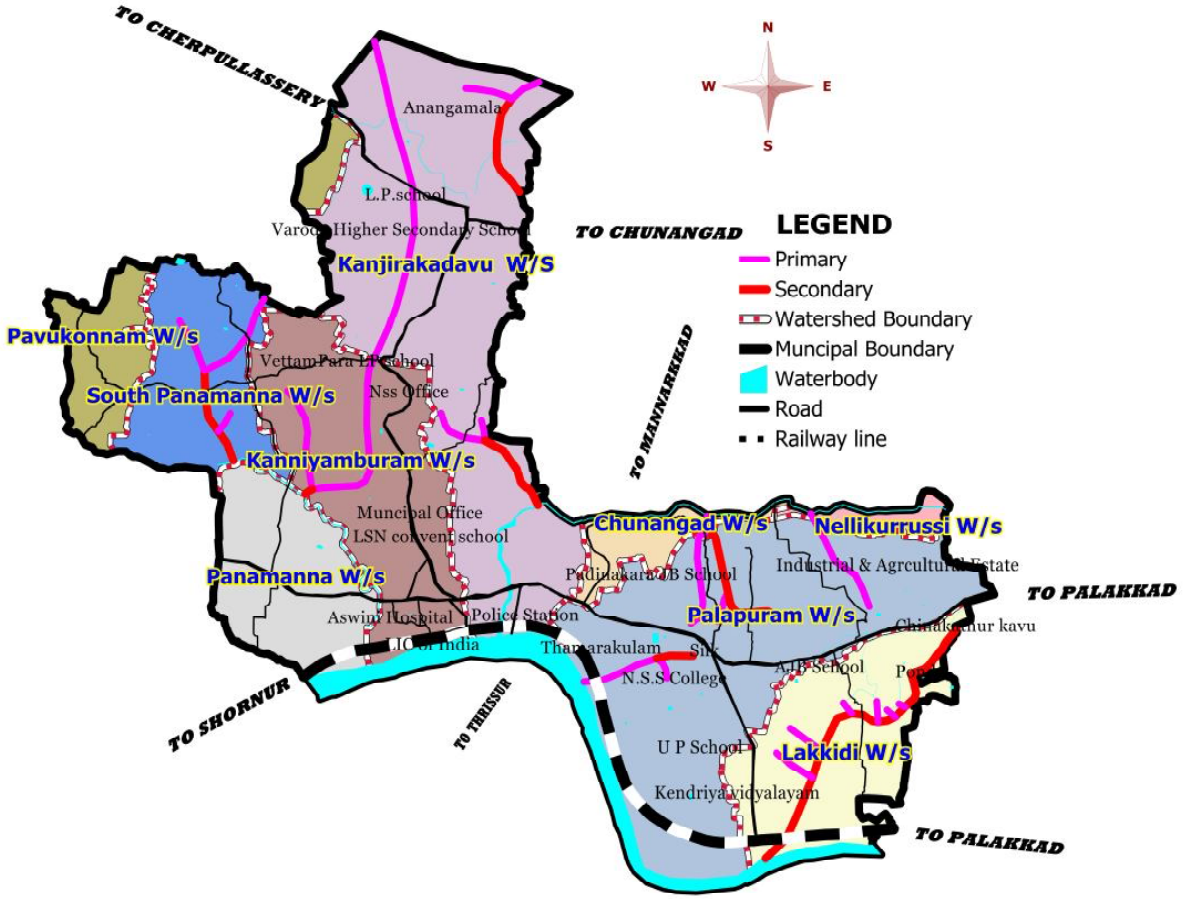


Fig 8.9 Natural Drain

- Drains choked by garbage and solid waste like plastic covers, papers, wrappers etc. Clogging of drain due to this cause foul smell in the town and polluting the environment, breading of mosquitoes, flies and harmful bacteria and viruses

- Due to silting and clogging of drains cause overflow during peak flows of rainy season in certain areas

- Unplanned development by filling low lying areas especially paddy fields and blocking of natural drainage hazards the hygienic living

- Poor maintenance of natural drains and mixing of sewerage with storm water

Underground drainage mains are a costly proposition and the municipality can't afford, but a systematic surface catch water drain can be provided in future to drain off storm water to the river. It is suggested to strengthen the existing drainage network, adding the missing links, so as to enhance proper drainage network in the municipality. The provision of adequate sanitation and better sewage system is not only a development oriented strategy in itself, it can also yield other socio-economic benefits in terms of improved health status, quality of labor force and reduced burden-of-disease.

8.3 SANITATION AND SEWERAGE

8.3.1 Existing System-

Presently there is no underground sewerage system in Ottappalam Town. Ward wise sanitation system is shown in Fig 8.10. At present sewage disposal is mainly through septic tank. About 71.23 % of the total households have septic tanks, in which 28.17% use pit latrines and 0.27% of the households have no access to individual toilets (Fig 8.11). An efficient means of sewage waste disposal is required in the municipality.

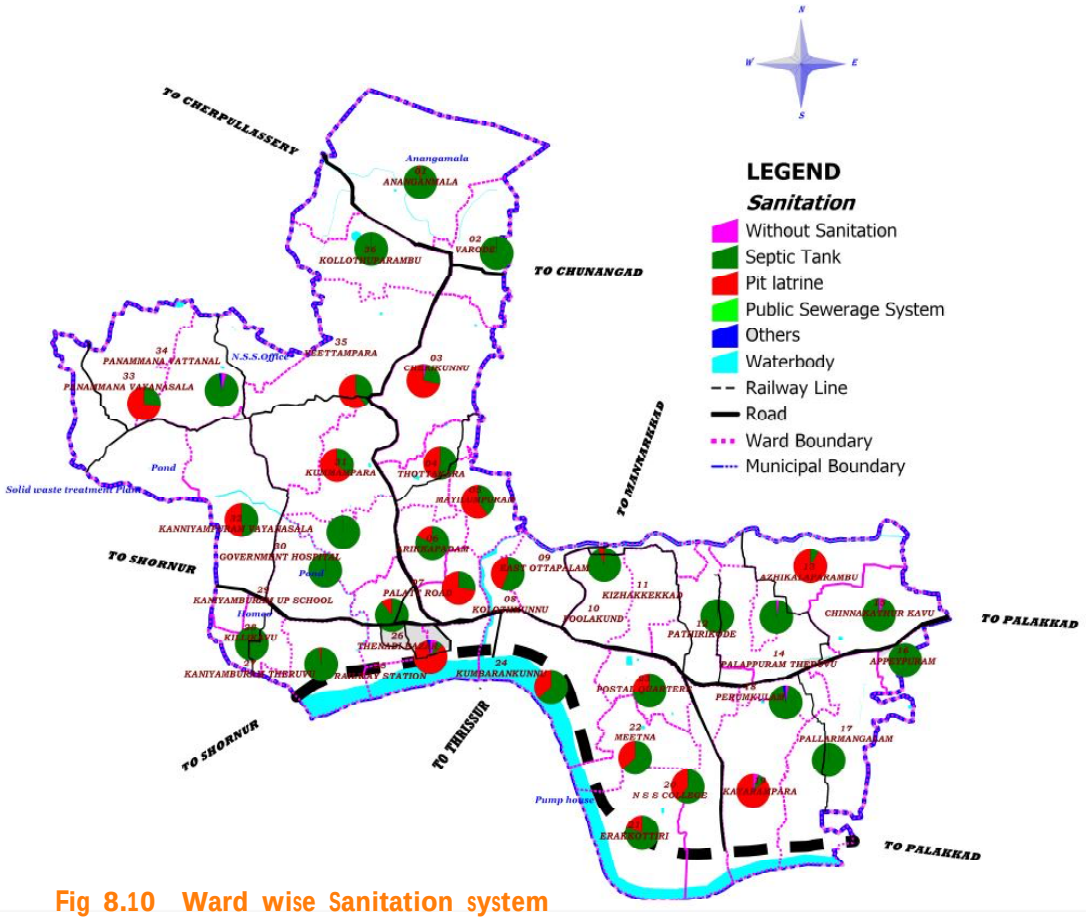


Fig 8.10 Ward wise Sanitation system

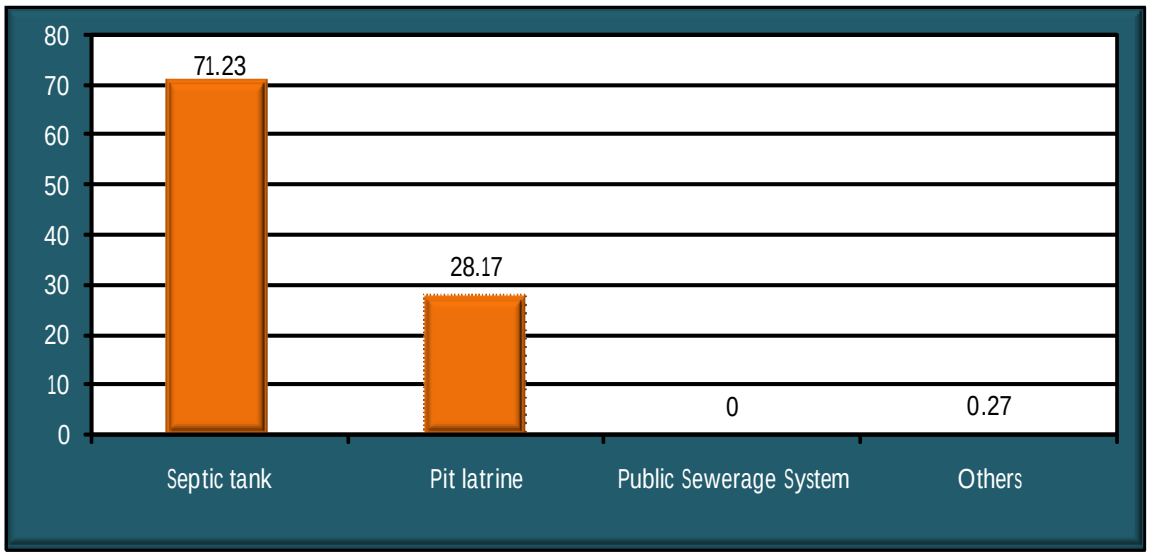


Fig 8.11 Saniataion Details

8.3.2 Issues

The number of toilets provided in commercial establishments and offices are far below requirements. There is no sewage treatment facility at present hence treatment of waste water is a concern. Lack of public pay & use toilets in Market places, shopping areas, and the Railway Station need to be eliminated quickly.The sullage generated from kitchen and bathrooms etc, is let out into the open mostly through storm drains.

8.4 SOLID WASTE MANAGEMENT

Providing clean and healthy environment is the primary concern of urban local bodies. Economic development, urbanization and improved living standards in cities increase the quantity and complexity of generated solid waste . If accumulated, it leads to degradation of urban environment, stresses natural resources and leads to healthy problems .Cities in the world are facing a high level of pollution; the situation in developing countries is more acute, this is partly due to in adequate provision of basic services like water supply, sanitation facilities, transport infrastructure and waste collection.

8.4.1 Waste generation and current practices of solid waste Management

As per socio-economic survey conducted majority of people are disposing solid waste in own compound. (Fig 8.12) But the highest priority of development at all levels is for sanitation. It shows that the collection efficiency of waste is not satisfactory.Locations of collection points are at markets and dustbins are installed and treatment is done by Techno group, Alwaye. The waste generated from hospitals is treated by IMAGE operated by Indian Medical Association.

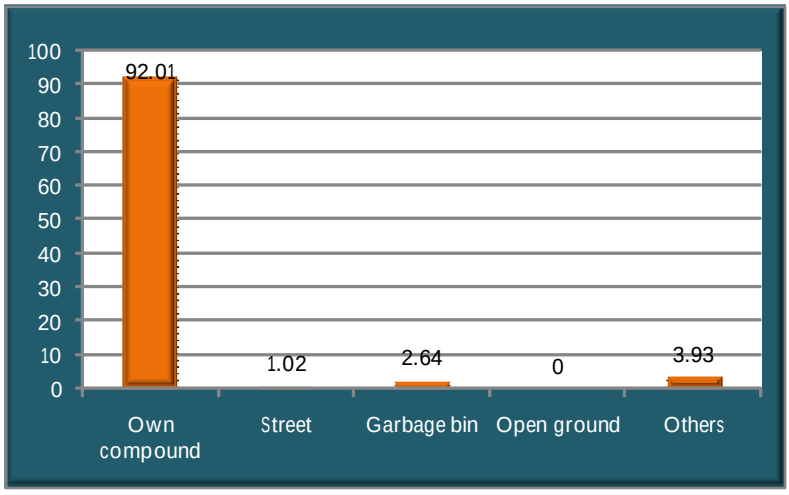


Fig 8.12 Place of solid waste disposal

Solid waste is mostly generated from households, shops and small scale industries. Solid waste collection system for the town is a centralized one with Commercial on 4 wards and Residential on 7 wards. As per the data collected total quantity of solid waste collected per day in Ottapalam (M) is 6 ton. The waste is collected daily using vehicles mostly owned by Kudumbasree units. Waste collection details are shown in table 8.6.



Plastic Recycling Unit

Table 8.6 Waste Collection system

Type of the system (Centralized partially centralized, community level)	Source of solid waste (Area/Ward)	Total quantity of solid waste generated(T)	Total quantity of solid waste collected(T)	Coverage Area/ wards	Collection details			
					Location of collection points	Workers employed	Frequency of collection	Vehicles used
Centralized	Shops, House	6 tonnes	6 tonnes	Commercial -4 Residential-7	Door to doors colletion in 7 wards.(4,25,26,27 ,28,29,30	20 and 10 nos at plant	Daily	1 tipper 1 lorry 2 tractor

Source: Municipal Office ,Ottappalam



Composting Unit at Panamanna

The Health Department of the Ottappalam Municipality is responsible for the collection and disposal of solid waste within the town limits consisting of one Health supervisor and 2 nos of Heath inspectors, 5 nos of junior health inspectors and 20 nos of Sanitation workers and about 5 contingent labourers. The collection operations are done by three Kudumbasree units with 10 members in each group. Waste is collected and transported to treatment site situated at Panamnna in 2 acres of land. Plastic and other non degradable waste is segregated from the waste and remaining bio degradable waste is converted to compost. There is one Plastic recycling unit.

The active involvement of the community and non-governmental organizations (NGO) in solid waste management has been lacking in Ottappalam Town .There is lack of awareness among the citizens on how they could contribute towards effective management of solid waste - in activities of primary collection, segregation at source, waste minimization, etc.The Municipality owns 4 vehicles for different activities of solid waste management. There are one tipper ,one lorry and 3 tractors meant for the collection and transport of waste from the collection points to the disposal site.

8. 4.2 Issues

- Lack of awareness about the problems due to dumping of wastes in road side and in drains
- Open storage bins lead to environmental problems and health hazards
- Lack of segregation of waste at source

8.4.3 Inference

Except in the core area of town, size of land holdings is more , hence solidwaste treatment is possible with in compound itself . The waste collection system is not much efficient and segregations at source are not being attempted. The total solid waste generated is not collected completely . More dentralization is needed in this sector.

8.5 ENERGY

Power is a basic infra-structure influencing the growth of industrial, agricultural and service sectors and ultimately economic development. One of the determinants for quality of life is the level of availability and acceptability of affordable and quality power. The power requirement of town is now being covered by KSEB (Kerala State Board of Electricity).The town has an 110KV capacity substation located at Palappuram, which serve the areas Ottappalam, Amabalappara and Lakkidi.Detailsof sub station isshown in Table 8.7.

The major energy consumption is the electrical energy generated from hydro electric project. No other non-conventional energy is fed into the main grid. Apart from the electrical energy supplied, people also uses energy generated from petroleum products like Petrol, LPG, Diesel, Kerosene etc.Since majority of consumption is from electrical energy, category wise break up of electrical energy only is considered. Yearwise and category wise consumers are shown in Table 8.8 and Fig 8.13 .Temporal varaition of category wise Power consuption is ahown in fig 8.14.

Table 8.7 Details of sub station

Sl no	Sub station	Capacity in KV	Number	Location	Serving area
1	Ottapalam	110 KV	1	Palappuram	Ottapalam,Ambalappara, Lakkidi

Table 8.8 Category wise and yearwise No of connections

Year	Category Break Up – No of Connections					
	Domestic	Industries	Commercial	Agriculture	Others	Total
2009	15337	276	3505	689	2	19809
2010	16428	230	3743	701	2	21104
2011	17246	224	4009	714	2	22195
2012	17741	241	4075	722	3	22782

Source : KSEB office ,Ottappalam

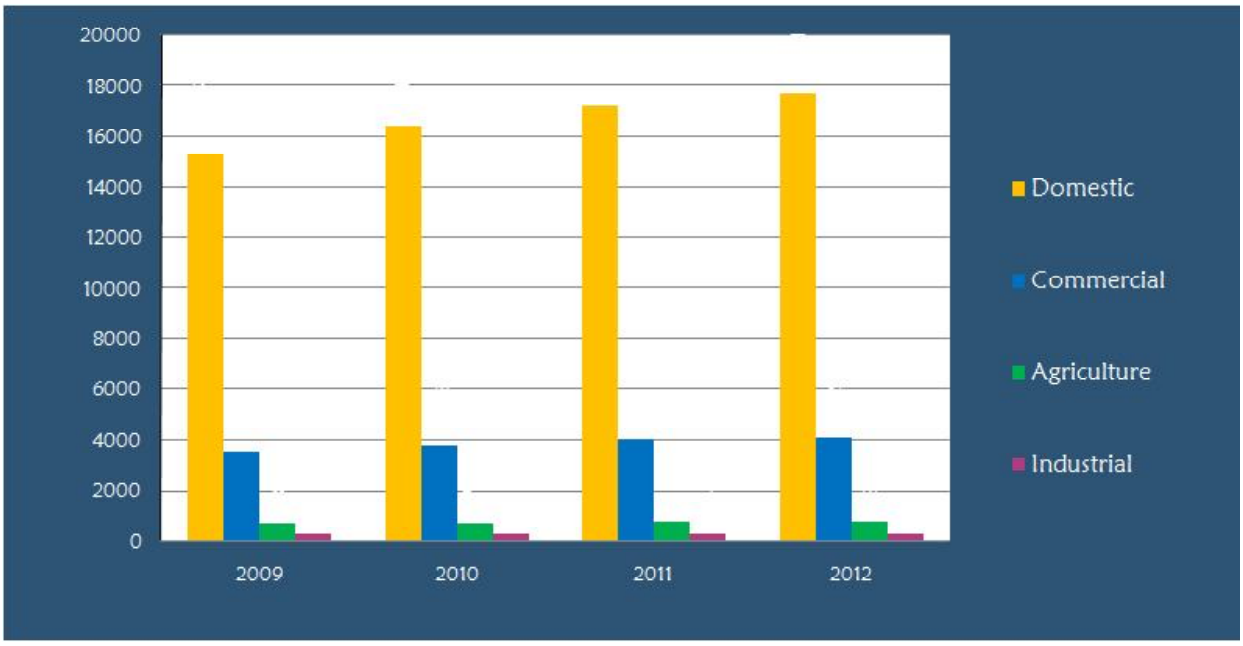


Fig 8.13 No of Consumers

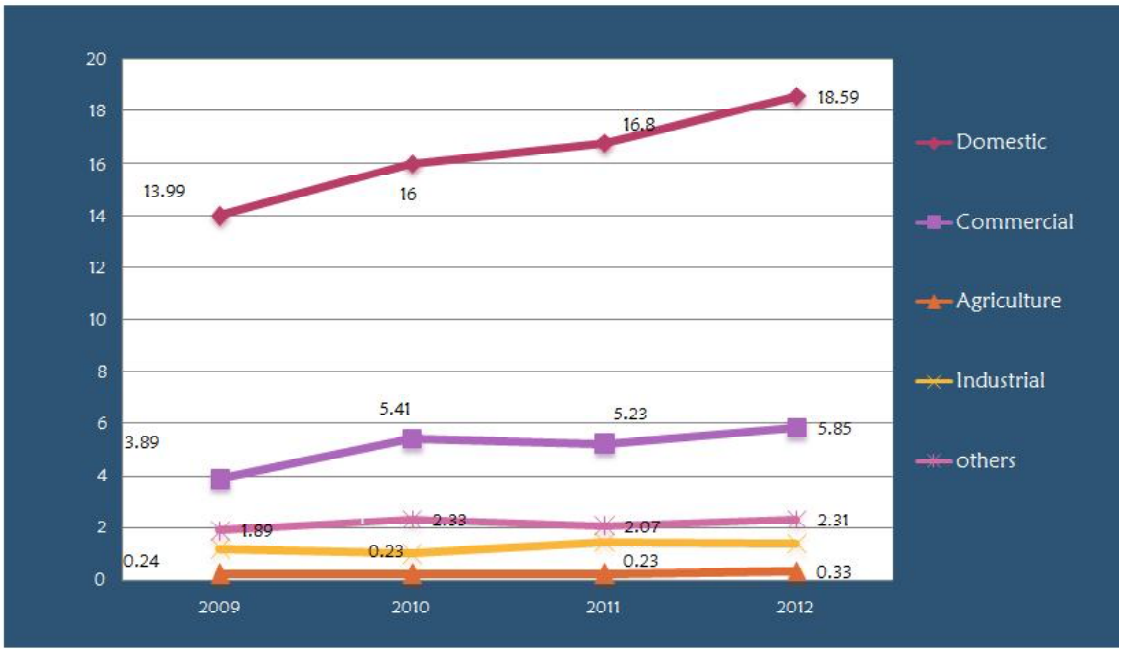


Fig 8.14 Power Consumed

Total length of HT and LT lines in Ottappalam municipality is 98.25 km and 580 km respectively. The total number of Transformers in Ottappalam municipality is 165Nos . There are no areas of frequent power cuts or low voltage. The distribution of power is only by over head lines and underground lines are not used causing various inconveniences in the town centre. Distribution network is shown in fig 8.15.

8.5.1 Street lighting

The Municipality maintains around 2399 street lights. 65 percent of the luminaries in the town are ordinary bulbs. 5 percent of lights are tube lights Sodium vapours lamps, mercury and CFL lamps constitute nearly 30 percent of the total number. Hence nearly 70 % of lights are to be replaced with power saving lights. The details of street lighting are presented in Table 8.10. Municpality is paying Rs 15.09 lakhs annuallay towards electricity charges of street lights. Details of street lighting in Town is shown in Table 8.9

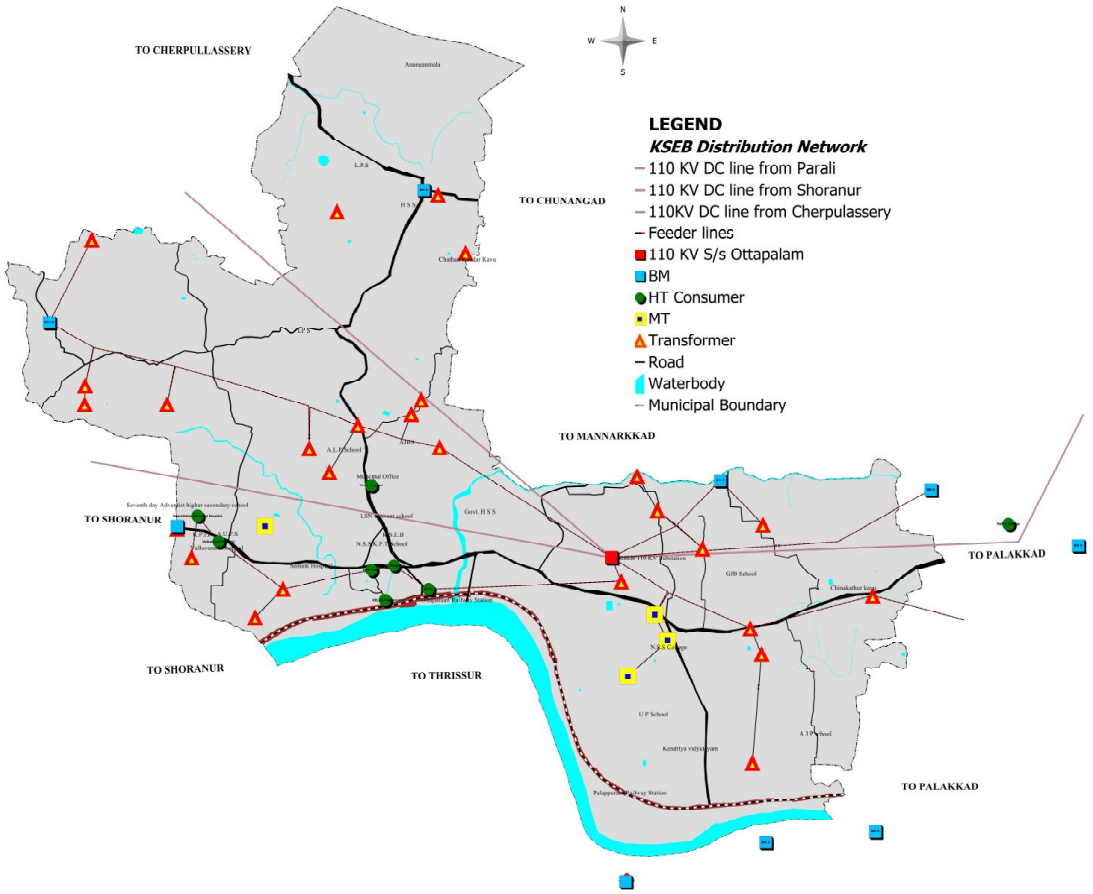


Fig 8.15 Distribution Network of KSEB

Table 8.9 Details of street lighting in Town

Sl No	Type of Luminary	2013-14	Watts	Hours	Percentage
1	Double tube	137	2X40	12	5.71
2	Ordinary Bulb	688	60	12	28.68
3	Ordinary Bulb	870	40	12	36.27
4	SVL	283	250	12	11.80
5	Mercury	7	80	12	0.29
6	CFL	414	2X11	12	17.26
	Total	**2399**			**100**

8.5.2 Problems and Potentials

Ottappalam (M) does not have major energy problems, but it has to depend on other districts for the energy requirement especially in the case of electrical energy. Palakkad district does not contribute much to the generation of electrical energy. No other non-conventional energy sources except solar energy can be utilized. It has sufficient number of petrol pumps and LPG godowns.

8.5.3 Inference

Ottappalam town does not have major power problems. Use of non conventional energy is very much limited. Even in the case of solar energy the use is limited to a few roof top solar water heaters. There is tremendous potential for the development of non conventional energy. The town has potential for development of biogas plants also with a healthy cattle population. The distribution of petroleum products are at a satisfactory level.

9. SOCIAL INFRASTRUCTURE

The quality of life in any urban centre depends upon the availability of and accessibility to quality social infrastructure.Social Infrastructure facilities includes Health, Education, Sports Facilities, Socio-cultural activities, Communications, Security and Safety, and Other Community Facilities pertaining to Recreation, Religious activities, Social Congregations and Community Events,Cremation/ Burial Grounds etc.

9.1 Education

Educational Facilities certainly impact the quality of manpower available in the urban areas.In addition, these facilities have been found to leverage the economic growth development and employment.As per 2011 census Ottappalam municipality has a literacy rate of 94.62%. SC literacy rate of municipality is about 81.24% and when it comes to ST population cent percent literacy rate is achieved.Ottappalam municipality has second largest literacy rate among all municipalities in Palakkad district. Ottappalam municipality has a literacy rate of 94.62% which is second largest between all other municipalities in Palakkad district.

Among these schools only three government schools, three aided UP schools and two unaided schools are well facilitated. All the remaining 16 schools do not posses play ground, separate toilets, computer lab, internet and water availability as their own.

9.1.1. Existing Facilities

In Ottappalam municipality there are 31 schools, in which 21 are aided schools, 6 are unaided schools and 3 state Government schooland one central Government school. Majority of schools are under aided and private sector. Pass pecentage of HS in 2010 is ahown in fig 9.1 and Details of the number of Govt, Aided and Unaided schools are given in the Figure 9.2. 68 % of schools are aided and it indicates the abundance of aided schools in Municipal area. Only 24% of students are studying in Government schools 55% in aided schools and 21% in un aided schools. 66% students are studying in State Syllabus and 33 % in CBSE and 1 % in ICSE syllabus There is dropout of childrens from government schools, which shows the lack of infrastructure facilities in Government schools. Spatial distribution of educational facilities is shown in Fig 9.3.

Table 9.1 Details of Schools in Ottappalam Municipality

Sl. No.	Name of School	Location	Category	Number of Students						
				Pre-Primary	Primary	UP	High School	HSS	VHSS	Total
	Govt. Schools									
1	GJBS, Palappuram	Palappuram	2	0	25	0	0	0	0	25
2	GHSS Ottapalam East	East Ottapalam	4	0	49	201	558	487	0	1295
3	GHS Deaf Ottapalam Special School	Ottapalam	5	0	15	15	23	48	26	127
	Aided L.P.Schools									
1	AJBS, Ariyoor Thekkumuri	Thottakkara	2	20	52	0	0	0	0	72
2	ALPS, Kanniyampuram	Kanniyampuram	2	9	36	0	0	0	0	45
3	ALPS, Mayilampuram	Mayilampuram	2	10	44	0	0	0	0	54
4	AJBS, Palappuram	Palappuram	2	55	223	0	0	0	0	278
5	ALPS, Panamanna West	Panamanna West	2	29	85	0	0	0	0	114
6	AMLPS, Veettampara	Varode	2	10	17	0	0	0	0	27
7	ALPS, Thottakkara	Thottakkara	2	13	60	0	0	0	0	73
8	AJBS, Pallarmangalam	Pallarmangalam	2	8	20	0	0	0	0	28
9	AJBS, Padinjarekkara	Padinjarekkara	2	72	174	0	0	0	0	246
10	ALPS, Vadanamkurissi	Vadanamkurissi	2	0	66	0	0	0	0	66
11	DBLPS, Panamanna South	Panamanna South	2	0	34	0	0	0	0	34
12	LSN TTI LPS, Ottapalam	Ottapalam	2	0	325	0	0	0	0	325

Sl. No.	Name of School	Location	Category	Number of Students						
				Pre-Primary	Primary	UP	High School	HSS	VHSS	Total
	Aided U.P. Schools									
1	SBS, Meetna	Meetna	2	46	164	161	0	0	0	371
2	AUPS, Panamanna	Panamanna	2	60	220	448	0	0	0	728
3	AUPS, Varode	Varode	2	0	332	463	0	0	0	795
4	BEM UPS, Ottapalam	Ottapalam	2	0	37	32	0	0	0	69
5	AUPS, Kanniyampuram	Kanniyampuram	2	0	0	77	0	0	0	77
	Aided High Schools									
1	KPSMMVHSS, Varode	Varode	4	0	0	0	611	92	107	810
2	NSSKPTHS, Ottapalam	Ottapalam	3	0	0	247	675	0	189	1111
3	LSNGHSS,Ottaplam	Ottapalam	4	0	0	566	744	317	0	1627
4	MMNSSEHS, Ottapalam	Ottapalam	3	48	114	135	130	0	0	427
	CBSE Schools									
1	Kendriya Vidyalaya, Palappuram	Palappuram	4	0	717	468	309	226	0	1720
2	Amritha Vidyalaya, Kaniyampuram	Kanniyampuram	4	145	380	263	262	34	0	1084
3	Lakshmi Narayana Vidhya Nikethan	Palappuram	4	0	485	365	285	128	0	1263
4	Bhavans Vidya Mandir, Varode	Varode	2	45	87	40	0	0	0	172
5	Jai Hind EM School	Ottapalam	2	0	92	0	0	0	0	92
6	St. Joseph Convent EM School	Veettampara-Panamanna Road	2	0	72	0	0	0	0	72
1	Seventh Day Adventist, Kanniyampuram(ICSE)	Kanniyampuram	4	0	0	0	83	94	0	177
	Total			570	3925	3481	3680	1426	322	13404

Source : DEO Office

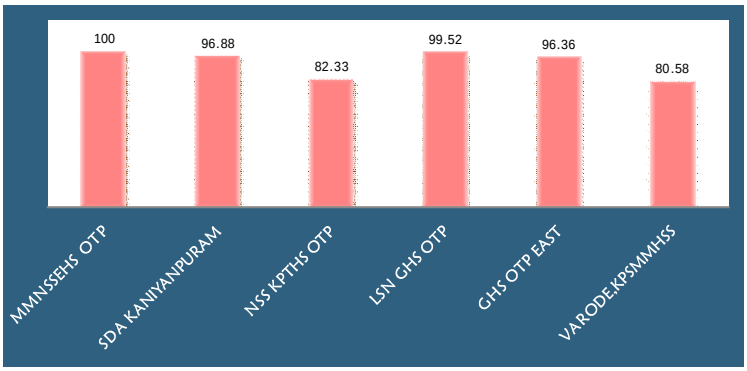


Fig 9.1 Pass % of HS in 2010

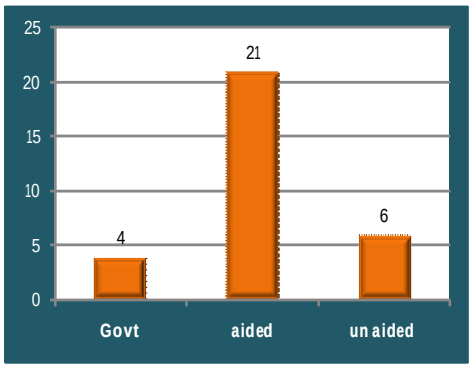


Fig 9.2 Details of Number of Schools



UP school Meetna



NSSKPT School

Spatial distribution of educational institutions in the municipal area is shown in the Figure 9.3.

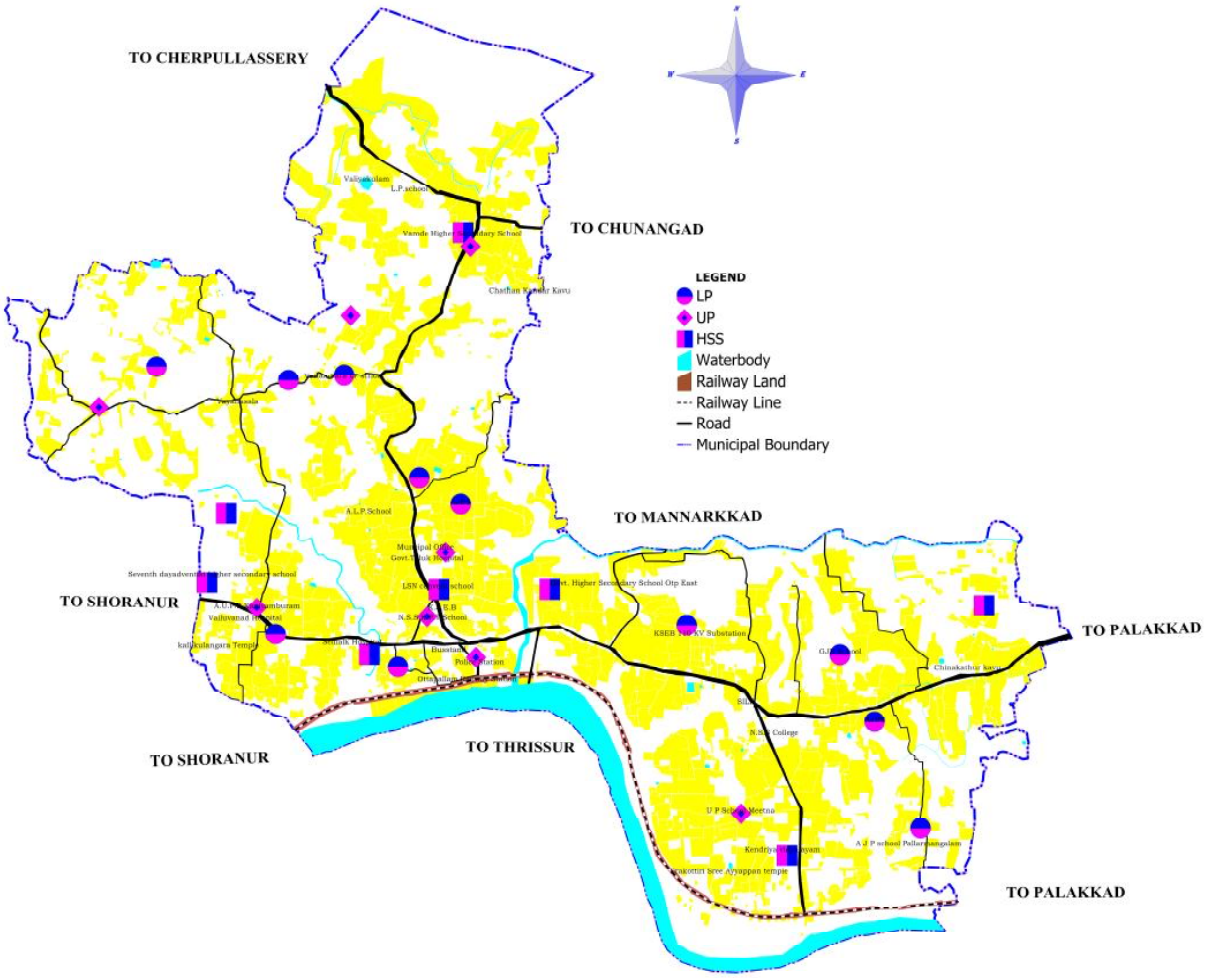


Fig 9.3 Spatial Distribution of Educational Facilities



Amrita Vidyalayam



Kendriya Vidyalaya



LSN Convent



Lakshmi Narayana Vidya Niketahan

Service Area of existing LP , UP and High schools are shown in Fig 9.4, 9.5 and 9.6 respectively.

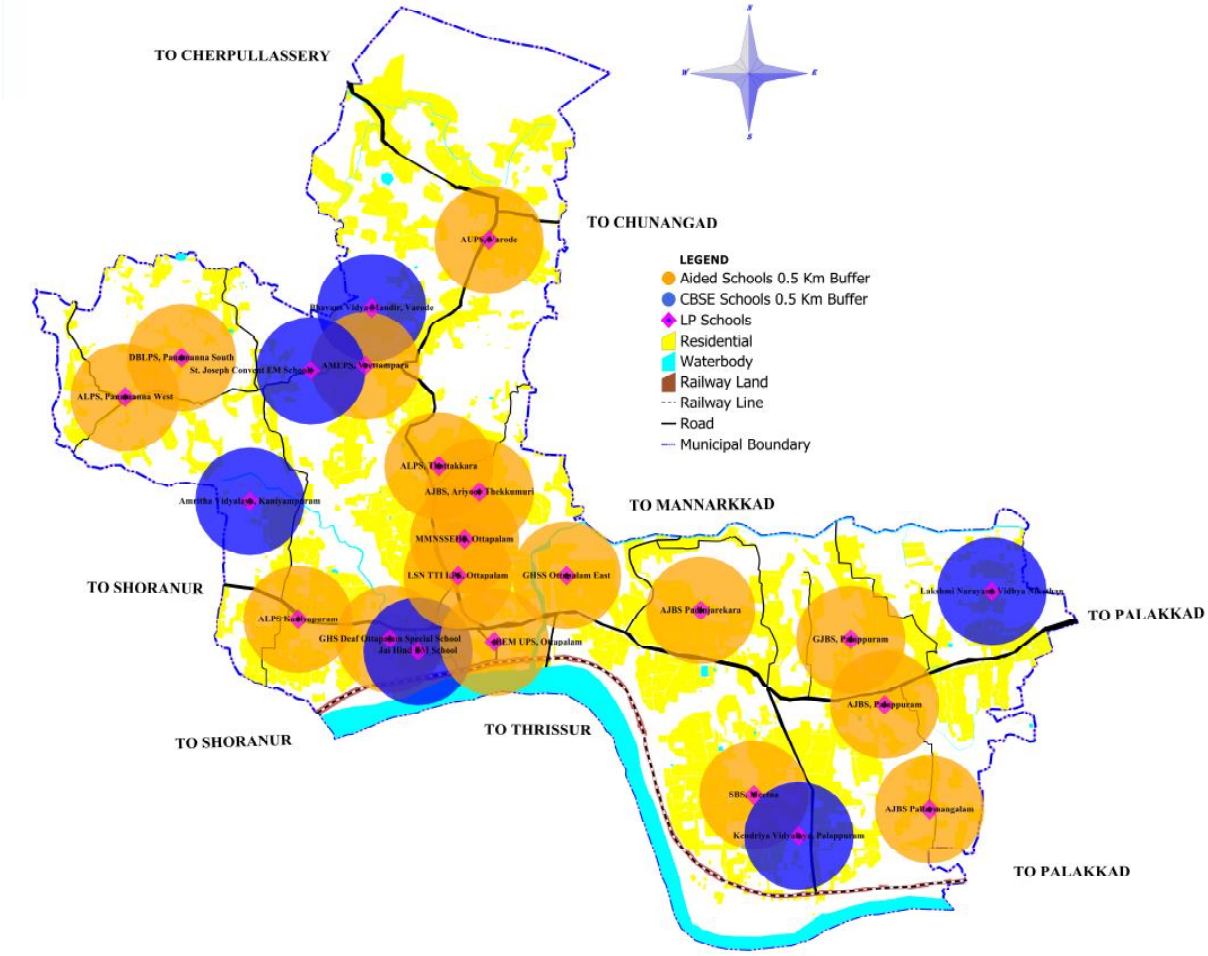


Fig 9.4 Service Area of existing LP Schools Facilities

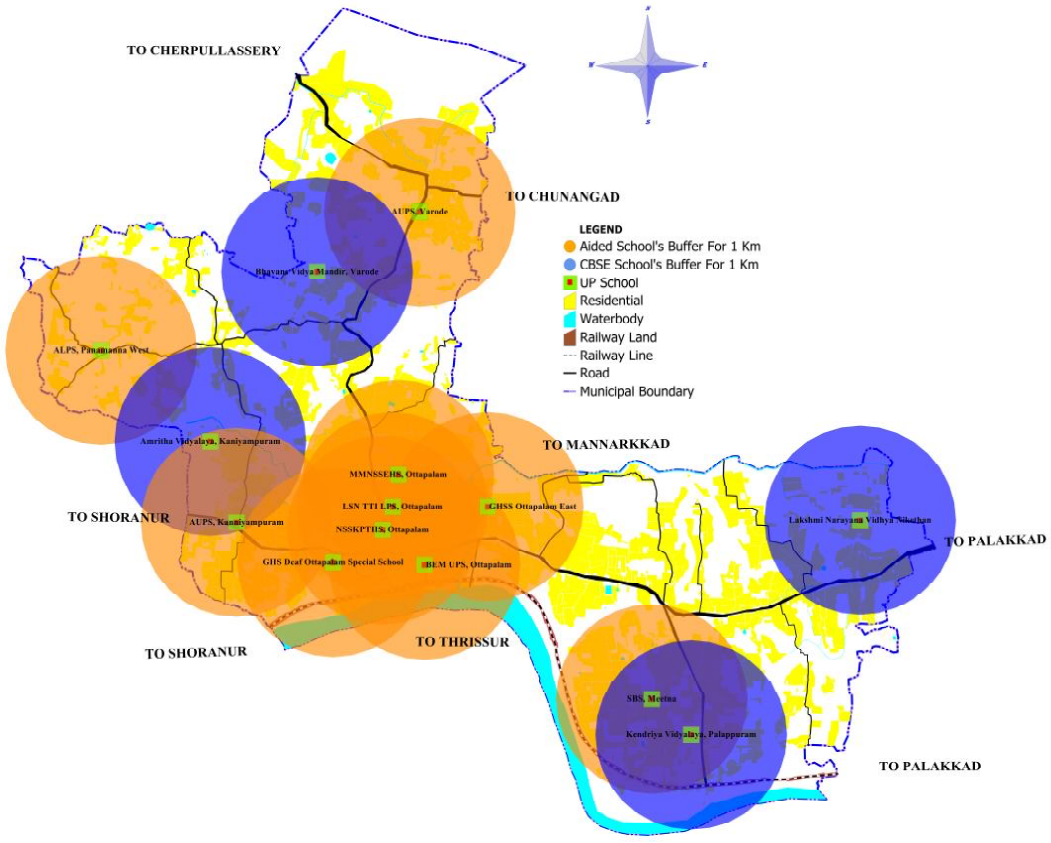


Fig 9.5 Service Area of existing UP School

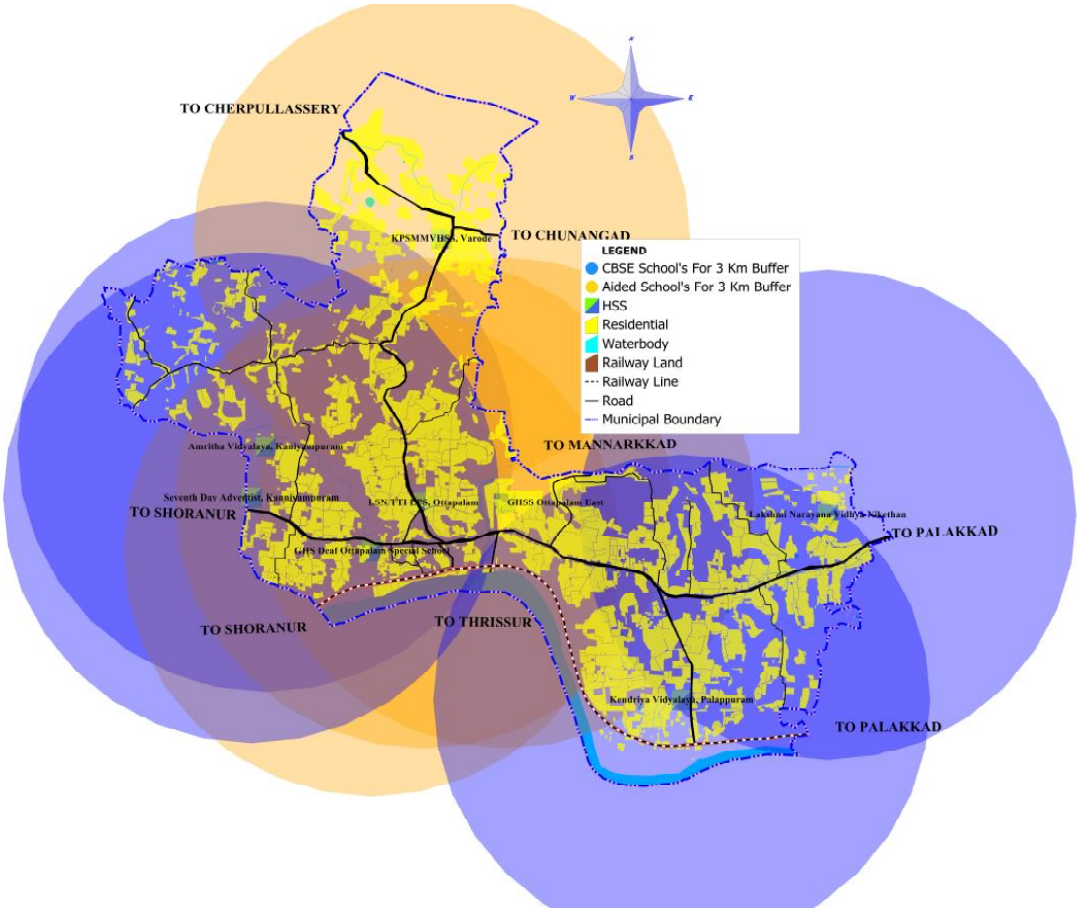


Fig 9.6 Service Area of existing HS Schools

Sector wise breakup of LP schools and number of students are given in Fgure 9.7 and 9.8. 51 % of students are studying in aided schools where 28 % in unaided schools.

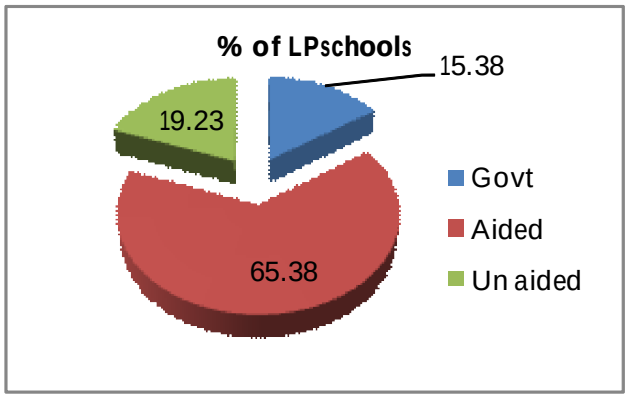


Fig 9.7 % of LP Schools in various sectors

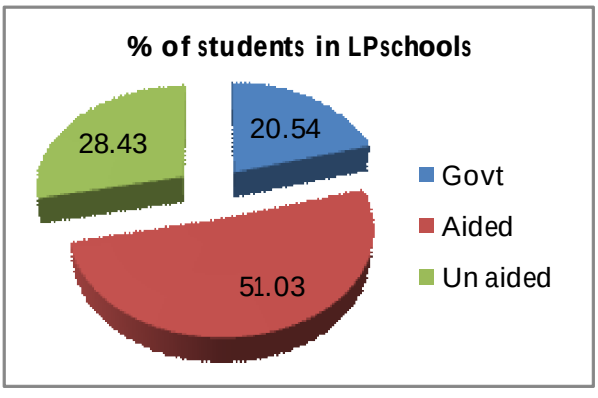


Fig 9.8 %of LPS Students studyingin various sectors

Sectorwise breakup of UP schools and number of students are given in Fgure 9.9 and 9.10. 61% of students are studying in aided schools and 19% in unaided schools.

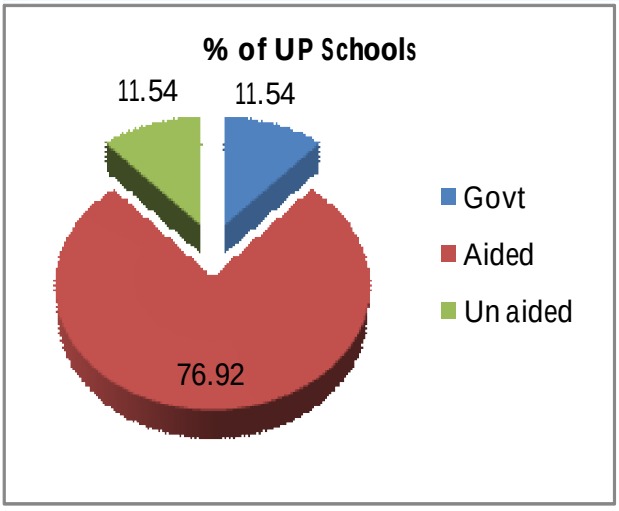


Fig 9.9 % of UP Schools in studying in various sectors

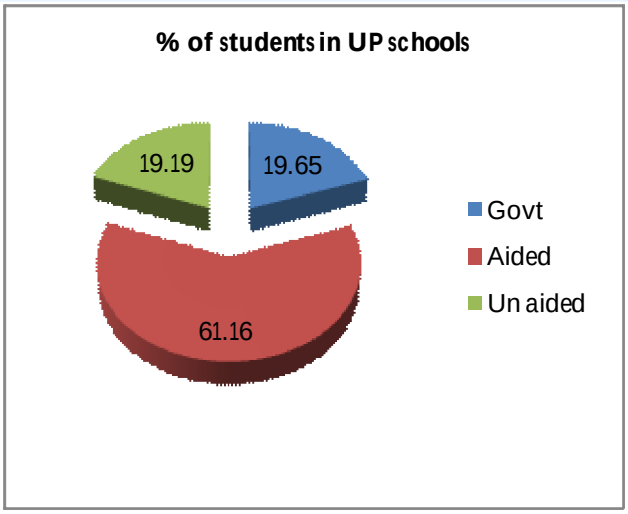


Fig 9.10 %of UPSchool Students various sectors

Sectorwise breakup of HS schools and number of students are given in Figure 9.11 and 9.12. 59 % of students are studying in aided schools and 17 % of schools in un aided sector

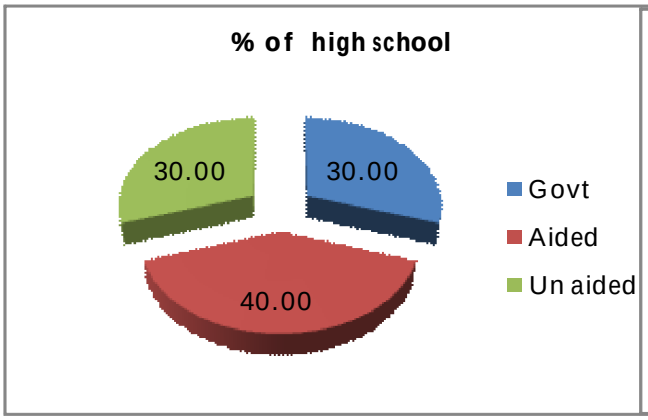


Fig 9.11 % of High Schools in studying in various sectors

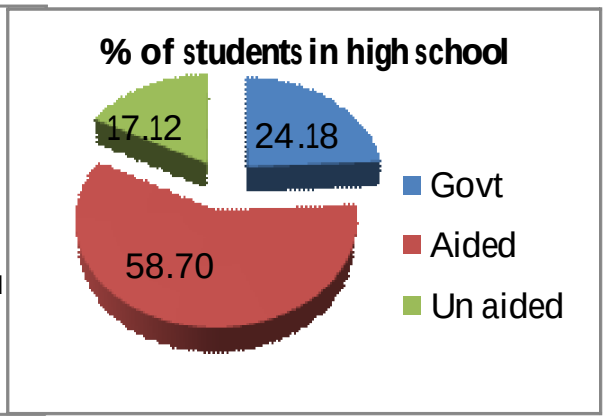


Fig 9.12 %of High School Students various sectors

Sectorwise breakup of HSS schools and number of students are given in Fgure 9.13 and 9.14. 22 % of students are studying in Aided schools and rest 44 % of students in unaided schools. There is one Government higher secondary school at east Ottappalam and on Government higher secondary school special for Deaf with Vocational Higher secondary facility .

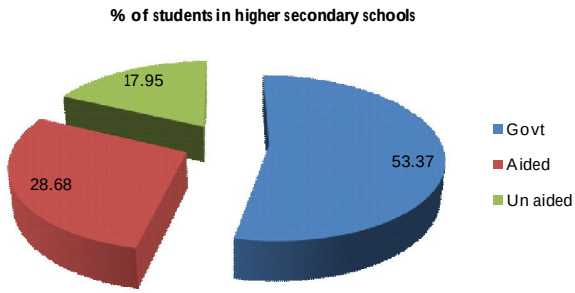


Fig 9.13 % of Higher secondary Schools in various sectors

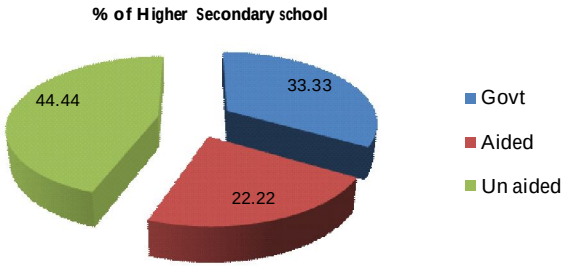


Fig 9.14 %of Higher secondary Students studying in various sectors

9.1.2 Infrastructure Details of Schools

In municipality, most of the schools have comparatively good infrastructure facilities. But still some schools lack sufficient number of basic amenities like toilets and play ground. Majority of the LP schools do not have play grounds at all. There are schools which do not have staff room and kitchen. One school do not have facility to provide drinking water for habitants.

9.1.3 Higher and Professional Education Colleges

There is no professional college in Ottappalam Municipality. There is one Arts and Sceince college (NSS College) in municipality. Nearly 700 students are studying here . There is one Teachers training Institute (LSN teachers training institute) and a training college (NSS Teachers training college). There is one ITI at Palappuram in Govt sector and one in private sector (Sree Vidyadhiraja Technological Training Institute).

9.1.4 Other Educational Institutions

There are 20 other educational institutions in the Municipal area, which offers computer courses, technical courses, music school, driving schools etc.

Table 9.2 Comparison with Planning Standards

Type	Existing (2011)	Required (2011)
Population	53755	53755
1. Nursery: 1 for every 2500		22
2. Primary: 1 for every 5000	21	11
3. HS: 1 for every13000	7	4
4. HSS: 1 for every 13000	5	4
5.Arts and Science College: 1 for every 80000	1	1
6.Polytechnic College 1 for every 36000	0	1
7.Technical college 1 for every250000	0	1
8. ITI/ITC 1 for every 35000	2	2
9. TTC 1 for every 120000	1	1



NSS College



NSS Teachers training College

As per standards in Ottappalam municipality 4 highschools are required. But there are 7 HS, which are satisfactory. There is only one HS in the municipality having students higher than 700. There are 5 HSS in municipal area, which are satisfactory but number of divisions has to be increased. The higher educational facilities are also satisfactory. As per standards in Ottppalam municipality one technical colleges is required. In municipal area there are two ITI. No required is two . There is a special school for deaf and dump students .

9.1.5 Problems and Potentials

The literacy rate of Ottappalam municipality is very high compared to the district which indicates that the educational facility is satisfactory in Ottappalam Municipality. There is no Professional colleges in Municipality .But there are professional colleges in adjacent local bodies . Main problem faced by the Government and Aided schools are the shortage of teachers and staffs. There is shortage of toilets, buildings and compound wall for the schools in municipality. Most of the colleges are offering only the conventional course which is one of the reason for the increasing demand for colleges outside the district especially in Coimbatore.

9.1.6. Inference

In comparison with District and other municipalities, the literacy rate of Ottappalam municipality is in second position after Shoranur . The infrastructural facilities available in many government schools are not satisfactory. Proper planing should be done to over come this problem and that will attract the students towards government institutions. Private schools are having good facilities. More number of government technical institutions have to be introduced. Most of the colleges are offering only the conventional courses.

9.2 HEALTH

Human development and improvement in quality of life are the basic aims of any planning process. Health facilities, if provided on prescribed norms and standards within any settlement, help to improve the quality of life of inhabitants. The progress of a town largely depends on the quality of health enjoyed by its citizens, besides its location and accessibility to the community at large.

9.2.1 Existing Facilities

Ottappalam municipality have three Government hospitals , 13 Allopathic Private hosptals , 3 Ayurvedic private Hospitals and 3 Homeopathic clinics. Taluk Hospital is the only one Allopathy hospital in Government Sector situated in Ariyur Thekkumuri desam. There are 4 health centres situated at Varode, Thottakkara, Panamanna ,Kanjirakadavu and Meetna.

The falities available in Taluk Head quarter hospital are General Medicine, Surgeory, Gynecology, Anaesthesia, Pediatric, Ophthalmology, ENT, Psychiatry, Orthopaedics, Dermatology, ResperatoryMedicien, Dental, Casuality, Delivery (Normal & Caeserian), Surgery (Ortho, Eye & Gynaec) ,laparoscopic, NSV camp, ICU, NICU , Laboratory, X-ray , Pharmacy and ECG, USG ,Blood Storage (Not functioned) and Ambulance Service. Details of hospitals in Allopathic sector is shown in table 9.3. There are 25 doctors and 105 other staff. Child welfare and maternity centre is functioning in newly constructed five stroyed building .

Seventh day hospital in Kanniyampuram, Valluvanad Hospital , Semalk Hospital at Ottappalam, New Aswini hospital at Ottappalam are major Allopathic hospitals in Ottappalam town under Private sector.

Table 9.3 Details of hospitals in Allopathic sector

Sl. No	Name of Hospital	Location	Category	Number of beds	Other staff	Facilities	No of Doctors	Govt/ Private /Co-operative society	Disposal of hospital waste
1	Taluk HQ Hospital	Ottapalam	4	173	105	ECG,X-RAY,LAB,OT ,DIALYSIS UNIT	25	Govt	IMAGE
2	Valluvanad Hospital	Kaniyanpuram	4	250	174	CT SCAN,ECG,ECHO, TMT, Mortuary	27	Private	IMAGE
3	Seventh Day Hospital	Kaniyanpuram	4	150	100	ECG,LAB, CT SCAN, Mortuary	6	Private	IMAGE
4	Semalk Hospital	Ottapalam	4	46	60	ECG,LAB,X RAY, physiotherapy	7	Private	IMAGE
5	New Aswini Hospital	Ottapalam	4	45	60	ECG,LAB,X RAY	8	Private	IMAGE
6	Eye Care Hospital	Thottakara	4	10	22	Laser, key hole surgery	3	Private	IMAGE
7	Kenisha physiotherapy solutions	Palappuram		2			1	Private	
8	Ottapalam welfare trust Diagnostic	Ottapalam			3		2	Private	
9	Dental Clinic	Ottapalam					1	Private	
10	Perfect dental clinic	Ottapalam		2	2		1	Private	
11	Super diagnostics	Ottapalam			1		3	Private	
12	Kappor Dental centre	Ottapalam			4		3	Private	
13	Phinix Physio centre	Palappuram					1	Private	
14	Image plus maxi logical, Diagnostics	Kanniyampuram			1		1	Private	

The available data shows that there is a tremendous increase in OP category patients. Fig.9.15 shows that variation in the No. of IP & OP category people.

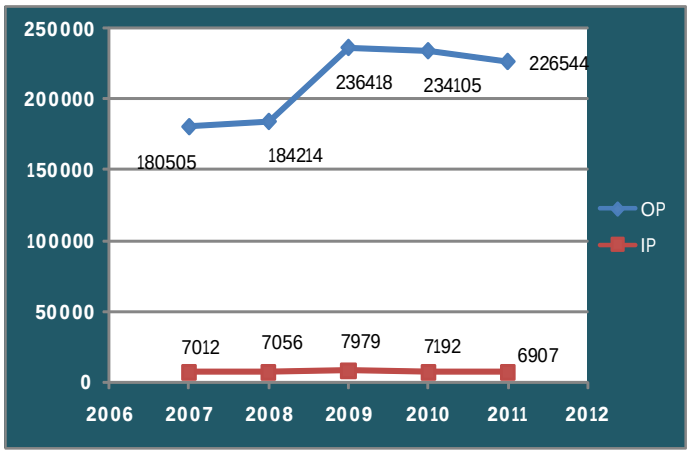


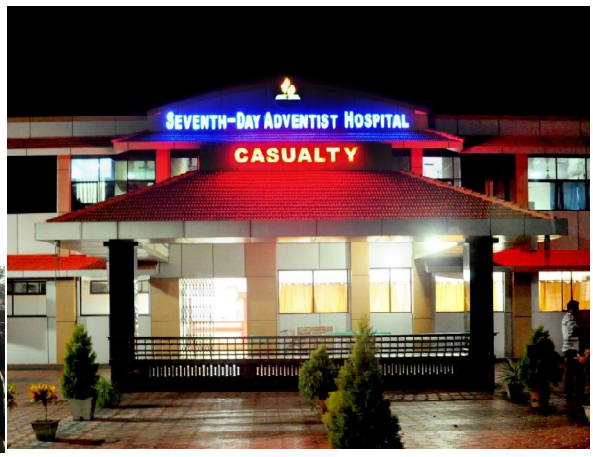
Fig 9.15 Variation in the No. of IP&OP category people.



Taluk Hospital



New Aswini Hospital



Seventh Day Adventist Hospital



Valluvanad Hospital

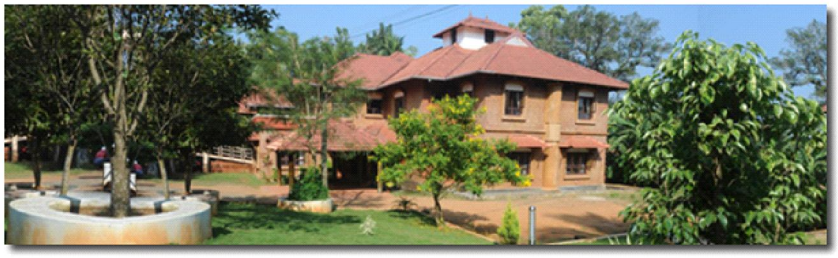
There is one Government Ayurveda hospital having facilities of naturopathic treatment functioning at Kaniyampuram . The treatment facilities available are General Medicine , Pediatrics ,Geriatrics ,Panchakarma etc.Padinjarekkara Ayurvedic hospital, Nandavanam Ayurvedic hospital and Ayush Ayurvedic Hospitals are famous Private Ayurvedic Hospitals in Ottapalam Municipality. There is an Ayurveda hospital sub centre at Panamanna.

Table 9.4 Details of Patients in Ayurvedic sector

Year	Ayurveda		Naturopathy		Treatment for poisoning	Sub centre
	OP	IP	OP	IP	OP	O P
2007	15521	202	1163	2	0	3942
2008	19919	192	5362	32	0	2298
2009	20878	198	6047	81	0	1455
2010	22966	246	7836	100	4020	5299
2011	23530	227	19523	105	2754	7373

Table 9.5 Details of hospitals in Ayurvedic sector

Sl. No	Name of Hospital	Location	Number of bds	Number of Doctors	Govt/Private /Cooperative society	Workers	Disposal of hospital waste
1	Government Ayurvedic Hospital	Kaniyampuram	10	5	Govt	14	Municipality
2	Padinjarekkara Ayurveda hospital & Research centre	Palappuram	6	1	Private	0	Municipality
3	Nandhavanam Ayurveda Hospital	Ottapalam	17	4	Private	9	Municipality
4	Ayush Ayurveda Hospital	East Ottapalam	13	1	Private	4	Municipality



Nandhvanam Ayurveda hospital



Padinjarekkara Ayurveda hospital

In Homoeopathic sector there is one Government Homeo Dipensary and two clinics are functioning in private sector. Fig.9.16 shows that the spatial distribution of health facilities in the municipality.From the figure, it is seen that all the health institutions available in the municipality are concentrated in the core area. Hinter lands are devoid of health facilities.

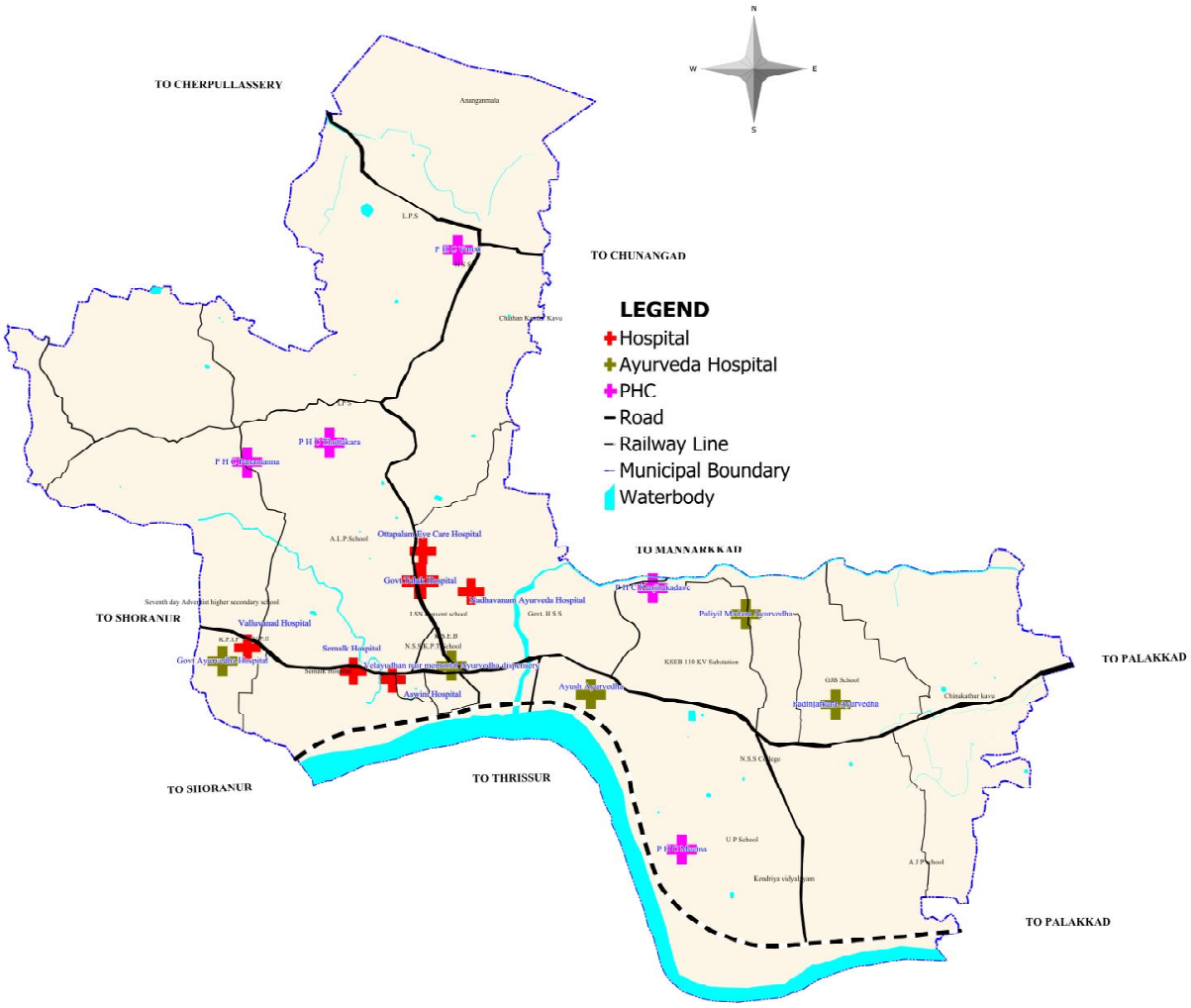


Fig 9 .16 Spatial location of health institutions

9.2.2 Comparison with planning standard

Ottappalam municipality has a population of 53755 as per 2011 census; As per standards 50 beds are required for 1 lakh population in Taluk hospital. The no of beds are 173 at present. Hence it is seen as sufficient. As per standard one PHC is required for a Population of 20,000 with 24 beds. Hence 3 nos of PHC are required. As per standard, one nursing home, Child welfare and maternity centre is required for a population of 45000 to 1 lakh. There are 14 private hospitals under Allopathic sector including Dental and Eye Hospitals in the municipality out of which 7 has IP facilities, total number of beds available in private sector is 352. As per standard number of beds in private hospital for 1lakh population is 540. Bed strength available in these hospitals are enough to serve the people in Ottappalam municipality. The major incidence of epidemics such as Dengue and Leptoseprocin shows increase, other diseases like HINI, Chicken Gunea were not reported.

9.2.3 Problems and Potentials

There is no super speciality hospital in the municipal area as well as district. Major problem in the health sector is the insufficiency of facilities in hospitals. The government hospitals and dispensaries do not have good infrastructural facilities, modern treatment facilities and modern equipments. There is no government homeopathic hospitals/dispensaries in municipal area. Now a Medical college is Started by the Schedule Castes and Schedule Tribes (SCs/STs) Department in Palakkad Municipality . The construction work of the building is fast progressing at Yakkara and the academic block has almost been completed. At present the people of the district were forced to travel to Thrissur or Coimbatore for better medical facilities owing to lack of such facilities here. There were also no facilities to handle emergency accident cases, causing large number of deaths in the district. It is hoped that the functioning of a medical college will solve these problems in the near future.

9.2. 4 Inference

Existing health services in the government sector requires considerable upgradation for improving their capacity to provide desired level of services to the people.Spatial distribution of health institution facilities requires rationalization for providing equitable distribution of such infrastructure.Proper infrastructural developments should be applied in allopathic, ayurvedic and homeopathic sectors. There are no super speciality hospitals in the municipality. For better treatment people are depending on the super speciality hospital in the neighbouring districts.

9.3 RECREATIONAL FACILITIES

Places of recreation, specialized institutes, and clubs will provide new avenues for the residents to spend their leisure time for productive purposes enhancing their capabilities as well as for specific occasions.

9.3.1 Parks and Play Grounds

There is no organized park and open space in the municipality. It is noticed that the play grounds attached with various schools are being used for public function especially those are located near to the town centre. Since the town lacks such a facility in the town centre, there is public demand for requirement of open space/parks near to the town centre. There are only two play grounds in the municipality, one at Kaniyapuram theruvu and the other at Varode.

9.3.2 Libraries

There are 6 libraries in the municipal area. The libraries are situated at Panamanna , Kaniyampuram, Palapuuram, Meetna, Ottappalam Town Taluk Reference Library, Ottappalam Bus stand.



KPS Menon Indoor Stadium



Ottappalam Taluk Reference Library

9.3.3 Stadium

There is an indoor stdium named after K P S Menon with Shuttle Badminton Court facility and an open air auditorium .

9.3.4 Theatres and auditoria

There are three cinema halls in Ottappalam municipality. Lakshmi Theatre, Jass Theatre and Imperial Theatre located at the main town regions. There are a total of 2000 seats capacity .There are 11 community halls /Auditorium in Ottappalam municipality and the details of which are shown in Table 9.6 and they are frequently used for conducting meeting, seminars.and wedding ceremonies.

Table 9.6 Details of community halls

Sl. No.	Name of Community Hall/ Town Hall	Location/ Ward	Extent/ Capacity
1	Sangamam Auditorium	19th mile	15 cent, 500 Nos
2	Malleakkal Garden	Mannarkkad Road	40 cent, 500 Nos
3	Yathim ghana Hall	Ottappalam	1.5 acre, 750 Nos
4	Shamna Hall	New Bazar road	250 Nos
5	PP Hall	New Bazar Road	250 Nos
6	CSN Hall	Kanniyampuram	750 Nos
7	Gopikas Auditorium	Near Aswini hospital	500 Nos
8	Kelco Auditorium	Near Railway Station	1 acre, 1500 Nos
9	Durga Auditorium	Palappuram	250 Nos
10	Kaveri Auditorium	Palappuram	250 Nos
11	MIM Hall	Varode	1 acre, 500 Nos



Jass Theatre



Lakshmi Theatre



Gopika Auditorium



KelcoAuditorium

There are several NGOs in the town working for the social cause of the town people. They are Ottappalam Welfare Trust ,Thottakkara and National Educational & Charitable Trust, New Bazar, Ottapalam. Clubs functioning in Ottappalam are Rotary club and Lions Club

9.3.5 Spatial Distribution of Recreational Facilities

Spatial distribution of recreational facilities of the municipality is shown in the Figure 9.17



Fig 9.17 Spatial Distribution of Recreational Facilities

9.3.6 Inference

There is a need of parks in different neighborhoods, to be provided. There is need for children's playgrounds and stadiums for encouraging sports activities in the town. The open spaces in the form of buffers need to be provided in the specific locations along the roads, railway lines, water bodies etc.The open space has not been distributed evenly to serve the community needs. The northern portion of the town do not have any major open space.Lack of proper infrastructure facilities .

9.4 OTHER CIVIC AMENITIES

The other amenities of the town include police station, fire stations, cremation ground, etc.Each urban area must have these amenities to serve its growing population. The civic amenities of Ottappalam town are described below.

9.4.1 Police Station

As per UDPFI guidelines one police station is required for every 90000 population. Ottappalam has only one police station in which both Circle Inspectors and Sub inspectors offices are functioning in the same compound. Ottappalam police station is located near Railway station having an extent of 33 cents. It has total of 53 staff in which 7 are females. The police station has 3 sub inspectors and 3 additional sub inspectors. The

office of Sub Inspector has service area distributed over Ambalappara I& II , Lakkidi perur I&II, Ottappalam I&II, VaniyamkulamI& II and Ananganadi villages . The Circle Inspector office serves Ottappalam, Shoranur municipalities and Lakkidi perur GP . The police station being located at the heart of town creates traffic congestion in the core area. The CI office serves Ottappalam, Shoranur and Lakkidi perur. Locatio of police station is ahown in Fig 9.18



Police Station Ottappalam



Fig 9.18 Spatial Distribution of Police Station

9.4.2 Fire Station

At present Ottappalam area is serviced by the fire station at Shoranur that lies at 13 kms west of Ottappalam. As per UDPFI guidelines one fire station is required for two lakh population. The above fire station serves two municipalities and 23 panchayaths seving an excess area than its capacity. If proposed new Fire station at Pattambi is implemented, it may reduce the burden of Shoranur Fire station sothat it can function more effectively.

9.4.3 Fuel station:-

There are 3 petrol pumps and two LPG godowns in Ottappalam municipality. Petrol pumps located in wards Kanniyampuram Theruvu, Thenadi Bazar and Railway Station. LPG supply centres are situated in Cherikkunnu and Palappuram . As per UDPFI guidelines, one petrol pump serves for 150 ha of residential area and an LPG gas godown serves 45000 - 50000 population. Ottappalam municipality with a 1384 Ha of residential area requires 9 petrol pumps. The number of LPG go downs are satisfactory but number of petrol pumps to be increased to meet the demand. Details of the fuel stations and LPG go down are given in the Table.9.7 and spatial distribution of fuel station is shown in fig 9.19.

Table 9.7 Details of Fuel Stations and LPG Go downs

Sl. No.	Name	Location	Ward	Extent	Capacity / Service Area		Remarks
					Petrol	Diesel	
Petrol Pump	Vasantha Petrol Pump	Kanniyampuram	10/3076, 307	53 cent	35,000 kL	40,000 kL	Workers-15 Toilet -1 Bore well, well (IOCL)
	M/S EP petroleum Agencies	Ottappalam	8/1237	30 cents	20,000 kL	15,000 kL	Workers – 7 Toilet – 2 (HP)
	M/S Prabhath Agencies	Ottappalam	8/408	20 cents	18,000 kL	15,000 kL	Workers – 10 Toilets – 1(HP)
LPG Godown	Bharath Gas Agencies	Kumbidi Bazar, Ottappalam	26/1390 & 26/1391	10 cents	12000kg, 836 cylinder	Pathirippala, Koonathara, Thrikkedri, Ananganadi & Mayannur.	
	Sathyam Indane Service	Thottakkara, Ottappalam –	16/144	49 cents	900 cylinder	Pazhayannur, Ottappalam Nagarasabha, Elanadu, Nellaya, Mankara, Koonathara, Kongad, Chelakkode, Kottappuram, Sreekrishnapuram, Vallappuzha.	







Fig 9.19Spatial Distribution of Petrol Pumps/LPG Go downs

9.4.4 Crematoria and Burial Ground

There are three crematorium owned by municipality ,located near Bharathapuzha having an extent of 95 cents , near trenching ground at Panamanna (54 cents) , Mulappalli manakkal (79 cents). In addition to these there are two other burial grounds owned by religious institutions. These are Christain cemetary at Veettampara and Kahabarsthan at Thottakara Muslim Mosque. Spatial distribution of crematorial and burial ground is shown in the Figure. 9.20.

9.4.5 Communication Facilities

Communication facilities mainly includes post office, telephone service, internet facilities and fax services. As per UDPFI guidelines one post office is required for 10000 - 15000 population. There are 3 post offices in the municipality and it is capable to serve the requirements of the municipality. Spatial distribution of communication facilities are shown in the Figure 9.21.

BSNL is the major service provider in the town. Only one telephone exchange is present in Ottappalam municipality. There are three post offices in the municipality. Telephone exchange is located in ward Kanniyapuram UP school and post offices are located in Arikkapadam, Railway Station and Kanniyampuram UP School ward.



Post office

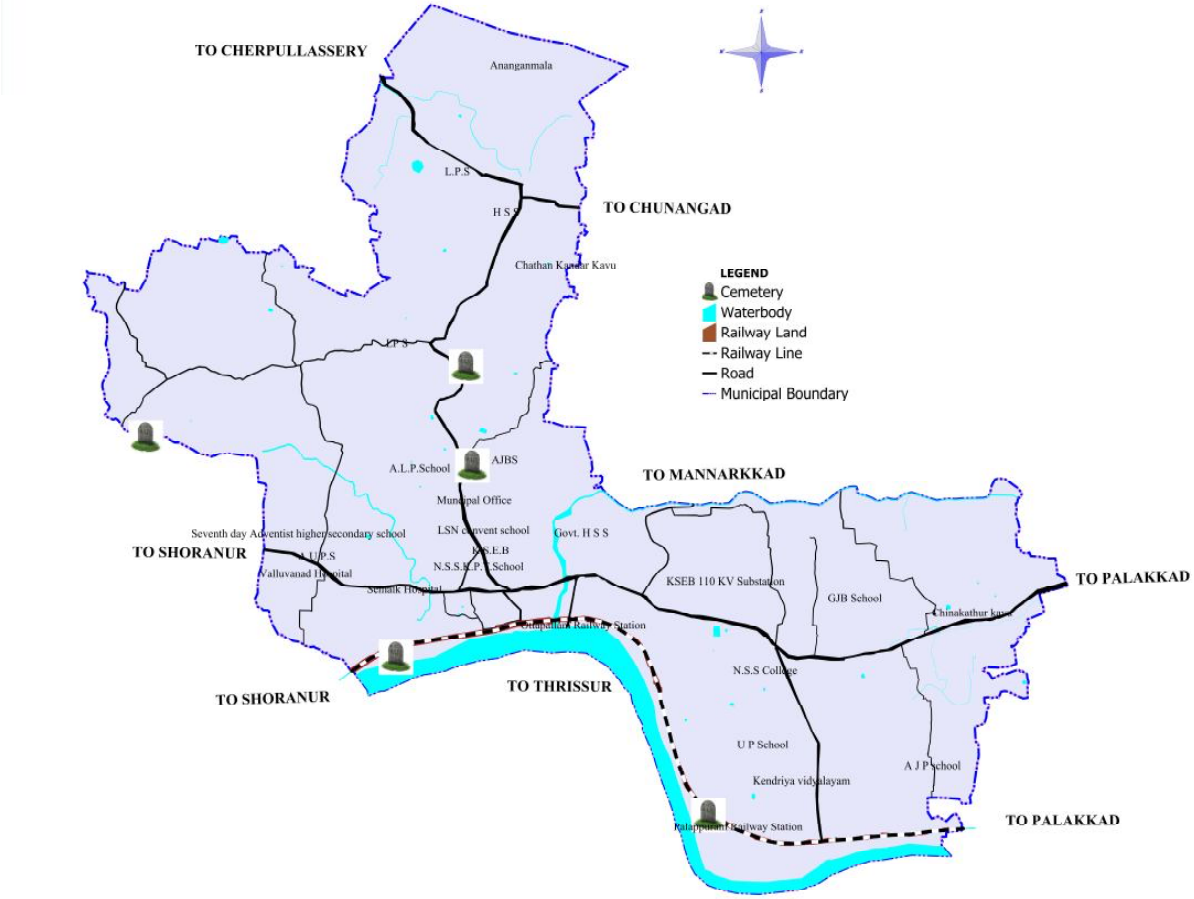


Fig 9.20 Spatial Distribution of Cemetery/Burial Ground



Fig 9.21 Spatial Distribution of Post Office and Telephone Exchanges

9.4.6 Comfort Stations

There is one comfort Stations at Ottappalam Municipal bus stand seperate blocks for men and women and Two E toilets ,one near Taluk Office and one at south side of Ottappalam Bus stand.

9.5 HOUSING

Housing is an activity which is mainly driven by individuals to provide itself with an appropriate shelter. Housing is not merely confined to the four- walls which make a house but also all supporting infrastructure which are required to sustain the human beings in terms of physical & social infrastructure The rapid increase of population and the slow evolution of single family system have increased the need for housing in cities and towns.

9.5.1 Existing Housing Stock

In Ottappalam municipality there are 36 wards. Almost 36.69 % of the total land in the municipality is of residential use. As obtained from the socio economic survey the average size of households in 2011 is 4. and majority of houses are having plinth area of 20 to 75 m^2. The decreasing trend in HH size reveals increasing trend towards nuclear families in the city due to improved economic status. About 50.85% of the houses are pucca. 91.94 % of the people are having their own land. As per socio economic survey only 2.3% of the total housing are coming under kutcha and hut. Almost 45.77% of the total houses are moderate type. Spatial distributions of different types of buildings are given in the Figure 9.22.



Fig 9.22 Ward wise distribution of housing types

9.5.2 Land Tenure

Land tenure reflects relationships between people and land directly. Details of Operational Holdings of Municipalty are shown in the table 9.8

Table 9.8 Municipality wise distribution of Operational Holdings- Agricultural Census 2010-11

Scheduled Caste		Scheduled Tribe		Others		Institutional		Total	
No. of Holdings	Area of Holdings	No. of Holdings	Area of Holdings	No. of Holdings	Area of Holdings	No. of Holdings	Area of Holdings	No. of Holdings	Area of Holdings
1223	16185	0	0	7637	431717	57	8966	8927	456868

From the socio economic survey we can see that most of people have their own land for housing. This is shown on Figure 9.23.

As per Census 2011, there are 12,484 households in Ottappalam municipality. The total number of houses in the municipality is 14933. As per socio economic survey obtained the average size of households in 2012 is 4.18.

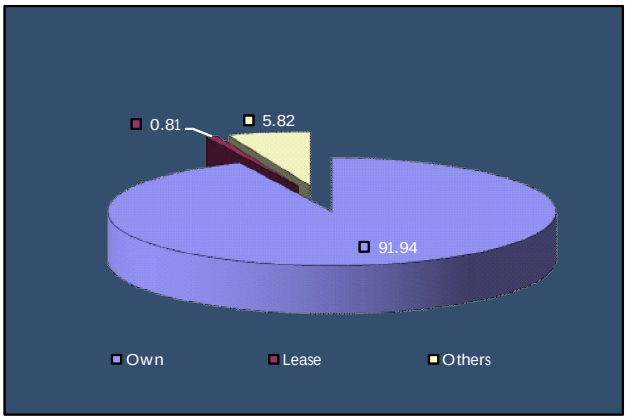


Fig 9.23 Land ownership details

9.5.3 Housing Shortage

By considering the total number of houses including those coming under Kutcha category and the total number of households the housing shortage is obtained. As per socio economic survey total number of kutcha and hut houses comes to 3.55% of the total houses.(Fig 9.24) The houses which require replacement comes to approximately 370 numbers.Fig 9.25 shows percentage Houses in each range of plinth area,% Variation for different Types of Wall and floor is shown in Fig 9.27 and 9.28

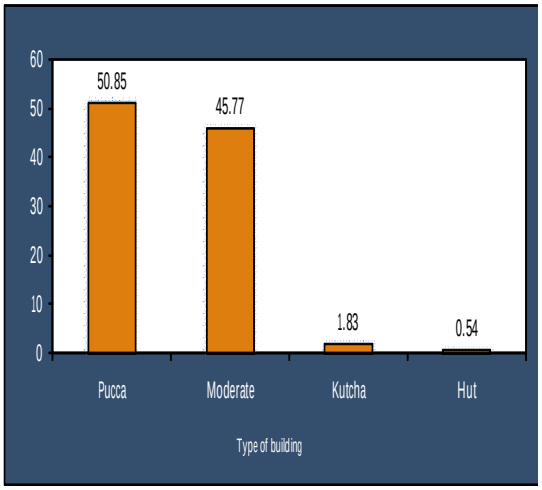


Fig 9.24 % of Different Types of Buildings

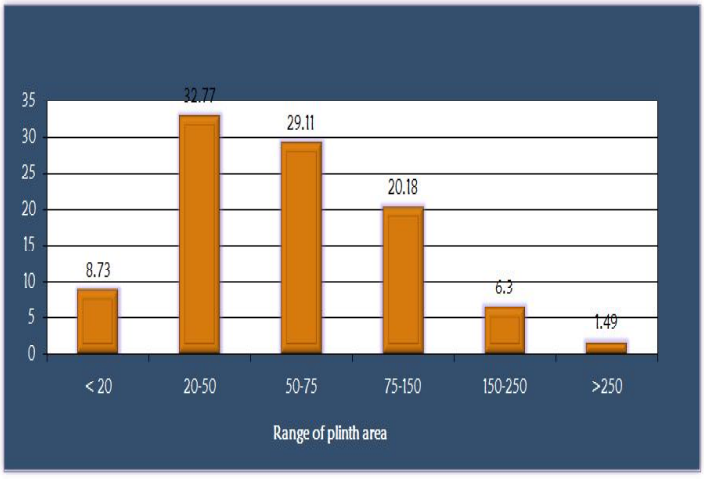


Fig 9.25 % of Houses in Each Range of Plinth Area

9.5.4 Type of Housing Structures

The residential houses are broadly classified into three categories namely pucca, moderate and kutcha according to the construction material used and considering the durability of structure. According to the socio economic survey the majority of houses are either pucca or moderate type. The houses are classified as pucca and moderate depending on the type of roofing provided.

Therefore this does not reflect the actual structural stability of the building. The kutcha buildings are structurally poor and need reconstruction according to the modern standard of convenience. The moderate houses will last some more years if suitably and timely maintained. Nearly 58% houses are having ordinary tile / cement floors and 17% mosaic / marble floors.

There are 12484 households in Ottappalam municipality as on 2011 and at present, total number of houses in the municipality is 14933 and all are occupied by owner, or otherwise given for rent. The data shows that number of houses in the municipality is more than the households, Hence it is assumed that there may be a chance of more than one houses owned by some of the high/middle income group population. There are 356 Kutcha houses.Hence the number of houses to be replaced **356 Nos.** In addition to this, it is assumed that around 50% of the moderate houses has to be replaced by horizon period 2031.i.e. 5742 x 50% = **2871 Nos**.Deccadal variation of population and house holds is shown in table 9.9 and Fig 9.26 .

Table 9.9 Decadal Variation of population & HH size

Census Year	Population	No of House holds	HH size	No of Houses
1981	37541	6386	5.88	7195
1991	44186	7938	5.57	7762
2001	49242	10130	4.86	10871
2011	53755	12484	4.31	14933

Census 1981,1991,2001,2011

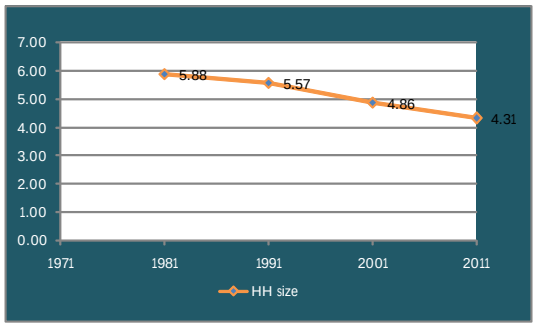


Fig 9.26 Decadal Variation of HH size

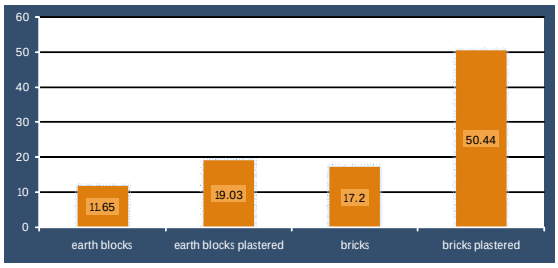


Fig 9.27 % Variation for Different Types of Wall

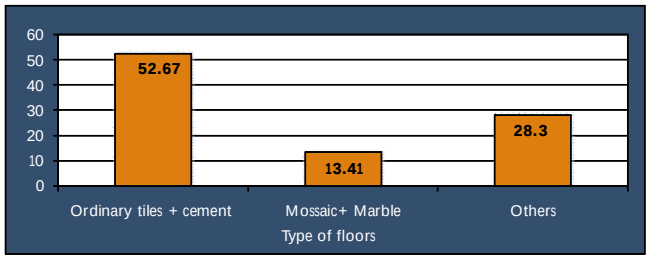


Fig 9.28 % Variation for Different Types of floor

9.5.5. Slums and other sub - standard housing

The Integrated Housing and Slum Development Project (IHSDP) is a scheme undertaken by the municipality tackle the problems in a holistic way adopting a multi pronged approach of improving the living condition and enabling construction of affordable housing for slums . The objective of the scheme is to provide basic services viz. solid waste management, water supply, improvement of slums, construction and improvements of drains/ storm water drains, sewerage, drainage, street lighting, health care etc. to the urban poor in the cities covered under the Mission

In Ottappalam municipality there are 40 listed slums taken under IHSDP project (fig 9.30) which covers an area of nearly 429 hectares. The slum covering the largest area (64Ha) is Kanjirakadavu in ward 11. Slum in Mooppanthara colony have maximum number of houses and it is 170 nos. Highest number of slums is seen in ward number 5.



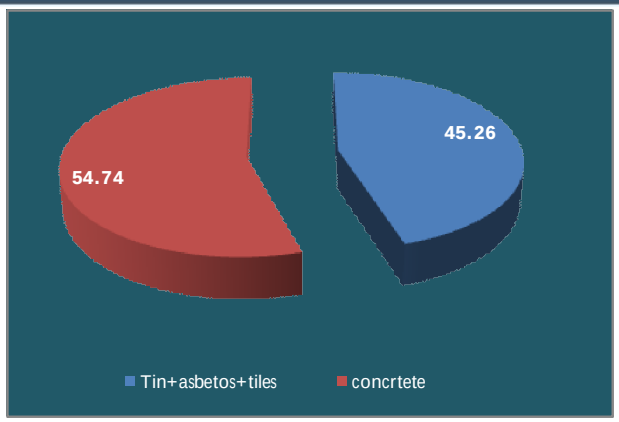


Fig 9.29 % Variation for Different Types of Roofs

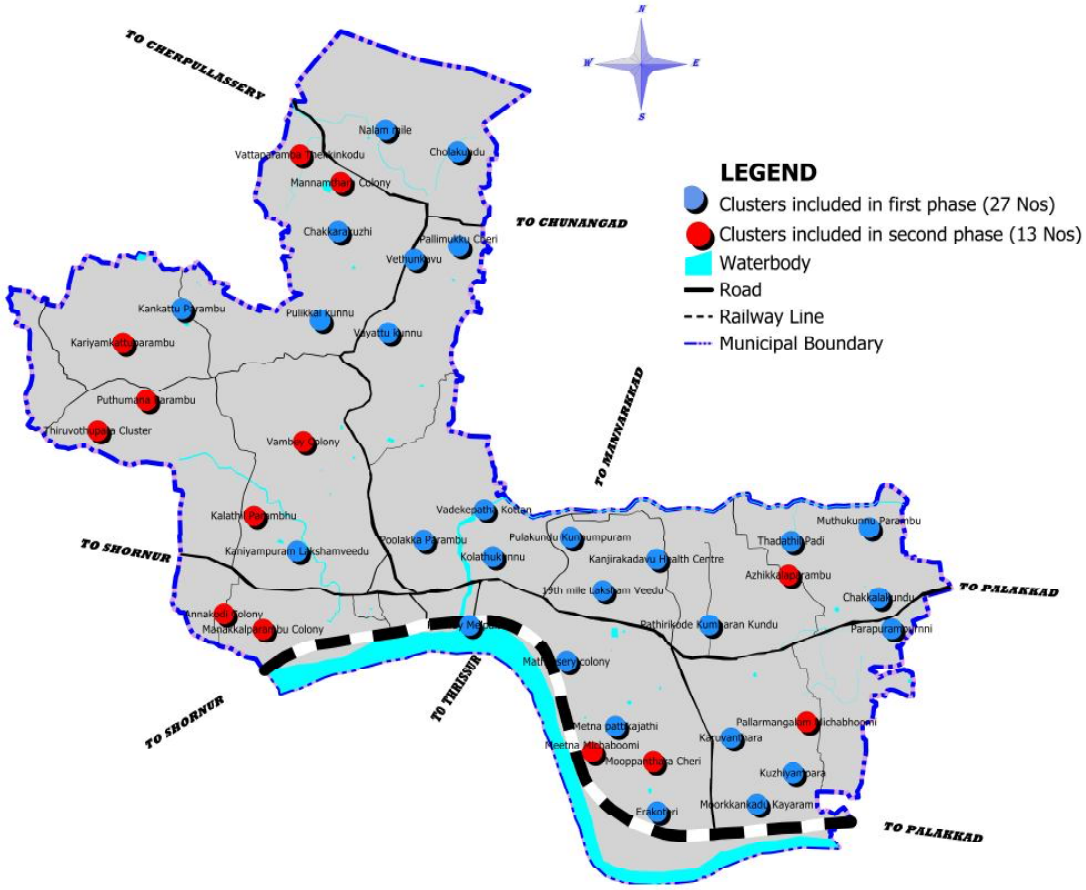


Fig 9.30 Location Map of slums identified for IHSDP

Details of slums and its infrastructure details are shown in table 9.10. Most of the listed slums in the municipality have good infrastructural facilities. The total population of slum is 5508 which is 10.24 % of the city population. There are 2130 numbers of households in slum area . About 100% households are facilitated by water supply, 30% by latrine facility .Lack of community halls, open spaces and social infrastructure with in slum is root cause of non intellectual development. As per census 2011 there are no slums in Ottappalam Municipality.

Table 9.10 Infrastructural Details of the Slums

Sl. No	Name of slum	Ward No	No of houses	No of HHS	Population	Housing condition			No of HH withoutToilets	Water availability status			
						Pucca	Semi pucca	Kutcha		Open well	Bore well	Piped Distributio	Others
1	Chakkarakkuzhi	36	29	30	150	20	4	5	10	0	1	0	15
2	Cholakkundu	2	36	38	250	17	13	6	8	0	1	1	5
3	Fourth mile	1	27	27	124	17	2	8	14	1	1	1	0
4	Vethum kavu	3	18	19	80	15	2	1	2	0	0	1	1
5	Molukurissy vayyattuparambu	3	42	47	166	22	13	7	12	0	1	0	1
6	Poolakka parambu chery	7	48	54	245	26	16	6	15	0	0	1	5
7	Vadakkepatha kollen colony	8	25	28	118	21	4	0	3	0	0	0	0
8	Kolothu kunnu	9	63	74	293	35	24	4	19	0	0	0	3
9	Pookala parambu kunnumpuram lakshaveed colony	10	40	4	198	5	2	33	34	0	1	0	0
10	19th mile laksham veedu	10	21	21	95	1	0	20	20	1	0	0	0
11	Kanjirakadavu Health centre chery	11	56	65	300	39	11	6	21	0	0	1	0
12	Pathirakode Kumbaran kundu	14	22	23	91	13	3	6	9	1	0	1	5
13	Thadathil pady	13	37	42	190	26	8	3	8	0	0	1	7
14	Chakkalakundu	15	62	63	221	34	17	11	13	0	0	1	8
15	Muthukunnu parambu Colony	13	48	51	235	32	10	6	17	0	0	0	4
16	Parampoornai colony	16	22	23	110	11	4	7	8	0	1	1	3
17	Kuzhiyampara colony	19	54	61	276	20	16	18	29	0	0	1	8
18	Karuvanthara chery	20	20	24	129	14	6	0	6	0	0	0	1.5
19	Moorgan kadu Kayarampara	19	69	76	320	46	9	14	21	1	0	1	5
20	Erakkottiri chery	21	30	32	158	14	12	4	10	2	0	1	3
21	Meetna Pattikajathi colony	22	67	73	228	48	12	7	17	1	1	1	2
22	Mathassery	24	74	74	315	45	28	1	64	1	0	0	3

To be continued.....

Table 9.10 continued

Sl. No	Name of slum	Ward No	No of houses	No of HHS	Population	Housing condition			No of HH withoutToilets	Water availability status			
						Pucca	Semi pucca	Kutcha		Open well	Bore well	Piped Distribution	Others
23	Railway melpalam chery	24	48	49	230	23	16	9	10	1	0	1	0
24	Kanniyam puram laksham veedu	29	48	48	221	21	16	11	11	1	0	0	3
25	Kunkattu parambu	34	37	40	206	18	10	9	18	0	0	0	0.75
26	Pallikkal kunnu chery	35	44	44	200	30	12	2	2	2	0	1	0
27	Vattapparambu Thekkinkodu	1	48	63	315	14	17	17	32	1	0	1	0
28	Mannamthara colony	1	43	53	276	28	10	5	14	0	0	0	0
29	Pallimukku chery	3	53	65	324	15	32	6	18	0	0	0	0
30	Azhikalaparambu	13	71	84	428	32	28	11	24	1	0	0	0
31	Pallarmangalam michaboomi	16	53	61	296	15	28	10	18	2	1	1	1
32	Mooppanthara cheri	19	146	170	860	62	58	26	50	1	0	0	0
33	Meetna michaboomi	20	72	84	403	25	33	14	26	1	0	0	0
34	Annakodi colony	26	54	66	304	29	10	15	27	0	0	0	0
35	Manakkalaparambu colony	26	67	73	380	33	24	10	16	0	0	0	0
36	Puthumanaparambu colony	27	42	46	235	18	21	3	7	1	0	0	0
37	Kalathil parambu	28	57	69	359	17	29	11	23	0	0	0	0
38	Thiruvorthupara colony	29	53	63	309	19	24	10	20	1	0	0	0
39	Kariyam kattu parambu	30	48	50	235	22	27	5	7	1	0	0	0
40	Vambey colony	32	44	53	254	37	5	2	11	0	0	0	0

Source : Municpal Office ,Ottappalam

9.5.6. Inference

Around 80% of the developed area is under residential use. There should be proper planning to upgrade the infrastructural facilities of slums like sanitation, waste disposal, water and electricity. Implementation of IHSDP project within Municipality has almost improved the living conditions of all slums in the Municipality. As households are considered, number of houses are more . But 356 kutcha houses existing at present are to be replaced .

10. SPECIAL CONCERN AREAS

Each planning area is unique in it and has got areas of special concern that demands attention; physically, economically and socially. In this chapter the special areas of concern for the planned socio economic development of the town is discussed.

10.1 SOCIAL BACKWARDNESS & POVERTY



Poverty is a social phenomenon in which a section of the society is unable to fulfil even its basic necessities of life. Poverty continues to prevail among the downtrodden and depressed sections of the people. It is often concentrated in certain segments of the society, generally defined by region age or social group. Socio economic inequalities between place and people have sharpened over the years. In fact, poverty amid plenty is the world's greatest challenge.

Social backwardness of Ottappalam town is analyzed on the basis of following parameters

- BPL Household
- Scheduled caste and Scheduled tribe population concentration and literacy rate
- Spatial distribution of scheduled caste and scheduled tribe colonies

10.1.1 BPL Household

Below Poverty Line (BPL) is an economic benchmark and poverty threshold used by Government of India to indicate the economic backwardness and to identify individuals and households in need of government assistance. Kerala is one of the states that had formulated its own criteria. In Kerala, there are nine parameters taken, and a family that lacks to four or more parameters are classified as BPL. (Table 10.1)

Table 10.1 List of parameters for classification of BPL

Sl. No	Parameters
1	No land or less than 5 cents of land
2	No house or dilapidated house
3	No sanitary latrine
4	Family without colour television
5	No regular employed person in the family
6	No access to safe drinking water
7	Women headed household or presence of widows or divorcee
8	SC and ST
9	Mentally retarded or disabled member in the family

Source: BPL survey ,2009

In Ottappalam municipality, 5428 families have been categorized as BPL and a third of the BPL households are concentrated in 17 wards. The existing economic standard of people as obtained from the socio economic survey is that the average monthly income is Rs 8898.5 and the average monthly expenditure per house is Rs 7605. This gives an insight into the economic status of the people of Ottappalam municipality. The earning capacity is very less. The BPL population is quite substantial and constitutes 43.48% of the total households in the municipality. There are wide variations in the number of people living below poverty line across the wards. Ottappalam Town has the lowest percentage of 7.71 while Pallarmangalam ward has the highest percentage (82.81) of BPL households in the municipality. Palappuram theruvu(13), Varode (Kolatheparambu), Kanaiyamburam theruvu (25), Railway station(23), Cherukunnu (4), Erakkotteri(19), Veetampara(33), Panamanna Vattanal(30), Varode Karumkutti(2), Meetna(20) and Pallarmangalam(16). BPL concentration is more were the agricultural activity is more. Wardwise BPL households are shown in Table 10.2 and BPL population concentration is shown in Fig. 10.1.

Table 10.2 Ward wise number of BPL Households

Ward No	Ward Name	BPL Household	Percentage
1	Varode Kolotheparambu	163	50.8
2	Varode Karumkutti	225	60.6
3	Varode Chathankadarkavu	179	47.0
4	Cherikunnu	207	52.4
5	Mayilumpuram	109	34.1
6	Thotakkara	126	32.6
7	Palatturoad	31	8.8
8	East Ottapalam	75	27.3
9	Kolothkunnu	86	28.9
10	Poolakundu	140	27.7
11	Kizhakekad	124	49.6
12	Pathirakode	207	48.8
13	Palapuram Theruve	253	50.6
14	Chakalakundu	174	41.0
15	Appepuram	190	48.6
16	Pallarmangalam	241	82.8
17	NSS College	189	48.7
18	Kayarampara	186	47.8
19	Erakotteri	297	58.0
20	Meetna	255	66.2
21	Postal Quarters	140	39.2
22	Kumbaramkunnu	136	45.3
23	Railway Station	146	52.0
24	Ottapalam Town	27	7.7
25	Kanniyampuram Theruvu	208	51.4
26	Kiillikavu	112	25.6
27	Kanniyampuram UPS	131	32.0
28	Kaniyampuram Vayanasala	147	34.8
29	Panamanna Vayanasala	180	48.6
30	Panamanna Vattanal	197	60.2
31	Asupathripadi	72	18.4
32	Kummanpara	238	49.5
33	Veetampara	237	60.2

Source: BPL survey ,2009



Fig 10.1 Ward wise BPL population concentration(Source: BPL survey ,2009)

10.1.2 SC/ST Population Index

Palakkad is a socially backward district. According to the 2011 census, SC/ST population constitutes to 16.11% of the total population in the district out of which 14.37% are SC's and the remaining 1.74% are ST's. SC population constitutes nearly 8.86% of the total population in the Ottappalam municipality whereas ST population is very meagre and constitutes just 0.16% of the total population. The temporal variation of SC/ST population from 1991 to 2011 is given in Fig. 10.2. The

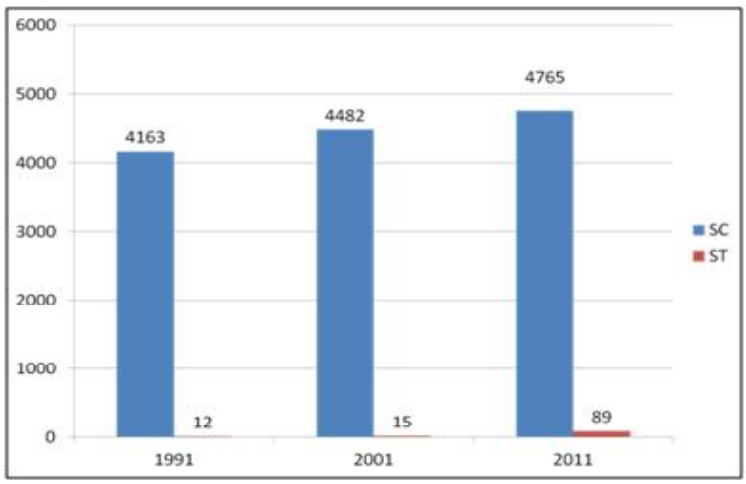


Fig 10.2. Temporal variation of SC/ST population (Source: Census)

trends have shown that both the SC and ST population has increased over the years. The SC population has increased by 14.46% and ST population by 7 times over the past three decades. But the ST population is far below the SC population.

The SC population concentration and ST population concentration in the municipality are given in Fig 10.3, 10.4

respectively. The SC population is mainly concentrated along the eastern side of the municipality. Ward 14 (Chakalakundu) and Ward 16 (Pallarmangalam) is having the maximum SC concentration. Although the ST population is very less when compared with that of the SC, their population is mainly concentrated in Ward 2 (Varode Karumkutti) along the Anangamala region and Ward 23 (Railway station ward). Higher BPL concentration is observed in the wards having higher concentration of SC's and ST's indicating the social backwardness of the group. Agricultural labourers were also observed to be predominant in these wards.

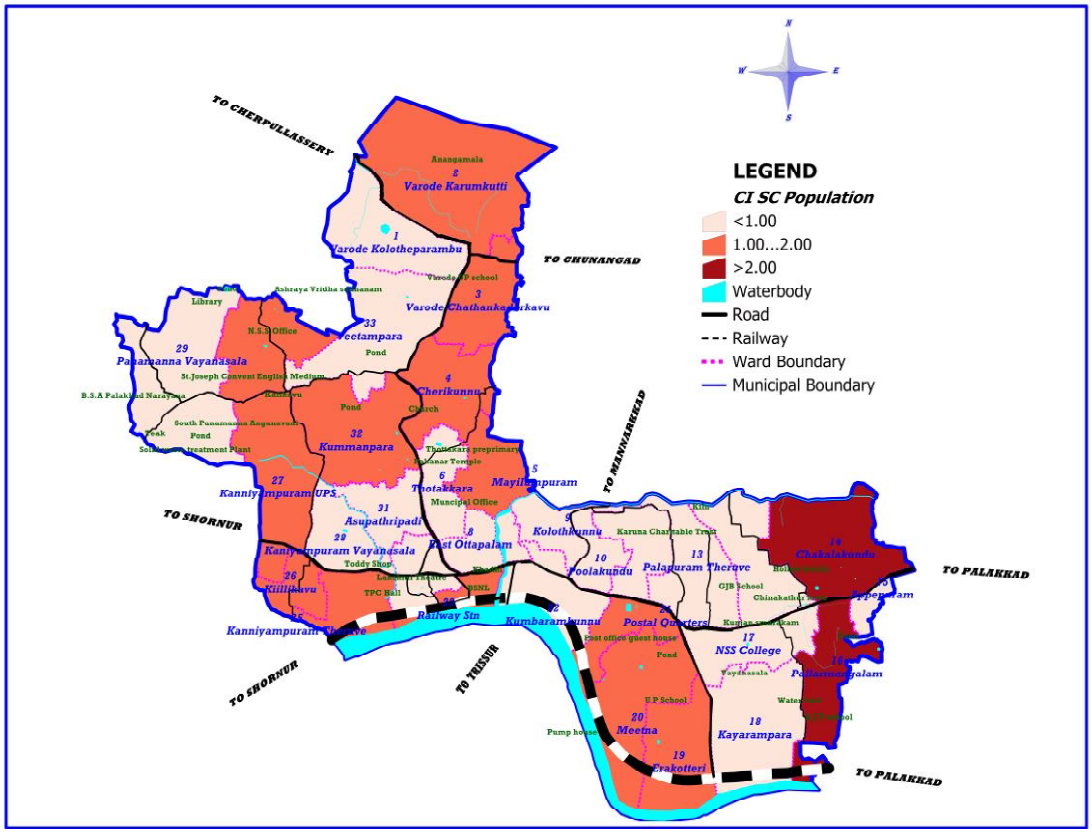


Fig 10.3. SC Concentration Index

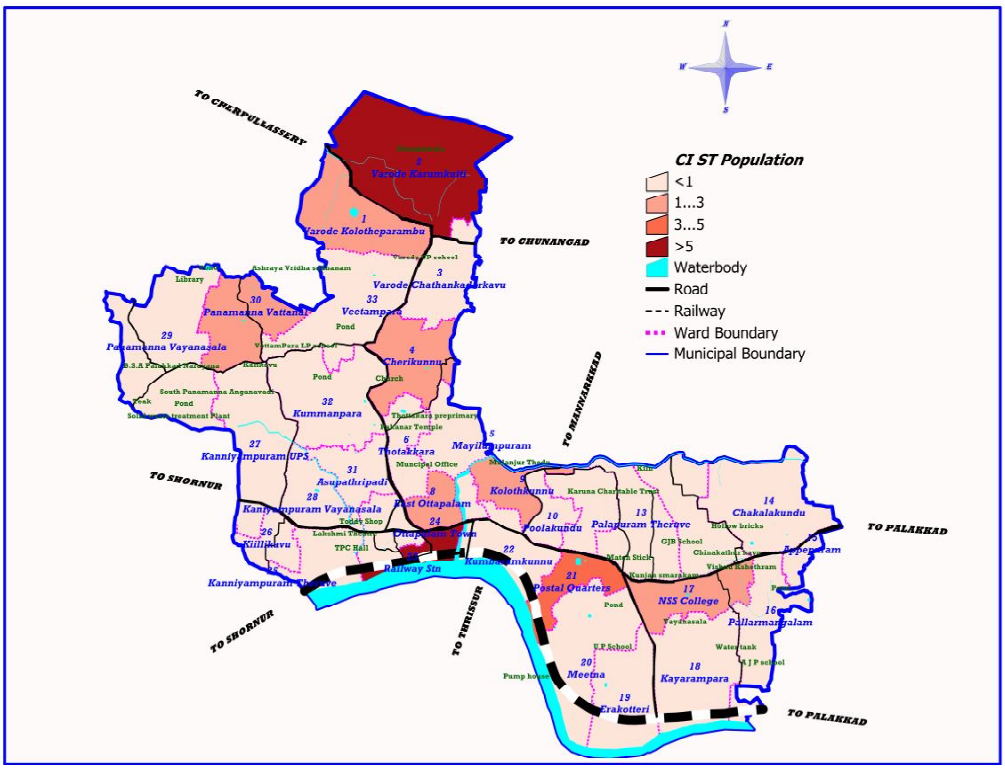


Fig 10.4. ST Concentration Index

10.1.3 General condition of SC/ST population

There are a total of 71 SC/ST colonies in the municipality comprising of 635 houses and 55% of the total SC population in the municipality are residing in these areas. According to the socio-economic survey, 98.6% of the houses in these colonies are electrified. However the functional toilet facility is available in only 80% of these houses.

Sex Ratio

Compared to the overall sex ratio of the municipality, the sex ratio among SC's and ST's are low. The sex ratio among the SC's have shown a clearly declining trend from 1108 in 1991, 11 points lower to 1097 in 2011. The sex ratio is 978 for ST as per census 2011. The variations of sex ratio for SC's over the last three decades are given in Fig 10.5.

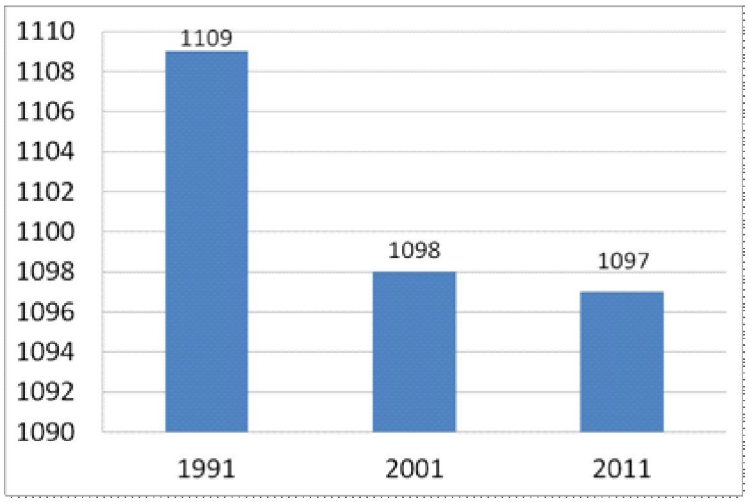


Fig 10.5. Temporal variation of SC sex ratio

Literacy

Literacy rate of SC population in Ottappalam municipality according to the 2001 Census is 81.24%. This is low as compared to the overall literacy rate, 94.63% of Ottappalam municipality. However the literacy rate has increased over the previous decade. On the basis of gender, 86.8% of the males and 76.28% of the females among the SC's are literate. But when compared to the previous decade, the gap has deceased (Fig. 10.6). In the case of ST's, there is no major cause of concern as all the 15 people living in the municipality according to the 2001 Census are literate.

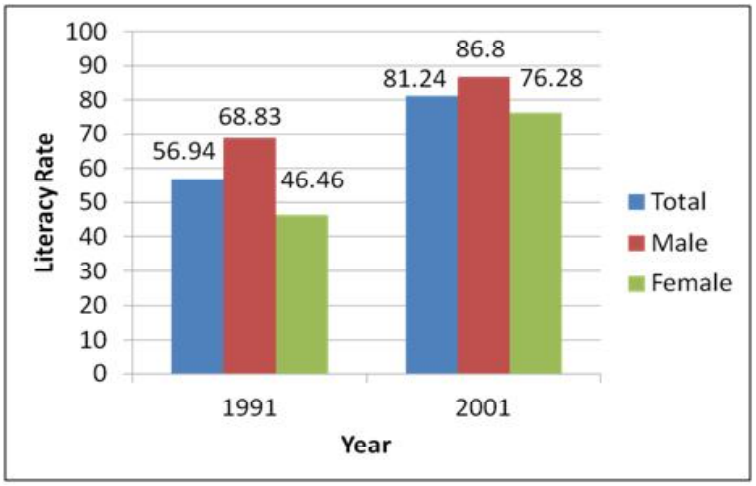


Fig 10.6 Decadal variation of literacy rate of SC population

10.1.4 Scheduled Caste Colonies

SC/ST colonies are areas which require special attention as the living conditions are comparatively poor. The BPL distribution shows that most of them are concentrated away from the urban centres where agricultural labourers and cultivators are predominant. So there is need to provide basic infrastructure facilities to each colony to upgrade the living condition. The BPL population and SC/ST populations are concentrated more or less in the same wards where there is high concentration of agricultural labourers and cultivators. But the high income population occupied those lands where land value is more which is linked with accessibility.

In Ottappalam Municipality there are 71 SC colonies and details of SC colonies are shown in table 10.3. There are 635 houses in 71 sankethams total population being 2646 .The total Sc population of Municipality is 4675 persons as per Census 2011. 57% SC people are living in colonies.

Table 10.3 Details of Sc colonies

Sl No	Item		Nos
1	Total No of Sangethams		71
2	Total No of Families		635
3	Male population		1290
4	Female population		1356
5	Total population		2646
6	Toilet facility not avialabe for		122
7	Piped water connection	Fully	128
8		more than 6 months	141
9		less than 6 months	73
10		Scarcity	0
11	Not electrified		139
12	No street light facility for		8 sankethams
13	No of Landless & Houses less families		4

Source: SC Survey , 2009-10

Other facilities extended to S C students are Post Metric hostel , Pre Metric hostel and Model Residential school.

10.1.5 Inference

The SC/ST population are mainly concentrated in wards having greater concentration of agricultural labourers and cultivators. This indicates that the socially backward communities are mostly engaged in primary activities like agriculture. Government's financial assistance for education at all levels and reservations in educational institutions was found effective as their education status has also improved over the years.

In spite of several initiatives taken towards poverty alleviation, there are several critical issues and challenges remaining unsolved. The analysis clearly reveals that the planned development of the town has to be achieved by giving due consideration to economically and socially backward sections of the community.

10.2 POVERTY ALLEVIATION PROGRAMMES

Urban Poverty alleviation involves: (i) upgrading the physical environment in poor settlements by providing basic services such as water, sanitation, waste collection, storm drainage, access roads and street lighting; (ii) regularizing security of land tenure and housing; and (iii) instituting a social support program focused on promoting sustainable livelihoods through the accumulation of natural, physical, human, social, financial as well as institutional and knowledge/information assets.

The State Poverty Eradication Mission (SPEM)- Kudumbasree started in the year 1998 aims at eradicating absolute poverty within 10 years under the leadership of the Local Self Govts in Kerala. As per the Section 284 of the Kerala Municipality Act 1994, 2% of the income of each ULB is to be spent for Urban Poverty Alleviation Programme. The ULBs are transferring such amount to the CDS annually, as its share for UPA budget. The other sources of income to the CDS for UPA activities, include the transfer from GOK under Kudumbasree centrally sponsored UPA programmes and institutional finance for Self Help Groups.

10.2.1 Major Poverty Alleviation Interventions

IHSDP project

The Integrated Housing and Slum Development Program (IHSDP) targets the poor living conditions of slums and clusters in cities and towns and attempts to improve the housing stock and basic infrastructure and coverage service delivery to the poor. The program runs on a project mode.





Completed Projects under IHSDP

The financing pattern is in the ratio of 80:20 by Central and State Governments. Beneficiary share (12% for General and 10% for SC/ST) is stipulated for beneficiaries of housing projects. Out of 20% State share the balance fund after deducting beneficiary share will be borne equally by the ULB and State (Maximum state share is 10% of the total Project Cost). The total allocation to the State during the mission period from 2005-06 to 2011-12 is Rs.273.315 crores. There are 53 IHSDP projects running in 45 cities / towns in of Kerala.

The components for assistance under IHSDP include all slum development / up-gradation/relocation projects including new house construction/ up gradation of houses and infrastructural facilities. Components under IHSDP are:

- Provision of shelter including up-gradation & construction of new houses
- Provision of community toilets
- Provision of physical amenities like water supply, storm water drains, community bath, widening and paving of existing lanes, sewers, community latrines, street light etc.
- Community infrastructure and social amenities like provisions of community centers to be used for pre-school education, non-formal education, Adult education, recreational activities, and Community Primary Health care centre Buildings.
- Provision of Model demonstration projects
- Slum improvement and rehabilitation projects

Table 10.4 Status of IHSDP as on 30.11.11

No	Phase	DU s Sanctioned-New/Upgradation	In Progress	Completed
1	I	607	28	567
2	II	619	149	325

Source: www.kudumbashree.org

Swarna Jayanti Shahari Rozgar Yojana.

Swarna Jayanthi Shahari Rozgar Yojana was introduced by Government of India in all urban local bodies to alleviate urban poverty. The main objective of SJSRY is to provide self-employment and wage employment to unemployed urban poor. Community Based Organizations in partnership with local bodies and women's Self Help Groups are the implementing agencies of this scheme. This scheme is applicable not only to urban slums but also to urban poor who do not live in slums. Under SJSRY, funds are provided by Central and State Government in ratio of 75:25.SJSRY consists of two special schemes – Urban Self Employment Program (USEP) and Urban Wage Employment Program (UWEP). USEP provides assistance for setting up gainful employment for individuals, DWCUA /women groups and Thrift and Credit Societies (T&CS), training to individuals/groups for up gradation of vocational and entrepreneurial skills, and infrastructure support (setting up community service centres) for setting up micro-economic enterprise models. UWSP, on the other hand, provides direct wage employment by undertaking construction of durable community assets.

10.2.2 Urban Poor programs in Ottappalam

Kudumbsree/UPA cell functions in Ottappalam Municipality also. A Community Development Society (CDS) and, under that, 32Area Development Societies (ADS) and 325 nos of neighbourhood groups /SHG s consisting 6500 members are functioning in Ottappalam. There are 17 group enter prises and 323 nos of individual enter prises in Municipality . Details of Kuudumbsree Group enter prises are shown in table 10.5

Table No 10.5 Details of Kudumbasree Group enterprises

Sl. No	Goup Enterprises	Sl. No	Goup Enterprises
1	Techno World Digital Technologies -IT unit	8	Rice batter unit
2	Clean Ottappalm - Cleaning Unit	9	Venma Laundry Unit
3	Vanitha Canteen	10	Powertek
4	Ecofriends Cleaning Unit	11	Kavilamma Tailoring unit
5	Cocconut oil manufacturing unit	12	Tender coconut Parlour
6	Nest cleaning unit	13	Santhwanam Mobile lab
7	Amritham Nutrimix	14	Guruvayoorappan Binding unit

Source: Development Plan Ottappalam Municipality 2012-17

Several programs are undertaken by the Kudumbsree sub units for poverty alleviation through women's empowerment. Through the micro thrift program the women of Kudumbsree in Shoranur have been able to save an amount of 2.281 crore Rupees. Some units like Direct Maketing , MilkProduct unit,Haritha Arecanut leaves plate unit ,The Paper bag Unit , Janani Jankeeya Poster unit are not active now .Number and distribution of women self help groups in Ottappalam Municipality is shown in table 10.6.

Table 10.6 Number and distribution of women self help groups in Ottappalam Municipality

Sl. No	Ward	ADS No	Name	No of SHGs	Sl.No	Ward	ADS No	Name	No of SHGs
1	1	1	Anangan mala	10	11	11	8	Kizhakkekade	10
2	2	2	Varode	7	12	12	9	Pathirikode	8
3	3	3	Cherikunne	12	13	13	10	Azheekalapramabe	14
4	4	4	Thottakkara	9	14	14	11	Palappuram theruve	9
5	5	5	Mayilumpuram	11	15	15	12	Chinakathur kavu	7
6	6	5	Arikkapadam	4	16	16	13	Appepuram	11
7	7	5	Palatte road	1	17	17	14	Vallarmangalam	14
8	8	6	Kolothukunne	4	18	18	15	Perumkulam	10
9	9	6	East Ottapalam	14	19	19	16	Kayaramparam	10
10	10	7	Poolakunde	11	20	20	16	NSS College	2

Table continued----------

Table 10.6 continued ....

Sl. No	Ward	ADS No	Name	No of SHGs	Sl.No	Ward	ADS No	Name	No of SHGs
21	21	17	Erakkottiri	16	29	29	25	Kanniyampuram vayanasala	13
22	22	18	Meetna	15	30	30	26	Govt. Ashupathripadi	4
23	23	19	Postal quarters	5	31	31	27	Kummumpara	9
24	24	20	Kumbaramkunne	11	32	32	28	Kanniyampuram UP School	9
25	25	21	Railway stations	12	33	33	29	Panamanna vayanasala	16
26	26	22	Thennadi bazzar	4	34	34	30	Panamanna vattanal	11
27	27	23	Kanniyampuram	11	35	35	31	Veetampara	11
28	28	24	Killikave	10	36	36	32	Kolothparambe	10

Details of the distribution of funds as on 1-7-2014 are shown in table 10.7

Table No 10.7 Details of Centrally sponsored schemes

Sl. No.	Item	Total No. of Projects		No. of Projects Started	No. of Projects Completed	No. of Projects in Progress	No. of Projects not started	Allotment	Total	Expenditure up to 31-07-2014
1	IHSDP (PHASE I & II)									
	1) New House	535	475	385	150	68				
	b) Shelter Up gradation	700	690	690		10				
	c) Latrine Construction									
	d) Water Supply									
	Rain Water Harvesting									
	Pump Set									
	Well Repair	77	15	15		62				
	Bore Well						156371000		1.56E+08	1.3E+08
	e) Liquid Waste Management									
	a) Soak pit	1165	1165	904						
	Solid Waste Management									
	a) Bio Gas Tank	135	135	100	35					
	b) Vermi Compost	312	312							
	Roof Water Harvesting	1157	1157	992	165					
	Roads (NO. of Works tendered)	77	60	59	1	17				
2	NSDP						18598132		18598132	1.9E+07
3	VAMBAY	990	990	968	22		39600000		39600000	3.9E+07
4	SJSRY	USEP-04					2623197		2623197	
		UWSP-14	18	18			FFC-1300000		FFC-1300000	1791062
5	BRGF									
6	UPA & Others									
7	MN Lakshamveedu									
8	EMS	606	382	286	96	224	45301500		45301500	2.9E+07

Source: Ottappalam Municipality

10.3 SOCIAL SECURITY & WELFARE, WOMEN AND CHILD DEVELOPMENT

Social security is primarily a social insurance program providing social protection or protection against socially recognized conditions, including poverty, old age, disability, unemployment and others. Women, children, disabled and the aged are the most vulnerable sections of our society for historic and social reasons. Accident and crime data of Ottappalam Municipality for the year 2011,2012,2013 are shown in Table 10.8.

Table 10.8 Accidents & Crimes Data in Ottappalam Municipality

Sl. No.	Type of Case	Year			
		2011	2012	2013	2014 (Up to march)
1	Theft/ Robbery	27	37	24	8
2	Cheating	28	19	29	5
3	Violence against Women	59	72	58	14
4	Suicide/Death	56	107	98	19
5	Murder	3	7	5	0
6	Accidents	173	166	158	35
	Total Cases	565	1009	941	218

10.3.1 Social welfare Programmes and infrastructures

Social welfare schemes are introduced with the objective of benefiting various marginalised sections of the society. There are many schemes in place with central and state assistance .These schemes give ample support for aged, handicapped or orphan people, by way of pension provisions, insurance coverage and other benefits.For securing the lives of the poorest of the poor families, the Government of Kerala has introduced the Social Security Pension Schemes.. Currently, seven types of social security pensions are being distributed through local bodies . The types of Pensiona are agricultural labour pension., Destitute pension ,Wodow pension ,old age pension ,disability pension etc .The details of pension schemes and no of beneficiaries in Ottappalam Municipalty are shown in Table 10.9

Table 10.9 Pension schemes and no of Pensioners

Sl No	Name of scheme	No of beneficiaries	Amount in Rs
1	Agricultural Labour Pension	16	500
2	Indira Gandhi National Old Age Pension Scheme	103	500 with special criteria Rs 1100/-
3	Indira Gandhi National Disability Pension Scheme	16	700 with special criteria Rs 1000/-
4	Pension for the Unmarried Women above 50 years	6	700
5	Indira Gandhi National Widow Pension Scheme	176	700

Table No 10.10 Details of expenditure of pension funds

Sl. No.	Details of Pension Schemes	Expenditure in the period 2007-2012 (Rs)
1	Old age Pension	57,96,420
2	Disability Pension	46,13,100
3	Agricultural Labourers Pension	98,79,000
4	Unmarried women having age above 50	17,51,160
5	Pension for widows	1,33,21,800
6	Unemployment benefits	20,76,480
7	Amount given as scholarship for chidren with physical & mental retardness	16,97,000
	Total	3,91,34,960

Table 10.10 shows amount spent for each scheme during the period from 2007 to 2012. Total of three crores ninety one lakhs thirty four thousands nine hundred and sixty rupees were spent. Social degrading of women is a primary concern in all societies. Even though many advances were made in economical and social aspects, children living in lower class families still suffer mental and health problems. To reduce such problems among inhabitants, Ottappalam municipality is doing supply of balanced diet. To ensure health of children, youngsters, pregnant women, lactating mothers etc supply of such food items through anganawadis are helping a lot.

There are many socio - economic developmental activities were conducted in the municipality which includes Pension schemes, Asraya schemes, helping schemes for physically and mentally challenged persons etc. The depth of these problems prompts continuation of these schemes in the twelfth five year plan also.

There are three institutions- Kasthoorba Balika sadan at Palatt road, Dharul Khairath Orphanage, Subruth Bhavan orphange which accommodates 27 female chidren, 77 Male children and 32 male children respectively.



Houses of Asraya Scheme

ICDS Projects

I.C.D.S. is an integrated approach for the development of women and children from disadvantaged sections across the life cycle. ICDS Programme was conceived in Kerala since 1975 with an integrated delivery package of early child hood services so that their synergistic effect can be taken full advantage of the schemes. The Scheme targets the most vulnerable groups of population including children up to 6 years of age, pregnant women and nursing mothers belonging to poorest of the poor families and living in disadvantaged areas including backward rural areas, tribal areas and urban slums. The identification of beneficiaries is done through surveying the community and identifying the families living below the poverty line.

The scheme envisages the holistic development of women and children. A package of services is being rendered to women and children through ICDS Projects. The grass root level service delivery points are anganwadi centers. In each Anganwadi there is an Anganwadi Worker and Helper to look after the activities. ICDS projects provide supplementary nutrition, NHED, immunization andawareness on different subjects etc to women. These projects also provide a package of servicefor the development of children such asNon formal preschool education, Supplementary nutrition, Immunization, Health check-up, Referral services, Health and nutrition educationfor the developmentof children such asNon formal preschool education, Supplementary nutrition, Immunization, Health check-up, Referral services, Health and nutrition education Various welfare schemes ICDS programmes are under SNP, the Supplementary nutrition programme for Children and SABALA scheme for Adolescent girls (11-18), for their empowerment, especially in the tribal areas. Under this Scheme training is accorded to the adolescent girls regarding Education, Personal hygiene and other skill development programmes.

Children

- Supplementary Nutrition Programme (SNP)
- Immunisation
- Pre-School Education
- Health Check-up
- Referral Service
- Early Detection and Early Intervention of Childhood Disabilities (EDEICD)
- State Plan of Action for the Child in Kerala (SPAC)
- Balika Samridhi Yojana (BSY)

Women

- Kishori Sakthi Yojana (KSY)
- National Nutrition Mission (NNM)
- Nutrition Programme for Adolescent Girls (NPAG)
- Integrated Women Empowerment Programme (IWEP) or SWAYAMSIDHHA
- TAKE HOME RATION SCHEME (THRS)

There are 531 No's of beneficiaries i under the age group of 6 months to 3 years and 659 No's of beneficiaries under the age group of 3 to 6 years .Under SABALA scheme there are 969 No's of beneficiaries .Under IGMSY (Indira Gandhi Mathruthva Sahayog Yojana). It is a conditional Maternity benefit scheme for pregnant and lactating women. Benefit of Rs. 6000/- was given under this scheme. This Scheme for promoting health & nutrition improvements to pregnant and lactating women is implementing only in Palakkad District.There are 259 No's of beneficiaries in Pregnenat woman l category and 244 No's of lactating woman category

10.3.2 Status of Anganawadi

Aganwadi's are the grass root level service delivery point of social welfare activities. Anganwadi Center is the focal point for delivery of services which is managed by an Anganwadi Worker, assisted by a Helper. Both are honorary workers selected from local community. As per the criteria, there should be one anganwadi for 1000 population. There are a total of 42 anganwadies of which 30 are working in own buildings.Although Anganwadies are having toilets ,all toilets are not baby friendly . Spatial distribution of anganwadies in Ottappalam Municipaalty is shown in Fig 10.7.Details of Anganwadies are shown in Table 10.11

Table 10.11 Details of Anganwadies

Sl. No.	Ward No.	Name & Location of the anganawady	Extent in cent	No. of Children	No. of Worker	Ownership details Building	Compound wall	Electricity	Drinking Water	Toilet	Kitchen
1	16	Aappepuram,Chinakathurkavu	5	18	1	Owned	Yes	Yes		Yes	Yes
2	15	Chakkalakundu,Chinakathurkavu	10	15	1	Owned	Yes	Yes	Pipe	Yes	Yes
3	17	Pallarmangalam,Palappuram	5	18	1	Owned	No	Yes	Pipe	Yes	Yes
4	14	Palappuram, Pazhayapost	2	15	1	Owned	Yes	Yes	Pipe	Yes	Yes
5	18	Palappuram, Perumkulam	3	17	1	Owned	Yes	Yes	Well	Yes	Yes
6	14	Palappuram,Theruvu(Kumbaramkunnu-1	2	14	1	Owned	No	Yes	Well	Yes	Yes
7	11	Pathirikode, Sisu vihar Road	3	10	1	Rent	Yes	Yes		Yes	Yes
8	19	Kayarampara,C No.78(Near Kendriya vidyalaya)		19	1	Rent	No	Yes		Yes	Yes
9	21	Erakotiri,S.R.K.Nagar		18	1	Owned	Yes	Yes	Pipe	Yes	Yes(LPG)
10	21	Meetna, S.R. K. Nagar		21	1	Rent	No	No		Yes	Yes
11	22	S.R.K. Nagar, Near Subrahmanian Temple	8	15	1	Owned	Yes	Yes	Well	Yes	Yes
12	24	19 th Mile, Near Subramanian Temple	3	20	1	Owned	No	Yes		Yes	Yes (LPG)
13	10	Poolakkunnu	4.5	17	1	Owned	No	Yes		Yes	Yes
14	9	Kanjirakadavu Bridge Stop	5	15	1	Owned	Yes	Yes	Pipe	Yes	Yes
15	9	East Ottapalam,Chunangad Road	4	15	0	Owned	No	Yes		Yes	Yes
16	8	Ottapalam BRC		20	1	Owned	No	Yes		Yes	Yes
17	25	Near RailWay Station	5	15	1	Rent	No	Yes		Yes	Yes
18	25	Tile Company, R.S. Road, Ottapalam	5	17	1	Rent	No	Yes		Yes	Yes
19	30	Thottakkara, Ottapalam	3	10	1	Owned	No	Yes		Yes	Yes
20	5,6	Poolakkaparambu, Kinar Road	3	15	1	Owned	Yes	No		Yes	Yes(LPG)
21	4	Thottakkara, 1st Mile	4	16	1	Owned	No	Yes		Yes	Yes
22	35	Veettampara, Varode Post	2	11	1	Owned	No	Yes		Yes	Yes
23	3	Varode Shappupadi	3	15	1	Owned	No	No		Yes	Yes
24	3	Varode School	5	20	1	Owned	No	Yes		Yes	Yes
25	2	Kunduparambu Anganvadi, Varode	5	17	1	Owned	Yes	Yes		Yes	Yes
26	1	4th Mile, Varode	4	16	1	Rent	No	No		Yes	Yes(LPG)
27	1	Varode Attani	7	17	1	Owned	No	Yes		Yes	Yes
28	36	" Sangamam", Varode, Padinjattumuri	3	22	1	Owned	Yes	Yes		Yes	Yes
29	34	Deepthi Anganvadi, Panamanna South	7	15	1	Rent	Yes	No	Well	Yes	Yes
30	33	Manjaladipadi, Panamanna South	5	15	1	Owned	Yes	Yes	Well	Yes	Yes
31	34	Panamanna Vayanasala	5	11	1	Owned	Yes	No		Yes	Yes
32	29	Ottapalam Kanniyampuram Chempully Road	5	15	1	Owned	Yes	Yes	Pipe	Yes	Yes(LPG)
33	27	Kanniyampuram Street	3	17	1	Owned	No	Yes		Yes	Yes
34	28	Bharathapuzha Road-Kanniyampuram	3	15	1	Owned	Yes	Yes		Yes	Yes
35	32	South Panamanna Road		15	1	Owned	Yes	Yes		Yes	Yes(LPG)
36	15	Western Side of Chinakkathur Kavu	3	18	1	Rent	No	Yes		Yes	Yes(LPG)
37	11	19th Mile, Laksham Veedu	4	15	1	Owned	No	Yes	Well	Yes	Yes
38	12	Kumbarankundu-II, Palappuram		10	1	Rent	No	Yes		Yes	Yes
39	33	South Panamanna- Pavukonam Road	2.5	12	0	Owned	Yes	No		Yes	Yes
40	28	Near Killikavu		15	1	Rent	No	No		Yes	Yes
41	3	Cherikunnu, Varode	5	13	1	Owned	Yes	Yes	Pipe	Yes	Yes
42	24	Kumbarankunnu, East Ottapalam		15	1	Rent	No	Yes	Pipe	Yes	Yes

Source: ICDS ,Shoranur



Fig 10.7 Spatial distribution of Anganwadies

10.3.3 Inference

44 % of families of Ottappalam Municipality is below poverty line. There are certain areas of concern in the development of BPL population including Animal husbandry, Agriculture which have good potential in Ottappalam Municipality . Therefore the development programmes in these sectors should given priority to include the BPL population especially the SC/ ST and other socially weaker sections of the society.



Also, infrastructure facilities including safe drinking water, electricity,, solid waste disposal system etc. should be provided in the BPL concentration areas.

11. ENVIRONMENT



The quality of natural environment is directly related to the quality of life of inhabitants in the urban region. It is a critical determinant of the health of the inhabitants and consequent urban productivity. This is in turn determined by water and air quality. The ever increasing human population has placed tremendous burden on our natural resources. Due to excessive farming, use of chemicals, pesticides and excessive use of ground water, the natural resources have been badly affected. The emission of toxic fumes from the industries and automobile exhausts has deprived us of clean air. This industrialisation and a growing consumer economy have led to the problem of indisposed garbage and uncontrolled sewage.

The Kerala State Pollution Control Board (KPCB) is responsible for monitoring water and air quality. It includes under its purview, testing of both surface water and ground water and testing the ambient air quality. In this chapter an attempt is made to describe the present scenario of the natural environment of the town, the pollution levels and the spatial location environment sensitive areas.

11.1 PRESENT SCENARIO

Ottappalam municipality has an area of 1.37 km^2 in forest cover and 13.07 km^2 under agriculture. Due to the high vegetation cover and lesser percentage of industries the chances of pollution are comparitevely less in the peripheral areas. However the urban areas are witnessing the impacts of pollution in the form of degrading quality of air,water, natural resources and sound pollution.

11.1.1 Water Pollution

Water is an essential need of life. Hence the protection of it is very important. Water pollution is a major environmental issue in India.The discharge of untreated sewage is the single most important cause for the contamination of surface and ground water. Other sources include agriculture run off and emissions from unregulated small scale industries. Aquatic ecosystems are badly affected when pollutants are discharged directly or indirectly into water bodies without adequate treatment to remove harmful components. In almost all the cases, the effect is damaging not only to the individual species and populations, but also to the natural biological communities.

11.1.2 Water quality of surface water sources

Bharatha puzha is the only river passing through the southern limit of the municipality. Also called as river Nila, this river is fast becoming is fast becoming the health hazards for the people of several panchayaths and municipalities on its banks. An examination of water from the Kerala Water Authority has revealed that it was not fit for human consumption. The river is the source of drinking water for lakhs of people living on its banks from places east of Ottappalam to Ponnani in the West. Years of steady dumping of effluents, pollutants and waste into the river, from human habitats have contaminated the water of Bharatha puzha, which is already in the process of cruel sand mining and encroachments. The nearest water quality monitoring station in Bharatapuzha is at Parali. The water test result of Bharata Puzha river at Parali station is shown in Fig 11.1

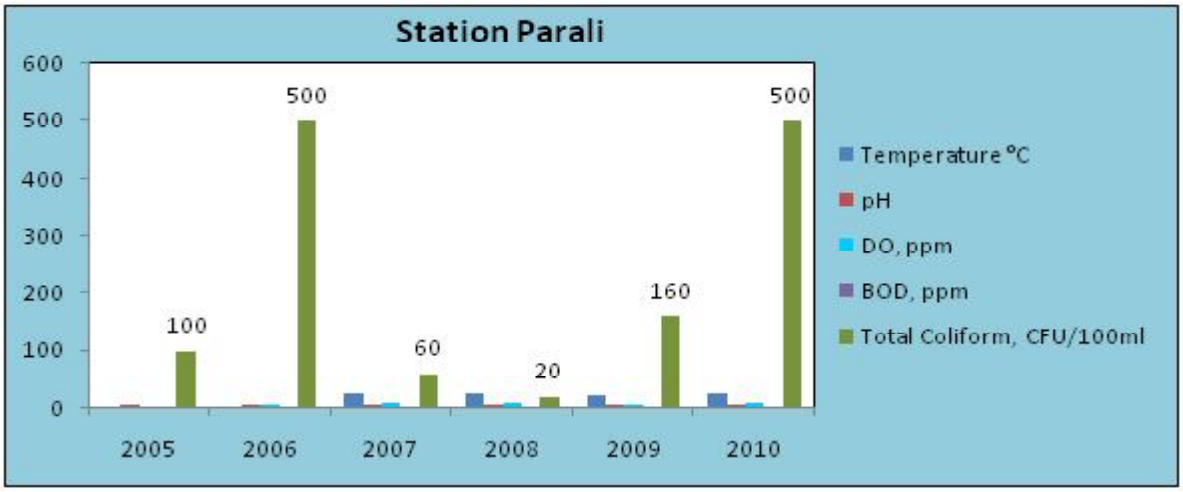


Fig 11.1 Water quality Parameters of Bharathapuzha river monitoring station Parali

It has been observed that there has been a rise in the total coli form levels during the last six years.

Ground water quality

Groundwater quality comprises the physical, chemical and biological qualities of ground water. It has been observed that some wells on the banks of Bharathapuzha and Near the Railway station are found to be polluted.

The quality of tap water obtained near the railway station is given in table 11.2. The results show high contamination of E. Coli, a major cause of food borne and water borne diseases. Not a health threat in itself, it is used to indicate whether potentially harmful bacteria may be present.

Table 11.1 Quality of water obtained from sampling stations of Bharathapuzha.

	At KUTTIPPURAM		Monthly Monitoring			Class - C		
2013	pH	Cond.	DO	BOD	Nitrate N	Amm-N	TC	FC
Unit		µmhos/cm	mg/l	mg/l	mg/l	mg/l	no/ 100ml	no/ 100ml
Max	8.1	160	7.6	1.4	0.32	0.1	1600	900
Min	7.3	77	6.2	0.2	0	0	80	4
Mean	7.69	107.08	6.86	0.72	0.14	0.01	443	255
Std. Dev.	0.25	26.41	0.35	0.44	0.12	0.03	454	276
Des: Lmt.	6.5 - 8.5		4	3			5000	
	At PATTAMBI		**Monthly Monitoring**			**Class - C**		
2013	pH	Cond.	DO	BOD	Nitrate N	Amm-N	TC	FC
Unit		µmhos/cm	mg/l	mg/l	mg/l	mg/l	no/100 0ml	no/ 100ml
Max	8.5	248	7	1.4	0.58	0.1	900	500
Min	7.4	104	6.2	0.2	0	0	7	2
Mean	7.87	173.25	6.65	0.9	0.22	0.01	426	191
Std. Dev.	0.29	44.93	0.28	0.4	0.21	0.03	314	132
Des: Lmt.	6.5-8.5		4	3			5000	

Source: Water & Air Quality Directory-2013, State Pollution Control Board

Table 11.2 Quality of tap water obtained near the railways station showing contaminant levels.

PARAMETER	UNIT	PERMISSIBLE LIMIT	VALUE (DEC 2011)
pH	pH	6.5 - 8.5	7.5
TURBIDITY	NTU	10 NTU	NIL
E-COLI	MPN/100 mL	0	40
TOTAL HARDNESS	mg/l	300	165
TDS	mg/l	500	333

Source : Kerala State Pollution Control Board

Ground water table depletion

Ground water depletion is caused when the ground water is pumped out faster than it can be replenished. Some of the negative effects of ground water depletion are drying up of wells, reduction of water in streams and lakes, deterioration of water quality, increased pumping costs and land subsidence. The ground water table is showing a declining in some of the areas in the municipality. GWT was declined by 2 meters in Bharahathapuzha during last 25 years.



Depletion of Water table in Bharathapuzha

11.1.3 Solid waste

Municipal solid waste management is one of the major problems of Indian cities. Improper management of municipal solid waste causes hazards to the inhabitants. Various studies reveal that about 90% of MSW is disposed unscientifically in open dumps and landfills, creating problems to public health and environment. The quantity of MSW generated depends on a number of factors such as food habits, standard of living, degree of commercial activities and seasons. With increasing urbanization and changing life styles, Indian cities now generate eight times more MSW than they did in 1947.



Solid Waste Dumping Yard



Uncovered Ditch in front of Taluk hospital creating Pollution

Centralised method of collection of solid waste is employed in the municipal wards 4, 25, 26, 27, 28, 29 and 30 in Ottapalam. A total of 6 tons of waste are collected by 20 workers in the municipality. The final disposal of solid wastes is carried out by Techno Group, Alwaye (Vermi Composting) in the Panamanna Ward. However the plastic recycling unit, installed there is not functional. As per the information available there is no provision for the disposal of bio-medical waste generated from the hospitals in the municipality.

There is an urgent necessity of improved planning and implementation of comprehensive MSW management system for upgrading the environmental scenario of the municipality.

11.1.4 Air Pollution

Air pollution is the introduction of chemicals, particulates biological materials or other harmful materials to the earth's atmosphere, possibly causing disease, death to humans and damage to other living organisms such as food crops or the natural or built environment. One of the major causes of air pollution is the increasing personalized modes of transport and intermediate modes of transport such as autorickshaws in the absence of efficient public transportation system in the city. Emissions from industries without proper treatment are also a cause of concern. People suffer from breathing ailments, heart disease, lung infections and even cancer. Emission of pollutants by the industries has to be controlled by enforcing laws by the government. The air pollution also results from ill maintained generators and incinerators.

According to the extend of making pollution, industries are categorized as Red, Orange and Green. In this classification, red represents highly polluting industries, orange represents moderately polluting industries and green represents marginally polluting industries. Majority of industries Ottappalam Municipality comes under the orange category.

Table 11.3 Categorization of industries according to the extend of making pollution

Red	Orange	Green
Crusher & Quarry units	Hotels, Auditorium	PVC Processing
Steel industries	Residential Apartments	Mineral water
Dyeing, Latex and milk processing units	Soft drink manufacture	Tea Factory
Waste paper recycling units	Rubber based industries	Flour Mills
Breweries and Distillery Units	Brick Manufacturing units	Agricultural Implements
Cement manufacture	Poultry Farm, Pig farms, Cattle Farms	Ayurvedic medical Formulations

11.1.5 Noise pollution

Noise is defined as an unwanted sound or the sound which produces an unpleasant effect and discomfort for the ears. Noise pollution is the disturbing or the excessive noise that may harm the activity or balance of human life or animal life. Increasing urbanization, overcrowding, industrialization and higher traffic volumes have resulted in increased noise levels in the town area leading to noise pollution. Generally, problems caused by noise pollution include stress related illnesses, speech interference, hearing loss, sleep disruption and loss of productivity. Noise pollution is not only related to traffic, but also to the indiscriminate use of loud speakers by religious institutions, road side meetings and during the festivals, without adhering to the rules and regulations imposed by the government. Increased use of generators, ill maintenance of vehicles and machines and usage of horns having higher and more disturbing sounds have also added to the pollution level of the city.

The Kerala State Pollution Control Board has imposed strict control on the maximum limit of sound produced on the various land use zones. The permissible and actual noise levels during the day time at the respective zones are compared in Table 11.4 and Fig 11.2

Table 11.4 Table showing the existing and maximum limits of noise in different land use zones of Ottappalam

Sl. No	Area	Limit in dB(A) L_{eq} *		Sound Level dB(A) on Sundays	
		Day Time	Night Time	Day time	Night time
1	Residential	55	45	63	No night time monitoring results
2	Commercial	65	55	69	
3	Industrial	75	70	74	
4	Silent	50	40	-	

*The dB(A) L eq denotes the time weighed average of the level of sound in decibels on scale A which is relatable to the human hearing.

This is divided into day time (6 am to 10 pm) and night time (10 pm to 6 am). The analysis shows that the town is facing noise pollution mainly in the residential and commercial areas while the existing noise levels were found to be below the permissible limits in the industrial areas.

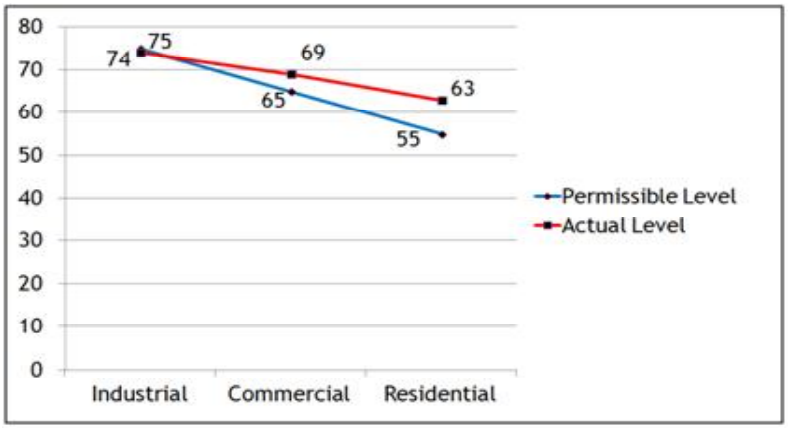


Fig 11.2 Comparison of permissible and actual sound levels in the different land use zones of Ottappalam municipality

11.2. ECOLOGICALLY SENSITIVE & FRAGILE AREAS

Ecologically Sensitive Areas (ESAs) are to be viewed as areas where human activities will continue, but be prudently regulated under the Environment (Protection) Act, 1986. ESAs are not at all meant to stop development in ways that would hurt local people, but to ensure that development is environment friendly and people oriented, as well as serve to preserve the ecological heritage on a long term basis. Ecologically Sensitive areas of the Ottappalam municipality include surface water sources (river, thodus, ponds), paddy fields and heritage areas.(Fig 11.3 and Fig 11.4) .

There are a total of 38 ponds within Ottappalam Town. Among them, three ponds, Valiyakulam,Sree Sankranarayana Swami Kshethrakulam, Thamarakulam are having an area greater than 1.40 acres and more . There are a total of 9 ponds more than 20 cents, but less than 1.40 acres in extent . All other pond are having less than 20 cents of area. Details of Major pond are shown in Table 11.5. These ponds have to be conserved for ground water recharging and for irrigation purposes.

Table 11.5 Details of major Ponds

Sl No	NAMEOFPOND	Area in cents
1	Valiyakulam	245.54
2	Sree Sankranarayana Swami Kshethrakulam	146.53
3	Thamarakulam	143.42
4	Kattanakulam	64.71
5	Chinakathur kavu kulam	45.44
6	Njandadikulam	44.07
7	Mullapallimanakulam	43.97
8	Subrahmaniya Kshethrakula	37.12
9	Perumkulam	33.08
10	Pond	27.59
11	Kurudi ambalakulam	25.76
12	Mannadikulam	21.26



Fig 11.3 Environmentally Sensitive Areas - Paddy and Forest areas

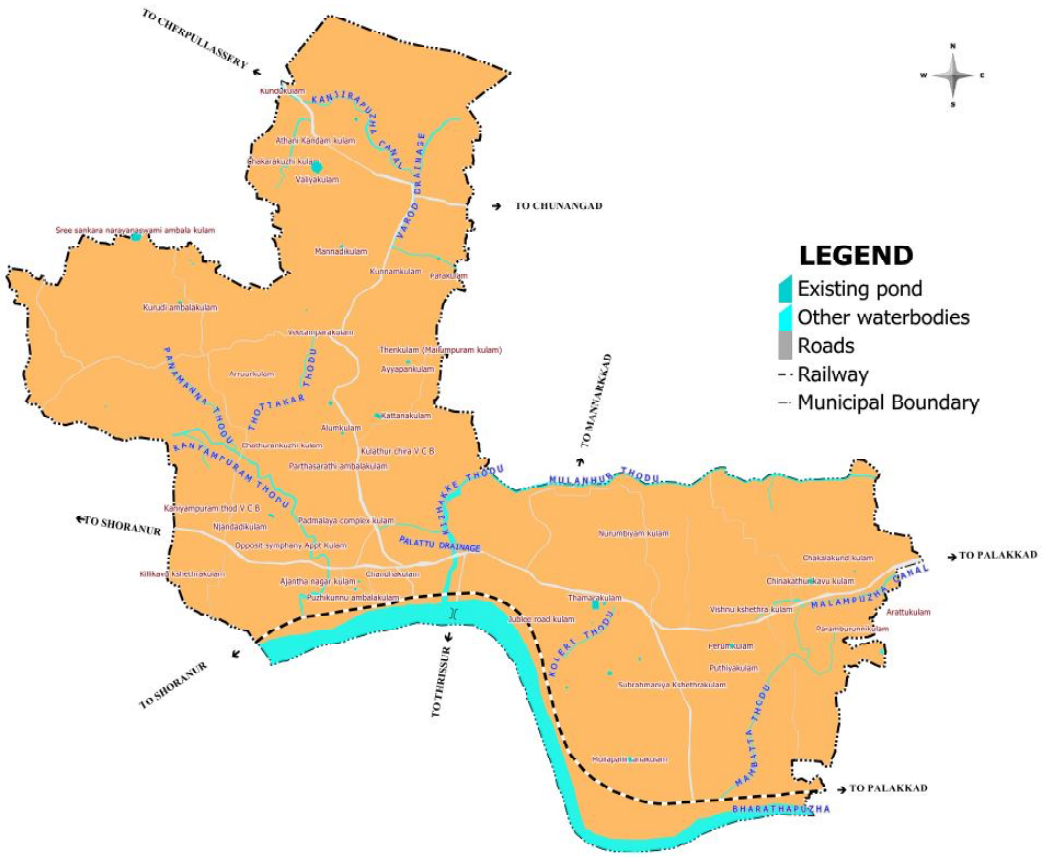


Fig 11.4 Environmentally Sensitive Areas - Water bodies(Ponds ,Thodus , Canal, River)

11.2.1. Paddy field

680 Ha of paddy fields are remaining in Ottappalam municipality that accounts to 20.83% of the total land area in the town. These are the only types of wet land in the municipality. These low lying areas have to be conserved for ground water recharge. Mainly paddy fields are located on the banks of Bharatpuzha River in Kayarampara and Erikkattiri and in Kolothuparambu, Thottakkara, Cherukunnu, Azhikalaparambu,Kummampara, Panamanna and Veetampara.



Paddy fields near Ananganmala

11.2.2. Surface water sources

There is an ever increasing need for the protection and preservation of surface water sources as they are part of an interrelated system that is paramount when the demand for water exceeds the available supply. They also help in sustaining the water table since major ground water recharge areas are diminishing drastically. Bharatha Puzha flowing along the Ottappalam has to be protected by restricting sand mining and discharge of sewage and dumping of solid waste into it. Main stream passing through the municipality is Mulanjoor Thodu . This has to be side protected and made free from encroachment. There are nearly 30 ponds and they also have to be protected. Perumkulam in Kolothuparambu ward is an important pond in the municipality. over an area of 1 Ha, this Perumkulam is the biggest pond in the municipality.



Perumkulam in Ottappalam Municipality



A view of Mulanjoor Thodu



A view of Bharathapuzha in Ottappalam

11.2.3 Heritage areas

Chinakkathoor Kavu much known for the historic Chinakathoor pooram is declared as the heritage site for conservation within the municipality. The temple is at Palappuram. It is believed that King Zamorin ordered Land Lords to start the festival in Chinakkathoor in 18th Century. It can be seen that the Horseplay indicates the significance of Zamorin Dynasty (AD 825-1766). The heritage of Mamankam reflects the glorious past in the Horseplay. The temple and its adjoining areas are to be protected as heritage site for preserving these traditions.



Sri Chinakkathoor Temple

11.2.4 Forests and hillocks

Anangan Mala is a medium sized hill area famous as a film location, calm village and a real storehouse of precious and exceptional herbs. Very recently the place is being developed as an eco tourism destination. Located at a distance of 10 km from Ottappalam along the Cheruplassery Road, the hillock extends upto 18 km through Kizhur, Kothakurissy, Panamanna, Varode and Ambalappara. The destination has a trekking pathway to Panikkarkunnu waterfall which is an unusual experience for adventurous and trekking tourists. The rain water that comes through the herbs of Anangan Mala is stored in the wetlands of Chunangad where Chunangadan rice grows. Anangamala is being developed as an eco-tourism destination with facilities like a foot path to the top of the mountain. It comes under Ottappalam Forest Range under Palakkad forest division.



water fall in Anaganmala during the rainy season



A view of Ananganmala hills

11.3 CONSERVATION EFFORTS

11.3.1 Bharathapuzha



Excessive sand Mining at Nila River

The Bharatapuzha basin is the lone source of drinking water for 175 villages in Palakkad, Thrissur and Malappuram districts. The basin is the chief source of water for a large number of drinking water and minor irrigation schemes. The river has an annual water discharge of 7,478 million cubic metres. The river passes through Palakkad, Thrissur and Malappuram districts before emptying itself into the Arabian Sea at Ponnani. Indiscriminate and illegal sand-mining affects the drinking water supply schemes and threatens the very existences of the river. Sand mining has affected water supply schemes in Ottapalam, Shoranur and Pattambi, which depend on the Bharathapuzha water. Every year the depth of the well dug in the middle of the river course for drawing water for the water supply schemes had to be increased due to the depletion of the water table. The first biodiversity study on the Bharathapuzha conducted by the University Grants Commission in 2001 had found indiscriminate sand-mining as the main reason for the degradation of the river. Indiscriminate sand-mining is a dominant environmental issue throughout the river basin.

The State government has carried out a project to protect and conserve the Bharatapuzha using the River Management Funds (RMF). The government is planning to divert construction of more check-dams at sites identified as part of the Rajiv Gandhi National Drinking Water Mission. As many as 14 check-dam sites have been identified along the 209-km stretch of the Bharatapuzha some of which have been completed.

11.3.2 Ananganmala eco-tourism project

Ecotourism is a new concept in tourism. It is a purposeful travel to natural areas to understand the cultural and natural history of environment, taking care not to alter the integrity of the ecosystem, while producing economic opportunities that make conservation of natural resources beneficial to local people. Any tourism programme that is:

(a) Nature based,

(b) Ecologically sustainable,

(c) Where education and interpretation is a major component and

(d) Where local people are benefited can be called ecotourism. If it does not satisfy any one of these components then it cannot be called a real ecotourism venture.

Ananganmala eco-tourism project started functioning during March 2011. The project area is 100 Ha.. There are about 200 stake holders, in and around the eco-tourism area. The project is now included under River Forest Protection Fund Scheme (RFPF). The main attraction of the area is the natural waterfall and rocky terrains. The vegetative and beautiful landscape and viewpoint location on top of the hill are one among many attractions. Department has provided many attractive measures in the site. At present, there is amenity centre, parking areas and bridges to connect different hillocks in the area. Facilities for trekking are also provided for tourists.



Entrance to Anangan Mala eco tourism project

11.3.3 Chinakathoor temple

The historic Chinakkathur pooram is held annually at Sri Chinakathur Bhagavathi temple in Palappuram. The peculiarity of this festival is the procession of sixteen elaborately decorated horse effigies brought ceremoniously to the temple by the devotees . The festival was celebrated in the 18th century on receiving orders from King Zamorin. The festival speaks about the solemnity and opulence that is allied to the tradition of temples of Kerala and hence should be protected as a heritage site.



Chinakkathoor temple festival - Kuthirakali

11.3.4 Paddy fields

Paddy fields give far more benefits than merely that of rice cultivation like ground water recharge, water purification, flood control, soil erosion control, air cooling effect, aesthetics of landscape and green lungs and an environment role. Paddy fields become part of a new environment with ecological processes that reflect the influences of both man and nature. The paddy fields act as artificial wetlands, where certain type of aquatic ecosystem suitable for plant and animal forms, such as aquatic birds, insects and animals, including fish is maintained. Paddy field are usually filled with a water depth of 100 to 150 mm and this standing water is maintained until prior to harvesting. Some water percolates through the heavy soils and moves into the ground as ground water recharge. Most of the percolated water flows back into the rivers and drains and are an important source of water for irrigation reuse or recycling. An estimated 7 percent goes towards recharging the underground aquifers and this will be an important source of groundwater recharge in the future, when dependence on groundwater supply is expected to increase as competition for surface water increases.

Hence existing paddy field have to be conserved. If all the section of people are made aware of the serious consequences of the conversion of paddy lands, it would make implementation of the law easy and more effective.In order to conserve paddy land and restrict the conversion/reclamation of it, the Government has enacted "The Kerala Conservation of Paddy and Wetland Act, 2008''.

11.4 PROBLEMS AND POTENTIALS

11.4.1 Water Pollution

The sand mining at Bharatapuzha is the rampant problem in and around the municipality. Several crusades have so far been carried out to save Bharatapuzha, the depth of which has been increased by more than 20 feet in several places due to sand mining legal and illegal. Unlike many other rivers of Kerala, Bharatapuzha's plane of flow is not all that slanted which makes the water to move slowly even during the monsoons. The sand mining has resulted in the creation of vast troughs in the river bed. These troughs become virtual septic tanks as the wastes get trapped in them.

The contamination of surface water with sewage must be stopped and there should be periodic water quality monitoring in different parts of the city. A water quality monitoring station should be established in the municipality. The leaching of liquid from decomposed municipal solid waste to ground water table and agricultural chemicals, pesticides and fertilizers to aquifer should be checked by all means.

11.4.2 Air Pollution

There are no major air pollution problems in the municipality. However measures have to be taken to control pollution in the urban areas. There should be strict air quality monitoring system in the city to check the emission of pollutants from automobile and industrial exhausts.

11.4.3 Land Pollution

The management of municipal wastes is covered by the Municipal Solid Wastes (Management and Handling) Rules, 2000 under the Environment (Protection) Act, 1986 which was brought about the Ministry of Environment and Forests (MoEF). They prescribe a policy for waste management which covers collection and waste storage, segregation of waste, littering, transportation and waste processing.

Measures are to be taken to check the use of plastic carry bags and other non reusable plastic products in the municipality. The dry and wet solid wastes are to be properly segregated and disposed off accordingly. There should be adequate provision for the disposal of wastes from fish markets and slaughter houses. The disposal of wastes on the road side should be strictly curbed and those who violate the rules should be brought in front of the law.

11.5 INFERENCE

Man is a part of the environment and its protection is very important for a healthy living. Hence air, water and land have to be properly conserved and its pollution should be prevented by all means.

Although the municipality has a serene environmental quality, some problems do exist and hence the authorities should be vigilant to mitigate the present problems. Proper control on pollutants from industries, automobiles and other sources has to be made with the enforcement of strict laws from the government and awareness campaigns .

12. DEVELOPMENT ADMINISTRATION AND FINANCE

12.1 DEVELOPMENT ADMINISTRATION

The states must ensure that the autonomy of the local bodies and their capacity to take up routine activities. Growing dependence on private initiatives for provision of basic amenities, without a perspective of covering larger sections of population, is likely to enhance disparity in accessing basic amenities. In order to make urban decentralization a success, municipal reforms should focus on Capacity building of urban local bodies, especially in the smaller and medium towns, Standardization and computerization of municipal accounts, Delinking local initiatives from political motives through involvement of community, Unbundling of services especially for small towns should be taken up.

The local administration of the town is carried by the Municipal Council

Major development activities undertaken by the Municipality are

1) Construction and Maintenance of Municipal roads
2) Public Health
3) Construction and Maintenance of Public markets
4) Providing sanction for the Construction of Public Burial grounds
5) Providing sanction for the Construction of Parks & Playgrounds
6) Providing basic facilities to the Slum areas.
7) Protection of Public ponds
8) Administration of Institutions owned by the Municipality like Schools, Hospitals etc

Besides municipal level activities, functions in the various development departments are being controlled by the municipality and state plan schemes of these departments are channeled through the municipality.Besides municipal level activities, functions in the various development departments are being controlled by the municipality and state plan schemes of these departments are channeled through the municipality.

12.2. URBAN GOVERNANCE

12.2.1 Organization Structure of the Municipality

The structure of the municipality consists of two wings, i.e. the administrative wing and the executive wing. The administrative wing is headed by Chair person and consists of the council members .The executive wing is headed by Secretary and consists of revenue, health, accounts, general, engineering and town planning department.Organizational structure in Ottappalam Municipality is shown in fig 12.1

Administrative Wing

The municipal council, the political arm of the municipality consists of 36 elected councillors, each representing a ward. The chairman (elected from among the councilors) heads the municipal council, which performs its duties as per the provisions of the Kerala Municipalities Act 1999. The political wing provides an overall direction to the municipality and performs its functions through a set of committees constituted for different purposes.

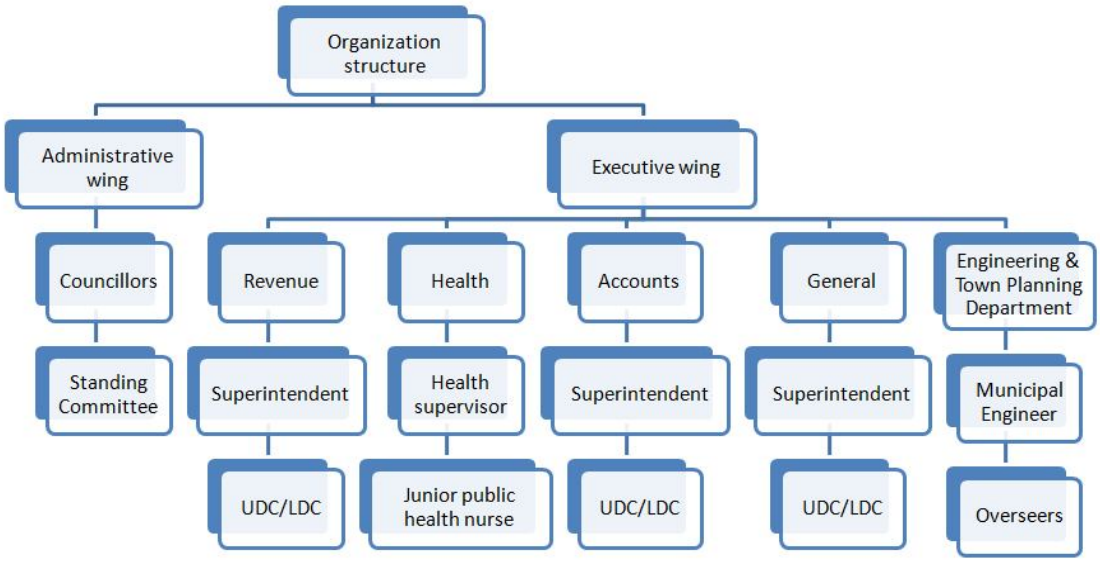


Fig 12.1 Organizational structure in Ottappalam Municipality



Ottappalam Municipal office

Executive Wing

The executive wing is responsible for day-to-day operations of the municipality, and is headed by the municipal Secretary. The secretary is the administrative head of the municipality and is supported mainly by five departments in the operations. The organizational structure of the municipality comprises of five functional departments. The function of clerical staff dealing under each department/ section of the Municipality is coded for the sake of work allocation and standardization.

Various departments under the ULB share the responsibility of service delivery within the Municipality. The functions of various officials/departments, under the Administrative wing, are elucidated hereunder:

(i) Secretary. The Secretary is at the apex of this structure and is responsible for all activities carried out by the ULB. The Secretary is responsible for preparation and certification of all periodical records, returns and furnishes all information as may from time to time be required by the Municipal Council or the Standing committees. He is also responsible for preparation of accounts. At each general meeting, the Secretary along with some other key officials, discuss various issues with the elected representatives.

(ii) General Administration Department. The department is headed by the Secretary and assisted by Personnel Secretary, Administrative officers, Superintendents and other officers. This department is responsible for establishment, other essential matters relating to office, officers, staff and their welfare like preparation of staff pay bills, maintenance of registers for advances, GPF, pension, PF's etc.

(iii) Engineering and Town Planning Department. The Municipal Engineer heads the engineering department, and is assisted by Assistant Executive Engineer, Assistant Engineer other staff. With regards to fieldwork, Scheme works are delegated to one Assistant Engineer who also looks after regular works, related to Public Works, Drains, Street Lighting. A major function of the Municipality is formulation and execution of Works- like construction and maintenance of roads, buildings and other infrastructure systems. Another major function of this department is issue of building license, preparation and implementation of development plans and eviction of encroachments, urban planning and building regulation. The Town-Planning Department's main Various departments under the ULB share the responsibility of service delivery within the Municipality. The functions of various officials/departments, under the Administrative wing, are elucidated hereunder:

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(iv) Revenue and Accounts Department. The department is headed by the Revenue Inspector and assisted by junior assistant. The Accounts Section is responsible for supervising all financial transactions related to the Municipality, advising the Revenue Officers on all internal financial matters, updating financial receipts and

expenditure details in accordance with the utilization of funds, reporting deviations in expenditure of funds in any of the allocated schemes, assisting preparation of the Municipality budget, maintenance of accounts regarding stamp duty, SFC Grants, MP,MLA Grants, maintenance of petty cash book and general cash book and attending to audit requirements and other such accounts-related duties. Revenue Officer, heading the Revenue Section, is responsible for collecting taxes such as, trade tax, house tax, advertisement tax, and entertainment tax; development charges; transfer of properties collection of duty; issuing notices for recovery of tax; and monitoring revenue collections of the ULB.

(v) Public Health Department. The department is headed by Health Officer, and is responsible for ULB services such as Solid waste management, public health related works like malaria control, family planning, mother and child health care, birth and death registration etc, and other government assisted programs related to health and poverty reduction and awareness programs. The Health Officer assisted by the Health supervisor and Health Inspectors, Junior Health Inspectors and Junior Public Health Nurse. Junior Public Health Nurse Supervisors are in-charge of works execution at the field level, which includes monitoring and supervising the work of sanitary labourers in the wards under their charge and attending to specific local complaints. Besides, this department is responsible for the enforcement of the Public Health Act. The Public Health Department is vested with the responsibility of ensuring safe sanitation and cleanliness of the town. The department is also responsible for the maintenance of Municipal Dispensaries, Burial Grounds and slaughterhouses. One of the most crucial services of the municipality is maintenance of sanitation and cleanliness in the town. This involves mainly conservancy works involving sweeping of roads, garbage collection and disposal, cleaning of drains, and disinfecting of drains. Ottappalam Municipality staff Details is shown in Table 12.1

Table 12.1 Ottappalam Municipality staff Details

Sl No	Designation	No of Posts
1	Secretary	1
2	Municipal Engineer	1
3	Building Inspector	1
4	Public works Overseer grade II	1
5	WorkSuperintendent Drade III	3
6	Junior Superintendent	2
7	U D clerk	8
8	LD Typist	1
9	LD clerk	4
10	Peon	7
11	Revenue Inspector	1
12	Bill Collector	4
13	Driver	2
14	Health supervisor	1
15	Health Inspector Grade I	1
16	Health Inspector Grade II	1
17	Junior Health Inspector Grade II	4
18	Part time Librarian	1
19	Sanitation workers	20
20	Contigent workers	5
21	**Total**	**69**



At present the staff pattern of municipality remains same as that at the time of formation of Ottappalam Panchayat. Ottappalam Municipality is upgraded to second grade Municipalty recently . Hence it is expected that its staff pattern will also be upgraded in near future .

12.3. MUNICIPAL FINANCE

The financial position of urban local self governments throughout the nation is very precarious except for a few very large urban centres. Most of the urban local self governments, especially the smaller ones like Shoranur are not financially self sustaining. These municipalities often depend on grants from Central and State governments for funding their day to day affairs and fulfilling their constitutional obligations. The major source of income for urban local self governments is the property tax levied on the buildings in the municipality. This source has immense potential, but is not being tapped to the full extent at present. Irrational rates, reductions given due to various non financial reasons, tax avoidable and evasion, leakages in collection system and improper records keeping and monitoring are some of the problems faced by revenue generation through property taxes. Another source of own revenue for the municipality is entertainment tax. The scope of this source of revenue is shrinking due to reduction in public interest on cinema theatres. Receipts from municipal properties also could be a major source.

The Ottappalam Municipality maintains a municipal fund for managing the finances of the municipality. The accounts of the municipal fund were maintained on a cash based single entry system. The financial status of the Municipality has been reviewed for the past six years, commencing from the financial year 2008-09. This section contains a description of the municipal finances, the sources and uses of funds, and an assessment of municipal finances based on important financial indicators. The transactions are carried out mainly under revenue and capital receipts and expenditure.

The municipal finance can be broadly classified into revenue account and capital account. These accounts can be further divided into income and expenditure. The various subgroups under each head are shown in fig.12.2

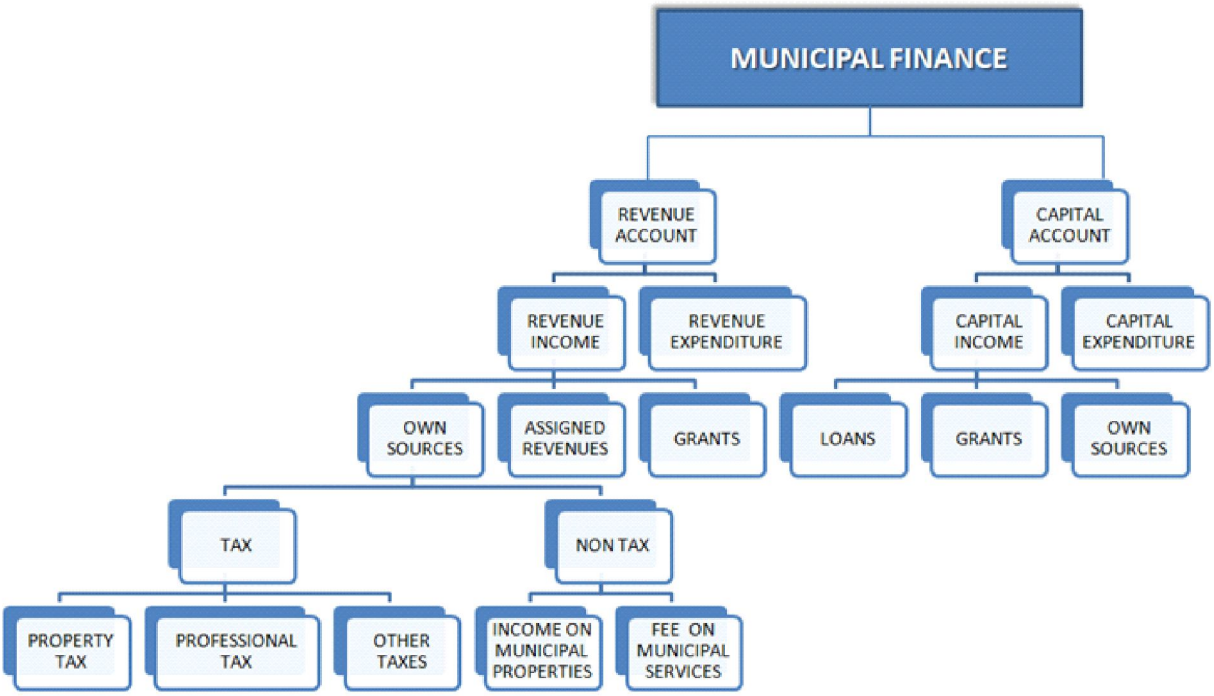


Fig 12.2 Hierarchy of Municipal Finance

Revenue Account: All recurring items of income and expenditure are included under this head. These include taxes, charges, salaries, maintenance expenditure, debt servicing etc. The revenue account comprises of two components, revenue income and revenue expenditure. Revenue income comprises of internal resources in the form of tax and non tax items and external resources in the form of shared taxes/ transfers and revenue grants from the State Government. Revenue expenditure comprises of expenditure incurred on establishments, operation & maintenance and debt servicing. The revenue sources of municipality can be broadly categorized as own sources (taxes, income from municipal properties and markets, building permit fee, trade licenses, income from fees and fines etc) assigned revenues (comprises of Kerala state transfers of municipal income collected by the state government) and grants (revenue grants and compensations under various heads). Revenue expenditure consists of the expenditure incurred for the general management and collection of taxes, public works, town planning, education, water supply & drainage, public health & sanitation, street lights, other municipal properties, running expenses of transferred institutions and miscellaneous expenses.

Capital Account: Income and expenditure items under this account are primarily nonrecurring in nature. The account is subdivided into capital income and capital expenditure. Capital income items include loans, contributions by GoK, other agencies and capital grants under various State and Central Government programs, revenue account transfer for capital works and income from sale of assets. Capital expenditure includes the expenditure incurred for public works like water supply, drainage and roads.

Deposits and Advances: Under the municipal accounting system, certain items are compiled under advances and deposits. These items are temporary in nature and are essentially adjustments for the purpose of recoveries and payments. Items under this head include library cess, income tax deductions, pension payments, provident fund, payment and recoveries of advances to employees and contractors, etc.
Summary of financial status of Ottappalam Municiplaty is shown in table 12.2

Table 12.2 Summary of Municipal Finance

Item	2010-11	2011-12	2012-13	2013-14
Opening Balance	**88.36**	**258.09**	**704.70**	**787.01**
Revenue Account				
Revenue Income	963.27	1216.76	555.17	611.18
Revenue Expenditure	754.77	1116.35	1496.02	1029.13
Surplus/Deficit	208.49	100.41	-940.85	-417.95
Capital Account				
Capital Income	455.79	1019.08	1694.39	1970.71
Capital Expenditure	45.95276	131.18527	347.778	1543.67
Surplus /Deficit	409.83724	887.89473	1346.61	427.038
Debt Head Account				
Income	89.97	59.80289	115.376	48.028
Expenditure	538.58226	601.54791	439.633	148.886
Surplus /Deficit	-448.61226	-541.74502	-324.26	-100.86
Closing Balance	**258.09**	**704.65**	**787.01**	**695.06**
Total income	**1597.39**	**2553.73**	**3069.63**	**3416.93**
Total Expenditure	**1339.30939**	**1849.0822**	**2283.4**	**2721.7**

Source : Municipal Finance ,Ottappalam

Table 12.3 Temporal variation of total receipts and expenditure

Year	Total Reciepts	Total Expenditure	Growth in income	Growth in expenditure
2008-09	1554.76	1186.06		
2009-10	2091.92	1634.31	34.55	37.79
2010-11	1597.39	1339.31	-23.64	-18.05
2011-12	2553.73	1849.08	-14.03	38.06
2012-13	3069.63	2283.43	20.20	23.49
2013-14	3416.93	2721.68	11.31	19.19

Temporal variation of total receipts and expenditure is shown in Table 12.3 and pictorial representation is shown in Fig 12.3. Average percentage of annual growth is 5 % and expenditure is 20%

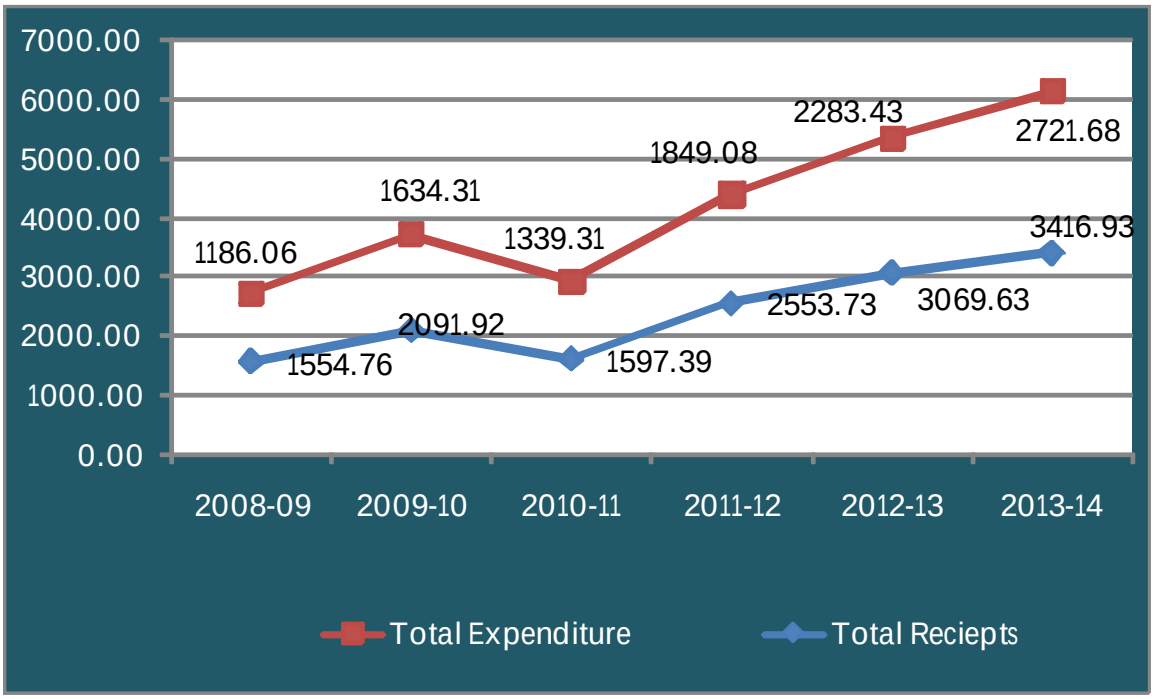


Fig 12.3 Total receipts and expenditure trend

The following sections present detailed review of revenue and capital accounts, primarily aimed at assessing the municipal fiscal status and providing a base for determining the ability of Municipality to sustain the planned investments.

12.3.1 Revenue Accounts

The revenue account comprises of two components,

1. Revenue Income
2. Revenue Expenditure

Revenue income comprises of internal resources in the form of tax and non tax items and external resources in the form of shared taxes/ transfers and revenue grants from the State Government

Taxes: Property Tax, Professional Tax, Advertisement Tax & Show Tax

Non-Taxes: Building license fee, Compounding fee, D & O Trades, Penalty on food adulteration act, encroachment fee, Rents on lands and buildings, Registration fees for birth, death & marriage, Library fees, Fees for market and slaughter house, bus stand fees, fees from rest houses, fees from cart stands & lorry stands, interest on investments and user charges from public comfort stations

Assigned revenues: Surcharge on stamp duties

Compensation: Motor Vehicles Tax

Grants: Maintenance Grants and Capital Grants.

Borrowings from financial institutions such as HUDCO, KUDFC, GoK and Banks

Major sources of fund for Municipality is shown in fig 12.4

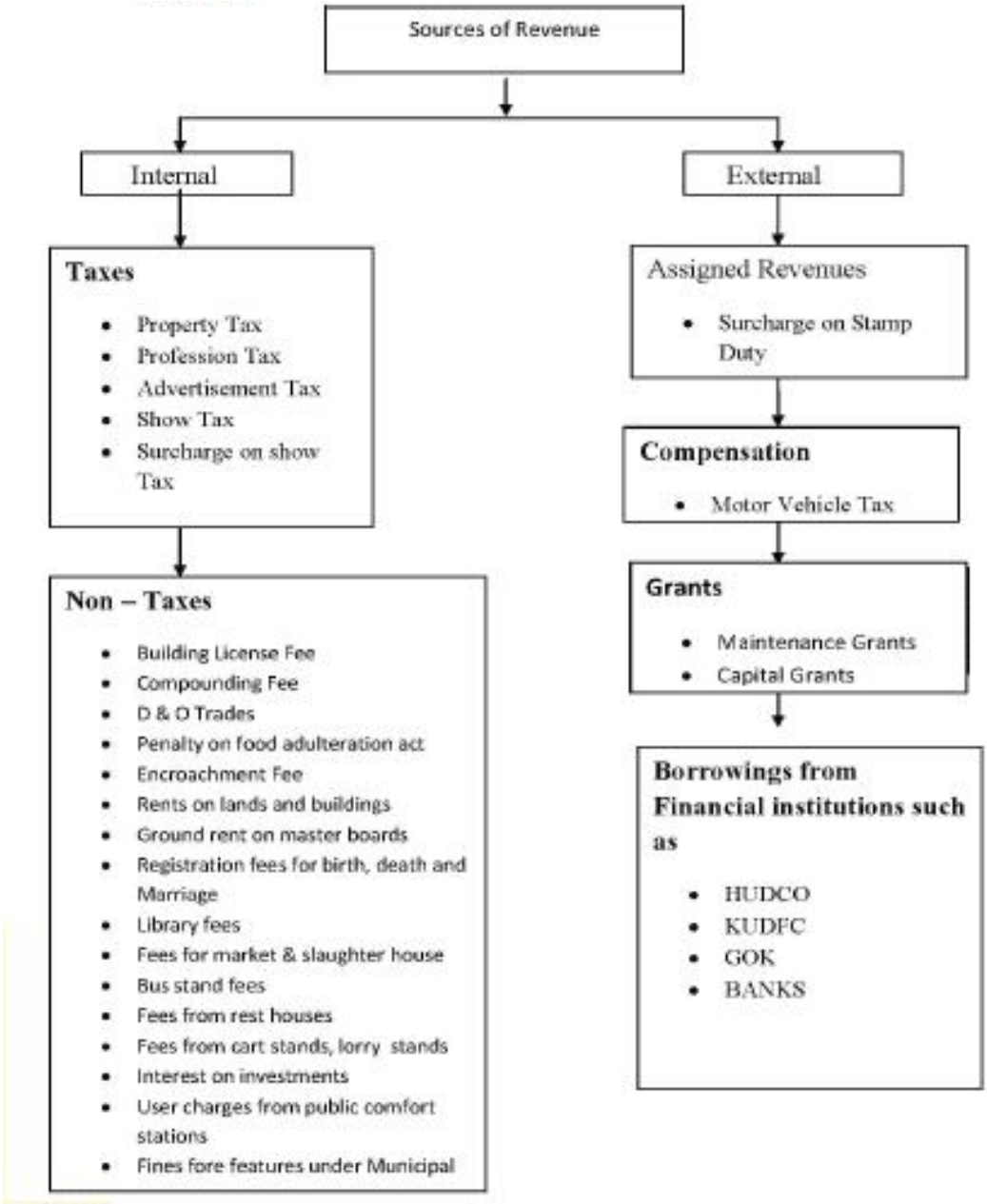


Fig 12.4 Sources of fund

Revenue expenditure comprises of expenditure incurred on establishments, operation & maintenance and debt servicing. This is broadly classified under the following heads:

General management & collection of taxes

Public works

Town planning

Education

Water supply & drainage

Public health & sanitation

Street lights

Municipal properties

Running expenses of transferred institutions

Miscellaneous expenses

Revenue Income

Temporal variations of total revenue income shows fluctuations .The Major fluctuation are seen in the income from Non tax category.

The temporal variation of the revenue income from FY 2008-09 to 2013-14 are presented in Table No.12.4

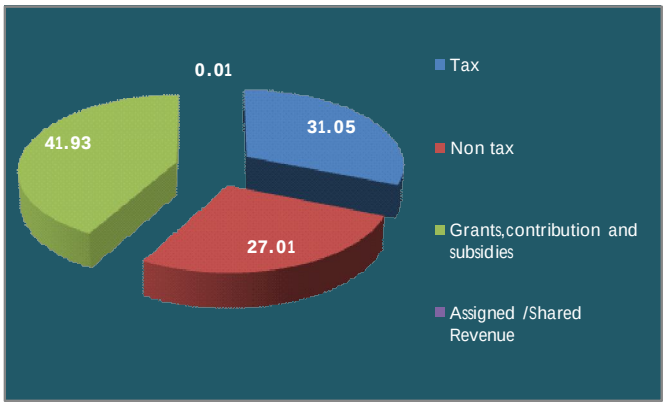


Fig 12.5 Split up of revenue income (%)

Table 12.4 Temporal variation of revenue income

Item	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Tax	105.57	128.99	121.60	145.51	164.52	189.80
Non tax	306.30	188.70	328.12	425.18	123.99	165.10
Grants,contribution and subsidies	245.26	704.47	509.23	645.57	266.62	256.24
Assigned /Shared Revenue	11.74	14.63	4.32	0.50	0.04	0.04
Total Revenue in come	**668.86**	**1036.78**	**963.27**	**1216.76**	**555.17**	**611.18**

When the split up of revenue income were analyzed, it was seen that the income from tax is the major one 31% non tax sources accounts to 27 % which includes building license fee, compounding fee, penalty on food adulteration act, encroachment fees, interest on investments, user charges for public comfort

stations, rents on land and buildings, birth death registration and fees on library, market, bus stand, lorry stand, rest house and slaughter house.

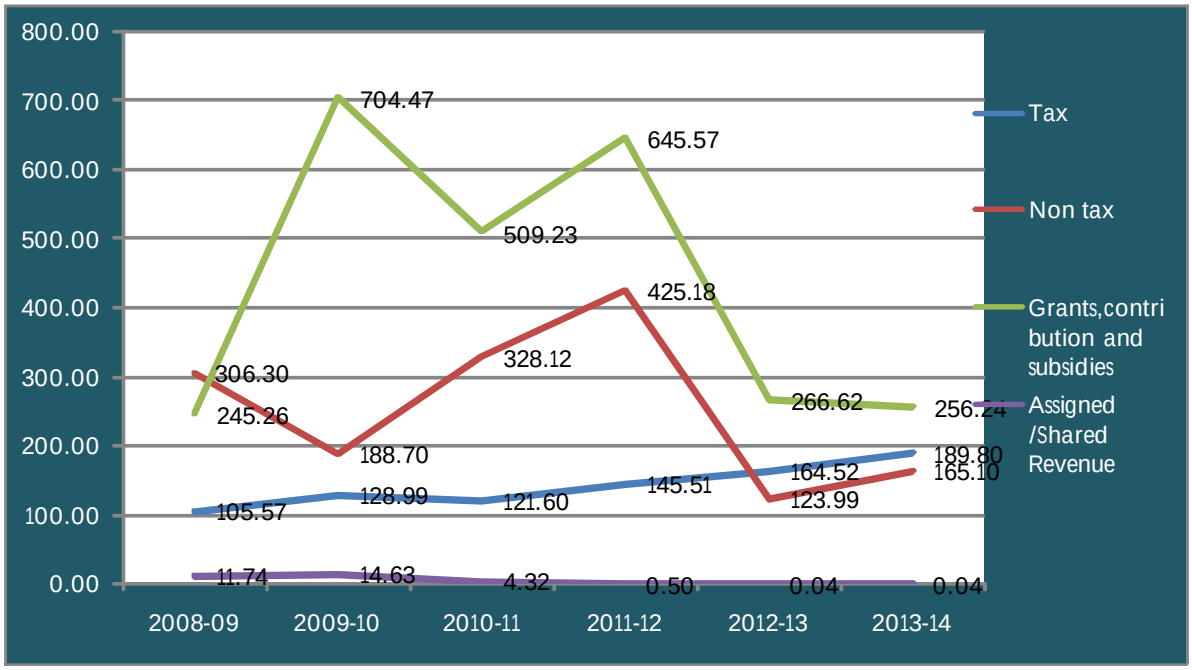


Fig 12.6 Temporal variation of item wise revenue income

Own sources Own sources include tax and non tax sources.The item head comprises of income sourced primarily from property tax (General purpose tax, Lighting tax, Scavenging tax and Education tax excluding water and drainage tax), professional tax and other taxes.

Table 12.5 Revenue income -own sources

Item	2010-11	2011-12	2012-13	2013-14
Taxes-own sources				
Property Tax	**65.38485**	**80.72336**	**97.732311**	**114.10934**
Professional Tax	**50.89852**	**58.79944**	**60.33797**	**67.75438**
Advt Tax	**0.50983**	**1.18616**	**0.77016**	**1.16774**
Theatre tax/Show tax	**0.0125**	**0.11547**	**0.03963**	**0.09653**
Entertainment Tax	**4.79454**	**4.68493**	**5.64082**	**6.67325**
Non Tax -Own sources				
Income from ULB properties	**33.59**	**32.89**	**32.05**	**34.99**
Income from sale ,fines and recoveries,	**46.01**	**60.25**	**66.72**	**65.84**
Other/ Miscellaneous income	**57.75**	**53.43**	**0.45**	**1.66**
Total	**258.96**	**292.08**	**263.74**	**292.29**

Among the own sources property tax is the largest revenue generating item. This has increased from 29 Lakhs in Financial Year 2008 – 09 to 70.05 Lakhs in 2013-14. Own sources of tax income is presented in Table.No 12.5 Share of own income comes from Sales ,fines and fees collected by Municipality ie nearly 22.52% of total own income .Property tax and Professionl tax together constitutes nearly 62 % of own income.

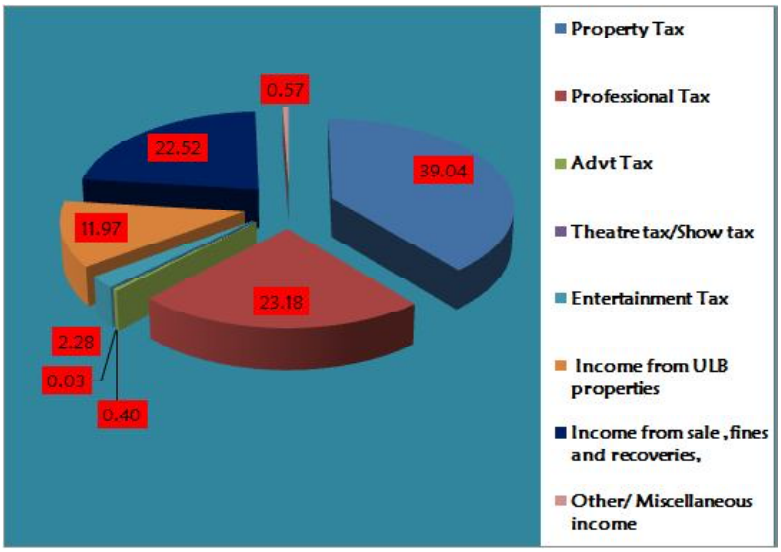


Fig 12.7 Split up of Own sources

Property Tax

This is the most important category of own source income to the municipality. The details of demand collection and balance statement of property tax are provided in Table 12.6 and Fig 12.8. Property tax income collection however has increased at a growth rate of 22.23% during the assessment period. The property tax collection performance shows a fluctuating trend during the assessment period. The maximum arrear collection was achieved during the Financial Year 2010-11.When the performance of demand and collection were analysed, current collection was maximum during the FY 2010-11. The maximum collection performance was achieved during the same financial year.

Table 12.6 Property tax demand collection and balance statement

Items	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Demand in lakhs						
Arrear Demand	81.57	91.46	82.24	85.22	90.25	70.23
Current Demand	68.30	63.37	71.72	89.25	82.94	104.01
Total Demand	**149.87**	**154.83**	**153.95**	**174.47**	**173.19**	**174.24**
Collection in lakhs						
Arrear Collection	13.08	19.67	10.89	17.36	21.42	27.29
Current Collection	45.33	52.93	54.23	62.91	77.27	86.82
Total Collection	**58.41**	**72.59**	**65.12**	**80.27**	**98.68**	**114.11**
Collection Performance %						
Arrear Balance	16.03	21.50	13.24	20.38	23.73	38.86
Current	66.37	83.52	75.61	70.48	93.16	83.48
Total	**38.97**	**46.88**	**42.30**	**46.01**	**56.98**	**65.49**

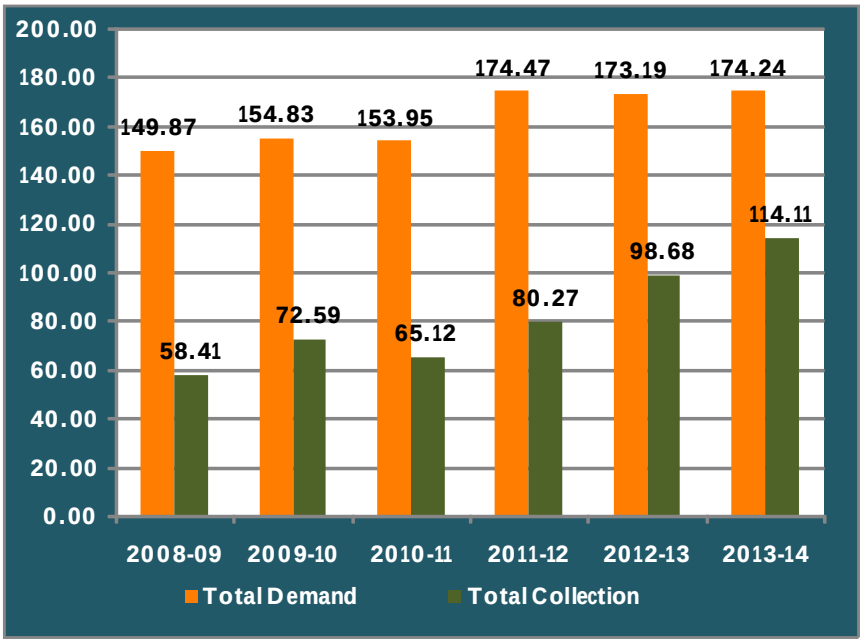


Fig 12. 8 Property tax collection performance

Professional Tax

Professional tax is collected by municipality from all registered organisations, companies or firms, public or private, individuals and state & central government departments. The details of demand collection and balance statement of professional tax are provided in Table 12.7and Fig 12.9

The professional tax collection has increased from 41.37 Lakhs in 2008 – 09 to 67.77Lakhs in 2013– 14 while the demand has increased from 62.89 Lakhs in 2008 – 09 to 70.68 Lakhs in 2013-14.Tax collection performa nce ratio has also increased from 65.78 % in 2008 – 09 to 95.88 % in 2013-14

Table 12.7 Professional tax demand collection and balance statement

Items	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Demand in lakhs						
Arrear Demand	20.89	21.52	20.41	11.51	12.22	14.00
Current Demand	42.00	47.50	42.00	62.00	54.92	56.68
Total Demand	**62.89**	**69.02**	**62.41**	**73.51**	**67.14**	**70.68**
Collection in lakhs						
Arrear Collection	4.15	4.46	9.99	2.38	10.40	11.46
Current Collection	37.22	44.15	40.91	56.42	49.94	56.31
Total Collection	**41.37**	**48.61**	**50.90**	**58.80**	**60.34**	**67.77**
Collection Performance %						
Arrear Balance	19.85	20.72	48.94	20.71	85.11	81.86
Current	88.61	92.95	97.40	91.00	90.93	99.35
Total	**65.78**	**70.43**	**81.56**	**79.99**	**89.87**	**95.88**

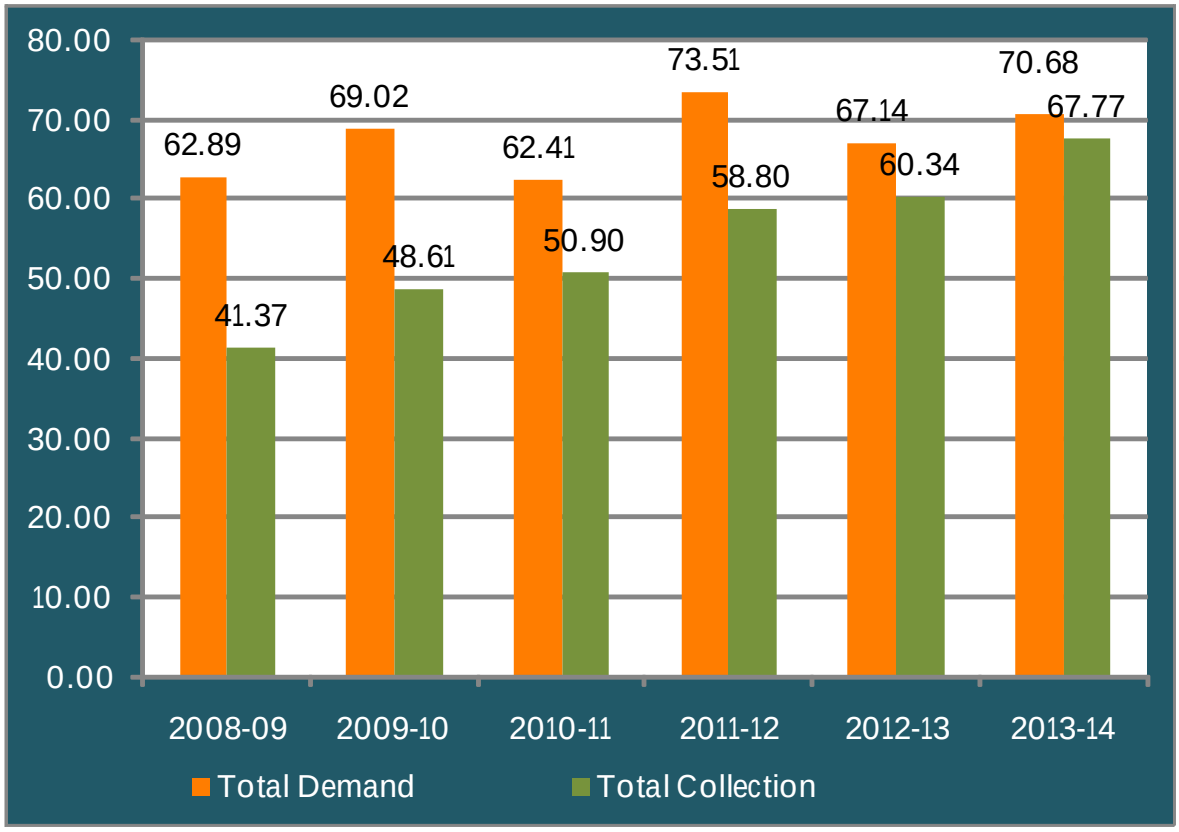


Fig 12.9 Professional tax collection performance

Assigned Revenue

This item head comprises of income from Government of Kerala State transfers of Municipal income collected by the state line department. Transfers are in the form of Municipality's share of taxes levied and collected by G.o.K from establishments/operations within the municipal limits. Surcharge on transfer of immovable properties and entertainment tax, are the major items on which these revenues are realized by Municipality. Income through assigned revenues contributes meagre share of the revenue income.

Revenue Grants & Contributions

This item mainly comprises revenue grants and compensations from the State Government under various heads. The regular grants include the SFC grants and the others include aid grants, grants for services like roads, buildings, maternity and child welfare, public health, contributions for elementary and secondary schools and etc. Grants which are for specific purposes are ad-hoc in nature. In case of Shoranur Municipality, revenue grants and contributions constitute about 43.88 percent of the total revenue income.

Revenue Expenditure

Revenue expenditure increased 36 percent in 4 years period ie during 2010-11 to 2013-14 from Rs. 754.77 Lakhs to Rs. 1029.13 Lakhs . Revenue expenditure includes mainly Establishment expenses ,Administrative expenses ,Operation and Maintenance ,Programme expenses ,other liabilities ,unsecured loans etc .The split up and temporal variation of revenue expenditure/ operating payments in the municipality is shown in Table 12.8

Table 12.8 Components of revenue expenditure

Sl No	Item	2010-11	2011-12	2012-13	2013-14
1	Establishment Expenses	40.41	59.98	74.23	78.78
2	Administrative Expenses	29.38	147.23	49.00	30.87
3	Operations & Maintenance	76.55	77.20	79.57	57.19
4	Interest & Finance Charges	0.08	18.64	46.24	25.91
5	Programme Expenses	370.57	677.30	625.22	336.83
6	Revenue Grants, Contributions and Subsidies	65.00	20.25	0.38	0.78
7	Other Liabilities	78.70	90.21	92.00	100.59
8	Others	94.09	25.55	529.38	398.18
	Total	**754.77**	1116.35	1496.02	1029.13

Percentge of components of revenue expenditure is shown in fig 12.9. 30% of revenue expenditure is for administrative and establishment expenses ie salaryand other allowances for elected members and staff of Municipality ,nearly 27% for programme expenses ,5% for operation and maintenance

Table 12.9 Temporal variation of Total Revenue income and revenue expenditure

Item	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Revenue Account						
Revenue Income	668.86	1036.78	963.27	1216.76	555.17	611.18
Revenue Expenditure	314.55	353.65	754.77	1116.35	1496.02	1029.13
Surplus/Deficit	354.31	683.13	208.49	100.41	-940.85	-417.95

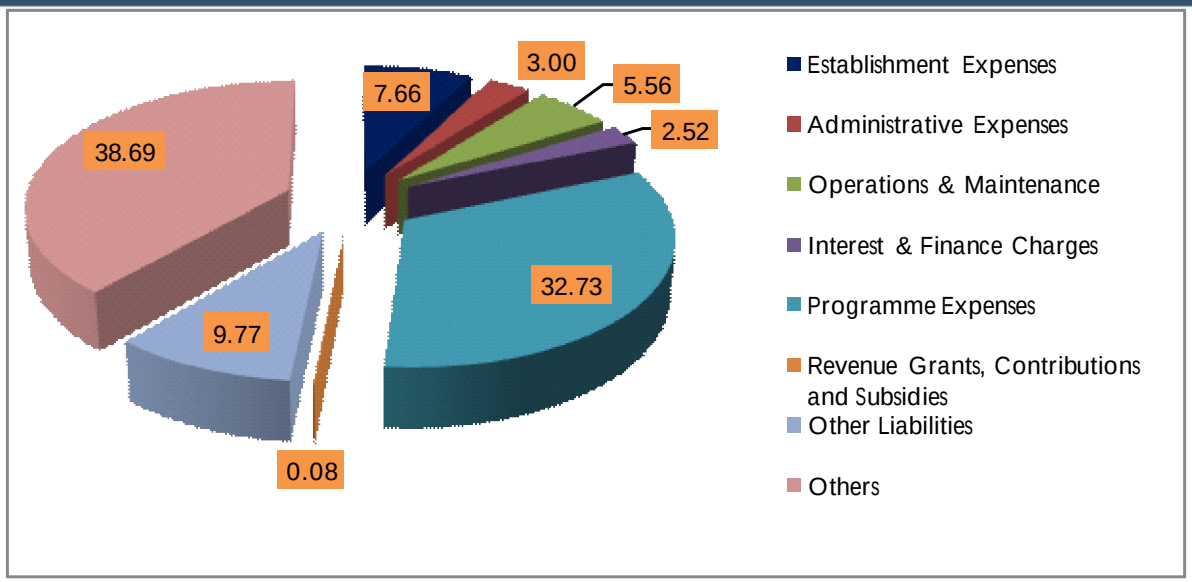


Fig 12.10 Components of Revenue Expenditure

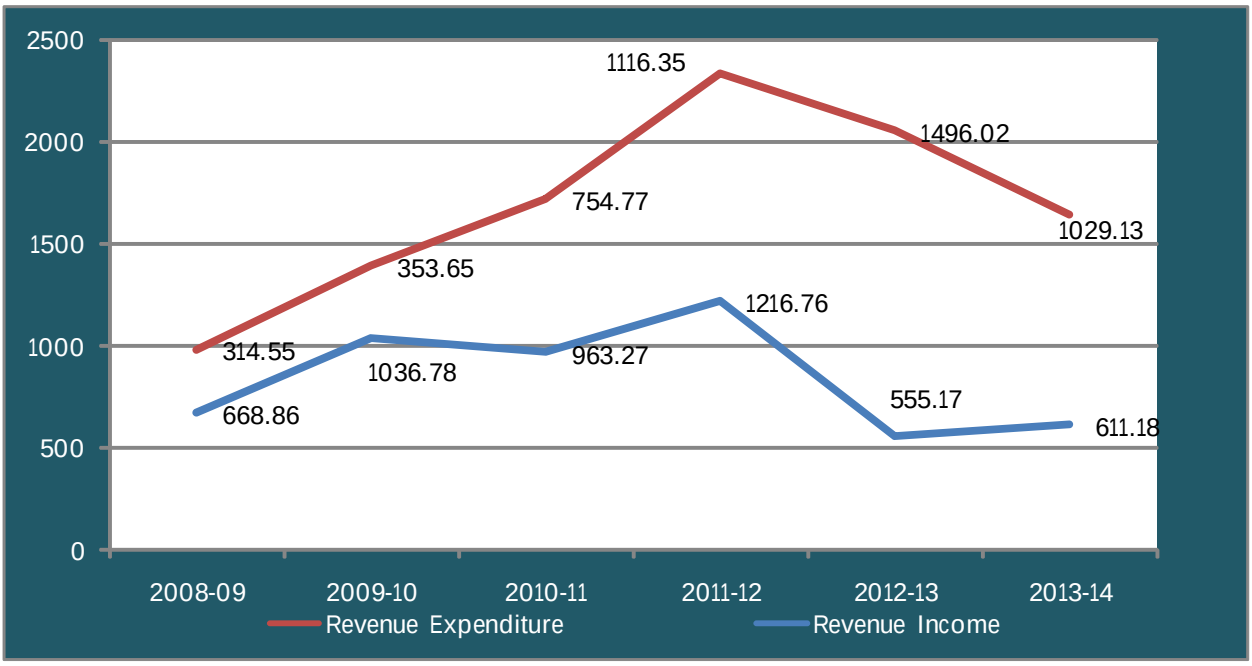


Fig 12.11 Temporal Variation of revenue income and expenditure

12.3.2. Capital Account

Capital account consists of non recurring income and expenditure items. It is subdivided into:

1) Capital Income

2) Capital expenditure

Capital Income

Capital income consists of loans, grants and own sources like revenue account surplus transfer for capital works. Capital income includes:

1.Govt. grants & contribution
2.Govt. loans
3.Loans from financial institutions
4.Investment realized

5.Initial deposit

6.Receipts by way of property transferred to municipality u/s 30 (Plan fund)

7.Grants for Kerala Development Projects and

8.Beneficiary share

Capital Expenditure

Capital Expenditure consists of loans, grants etc spent for creation of assets

Table 12.10 The trend in capital income and expenditure

Item	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Capital Account						
Capital Income	883.73	1281.88	455.79	1019.08	1694.39	1970.71
Capital Expenditure	830.1	916.17	45.9528	131.185	347.778	1543.67
Surplus /Deficit	53.63	365.71	409.837	887.895	1346.61	427.038

The comparison of capital income and capital expenditure is shown in Fig. Analysis of the past three years show that except for the FY 2010-11 that indicated a financial surplus and lesser utilization of the available resources, for the remaining two years, the capital expenditure remained aboveincome.

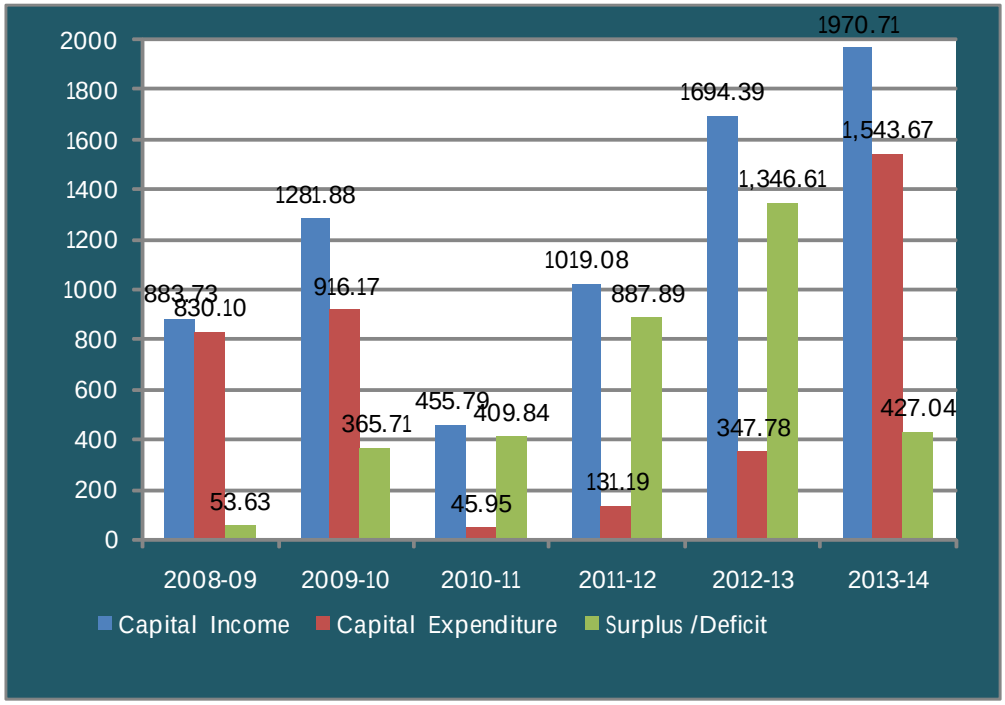


Fig 12.12 Trend in capital income and expenditure

Component wise Capital Income

The detailed components of capital income are presented in Table No. 12.11 An analysis of the account indicates that government grants and contribution and plan funds have contributed the maximum share of income under this account. Capital income has increased by 705 % over the study period.

Table 12.11 Trend in capital receipts

Item	2010-11	2011-12	2012-13	2013-14
Grants Contributions for Specific purposes	455.00	583.07	1,680.23	1,937.09
Loans, Advances and Deposits	0.14	3.23	14.16	6.63
Others(Secured loans ,Fixed assets)	0.66	432.78	-	27.00
Total	455.80	1,019.08	1,694.39	1,970.72

Capital Expenditure

The majority of capital expenditure has been directed towards Kerala development plan and municipal development works. The trend in capital expenditure is shown in Table 12.12

Table 12.12 Trend in capital expenditure

Item	2010-11	2011-12	2012-13	2013-14
Grants Contributions for Specific purposes	0.57	42.15	24.73	0.52
Loans, Advances and Deposits	5.53	7.11	28.44	18.63
Others(Secured loans ,Fixed assets)	39.85	81.93	294.61	1,524.53
Total	45.95	131.19	347.78	1,543.67

12.3.3 Liabilities

Under the cash system of accounting, certain items are compiled under advances and deposits. These items are temporary in nature and are essentially adjustments for the purpose of recoveries and payments. Items under this head include library cess, income tax deductions, pension payments, provident fund, payment and recoveries of advances to employees and contractors, etc.

Debt Servicing: A review of the outstanding loan statement of Ottappalam Municipality , reveals that the net outstanding debt liabilities are Rs 1108.21 lakh in the assessment year 2013-14. It needs mention that Municipality has done debt servicing of Rs 32.59 akh in the assessment year 2013-14 .Liabilities of Municipality as on 31.3.2014 is shown in Table 12.13 .

Table 12.13 Liabilities of Ottappalam Municpality as on 31-3-2014

	Liabilities	Amount in lakhs
I	Reserves and Surplus	
	Municipal General fund	128.67
	Earmarked fund	23.52
	Reserves	1579.89
	Total Reserves & surplus	1732.08
II	Grants ,Contribution for specific purpose	571.09
III	Loans	
	Loan from Govt	1108.21
	Total loan	1108.21
IV	Current Liabilities and Provisions	
	Deposits received	17.21
	Other Liabilities	101.67
	Total Current Liabilities and Provisions	118.88
	Grand Total	3530.26

12.4 KEY FINANCIAL INDICATORS

Indicators are facts about project implementation results, not actions. The standard practice by banks and borrowers is to consider performance targets as indicative. The technique of financial analysis is a useful tool to analyse the municipal corporation's financial position. Ratio analyses presented here provide information about efficiency and operational performance, and debt servicing. As such they provide insight into areas that merit further investigation but do not, in themselves, provide definite answers on the financial condition of a given service. And hence, they have been calculated as an average over a period of five years, to provide a realistic picture.

Operating Ratio

Operating Ratio (OR) is the ratio of revenue expenditure to revenue income and it indicates financial status or "profitability" of local body operations. Sound financial management requires that this ratio should be less than unity. The average OR of Ottappalam Municipality works out to 1.68. The OR greater 1.0 in Ottappalam municipality indicates that it has had a deficit revenue account over the last six years. Revenue deficit means revenue income is not in a position to support capital investments useful for capital works. This is an un healthy situation.

Debt Servicing Ratio

Debt Servicing Ratio (DSR) is the ratio of debt payment to total revenue income. This indicator helps in assessing the implication of debt on the local body's finances. It has been observed that Shoranur municipality services its debts on a regular basis. The analysis indicates that the average DSR with respect to revenue income is 181percent. It gives an indication of debt payment to the total revenue income. The outstanding loan amount with Ottappalam municipality was Rs 1108.21 Lakhs and there are no over dues to any of the lending organisation with respect to principal as well as interest.

Capital Utilisation Ratio

Capital Utilisation is the ratio of capital expenditure to the capital income. This ratio indicates the performance of the local body in terms of utilisation of capital income. It could also be an indicator of the local body's capacity to utilise capital resources. A capital utilisation ratio of greater than unity indicates that the revenue account surplus has been utilised for capital works, which is a positive feature. A CU ratio below unity indicates that either capital income is being diverted for revenue expenditure (when O.R. is also above 1), or that part of the capital income was unspent during the financial year under consideration.The Capital Utilisation Ratio (CUR) of Ottappalam municipality is less than unity at 0.783.The planned expenditure over the past six years is a clear indication of the CUR being just below unity along with operating ratio being greater than unity. However, the situation also refers to non-utilisation of the capital available in that financial year to the complete extent, which Ottappalam municipality will need to plan accordingly.
Table No 12.14 present these indicators. These indicators are used to assess the municipal performance with regards resource mobilization, fund utilization, financial performance and collection efficiencies.

Table 12.14. Key Financial indicators

Key Financial Indicators			
A	**Resource Mobilization**		Unit
	Per Capita Income	1137	Rs p.a
	Share of Own Sources in Total Revenue Income	47.82	%
	Share of Property Tax in Total Revenue Income	18.65	%
	Share of Revenue Grants & Subsidies in Total RI	6.85	%
	Growth in Revenue Income	10.08	%
	Growth in Own Sources of Revenue Income	10.82	%
	Per Capita Own Income	543.7	Rs p.a

To be continued .....

B	**Fund Application**		
	Per Capita Expenditure	1914.5	Rs p.a
	Growth in Total Revenue Expenditure	-31.209	%
	Outstanding Debt per Capita	2061.564	Rs p.a
	Outstanding Debt as % of P.T Demand	636	%
	Outstanding Debt as % of Own Revenue Sources	379	%
	Debt Servicing Ratio (D.S/ Revenue Income)	1.81	
D	**Performance Indicators**		
	Operating Ratio (RE/RI)	1.68	
	Capital Utilization Ratio	0.783	
E	**Efficiency Indicators**		
	Tax collection Performance		
a	Property Tax	65.49	%
b	Profession tax	95.88	%

12.5 PROBLEMS AND POTENTIALS

The major problems faced by the municipality in the finance sector are the leakage in taxes and paucity of funds for developmental activities. The municipality has to prepare a number of financially viable projects and to be implemented in the town which can be developed (through PPP mode or otherwise) for enhancing the income of the municipality.

12.6 INFERENCE

Municipality has to identify new sources for resource mobilization. Most of the municipal revenue assets are undervalued and their regular maintenance and repairs are necessary to increase the revenue.

12.7 ASSET MANAGEMENT PLAN

Asset management of Municipality has the objective of defining and describing the key elements, and principles of an Asset Management System. While the need for Asset Management is clearly felt, it is equally important to have appropriate management information on asset condition, infrastructure costs and performance, and the consolidated requirements for repairs and maintenance, as well as appropriate maintenance standards. This chapter will deal with the elements that are essential in an asset management program for movable and immovable infrastructure. More specifically road networks, sidewalks, water supply networks, pumping, storage, treatment facilities and storm water drains.

12.7.1 Municipal assets

Water Supply

Water supply in the town is operated and maintained by Kerala water Authority. 31 Public open wells and 78 public borewells were constructed and maintained by Municipality and Municipality is paying the water charges for 572 Nos of public taps.

Irrigation

There are 5 ponds owned by Municipality used for irrigation purposes .They are AVarode Valyakulam, Mannadi Kulam , Perumkulam , Nurumbiyam kulam, Thamarakulam . Municipality is constructing temporary check dams in Kizhakkethodu , Kaniyam puram - Panamanna, Kakkathodu near Ayyappankavu for irrigation puposes.

Sewerage and sanitation

There is no specific sewerage system for the town and the population is dependent on septic tanks and low cost sanitation units. The role of the municipality in this sector is limited to provision of public convenience systems. There are a total of two such units located mostly in the public places like bus stands and markets which are pay & use toilets.

Roads

398.26 km road of were constructed and maintained by Municipality of which 144.94 km roads are bitumen surfaced ,95.64 km is cement concrete roads .

Land and buildings

Municipality owns 27nos of plots having an extent of 12.11 acres in the town. Details of land is shown in Table .Total buiit up area of all Municipal owned buildings is 6107 Sq m of which 2715 Sq m area (45%) is in come generating ones . Others are non remunerative buildings. Non remunerative assets of the Municipality are the office buildings, assets which are either acquired or purchased or transferred by state government as per 74th CAA on which the municipality incurs considerable expenditure for operation and maintenance. They are maintained by the municipality under the general, water supply & drainage and elementary education funds separately. The municipality has vehicles which are used for service delivery and for administration purposes. Apart from these there are 1 jeep and 1 Car with the municipality which are used for administrative purposes. The details of Municipal assets and and remunerative assts are presented in Tables 12.14and 12.15 respectively and Major municipal assets are shown in Fig 12.13

Table 12.15 Municipal Assets - Land

Sl No	Asset Name	Extent in cents
1	Cremation Ground Near Municipality Trenching Ground	138.34
2	Govt. Taluk Hospital	361.90
3	Mullapallimanakkal Public Cremation ground	79.99
4	Govt. L.P. School East Ottapalam	72.37
5	Anganavadi No:97, Varode Attani	7.44
6	Anganavadi No:111,Cherikunnu, Varode	6.52
7	Anganavadi No:116	6.51
8	Anganavadi No:114	5.06
9	Anganavadi No:115	4.86
10	Anganavadi No:104,Bharathapuzha Road- Kanniyampuram	3.69
11	Anganavadi No:105, South Panamanna Road	3.05
12	Anganavadi No:113,Western Side of Chinakkathur Kavu	3.00
13	Anganavadi No:117	2.98
14	Anganavadi No:106,Western Side of Chinakkathur Kavu	2.14
15	Anganavadi No:112, Kumbarankunnu, East Ottapalam	2.02

Table Continued .....

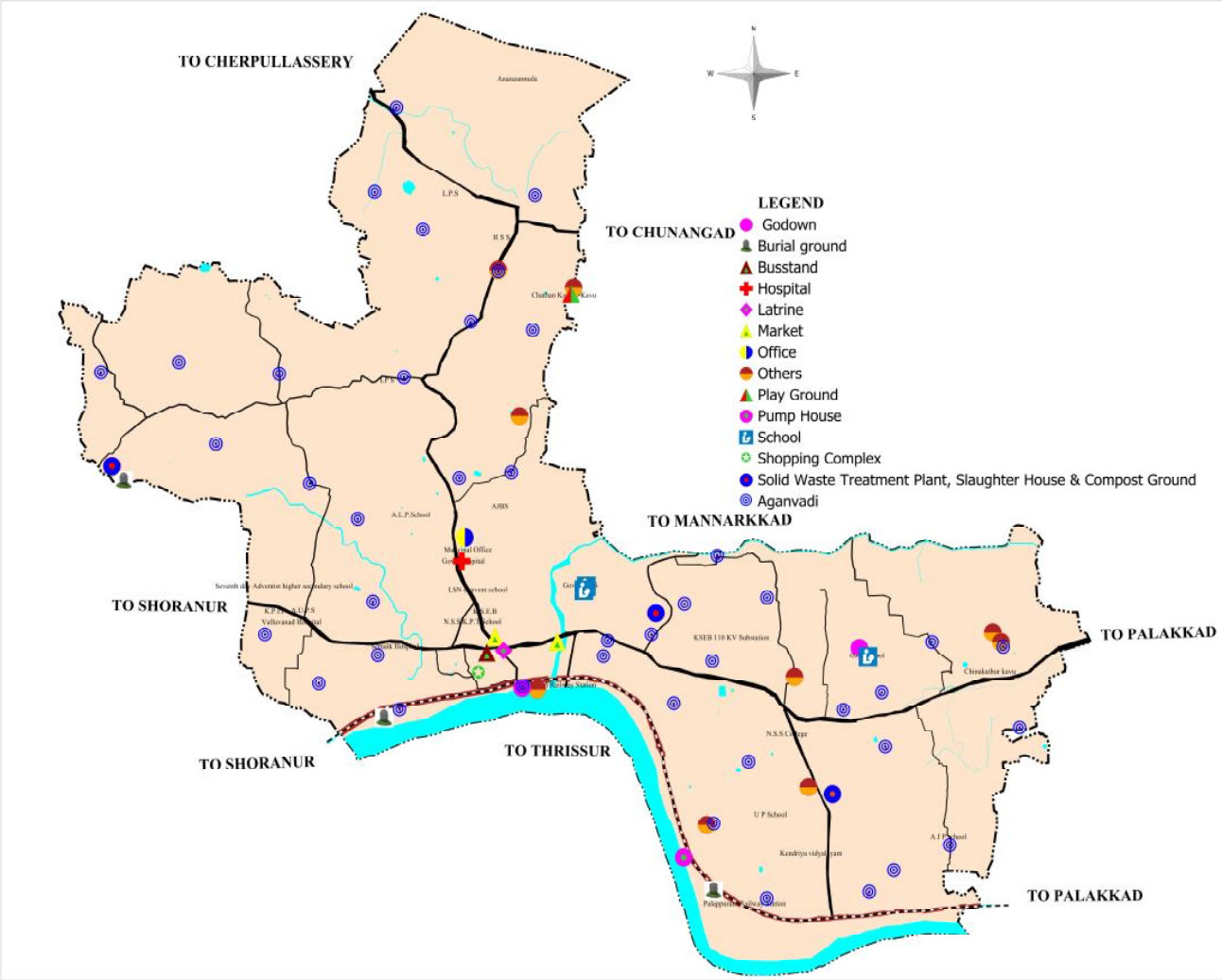


Fig 12.13 Municipal assets

Sl No	Asset Name	Extent in cents
16	Appeypuram Arattukulam	0.99
17	Palappuram Chakkalakkund Pond	5.20
18	Palappuram Road Perumkulam	33.08
19	19 mile Thamarakkulam	143.42
20	Ottapalam Town Market Pond	0.99
21	Ayyappan Pond	18.52
22	Veettam Parakkulam	0.99
23	Valiyakulam	245.54
24	Kundukulam	3.64
25	Mullappalli Manakkal Pond	43.97
26	Parakkadav-Kulikkadav Pond	14.17
27	Anganavadi No:99, Deepthi Anganvadi, Panamanna South	0.80

Source : Asset Register, Ottappalam Municipality

Table 12.16 Municipal Assets Buildings

Sl NO	Asset Name	Ward No	Total floor area
1	Bus Stand Building North Block Shopping Complex	25	1725.69
2	Bus Stand Building Shopping Complex	25	989.79
3	Bharathapuzha Public Cremation Ground	23	34
4	Municipal Slaughter House	9	18
5	Open Auditorium For Cultural Activities	24	40.42
6	Govt. High School, East Ottappalam	9	2304
7	Municipal Play Ground, Varode	3	103.59
8	Govt. L. P. School	7	52
9	Govt. L. P. School, B R C	7	205.6
10	Govt. L. P. School	5	151.7
11	Govt. L. P. School	6	185.66
12	Site for Proposed Women Industrial Training Centre	3	69.98
13	Govt. Ayurvedic Hospital	27	750
14	Govt. Taluk Hospital Building	6	3736.69
15	Ottappalam Govt. Thaluk Hospital (Child Ward)	6	2640
16	Janasevanakendram Cash counter	6	98.69
17	Council Hall Building	6	742.6
18	Durgadas Memmorial Cultural Centre	6	424.5
19	Govt. Homeo Dispensary MEETNA	6	54.43
20	Anganavadi No: 89,Thottakkara, Ottapalam	17	41.12
21	Anganavadi No: 91,Thottakkara, 1st Mile	12	42.2
22	Anganavadi No: 98," Sangamam", Varode, Padinjattumuri	11	36
24	Anganavadi No: 88,Tile Company, R.S. Road, Ottapalam	14	31.98
25	Anganavadi No: 92,Veettampara, Varode Post	15	34.44
26	Anganavadi No: 93,Varode Shappupadi	19	38.02
27	Jubilee Anganavadi No: 95,Kunduparambu Anganvadi, Varode	16	45.5
28	Anganavadi No: 85, East Ottapalam,Chunangad Road	15	37.8
29	Anganavadi No: 87, Near RailWay Station	16	33.21
30	Anganavadi No: 86,Ottapalam BRC	14	50.8
31	Anganavadi No: 94,Varode School	20	55.9
32	Anganavadi No: 108,Kumbarankundu-II, Palappuram	3	118.17
33	Laksham veed colonyAnganavadi No: 116	28	43.2
34	Anganavadi No: 117	25	43.1
36	Anganavadi No: 118	26	41
37	Anganavadi No: 115	29	32.6
38	Anganavadi No: 114	30	40
39	Kolothukunn Anganavadi	9	55.92
40	Pulakkund Kunnu Anganavadi		30
41	Kanjirakkadav Health Centre Street Anganavadi	10	36
42	Chakkalakkund Anganavadi	14	82.07
43	Erakkottiri Anganavadi	19	43.3
44	Kanniyampuram Laksham Veedu Colony Anganavadi	28	51
45	Kasthurba Balika Sadan Library building	7	44.65
47	Varode Shappumpadi Anganavadi	3	41.15
48	G.J.B.School , Palappuram	13	494.02

Sl NO	Asset Name	Ward No	Total floor area
49	Anganavadi No:89 , Community Hall,Thottakkara, Ottapalam	17	41.12
50	Chakkalapalliyalil Anganavadi	27	39.15
51	Panamanna Pookkattukurissi Anganavadi	29	39.15
52	Solid Waste Treatment Centre	33	146
53	Plastic Treatment Unit	29	135
54	Varode Cherikkunnu Anganavadi	3	41.15
55	19th mile 1 Lakh House Colony	11	62.83
56	**Total**		**6107.77**

Source : Asset Register, Ottappalam Municipality

12.7.2 Key issues in asset management

Municipality's assets are seen underutilized even in the core area .Municipal roads are also seen poorly maintained.

12.7.3 Inference

Asset management is essential to improve the fiscal base and quantify the capital supporting the assets. Urban local bodies should put together all scattered assets of land and buildings which are possibly being eroded through encroachments or unauthorized take overs. Creating a Geographical Information Systems (GIS) database of the assets will help for rapid and accurate data collection, precise identification of building or service locations, calculations of areas and lengths, estimation of building height, and more importantly the easy, clear and unambiguous documentation of physical location of identified defects and potential problems.

13. LINKAGES AND EXISTING SPATIAL STRUCTURE

This chapter provide an empirical evaluation of the potential relationship between sectoral linkages. Understanding inters - sectoral linkages helps in developing a better perspective about possible feedback mechanisms that might exist across sectors.

13.1 INTER SECTORAL LINKAGES

In order to carry out detailed study of the plan area under consideration following sectoral linkages must be studied thoroughly.

- Agriculture
- Industries
- Transportation
- Tourism
- Commerce
- Environment
- Special Concern areas

13.2 LINKAGE BETWEEN AGRICULTURE AND INDUSTRIES

Agriculture only plays a passive role, which is the most important source of resources (food, fiber and raw materials) for the development of industrial and other non-agricultural sectors. Agriculture's productivity and institutional links with the rest of economy produce demand incentives and supply incentives fostering industrial expansion. Agriculture influences industry in many ways. It generates demand for industrial products used in farming such as fertilizer, tools and machinery. Agriculture tools like spade, plough, etc are produced in the industries. Ottappalam Municipality acts as a major processing centre for agricultural and forest products. Presently more industries functioning in the textile sector than engineering or agro based industries. There is shortage of functioning agro based industries. So the agricultural industry should be strengthened more to enhance development growth.

13.3 LINKAGE BETWEEN AGRICULTURE AND TRANSPORTATION

An efficient transport system is critically important for efficient agricultural marketing. If transport service is infrequent, of poor quality or expensive then farmers will be at a disadvantage when they attempt to sell their crops. Pattern of agricultural marketing is strongly influenced by nature of transport service. Ottappalam Municipality is facing a mild agricultural crisis due to the peculiar problem of paddy cultivation. Major road connecting the town to other towns is Palakkad-Ponnani road and it is in good condition. Well connected transport network and affordable transportation cost is necessary for agricultural development.

13.4 LINKAGE BETWEEN AGRICULTURE AND TOURISM

Agricultural activities can create environment that attract tourists to enjoy our traditional methods of farming in its natural atmosphere. Increase in tourism can boost agriculture as demand of food materials will also increase to greater extent. Locally famous food items will get more attraction from outsiders with the advent of tourism. Establishing linkage between tourism demand for food and local agricultural production is critical in maximising the town's benefits.

13.5 Linkage between agriculture and Commerce

Ottappalam being a town with highly consuming nature have more potential for agricultural product selling. All daily needed food products can be cultivated in our own town and can be marketed to residents with

much lower price. Exploitation of outside market forces can be thus avoided. Authorities should take care of proper functioning of these direct selling processes else market forces will make the supply system collapse.

13.6 LINKAGE BETWEEN AGRICULTURE AND ENVIRONMENT

Agriculture plays a key role in land management and has a huge responsibility in the preservation of natural resources. Ottappalam municipality is facing a mild agricultural crisis due to the peculiar problems of paddy cultivation. Agricultural production should be increased to meet the demand of a town and the increased agricultural experiments may lead to adverse impacts on the environment. Unscientific use of chemical fertilisers and insecticides are affecting biotic environment. Bio- fertiliser use must be promoted. Agricultural fields are active ecosystems with large variety of organisms enjoying their lives mutually depending on each others. Hence it is highly important to protect these cultivable lands so as to maintain food chain in its real form.

13.7 LINKAGE BETWEEN AGRICULTURE AND SPECIAL CONCERN AREAS

Agriculture plays an important role in reducing poverty and under nourishment and this depends on the specific context. For poor people agriculture can serve as an engine of economic growth. Government should interact with stake holders to support and enhance this role in many ways. Strengthening the chances of special concern peoples to take part in the sustainable development of agriculture and rural areas is vital in this regard.

13.8 LINKAGE BETWEEN INDUSTRIES AND TRANSPORTATION

The industrial revolution generated new transport demands. Efficient transport is critical component of industrial development. Municipality has good rail connectivity. This facility can be used for industrial development. Transportation is a major basis of national economy. Its role in the linking of production, circulation and distribution is unavoidable. Wrong decisions taken may push circulation system to a passive state.

13.9 LINKAGE BETWEEN INDUSTRIES AND COMMERCE

Manufacturers depend on commercial services to provide them with raw materials and components and to distribute their finished goods. Industry cannot exist without commerce and commerce cannot exist without industry. This is because every producer has to find his market for his product to sell. Industry is concerned with production of goods and services commerce arranges its sales. At present Ottappalam municipality is not developed as an industrial hub.

13.10 LINKAGE BETWEEN INDUSTRIES AND ENVIRONMENT

Environment is of great important since it plays an important role in the survival of the ecosystem generally. Industrial growth is necessary for economic growth of a town, but this growth can also harmful to our environs. Industrial growth adversely affects out climate and it creates pollution to air, water and soil. Municipality does not have large scale industries. So at present the pollution is relatively less and proper planning for future is necessary to keep our environs clean.

13.11 LINKAGE BETWEEN INDUSTRIES AND SPECIAL CONCERN AREAS

Socially backward communities are mostly engaged in primary activities like agriculture. Municipality have large number of textile industries. Government should take proper decision to participate the special concern people in textile sector. This will provide more employment opportunities for poor ones.

13.12 LINKAGE BETWEEN TRANSPORTATION AND TOURISM

For effective development of tourism there is a need to develop standard roads to link parks and other tourist destinations. Ananganmala Eco Park and bank of Bharathapuzha River are the main tourist destinations in Ottappalam. Tourism is weak in municipality and the major reason behind that is lack of infrastructural facilities. Presently there is no access road to bharathapuzha and ananganmala through municipality. Providing new roads will increase the importance of these destinations.

13.13 LINKAGE BETWEEN TRANSPORTATION AND COMMERCE

Transportation plays an important role in taking goods from a particular part where those goods are produced or manufactured to the place of is need and vice versa. This is in order to meet supply and demand mechanism. All conditions of commerce need assistance or support of transportation system. Ottappalam municipality was once the golden land of handloom dresses; later on with decrease in marketing land the industry faced its end. Finding of proper marketing place and providing transportation facilities to those localities can charge up the industry and many other industries that are now losing their grip in the present economy.

13.14 LINKAGE BETWEEN TRANSPORTATION AND ENVIRONMENT

Many junctions have been identified with in the municipality, which remains busy throughout the day. This will create problems such as air pollution, noise pollution and ground water pollution etc. Busy traffic also consumes large space of the town and creates adverse visual impacts which affect the quality of life of nearby residents. So planned development for transportation is necessary for keep the environs clean. Traffic congestion in railway station road and lakshmi theatre jn is highly disturbing the life of road users.

13.15 LINKAGE BETWEEN TRANSPORTATION AND SPECIAL CONCERN AREAS

For the people belonging to special concern area, expenses for transport are very high in relation to their low household income. The association between mobility and income is important. Colonies in the planning area should be provided with good road network. Migrant peoples from Tamilnadu reside underneath Mayannur Bridge as colonies. This slum does not have any infrastructure facilities.

13.16 LINKAGE BETWEEN COMMERCE AND ENVIRONMENT

Trade and commerce is important to accelerate the economical growth of a town. But this growth can be bad for land, air and water. Developed commercial centres generate large quantity of solid wastes. At present the solid waste generation is comparatively less as the municipality is in its growing age. For stabilizing the economic base of the town trade and commercial activities have to be strengthened. Proper waste management system and pleasant built up environment is necessary to keep the environs clean.

13.17 LINKAGE BETWEEN COMMERCE AND SPECIAL CONCERN AREAS

Provision of more commercially active centres will impart more job opportunities especially in the below poverty level. Loading - unloading processes, street vending etc will provide wages to men belonging to the lower classes. Direct agricultural markets will avoid intermediates between cultivators and consumers providing more profit for the producers and fresh items to the consumers. Commercial centres are the major points which can act as a prominent link to development. Textile shops, women accessory sellers and many other shops play an important role in providing job for the less educated women.

13.18 LINKAGE BETWEEN SETTLEMENT CHARACTERISTICS AND SECTORAL DEVELOPMENT

13.18.1 Effect of population growth on infrastructure

According to the population projection, municipality shows an induced growth rate. The decadal induced growth rate projected for Municipality is 4.11%. The increasing trend recommends that a proper future planning should be necessary to meet the facilities like housing, basic infrastructure and urban services etc. there

is evidence of haphazard physical development and encroachment to roads, road reserves and way leave. These developments are occurring in complete disregard of the existing legal and regulatory framework guiding urban development that are geared towards guarantee of poor quality life in the neighbourhood.

13.18.2 Effect of change in land use on Environment

Land use change is arguably the most pervasive socio economic force driving changes and degradation of ecosystems. Deforestation, urban development, agriculture and other human activities have sustainably altered the Earth's landscape. Forest provides many eco system services. Drastic change in forest land use within the municipal planning area had taken place from 1986. Paddy field, water bodies and agricultural fields are also converted for residential and commercial activities. Land should be found out to dispose the solid waste generated, drainage and sanitations. Proper land use planning will protect farm land, forests, water quality and wild life habitat. Paddy fields which are vibrant ecosystems should be conserved not only to preserve the habitat but also to enhance productivity to avoid dependence on other states.

13.18.3 Effect of Various sectors on Employment

Agriculture and animal husbandry

Ottappalam municipality is facing a mild agricultural crisis due to the peculiar problems of paddy cultivation and this decreases the share of agricultural workers in municipality. Animal husbandry is not weak in Ottappalam. Providing adequate infrastructure in this sector will provide large self employment opportunities. As per the data available from 1981, it can be seen that agricultural worker population has been decreasing after a hike in 1991. 2011 census data reveals that agricultural worker population has decreased from 12.88% (2001) to 6.79% (2011). Almost half numbers of workers have migrated from agricultural field to search for other job opportunities. But the shocking factor is that still major portion of the population belongs to non-working category. More attractive projects in these fields will definitely bring workers into this field.

Industries

At present, there are only small scale industries in municipality. IT infra park is being constructed by Kinfra at Lakkidi Perur will provide more employment opportunities in municipality. By proper intervention, more employment opportunities can be created through the development of industrial sector. Traditional handloom industries and food production industries can be brought back if proper steps are taken.

Tourism

Tourism sector is labour augmented sector; it is relatively more effective in creating jobs than other sectors. Consumptions expenditure of tourists provides direct or indirect employment opportunities in this sector. Tourism affects total employment in a country via the general employment effects on the economy. Tourism can generate jobs directly through hotels, restaurants, taxis, parks and indirectly through the supply of goods and services needed by tourism related businesses. Tourism is weak in Ottappalam Municipality due to lack of tourist destinations and infrastructure facilities.

Trade and Commerce

Trade plays a prominent role in job creation and poverty alleviation. In service sector more jobs have been created in recent years than in any other sector. In agriculture the share of trade products to the municipality is decreasing. This reduces the employment opportunities in this sector. Proper planning of the commercial areas will create more employment opportunities.

13.19 EXISTING SPATIAL STRUCTURE

The way that urban public space is arranged affects many aspects of how cities function and has implications for accessibility, environmental sustainability, safety, social equity, social capital, cultural creativity and economics.

13.19.1 Environmentally Sensitive Areas

Environmental sensitive areas of the Ottappalam Municipality include surface water sources (river, thodu and ponds), paddy fields and heritage areas. Apart fromthese Ananganmala is the important environmentally sensitive area that needs severe attention.



Fig.13.1 Environmentally sensitive areas

13.19.2 Functional Character

Based on land use, population distribution and average plot size the settlement can be classified into Urban, Semi Urban, Semi Rural and Rural. Ottappalam municipality shows urban character. The wards in the municipality are studied in detail with respect to different aspects like total area under each land use category, Concentration pattern of population, percentage of workers engaged in non- agricultural pursuit, Average plot size in the residential/agricultural mix use category etc. Fig 13.2 clearly depicts ward wise functional character of Ottappalam municipality.

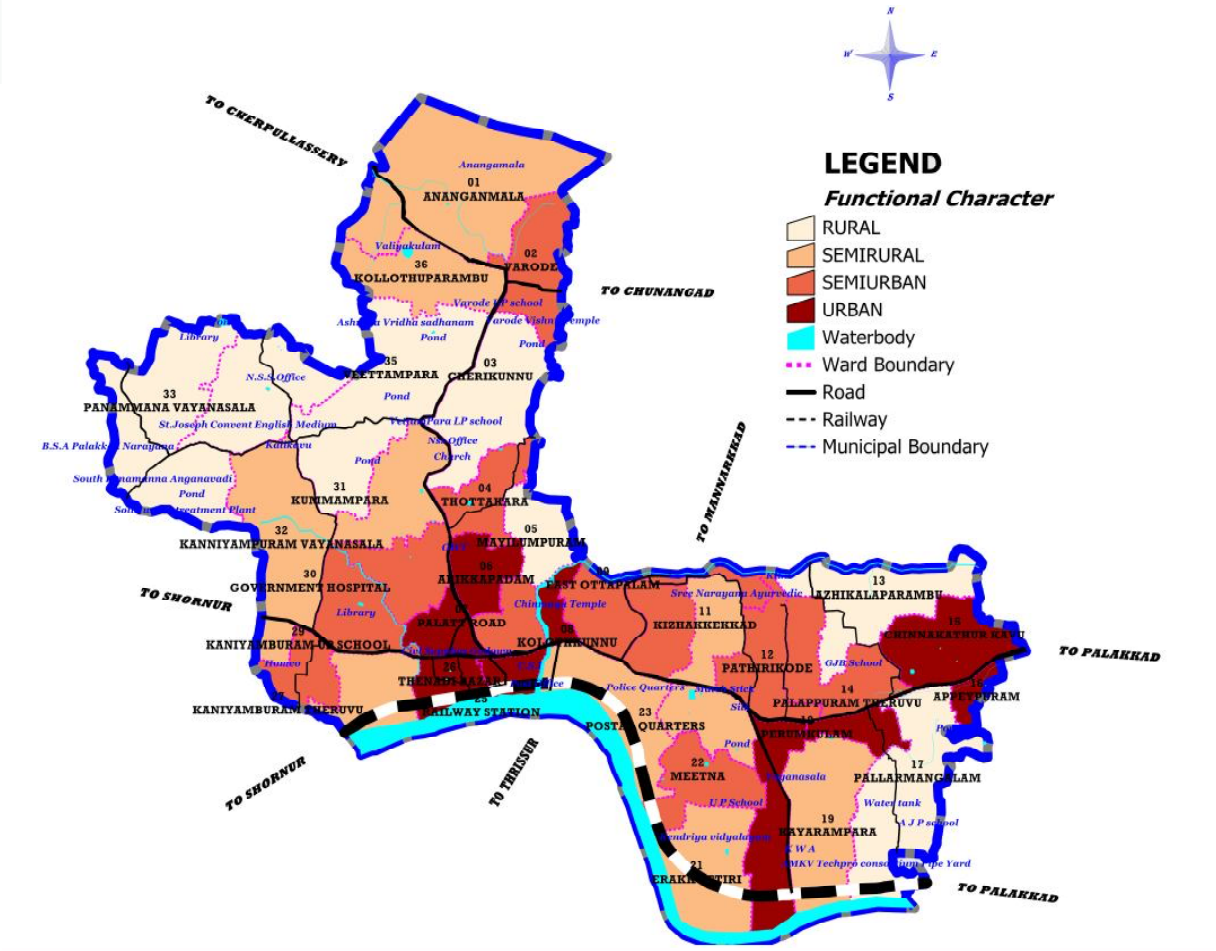


Fig.13.2 Ward wise functional character

Wards located in the central region of town and those areas which are nearer to the district quarters show urban nature. Rural and semi rural areas can be brought forward by implementing more agricultural improvements in the city.

13.19.3 Hierarchy of Commercial Nodes

Junctions with more commercial activities are identified into specific nodes based on their concentration of commercial activities. Fig 13.3 shows classification of nodes in Ottappalam municipality. Existing commercial nodes are as mentioned below.

1st order node

1. Town Junction
2. RS road Junction

2nd order node

1. Lakshmi theatre junction
2. JASS junction
3. Ambalappara junction

3rd order node

1. NSS-KPT
2. Varode junction
3. Valluvanadu junction

4th order node

1. Kayarampara junction
2. Veetampara junction
3. Kaniyampuram vayanasala
4. BSA narayana junction



Fig 13.3 Hierarchy of Commercial Nodes and road network

13.19.4 Connectivity Pattern

Ottappalam Municipality have good road and rail connectivity to neighbouring places. The road network in the study area is of radial type with limited inter linkages. Palakkad - Ponnani road passes through the centre of the town and it well connects the town to neighbouring towns. Ottappalam is also connected to India's railway network by Shoranur – Palakkad Railway line.

13.20 ACTIVITY PATTERN

Existing activity pattern is derived based on the study of spatial distribution of the details obtained by the result of land use concentration pattern, functional character and urban profile. Population distribution and and land use gives functional character of the city, where as urban profile is derived from Occupational structure and settlement hierarchy. The term activity pattern is used to indicate the major economic activity of a place or that can be brought there in future. It may be agriculture/ plantation (Primary activity), industries (Secondary activity), Service activities (Tertiary activity) or a combination of these like agriculture and animal husbandry and small scale industries.

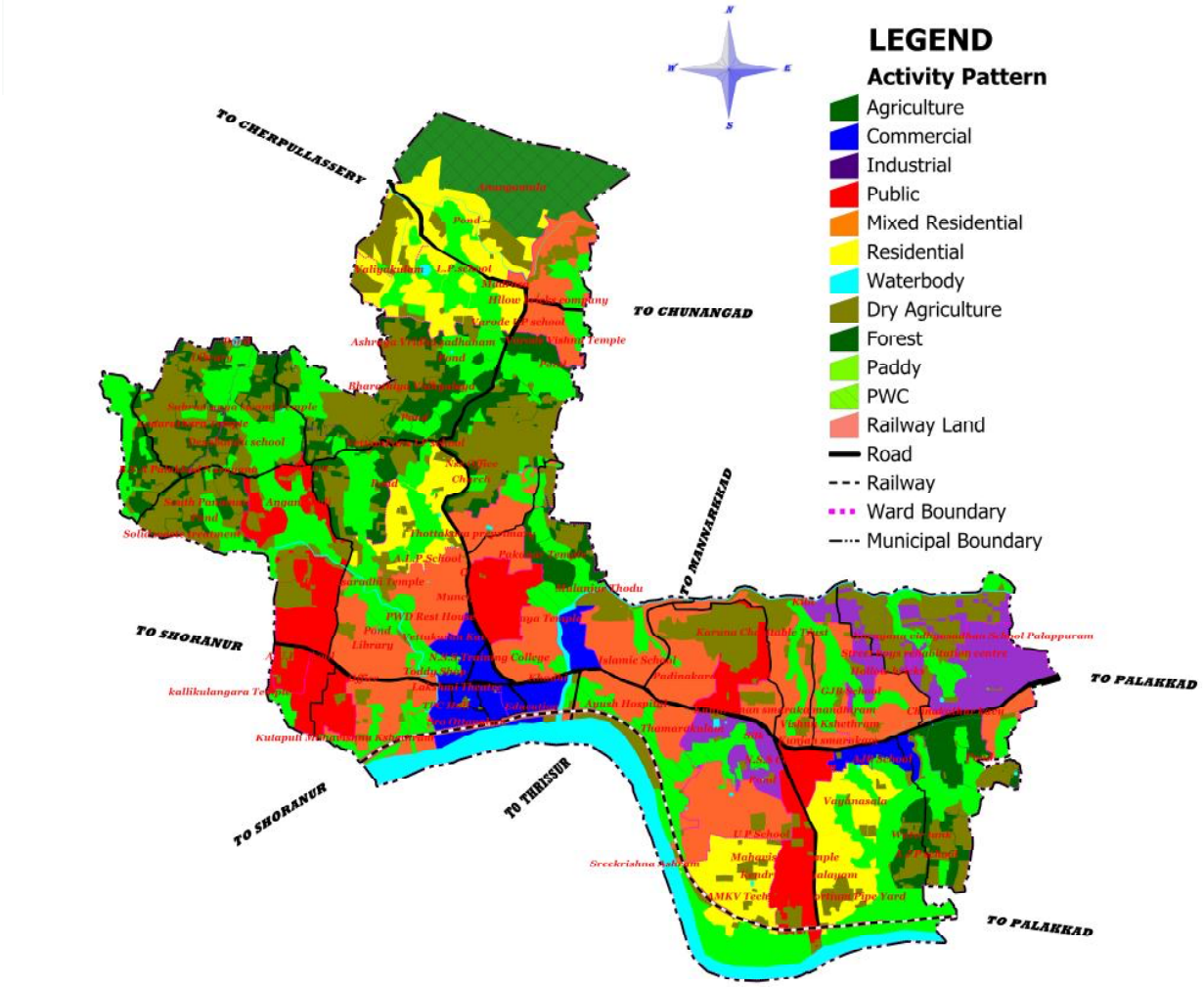


Fig 13.4 Activity Pattern

13.21 SPATIAL STRUCTURE

The activity pattern, connectivity and hierarchy of nodes are considered together formulated the spatial structure of the municipality. The spatial structure obtained by overlaying the maps of the above layers along with the environmentally sensitive area is shown in the Fig.13.5. The Mixed residential development is located on the both side of the Palakkad Ponnani road in between Meetna Jn junction and Valluvanad Hospital Jn.The town centre which accommodates the major commercial establishments etc. on the both sides of Palakkad Ponnani road are more functional. The major industrial park owned by KINFRA is located at Palappuram, which is the entry point of municipality at east and through Palakkad Ponnani road. Low density Residential zone is provided in between agriculture area and town centre to cater additional demand of housing and other development and in future maximum development activities is expected to occur here. Public and semipublic activities are concentrated along the sides of Meetna road , along Palakkad Cherpulasseri road ,the area where Municipal office ,Taluk hospital etc are situated and the western boundary of Municipality along the side of Palakkad Ponnani road etc.

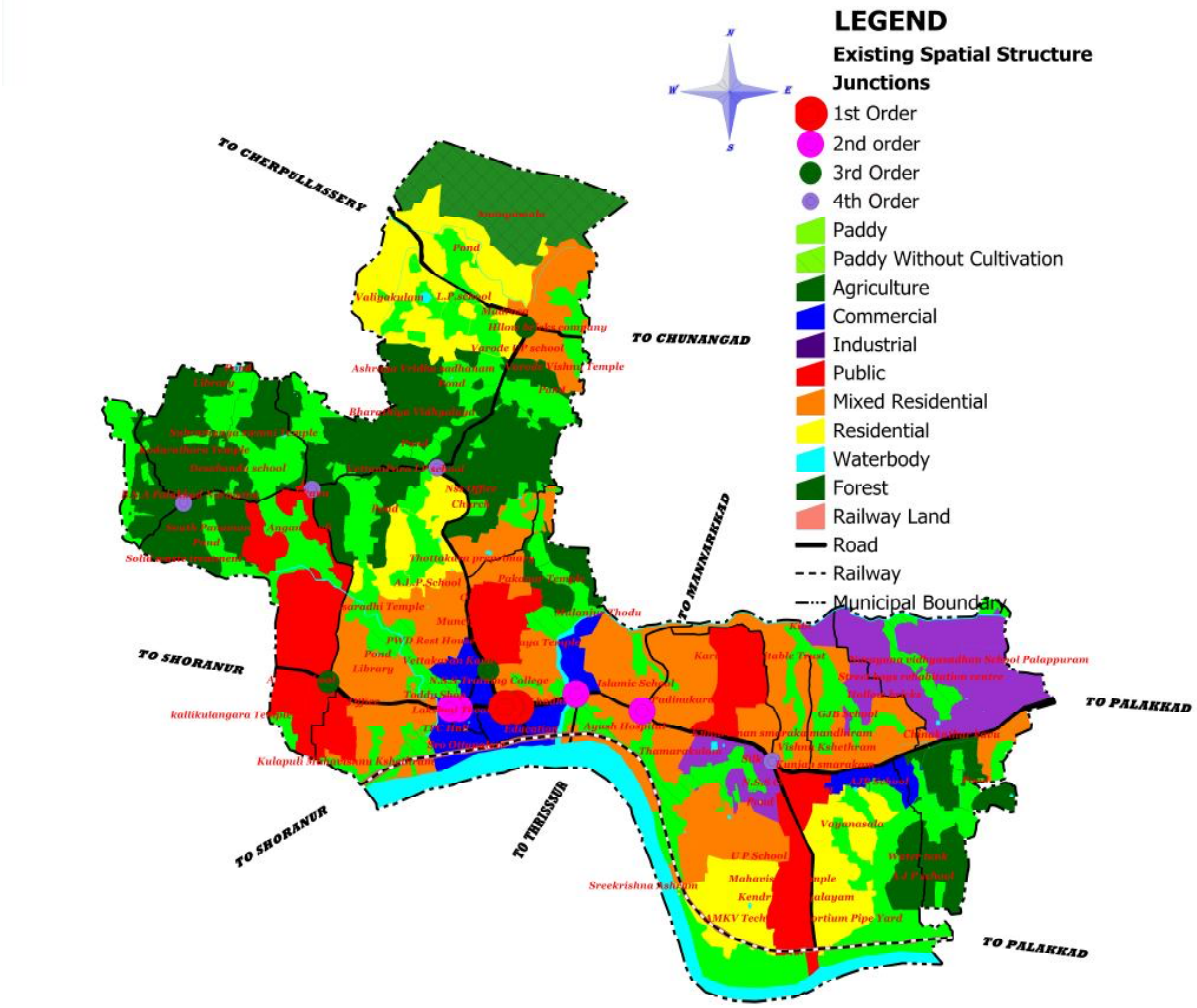


Fig 13.5 Existing Spatial Structure

13.22 INFERENCE

The study reveals the need of critical linkage between core sectors to ensure the optimal resource utilisation and to trigger the local economic development. The spatial structure of the town is evolved based on the study and spatially overlaying the road network and hierarchy of nodes over the spatially distributed activity pattern.

14. SUMMARY OF FINDINGS

14.1 FINDINGS AS PER INTEGRATED DISTRICT DEVELOPMENT PLAN FOR PALAKKAD

- As per Integrated District Development Plan for Palakkad, Ottappalam Municipal area is identified to have urban character.
- Ottapalam Municipalty suggested as III order Settlement (sub regional centre) and supposed to provide second order facilities like Taluk Hospitals ,Marketing facilities to the LSGIs in their respective service areas (Vaniyamkulam GP, Ananganadi, Chalavara, Ongallur) etc.
- As per development concept of IDDP, Ottappalam Municipality comes under multi functional Zone (II nd Order) of Palakkad District and act as a service centre for the hinter land and this zone is very much suitable for industries utilizing agricultural products of hinter land.
- Ottappalam town junction in Ottappalam Municipality is coming as second order node and service population is taken as approximately 1.5- 2 lakhs.
- According to the suggested road network for the distict proposed road –Ottapplam Mannarkkad stretch are to be strengthened.

14.2 REGIONAL SETTING

- Ottpalam town lies at 35 km east of district head quarters.
- The nearest corporation is Thrissur is situated at 47 km south of town.
- The port towns Kozhikode and Kochi are 109 km and 108 km respectively away from town.
- Coimbatore city second largest city after Chennai in Tamil Nadu is located at 88 km east of Ottappalam.
- The nearest international air ports are Kochi (98 kms), Kozhikode (79 kms)and Coimbatore (97 kms).
- The State Highway 213 from Palakakd to Ponnani passes through the town.
- Other important linkages from town to Thrissur, and Mannarkkad.

14.3 LAND USE

- Nearly 50 % of planning area is covered by environmentally sensitive areas -Forest, water bodies and agriculture. Around 80% of the developed area is under residential land use.
- As per the existing land use, majority of land area is in residential use.
- Industrial use covers 0.85% of the total built up area and it is very less compared to the norms of the UDPFI guidelines.
- The depletion of agricultural land use is not very severe in the Municipality even though paddy fields have been extensively filled up for various other purposes.
- Commercial and industrial land uses are mainly concentrated along the major transport routes and near to transport terminals
- Southern boundary being Bharathapuzha river which act as a physical barrier for growth of town and Railway line also divide the town in east west direction

14.4 POPULATION

- The population growth rate of municipality is declining at an average of 12.77%.
- Population density of Ottappalam municipality is very high compared to nearby LSGIs.
- When comparing with other Municipalities Ottappalam shows higher sex ratio. This indicates the higher migration of males for jobs.
- Higher population density in the central part of the municipality indicates that land available for new development is in the peripheral area than in core city.

14.5 EMPLOYMENT

- The work force participation rate has shown an increase during the last decades. This indicates that job opportunities are increasing and the economic base is gaining momentum.
- Majority of workers in tertiary sector gives a clear picture of urban character of Ottappalam Municipality.
- WPR of Ottappalam is lower than that of the State, District and municipalities within the district.

14.6 ECONOMIC ASPECTS

14.6.1 Trade & Commerce

- Ottappalam town is the main commercial node and it is highly connected to other LSGI in the district and nearby districts.
- Main commercial establishments of town are concentrated along Palakakd Ponnani state highway.
- Ottappalam town jn major commercial node is very much congested due to insufficient width of road and Lack of adequate parking space.
- Street vendors are located around major traffic nodes including railway station, bus stand areas.
- Ottappalam town is in central area and is lying close to bus terminals and railway station which aggravates the congestion problem.
- For stabilizing the economic base of the town trade and commercial activities have to be strengthened.
- Commercially developed wards comprises of Thennadi bazaar, Pallat road and Kollothkunnu.

14.6.2 Industry

- In Ottappalam Municipality there are no major and medium scale Industries. There are only small scale industries (SSI).
- Although geographycally and socially Ottapalam municipality is similar to Shoranur Municipality it has not developed as an industrial hub as that of the Shoranur Municipality.
- There is a shortage of a functioning Industrial estate where all industrial activities from production to marketing could be co-ordinate.
- It has industrial development potential mainly for processing units (value addition) for agricultural products coming from adjacent local bodies within district and even from Tamilnadu &Industry related to IT, ITES and Engg based and electronic based.
- An IT Infra park is being constructed by Kinfra at Lakkidi Perur and as it is commissioned Ottapalam gets a significant role in Infrastructure development.

14.6.3 Tourism

- Tourism is weak in Ottappalam Municipality. The major reason is lack of tourist destinations and infrastructure facilities
- The quality of infrastructure required for promoting tourism is not satisfactory. Hence the infrastructure development needs special attention.
- Anangamala eco-park has good potential as tourist attraction spot and hence need wide publicity to promote tourism at Anangamala eco-park.

- Town can be function not only as a tourism destination but also as a intermediate halting station.
- Other famous places in the Surrounding area of ottppalam, particularly Mahakavi Sri Kunchan Nambiar memorials at Lakkidiperur, Varikkaseri Mana at Manissery, largest cattle market at Vaniyamkulam etc.
- Shores of Bharathapuzha can be developed as a prominent recreation area
- Proposal of a mini film city as a joint venture of tourism department and Kerala Film Development Corporation (KFDC) in the land owned by Irrigation dept will enhance tourism potential in near future

14.6.4 Agriculture

- The major agricultural crop is paddy which covers about 21% of the total land area. There is first crop and second crop paddy cultivation but no third crop paddy cultivation.
- Ottappalam municipality is facing a mild agricultural crisis due to the peculiar problems of paddy cultivation.
- Scope for increasing production and productivity of paddy by augmenting irrigation facilities by renovating existing ponds, thodus and canals.
- Scope for vegetable cultivation in the banks of Bharathapuzha. Home sted cultivation.
- By giving more collection, storage and processing facilities and linking with industrial sector diversified products can be manufactured and export.

14.6.5 Animal Husbandry

- Animal husbandry is not weak in Ottappalam.
- The 5 numbers of dairy in municipality shows the interest of people is not lost in animal husbandry.
- Providing adequate infrastructure in this sector will help to develop the animal husbandry of municipality.
- The numbers of Animal Husbandry institutions are satisfactory in Ottappalam.
- There is potential for cattle, rabbit rearing in peripheral wards.

14.7 Traffic and Transportation

- The road network within the study area is of grid iron pattern with limited inter linkages.
- Main roads are Palakkad - Ponnani road and Ottappalm - Thrissur road, Ottappalm –Mannarkkad road, Ottappalam Cherpulassery roads.
- Some of the road stretches within the study area were over utilized with a traffic volume exceeding their carrying capacity.
- At major commercial junctions organized parking spaces are not found sufficient, hence results into on-street parking.
- A new bus station is under construction behind of the existing municipal bus stand and with the completion of new bus station traffic congestion at the existing bus station will be reduced considerably.
- Truck terminal facilities available in municipality are inadequate. Almost all the loading and unloading activities are done on either side of roads.
- Railway station is near to bus stand, but the roads connecting railway station is narrow hence congested.
- Many long distance trains coming from different parts of their area is not benefited due to non-stoppage of most of them.
- Geometry of road junctions needs improvement.

- Town is not sufficiently linked with its immediate influence zone by sufficient number of bus services and to all interiors of town.
- A dearth of parking spaces for private vehicles in the municipality causing kerb parking affecting the carrying capacity of the roads.
- Bus stand area is insufficient to occupy the peak hour traffic and requires expansion.

14.8 WATER SUPPLY

- Major source of water in Ottappalam Municipality is well. In addition to that ground water, pipe water from Bharathapuzha is also used. Lowering of ground water table in Bharathapuzha River (main source of KWA) hence Source is not adequate during the month of December to May.
- Completion of 13 MLD capacity treatment plant will help better water distribution.
- Main problem is the source which is getting dried up in summer season and it can be solved only by the construction of temporary check dam.
- The quality of water gets affected since water distribution pipes are laid through drainages in some parts of town.
- By the commissioning of UIDSSMT project , major problem of water supply in Ottapalam municipality will be solved.

14.9 DRAINAGE

- The drainage system consists of natural and artificial drains that ultimately discharge into Bharathapuzha flowing through the southern territory of the town.
- Very few percentage of drains covered, hence breed mosquitoes, causing health problems.
- The drainage networks along the main road Palakkad-Ponnani KSTP road seen continuous.
- Drainage facility on other roads is not continuos and this causes water logging in many of the roads during rainy season.
- The waste water from houses, shops and hotels are also disposed into the storm drains.

14.10 SEWERAGE AND SANITATION

- The number of toilets provided in commercial establishments and offices are far below requirements.
- About 70% of the total households have septic tanks, 30% use pit latrines.
- The sullage generated from kitchen and bathrooms etc, is let out into the open mostly through storm drains.
- There is no sewage treatment facility at present hence treatment of waste water is a concern.
- Lack of public pay & use toilets in Market places, shopping areas, and the Railway Station need to be eliminated quickly.

14.11 SOLID WASTE DISPOSAL

- The compost plant (Capacity 6 T) is treating only selected wards and if all municipalities are taken into consideration the capacity is not enough to handle the total quantity of the waste generated.
- Solid waste management system is not in compliance with MSW rules 2000 and KM Act 1994 and amendments.
- Door step collection system is not covering all the houses in the wards and street sweeping is done only in some areas.
- Dumped wastes create pollution during rainy season.
- No bins in town areas.
- The plastic waste is land filled with no proper treatment.
- Lack of awareness among people about the impact of dumping of solid waste in to water bodies

14.12 ENERGY

- Municipality does not have major energy crisis, but problem lies in the fact that it has to depend on other districts, especially in electrical energy requirement.
- As per data there are no areas of low voltage.
- Installation of solar panels in houses will be highly beneficial and should be encouraged since domestic consumption is the highest.
- The town has comparatively good LPG and petrol supply system in existence.

14.13 EDUCATION

- City is well ahead in case of higher education facilities. Ottappalam presently have one arts and Science College and 3 teachers training institutions.
- Literacy rate of Ottapalam municipality is 94.65% as per census 2011which is higher than the literacy rate of Palakkad district, which is 93%.
- Student strength of high school as per standard value is 700, but NSS-KPT HS and LSN GHS have student strength 1305 and 957 respectively. Other than these schools all other schools have fewer students than required standard.
- As per standards only 4 HS are required in Ottappalam Municipality, but prestigiously Ottappalam municipality altogether have 7 HS in existence.
- Even though city do not require addition of educational institutions, standard of education need to be improved.
- Apart from conventional courses now offered, some other courses also have to be started to bring back students depending colleges outside the district.

14.14 HEALTH

- Ottappalam municipality have a number of hospitals to serve the inhabitants.
- There are 20 Allopathic Private Clinic, 3 Ayurvedic private Hospitals and 4 Homeopathic clinics in the Ottapalam Municipality.
- Lack of super speciality hospitals in municipality forces inmates to depend neighbouring districts or states.
- The government district Taluk hospital, which is the only government hospital, lacks sufficient doctors.
- Major problem is the unavailability of facilities in the existing hospitals.
- Taluk Head Quarters hospital and railway hospital are government hospitals with IP facility in the municipality.

14.15 HOUSING

As obtained from socio economic survey.

- The average size of households in 2012 is 4
- Majority of houses are having a plinth area of 20-75sq.m
- About 49% of the houses are Pucca.
- About 92% of the people are having their own land.

14.16 RECREATION

- Ottappalam have least number of recreational facilities in existence.
- Inadequate recreational spaces at the neighbourhood and town level.
- Prominent recreational facilities in Ottappalam municipality are theatres. Unavailability of parks and socio – cultural centres are main concern in this region.
- More recreational facilities need to be implemented in the city as they will play vital role in the development of the city.

14.17 OTHER CIVIC AMENITIES

- Facilities like Petrol pumps and communication facilities are found sufficient.
- At present Ottappalam area is serviced by fire station at Shoranur which is at Poduval Junction near industrial estate.
- In order to hold future population with perfect combination various community level services are to be planned properly.

14.18 SOCIAL BACKWARDNESS

- The SC/ST population are mainly concentrated in wards having greater concentration of agricultural labourers and cultivators.
- The literacy rate among SC population (91.26) is slightly less than that of the general population.
- 43 % of households in the municipality are below poverty line.(2011 census)

14.19 ENVIRONMENT

- Air, water and land have to be properly conserved and its pollution should be prevented by all means.
- Proper control on pollutants from industries, automobiles and other sources has to be made with the enforcement of strict laws from the government.
- Water bodies (River and Ponds), Paddy fields, Heritage sites are to be conserved being environmentally sensitive areas.

14.20 DEVELOPMENT ADMINISTRATION AND FINANCE

- Low level of resource mobilization.
- The municipality has tremendous potential for development of financially remunerative projects for sourcing funds for urban development.

15. GOALS AND OBJECTIVES

In the preparation of Master plan for urban areas, it is of utmost importance to have a vision for the futureof planning area. Goals are usually long-term and represent global visions and Objectives define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific, measurable, and have a defined completion date. They are more specific and outline the "who, what, when, where, and how" of reaching the goals. Plans and actions based on clear goals and objectives are more likely to succeed in meeting the community's needs.

15.1 DEVELOPMENT GOALS AND OBJECTIVES

Based on the detailed study and analysis carried out , Goals and Objectives for Ottappalam Town can be summarized as follows .

1. **Develop Ottappalam town as a Sub Regional Centre - an urban centre for trade and commerce, next level education hub for the surrounding hinterland and a third order service centre for higher order facilities within the district.**

Objectives:

- Provide higher order facilities in order to serve the nearby local bodies.
- Provide adequate physical infra structure facilities to meet the current and anticipated demands of all areas.
- Provide higher order educational facilities
- Provide access and support for health services to all citizens with an emphasis on weaker sections of community
- Provision of an efficient traffic and transportation network within town.
- Provide better transportation network with regional connectivity.
- Provide adequate parking facilities in the town.
- Develop a system of permanent open spaces that link recreational and institutional uses
- Encourage provision of recreational activities.

2. **Enhance the economic base of the town promoting trade and commercial activities, small scale industrial and eco tourism activities, Agriculture and allied activities**

Objectives:

- Promote more retail and whole sale trade and commercial activities
- Develop decentralized modern markets,cold storage facilities

- Provide industrial activities by using the available resources and potentials.
- Promote tourism activities due to the proximity to Ananganmala eco-park and most popular film shooting locations available.
- Promote agriculture activities by providing sufficient infrastructures and marketing facilities
- Decongest the core area of the town by dispersal of commercial activities
- Optimum utilisation of available potentials can boost economic growth.
- Increasing production and productivity of major crops like paddy, rubber ,vegetables etc
- Promotion of Homestead agricultural activities
- Promotion of bio organic farming

3. Ensure healthy living condition with the provision of quality service and facilities.

Objectives:

- To rationalise the distribution of physical and social infrastructure in order to ensure appropriate quality of life.
- Ensure quality and safety in all available hospitals and medical practice centres.
- Create recreational spaces that can enhance bonding between inhabitants and nature.
- Create a traffic culture that will depend more on public transportation means other than private vehicles so that traffic volume intensity can be minimized which will in turn reduce pollution of atmosphere.
- Promote use of Bicycles other than fossil fueled vehicles to make an environmental friendly health life style. Bicycle tracks and Bicycle lending units can be implemented in that point of view.
- Increase public awareness in regards to the protection of the environment.

4 . Conserve the heritage areas and environmental sensitive areas including forest area, water bodies and paddy fields with in the town.

Objectives:

- Create a green buffer strip around environmentally sensitive areas like water bodies, forest, and around hazardous solid waste dumping land to ensure proper encroachment and pollution protection.

- Implement zoning regulations for paddy fields with strict order.
- Implement green strips around polluting industries and dwellings.
- All environmental sensitive areas are home land of wide variety of flora and fauna, hence their conservation should be considered with utmost importance.
- Make the city green, secure, hygienic and elegant for living.
- Encourage the preservation, restoration, continued use, and reuse of historic buildings and areas
- Protect and conserve the historical monuments

Vision statement is derived after stakeholder consultations and taking into aspritaions of people

Finally the Development Vision for Ottappalam Town can be summarized as follows

To develop Ottappalam town as a service centre with thriving sustained economy promoting trade, small scale industrial (mainly Information Technology/Information Technology Enabled services) sectors and eco-friendly tourism activities and equipping it to serve a wider service region with commercial, recreational and institutional activities supplemented with the necessary infrastructural facilities and amenities to provide better standards of living conditions for all residents in an inclusive and environmentally sustainable manner.

16. DEVELOPMENT CONCEPT



16.1 DEVELOPMENT VISION

To develop Ottappalam town as a service centre with thriving sustained economy promoting industrial sectors and eco-friendly tourism activities and equipping it to serve a wider service region with commercial, recreational and institutional activities supplemented with the necessary infrastructural facilities and amenities to provide better standards of living conditions for all residents in an inclusive and environmentally sustainable manner.

The resource base of the town and integration of core sectors plays a crucial role in the planned development of the town. The existing transportation network read together with envisaged traffic and transportation concept and proposed transportation plan has profound impact in the formulation of development concept. Obviously the impulses of ongoing / committed/ proposed projects within the municipality and surrounding region has to be given due consideration while formulating the development concept. The factors to be synthesized to formulate the development concept are described in Fig 16.1 which depicts the formation of development concept in a planning process.

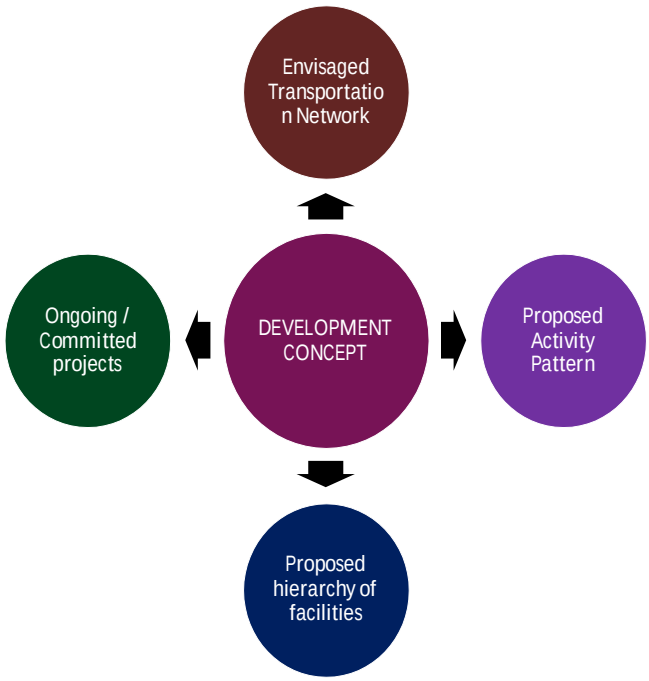


Fig 16.1 Formation of Development Concept

In fact the development concept can be visualized as spatial manifestation of planning theory. The development concept will clearly indicate how the planning area will develop in future and also will give an overall idea of the location of determinant development proposals. The key development aspects of planning area identified through detailed analysis are environment, transportation, agriculture and allied activities, industry, population density pattern, tourism and commercial activities.

16.2 OVERVIEW TO THE CONCEPT

Analysis of various parameters pertaining to the development of the town and findings emerged out from them clearly shows that the town has underutilized or unutilized potential in trade and commerce sector, secondary sector, primary and allied sector and tourism sector. The town shows flourishing tertiary sector without having proper backward and forward linkage with primary and secondary sectors. More over the town and region is bestowed with natural resources, unique topography, environment, tourism and socio – cultural resources. At the same time there are areas of environment concern.

Findings from Integrated District Development Plan for Palakkad

As per Integrated District Development Plan for Palakkad, Ottappalam Municipal area is identified to have urban character. Ottapalam Municipality suggested as III order Settlement (sub regional centre) and supposed to provide second order facilities like Taluk Hospitals, Marketing facilities to the LSGIs in their respective service areas. As per development concept of IDDP, Ottappalam Municipality comes under Multi functional Zone (II nd Order) of Palakkad District and act as a service centre for the hinter land and this zone is very much suitable for industries utilizing agricultural produces of hinter land. Ottappalam town junction in Ottappalam Municipality is coming as second order node and service population is taken as approximately 1.5- 2 lakhs . According to the suggested road network for the distict, proposed road –Ottapplam Mannarkkad stretch is to strengthened. Hence it is proposed to promote the development of Ottappalam town in such a way as to function as Sub Regional Centre as defined in the IDDP for Palakkad District 2031.

Understanding of existing spatial structure of town is a prerequisite to visualize future spatial structure for accommodating projected growth. The structure of the city can be appreciated by noting the relationship between living and work areas in terms of their connectivity with each other. There is no doubt about potentiality of Ottappalam town because of railway line but at the same time town has been fragmented into two segments which have poor connectivity among each other. The CBD area near Town bus stand, railway station are major work areas of the town where major commercial activities are also concentrated. The other work areas are mainly industrial area near Palappuram ,Varode junction and sides of major transport routes and areas where other public institutional buildings are located. It is observed that the development activities are concentrated along main roads passing through the town besides the area falling in the vicinity of existing developed areas of the town.

The cities grow organically depending upon the availability of land, easy accessibility and growth potential. On the basis of various sector studies and noticeable development activities have been detected prominently on Palakkad Ponnani road, Cherpulasseri road, Chunangad road , Meetna road and Thrissur road . Keeping in view the past as well as present trends along with the vision 2031 for this town , basic town structure envisaged for future is “A Compact Core envisaged as Town Centre with expansion on all sides as well as along major transport arteries.”

On the basis of studies, it is observed most of the development activities are concentrated in the areas falling in the vicinity of existing developed areas of the town and development along the main roads. Keeping in view, the present growth trend and present as well as future size of the town, only the following town structure has been envisaged for the development of future Ottappalam town.Therefore different activities which are currently in operation in Ottappalam town, needs to be regulated and decentralized elsewhere within the Planning Area. However taking note of the unique characteristics of the surrounding region of town and the constraints in terms of land form and linkages, it is desirable that the future developments are accommodated broadly as shown Fig 16.2. More intensive urban activity adjoining major transportation corridors and immediate surrounding area, mainly for residential development and other remaining area by low density residential activity and conserving Environmentally sensitive areas like vested forest, water bodies and Paddy fields .

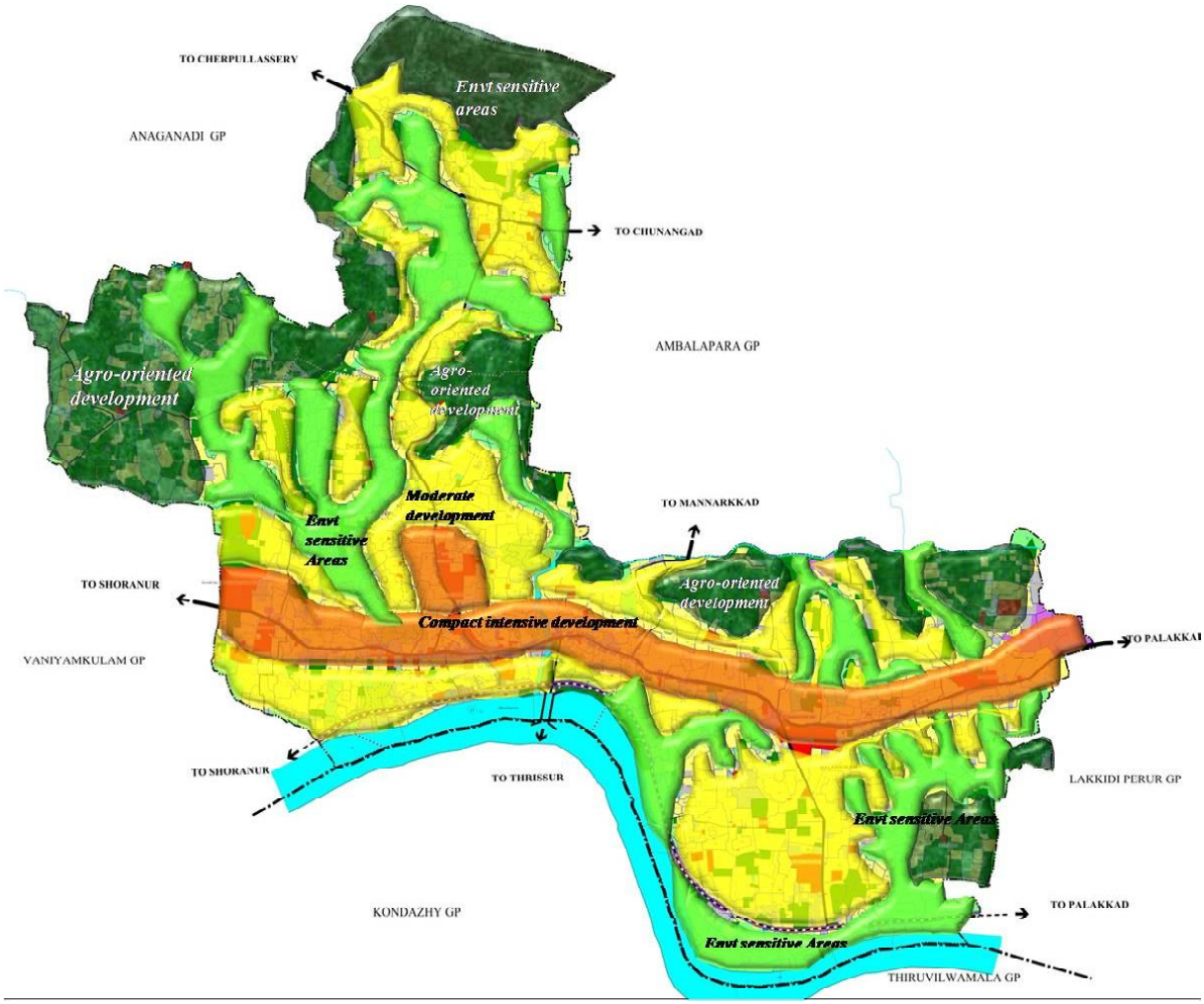


Fig 16.2 Desirable future Devlopment for Ottappalam town

The town is predominantly residential and doesn't have a strong economic base for its self sustainability. It is evident from existing land use that that residential use has a larger share of developed area . Although of late, after acquiring the status of the Taluk headquarter, the town has witnessed tremendous spurt as far as educational institutes and other multifarious activities are concerned, yet new growth trends have also been observed after attaining good connectivity to Thrissur district via road after the construction of Mayannur Bridge . Although it has been observed from the studies that there is a tendency of growth along transport corridors, considering areas of potential development, wider areas of development have been considered. As the proposed roads would open up new areas for development the scope of potential areas which may touch the potential nodes of development also .

16.3. ENVIRONMENT AND TOPOGRAPHY

It is foreseen that the various existing and proposed economic activities will lead to a fast pace of urbanisation in Ottappalam over the next two decades. As a result, the amount of land under agriculture, forest and waterbodies uses has to be conserved . There is a total of 29% (941 Hectors) of land to be conserved due to environment sensitiveness (Fig 16.3).

As per the slope analysis, another 5 % of the terrainis not suitable for urban development. Major portion of Ottappalam Municipality comes in average elevation of 30 to 60m. (Fig 16.4) Bharathapuzha and its nearby areas are having the lowest elevation which is less than 30m. Hence chances of accumulation of drainage waste are high in this area. If proper care should be taken to protect Bharathapuzha River from pollution. Ananganmala region has the highest elevation in the city which is greater than 250 m at some areas. Presence of Ananganmala at the north and Bharathapuzha at the south provides natural hindrance to physical growth of town in east and south directions.



Fig.16.3 Environment Sensitive areas

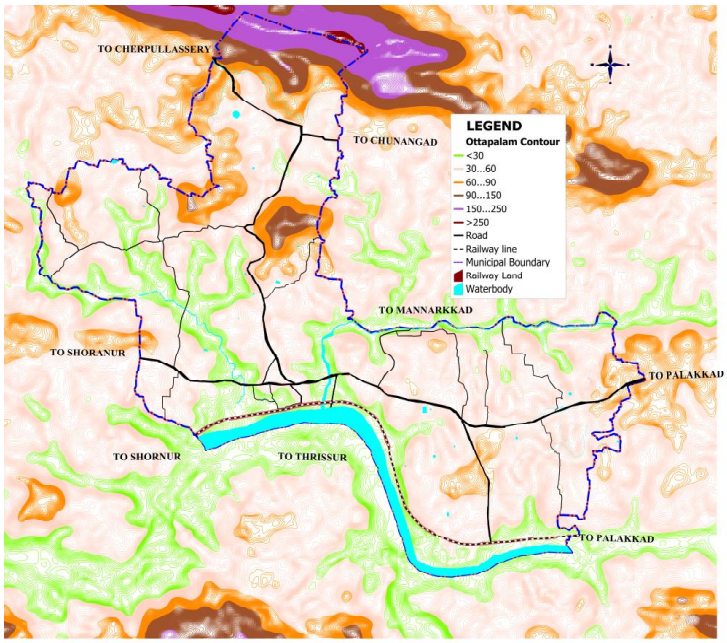


Fig 16.4 Contour map of Ottappalam Town

16.4. POPULATION DISTRIBUTION

So as to accommodate future increase in population, spatial structure has to be designed keeping the environmental hindrances in mind. Ananganmala(Vested forest)present in the north end of municipality and Bharathapuzha river in the south side prevents furtherexpansion and development in that direction. Presence of high yielding paddy fields is another concern in the municipality. As these hindrances are located in the outer periphery of the town, development in the inner core of town will not be affected much.

In the municipality all or majority of the commercial activity is concentrated in the town junction area. Increased commercial activity is highly disturbing the traffic network in that junction. Hence further encroachment in the town junction must be strictly prohibited. Easy and smooth flow of traffic has to be ensured by developing the junction and widening the road stretch. Populations are mainly concentrated in the Panamanna vattanal, Railway Station,Appeypuram, kolothukunnu, Perumkulam& Palatt Road. Residential activity must be undisturbed in those areas.

16.5 TRAFFIC & TRANSPORTATION CONCEPT

In order to provide relief to the CBD area of Ottappalam municipality and keeping in view of increased volume of traffic in future, concept of grid pattern of roads is proposed. In the grid, Palakkad - Shoranur road stretch functions as the main line. Lakshmi theatre Jn- Cherpulassery outlet road stretch, Mannarkad outlet and Mayannur Bridge - Thrissur road stretch connect the main road to nearby LSGs. No much change is needed in the existing pattern of road other than connection of some missing links. Inclusion of these links will make the grid complete and smooth.

Inner ring road provides flawless transportation network and helps in reducing congestion at the core town. Palakkad- Ponnani road divides the town into two halves and function as the major arterial road. Link road connecting from Palakkad -Ponnani road to Mannarkkad road and its extension kanjirakkadavu - kayarampara road completes the upper half circle which will primarily reduce the future traffic congestion in the core.

Another long stretch of road can be constructed along the banks of Bharathapuzha which can also be used for recreational purpose as walking streets. A link can be provided between Mannarkkad outlet road and the eastern municipal limit so that some of the traffic coming from Mannarkkad can be diverted through it. Link road connecting from weaver's colony to via Palarmangalam railway will complete the grid pattern in the southern region (Fig 16.5)



Fig 16.5 Concept of Transportation Network in Ottappalam

16.6 HIERARCHY OF NODES

At present Town junction and Railway station junction developed with commercial activity and act as first order nodes. In the concept it is suggested to provide a town centre covering these junctions within CBD areas. Varode, Kayarampara and Panamanna Vayanasala, Valluvanad Hospital junctions need to be upgraded to secondgrade. Whereas Ambalappara , Chinakathur kavu, Veetampara, BSA Narayana and Pallipadi road junctions are planned to upgrade to third order and Kendriya vidyalayam jn as proposed third order node. Fig 16.6 depicts the proposed hierarchy of nodes.

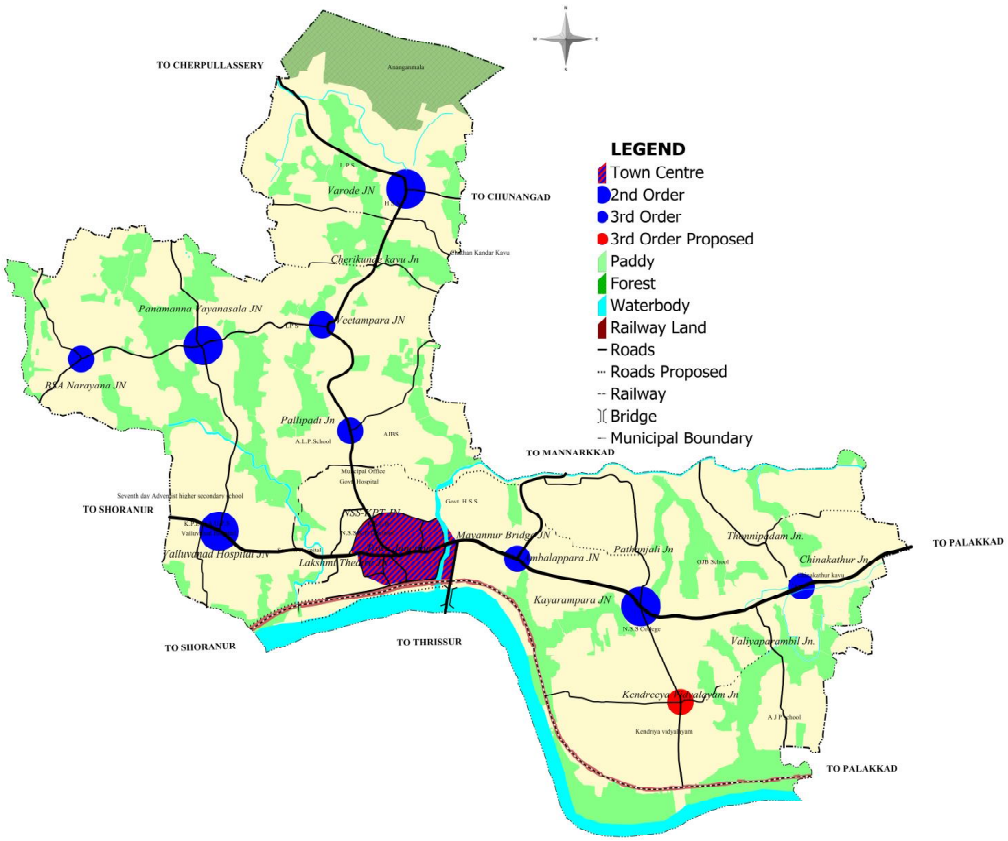


Fig 16.6 Proposed Hierarchy of commercial nodes

16.7 RESIDENTIAL ACTIVITY ZONING

Central areas of the municipality are highly concentrated with mixed activities .North western peripheral area of municipalty where agriculture activities are predominant are suggested as low intensity residential areas. Improvement of water supply and more cultivable paddy lands will promote comfortable life in these areas. All other areas are separated out as intensive residential zones. These residential activity zones mainly consist of already developed residential lands. Fig 16.8 depicts the future residential activity zones.

Within residential areas in general, social facilities have to be provided to meet the residents' needs for public services. These include schools, libraries, health facilities, police and fire posts, government offices/ departments etc. These facilities serve complementary roles and can be clustered or co-located to optimise land use and create synergy. The provision for social facilities at regional level has to be reasonably planned and sited for the needs of the town and its growing residential population in the new housing areas and its surrounding hinterland. Apart from the low and Intensive residential area mixed residential land area is also provided in the municipality. Almost all types of uses can be permitted in these areas provided they do not exceed the specified floor area ratio. It is mainly located along the sides of mjor transport corridors . Palakkad Ponnaniroad and Ottappalam Cherpulasseri road It starts from NSS College and extents up to the railway line.



Fig 16.7 Residential activity zones

16.8 FUTURE ECONOMIC DEVELOPMENT ZONES

Economic development of town mainly depends upon the commercial and industrial activities of the town. Ottappalam being a town with major commercial activity will accept all improvements in the commercial sector whole heartedly. Region around town junction and railway station junction are highly congested due to the increased commercial activity in those areas. Hence it is suggested to develop a town centre as shown in fig 16.8.Junctions are categorised based on the nodal hierarchy of commercial usage. The study reveals that the existing Central Business District (C.B.D) or the main commercial centre of town is very congested where lack of parking facilities and inadequate approach etc. are the major problems, therefore to decentralize commercial activity , more new commercial areas are proposed to be developed through out the planning area . It has also been kept in mind that this town will continue to function as a sub regional centre and will serve the larger area than its planning area.

More commercial centers will be required in new residential areas. The existing commercial areas shall remain as part of proposed Commercial Land Use Zone. It is better not to worsen the crowded situation in the town centre, the planning intervention to propose a compact developement in that area . Existing commercial activities will be allowed to continue operating there. To further reduce congestion, commercial activities are decentralised. Further intensification of existing commercial activities within the town centre area must also be contained so as not to worsen the crowded pedestrian and vehicular traffic.

conditions there. However, it is recognised that commercial activities are needed to serve the needs of the community and residents living in the area. This is addressed through the mixed residential use zones proposed along Palakkad Ponnani road , Cherpulasseri road and meetna road.In the residential areas, there will be provisions for small scale commercial facilities at the local level. These are intended to serve the needs of local residents .

In addition to trade and commerce , another supplementary driver of economic growth and creation of employment opportunities will come from industrial uses. This includes existing industrial uses, as well as proposed KINFRA industrial park and defence park.



Fig 16.8 Industrial development Zones

16.9 RECREATION, HERITAGE &TOURISM CONCEPT

Presently, there are already one large tracts of vested forest area covering a total land area of 141 ha at north end of town that helps to preserve the natural characteristic of the town. This large tracts of forest areas can assume the role of important green lungs to serve the town and mitigate the pollutive activities from the industries. To preserve the natural characteristics of the town, It is also proposed to conserve land for the use of green buffers and open space (Fig 16.9).

Recreational facilities are unavoidable in a city growth as it influences mental health of inhabitants to a greater extent. Present recreational facilities in Ottappalam are extremely poor. To enhance this sector some parks and open spaces are suggested in the city. Two children's parks are proposed each in Varode desam and Palappuram desam. Two more parks are also suggested which will serve all type of generations. One is suggested in Thottakkara desam and the other in Ariyur Thekkumuri Desam.

Other than these parks and open spaces some more tourism proposals are also put forward for the municipality. Ananganmala is famous for eco tourism activity. Scenic beauty offered by this hill can act as a prime source of tourism revenue. Inspiring view from its top will definitely drag people from all around the city. An indoor and out door stadium are also proposed .Another innovative concept is created for recreational purpose in Ottappalam municipality. The concept named as "Smart Street" opens the possibility of converting less traffic roads to play streets once in aweek, that too on holiday. This temporarily blocked street can act as play area especially in places where free grounds are not available.

Ottappalam town has famous ayurvedic hospitals like Padinjarekkara Ayurvedic hospital, Nandavanam Ayurvedic hospital ,Paliyilmadam Ayurvedic hospital and Ayush Ayurvedic Hospitals to reap the benefits of Ayurveda through health tourism. The age old therapy of Ayurveda can be used here for attracting tourists. These hospitals offers Ayurvedic Treatments like the Panchkarma Therapy and other rejuvenative and therapeutic treatments. Yoga and meditation centres are also included in such centres. These centres have been planned at places with good natural surroundings so that complete "health holidays" can be planned by the tourists.

Chinakkathoor Pooram is a prominent festival of Ottapalam.This place of religious importance attract large crowds during festivals, the number of visitors/ tourists increases manifolds. Providing better tourist infrastructure and services and upgradation of existing provisions during peak periods are suggested at these places. The projects should be designed in such away that the idea of conserving and maintaining the unique identity of the place and the people.

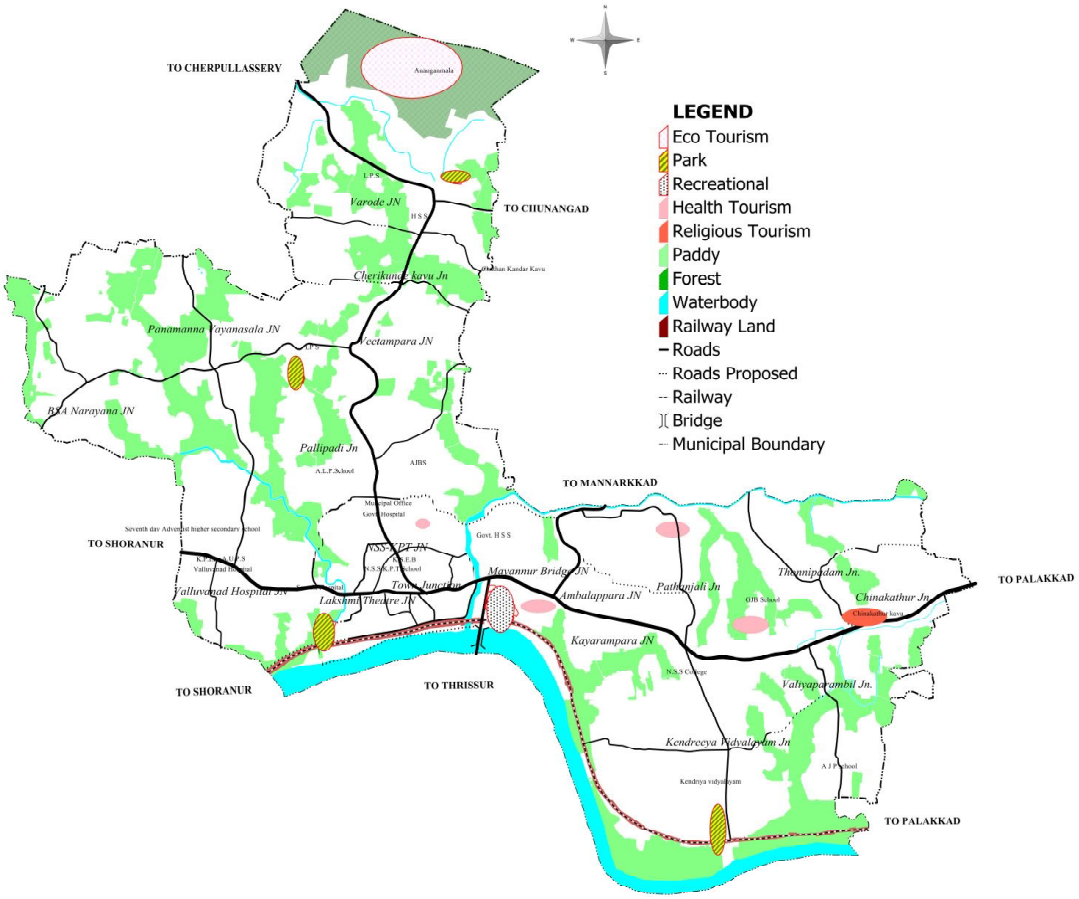


Fig 16.9 Recreational activity areas

16.10 PUBLIC - SEMI PUBLIC ACTIVITY AREAS

Pockets of of land is kept aside for incorporating proposals in public and semi public sector. Majority of this land area is presently occupied by government buildings and lands. All existing public and semi public institutions are proposed to be retained in their existing locations. Socio -culture centre is proposed so as to accommodate Municipal library, multipurpose cultural hall, permanent exhibition hall etc.

16.11 FINAL DEVELOPMENT CONCEPT

Fig 16.10 portrays formation of development concept of Ottappalam municipality. Cities grow through a path avoiding natural and manmade barriers. As per the study, analysis and results, keeping the present growth trend and future population of the city in mind, following city structure is obtained. The structure thus obtained depicts clear combination of uses such as commercial, industrial, Tourism, recreational, transportation, public - semi public and mixed land use.Fig 16.11 is the final development concept of Ottappalam Town.

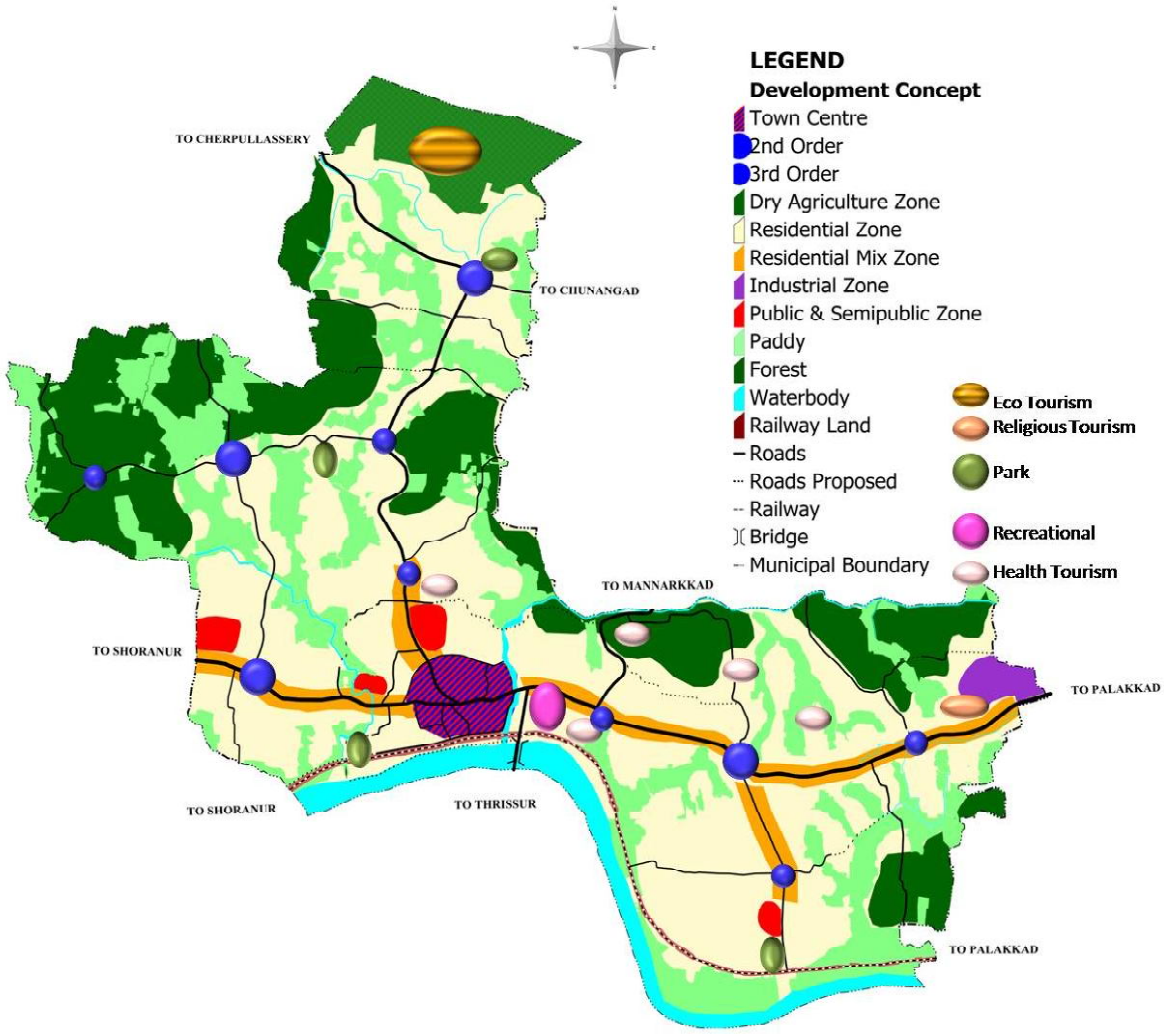


Fig 16.11 Final Development Concept

17. POLICIES AND STRATEGIES

17.1 TRADE AND COMMERCE

Policy

- To develop viable, attractive, commercial activity areas in the order of hierarchy throughout the planning area.

Strategies

- Provide adequate infrastructure in the newly developed commercial areas and filling the gaps of existing commercial areas.
- Enhance access to commercial areas for pedestrians and public modes of transport.
- Provide sufficient parking facilities, waste management system etc.

17.2 TOURISM

Policy

- Develop Ottappalam as eco friendly, religious tourism destination.

Strategies

- Explore tourist potentials of nearby places in the vicinity by developing it's the connectivity by rail and road to other important tourism destinations.
- Develop infrastructure for tourism promotion by providing economy class lodging facilities including home stays.

17.3 INDUSTRIES

Policy

- To develop Small Scale Industrial development in the town with environment friendly ventures and investor friendly guidelines.

Strategies

- To develop IT based industries. Proper connectivity is to be ensured for IT development.
- Sufficient infrastructure for various industrial developments shall be ensured through this MasterPlan.
- Encourage private investments in industrial sector.
- Create an effective single window clearance mechanism for speedy approval and statutory clearance to new enterprises.
- Create conducive environment for promoting new micro and small industrial units.

17.4 AGRICULTURE AND ALLIED SECTORS

Policy

- To promote agriculture sector as a support to the economic activities of town.

Strategies

- Cultivation of medicinal plants/spices, coconut and horticultural products are to be given thrust in this regard.
- Conservation of existing paddy cultivation areas.
- Mechanisation to compensate the labour shortage problem.
- Providing sufficient storage and marketing facilities.
- The existing potential of canal, water courses and ponds may be utilized fully for formulating viable irrigation projects.
- Integration of homestead cultivation and animal husbandry sector.

17.5 TRANSPORTATION

Policy

- Provide an efficient road network, considering the traffic need of the town,connecting the various activities and nodes of the town.

Strategies

- Design a hierarchical road network.
- Bypassing the congested town centre providing bypass road.
- Providing Parking facilities, Pedestrian facilities, Improvement of geometry of Junctions.

17.6 INFRASTRUCTURE

Policy

- Providing all, the access to basic amenities of life and maintain the high standards of health, educational, recreational, institutional, religious facilities.

Strategies

- Ensuring safe, equitable, reliable, adequate and quality water supply.
- Ensuring 100% coverage of the town and regulate water supply.
- Promote safe and Hygienic collection ,transportation and disposal of solid waste
- Provide storm water drainage system in order to prevent water logging.

17.7 ENVIRONMENT

Policy

- To ensure clean, green and hygienic living environment.

Strategies

- Renovation of water bodies.
- Increase in town green cover.
- Developing parks and areas near to water bodies to promote tourism.

17.8 URBAN POOR

- Making urban poor integral part of the city planning, growth and development process.
- Improving accessibility to basic services for the urban poor.
- Providing urban poor with better living environment.
- Creating enough employment opportunities for improving financial status of poor.
- Providing adequate opportunities for creating affordable shelter duly supported by basic services.
- Empowering poor to be integral part of city development process.
- All poverty alleviation programs to be made more focused and poor centric.
- Minimizing growth of slums and provide integrated development of existing slums.

17.9 MUNICIPAL ADMINISTRATION AND GOVERNANCE

Policy

- Promote better service Delivery.

Strategies

- Promoting optimization of available municipal land for generating resources for municipality development.
- Making use of good practices in urban development for resource generation.
- Improving revenue base for the town through GIS based property tax system.
- Rationalizing the pricing of urban services on the principal of "USER MUST PAY".
- Optimizing use of available resources through better prioritization of projects and improved management.
- Improving financial management through adoption of standard accounting policies.
- Achieving continuous reduction in service delivery and overhead costs through better financial management.

18. VISUALISING THE FUTURE

Projections are conditional statements about the future. They refer mostly to the exercises of extrapolation of the past trends into the future; and they do not take into account changes in the policy parameters.

18.1 POPULATION PROJECTION

Knowledge about past populations and assumptions about future populations are fundamental to planning decisions in every aspect of community life. A population projection estimates the needs and amount of resources that has to be distributed to satisfy such needs. To arrive at a conclusive projection figure, five methods of population projections have been used. The methods used for projecting population are

1. Arithmetical Increase Method

2. Incremental Increase Method

3. Geometric Increase Method

4. Decreasing Rate of Growth Method

5. Exponential Method

Table 18.1 Projected Population

Sl. No	Method	Population (2011)	2021	2026	2031
1	Arithmetical Increase Method	53755	59160	61862	64564
2	Incremental Increase Method	53755	58094	59863	61366
3	Geometrical Increase Method	53755	60619	64373	68360
4	Decreasing Rate of Growth Method	53755	60352	62020	62410
5	Exponential Method	53755	61077	65103	69396
Average			**59860**	**62644**	**65219**

Average of the five methods is considered as the projected population. Table 18.1 shows projected population calculated for years 2021, 2026 and 2031 to implement the proposals in short term, medium and long term basis.

18.2 WORK FORCE PROJECTION

Ottappalam town is expected to have projected workers of 25438 in the horizon year 2031. As per the projection of workforce shown in Table 18.2 ,the average WPR targeted for the Municipality by 2031 is 39.07%. With the introduction of new development projects as per the new master plan, economic base will be increased, which will further result in the increase of job opportunities in the municipality.

Table 18.2 Total Projected Workforce of town and WPR

Item	1991	2001	2011	2021	2031
Total no of workers	13249	15092	17700	21281	25483
WPR	29.91	30.64	32.92	35.55	39.07

From the past data, it can be seen that the number of house hold industries show an increasing trend. It is expected that the trend will be same in the coming years also. Thus it is expected that house hold industrial workers will increase as in Table. It is expected that the agricultural labours and cultivators will be decrease. The category wise employment data for 2001, 2011 and employment forecast for the town for the year 2031 is given in the table 18.3

Table 18.3 Category wise Projected Workforce of town

	2001		2011		2031	
Workers Classification	Person	%	Person	%	Person	%
Agricultural Labours	988	6.79	1250	10.61	1453	5.70
Cultivators	245	1.68	355	3.01	637	2.50
House Hold Workers	274	1.88	514	4.36	1848	7.25
Other Workers	13042	89.64	9663	82.01	21546	84.55
Total Main Workers	14549	100.00	11782	100.00	25483	100.00

18.3 INFRASTRUCTURE PROJECTION

18.3.1 Physical Infrastructure

Water Supply

The estimated water demand for a city is broadly classified as domestic and non domestic. The domestic water demand includes per capita consumption and system losses, while non domestic water demand includes industrial and commercial consumption, institutional consumption and fire fighting demand. Table showing estimated water demand for the horizon years.

As per UDPFI guidelines, the desirable standard of water for domestic use for a medium size town is 135-450 lpcd. As per CPHEEO guidelines, the domestic water requirement is 135 lpcd. For assessing the future water requirement 135 lpcd is taken.

Considering non domestic demand such as industrial, commercial and institutional uses, the quantity is same as 20% of domestic supply. An additional 1 % is given for fire demand. As per Central Public Health and Environmental Engineering Organisation (CPHEEO) manual, a maximum provision of 15% towards un accounted water losses shall be made. An allowance of 33% has to be given for elevated storage capacity. 100% of supplied water is to be properly treated. Table18.4 shows estimated water demand of town

Major source of water in Ottappalam municipality is well. In addition to that ground water, pipe water from Bharathapuzha is also used. At present 3.07 MLD water is supplied to the municipality against the required demand 7.26 MLD. As per projection the total water demand required for the town by 2031 would be about 16.5 MLD, and the same is to be treated. To attain the demand for horizon period 2031, a new plant of 13.5 MLD capacities should be constructed.

Table 18.4 Estimated Water Demand

Year		2016	2021	2026	2031
Population	Unit	56887	59860	62644	65219
1. Domestic water demand @ 135 l/h/d	MLD	7.68	8.08	8.46	8.80
2. Non-domestic water demand @ 20.8% of (1)	MLD	1.60	1.68	1.76	1.83
3. Fire demand 1% of (1)+(2)	MLD	0.09	0.1	0.1	0.11
4. UFW @ 15% of (1) + (2) + (3)	MLD	1.41	1.48	1.55	1.61
5. Total water demand @ (1)+(2)+(3)+(4)	MLD	10.78	11.34	11.87	12.35
6. Storage capacity required @ 33% of supply	MLD	3.56	3.74	3.92	4.08
7. Total storage capacity required @ (6) + (5)	MLD	14.34	15.08	15.79	16.43

An effective sanitary sewer collection and treatment system is essential to the safety and well being of citizens. Presently no underground sewerage system exists in Ottappalam town. At present majority of sewage disposal is through septic tank.

Table 18.5 Projection and Requirements of Sewerage System

Year		2021	2026	2031
Population	Unit	59860	62644	65219
1. Waste water @ 80% of percapita demand	Litres/ day	6464923	6765574	7043674
2. Peak factor		2.25	2.25	2.25
3. Total waste water	MLD	14.55	15.22	15.85
4. Treatment capacity	MLD	14.55	15.22	15.85

As per CPHEEO norms, sewage generated will be considered as 80% of the water reaching the consumer end.135 litres/capita water supply has been considered for the waste water generation. Now peak factor should be considered for the total discharge to be generated for the STP. Peak factor depends upon the density of population, topography of the project area and hours of water supply for the design based on contributory population recommended by CPHEEO manual. Population of Ottappalam Municipality comes under the range 50000 and 75000; peak factor is taken as 2.25. The sewage is eliminated at the rate of 80% of the water supply in any area. Installation of Sewerage Treatment Plant is essential to treat sewerage generated daily in the town. By 2031, 63km length of sewerage system and 15.85 MLD capacity treatment plant will be required for the horizon period 2031.Table 18.5 shows the Projection and Requirements of Sewerage System.

Storm Water Drainage Network

Drainage of storm water is not a major issue in Ottapalam Municipality. The drainage system consists of natural and artificial drains and total drain length of municipality is 111 Km. Total length of storm water drainage required by 2031 comes out to be 126 kms. (Table 18.6)

Table 18.6 Projections and Requirements of Storm Water Drainage

	Unit	2021	2026	2031
Projected Population	Nos	59160	61862	64564
Road Length	Km	57	60	63
Drain Length	Km	114	120	126
Pucca Closed	Km	114	120	126

Solid Waste Management

As per UDPFI guidelines, the waste generation varies from about a quarter of kilogram per capita in small towns to about half a kilogram per capita in large and metro cities. Ottappalam as a medium town the waste generation will be 320 g/c/d i.e., 18.2 tonnes per day for the whole town. During treatment both biodegradable and non biodegradable wastes are to be separated. About 30% is taken for extra waste generation considering other institutions. In 2031 waste generation will be around 22 tonnes per day. Table 18.7 shows projection of solid waste of town.

Table 18.7 Projection of Solid Waste

Year		2021	2026	2031
Population	Unit	59860	62644	65219
1. Solid waste generation @ 320 g/h/d	Tonnes/ day	19.16	20.05	20.87
2. 30% extra for other institutions	Tonnes/ day	24.91	26.07	27.13
3. Composting 400 sq.m/t	acres	2.46	2.58	2.68

Traffic & Transportation and Street Lights

Growth of urban transport along a sustainable path in cities is the foremost need of the country and is important part of the nation's economy. The total municipal road length comes out to be 398.26kms, with per capita availability of 7m against the UDPFI standard of 0.96m. The available road length is sufficient as per the standards. The projections are made taking the view point that only two type of roads should be built with major share to bituminous roads (85% of total roads), and the rest 15% to concrete roads. Accordingly, while earthen road and WBM roads are proposed to be converted to bituminous or to concrete road. Improvement of major roads and construction of new roads are necessary for a growing town.

Among various categories of street lights priority is given to power lamps (70%), followed by tube lights and high mast lamps (30). By the year 2031, 1470 high power lamps and 630 tube lights will be required.

Table 18.8 Projections of Various Aspects of Traffic and Transportation, Street lights

Year			2021	2026	2031
Population		Unit	59860	62644	65219
1. Road length @ 0.00096 per capita (km)		km	57	60	63
Road Surface	1. Concrete (km) @ 15% of total road length	km	9	9	9
	2. Bituminous (km) @ 85% of total road length	km	48	51	54
2. Lamp poles @ 30 m c/c			1900	2000	2100
Street Lights	1. Tube Light @ 30% of lamp poles		570	600	630
	2. High power lamps @ 70% of lamp poles		1330	1400	1470
3. High Mast Lamps @ 0.1% of lamp poles			2	2	2
4. Parking facilities @ 0.4 Ha of land per 10000 population		Ha	2.39	2.51	2.61

Traffic Projection

Traffic flow is an important macroscopic traffic characteristic in transportation systems. The measurement and forecasting of traffic flow are crucial to formulate a long term transportation plan serving the community in the future. Traffic forecasts are used for several key purposes in transportation policy, planning, and engineering: to calculate the capacity of infrastructure.

Method of Traffic Projection

For projecting the future demand, various methods of traffic projection including statistical, economical and mathematical models are available. These could be judiciously utilized depending upon level of accuracy warranted and the extent of database available.

Projected link volume of existing network

Table presents the estimated daily traffic for different horizon years on various road stretches in Ottappalam study area. Volume-capacity ratio for the horizon years is also given in the table 18.9. It can be seen that almost all the major road corridors in town would be severely congested in the horizon year with anticipated traffic more than the capacity of the roads. The capacity utilisation of major corridors like Town Jn, Lakshmi Jn, Jass Jn and RS Road Jn will carry heavy traffic. But most of the minor roads are not so severely loaded.Table 18.9 ashows the Projected Daily Volume-Capacity ratios for different horizon years in Ottappalam study area

Table 18.9 Projected Daily Volume-Capacity ratios for different horizon years in Ottappalam study area

Sl No.	Name Of Junction	Carriage Way Width (m)	Capacity (Pcu / Hr)	2013		2021		2031	
				Vehicle (PCU)	V/C	Vehicle (PCU)	V/C	Vehicle (PCU)	V/C
1	Town- Rs Road Junction	7.5	1500	2598.5	1.73	3839	2.56	5683	3.79
2	Rs Road Junction - Lakshmi Junction	7.5	1500	2626	1.75	3880	2.59	5743	3.83
3	Lakshmi Junction- Jass Junction	7.5	1500	2651.5	1.77	3917	2.61	5798	3.87
4	Jass Junction - Valluvanad Hospital	7.5	1500	2077	1.38	3069	2.05	4543	3.03
5	Lakshmi Junction - Nss Kpt Junction	5.3	800	703	0.88	822	1.03	1105	1.38
6	Town Junction - Nss Kpt Junction	7.2	1500	2017	1.34	2980	1.99	4411	2.94
7	Nss Kpt - Veetampara	7	1200	787	0.66	1163	0.97	1722	1.44
8	Veetampara Junction - Varode Junction	7	1200	586.5	0.49	867	0.72	1283	1.07
9	Veetampara Junction - Kaniampuram Vayanashala Junction	3	500	58	0.12	79	0.16	106	0.21
10	Kaniampuram Vayanashala Junction - Bsa Narayana	3.5	600	63	0.11	86	0.14	116	0.19
11	Kaniampuram Vayanashala Junction - Valluvanad Hospital	3.7	600	228.5	0.38	313	0.52	421	0.7
12	Town - Mayannur Bridge Junction	7.5	1500	2659.5	1.77	3929	2.62	5816	3.88
13	Mayannur Bridge Junction - Ambalapara Junction	7.5	1500	2557	1.7	3778	2.52	5592	3.73
14	Ambalapara Junction - Kayarampara	7.5	1500	2138	1.43	3159	2.11	4676	3.12
15	Kayarampara - Old Post Office Junction	7.5	1500	1719	1.15	2540	1.69	3760	2.51
16	Kayarampara - Meetna Junction	6.2	800	126.5	0.16	173	0.22	232	0.29
17	Old Post Office Junction - St.Mary's Church Outlet	9.6	2000	1482	0.74	2190	1.1	3242	1.62
18	Ambalapara Junction - Mannarkad Outlet	5.2	800	831.5	1.04	1138	1.42	1529	1.91
19	Varode - Cherpulassery Outlet	7	1200	596	0.5	881	0.73	1304	1.09
20	Valluvanad Hospital - Seventh Day School Outlet	7.3	1500	1839	1.23	2717	1.81	4022	2.68
21	Varode- Chunangad Outlet	7.5	1500	301.5	0.2	445	0.3	659	0.44

Power

As per the standards given in UDPFI guidelines, the power consumption works out to be 2KW per household. Average household size is taken as 4. Based on above, the power consumption for Ottappalam municipality has been calculated for different phase in Table below.

As per standards one electric substation of 11 KV is required for every 15000 population. The town has an 110KV capacity substation located at Palappuram, which serve the areas Ottappalam, Amabalappara and Lakkidi. Land required for the facilities by the year 2031 is shown in the Table.

Table 18.10 Power requirement for horizon years

Years	2021	2026	2031
Population	59860	62644	65219
1. Sub-stations: One 11 kV sub-station for every 15000 population	4	4	4

Table 18.11 Area required for the facilities

			Area required for the facility		
Institution	Unit	Area required per institution	2021	2026	2031
1. Sub-station (11kV)	Acre	0.05	0.2	0.2	0.2

18.3.2 Social Infrastructure

Education

Education plays an important role in shaping an individual's career. Life would be detrimental and disastrous without quality education. Hence it is the prime duty of mankind to try to make education available in every part of the world. Presently Ottappalam municipality has improved educational background. Projection of education is made based on the norms and standards given in UDPFI guidelines and other standards of different aspects of social infrastructure. Number of High schools, Higher Secondary Schools and Colleges are satisfactory for Ottappalam Municipality and according to standards no future college and High schools is needed. Currently there is no special school for handicapped and one special school is need for the horizon year 2031. Number of nursery schools is not sufficient now and it is far from the required number. By the year 2031, 19 more nurseries will be required. A polytechnic/ITI is assigned for every 1 lakh population. There is no technical institutes are present in the Municipality and 1 number is necessary to meet the requirement. There will be a demand of one primary school for the year 2031. Land required for the facilities by the year 2031 is shown in the Table18.13

Table 18.12 Projection of Educational Facilities

Year	Existing (2011)	Required (2011)	Gap	2021	2026	2031
Population	53755	53755		59860	62644	65219
1. Nursery: *1 for every 2500*	7	22	15	24	25	26
2. Primary: *1 for every 5000*	12	11	0	12	13	13
3. HS: *1 for every 20000*	7	3	0	3	3	3
4. HSS: *1 for every 20000*	4	3	0	3	3	3
5. College: *1 for every 100000 - 125000*	4	1	0	1	1	1
6. Technical institution: *1 for every 100000*	0	1	1	1	1	1
7. School for handicapped: *1 for every 45000*	0	1	1	1	1	1

Table 18.13 Area required for Educational Facilities

Population	Unit	Area required per institution	2021	2026	2031
1. Nursery School	Ha	0.08	1.92	2	2.08
2. Primary School	Ha	0.4	4.8	5.2	5.2
3. HS	Ha	1.6	4.8	4.8	4.8
4. HSS	Ha	1.6	4.8	4.8	4.8
5. College	Ha	4	4	4	4
6. Technical institution	Ha	4	4	4	4
7. School for handicapped	Ha	0.5	0.5	0.5	0.5

Health Care

The provision of high-quality, affordable, health care services is an increasingly difficult challenge. Ottappalam municipality have a number of hospitals to serve the inhabitants. There are 20 Allopathic Private Clinic, 3 Ayurvedic private Hospitals and 4 Homeopathic clinics in the Ottappalam Municipality. The details of the hospitals needed by 2031 are given in the Table 18.14

Table 18.14 Projection of health infrastructure

Year	2021	2026	2031
Population	59860	62644	65219
1. Nursing home: *1 for every 45000 - 100000 of 25 - 30 beds*	1	1	1
2. Dispensary: *1 for every 15000*	4	4	4
3. General Hospital: *1 for every 250000*	0	0	0
4. Intermediate hospital A: *1 for every 100000 of 100 beds*	1	1	1
5. Intermediate hospital B: *1 for every 100000 of 80 beds*	1	1	1
6. Speciality hospital: *1 for every 100000*	1	1	1
7. Multi speciality hospital: *1 for every 150000*	0	0	0

Socio Cultural Facilities

According to UDPFI standards one community room is required for every 5000 population and community centre per 15000 populations. 13 community rooms would be required by the planning year 2031. Two community rooms should be needed as the existing 11 is less than the requirement. Presently there is no facility of public recreational club, meditation and spiritual centre and music, drama centre in the town. Each required 1 for every lakhs population. There is no museum in the District.

Table 18.15 Projection of Community Facilities

Year	2011	2021	2031
	Existing	Required	
Population	53755	53755	65219
Community Room:	-	11	13
Community Hall/ Library;	17	4	4
Recreational Club:	-	1	1
Music, Dance and Drama;	-	1	1
Meditation and Spiritual centre;	-	1	1
Socio cultural centre:	-	1	1

18.3.3 Utility Services

Petrol Pump

As per UDPFI guidelines one petrol pump is required for every 15000 population. Presently there are 3 petrol pumps in the town which is less than the requirement of 4 numbers for the year 2031.

Milk Distribution Outlets

As per the UDPFI guidelines, one milk Distribution outlet is required for every 5000 population. According to the present population there should be 10 milk booths which should be increased to 13 at the end of horizon year. At present Ottappalam municipality has only two milk distribution outlets one at South Panamanna, having average collection of 13500ltrs per month and the other at Varode, having average collection of 11250ltrs /month.

LPG Go down

There are two LPG go downs existing in the municipality, one at Kumbidi Bazar occupying around 10 cents of land and the other at Thottakkara covering 49 cents of land. As per UDPFI guidelines one LPG go down is to be provided for every 40000 population. There is no need of anymore LPG go downs in the municipality till the horizon year as the requirements are already met with.

Police

As per UDPFI guidelines one police station is required for every 90000 population. Ottappalam has one police station in which both SI and CI offices are functioning in the same compound. Hence there is no need of anymore Police Station till the horizon year.

Fire station

At present Ottappalam area is serviced by fire station at Shoranur which is at Poduval Junction near industrial estate. The above fire station serves two municipalities and 23 panchayath whose service area is very huge. But as Pattambi, Shoranur and Palakkad have their own fire stations whose buffer region covers Ottappalam Municipality an additional fire station is not necessary in the town.

Postal and Telephone facilities

As per UDPFI guidelines one post office is required per 15000 populations and one head post office is required per 250000 populations. Presently there are three post offices in the municipal area which is less than the requirement of 4 numbers for the year 2031. Considering the standards one telephone exchange per 40000 populations is required and one more has to be provided to meet the requirement.

Table 18.16 Projection for Utility Services

Year	2011	2021	2026	2031
Population	53755	59860	62644	65219
1. Petrol pump: 1 for every 15000	3	4	4	4
2. Milk booth: 1 for every 5000	12	12	13	13
3. LPG Godown: 1 for every 40000	2	1	2	2
4. Police station: 1 for every 90000	1	1	1	1
5. Fire station: 1 for every 200000		0	0	0
6. Post Office: 1 for every 10000 - 15000	3	4	4	4
7. Telephone exchange: 1 for every 40000	1	1	2	2

19. LAND USE AND SECTORAL PROPOSALS

In order to accommodate the projected requirements based on the Development concept for the horizon period, requirement of land for various uses is to be determined and located spatially. The land use plan is prepared considering the existing development scenario, development trend, future requirements in the horizon period and the need to uplift Ottapppalm as a sub regional centre . The existing spatial structure, linkages of the town, trip generation characteristics of various land uses etc were also considered.

19.1 PROPOSED LAND USE PLAN

Although it has been observed from the studies that there is a tendency of growth along transport corridors, considering areas with great potential for development, wider areas of development have been considered. Existing Ottappalam town has predominantly developed along Palakkad Ponnani road .The proposed development is more pronounced towards east and west where there is no physical constraint as compared to north and south where the development is restricted due to physical barriers .

The proposed land use plan for the Ottappalam town has been prepared for the year 2031. The Category of land use proposed in line with the development concept is listed as follows and the spatial distribution of various land uses is shown in Fig 20.1. The proposed land use break up(in terms of area and percentage of composition) is shown in Table 19.1.

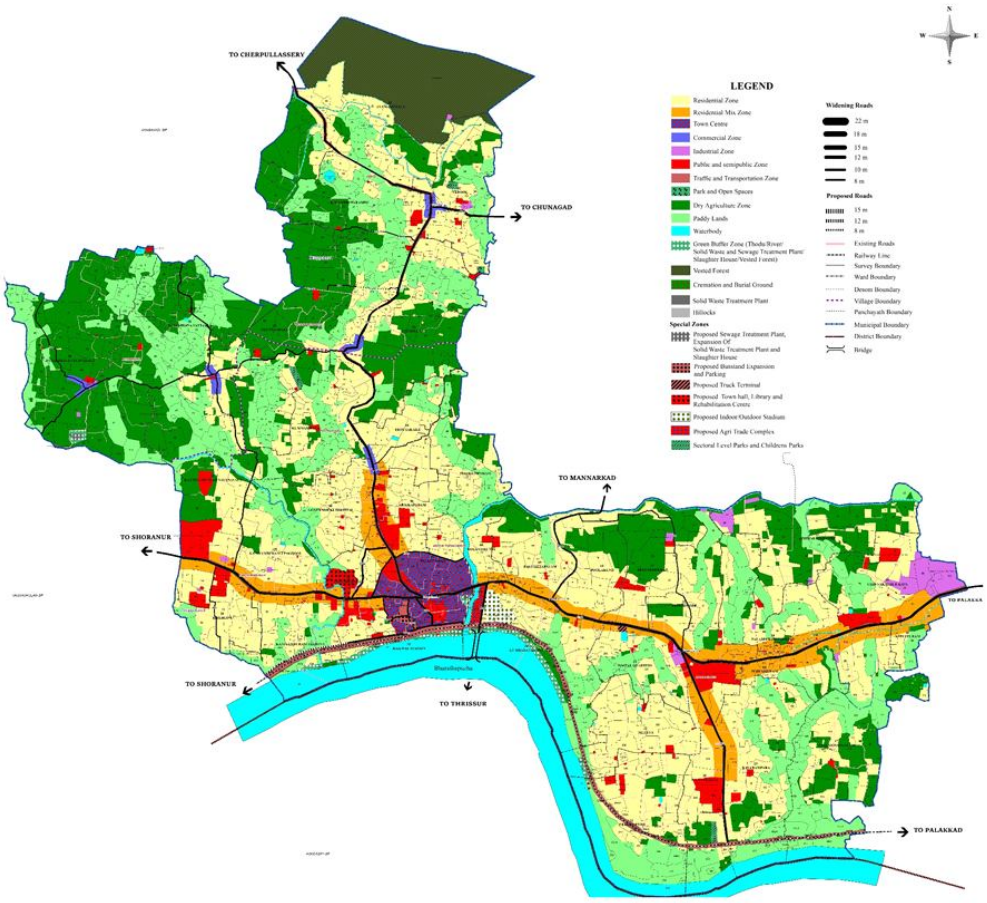


Fig 19.1 Proposed Land Use

Table 19.1 Proposed land use split up

Sl No	Proposed Landuse	Area in Sq.Km	% of total area
1	Residential	10.46	32.03
2	Mixed Residential	1.47	4.49
3	Town Centre	0.42	1.29
4	Commercial Zone	0.10	0.31
5	Industrial Zone	0.28	0.85
6	Public & Semipublic Zone	0.95	2.89
7	Traffic & Transportation	1.750	5.36
8	Park & Openspaces	0.0049	0.02
9	Dry Agriculture Zone	7.15	21.90
10	Paddy Land	6.76	20.70
11	Waterbody	1.40	4.29
12	Green Buffer Zone	0.31	0.94
13	Vested Forest	1.38	4.24
14	Cremation & Burial Grounds	0.01	0.03
15	Solid Waste Treatment Plant	0.0026	0.0080
16	Hillocks	0.0005	0.0015
	Special Zones		
17	Proposed Sewage Treatment Plant & Expansion of Solid Waste Treatment Plant	0.0056	0.0172
18	Proposed Slaughter House	0.0031	0.0095
19	Proposed Bus stand Expansion & Proposed Parking	0.0204	0.0625
20	Proposed Truck Terminal	0.0050	0.0153
21	Town hall& Library, Rehabilitation Centre	0.0567	0.1736
22	Agri Trade Complex	0.0303	0.0928
23	Proposed indoor and out door Stadium	0.0657	0.2012
24	Sectoral Level Parks & Childrens Parks	0.0311	0.0952
	Total	32.66	100.0

19.1.1 Residential

On taking the gross developed density as 65 PPH, based on the projected population density of the town to 2031, the future urbanisable area calculated is 1003 Ha. Taking the future requirements into account proposed land area requirement is worked out. The table 19.2 shows density wise area requirement of the town.

Table 19.2 Projected Population and additional land area requirement for Ottappalam Town

Projected Population	Proposed Gross density (PPH)	Proposed urbinisable area required by 2031 (Ha)	Existing urbanised area (Ha)	Additional area requirement (Ha)
65219	**65**	**1003**	**827**	**176**

The population projected for 2031 is 65219. Proposed gross density of municipality is taken as 65 persons per hectare. So the residential land required by 2031 according to the proposed gross density is 1003 hectres which is about 30.05 % of the total area and it is sufficient for holding the projected population by 2031.As per the proposed land use distribution, Ottappalam municipality is designed to have total residential land area of around 1045 hectares which is 31.70% of the total land area.

At present the most populous wards in the planning area are those lying in between the CBD area and peripheral area of Town due to the proximity to the facilities and good connectivity. These wards have intensive residential activity and are heavily built up. Hence developments in this area are to be in such away so as to keep good living environment and certain restriction have been imposed to other uses.This zone is meant to facilitate the housing demand in the horizon period.

19.1.2 Residential Mix land use

Considering the development trend of the town and to provide flexibility in development to an extent residential mixed zones have been proposed. It is generally a mixed activity zone and many non-residential uses like commercial, small-industrial, public use etc are also permissible in this zone in addition to residential use subject to certain conditions. Land to a depth of 100 m on either side of Palakkad Ponnani road except Town centre area ,Meetna road upto meetna jn ,Ottappalam Cherpulasseri road upto Municipal limit and Varode Chunangad road upto Municipal limit. Fig 19.2 shows distribution of residential areas.

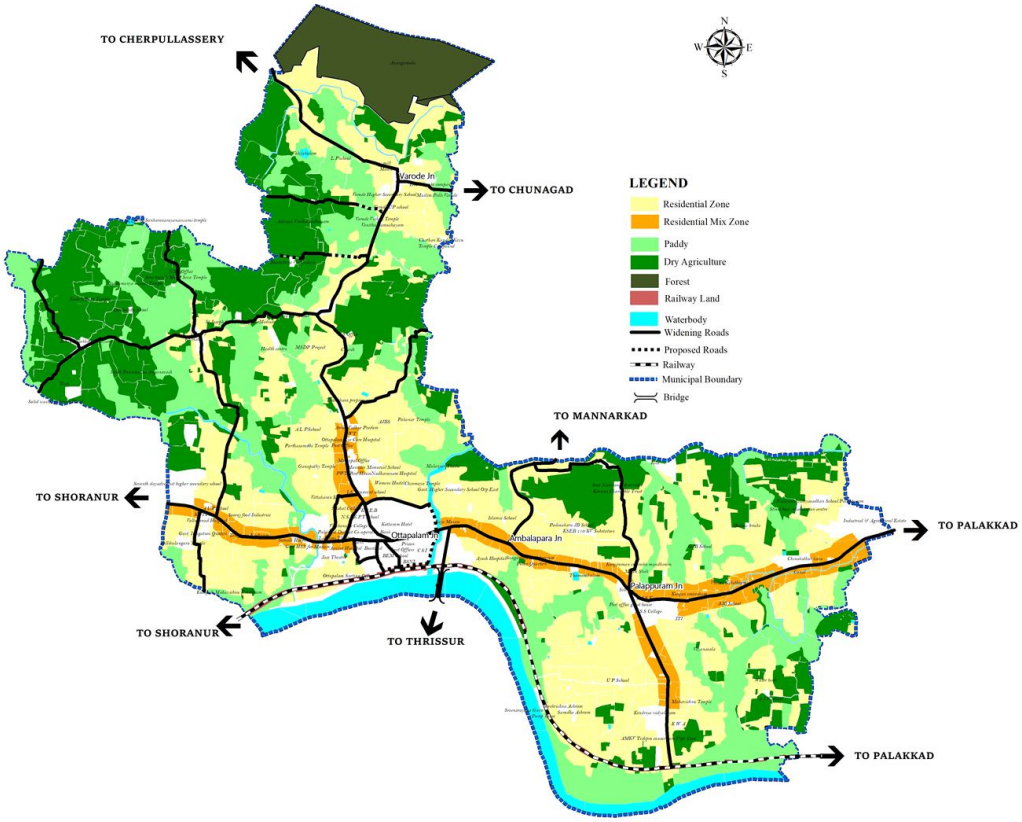


Fig 19.2 Proposed Residential area

19.1.3 Town centre

At present most of the commercial activity is concentrated in the core area of the town.The most important commercial node is Ottappalam Town Junction . Along the four arms of this junction of nearly 0.50 kms length are having commercial development. The existing land use in this CBD reveals that majority of commercial developments are along the Palakkad Ponnani Road between Ambalappara Jn and Lakshmi Theatre Jn and along Railway station road. This town centre is proposed in the central core area covering these commercial nodes. Town centre is bounded by Senguptha Road, Sunder Iyyer Road, Palatt road, Kizhakkethodu ,Mayannur road and railway line .

Nearly 42 Ha of land is earmarked for town centre. More thrust can be given to commercial activities both retail and wholesale, Since commercial markets are already established in this area with good connectivity. Restrictions can be imposed for further residential activities in this area. The vibrancy of the core area will continue to grow if the mix of uses within it continue to accommodate uses that currently exist – commercial, retail and institutional but have to be regulated for a healthy growth of the area . If redeveloped, opportunities will arise to strengthen, the character of the area.

19.1.4 Commercial Zone

At present majority of commercial activities are concentrated along the sides of Palakkad Ponnani road as ribbon development. To decongest the core area, the commercial nodes are proposed to be developed according to their hierarchy so as to cater entire municipal area . As per UDPFI guidelines, for medium cities the commercial land required varies from 2-3% of the total municipal area. Commercial area earmarked for the year 2031 is 19 hectare. This is exclusive of the commercial areas proposed in the mixed residential land use zone and Town centre . Commercial zone in the municipality is around 0.59 % of the gross municipal area. The town centre and commercial zone are shown in Fig 19.3.

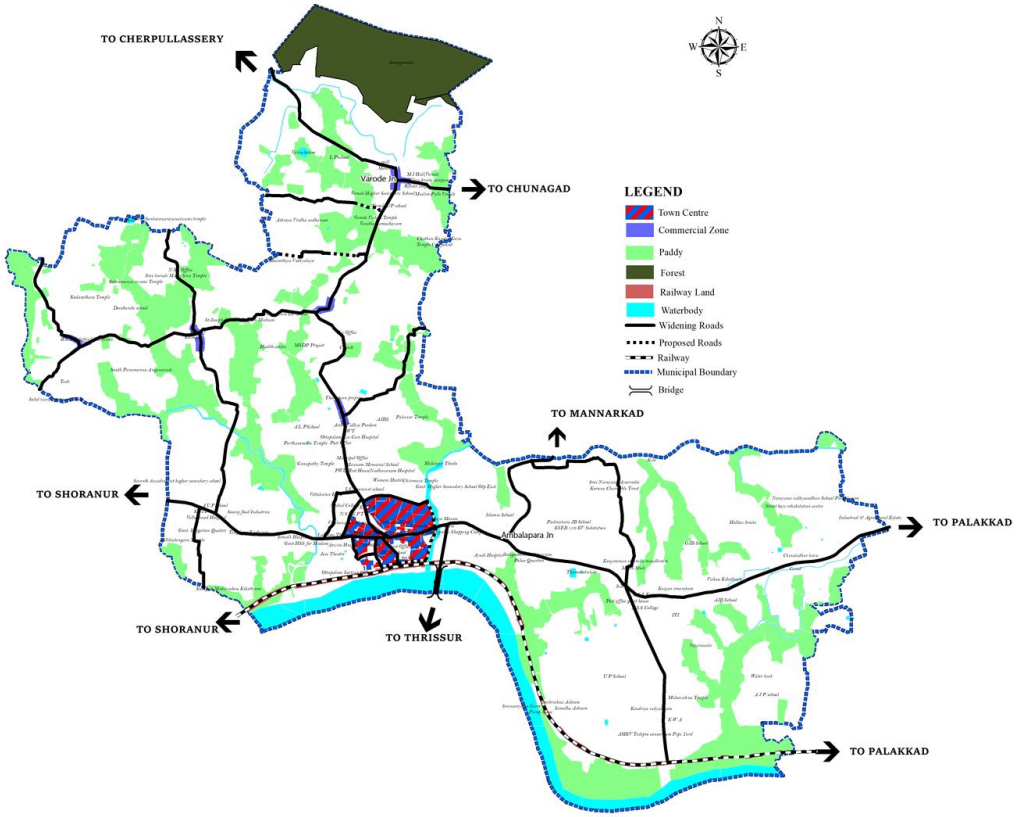


Fig 19.3 Proposed Town centre and Commercial use

19.1.5 Industrial area

At present Ottappalam municipality is weak in Industrial development. Construction of Kinfra industrial site is changing the face of OttappalamTown .No more industrial lands are proposed in the municipality. Presently around 28 hectares of land in the municipality as part of KINFRA industrial park is earmarked for industrial purpose. Industrial land use comes to around 0.85% of the total area (Fig 19.4).

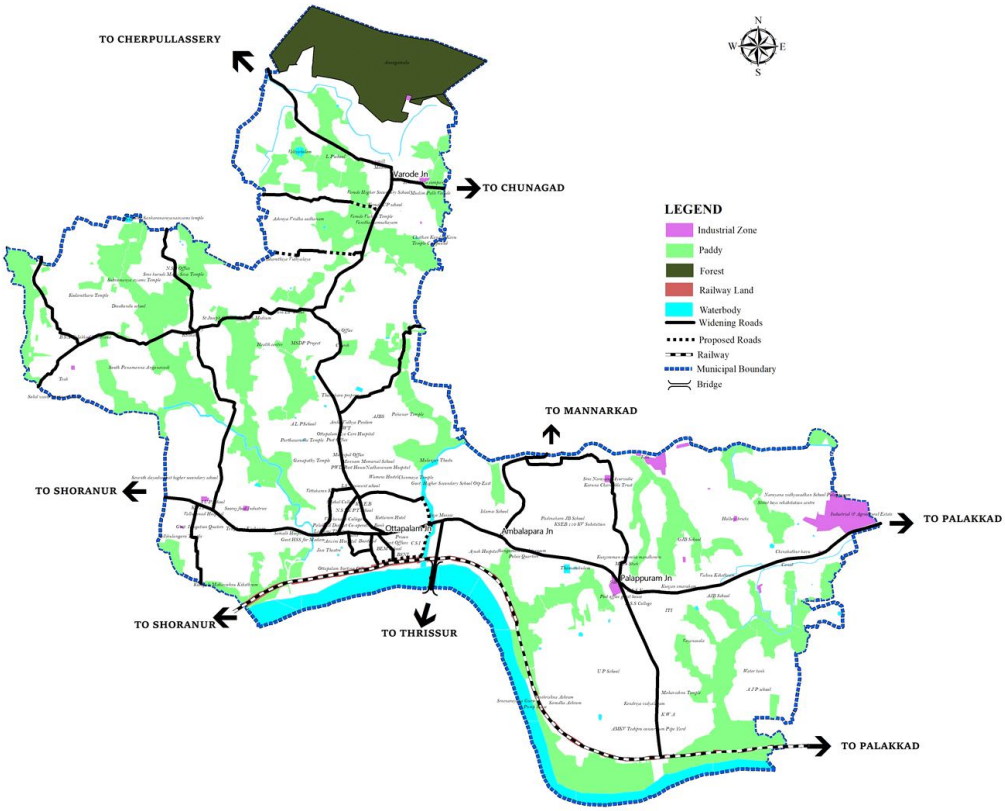


Fig 19.4 Industrial Land Use

19.1.6 Public and semi public use

Public and semi public land use accommodate Government offices, education institutions and health related and religious institutions. The land under public and semi public use is only 95 hectare. In the proposed land use plan some additional land for public and semi public use is earmarked. This includes proposed library and town hall opposite to Aswini Hospital. Public and semi public activities are mainly concentrated along Palakkad Ponnani road and Meetna Road and near the municipal office building. Public and semi public activities are also permitted in mixed zones that include the mix of uses such as various dwelling types, home businesses, child care centre, schools, medical centres and public open spaces. The proposed town centre also accommodates public and semi public uses . Higher order activities under this category would be concentrated in the towncentre. At the same time public and semi public uses, ie. religious, educational offices and health related facilities are also to be provided with some restrictions are also permiitted in the proposed residential , commercial and industrial zones .

19.1.7 Traffic and Transportation use

The major share of this zone is area covered by roads. The municipal road network has a fair coverage. Widening of existing roads and providing a few missing links only are attempted. The land under this zone also coversbus stands, truck terminals, bus bays, taxi stands etc. An extent of 161 ha is coming under the traffic and transportation zone.

19.1.8 Parks and open spaces

Town suffers from lack of recreational areas. But due to the presence of paddy fields and other vacant lands water bodies the shortage of open spaces are not felt much. The total area of existing parks and open spaces is only one hectare. At present there are no parks in Ottapppalam town . Also there is a demand of an open space for recreational purposes . Hence Two children's parks and one sector level park are proposed in the Town. An indoor and Out door stadium is also proposed in Town.

19.1.9 Dry Agriculture use

The dry agriculture zone has an extent of 714 ha. This area besides its economic value due to agricultural production, is significant since large tracts of land is available in this zone within the municipality. Low density residential development aimed at low income group shall be allowed in this zone due to comparative price advantage. The industrial and institutional land uses also shall be permitted in this zone with certain regulatory measures to ensure isolation of non compatible land uses.

19.1.10 Paddy field

This zone includes paddy cultivation areas which need to be conserved .The extent of this zone comes to 672 ha. Conservation of Paddy fields has environmental significance. Paddy field works as water recharging measure. Conservation of paddy is proposed wherever essential for maintaining environmental quality and the land use in these areas are to be strictly regulated.Certain projects are proposed in un cultivated paddy land near the CBD area.

19.1.11 Water bodies Use Zone

This zone includes ponds,rivers ,thodus and canals.

19.1.12 Green Buffer zone

The municipality has 7.30 km of river frontage. The shore line is environmentally sensitive and any polluting activity in this area shall directly pollute river and the steep slopes pose threats to stability. Hence regulating development of this area to preserve environmental quality considered. Green buffer strips are proposed at a depth of 50m along the boundary of river , 5m on both sides of Thodu /Canals , 30m inside Solid Waste Treatment Plant and Slaughter house (inside the land acquired) and 10m outside forest Boundary.

19.1.13 Vested Forest

This zone includes the Vested forest area of of 138 ha where only Forest related activities by the Forest Department are permitted.

19.1.14 Cremation and burial grounds

This zone includes Cremation and burial grounds.

19.1.15 Solid Waste Treatment Plant and Slaughter house

This zone includes existing Solid Waste Treatment Plant and Slaughter house.

19.1.16 Hillocks

Small extent of exposed rock area of 0.05 hectres are present in Municipality where constructions in shall be carried out with minimum disturbance to the terrain and ecology of the area.

19.1.17 Special zones

Special zones include the areas specifically demarcated for certain projects details of which are given in sectoral proposals . No other activity other than the specific project and its incidental uses shall be permitted in such zones and each project details are included in sectoral proposals section.

19.2 TRAFFIC AND TRANSPORTATION PLAN

Transportation plannings are long range and involve planning for future target year. In order to meet the base year and projected demand for various horizon years, a long term traffic and transportation plan has been formulated for the town. This covers planning for future transport development and network improvements such as parallel road links, bypasses for inter city arterial roads, grade separated pedestrian facilities across busy road, over bridges and development of integrated bus terminals and public transportation system.Proposed Traffic and transportation is shown in fig 19.5.Details of C/S of roads and details of proposed roads are shown in table 19.3 and 19.4 respectively.

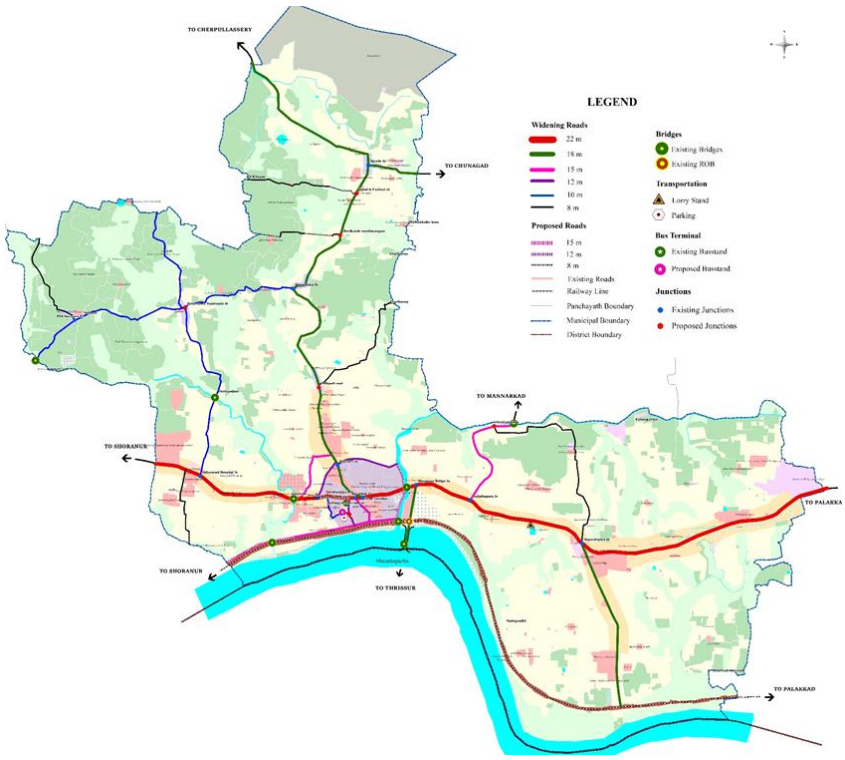
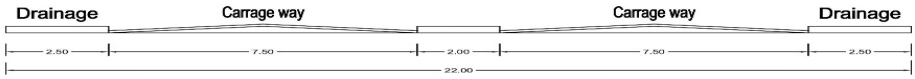
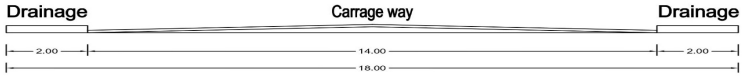
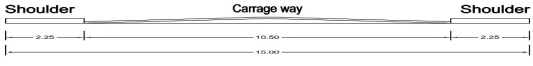
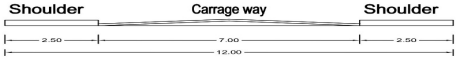
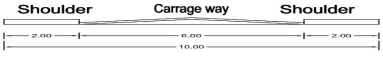
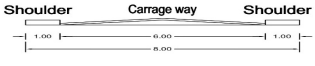


Fig 19.5 Proposed Traffic and transportation

Table 19.3 Cross sectional details of proposed cross sections

SL No	Road Hierarchy	ROW in meter	Cross section
1	R1	22	
2	R2	18	
3	R3	15	
4	R4	12	
5	R5	10	
6	R6	8	

19.2.1 Road Hierarchy

Table 19.4 Details of Road proposals

Sl. no	Length in Km	Existing width	Proposed Road width	Nature of Proposal	Road name
	R1 -22m roads				
1	8.41	22.20	22 m	Widening	Palakkad ponnani Road
	R2 -18m roads				
2	6.62	26.78	18m	Widening	Ottapalam-Cherpulassery road
3	0.80	14.00	18m	Widening	Mayanur Road
4	0.61	22.00	18m	Widening	Varode Chunangad Road
5	2.01	17.70	18 m	Widening	Kayarampara -meetna Road
	R3 -15 m roads				
6	1.50	9.60	15 m	Widening	Ottapalam-Mannarkad Road
7	0.37	13.70	15 m	Widening	RS Road
8	1.24		15 m	Proposed	Link Road Connecting from kizhakke thodu to municipal limit
	1.20		15 m	Widening	Link Road Connecting from kizhakke thodu to municipal limit
9	0.75	4	15 m	Widening	Pathmalaya Road
	R4 -12 m roads				
10	0.36	3.60	12 m	Widening	Link Road Connecting from Busstand to Sundara Iyer Road
11	1.22	9.3	12 m	Widening	Sengupth Road(NSS KPT)
12	0.31		12 m	Proposed	Kizhakeethode road
	R5 -10 m roads				
13	3.47	8.20	10 m	Widening	Panamanna Veetampara Road
14	3.37	7.50	10 m	Widening	Kaniyamburam - panamanna Vayanasala Road
15	0.50	5.10	10 m	Widening	Sundara iyer Road
	R6 -8 m roads				
16	2.47	6.50	8 m	Widening	Kanjirakadavu-Kayrampara Road
17	1.48	4.70	8 m	Widening	Thottakara-mayilampuram Road
18	0.96		8 m	Widening	Link road connecting from Palakkad Ponnani to Municipal limit
19	1.23	9.00	8 m	Widening	Link Road connecting panamanna veetampara Road to municipal limit
20	0.81	5.60	8 m	Widening	Link Road Starting from Ottapalam Cherpulassery Road to municipal limit (west) 1
	0.34	5.00	8 m	Widening	Link Road Starting from Ottapalam Cherpulassery Road to municipal limit (west) 1
	0.19		8 m	Proposed	Link Road Starting from Ottapalam Cherpulassery Road to municipal limit (west) 1
21	0.12		8 m	Proposed	Link Road Starting from Ottapalam Cherpulassery Road to municipal limit (West) 2
	1.97	4.80	8 m	Widening	Link Road Starting from Ottapalam Cherpulassery Road to municipal limit (West) 2
	0.27	5.20	8 m	Widening	Link Road Starting from Ottapalam Cherpulassery Road to municipal limit (West) 2
	0.32		8 m	Proposed	Link Road Starting from Ottapalam Cherpulassery Road to municipal limit (West) 2

R1 roads -22 m width

1. Widening Palakkad – Ponnani road

Palakkad and Ponnani passes through the Municipal area for a length of 8.41 km in the East West direction. It is proposed to widen to a width of 22m. Since this town is Revenue Divisional head quarters, the neighbouring Panchayaths have to depend on this town for their needs. There are sufficient roads, but lack of sufficient width to the existing roads is the main problems of this town. This leads to many other problems like traffic congestion , hazardous development of commercial activities etc. The project is to be implemented by State P.W.D.

R2 roads -18 m width

2. Widening of Ottapalam – Cherppulassery road

The 6 KM long black topped road starts from Ottapalam town and extend towards north to Cherppulassery. It is proposed to widen the road to a width of 18m up to the municipal limit. Implementing agency will be State public works department.

3. Widening of Mayannur road

Mayannur road is a by-pass to reach the city of Thrissur from the Valluvanad region through its famous 1.5 kilometers long bridge known as "Mayannur palam". It is proposed to widen the road to a width of 18m.The implementing agency will be State PWD.

4. Widening of Varode – Chunangad road

This black topped road starts from Varode Junction in the Ottapalam – Cherppullassery road leading to Chungngad in Ambalapara Panchayath towards east. Around 2km of the road comes in the limit of the Municipality which is proposed to widen to 18 m and resurfacing, providing side wall etc. This road has an important role in the transportation from Ambalapara Panchayath to Ottapalam through Varode Junction and Ottapalam – Cherppullassery road. The project has to be implemented by the State public works department.

5. Widening of Karyaramparra-Meetna road

The road starts from Kayarampara Junction through Kendriya vidyalaya to the southern municipal limit ends on railway boundary. It is proposed to widen the road to a width of 18m for a length of 2km.

R3 roads -15 m width

6. Widening of Ottapalam – Mannarkkad road

This black topped road starts from Palakkad - Ponnani road at a distance of 1.5km from Ottapalam town towards north east. At present the width of road is 9.60m and is not found sufficient to accommodate the heavy traffic through this road. It is proposed to widen the road for a length of 1.5 km up to the Municipal limit to a width of 15 m and by constructing side drains. The implementing agency will be State PWD.

7. Railway station road

This 13 M wide black topped road starts from Palakkad – Ponnani main road and run towards south for a length of 370 M extending connection to the Railway station road. Considering the importance of the road and to reduce the traffic congestion, It is proposed to widen this road to 15 M up to railway station. This project is supposed to be implemented by the Municipal Council.

8. Proposed road Connecting from Kizhakke thodu to Municipal limit

This Proposed road starts from Mayannur bridge junction leading towards south west direction of municipal limit. it will be run close to the railway line and has a proposed width of 15m for a total length of 2.47km. The project has to be implemented by the state public works department.

9. Widening of Pathmalaya road

The 0.75km long black topped road starts from Aswani junction and ends on Ottappalam Cherpulasseri road . The existing 4m wide road is proposed to widen to a width of 15m and Side drains, culverts and black topping is also proposed with street lighting. This project is to be implemented by the State Public Work Department.

R4 roads -12 m width

10. Widening of link road connecting from Busstand to Sundara Iyer road

This link road starts from Bus stand junction and joins with Sundara Iyer road for the easy accessibility to the railway station. At present the 3.60m wide road exists for a length of 210m. It is proposed to widen to a width of 12m and it will be implemented by the PWD.

11. Widening of Sengupta road

This is one of the important link roads that connect Palakkad – Ponnani road and Ottapalam Cherppullssery road . It starts from the Lakshmi theatre junction connecting the Ottappalam Cherpulasseri road and ends on Kizhakkethodu . This black topped 9.3m wide road has to be widened to 12m for a length of 1.22km. Resurfacing, , Street lighting and drain are also proposed. This project is to be implemented by the State PWD.

12. Kizhakkethodu road

This proposed 12m wide road starts from Palakkad - Ponnani road and ends on sengupth palat road for a length of 310m.It is a loop road to reach the railway station through Palakkad Ponnani route. It will be implemented by the PWD.

R5 roads -10 m width

13. Widening Panamanna – Veettampara road

At present this 8.20m wide road is connecting the remote areas of Panamanna and Veettampara. Veettampara is an important point in the Ottapalam – Cherppulassery road from where people from Panamanna reach Ottapalam and Cherppulassery through bus. A total length of 3.47 km has to be widened to a width of 10m and has to be made easy for vehicle traffic by providing side protection, drains, soling, metaling and tarring. The project has to be executed by Municipality.

14. Widening of Kaniyampuram – Panamanna road

This road starts at a distance of 600m from the western municipal limit. Present width of black topped road is 7.50m and it is proposed to widen for a width of 10m. This is one of the important road connecting major portions of Ottapalam and the nearby Panchayaths , Ananganadi and Vaniyamkulam having a total length of 3.37km. The residents of Panamanna will be benefitted by this road for their daily needs . The Municipality is the agency to implement the project.

15. Widening of Sundara Iyer road

It starts from the Sundara Iyar junction leading towards southern direction connecting the linking road from Kizhakkethodu to municipal limit. It is proposed to widen for a width of 10m for a length of 600m. By forming this road it can be used as a bypass without touching busy area of the town to Railway. Side wall drain, street lighting and black topping etc also are proposed. The project has to be implemented by the PWD.

R6 roads -8 m width

16. Widening of Kanjira kadavu – Kayarampara road

This 6.5 M wide black topped road starts from Kayarampara Junction and run towards north up to Kanjirakadavu. This road is a bypass from Kanjirakadavu to Kayarampara without touching any portion of the main roads. So an immediate development is necessary. It is proposed to be widend to 8m, providing street light, side protection and black topping. Municipality is the agency to implement this project.

17. Widening of Thottakkara – Mayilampuram road

Thottakkara - Mayilampuram road starts from Thottakkara at a point on the Ottapalam Cherppulassery road at a distance of 1.48 KM from Ottapalam town leading east. This road is the major link between the nearby Ambalapara Panchayath and Ottapalam town. This road having an average width of 4.7 M at present which is proposed to be widening to 8m and to provide side protection , street lighting etc. A large number of student and residents of northern west interior part of the town are the beneficiaries of the road for all their needs. The project is to be implemented by the council.

18. Widening of Link road Connecting from Palakkad-Ponnani road to municipal limit

This road starts from Palakkad – Ponnani road near Valluvanad Hospital towards south and ends on the Railway boundary. At Present 4.80M wide road exists for a length of 0.96 KM. It is proposed to widen the same to a width of 8 M and to provide good type of surfacing for the smooth traffic. According to the survey it is clear that widening and improvement for this road is extremely necessary since the only connection for the people in the above area is the same road andis to be implemented by the PWD.

19. Widening of Link road Connecting panamanna veetampara road to municipal limit

This black topped road having a length of 1.23km starts from Veetampara junction on the Ottappalam Cherpulasseri road passing through Panamanna Vayanasala Junction leads to Thottuppalam. It is proposed to make improvements to the existing road by widening the same to a width of 8m. It connects the nearby Vaniyamkulam panchayat and will be a good communication median of the inhabitants both the Municipal as well as Panchayat area.Implementing agency is the State Public Work Department.

20. Link road starting from Ottappalam Cherpulasseri road to municipal limit (west) 1

This road starts from Varode UP school junction on the Ottappalam Cherpulasseri road leading towards Kollothparambu. The missing link roads of 0.19 km stretch is proposed to construct to a width of 8m and the 5.6 and 5m wide roads have to be widened to 8m for the smooth movement of traffic. It is one of the major link road connecting Ananganadi Grama Panchayat.

21. Link road starting from Ottappalam Cherpulasseri road to municipal limit (west) 2

This link road starts from Cherikundu Newtharangam junction runs towards Ananganadi Grama Panchayat. Present status of road is not satisfactory and it needs substantial improvements. 4.80m and 5.20m wide roads are to be widened to 8m and the misssing links of 0.12km and 0.32km stretches are proposed to construct to 8m width roads respectively. Total length of the road comes to 2.68km and it will form a major link road between Ananganadi and Ambalappara panchayats.

19.2.2 Traffic Management Techniques

Junction Improvement

Road Safety Improvements are carried out at a location where the number of accidents involving personal injury is higher than expected and where an analysis of the accident patterns indicates road works could improve the situation. Depending on the nature of the accidents works could include junction alteration, improvements to surfaces, drainage, warning signs, street lighting and protective devices.



High Resolution Camera

Traffic circulation system

The master plan for road links is to be developed to required lane widths as per estimated traffic volumes. Apart from that the circulation system need to be re-organized introducing one-ways, no way mode type by time period, turning movements restrictions at intersections etc. to minimize conflicts, increase capacity and maximize safety.

Traffic control system

The directional movements of vehicles and pedestrians need to be regulated. Intelligent Transportation Systems (ITS) need to be installed to regulate traffic based on real time flows. Control systems need to accord priority for public transport modes. There must be easy, convenient and safe movement of pedestrians.

Use of ITS:-

- For ensuring safety
  - Using high resolution camera
  - Road side detectors
  - Variable message signs
- For improving the transport facility
  - By providing real time arrival information system of transit buses
  - Accident avoidance systems at turning points
  - Incident management systems



Intelligent Traffic

Priority for public transport

High occupancy vehicles (HOVs), in particular buses, need to be given priority in the traffic system. This proposal is mainly put forward to improve operational efficiency of the bus system, reduce travel time to bus users, promote modal shift to bus system, increase safety and reduce environmental pollution.

Pedestrian facilities



Foot path



zebra line crossings

Parking policy

Parking facilities can be either on-street or off-street. On street parking can be provided on spaces near the sides of the roads where vehicles are allowed to park. Off street parking spaces should be away from the main stream and connected to it through a service road. Peak parking accumulation observes on major parking corridors in Ottappalam study area. Peak accumulation is highest in road stretch Town Jn to Lakshmi Theatre Jn. To avoid this, a pay and park facility is proposed behind of the existing bus terminal.

19.2.3 Proposed bus bay and bus shelters

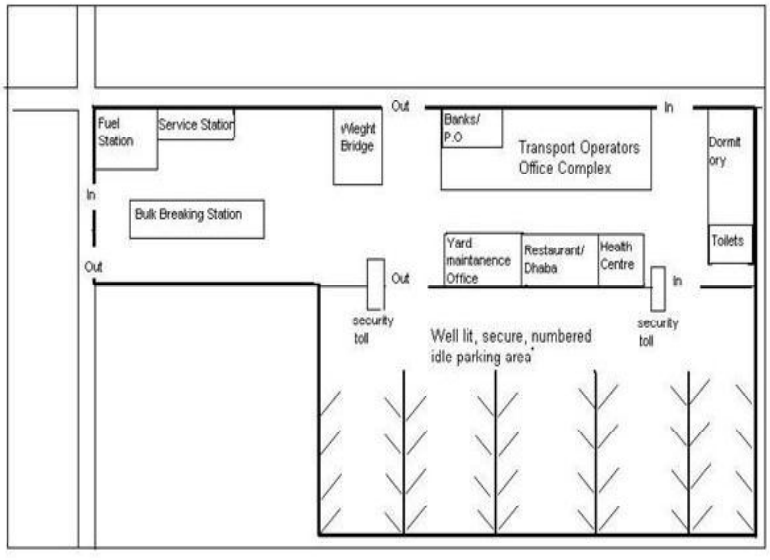
A number of bus bays and bus shelters are proposed in the municipality.

19.2.4 Expansion of existing bus terminal and Proposed Parking

The Existing bus stand is located in the center of the town and at present is over crowded. Entry and exit to the bus stand within 50m distance on Palakkad Ponnani road also cause heavy traffic congestion in this area . With large number of private vehicles, auto rickshaws and taxies occupying the space around the bus stand, movement of traffic in the area largely remains chaotic for most part of the day.The present area of bus stand is not sufficient to accommodate all the components as per the norms given in UDPFI Guidelines, hence an extent of 2.04 hectares in the Syno 100pt, 102pt, 103pt, 105pt of Ariyur Thekkumuri desam is earmarked for the purpose for expansion of bus stand and proposed parking.

19.2.5 Proposed Truck terminal

Truck is the most popular choice to transport small quantities of goods. Parking of truck on either side of roads creates traffic bottle neck in the town. Owing to the steady growth of industrialisation, there has been a steep rise in the traffic load on the highways. A Truck terminal having facilities like offices and go downs of transport companies, easy loading and unloading facilities, parking area, dormitories etc.is proposed.



Lay out for Truck terminal

The other facilities required are for Idle parking space, Dormitory, Sanitary Facility, Transport Operators Office, Cross Docking/ Bulk Breaking Yard, Restaurant and Retail shop, Medical Facility, Banking Facility, Office for the maintenance staff, Weigh Bridge, Service Station, Fuel Pump, Post Boxes & public telephone booths. The Objective of the project is to provide modern and functionally efficient truck terminal for the town , beneficial to the transport operators, lorry booking agents and general public.A truck terminal is proposed at Palappuram having an area of 0.50 hectare in Palappauram desam Sy No 280 pt.

19.3 SECTOR WISE PROPOSALS

Major sectorwise proposals are shown in Fig 19.6

19.3.1 Trade & Commerce

Ottappalam has high potential for commercial developments and enhancements. The proposals for trade and commerce are intended for satisfying increasing needs of inhabitants of the municipality. Commercial developments can not only support residents of the municipality but also attract neighboring population.

Presently municipality has 0.71% commercial land area, which constitutes 23.31 hectares. These are mainly distributed along Palakkad - Ponnani road from Ambalappra junction to the Lakshmi theatre junction. Commercial activities are proposed to be mainly concentrated in commercial zone and Town centre zone. Easy connectivity to the main roads and consuming nature of inhabitants increase the tendency of ribbon development in the municipality. HIgher order commercial activities are proposed at Town centre.



A scene from Thenadi Bazar

Development of Market area with Agri Trade Complex

Presently shopping complex of Municipality area is located in the western region of Mulanjoor thodu in Ariyur Thekkumuri Desam. A large vacant land area is available in between Mulanjoor thodu and Mayannur bridge which can be used effectively for the development of market. An agri trade complex is also proposed. But care should be taken to ensure proper disposal of market wastes . For that land having an extent of 3.03 hectares in the survey numbers 113 pt,121/A pt ,122/A pt of Ariyur Thekkumuri desam is earmarked for the purpose (Refer Fig 19.6).

Proposed multi storeyed Agri Trade complex can accommodate the following .

* Self reliant Market for farmers
* Modern fish and meat markets
* Vegetable and fruit markets
* Flower market
* Exhibition-cum-sales centres for different agricultural commodities,
* Organic enclave to popularise organic products
* export-oriented storage points for agricultural commodities
* Convention centre for farm-oriented programmes
* Ware housing facilities for agricultural products
* Parking facilities at basement floor

Development of Commercial Nodal Hierarchy with Modern Marketing Facilities, Go Downs and Cold Storage.

Municipal bus stand area is highly congested especially due to the presence of bus stand and commercial establishments . Hierarchical arrangement of nodes constituting modern marketing facilities should be implemented to disperse the congestion. Hypermarkets can enhance shopping experience as expansive retail facility carrying a wide range of products can be brought under one roof.

Development of efficient circulation space

Lack of space for effective circulation system is the main problem occurring in the major commercial nodes. Strict law enforcement and zoning can reduce this congestion to some extent. Provision of well paved foot pathways can provide undisturbed walking ways for pedestrians. Street parking on congested roads should be strictly prohibited.

Proposal for Informal Sectors

Street vendors are an integral component of urban economies around the world. Distributors of affordable goods and services, they provide consumers with convenient and accessible retail options and form a vital part of the social and economic life of a city. Street vending as an occupation has existed for hundreds of years and is considered a cornerstone of many cities' historical and cultural heritage. Street vendors may have fixed stalls such as kiosks, semi-fixed stalls like folding tables. They may operate from crates, collapsible stands, or wheeled pushcarts that are moved and stored overnight.



A vegetable vendor near NSS - KPT

Weekly markets can be provided which will give morespace for famers to sell their products. Since the weekly markets are mainly of one day's use a week, multiple use of space is better than allocating a separate space. The weekly markets may also be conducted in the nearby school playgrounds during the holidays. The details of street vendors are to be recorded and they are to be provided with identity cards. Basic facilities for drinking water and sanitation are to be provided in those areas where the numbers of female workers are more.Facilities to provide for vendors include provisions for solid waste disposal, public toilets to maintain cleanliness, aesthetic design of mobile stalls and push carts, provisions for electricity and drinking water and providing protective covers for protecting themselves as well as their properties from heat, rain, dust etc.Accommodation can also be ensurerd for a certain section of informal sector in the proposed Agri trade complex .

19.3.2 Industry

KINFRA industrial park



KINFRA Integrated Industrial & Defence Park at Ottappalam

Industrial developments in Ottappalam municipality need to be enhanced to provide more employment opportunities for the job seekers. KINFRA industrial park is the only industrial area that exists in the municipality. In 33.2 Ha of total KINFRA area only 2.4 Ha is located within the municipal limit. This 33.2 Ha (82.05 acres) of land would cater to the needs of industries in sectors like rubber based products, general engineering, ceramic

products etc. Project cost is estimated to be around 66 crores. Land is provided on lease basis for 30 years expecting 100 units providing employment opportunities to approximately 6000-8000 persons.

The Department of Industrial Policy and Promotion under the Union Government has approved the proposal submitted by KINFRA to set up a defence park at Ottapalam as part of the Make in India-Make in Kerala project. This project comes under the Modified Industrial Infrastructure Upgradation Scheme (MIIUS).The project is intended to create a defence park with modern common infrastructure facilities exclusive for the component manufacturers of the defence industry with Central assistance. Kinfra has acquired the land for development in Palakkad with access of road, railways, airport and seaport.Kinfra has earmarked 60 acres of land for setting up the park. The industrial units in the cluster will be given shared infrastructure facilities for innovative product development. The proposed infrastructure facilities in the park include dedicated power, continuous water supply and communication facilities. The project (‘231.35 crore) expects a central assistance of ‘50 crore.

Small Scale Industrial Units Promotion

The small-scale industrial sector plays vital role in the growth of the country. It contributes almost 40% of the gross industrial value added in the Indian economy. It has been estimated that a million rupees of investment in fixed assets in the small scale sector produces 4.62 million worth of goods or services with an approximate value addition of ten percentage points. SSI Sector in India creates largest employment opportunities for the Indian populace, next only to Agriculture. It has been estimated that 100,000 rupees of investment in fixed assets in the small-scale sector generates employment for four persons. Thus increased unemployment can be prevented to some extent by creating small scale industrial units.

The opportunities in the small-scale sector are enormous due to the following factors:

- Less Capital Intensive
- Extensive Promotion & Support by Government
- Reservation for Exclusive Manufacture by small scale sector
- Project Profiles
- Funding - Finance & Subsidies
- Machinery Procurement
- Raw Material Procurement
- Manpower Training
- Technical & Managerial skills
- Tooling & Testing support
- Reservation for Exclusive Purchase by Government
- Export Promotion
- Growth in demand in the domestic market size due to overall economic growth
- Increasing Export Potential for Indian products
- Growth in Requirements for ancillary units due to the increase in number of Greenfield units coming up in the large scale sector. Small industry sector has performed exceedingly well and enabled our country to achieve a wide measure of industrial growth and diversification

By its less capital intensive and high labour absorption nature, SSI sector has made significant contributions to employment generation and also to rural industrialization. This sector is ideally suited to build on the strengths of our traditional skills and knowledge, by infusion of technologies, capital and innovative marketing practices.

Handloom Industries

Handloom industries in Ottappalam have grown well beyond the history of Ottappalam. Muthaliyans who have migrated from tamilnadu and settled in kanniyampuram are the primary garment producers of Ottappalam. Co operative societies were formed to protect these traditional garment factories, but still it faces threat from industrial intruders. Handloom outlets and direct marketing facilities can enrich this community.

SILK unit renovation and up gradation

Specific revival proposals are formulated for capital up gradation, systematic improvements, succession planning, margin money for working capital and capacity building of personnel SILK.

Promotion of traditional Industries

Apart from the garment factories there were lots more traditional industries present, but due to hindrances faced from modern industries most of the industries have gone behind the screen. Major modern industries that became part of Ottappalam history in the 19th century were Ganesh tile works & west coast match factory. Ramvilas Matchbox Company, Chandraman, jolli, Krishna photo etc have unavoidable position in the industrial history of Ottappalam.

There are people engaged in sculpture work and metal vessals manufacturing work in Ottappalam town. Proper channel of coordination and marketing is necessary for the improvement of this sector. Organised areas for marketing will attract more people to the area. Cooperative societies can be formed to aid in initial investment and also to pool resources and raw materials. it is seen that this sector has potential for more development by way of modernization and diversification. There is a scope for promoting this work by linking it to tourism sector. It is suggested to set up a training centre for handicraft works with the objective of restoring unique craftsmanship and technology for which a tradition has been basically known over the centuries.

Empowerment of Matchbox industries

Once match box industries in Ottappalam were in their glorious form. These industries served lot of population both directly and indirectly. Boosting of these industries can definitely change drowning industrial future of Municipality.

Women Empowerment

Women empowerment can be effectively carried out if they are brought into the circle of small scale entrepreneurship. Food products stand first in the creation of employment opportunities. Apart from food items, metallic, non-metallic, chemicals etc can also use effectively for creating jobs.

Assistance to Entrepreneurs

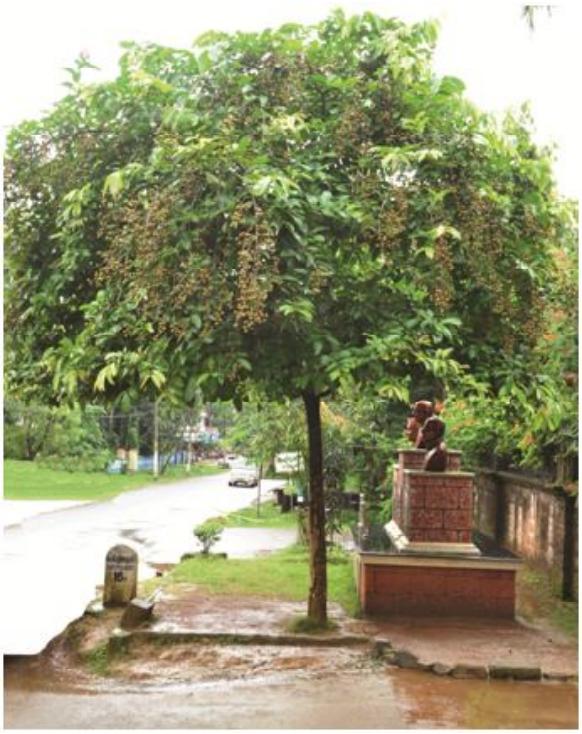
In order to encourage entrepreneurship assistance should be given to entrepreneurs in the form of margin money loan, investment subsidy, cluster development programme, sick unit rehabilitation programme, PMEGP, women's industries programme, women industries scheme and self employment scheme for educated youth.

19.3.3 Tourism

The economic importance of tourism varies from place to place but can be seen to make a significant contribution to many countries wealth.

In case of Ottappalam municipality, presently Chinakathur pooram is the only tourist attraction. Even though some portion of Ananganmala is situated in Ottappalam municipality, tourist revenue go to the Ananganadi and Thrikkediri panchayaths as viewpoints are located there.

If more tourism developments are implemented in this town, care should be taken to provide star hotels having rating four and above as presently hotels with rating below three stars serves the need.



Haritha tree plantation program

Several important reasons for tourism include:

- Tourism spending generates jobs, paychecks and local taxes.
- Not all tourism jobs are low skill, low- paying jobs.
- Tourism also creates higher quality of life and attracts business for more economic development.
- Promoting concerned central place for business.
- Creation of a wide range of jobs.

Tourism is important in many ways in the world as it can be for leisure, business, education, culture and its fun is the very happiest part of the life.

Ananganmala Eco –tourism

Ananganmala, an eco-friendly tourist centre started in May 2010. Mountain is stretching over 500 acres, a rare store house of precious and exceptional herbs are seen in this mountain range. Top of the mountain provided a panoramic view of about 50 km circumference, facilities like a footpath to the top of the mountain, Accommodation facilities at night, electricity etc, will benefit the tourists. A 'Hill Resort' comprising activities that are compatible to the forest and ecology of the area can attract more adventure lovers. The scenic potential inherent with the site will give further impulse to tourism in the area and can act as a catalyst for trade tourism.

Religious Tourism

Chinakkathoor Pooram (Annual Hindu festival) is held at the famous Chinakkattoorkkavu Temple of Goddess Durga. Hundreds of people including foreigners come to the pooram ground to see these festive actions. Hence more tourist attractive promotional works can be brought to the pooram site atleast on that day to attract more visitors.





Chinakkathur kavu Pooram

Cultural Tourism

Ottappalam is renowned for its traditional industries like handloom , sculpture works and metal vessal manufacturing.Handloom/craft works are to be connected to the tourism sector. Pieces of artwork are desired by domestic and foreign tourists made indigenously by local craftsmen who are skilled in the trade that is carried forward through generations. Shopping for handicrafts is inevitably included in the itinerary of any tourist visiting the state. The stone carvings of the numerous gods and goddesses reflect the deeply religious sentiments and beliefs of the people.

The hand/machine-woven 'set sari' and two-piece 'set mundu'of Kerala are hugely popular even among the foreign tourists who buy them in bulk to gift their loved ones back home. Besides, the metal art is another flourishing industry. Bell metal which is an alloy of brass, tin and copper is another trademark material of Kerala, and is used to make lamps of various sizes and shapes, as well as household utensils. Marketing through e-commerce so that artisans would get chance to enter the international market directly.



Stone carvings



Weaving Process

Health tourism

Health and wellness tourism promotes the health and well being through physical, psychological or spiritual activities. Ayurveda can be effectively marketed through the fast growing health tourism concept. Ayurveda attracts lot of foreign and domestic tourists, region is also recognized for having developed a new form of physical yoga as a means of rejuvenating mind and body. Ayurvedic massages and the use of medicinal herbs for relaxation and rejuvenation purposes which has already become a major attraction for tourists could be effectively utilized.



Presence of famous ayurveda hospitals Padinharkkara Ayurveda Hospital and research center, Nandavanam Ayurveda Hospital and Ayush Ayurveda Hospital will help to promote the health tourism sector. These hospitals are having all modern facilities for complete ayurvedic treatment include Panchakarma Chikitsa, massage, yoga and specific food habits and meditation. Padinharkkara Ayurveda Hospital and research center have the facility of Kudipravesika treatment(Rejuvination Therapy) with specialised rooms and scientific ayurvedic treatments. More health/wellness holidays could be packaged around ayurvedic treatment and special courses could be introduced to educate the tourists about Ayurveda.

Film City

Ottappalam, situated in the banks of river Nila known as the summit of 'Valluvanadan' culture is the alluring location of Film industry. Utilising the geographical and cultural background of Ottappalam, Film city is proposed in land owned by irrigation department in Ariyur thekkumuri desam.

Tourism destinations in the immediate vicinity of Ottappalam like the famous "Vallathole Museum", Cheruthuruthy the renowned "Thiruvilwamala Temple" and the "Punarjani Caves", Ananganadi Hills",Famous "Varikkassery Mana",Kunchan Nambiar Smarakam at Lakkidi will also give aboost to tourism sector of Ottappalam Town.



Varikkassery Mana

River front Tourism

River front tourism development along the banks of Bharathapuzha is proposed which includes setting up of greenwalk ways that support pedestrian activity and cycle tracks. Beautification works will attract more tourists towards the river. Presently there is no cohesive pedestrian network within town and there are many barriers to prevent pedestrian movement. Riverfront is to be connected with pedestrian walk ways. Direct pedestrian access from the town to the riverfront with clear signage is also necessary. It has to improve both visual and physical connections between the town centre and the riverfront and up gradation of the riverfront to improve visitor experiences.





19.3.4 Agriculture

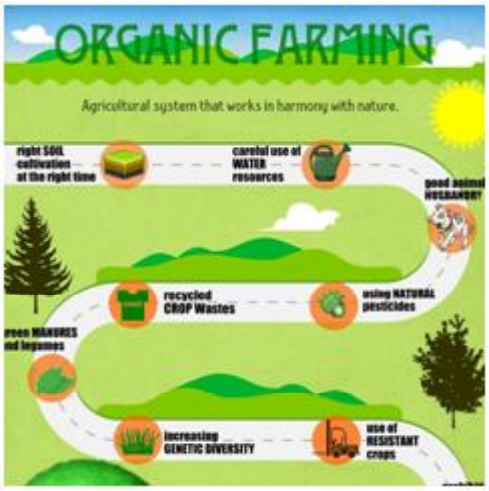
It is estimated that the rice requirement for Kerala is about 7500 tonnes per day whereas the production within the state is grossly inadequate to meet the requirement. The productivity of paddy in the State at the current level is sub optimal, meeting only 15% of the requirement, and the remaining 85% requirement is met from the neighbouring states of Tamil Nadu, Andhra Pradesh and Karnataka. Hence every possible steps have to be taken to promote paddy cultivation in our locality.



Thottakkara Padasekharam

Organic farming

Organic farming methods combine scientific knowledge and modern technology with traditional farming practices based on thousands of years of agriculture. In general, organic methods rely on naturally occurring biological processes, which often take place over extended periods of time.



Progress of Organic Farming

"Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system." - *Definition proposed for adoption by FAO/WHO Codex Alimentarius Commission.*

Active practice of small-scale irrigation agriculture

In order to increase agricultural production, it is important to spread irrigated rice agriculture that has the potential of relatively high yield. In this case, it is effective if small-scale irrigation farms which are relatively easily managed by farmers are spread in rain fed lowland. For the sustainable development of irrigated farming, it is necessary to have a socioeconomic system that helps encourage farmers to participate actively, such as water reservoir, fertilizers and other materials, financial systems, extension, roads and other infrastructure.

Sustainable Agriculture Techniques

Crop Rotation

Growing different crops in succession in the same field—is one of the most powerful techniques of sustainable agriculture, and avoids the unintended consequences of putting the same plants in the same soil year after year. It is a key element of the permanent and effective solution to pest problems because many pests have preferences for specific crops, and continuous growth of the same crop guarantees them a steady food supply, so that populations increase. In rotations, farmers can also plant crops, like soybeans and other legumes that replenish plant nutrients thereby reducing the need for chemical fertilizers.

Terrace Farming

Terrace farming can function well in areas where concrete structures over rule natural ground. Bags or pots can be planted with food crops so that common man's daily needs are satisfied with ease.

Cover Crops

Using appropriate cover crops is worth the extra effort because it reduces the need for chemical inputs like herbicides, insecticides, and fertilizers.

- Preventing soil erosion,
- Suppressing weeds, and
- Enhancing soil quality.

Soil Enrichment

Healthy soil teems with life, including many beneficial microbes and insects, but these are often killed off by the overuse of pesticides. Good soils can improve yields and produce robust crops less vulnerable to pests; abused soils often require heavy fertilizer application to produce high yields. Soil quality can be maintained and enhanced in many ways, including leaving crop residues in the field after harvest, plowing under cover crops, or adding composted plant material or animal manure.

Natural Pest Predators

Understanding a farm as an ecosystem rather than a factory offers exciting opportunities for effective pest control. For example, many birds, insects, and spiders are natural predators of agricultural pests. Managing farms so that they harbor populations of pest predators is a sophisticated and effective pest-control technique. One of the unfortunate consequences of intensive use of chemical pesticides is the indiscriminate killing of birds, bats, and other pest predators.

Bio-intensive Integrated Pest Management

One of the most promising technologies is the control of pests through integrated pest management (IPM). This approach relies to the greatest possible extent on biological rather than chemical measures, and emphasizes the prevention of pest problems with crop rotation; the reintroduction of natural, disease-fighting microbes into plants/soil, and release of beneficial organisms that prey on the pests. Once a particular pest problem is identified, responses include the use of sterile males, bio-control agents like ladybugs. Chemical pesticides are only used as a last resort.

19.3.5 Fisheries

Ornamental Culture





Ornamental fish culture is becoming more popular in developed countries as it attracts more foreign money. Aquariums can decorate the interiors of drawing rooms well enough to please the visitors, for the same reason they are gathering more attention from designers. Its ability to earn higher returns with low production cost that too in a very short time makes them more effective. Aquarium keeping is picking up as a hobby among the people of the State. This can be evident from the coming up of new ornamental trade units in each nuke and corner of the State. There occur a spurt in the number of aquarium trade/ pet units in the State after the Aqua shows conducted by the State Fisheries Department during the past few years.

Inland fish culture

The ponds which are suitable for inland fishing activity need to be renovated and protected. Inland fish production provides significant contribution to animal protein supplies in rural areas of state. Most of the inland production is consumed locally and marketed domestically. The site for a fish farm should be selected with great circumspection and care, since the site and general arrangement will control the economics of operation.

Sites should be selected for fish farms only where water of the required volume and quality is available at the times needed for operating the farm.

- Preference should be given to sites where a gravity water supply to the farm is possible.
- The quality of the water available must be such that the desired fish can be raised, e.g. fresh, brackish or salt water.
- Gravity drainage of the ponds should be possible.
- The fish farm should be sited primarily in areas unsuited to other agricultural uses.
- The soil in the area selected should, if possible, be impervious.
- For low construction costs, plain areas with slope less than one percent should be selected.
- The site should be in the vicinity of transportation routes, or where the access road can be constructed economically.
- In the proximity of inhabited areas, considerations of public health and the necessity of guarding against poachers should be kept in mind.
- Fish farms need electrical power, so the possibility and cost of connection should be considered.
- Any existing electric power line must be excluded from the area envisaged for the fish farm.
- Skilled operators are essential for operating major fish farms efficiently.

An important consideration in site selection is, therefore, to provide an attractive environment and facilities for both professionals and operators.

Paddy cum Fish Culture

The returns from paddy cultivation have been decreasing considerably in recent years as a result of which the rice growing areas in southern Kerala are being converted to garden-lands for raising cash crops. This trend has to be checked as rice forms the staple food of the people. Introduction of fish culture as a supplementary component, which offers three-fold increase in economic returns per unit area, is an attractive way to sustain paddy cultivation.

This system aims at exploiting the abundantly available plankton in the water column of the paddy field. This is well suited for paddy fields in which water column can be maintained at a height ranging from 10 to 50 cm for a minimum period of six months. The bunds facilitate the growing of fodder grass or vegetables. Apart from the initial expenditure towards the preparation of the field to suit the combination culture, fish culture as such does not require any additional input other than the fingerlings.

Carp Seed Rearing Units

The Indian and Chinese major carps, viz. catla, rohu, mrigal, silver carp and grass carp generally breed in riverine conditions. Though they show maturation up to a point in captivity in ponds, yet the final phase of maturation do not normally take place in pond ecosystem. However, they breed in bund type of tanks. The country thus had been primarily depending on riverine carp seed resources till the Central Inland Fisheries Research Institute (CIFRI) evolved a technique of induced breeding. The technique has since been improved, refined and standardized at the Institute. Hence rearing units of these Carp seeds can be established in the municipality to create more revenue income and economic development.

19.3.6 Irrigation

Farmers of Ottappalam municipality are forced to drop their agricultural practice mainly due to the unavailability of irrigation facilities. Ottappalam municipality located at an average elevation of 54m recieves an average annual rainfall of 124mm. Alappuzha and thrissur districts obtain annual average rainfall more than 250mm. Which means that this low rainfall intensity is pointing to the need of irrigation system.

Eventhough both malampuzha and Kanjirappuzha irrigation canals are passing through either ends of municipality; Malampuzha water is not reaching any area beyond Pallarmangalam. These areas depends mainly on lift irrigation projects of Erakottiri and Palappuram which supplies water for each 100 hector of land area. Among the fourty ponds available in the municipality, only five are under government ownership, hence necessary steps must be taken to conserve the remaining ponds in private custody.

Repair works to Malampuzha RBMC

The Malampuzha Irrigation Project in Palakkad district (Kerala) is the first large-scale irrigation system attempted in Kerala state. The project consists of a dam constructed across the river Malampuzha, a tributary of Bharathapuzha. It consists of network of canal system to irrigate an area of 22.554 Th ha. The capacity of the reservoir is 226 MCM at Full Reservoir Level (FRL Full Reservoir Level) +115.06 m and water spread area of 22 Sq.km. The maximum height of the masonry dam is 38.10 m. The CCA of the project is 22554 hectare and annual irrigation is 45108 hectare. The project has two main canals, left and right bank. The right bank canal which supplies water to our municipality, has a length of 32 km irrigating an area of 4299 hectare with a head discharge of 4.05 cumec. But irrigation water is not reaching area beyond Pallarmangalam in Ottappalam municipality.

Thus repair work of malampuzha right bank canal can supply water to the many more areas. Other than that below mentioned suggestions can also irrigate more land area.·

- Lift Irrigation scheme can be implemented at Meetna
  Check dams can be constructed at some places of Bharathapuzha, with the help of local man power.
- Water from anangan mala can be directed to Kizhakke thodu through existing channels by reconstructing their side walls.
- VCB in Kizhakke thodu and Kakkathodu
- Strengthening of Padasekhara samithi and implementation of combined paddy field concept can increase paddy cultivation.

Proposals for augmenting irrigation facilities include renovation of major ponds , side protection and desilting works of thodus, proper maintenance of lift irrigation schemes and by provision of standby motors for existing lift irrigation schemes.Efficient and cost effective methods like sprinkler irrigation and drip irrigation should be encouraged. Sprinkler irrigation is a method of applying irrigation water which is similar to natural rainfall. Water is distributed through a system of pipes usually by pumping. It is then sprayed into the air through sprinklers so that it breaks up into small water drops which fall to the ground. The pump supply system, sprinklers and operating conditions must be designed to enable a uniform application of water.
Drip irrigation otherwise called as trickle irrigation and involves dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called drippers. Water is applied close to plants so that only part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil profile. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favourable high moisture level in the soil in which plants can flourish.

Conservation of water bodies

Nowadays all water bodies are facing threat from encroachment. Conservation should not be considered as an option but as a necessity. Current circumstances require our full attention to the water body if we hope to thrive as a civilization. The world is currently suffering due to a lack of clean water. Hence so as to protect further trespasses a buffer strip 5m width is provided on both sides of the thodu and canals. For rivers the buffer strip should be 50m from the river boundary.

19.3.7 Animal Husbandry

Modern slaughter house

Presently a shopping complex of Municipality is situated in the western region of Mulanjoor thodu in Ariyur Thekkumuri Desam. It is proposed to construct a slaughter house in this area.. Slaughter house can be constructed with most modern facilities. For that land having an extent of 0.31 hectatres in survey numbers 111 pt ,112 pt of Ariyur Thekkumuri Desam is earmarked for this purpose .Slaughter house is proposed to process 50 -100 animals per day. The proposed slaughter house must carry most hygienic working procedures, storage and waste disposal. Care should also be taken to ensure proper disposal slaughter wastes. In order to protect the river from slaughter house wastes, a green buffer of 30m width is provided inside the boundary of proposed site for the slaughter house. Also strict regulation control has to be implemented along the banks to prevent pollution of river.

Male calf fattening scheme

A scheme is proposed to increase beef production by providing good quality calf feed at 50% subsidized rate to the male calves of the age 4-6 months for a period of 6 months. Calf fattening is all-inclusive activity, related to meet animal's care, housing, medication, feeding and management. It is defined as all those aspects and activities relating to rising of calves for meat purpose. Before making the decision, whether to invest in the livestock farming or not, one should carefully analyze the associated risk factors.

Mini dairy units

Schemes for mini dairy units should be encouraged which will provide milk producing cattle for selected families in the municipality. These diary units can also be used as societies that collect milk from farmers. In modern dairy production exotic cross breeds or pure breed cattle are used and the milk is processed to have longer shelf life. The dairy farms can also have fodder, silage and hay production units along with milk processing and packing facilities.

Goat rearing and mini goat breeding units

The project aims at providing two numbers of Malabari goats at subsidized rates to selected families. This initiative can provide earnings to the dependant category of members in a family.

Poultry production units

It is proposed to increase the egg production by encouraging poultry farms. Also the egg marketing outlets are to be integrated with agricultural/ vegetable marketing outlets.

Fodder production units

Increase in cattle farms is likely to cause hike in the demand of fodder. Utilization of unutilized land under municipality can be used for fodder production. Vertical fodder farming shall also be promoted.

Rear yard poultry farming

The backyard poultry project aims at providing units of 8 backyard poultry birds of 2 months of age to farmers. A sale counter for the sale of eggs should also be established. Women entrepreneurs belonging to self – help/ Kudumbasree units can be utilized for rearing of birds and marketing.

19.3.8 Water Supply

An ongoing project underUIDSSMT. with components like 13 MLD Water treatment plant, RCC weir across Bharathapuzha and pumping and distribution system will solve the water scarcity problems of Ottappalam Municipalty in future .

Rain water harvesting arrangements

In order to tackle the existing water shortage, it is also proposed to encourage the rain water harvesting arrangements in the municipality.

19.3.9 Drainage

Preparation of a drainage master plan

Most of the existing drainage needs repair and maintenance. De- silting operation and side protection works must be carried out with immediate effects. So as to prevent pollution of river from drain water, an interceptor drain must be constructed along the direction parallel to the river. There are missing links in the network system. A contour map of municipality shall be created so as to understand the distribution of land elevations. Based on that contour map, water logging areas can be perfectly identified. A neat continuous drainage network thus formed can prevent overflow and flood during monsoon seasons.

19.3.10 Sanitation and Sewerage

Sewerage is the core element of physical infrastructure that determines the environmental status of any city and requires proper planning, development and management. Development of appropriate sewerage system with efficient sewage treatment is vital to facilitate balanced and harmonized development. There has been no planned sewerage system in Ottapppalam town. Sewerage network is proposed for the entire town ,but it is suggested to cover the CBD area of Municipality in the first phase .During the process of sewage treatment environmentally safe fluid is disposed into the water bodies with suitable technologies. Sewage treatment plant of 15MLD capacity is proposed at Panamanna having an extent of 0.56 Ha in Sy No 122 pt of Panamanna Desam. (Refer Fig 19.6 and Table 19.5)

Table 19.5 Details of Sewage treatment plant.

Sy. No	Desam	Proposal	Area in Ha
122PT	Panamanna	Sewage Treatment Plant, Biomethanation Plant and expansion of solid waste treatment plant	0.56

19.3.11 Solid Waste Management

Presently Ottappalam municipality has a solid waste treatment plant having a capacity of 8 tonnes functioning at South Panamanna desam. Apart from this to treat market wastes and slaughter house wastes a bio methanation plant of 5 tonnes capacity is also proposed along with the sewage treatment unit (Refer Fig 19.6). Bio-methanation plant of 5 tonnes mixed wastes per day can generate 0.04MW of electricity and rich bio manure. The mixed wastes consist of 4 tonnes of vegetable market waste from bazaars (Market Yard) and 1tonne of slaughterhouse waste from the slaughter houses. The sewage sludge from the adjoining Sewage Treatment Plant can be used for making the slurry that has to be fed into the digesters. Other than this plant decentralized units of solid waste treatment centers are proposed at ward level for treating approximately 0.3 tonne waste that is produced by residential units .

19.3.12 Energy

Non - Conventional Energy Sources

Solar Panels on Top of Govt. Buildings:

Solar energy is the prime source in conventional energy forms. Palakkad district being situated in the hottest region of Kerala can deliver more electricity from solar energy. Solar panels can be placed above public buildings there by creating a new trend of energy conservation.

Wind mill & Solar panel fields at Ananganmala:

Ananganmala can also be used as a site for establishing both wind mill and solar panel field. Wind with comparatively high velocity blows in this region for almost round the clock. The hill top being at a higher elevation can always receive the wind without any hindrance. Sun light falls directly to the rock surface as nothing obstructs its way down.



Solar street lights

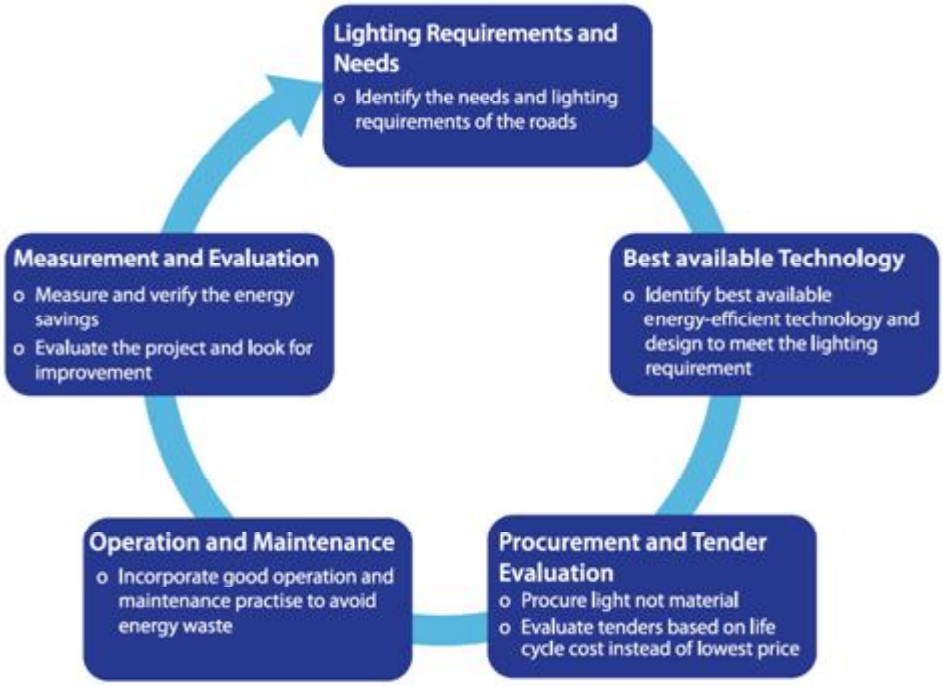
Street Lights

Energy efficiency initiatives enable transition to a resource-efficient economy and the realisation of strategy for smart, sustainable and inclusive growth. One key area for investment in electrical engineering is street lighting, where there are not only major opportunities to significantly reduce electricity consumption, but also additional benefits associated with phasing out environmentally harmful technologies, reducing maintenance costs and achieving much better overall control of the street lighting environment.



LED Street lights

Older technologies do not match the capabilities of LED and other more advanced options. In the case of incandescent bulbs, 90% of the energy consumed goes into producing heat and only 10% goes into light. In contrast to a conventional 100-watt incandescent light bulb, which generates visible light at around 17 lumens per watt, compact fluorescent light bulbs (CFL) can generate 60 to 75 lumens per watt and LED bulbs more than 100 lumens per watt. LED lights have two key benefits: energy efficiency and long service life, which - at around 50000 hours - is three to five times longer than conventional lighting technology. From a life cycle perspective, the majority of costs related to conventional street lighting stem not from the investment itself, but from post-installation costs (i.e. energy, maintenance and upkeep costs). As a longer expected service life means considerable reductions in maintenance costs, LEDs' higher upfront costs can become more economic than those of typical fluorescent lights in roughly six years.



Energy efficient street lighting project circle

19.3.13 Education

Hygienic toilets

Environmental conditions often serve as critical enabling factors for health promotion. Schools have a central place in the health of a community. Inappropriate hygiene in schools can cause many diseases. If there are no school sanitation and hygiene facilities, or if they aren't maintained and used adequately, schools become places where diseases are likely transmitted. Hence so as to maintain the well being of children, aesthetic and architectural aspects of school's building plan, safe water supply, disposition of wastes, emergency lighting, heating and ve lation, adequate facilities etc should be considere



E-toilets

Smart class rooms

Driven by new practices in teaching and learning that build on the recognition of the powerful impact that school design has on how well students do at school, we should create flexible learning spaces or 'smart classrooms' designed to suit the individual needs of every student. Every school if possible should have flexible learning and teaching spaces for groups of various sizes including a resource area, wet area, individual class rooms, a presentation space and an outdoor learning area.



Requirements of a Smart Class room

The concept of smart class room becomes a blessing for students in the sense that it is always easy to

understand and recollect what is visually taught rather than read through pages after pages by us.

Incinerators for Girls toilets

With increase in institutions like schools, anganwadies, health centres, etc disposal of waste is becoming a serious problem. Both non- degradable and bio- degradable wastes can prove hazardous for health, if proper complete disposal is not done. In schools especially, disposal of sanitary cloth and sanitary napkins in girls' toilets is a big problem. It affects proper functioning of toilets when disposed in the toilets and serious health problems if thrown out in garbage dumps or in the open. There is thus an imminent need to address this important sanitary waste disposal effectively especially in terms of developing cost effective and simple technology for composite waste disposal for schools.



Electrical Incinerators

Special coaching for socially backward

The government of India has published a central sector scheme for SC and OBC students, whose briefing is done below. The empowerment of the weaker sections has been a priority area of concern for the Government since independence. A number of plans and programs are being implemented for assisting the weaker sections so as to enhance their skills and capabilities for ensuring rapid economic development and integration in the national mainstream.

A scheme for providing free coaching to students belonging to Scheduled Castes (SCs) is being implemented since the 6th Five Year Plan. Similar schemes are also being implemented to provide free coaching to students belonging to other backward classes (OBCs) and minorities. With a view to ensure effective implementation and monitoring and to assist the students in a better manner, the separate coaching schemes for SCs, OBCs and Minorities were amalgamated and a combined Scheme, namely Coaching and Allied Assistance for Weaker Sections including Scheduled Castes, Other Backward Classes and Minorities was introduced with effect from September, 2001.

Weighing all pros and cons of the previously published schemes it has been decided to revamp the scheme so as to make it more effective and result oriented. Modification of these schemes will promote uplift of socially backward in the education.

E-library

The Internet has become deeply embedded into every aspect of our private and public lives. In the academy as well, the Internet and the growing cyber-infrastructure that carries information to us and facilitates scholarly work has become an essential fixture in the lives of students. The pure power that online databases provide for quickly locating facts about virtually any person, place, or thing, or the possibilities that cyber-technology holds for bringing together massive geospatial information, which would otherwise be largely inaccessible. This enhances the importance of a digital library in every educational institution.

To deliver the massive digital geospatial information along with the pleasant atmosphere that our ordinary book filled libraries give an e-library has to be established in every educational institution.

Table 19.6 shows the details of infrastructure facilities required in Government schools present in the municipality.

Table 19.6 Details of facilities available in Schools of Municipality

Sl. No.	Name of School	No. of Class rooms required additionally	No. of Teaching Staff required/ Vacant	No. of Toilets required/for girls	Drinking water--Avail/ req.	Compound Wall	Play Ground	Library-Avail/ req.	Study Materials
1	GJBS, Palappuram	Nil		1	Yes	Partial	No	Yes	Need
2	GHS Ottappalam East	4	4	3	no water	Repairing needed	-		Need
3	GHSS Ottappalam	8	7	3	no water	200m	-	Separate room required	Need

19.3.14 Health

Strengthening of Taluk Head Quarters Hospitals

At present as per the secondary data collected, Taluk hospital has 173 beds, 105 other staffs and 25 doctors. These limited staff members and facilities serve a population of fifty thousands. Even though many other private hospitals are available within the municipality, major portion of residents depends on this govt. hospital. If this govt. hospital can be raised to a quality equivalent to that of multispecialty centers heavy expenses charged upon patients can be minimized. Need of multispeciality hospital is vital in the municipality.

Apart from this major improvement following proposals can also be considered.

- To Strengthen – First Referral Unit Facility
- up gradation of Ayurvedic Taluk Hospital
- New Taluk Homeo Hospitals
- Package of Care Services for the Destitute Families
- Modern Life Style Disease Treatment and Care Centre
- Taluk Level Institution of 'Scion' (District Institute for Speech and Hearing)
- Buds Special School For Mentally Challenged
- Vocational Training Centres

19.3.15 Recreational Facilities

Recreational facilities are important to the quality of life and communities. It also helps decrease overweight and obesity with regular physical activity among people and communities. The activities create positive outcomes such as confidence, self-respect, self-esteem, trust, self reliance and leadership abilities. Recreational facilities in Ottappalam municipality are not up to the satisfactory limit. There are no parks within town. Serious considerations are needed to provide recreation facilities in the town. Hence following recreational centers are proposed in the town.Two chidren's parks and one sectoral level park are proposed . An indoor and out door stadium is also proposed. Details of extent ,location are shown in Table 19.7

Table 19.7 Proposals for recreational facilities

Sl No	Proposed Parks	Area in Ha	Name of Desam	Sy.no	Ward
1	Childrens Park Varode	0.87	Varode	173 pt, 70 pt	Varode
2	Childrens Park Palappuram	0.98	Palappuram	204 pt, 205 pt	NSS College
3	Park Thottakara	1.39	Thottakara	49 pt	Veettampara
4	Proposed Stadium	6.57	Ariyur thekkumuri	113 pt, 119/A full, 120 full, 121/A pt, 122/A pt	Kumbarankunnu

River front Pedestrian Path and Bicycle Tracks for Recreation

A 3m wide road need to be provided next to the river, in order to enjoy the river by the residents and tourists. It is proposed that a meandering road be aligned to hug the river banks as much as possible. Evening and morning walkers can enjoy the scenic beauty of river on doing their daily exercise. Footpaths and bycycle tracks are to be provided .

50 metres wide river front green promenades are also proposed along the banks of the Bharathapuzha river. This Green Belt must be set aside for landscaping, walkways and promenades. Ample trees should be planted within this zone to provide shades and to soften the environment. These green buffer will be visually exciting, providing a pleasing environment to further enhance the status and class of this Town .





Pedestrian path cum bicycle track

Indoor and Outdoor Stadiums

Ottappalam municipality at present have an indoorstadium,but it does not have a an out door stadium or play grounds to promote sports. Many schools in the nearby LSGs have performed well in state and district athletic meets. Creation of sufficient facilities are needed for the promotion of their sports activities. An indoor and out door stadium is proposed in 6.57 ha of land in Kumbarakunnu ward.





Indoor and outdoor stadiums

Street smart

It is a brand new concept of recreational activity, in which any one of the main street of city is closed down once in a month to create play space for the children and community. The street becomes a playground and canvas for children where they can own the city and grow by knowing their surroundings.



Street being converted into play ground

19.3.16 Other Civic Amenities

The traditional role of municipal bodies had been providing basic amenities of civic life. Services such as water supply and sanitation, roads and drains, street-lights, collection and disposal of solid waste, maintenance of public places, burial grounds and crematoria, cattle pounds, registration of births and deaths, maintenance of markets have long been seen as the function of municipal bodies. In addition, they performed certain regulatory functions relating construction of buildings, public health areas such as eating places, slaughter houses and tanneries, etc.

Electric Crematorium

At present municipality has only one ordinary crematorium which is highly inaccessible due to the presence of railway line. People carry dead bodies on their shoulder to reach this only crematorium. Inaccessibility and old methods are destroying its future. Hence it is proposed to connect this crematorium with a proposed road crossing the railway line. An extent of 0.95 Acre is kept aside for the modernisation work and expansion work of crematorium. The land is distributed in survey number 126/A -5. Approach roads and parking spaces are also planned in the new proposal.



Fig 19.7 Site for proposed electric crematorium

There can also be steps and sheds on the river side to perform final religious rites. Compound wall, retaining wall, Office, Store, garden and watchman shed can also be incorporated to make it more dependable place.

Ongoing project - Mini Civil station





Ottappalam Mini civil Station

Fig 19.8 Location of Mini Civil station

Town hall and library



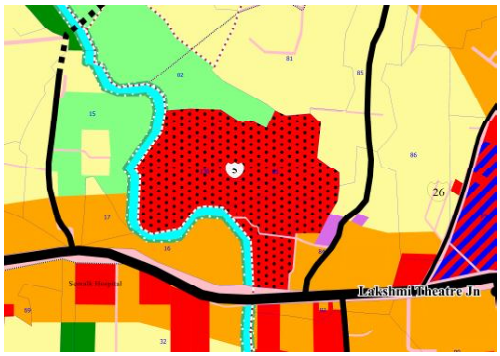


Fig 19.9 Proposed Socio Culture Centre

Town hall and library building is proposed in such a way to accommodate Municipal library, multipurpose cultural hall, permanent exhibition hall etc. They are planned to cover an area of 2 Ha over survey numbers 82 pt, 83, 84 pt, and 136 pt in Ariyur Thekkumuri Desam(Fig 19.9). The multipurpose hall can be used for large functions social gatherings, and small scale cultural activities. Food court and amphitheatre for cultural programs can be set up in the permanent exhibition centre.

19 3.17 Social Backwardness

Rehabilitation centre : A common centre to accommodate all categories of challenged people which include disabled, aged, widows, deserted, destitute women, orphaned children, HIV affected children, street children, child labour etc is proposed . They can be provided with nutrition, medical aid, skill and rehabilitation. An area of 3.67 Ha is kept aside on survey numbers 82 pt, 83pt , 84 pt , and 136 pt inAriyur Thekkumuri desom. Few more facilities are also proposed:

- 15 bed hospital to provide medical aid, physiotherapy, speech therapy etc.
- Senior citizen homes to accommodate 60 people with attached bathrooms (cottage type).
- Home for deserted, destitute, HIV/AIDS affected women.
- Construction of Yoga, meditation and prayer hall with cultural activities
- Skill development centre: equipment for the skill development programs for all categories of disabled, street children, child labourers above 14 years of age

19.3.18 Environment

Environment can be the most peaceful and calm place and at the same time it can be the most deadly. Natural disasters occur when the Mother Nature can no longer bear the pressure that we are putting on her. Environment protection has become imperative and an urgent requirement as against the over-exploitation of national resources in the name of development and as a result of desired replenishment of all the natural resources. A proper legislative and institutional framework must be evolved for the protection of such areas which are endangered. Consistent with the emphasis on conservation of bio-diversity, a time- bound program of the flora and fauna of the regions of our town must be formulated. The various environmental regulatory agencies must be re-organized to make them self-supportive.

The various environmental programs such as river cleaning projects must also be so designed as to become inherently viable. There is great need to motivate the industries through incentives to be responsive to environmental

protection measures and thereby cooperate with the regulatory agencies in their endeavor to implement environmental safe-guards. Environment education and awareness must be accorded top priority. The local institutions and the community must be involved in implementing environmental protection programs and bringing about environmental awareness.

The following proposals are suggested to save the Bharathapuzha River and other waterbodies .

- ✓ Bank protection works
- ✓ Greening with plantation of evergreen trees to form a buffer strip of 30 m width
- ✓ Imposing restriction on illegal Sand mining
- ✓ Banning of discharge of untreated sewage and solid waste into them
- ✓ Take measure to check encroachment of its Thodus/canals
- ✓ De silting should be carried out periodically
- ✓ Preparation of action plans for control of water and air pollution
- ✓ Option of renewable energy sources to be explored for transport
- ✓ Effective monitoring of water bodies and quality control.
- ✓ Aforestation of catchment area of river
- ✓ Control of quarry activities in the river basin
- ✓ Adopt massive in-situ soiland water conservation measures through contour bunds, contourtrenches, terracing, etc. in the catchmentand check dams and subsurface damsin the river/main tributaries, preventionof conversion/ reclamation of wetlands/agricultural lands,

19.3.19 Governance

Municipal e-Governance" is a web based application for covering services like Basic citizen services, Revenue earning services, Development services, Efficiency improvement services, Back office improvements and Monitoring . In this modern world, tedious procedure of registration, application and issuing has to be rectified. Major proposals are

1. Application in e-governance through GIS support in Eight functional service areas of ULBs -registration and issue of birth & death certificate, payment of property tax & utility bills, management of utilities that come under the ULBs, Citizen grievances & suggestions, Building plan approvals, procurement and monitoring of projects, health, accounting system and personal information system.

2. Service Kisoks can be provided in each zone.



Service Kisoks

19 .3.20 Investment Plan

Table 19.8 Sector wise investment needed for major sectoral proposals

Sl. No	Proposals	Activities Involved	te Expenditur	Agencies Involved
Trade & Commerce				
1	Expansion and modernisation of Existing market	Redevelopment of area by widening of road and replacement of old building with new.	5cr	PPP mode
2	Development of commercial centres	Development of area by widening of road and replacement of old building with new	10 cr	LSGI, private investors, PWD
3	Development of decentralized modern markets go downs, cold storage, facilities in all zones	Land acquisition development of infrastructure	20cr	LSGI, Pricate Investors
Industry				
4	KINFRA Industrial Parks	Works almost	66cr	-
5	Small scale Industrial Units Promotion	Identification of sites and establishment of units	50lakhs	New entrepreneurs/ SHG/Kudumbasree/LSG/DIC
6	Handloom Industries/SILK unit renovation and up gradation	Identification of sites and establishment of	50lakhs	New entrepreneurs
7	Traditional Industries	Identification of sites and establishment of units	50lakhs	New entrepreneurs/ SHG/Kudumbasree/LSG/DIC
8	Empowerment of matchbox industries	Identification of sites and establishment of units	50lakhs	New entrepreneurs/ SHG/Kudumbasree/LSG/DIC
9	Rice bio parks	Acquisition of land & Infrastructure Development	1cr	Farmer - PPP model
10	Agro food processing industrial park	Identification of sites and establishment of units	50lakhs	New entrepreneurs/ SHG/Kudumbasree/LSG/DIC
Tourism				
11	Ananganmala Eco-Tourism	View point construction, Lawning, gardening, providing play equipments.	20 cr	DTPC, LSG, KTDC
12	Handloom Tourism	Site identification, infrastructure development	1cr	
13	Film city	Work on progress	-	-
Agriculture				
14	Organic farming		5 lakh/year	SHG/ Kudumbasree/ NREGS workers, Agriculture dept, Minor irrigation dept, LSG

15	Strengthening of existing labour bank		10 lakhs	SHG/ Kudumbasree/ NREGS workers, LSG, NABARD
16	Mechanization		1 cr	LSG, NABARD
17	Construction of Godown		45 lakhs	
18	Aquaponic system	Training to household, planting, supply of seeds, manures, Techniques etc	50000/ ward	SHG/ Kudumbasree/ NREGS workers, Agriculture dept, Minor irrigation dept, LSG
19	Precision farming	Training to household, planting, supply of seeds, manures, Techniques etc	50000/ ward	SHG/ Kudumbasree/ NREGS workers, Agriculture dept, Minor irrigation dept, LSG
20	Poly House Cultivation	Training to household, planting, supply of seeds, manures, Techniques etc	50000/ ward	SHG/ Kudumbasree/ NREGS workers, Agriculture dept, Minor irrigation dept, LSG
21	Bio intensive Integrated Pest management	Training to household, planting, supply of seeds, manures, Techniques etc	50000/ ward	SHG/ Kudumbasree/ NREGS workers, Agriculture dept, LSG
Irrigation				
22	Repair works to Malampuzha RBMC	-	-	Minor irrigation dept, LSG
23	Lift irrigation Scheme at Meetna	-	-	Minor irrigation dept, LSG
24	Check dams at Bharathapuzha	-	-	Minor irrigation dept, LSG
25	VCB in Kizhakke thodu & kakkathodu	-	-	Minor irrigation dept, LSG
26	Renovation & de-silting works of thodu, canals	-	-	Minor irrigation dept, LSG
27	Conservation of Water bodies	-	-	Minor irrigation dept, , LSG
Water Supply				
28	UIDSSMT - urban water supply scheme	- Pumping main installation. - Construction of 13MLD water treatment plant. - Clear water pumping main. - Supply erection of pumpsets. - Distribution system	30cr	LSG, Water authority

Animal Husbandry				
29	Modern Slaughter House	Development & construction works	10 cr	Animal husbandry dept, LSG, Suchitwa mission
30	Male calf fattening scheme	Construction works and establishment of units		Kudumbasree units, Animal husbandry dept
31	Mini dairy units	Construction works and establishment of units	3 lakhs	Kudumbasree units, Animal husbandry dept
30	Male calf fattening scheme	Construction works and establishment of units		Kudumbasree units, Animal husbandry dept
31	Mini dairy units	Construction works and establishment of units	3 lakhs	Kudumbasree units, Animal husbandry dept
32	Goat rearing units	Construction works and establishment of units	84 lakhs	Kudumbasree units, Animal husbandry dept
33	Mini goat breeding units	Construction works and establishment of units	25 lakhs	Kudumbasree units, Animal husbandry dept
34	Poultry production units	Construction works and establishment of units	30 lakhs	Kudumbasree units, poultry development corporation
35	Fodder production units	Construction works and establishment of units	2.2 cr	Kudumbasree units,
36	Rear yard poultry farming	Construction works and establishment of units	5 lakhs	Kudumbasree units, poultry development corporation
	Drainage			
37	Preparation of a drainage master plan	Selection of suitable agencies, plan preparation	16 lakhs	LSG
38	Improvement to the existing drains	Cleaning, desilting, covering	20 cr	LSG, PWD
39	Construction of new drains	Construction activities	60 cr	LSG, PWD
Sanitation and Sewerage				
40	15 MLD Sewage treatment Plant		60 cr	LSG, KWA
41	Proposal for comfort stations	Site identification & construction	1.75 cr	LSG, NGO
Solid waste disposal				
42	Decentralised units of solid waste treatment centres in wards expected to treat 0.3 tone waste	Scheme preparation and Implementation		
43	Bio-methanation plant for market waste 5 tones capacity and sewage treatment unit	Land aquisition, construction, network establishment	2 cr	LSG, Suchitwa mission
	Energy			

44	Wind Mill & Solar Panel Fields at Ananganmala.	Permission acquisition, Construction		
45	Solar Panels on Top of Govt. buildings.			
46	To improve the Energy efficiency of street lights, automation of switching on and off of street lights and recording consumption of energy.			KSEB, LSG
47	Install energy efficient magnetic induction lamp of 100 W in place of 250W high power SVL.			Power department, LSG
48	Replacement of conventional 2x40 W double-tubes fitting with 36 W LED Street light.			Power department, LSG
47	Install energy efficient magnetic induction lamp of 100 W in place of 250W high power SVL.			KSEB, LSG
48	Replacement of conventional 2x40 W double-tubes fitting with 36 W LED Street light.			KSEB, LSG
	Traffic & Transportation			
49	New Roads proposed - 15m	Construction of road	1 cr	PWD, LSG
50	New Roads proposed - 8m	Construction of road	1.25 cr	PWD, LSG
51	Roads widening - 22 m	Construction of road	9.5 cr	PWD, LSG
52	Roads widening - 18 m	Construction of road	19.7 cr	PWD, LSG
53	Roads widening - 15 m	Construction of road	9.1 cr	PWD, LSG
54	Roads widening - 10 m	Construction of road	16.5 cr	PWD, LSG
55	Roads widening - 8 m	Construction of road	16.5 cr	PWD, LSG
56	Bus terminal expansion	Construction	1 cr	PWD, LSG
57	Lorry stand	Construction	2 cr	PWD, LSG
58	Junction improvements	Construction	1 cr	PWD, LSG
59	Parking Lot			
60	Pedestrian facilities			
	Education			
61	Proposals for smart class room and E-Libraries	Purchase of IT accessories and its installation	5 cr	Department of education, IT@school, SSA, RMSA & Library council
69	Indoor Stadium	Land acquisition, construction works	24 cr	DTPC, LSGI
70	Outdoor stadium	Land acquisition, construction works	30 cr	DTPC, LSGI
71	Park 1	Land acquisition, lawn preparation, gardening, providing play equipments, furniture	5cr	DTPC, LSGI
72	Park 2	Land acquisition, lawn preparation, gardening, providing play equipments, furniture	11cr	DTPC, LSG I
73	Smart Street	Temporary block of road section	nil	LSG

Other civic amenities				
74	Mini civil station	On going		
75	Socio Culture centre	Land acquisition and construction works	10cr	PPP mode
76	Electric crematorium	Access road construction,	3 cr	LSG, NGO
Environment				
77	Bharathapuzha river protection and management	Bank protection, plantation of trees, banning of wastes, de silting, providing green strips, buffer zoning		
78	De-silting of water bodies	Committee formation, De-silting works		
Governance				
79	Implementation of e-governance through GIS support in Eight functional service	facilities for registration and issue of birth & death certificate, payment of property tax & utility bills, management of utilities that come under the ULBs, citizen grievances & suggestions, building plan approvals, procurement and monitoring of projects, health, accounting system and personal	10 cr	LSGs
80	Providing Service Kiosks in each zone .	Site identification and construction	25 lakhs	LSG

19.3.21 Phasing of major proposals

Table 19.9 Sector wise phasing of major proposals

Sl. No	Proposals	First 5 Years	5-10 Years	10-15Years	15-20 Years
		Trade & Commerce			
1	Expansion and modernisation of Existing market	Redevelopment of area by widening of road and replacement of old building with new.	Completion		
2	Development of commercial centres	Development of area by widening of road and replacement of old building with new	Completion		
3	Development of decentralized modern markets go downs, cold storage, facilities in all zones	Land acquisition development of infrastructure	Completion		
		Industry			
4	KINFRA Industrial Parks	Completion			
5	Small scale Industrial Units Promotion	Completion			
6	Handloom Industries/SILK unit renovation and up gradation	Completion			
7	Traditional Industries	Completion			
8	Empowerment of matchbox industries	Completion			
9	Rice bio parks	Acquisition of land & Infrastructure Development	Completion		
10	Agro food processing industrial park	Completion			
		Tourism			
11	Ananganmala Eco-Tourism	Completion			
12	Handloom Tourism	Completion			
13	Film city		Completion		
		Agriculture			
14	Organic farming				
15	Strengthening of existing labour bank	Completion			
16	Mechanization		Completion		
17	Construction of Small Go down		Completion		
18	Aquaponic system	Completion			
19	Precision farming	Completion			
20	Poly House Cultivation	Completion			
21	Bio intensive Integrated Pest management	Completion			
		Irrigation			
22	Repair works to Malampuzha RBMC	Completion			
23	Lift irrigation Scheme at Meetna	Completion			
24	Check dams at Bharathapuzha	Completion			

25	VCB in Kizhakke thodu & kakkathodu	Completion			
26	Renovation & de-silting works of thodu, canals	Completion			
27	Conservation of Water bodies		Completion		
	Water Supply				
28	UIDSSMT - urban water supply scheme	Completion			
	Animal Husbandry				
29	Modern Slaughter House	Development & construction works	Completion		
30	Male calf fattening scheme	Completion			
31	Mini dairy units	Completion			
32	Goat rearing units	Completion			
33	Mini goat breeding units	Completion			
34	Poultry production units	Completion			
35	Fodder production units	Completion			
36	Rear yard poultry farming	Completion			
	Drainage				
37	Preparation of a drainage master plan	Completion			
38	Improvement to the existing drains	Completion			
39	Construction of new drains	Completion of 25% of new proposed drains	Completion of 25% of new proposed drains	Completion of 25% of new proposed drains	Completion of 25% of new proposed drains
	Sanitation and Sewerage				
40	15 MLD Sewage treatment Plant	Completion			
41	Proposal for comfort stations	Completion			
	Solid waste disposal				
42	Decentralised units of solid waste treatment centres in wards expected to treat 0.3 tone waste	Completion			
43	Bio-methanation plant for market waste 5 tones capacity and sewage treatment unit	Land aquisition, construction, network establishment	Completion		
	Energy				
44	Wind Mill & Solar Panel Fields at Ananganmala.	Permission acquisition, Construction	Completion		
45	Solar Panels on Top of Govt. buildings.	Completion			
46	To improve the Energy efficiency of street lights, automation of switching on and off of street lights and recording consumption of energy.	Completion			

47	Install energy efficient magnetic induction lamp of 100 W in place of 250W high power SVL.	Completion			
48	Replacement of conventional 2x40 W double-tubes fitting with 36 W LED Street light.	Completion			
	Traffic & Transportation				
49	Roads fully proposed - 15m	Completion			
50	Roads fully proposed - 8m	Completion			
51	Roads widening - 22 m	Completion			
52	Roads widening - 18 m	Completion			
53	Roads widening - 15 m	Completion			
54	Roads widening - 12 m	Completion			
55	Roads widening - 8 m	Completion			
56	Bus terminal expansion	Completion			
57	Lorry stand	Completion			
58	Junction improvements	Completion			
59	Parking Lot	Completion			
60	Pedestrian facilities	Completion			
	Education				
61	Proposals for smart class room and E-Libraries	Completion			
62	Proposals for Hygenic E-Toilets and incinerators	Completion			
63	Special coaching for Socially Backward	Completion			
64	E- Library	Completion			
	Health				
65	Strengthening of Taluk Head Quarters Hospitals	Completion			
66	Upgradation of Ayurvedic Taluk Hospital	Completion			
67	First referral unit facilities	Identification of site, land acquisition, construction	Completion		
	Recreational Facilities				
68	River front pedestrian path and Bicycle tracks	Land acquisition, Work starting	Completion		
69	Indoor Stadium	Land acquisition, construction works	Completion		
70	Outdoor stadium	Land acquisition, construction works	Completion		
71	Park 1	Land acquisition, Construction works	Completion		
72	Park 2	Land acquisition, construction works	Completion		
73	Smart Street	Completion			
	Other civic amenities				
74	Mini civil station	Completion			
75	Socio Culture centre	Land acquisition and construction works	Completion		
76	Electric crematorium	Completion			

Environment					
77	Bharathapuzha river protection and management	Completion			
78	De-silting of water bodies	Completion			
Governance					
79	Implementation of e-governance through GIS support in Eight functional service	Completion			
80	Providing Service Kiosks in each zone .	Completion			

20. OTTAPPALAM AS SMART TOWN

Large-scale urbanization in India has put severe strain on urban infrastructure. If the momentum of economic growth is to be maintained, challenges thrown up by large-scale urbanization need to be addressed on priority. The efficiency of cities in the country largely depends on how well they are planned; how well they are developed and how efficiently they are managed. Making a city "smart" is emerging as a strategy to mitigate the problems generated by the urban population growth and rapid urbanization.

Smart cities provides for core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and make application of 'Smart' Solutions. The Master Plan for Ottapalam town aims to create a framework to make Ottapalam as a smart city . The six clusters of factors identified for this purpose are smart **economy**, smart **mobility**, smart **environment**, smart **people**, smart **living** and smart **governance**.

20.1 SMART ECONOMY

As per the development concept of Integrated District Development Plan for Palakkad, Ottappalam Town comes under Multi functional Zone (2nd Order) and should act as a service centre for the hinter land and this zone is considered very much suitable for industries utilizing agricultural products of hinter land. Third order urban facilities are to be provided in this zone.

Based on this concept and considering the potential of Ottapalam town to emerge as a major industrial area, industrial developments are proposed in the Master Plan. Propsed Defence park and KINFRA industrial park situated at eastern boundary of Municpality wiill give a new face to Ottappalam in industraial sector in the near future. This includes the existing Mini Industrial Site of SIDCO situated at Kaniyampuram ,reviving of Foundry Unit of Steel Industrials Kerala Limited situated along the Palakkad Ponnani state highway, revival of existing industries like Match factories, Handlooms, Timber and leather based industries.

The productivity of paddy in the State at the current level is sub optimal, meeting only 15% of the requirement, hence every possible step has to be taken to promote paddy cultivation. Organic farming and various sustainable agriculture techniques need to be promoted. Technological up gradation in manufacturing and marketing of agro-products is needed. Modern marketing facilities may be incorporated during the expansion of the existing market. Agro food processing units proposed in the industrial park will be a positive smart solution.

There must be programmes framed for the effective utilization of the available tourism potential within and nearby Ottappalam town. Promotion of Handloom tourism, eco-friendly development of Ananganmala, provision of travel and home stay facilities during the festive seasons at Chinakkathoor Pooram etc will aid to the economy of the town.

20.2 SMART PEOPLE

Smart people are really the foundation of what makes a smart city. Projects of smart cities have an impact on the quality of life of citizens and aim to foster more informed, educated, and participatory citizens. Also, smart cities initiatives allow members of the city to participate in the governance and management of the city and become active users. If they are key players they may have the opportunity to engage with the initiative to the extent that they can influence the effort to be a success or a failure. They must be the integral part of the preparation and effective execution of Master Plan.

20.3 SMART MOBILITY

The Town needs to make mobility smarter by making it efficient, reliable and green. Optimizing mobility and accessibility through effective planning incorporating modern techniques like GPS will encourage people to depend on public transport, thereby saving energy and reducing pollution. The proposals for the widening of various roads, construction of new roads and junction improvements along with the incorporation of better traffic management techniques will provide a smarter mobility system for Ottappalam. Proposed bus bay and bus shelters, bus terminals, truck terminals and parking facilities can be planned out as smart transport models.

The below mentioned smart mobility functions may be incorporated into the transport plans:

- GPS Bus tracking to improve the efficiency of Public Transport.
- Adopt unique design for bus stops, terminals etc.
- Priority for pedestrian movement and non-motorized vehicular traffic.
- Provide pedestrian friendly utilities such as street furnishing, shaded areas, canopies, lighting facilities etc. Junction improvement including grade separation, traffic islands, turning radius etc. shall be considered.
- Intelligent Traffic Systems (ITS), sometimes called Intelligent Transportation Systems, apply communications and information technology to provide solutions to congested highways as well as to other traffic control issues. Intelligent traffic management through installation of traffic signal control systems, cameras etc. at major junctions etc.
- Reduced and managed parking will be an efficient first step towards traffic management. Innovative techniques like multilevel car parking, charging a market rate for parking which will act as a source of revenue as well, etc may be implemented.

20.4 SMART LIVING

Smart living is about providing opportunities for a healthy lifestyle for all citizens including quality healthcare, education and safety. Multi sector integration should be there to create a smart, healthy and vibrant society and there should be safety and security, inclusiveness, entertainment, ease of seeking and obtaining public services, cost efficient physical infrastructure such as 24 X 7 electric supply, water supply and sanitation, standardized healthcare facilities accessible for all, quality education, affordable housing, transparency, accountability and opportunities. Proposals aimed at the maintenance and betterment of facilities at Govt. hospital, centralized system for solid waste management, generation of power and manure from waste, adoption of proper septage system, Waste water treatment plant, drinking water facilities, better social infrastructure facilities etc. need to be effectively and smartly carved into practice.

20.5 SMART GOVERNANCE

The governance can be defined as an activity that seeks to share power in decision making, encourage citizen autonomy and independence, and provide a process for developing the common good through civic engagement.Through Smart Governance, Local Body harnesses information technologies ,reach out to citizens, business, and other arms of the local government to improve delivery of services to citizens, businesses and employees, engage citizens in the process of governance through interaction, empower citizens through access

to knowledge and information and make the working of the government more efficient and effective. Smart governance results in enhanced transparency, convenience and empowerment, less corruption, revenue growth, and cost reduction.

It is proposed to develop Ottapalam Town as a role model of e-governance through GIS support. GIS based smart governance system need to be introduced in functional service areas of local body including registration and issue of birth & death certificate , payment of property tax & utility bills , management of utilities that come under the control of ULBs , citizen grievances & suggestions , building plan approvals , procurement and monitoring of projects , health, accounting system and personal information system. GIS Database should be prepared for the entire Town for the better planning.

20.6 SMART ENVIRONMENT

Smart environment is one that is built on providing a balance between planning for growth and protecting resources. A smart city is meticulous in protecting our natural environment while planning for the future, harmonizes living and workspace, balances energy supply and energy use. It is proposed to develop Ottapalam town as one with a well-balanced community providing, open spaces, balanced residential growth , protecting water and environment.

The zoning regulations of Ottapalam Town is framed to encourage the preservation of the town's agricultural lands, water bodies and other environmentally sensitive areas. Programmes for the promotion of Green buildings by providing incentive, implementing rainwater harvesting for all buildings, promotion of alternative and sustainable form of energy need to be explored and put into practice.

21.ZONING REGULATIONS

21.1 ZONING REGULATIONS

1. All future developments shall be in conformity with the provisions of Master Plan for Ottapalam Town. The implementation and enforcement of the MasterPlan for Ottappalam shall be in conformity with the zoning regulation prescribed hereunder. These regulations shall guide the granting or refusal of permission for land development. All future considerations within the boundary prescribed in the Master Plan for Ottappalam shall prevail over the provisions of Kerala Municipal Building Rules in force.

2. For the implementation and enforcement of the proposal envisaged in the Master Plan for the town, areas have been zoned under various uses such as residential, commercial, industrial, public and semi-public, etc. Details regarding the nature of uses 'permitted', uses 'restricted' and uses 'prohibited' in each zone are given below. In addition to the above, guidelines for regulating developments are also provided herein.

   Uses **'permitted'** in a zone cover the uses that can be normally accommodated in the relevant zone.Such uses may be permitted by the Secretary of Ottappalam Municipality(herein after referred to as Secretary) if in accordance with other relevant rules / orders concerned in force. In some cases it may be possible to permit some other uses also which are not likely to affect the quality and environment in a zone specified for a particular use. Such cases have to be individually studied based on their performance characteristics and special location factors. Such cases which come under this category are classified as "**Uses Restricted"**. Restricted-1 category deals with the uses that shall be restricted by the the Secretary,Ottappalam Municipality with the concurrence of the Town Planner of the District office of the Local Self Government Department (Planning) . Restricted-2 category deals with the uses that shall be restricted by the the Secretary,Ottappalam Municipality with the concurrence of the Chief Town Planner concerned of the Local Self Government Departmenr (Planning). "Uses prohibited" enlists the various objectionable uses in each zone which shall not be permitted under normal circumstances.

3. If any space in a zone is put to a "**Use Prohibited**" as stated in Para 2, before the sanctioning of the scheme, such use shall be termed as nonconforming use. A non-conforming use may be allowed to continue in its existing location and essential repairs and maintenance for the structure may be permitted by the Secretary, provided that the said use create no adverse environmental influence in the zone. Addition, alteration or reconstruction, if found necessary as part of any mitigation measures may be permitted for such uses by the Secretary with the concurrence of the Chief Town Planner concerned.

4. Existing areas and structures of archaeological importance, agricultural uses and religious uses may be permitted to continue in all zones and shall not constitute non-conforming uses.

5. Regulation of constructions and/or land developments on the sides of new roads / roads proposed for widening as per the Master Plan shall be governed by the distance from the centre line of the road, unless otherwise specified in the Master Plan or DTP scheme or any detailed road alignment approved by the Chief Town Planner concerned .

6. Constructions and / or land developments, if any, in paddy lands and in wet lands, shall be in conformity with the Paddy land and wet land Act in force in the state, even if such land included in any other use as per the Plan.

   For the land which are legally converted to dry land by order of the competent authority, but included in paddy as per the plan, the regulations of the paddy will not be applicable. In such land, development / construction shall be permitted by the Secretary for the use for which it was converted.

   In the case of land for which specific purpose is not mentioned in the order granting permission to convert the nature of land by the competent authority or the land which already belongs to category of dry land as per revenue records, the Secretary shall, on receipt of application for permit, allow uses considering the zoning regulations of surrounding land with the concurrence of the District Town Planner of the Local Self Government Department (Planning).

7. The Government shall have the power to issue clarifications in respect of technical interpretations, if any, required in any of the provisions of the Master Plan in consultation with the Chief Town Planner concerned.

8. Any use not specified either in the 'uses permitted' or 'uses restricted'category of a particular use zone, but which is of a similar nature to any use permitted or restricted in that particular use zone, can be considered by the Secretary, with the concurrence of the Chief Town Planner concerned.

9. The land on both side of the following roads to a width of 100 m shall be treated as Residential Mix zone

SL No	Road Name	Location
1	Ottapalam-Cherppulassery road	Municipal Jn to Municipal limit
2	Ottapalam-Mannarkkad road	Palakkad-Ponnani road to Kanjirakadavu
3	Varode Chunangad Road	Varod Junction to Municipal Limit towards East

   Provided that, such mixed use shall not be applicable for waterbodies falling within such width of land

10. Expansion of existing public and semi public institution to adjacent plots shall be permissible without regard to the landuse of adjacent plot, subjective to the provision of paddy land and wet land act in force or other applicable statutes.

    In the case of land which is zoned Public and semi public use in privately owned, the Secretary shall allow uses considering the zoning regulation of surrounding land, if there are no records available with in Municipality regarding any proposal for acquiring that particular land for any public use at the time of application for building construction or land development.

11. Expansion of existing Industries to adjacent plots shall be permissible without regard to the landuse of adjacent plot, subjective to the provision of paddy land and wet land act in force or CRZ regulations if any applicable or other applicable statutes.

    In the case of land which is zoned Industrial zone in privately owned, the Secretary shall allow uses considering the zoning regulation of surrounding land, if there are no records available with in Municipality regarding any proposal for acquiring that particular land for any Industrial use at the time of application for building construction or land development.

12. No provisions in this scheme shall prevent implementation of any project / scheme of Central / State or Local Government and government approved projects by quasi government agencies. Such projects shall be treated as permitted use in all zones and shall conform to widening of roads or new road alignments envisaged in the scheme.

GENERAL GUIDELINES

I. Silence Zone, as prescribed by the Noise Pollution (Regulation andControl) Rules, 2000 under the Environment (Protection) Act, 1986and its subsequent amendments, shall be applicable to the area under this Master Plan.

II. Large scale development proposals in area not less than 2 hectares, exceeding an investment of 50 crores which provide direct employment (after commissioning the project) to the tune of not less than 500 may be permitted in all use zones, subject to the recommendation of a committee to be constituted by the Government for this purpose under the chairmanship of the Secretary, local self Government (Urban Affairs) department consisting of the Chief Town Planner, Local Self Government Department Planning, Government of Kerala, District Town Planner, Local Self Government Department Planning, Palakkad and the Secretary, Ottappalam municipality and also satisfying the following conditions

a The developer shall produce project cum feasibility report and Environmental Impact Assessment Report, if required, of the project to the convenor of the committee, 15days in advance of the committee meeting.

b. The developer shall produce before the committee all required clearances from the State and Central Government agencies concerned.

c. Adequate provision shall be made for supporting infrastructure such as water supply, sewerage, solid waste management etc. Separate sewage treatment plant and solid waste management measures shall be provided and maintained by the developer at his/her cost.

d. Adequate MoU between the developer and the secretary of the local body concerned shall be undertaken to bring this into effect.

e. Minimum access width shall be 12m.

f. The project shall be completed within a period of 3 years if not specified otherwise.

g. The District Town Planner, Palakkad shall be the convenor of the Committee.

III The areas specially demarcated for certain projects like Proposed sewage treatment Plant ,Expansion of Existing solid waste treatment plant , Proposed slaughter house, Proposed Bus Stand, Proposed bus stand expansion , Proposed parking, Proposed indoor/Outdoor Stadium , Proposed Town hall, Library and Rehabilitation centre, Proposed Truck terminal, Proposed Agri trade complex, Proposed parks are to be acquired by Municipality within a period of 7 years from the sanctioning of the plan. If the acquisition proceeding has not been initiated within this stipulated period, these lands may be released and returned to that land use zone which may be deemed appropriate based on the surrounding land uses and developments, with the concurrence of the Chief Town Planner concerned.'

Table 21.1 Zoning Regulations

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
14	**Residential Zone**			
14.1	Residential buildings consisting of single or multifamily dwellings, residential flats / apartments, residential quarters, night shelters, orphanages, old age homes.			Any other uses not specified under (1),(2),(3)
	Shops, Professional Offices, Commercial Offices, Banks & other Financial Institutions, Restaurants, Canteen, Hotels - floor area **limited to 200 m^2.**	Places of Worship.		
	Cottage Industries including coir, Service Industries of non-nuisance Nature (See Annexe-I), with number of workers limited to 6 without power or 3 workers with power limited to 5 HP	Public utility areas and Public Utility buildings other than those included in the permitted category		
	Educational institutions essentially serving the needs of residential community such as Day Care, Crèche, Nursery Schools, Kindergartens and schools offering general education (up to High school level), Ashram, Mutt, Madrasa.	Vehicle Fuel Filling Stations, Cremation ground/ Crematorium/ Burial ground/ Common Vault.		
	Health institutions essentially serving the needs of residential community such as dispensaries, clinics (Out Patient), Diagnostic Centres etc having a floor area **limited to 200m^2**.			
	Community facilities such as Community Halls, Recreational Clubs, Social Welfare Centres, Gymnasium /Yoga Centers, Swimming Pool, Libraries etc. having a floor area **limited to 200m^2.**			

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
	Utility Installations and Civic Amenities essentially serving the needs of residential community such as post office, police station, telephone exchange, fire station, tot lots, parks, play grounds, water treatment plants below 5 MLD.			
	Transmission Towers, Telecommunication Towers and Wireless Stations			
	Plant Nurseries, Pump House,Wells and Irrigation Ponds incidental to community needs.			
14.2	**Provided that the access road has a width of 5m minimum.**			
	Automobile workshops for two/ three wheelers – floor area limited to 200 m^2.			
14.3	**Provided that the access road has a width of 8m minimum**			
	Hospitals with 5 beds, Higher Secondary Schools. Convention Centres/ Auditorium/ Wedding Halls/ Community halls/Exhibition Centers and Art Gallery-floor area **limited to 500 m^2.** Shops/Professional Offices, banking and financial institutions – floor area **limited to 500 m^2**	LPG distribution centres (excluding bottling plants and bulk storage) limiting the floor area limited to 50 m^2.		
15	**Residential Mix Zone**			
15.1	All uses that are permitted in Residential Use Zone	Fuel filling stations		Any other uses not specified under (1),(2),(3)
	Automobile workshops for 2/3 wheelers, Service Industries of non-nuisance nature (See Annexe I) engaging not more than 19 workers without power or 9 workers with power limited to 15 HP, Civil defence and home guard	Museum, Exhibition centres and art gallery, Places of worship		
	Dharmasala, hostels, boarding houses, lodges and guest houses, ashrams, mutts, Madrasa, Parking Plaza, Taxi/Jeep Stand			
15.2	**Provided that the access road has a width of 5m minimum**			
	Diagnostic Centres, Clinics (Out Patient), – floor area limited to **500 m^2**.Government(local/ state/ central) or public sector offices			
15.3	**Provided that the access road has a width of 8m minimum**			
	Shops, Professional Offices, Commercial Offices/ Establishments, Banking and financial institutions, Restaurants/Canteen, Hotels, IT/ Software units – floor area limited to **1000 m2.**			

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
	Social Welfare Centres / Movie Halls/ Auditorium/ Wedding Halls/ Community Halls – floor area limited to **1000 m^2.**			
	Secondary/Higher Secondary Schools, Technical High Schools.			
	Hospitals and health centres with number of beds limited to 10.			
	Markets of Plot area **limited to 500 m^2**			
	Weigh Bridge, Godowns / Warehouses/ Storage non-hazardous – floor area limited to **200 m2.**			
	Marble and Granite Storage Centres, Industrial Estates & Industrial Parks Automobile Workshops / Automobile Service Stations for Light Motor Vehicles.			
	Service Industries of Non Nuisance Nature (see annexure I) engaging not more than 9 workers with power limited to 30 HP			
15.4	**Provided that the access road has a width of 12m minimum**			
	Educational Institutions of Higher Order, Hospitals & Health centres with number of beds limited to 100.		Bus Terminals, Lorry stands	
	Shops, Offices, Markets.			
	Godowns / Ware houses/ Storage (non-hazardous) - floor area limited to **500 m^2**			
	Automobile workshops/ Automobile Service stations for Heavy vehicles			
15.5	**Provided that the access road has a width of 18m minimum**			
	Hospitals & Health centres **upto 300 beds**		Container Terminal	
	Movie Halls/Auditorium/Wedding Halls/ Community Halls - **floor area above 1000 Sqm** with **parking at 1.2 times that of KMBR.**			
16	**Town Centre**			
16.1	All shops including shopping complexes, shopping malls, multiplex, hypermarkets, restaurants, hotels, markets.	Places of worship, Higher educational Institutions provided the access has a width of 8m minimum.		Any other uses not specified under (1),(2),(3)
	Professional offices, commercial offices & establishments, banking and financial institutions, IT software units, Movie halls, Auditorium, Wedding Halls, Community Halls	Dairy & Dairy Farm, Poultry Farm.		

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
	Godowns / warehouse / storage of Non-hazardous materials, stacking yards.	Other public utility areas & Public utility buildings.		
	Gymnasium/ Yoga centres	Fuel filling stations		
	Cottage industries, automobile workshops, automobile service stations, cold storage, service industries of non-nuisance nature with number of workers limited to 19 without power or 9 workers with power limited to 30HP(See Annexe-II), saw mills, weigh bridges, printing press, IT hardware / electronic industries, marble and granite storage / cutting centres.	Saw Mills with Timber Yards		
	Expansion of existing residential buildings, Single Family Residences, Residential flats/apartments with lower floor(s) for commercial use only, night shelters, orphanages, old age homes, dharmasala, hostels and boarding houses, lodges and guest houses, Ashram, Mutts, Madrasa.	Slaughter Houses.		
	Government(Local /State/Central) or Public Sector Offices			
	Day care, Creche, Nursery/ Kindergarten, Expansion of existing educational institutions			
	Transmission & Telecommunication Towers, Wireless Stations.			
	Social welfare centres, library and reading rooms, exhibition centres, art gallery museum, convention centres			
	Clinics, diagnostic centres and hospitals with number of beds limited to 50.			
	Tot lots, Parks & playgrounds, fair grounds, open air theatres			
	Parking plaza, Transport terminals			
	Plant nursery, Storage of agricultural produces and seeds, Pump House, Wells and Irrigation Ponds			
16.2	**Provided that the access road has a width of 12m minimum**			
	Hospitals & Health centres, Outdoor games stadium.			

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
17	**Commercial zone**			
17.1	All shops including Shopping complexes, Shopping malls, Multiplex,Hypermarket, Restaurants, Hotels, swimming pool,Markets, Professional offices, Commercial offices & Establishments, Banking and Financial institutions with floor area limited to 2000 m^2			Any other uses not specified under (1),(2),(3)
	Hospitals & Health centres with floor area limited to 2000m^2.	Parking plaza	Bus Terminals, Lorry stands	
	Godowns / Ware houses/ Storage (non-hazardous) - floor area limited to **500 m^2**			
	Automobile workshops/ Automobile Service stations for Heavy vehicles/ Movie Halls/ Auditorium/ Wedding Halls/ Community Halls – **floor area upto 1000 m^2**.			
	Local/State/Central Government/Public Sector Offices and Other Related Public Buildings with floor area limited to 1000m^2.			
	Gymnasium/ Yoga centres	Fuel filling stations		
	Cottage industries, automobile workshops, automobile service stations, cold storage, service industries of non-nuisance nature with number of workers limited to 19 without power or 9 workers with power limited to 30HP(See Annexe-I), saw mills, weigh bridges, printing press, IT hardware / electronic industries, marble and granite storage / cutting centres.	Saw Mills with Timber Yards		
	Expansion of existing residential buildings, Single Family Residences, Residential flats/apartments with lower floor(s) for commercial use only, night shelters, orphanages, old age homes, dharmasala, hostels and boarding houses, lodges and guest houses, Ashram, Mutts, Madrasa.	Slaughter Houses.		
17.2	Day care, Creche, Nursery/ Kindergarten, Expansion of existing educational institutions			
	Transmission & Telecommunication Towers, Wireless Stations.			

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
	Social welfare centres, library and reading rooms, exhibition centres, art gallery museum, convention centres with floor area limited to 1000 m^2.			
17.3	Clinics, diagnostic centres and hospitals with number of beds limited to 50.			
	Tot lots, Parks & playgrounds, fair grounds, open air theatres			
	Plant nursery, Storage of agricultural produces and seeds, Pump House, Wells and Irrigation Ponds			
18	**Industrial Zone**			
18.1	All industries other than obnoxious and nuisance type industries (Annexure 1), Automobile Workshops & Automobile Service Stations, Spray Painting Workshops, Saw Mills, Timber Yard, Ice Factory, Cold Storage, Fish and Meat Processing Units, Printing Press, Water Treatment Plants, Marble and Granite Storage and Cutting Centres, Industrial Estates & Industrial Parks.	Other Public Utility Areas and Public Buildings. Fuel Filling Stations, Obnoxious and Nuisance type Industries included under Annexure II		Any other uses not specified under (1),(2),(3)
	Godowns/Warehouses/Storage of non hazardous material, stacking yards, weigh bridge.	Cremation Ground / Crematorium, Burial Ground, Common Vault.		
	Dairy and Dairy Farms, Dairy related Industries, Poultry Farms, Piggery Farm, Smoke House.	Storage of Explosives and Fire Works, Gas Godowns, Crusher Units.		
	Dry Cleaning Plants, Power Plants, Sub Stations	Sewage Treatment Plants, Dumping Yard.		
	Government or Public Sector Offices	Slaughter House		
	Transport Terminals incidental to industrial use.		Container Terminals with access width of 18m minimum.	
	Transmission & Telecommunication Towers, Wireless Stations.			
	Residential Uses incidental to theIndustrial Use. Any other activity essentially incidental to Industrial use.			
	Tot lots, Parks and Play Grounds attached to incidental residential use			

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
19	**Public & Semi Public Zone**			
19.1	Local/State/Central Government/Public Sector Offices and Other Related Public Buildings	Cremation Ground / Crematorium, Burial Ground, Common Vault.		Any other uses not specified under (1),(2),(3)
	Residential Quarters incidental to public and semi public use.			
	Public Utility Areas and Buildings.			
	Additions and alterations to the existing public and semi public buildings including addition of new blocks without altering the use.			
	Buildings for incidental uses with floor area limited to **100 m^2**.			
20	**Traffic and Transportation Zone**			
20.1	Transport terminals including constructions that form an integral or essential part of the terminal.	Public Utility Areas and Buildings	Container Terminals provided that the access has a width of 18m minimum.	Any other uses not specified under (1),(2),(3)
	Any incidental uses to the transport terminals such as Retail Shops, Restaurants, Canteen etc which are integral or essential part of a transport terminal with maximum % of coverage permissible for the project as a whole shall be limited to 30% and FAR shall be limited to 1	Fuel Filling Stations		
	Staff Quarters, Offices, Night Shelters, Guest Houses etc incidental to the transport terminals			
	Parking Plazas, Transmission Towers and Wireless Stations.			
21	**Park and open space**			
21.1	Any construction/land development essential for the development/ improvement of open air recreational facilities.	Public Utility Areas and Buildings which will not affect the character of the area.		Any other uses not specified under (1),(2),(3)
	Watch Towers, Eco Walk Ways, Water Sports Facilities, Fair Grounds etc.	Parking plaza		
	Tot Lots, Park, Play Grounds, Swimming Pools, Open Air Stadium, Open Air Theatre, Zoological and Botanical Garden, Bird Sanctuary, Eco Walk Way etc.			
22	**Dry Agriculture Zone**			
22.1	Agriculture, horticulture and fodder cultivation, pastures, grazing ground, and other types of cultivation including social forestry.	Cremation ground / crematorium, burial ground, common vault	Storage of explosive and fireworks, Gas Godowns, Dumping Yard.	Any other uses not specified under (1),(2),(3)

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
	Dairy Farms, Fish farms, Seed farms, Poultry farms, Plant nursery, pump house, wells and irrigation ponds.	Slaughter Houses.		
	Single Family Residential Buildings.			
	Orphanages, old age homes, dharmasala, ashrams, mutts, madrasa.			
	Clinics (Outpatient) and diagnostic centres - floor area limited to **100 m^2.**			
	Shops, professional offices, commercial offices and establishments, banking andfinancial institutions, Gymnasium, Yoga Centres, restaurants, canteens – floor area limited to 100 m^2.			
	Police Post/Police Station, Post and Telegraph office, Fire Post / Fire station, Telephone Exchange, wireless stations and Telecommunication towers.			
	Day Care and Creche, Nursery / Kinder Garten / Primary & Upper primary schools.			
	Library and Reading Roomfloor area limited to100 m^2.			
	Godowns/ warehouses/ Storage – non hazardous – floor area limited to 100 m2.			
	Cottage industries, Service industries of non-nuisance Nature (See Annexe -I)engaging not more than 6 workers without power or 3 workers with power limited to 5HP.			
	Automobile workshops for 2/3 Wheelers			
	Tot Lots/Parks/Play Grounds			
	Saw Mills, Weigh Bridge.			
22.2	**Provided that the access road has a width of 8m minimum**			
	Clinics (Outpatient) and diagnostic centres - floor area limited to **200 m^2.**			
	Shops, professional offices, commercial offices and establishments, banking andFinancial institutions, Gymnasium, Yoga Centres, restaurants, canteens – floor area limited to 200 m^2.			

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
	Library and Reading Rooms, Godowns/ warehouses/ Storage – non hazardous – floor area limited to **200 m^2.**			
	Auditorium/Wedding Halls/Community halls floor area limited to **500m^2.**			
	Hospitals & Health Centres **with number of beds limited to 5.**			
22.3	**Provided that the access road has a width of 12m minimum**			
	Residential buildings consisting of single or multifamily dwellings, residential flats / apartments, residential quarters.	Stacking yards, Godowns / Warehouses/Storage - non hazardous materials, Fuel Filling stations		
		Higher Education Institutions.Health Care Facilities including Diagnostic Centres, Clinics, and Hospitals with number of **beds limited to 50.**		
23	**Paddy Land**			
23.1	Paddy cultivation	Minor Public Utility areas & Public utility buildings which will not affect the character of the area		Any other uses not specified under (1),(2),(3)
	Agriculture/ Horticulture/Fodder cultivation, Fish Farms/ Seed Farms/ Pump House/ Wells and Irrigation Ponds without any building construction.			
	Constructions/ land developments in conformity with the Conservation of Paddy Land and Wet Land Act in force in lands designated as paddy land or wet land under the said Act.			
24	**Water Bodies**			
24.1	All existing water bodies shall be conserved.			Any other uses not specified under (1),(2),(3)
	Bridges, Side protection walls, Bathing Ghats, Floating jetty etc may be permitted based on community level requirements.			
25	**Green Buffer Zone(Thodu /River /solid waste & sewage treatment plant/ slaughter house / Vested Forest)**			
	(5m depth buffer strip on both sides of Thodu/Canals and 50m depth buffer strip along the boundary of river , 30m depth buffer strip inside Solid Waste Treatment Plant and slaughter house (inside the land acquired for waste dumping and slaughter house), 10m depth buffer strip outside forest Boundary			
	No construction shall be permitted upto 10m depth buffer strip along the boundary of river and 5 m buffer along thodu/ canal			

Sl . No	Uses permitted	Uses restricted -1	Uses restricted -2	Uses prohibited
	(1)	(2)	(3)	(4)
25.1	Well and Irrigation ponds without roof, Pump houses, fodder cultivation, Agriculture/Horticulture/ pasture/grazing grounds/seed farms,Parks	Single family Residential building with no of floors limited to Two and floor area limited to 300 sqm., Minor Public Utility areas & Public utility buildings which will not affect the character of the area		Any other uses not specified under (1),(2),(3)
26	**Vested Forest**			
26.1	Only Forest related activities by the ForestDepartment are permitted			
27	**Cremation and Burial Ground**			
27.1	Cremation grounds, burial grounds/Common Vault, Buildings/Structures incidental to the permitted use of the zone			Any other uses not specified under (1),(2),(3)
28	**Solid Waste Treatment Plant**			
	Solid waste treatment and uses incidental to the permitted use of the zone			Any other uses not specified under (1),(2),(3)
29	**Hillocks**			
29.1	All constructions in this zone shall be carried out with minimum disturbance to the terrain and ecology of the area			Any other uses not specified under (1),(2),(3)
	All uses in park and open spaces zone, Water Treatment Plants upto 10MLD	All uses permitted with the concurrence of Town Planner in park and open spaces zone,	All uses permitted with the concurrence of Chief Town Planner in park and open spaces zone.	
		Single family residential buildings not exceeding 7 m height from surrounding ground level at any point ,		
		Public utility buildings of floor area upto 100sqm small service industries of non nuisance nature (see annexure I) engaging not more than 3 workers with power limited to 5HP or 6 workers without power		
30	**SPECIAL ZONES Developments in this zone may be permitted by Secretary of Ottappalam Municipality. For the Projects proposed in paddy land, developments shall be subject to the provision of Paddy Land and Wet land Act in force in the state**			
30.1	Land in Sy no 122 pt of Panamanna Desam is earmarked for the development of proposed Sewage treatment plant, Expansion of existing soild waste management plant and its ancillary facilities. Proposed Sewage treatment plant, Expansion of existing soild waste management plant , facilities for hospital waste treatment and disposal e-waste processing and plastic waste processing are also permitted in this zone			
30.2	Land in Sy no 111 pt, 112 pt of Ariyur Thekkumuri Desam is earmarked for the development of Slaughter house. Proposed slaughter house and its incidental uses are permitted in this zone.			

30.3	Land in Sy No 100pt, 102pt, 103pt, 105pt in Ariyur Thekkumuri Desam is earmarked for Expansion of existing Bus Stand and proposed Parking. Proposed Expansion of existing Bus Stand and proposed Parking and other incidental uses are permitted in this zone.
30.4	Land in Sy no 280 pt in Palappuram desam is earmarked for Proposed Truck terminal.Proposed Truck terminal and other incidental uses are permitted in this zone.
30.5	Land in Sy no 82pt, 83 , 84 pt, 136, in Ariyur Thekkumuri Desam is earmarked for Proposed Town hall, Library and rehabilitation centre. Proposed Town hall ,Library and rehabilitation centre and incidental uses are permitted in this zone.
30.6	Land in Sy no 113pt, 121/A pt, 122/A pt in Ariyur Thekkumuri Desam is ear marked for agri trade complex. Agri trade complex and incidental uses are permitted in this zone.
30.7	Land in Sy no 113pt, 119/A, 120, 121/A, 122/A pt in Ariyur Thekkumuri Desam is earmarked for proposed indoor and out door Stadium. Proposed indoor and out door Stadium and incidental uses are permitted in this zone.
30.8	Land in Sy No 49 Pt in Thottakkara desam are earmarked for proposed sector level Parks and Land in Sy No 70 Pt, 173 pt in Varode Deam and Land in Sy no 204pt, 205pt in Palappuram Desam are earmarked for Childrens Parks. Parks and incidental uses are permitted in this zone.
31	**General Notes:**
	1. For the purpose of these regulations, floor area means the total built-up area of the building on all floors.
	2. Subject to zoning regulations of the respective use zones, more than one uses may be combined in a building, provided that the total floor area on all floors of such a building shall not exceed the maximum floor area permitted for any of such use in that zone.

Annexure I

List of non-obnoxious and non-nuisance type of service or light industries

1. Flour Mills
2. Embroidery and Lace manufacturing
3. Gold and silver smithy
4. Watch, pen and Spectacle repairing
5. Laundry, dry cleaning and dying
6. Photo and picture framing
7. Manufacture and repair of musical instruments
8. Automobile servicing (excluding repair)
9. Radio servicing and repairing
10. Cotton and silk printing
11. Bakeries
12. Confectioneries
13. Cold storage
14. Aerated waters and fruit beverages
15. Manufacture of tobacco products
16. Garment making
17. Electroplating
18. Bamboo and cane products
19. Sports goods
20. Card-board box and paper products
21. Domestic electrical appliances
22. Toy making
23. Furniture without machinery
24. Wooden electrical accessories
25. Copper, brass and metal utensils

26. Small foundries

27. Padlock

28. Sanitary fittings and other similar industries

Annexure II

List of obnoxious or nuisance industries subject to objectionable odours, fumes, effluents or processes, located in hazardous zones.

(Grouped under Indian Standard Industrial Classification)

I. Manufacture of food stuff:

1. Slaughtering, preservation of meat and fish and canning of fish

II Manufacture of Beverages:

2. Production of distilled spirits, wines, liquor etc., from alcoholic malt, fruits and malts in distillery and brewery

3. Production of country liquor and indigenous liquor such as toddy, liquor from malwa, palm juice.

III Manufacture of wood and wooden products:

4. Sawing and planning of wood

5. Wood seasoning and creosoting

6. Manufacture of veneer and plywood

7. Paper, pulp and straw board

IV Manufacture of leather and leather products:

8. Currying, tanning and finishing of hides and skins and preparation of finished leather

V Manufacture of rubber, petroleum and coal products:

9. Manufacture of tyres and tubes

10. Manufacture of industries and synthetic rubber

11. Reclamation of rubber

12. Production of petroleum, kerosene and other petroleum products in refineries

13. Production of coal tar and coke in coke oven

VI Manufacture chemicals and chemical produces

14. Manufacture of basic industrial chemicals such as acids, alkali and their salts not elsewhere specified (especially sulphurous, sulphuric, nitric, hydrochloric etc., acids) ammonia, chlorine and bleaching powder manufactures.

15. Manufacture of dyes, paints, colours and varnishes, printing ink

16. Manufacture of fertilizers (specially from organic materials)

17. Manufacture of disinfectants and insecticides

18. Manufacture of ammunition; explosive and fire works

19. Manufacture of matches

VII Manufacture of non-metallic mineral products other than petroleum and coal:

20. Manufacture of cement and cement products

21. Manufacture of lime

22. Manufacture of plaster of Paris

VIII Manufacture of basic metals and their products.

23. Manufacture of iron and steel including smelting, refining rolling and conversion into basic forms

24. Manufacture including smelting, refining etc., or nonferrous metals and alloys in basic forms

25. Manufacture of armaments

IX Manufacture of machinery (other than transport) and electrical equipments

26. Manufacture of all kinds of battery

X Miscellaneous items not covered above:

27. Incineration, reduction or dumping of offal, dead animal's garbage or refuse

28. Manufacture of gelatin and glue

29. Fat, tallow, grease or lard refining of manufacture

30. Bone meal, bone grist and bone powder and other similar types of nuisance industries.

Annexure VI

വികസന പ്രശ്നങ്ങളും നിർദ്ദേശങ്ങളും

ഒറ്റപ്പാലം നഗരസഭയുടെ മാസ്റ്റർ പ്ലാൻ വികസന സെമിനാർ 14.11.2012 ബുധനാഴ്ച കൃത്യം 10.45 മണിയ്ക്ക് ആരംഭിക്കുകയും നഗരസഭവൈസ് ചെയർമാന്റെ അദ്ധ്യക്ഷപ്രസംഗത്തോടുകൂടി നഗരസഭ ചെയർ പേഴ്സൺ ശ്രീമതി. പാറുകുട്ടി ഉത്ഘാടനം നിർവ്വഹിക്കുകയും ചെയ്തു. സെമിനാറിനോടനുബന്ധിച്ച് നടന്ന ചർച്ചയിൽ ഉരുത്തിരിഞ്ഞ വികസന പ്രശ്നങ്ങളും നിർദ്ദേശങ്ങളും താഴെ ചേർക്കുന്നു.

1) പാർക്ക്, സ്റ്റേഡിയം ഈ പ്ലാനുമായി ബന്ധപ്പെട്ട് അഴക്കുചാൽ ബന്ധപ്പെടുത്തികൊ മാസ്റ്റർ ഡ്രൈയിൽ ഉ ാക്കണമെന്നും കൂടാതെ ഒറ്റപ്പാലം നഗരസഭയുടെ ഗതാഗതകുരുക്ക് മാറ്റുന്നതിനാവശ്യമായ റോഡുകളുടെ വികസനം പ്ലാനിൽ ഉ ാവണമെന്ന് വൈസ് ചെയർമാൻ ശ്രീ. ശെൽവൻ അഭിപ്രായപ്പെട്ടു.
2) കുടിവെള്ള പ്രശ്നം:–തടയണനിർമ്മിക്കുന്നതിന് സെൻട്രൽ ഗവൺമെന്റിന്റെ ഫ അനുവദിച്ചിട്ടു . 4 വർഷമായിട്ട് പോലും നടപ്പിൽ വരാതെ കിടക്കുന്നതായും കൂടാതെ കേരള ഗവൺമെന്റിന്റെ 30കോടി രൂപ കൂടി അനുവദിച്ച് ഒന്നരവർഷമായി എന്നിട്ടുപോലും കൂടിവെള്ള പ്രശ്നം രൂക്ഷമായിട്ടാണ് ഒറ്റപ്പാലം നഗരസഭ അനുഭവപ്പെടുന്നത് എന്നും വ്യവസായം വളരെ കുറവാണ് എന്നും തൊഴിൽരഹിതർ കൂടുതലാണ് എന്നും അതിനാവശ്യമായ കുടിൽ വ്യവസായം വൻകിടവ്യവസായം ഉൾപ്പെടുത്തണമെന്നും 15ാം വർഡ് കൊൺസിലർ അഭിപ്രായപ്പെടുകയും ഉ ായി.
3) **27ാം കൗൺസിലർ** :– ഒറ്റപ്പാലം നഗരസഭയിൽ ആധനിക സംവിധാനത്തോടുകൂടിയ ശ്മശാനം ആവശ്യമാണ് എന്നും ഗതാഗത സൗകര്യമുള്ള ഒരു ശ്മശാനം പ്ലാനിൽ ഉൾപ്പെടുത്തണമെന്നും വികസന സാധ്യതകൾ കൂടുതലായിട്ടുള്ള ഫിലിംസിറ്റി , വിദ്യഭ്യാസ പുരോഗതി എന്നിവയ്ക്ക് സ്റ്റേഡിയം എന്നിവയെകുറിച്ച് പരാമർശിക്കുകയും കൂടാതെ നഗരസഭയുടെ സ്വന്തംസ്ഥലം തിട്ടപ്പെടുത്തണമെന്നും നീർത്തട പദ്ധതികൾ നടപ്പിലാക്കണമെന്നും മാലിന്യം മുഴുവൻ പുഴയിലേയ്ക്കാണ് ഒഴുകുന്നത് എന്നും പുഴ, തോട്, കളു, എന്നിവ സംരക്ഷിക്കണമെന്നും കൂടാതെ ഒറ്റപ്പാലം നഗരസഭയിൽ പാലപ്പുറമാണ് വെള്ളമെത്താത്ത സ്ഥലമായിട്ടാണ് കാണുന്നത് എന്നും അഭിപ്രായപ്പെട്ടു.
4) **ശ്രീമതി പാറുകുട്ടി ചെയർപേഴ്സൺ** :– ബസ് സ്റ്റാന്റിനും റെയിൽവേ സ്റ്റേഷനും ഇടയിലുള്ള പാടം ഉപയോഗശൂന്യമായിട്ടാണ് കിടക്കുന്നത് എന്നും വെള്ളം കെട്ടികിടക്കുന്ന സ്ഥലം ഡ്രൈനേജ് സൗകര്യങ്ങൾ നൽകി സ്ഥലം ഉപയോഗയോഗ്യമാക്കണമെന്നും ആവശ്യപ്പെട്ടു.
5) **25ാം വാർഡ് കൗൺസി ലർ** :– ഭാരതപുഴയുടെ തീരം റിവർമാനേജ്മെന്റ് ഫ ഉപയോഗിച്ച് കുടിവെള്ള പ്രശ്നം പരിഹരിക്കുകയും ഭാരതപുഴയുടെ തീരത്ത് ഒരു പാർക്ക് പ്ലാനിൽ ഉൾപ്പെടുത്തണമെന്ന അഭിപ്രായം ഉ ായി കൂടാതെ ശാസ്ത്രീയമായ രീതിയിൽ പൊതുശ്മശാനം, അറവുശാല, അഴുക്കുചാൽ, ഗതാഗതക്കുരക്ക് പരിഹരിക്കുന്നതിന് ബൈപാസ് ആവശ്യമാവണമെന്ന് അഭിപ്രായപ്പെട്ടു.
6) **15ാം വാർഡ് കൗൺസിലർ**:–നിലവിലുള്ള കുടിവെള്ള സ്രോതസ്സുകളെ സംരക്ഷിക്കണമെന്നും ഒറ്റപ്പാലം കിഴക്കുഭാഗത്തുനിന്നും ഗതാഗതകുരുക്ക് ഒഴിവാക്കാൻ ബൈപാസോ, ലിങ്ക്റോഡോ ഉ ാവണമെന്ന അഭിപ്രായപ്പെട്ടു. മാലിന്യ പ്രശ്നത്തിന്റെ ബുദ്ധിമുട്ടുകൾ പരിഹരിക്കുന്നതിനുള്ള പരിഹാരം മാസ്റ്റർ പ്ലാനിൽ ഉൾപ്പെടുത്തണമെന്ന് അഭിപ്രായപ്പെട്ടു.

26 ാം വാർഡ് കൗൺസിലർ / വർക്കിംഗ് ഗ്രൂപ്പ് മെമ്പർ

പാർക്കിങ്ങിനുള്ള സൗകര്യം ഉ ാവണമെന്നും കൂടാതെ അഴുക്കുചാൽ ശുചിത്വവത്കരിക്കണമെന്നും ആവശ്യപ്പെട്ടു.

15 ാം വാർഡ് – ശ്രീ. സി.കെ. അശോക് കുമാർ വർക്കിംഗ് ഗ്രൂപ്പ് മെമ്പർ

ചക്കാൽകു റോഡുകളുടെ ശോചനിയാവസ്ഥ പരിഹരിക്കുന്നതിനും ബസ് സർവ്വിസ് ആരംഭിക്കുവാനും, മാലിന്യ നിർമാർജ്ജനൃം , കുടിവെള്ളംഎന്നിവ താൽക്കാലികമായിട്ടെങ്കിലും പരിഹരിക്കണമെന്ന് ആവശ്യപ്പെട്ടു.

ശ്രീ. ഹനീഫ (മൃഗ ഡോക്ടർ)

ക്ഷീരകർഷകരെ സംരക്ഷിക്കുകയും മൃഗസംരക്ഷണത്തിന്റെ ഭാഗമായി ഗ്രാമ പ്രദേശങ്ങളിൽ ഡയറി ഡവലപ്പ്മെന്റ് വേ റോഡുകളുടെ കണക്റ്റിവിറ്റി ഉ ാവണമെന്നും കൂടാതെ സ്ഥലപരിമിത പ്രശ്നമുള്ളതിനാൽ മാലിന്യ സംസ്ക്കരണം പൊതുജനാരോഗ്യം മുൻനിർത്തി സംരക്ഷിക്കണമെന്നും അഭിപ്രായപ്പെട്ടു.

Residential association

36 വാർഡുകളുടെയും റോഡുകളുടെയും വികസനം, തുടർചർച്ചകൾ വേണമെന്ന വാഹന ഗതാഗത സൗകര്യങ്ങൾ എല്ലാ വാർഡുകളിലും വേണമെന്നും കൂടാതെ ചേരി വികസനം, ഒറ്റപ്പാലം റെയിൽ വികസനം മിനി സിവിൽസ്റ്റേഷൻ, ജില്ലാ ഹെഡ്കവട്ടേഴസ് ആക്കി ജില്ലാ രൂപീകരിക്കണമെന്നും താലൂക്ക് ആശുപത്രിയുടെ ശോച നീയാവസ്ഥ പരിഹരിക്കണമെന്നും അഭിപ്രായപ്പെട്ടു.

29 ാം വാർഡ് കൗൺസിലർ

തോട് സംരക്ഷിച്ച് വശങ്ങളിൽ വൃക്ഷങ്ങൾ വച്ച് പിടിപ്പിച്ച് സൗന്ദര്യം വർദ്ധിപ്പിക്കാം. ടൗൺ ഒഴിവാക്കി ബൈപാസ് റോഡ്, അഴക്കുചാൽ, മാലിന്യ പ്രശ്നങ്ങൾ, ചത്ത പശുക്കളെ മറവ് ചെയ്യാനുള്ള സൗകര്യങ്ങൾ ശാസ്ത്രിയമായ അറവുശാല കുടിവെള്ള പദ്ധതികൾ എന്നിവ പൂർത്തിയാക്കണമെന്നും ആവശ്യപ്പെട്ടു.

5 ാം വാർഡ് പൗരൻ/കൗൺസിലർ

നിളാതീരത്തിന്റെ ഭാഗങ്ങൾ എങ്ങിനെ സംരക്ഷിക്കാമെന്നു അത് വികസന രൂപരേഖയിൽ ഉൾപ്പെടുത്തണമെന്നും ആവശ്യപ്പെട്ടു. കാർഷിക മേഖലയെ സംരക്ഷിക്കുന്നതിനു ജലസേചന സൗകര്യങ്ങൾ നൽകി കൃഷി സംരക്ഷിക്കാനുള്ള നിർദ്ദേശങ്ങൾ പ്ലാനിൽ ഉൾപ്പെടുത്തണമെന്നും ആവശ്യപ്പെട്ടു.

19 ാം വാർഡ് കൗൺസിലർ

കുളം കൈമാറി നൽകിയിട്ടു ് അതിന്റെ ഉൗൃവേലൃ ൗേറൃ എന്താണ് എന്നും ചോദിക്കുകയു ായി

10 ാം വാർഡ്

ഖരമാലിന്യം ഗ്രൗ ിൽ നിക്ഷേപിച്ചതിനാൽ ഗുരുതരമായ സാംക്രമിക രോഗങ്ങൾ ഉ ാവുന്നു ് എന്നും അതിന് ശാശ്വത പരിഹാരം ഉ ാവണമെന്നും അഭിപ്രായപ്പെട്ടു

27 ാംവാർഡ് കൗൺസിലർ

വിടില്ലാത്തവർക്ക് വീട് പദ്ധതി നടപ്പിലാക്കണം

ഭാരതപുഴയിൽ തടയണ നിർമ്മിക്കുക .

ബോട്ടിങ്ങിനുള്ള സാദ്ധ്യത പരിശോധിക്കണം.

മണൽക്കടവ് – – ഒരെണ്ണം മാത്രമെയുള്ളു അതു കൂട്ടേ താണ്.

പ്രാചീന കലാരൂപങ്ങൾ, തോൽപ്പാവകൂത്ത്, പൂരം, ഉത്സവങ്ങൾ, എന്നിവയെ വിപുലപ്പെടുത്തുന്നതിനുള്ള മാർഗ്ഗങ്ങൾ അവലംബിക്കണം.

മാലിന്യ സംസ്ക്കരണ പ്ലാന്റ്:– നവീന രീതിയിൽ നടപ്പിലാക്കുക

സോളാർ എനർജി ഉപയോഗിച്ച് വൈദ്യുതി ഉത്പാദനം മെച്ചപ്പെടുത്തുക

വള്ളുവനാടൻ സംസ്കൃതി നിലനിർത്തുക

ക്ഷേമപെൻഷനുകൾ കാലകാലം ജനങ്ങളിലെത്തിക്കുക

ആശ്രയ പാർപ്പിട പദ്ധതികൾ, തെരുവോരത്ത് അന്തിയുറങ്ങുന്നവർക്ക് ഒരു നേരത്തേ ഭക്ഷണം

ആയുർവ്വേദ ആശുപത്രി ശോചനീയാവസ്ഥ, പരിഹരിക്കുക

താലൂക്ക് ആശുപത്രിയിൽ ഡോക്ടർമാരുടെ സേവനം മെച്ചപ്പെടുത്തുക സ്ത്രീകളുടെ തൊഴിൽ സാദ്ധ്യത മെച്ചപ്പെടുത്തുക, വ്യവസായശാലകളുടെ നടത്തിപ്പിന് അവർക്കു ക്ലാസുകൾ നൽകുക

ഒറ്റപ്പാലം നഗരത്തിന്റെ മാസ്റ്റർ പ്ലാൻ പ്രാദേശികതല വിശകലന സെമിനാർ 26.04.2013

18 ാം വാർഡ് കൗൺസിലർ

1. പ്രദേശത്തെ 8 വാർഡുകൾ – കുടിവെള്ളക്ഷാമം അനുഭവിക്കുന്നത് പരിഹരിക്കേ താണ്.
2. മെച്ചപ്പെട്ട റോഡുകൾ
3. കർഷകത്തൊഴിലാളികളുടെ പ്രശ്നം സ്ഥിരം തടയണ നിർമ്മാണം
4. സ്വകാര്യകുളങ്ങൾ നന്നാക്കൽ , സ്വകാര്യകിണറുകൾ നന്നാക്കൽ

പാലപ്പുറം – ഉണ്ണികൃഷ്ണൻ

നിലവിലുള്ള കുളങ്ങൾ നികത്തി –ഉപയോഗശൂന്യമായി ,

മാർക്കറ്റിങ്ങ് സൗകര്യം ലഭ്യമാക്കണം , ആഴ്ച ചന്ത, മാസചന്ത – നെല്ല്, ചേന, ചേമ്പ്, വാഴ, തേങ്ങ, റബ്ബർ പ്രധാന വിളകൾ

തൊഴിൽസേന സൗകര്യം മെച്ചപ്പെടുത്തണം

S.M. നമ്പൂതിരിപ്പാട് റെസിഡൻഷ്യൽ അസോസിയേഷൻ 21, 22 വാർഡ്

100 ഏക്കർ കൃഷിഭൂമി റെയിൽവെ ലൈൻ ക്രോസ് ചെയ്യുന്ന പ്രശ്നം, വാഹന സൗകര്യം കുറവാണ് കൃഷി

ഉപകരണം കൊ ുപോകുന്ന പ്രത്യക റെയിൽവേ ഓവർ ബ്രിഡ്ജ് നിർമ്മിക്കേ താണ്.

കൃഷിഭൂമി കുടുതലായി തരിശായി കിടക്കുന്നു ആയത് കൃഷി ചെയ്യുന്നതിന് നടപടിയെടുക്കേ താണ്.

മഴവെള്ള സംരക്ഷണ മാർഗ്ഗങ്ങൾ അവലംബിക്കണം.

ഗ്രാമീണ മേഖലയിലേക്ക് ബസ് സർവ്വീസ് മെച്ചപ്പെടുത്തണം.

ഉറവിട മാലിന്യ സംസ്ക്കരണം , ബയോഗ്യാസ് പ്ലാന്റ് എന്നിവ പ്രോത്സാഹിപ്പിക്കണം

വരോട് – പാടം – 140 ഏക്കർ മഴയെ മാത്രം ആശ്രയിച്ച് കൃഷി ചെയ്യുന്നു

പാൽ ഉത്പാദനം വർദ്ധിപ്പിക്കുന്നതിന് പനമണ്ണ, വരോട് ഭാഗത്ത് നന്നായി സാദ്ധ്യതയു ്.

കണ്ണാടി മോഡൽ – 50 പശുക്കൾ – കുടുംബശ്രീ വഴി നടപ്പിലാക്കണം

കൃഷി വ്യവസായികമായി പ്രഖ്യാപിക്കണം

വിപണന കേന്ദ്രം തുറന്ന് ഇടത്തട്ടുകാരുടെ ചൂഷണം ഒഴിവാക്കണം

മുട്ടകോഴിവളർത്തൽ – മുട്ട സ്വയം പര്യാപ്തത കൈവരിക്കുന്നതിനുള്ള മാർഗ്ഗങ്ങൾ അവലംബിക്കണം

Mini W.S.S. കൾക്ക് പ്രോത്സാഹനം കൊടുക്കണം

വരോട്. പ്രദേശം കുടിവെള്ള ക്ഷാമം നേരിടുന്നു ു

ഭൂമാഫിയ – പാടം നികത്തൽ ഇതിനൊരു കാരണമാണ്.

നഗരസഭയുടെ ഫ ു കൃത്യസമയത്ത് കൃഷിക്കാരന് കിട്ടുന്നില്ല കാർഷിക ലോണിന് പിഴപലിശയടക്കം മൊറോട്ടോറിയം പ്രഖ്യാപിക്കണം.

മുളഞ്ഞൂർ തോട് – മണലെടുത്ത് പോകുന്നു

വളം സബ്സിഡി നൽകണം

തരിശിട്ടഭൂമി കൃഷിഭൂമിയാക്കണം

4 ഏക്കർ കൃഷിഭൂമി ഇഷ്ടിക ചൂള വാണിയകുളം പഞ്ചായത്തതിർത്തിയോട് ചേർന്ന് നടന്നു വരുന്നു.

കുഴൽ കിണറിന്റെ എണ്ണം നിയന്ത്രിക്കണം

പൊതുകിണർ പ്രോത്സാഹിപ്പിക്കണം

മഴകുഴികൾ പ്രോത്സാഹിപ്പിക്കണം

ഭാരതപ്പുഴ മണൽ ഖനനം തടയുന്നതിന് മാർഗ്ഗം അവലംബിക്കണം. ഒറ്റപ്പാലം ബസ് സ്റ്റാൻഡ് പരിസരത്തെ കിണർ വളരെഅധികം വെള്ളം ഉള്ള കിണർ – ഉപയോഗശൂന്യമായി കിടക്കുന്നു. ആയത് ഉപയോഗ യോഗ്യമാ ക്കണം.

ആധുനിക കൃഷി രീതികൾ അവലംബിക്കണം

Proper water treatment plan ആവശ്യമാണ്.

കളിമൺ /കൈത്തറി മേഖല തകർന്നുകൊ ിരിക്കുന്നു. ആയത് പുനരുജ്ജീവിപ്പിക്കണം.

മുളഞ്ഞൂർ തോട്, കണ്ണിയംപുറം തോടുകളിലെ തടയണ നിർമ്മാണം

ഭരതപ്പുഴയിൽ സ്ഥിരം തടയണ നിർമ്മാണം

ഭാരതപ്പുഴയുടെ തീരത്തെ നെൽപ്പാടങ്ങൾ, മറ്റു കൃഷി (തെങ്ങ്, വാഴ) കൾ ചെയ്യാൻ തുടങ്ങി

40 പേർ സ്വന്തമായി വ്യക്തിഗത കുളത്തിൽ മത്സ്യകൃഷി നടത്തി 5 പേർ പൊതുകുളത്തിൽ നടത്തി നോക്കി – ലാഭകരമായില്ല. കാറികളിൽ മത്സ്യബന്ധനത്തിന് സാദ്ധ്യതയു ്.

കുളം നന്നാക്കാൻ പൈസ നൽകാതതിനാൽ ആരും മുന്നോട്ട് പോകുന്നില്ല

ടൂറിസം

ഭാരതപ്പുഴയുടെ തീരത്ത് ചേർന്ന് – ബോട്ടിങ്ങ്, പാർക്ക് – റെയിൽവേ ലൈൻ ക്രോസ് ചെയ്യുന്നതിനുള്ള സൗകര്യം

അനങ്ങൻമല – കേന്ദ്രീകരിച്ച് ടൂറിസം പദ്ധതി നടപ്പിലാക്കണം

ചിനക്കത്തൂർ പൂരത്തോടനുബന്ധിച്ച് ടൂറിസം പ്രോത്സാഹിപ്പിക്കണം

പ്രാദേശികമായ– തട്ടുമ്മകൂത്ത്, ഒറ്റപ്പാലത്തിന്റെ തനതായ തോൽപ്പാവകൂത്ത് എന്നിവ പ്രോത്സാഹിപ്പിക്കണം.

Palappuram municipality road ന്റെ അടു ത്തായി ഒരു സാംസ്ക്കാരിക കേന്ദ്രം വേണം.

ഹൈവേയുടെ വശങ്ങളിൽ *social forestry* പ്രവർത്തനം ഊർജ്ജിതപ്പെടുത്തണം.

മാലിന്യസംസ്ക്കരണത്തിന് വ്യക്തിഗത ബയോഗ്യാസ് യൂണിറ്റുകൾ *pipe compost* , ബോധവൽക്കരണം ശിക്ഷാ നടപടികൾ – 3 സെന്റ്/10 സെന്റ്/50 സെന്റ് അനുയോജ്യമായ ചെറിയ യൂണിറ്റുകൾ എന്നിവ നടപ്പിലാക്കണം.

മാലിന്യ സംസ്ക്കരണത്തിന് മോഡൽ ഒരു വാർഡ് പരീക്ഷണാടിസ്ഥാനത്തിൽ ആദ്യം നടപ്പിലാക്കണം

Sewerage treatment plant വേണം.

Discussion with Padasekhara Samithy members conducted on **17/05/2013**

Name of samithi - Palappuram – Mr. Rajan

പാലപ്പുറം പാടശേഖരസമിതി – 75 ഹെക്ടറിൽ കൃഷി ചെയ്യുന്നു. 1 ഓ 2 ഓ ഹെക്ടർ മാത്രമാണ് തരിശ്ശായിട്ടിരിക്കുന്നത്.

മലമ്പുഴ കനാൽ മംഗലം വരെ പാലപ്പുറം അപ്പുറത്തേക്ക് വെള്ളം വിടുന്നില്ല

വിദ്യപ്രദായനിശാലയുടെ വശത്ത് ഒരു വീട് മഴവെള്ളത്തെ ആശ്രയിക്കുന്നു.

വളം പാടശേഖര സമിതി വഴി വിതരണം ചെയ്യുന്നു ്.– നെല്ല് സംഭരണം കൃത്യമായി നടക്കുന്നില്ല പുറത്തുള്ള കച്ചവടക്കാർ വന്ന് വില കുറവിന് ഇടയാക്കുന്നു.

നെല്ല് കൃത്യമായി വൽക്കാൻ കഴിയുന്നില്ല. കാർഷിക ബാങ്കുകൾ കൊടുക്കൂവാൻ തയ്യാറാവുന്നില്ല, ലോൺ ലഭിക്കുന്നില്ല

പച്ചക്കറി ഉൽപാദകന് മതിയായ വില കിട്ടുന്നില്ല.

60 ആൾക്കാർ – പച്ചക്കറി കൃഷിചെയ്യുന്നു ് (ചീര, മത്തങ്ങ, കയ്പക്ക, കുമ്പളങ്ങ)

സ്വശ്രയ വിപണി കേന്ദ്രം ആവശ്യമാണ്. നെല്ല് വില്ക്കുന്നതിന് കുറെ കൂടി മെച്ചപ്പെട്ട സംവിധാനം ഉറപ്പാക്കണം

പന്നിയുടെ ശല്യം , മയിലിന്റെ ശല്യം എന്നിവ കൃഷിയെ ബാധിക്കുന്നു ്.

കാർഷിക ആവശ്യത്തിന് വൈദ്യുതി ലഭ്യമാക്കുന്നതിന് മുഴുവൻ പൈസയും കയ്യിൽ നിന്ന് അടക്കേ ിവരുന്നു.

80 % യന്ത്ര സൗകര്യമു ്

മുളഞ്ഞൂർ തോടിനെ ഇല്ലാതാക്കി കുറെ ഭാഗങ്ങൾ നശിപ്പിച്ചിട്ടു ് തോട് സംരക്ഷിക്കണം.

സി.കെ. അശോകൻ

പാലപ്പുറം – ചക്കാല

30 0% ഉപയോഗിച്ചാൽ ഇറക്കാൻ

പൊന്നാനി റോഡിലെ തോട് ബ്ലോക്കായി കിടക്കുന്നു. മലമ്പുഴ ഇറിഗേഷൻ വെള്ളം ലഭിക്കുന്നില്ല തോടിന്റെ അപര്യാപ്തത കൃഷിയെ ബാധിക്കുന്നു.

ചക്കാലക്കുളം – 60 സെന്റ് – പുനരുദ്ധിക്കണം

(വരൾച്ച ദുരിതാശ്വാസം)

തൊഴിലാളികളെ കിട്ടാനില്ല (ചിനക്കത്തൂർ ഭാഗത്തേക്ക്)

തൊഴിൽ സേന/തൊഴിലുറപ്പ് പദ്ധതി നെൽകൃഷിക്ക് ഉപയുക്തമാക്കണം

മലമ്പുഴ ഇറിഗേഷൻ ലഃലോശെീ ഈ പ്രദേശത്താണ്

പാടശേഖര സമിതികളുടെ പ്രവർത്തനം ശക്തിപ്പെടുത്തണം

കനാലുകൾ ശക്തിപ്പെടുത്തണം

എ.കെ. വിശ്വനാഥൻ , പാലപ്പുറം പാടശേഖര സമിതി

കനാൽ പ്രദേശത്തുള്ള അനധികൃത കൈയ്യേറ്റങ്ങൾ തടയണം.

ജലസേചനം – തൊഴിലാളി എന്നീ പ്രശ്നങ്ങളു ്.

ഒരു കളം സ്വകാര്യ വ്യക്തി കൈവശപ്പെടുത്തി

വളം സബ്സിഡി ചെറിയ കർഷകരെ ബുദ്ധിമുട്ടിലാക്കുന്നു.

വിത്ത്/വളം നേരിട്ട് ലഭിക്കുന്നതിന് സൗകര്യമൊരുക്കണം.

പാലപ്പുറം വില്ലത്തിറ പാടശേഖരസമിതി

1600 രൂപ പാടശേഖരസമിതി രജിസ്റ്റർ ചെയ്യണം – മുൻകാലത്ത് സൗജന്യമായിരുന്നു.

ഉഴവുകൂലി ആദ്യകാലത്ത് സമിതി മുഖാന്തിരം നൽകിയിരുന്നു. എന്നാൽ ഇപ്പോൾ നേരിട്ട് കർഷകർ ചെയ്യുന്ന സംവിധാനമാണുള്ളത്.

50 സെന്റിൽ കൂടുതലുള്ള കർഷകർ വളരെ കുറവാണ്. ആയതിനാൽ 60 രൂപ സബ്സിഡി കിട്ടാൻ – വഴി ചെലവ് 100 രൂപ – ഒരു തൊഴിൽ ദിനം നഷ്ടപ്പെടുന്നതായി കാണുന്നു.

ഉഴവുകൂലി / ഉല്പാദനബോണസ് – പാടശേഖരസമിതി മുഖാന്തിരം നല്കുന്നതാണ് നല്ലത്.

പണിക്കാരെ കിട്ടാനില്ല

85 ഏക്കർ ഒന്നാം വിള എല്ലാവരും കൃഷി ചെയ്യുന്നു.

ഇടവിള – എള്ള് – പയർ – ഉഴുന്ന് എന്നിവ കൃഷി ചെയ്യുന്നു.

കുഴൽകിണറിന് അനുമതി (സബ്സിഡിയോടുകൂടി) നൽകണം.

വിത്തിന് നീക്കി വച്ച പണം ചെലവായില്ലെങ്കിൽ മറ്റ് ആവശ്യങ്ങൾക്ക് ഉപയോഗിക്കാൻ സാധിക്കണം

അയ്യങ്കാളി പദ്ധതിയിൽ കൃഷി അറിയുന്നവരെ ഈ മേഖലക്ക് ഉപയോഗിക്കാൻ സംവിധാനമൊരുക്കണം.

തൊഴിൽ സേന ഉപയോഗപ്പെടുത്തണം – നടീൽ പണിക്ക് ഇവരെ ഉപയോഗിക്കണം – നെല്ല് സംഭരണം – ര ാം വിളയ്ക്ക് മില്ലുകാർ കൂടുതൽ തരുന്നത്. സർക്കാർ തുക ലഭിക്കുന്നതിലെ കാലതാമസം ഒഴിവാക്കണം.

കർഷകർക്ക് പലിശരഹിത വായ്പ – 10 മാസകാലത്തിന് നൽകുവാനുള്ള സൗകര്യമു ാക്കണം.

സ്വാശ്രയം – പച്ചക്കറി വിപണനകേന്ദ്രം (മാർക്കറ്റിൽ തുറക്കുമ്പോൾ) തുറക്കണം.

കർഷക ഇൻഷുറൻസ് കാര്യക്ഷമമായി നടപ്പിലാക്കണം.

വരോട് – വീട്ടാമ്പാറ – മുഹമ്മദ് കാസിം

ആഴ്ച ചന്ത മുനിസിപ്പാലിറ്റിയുടെ സ്ഥലത്ത് നടപ്പിലാക്കണം

ഉത്പാദനം വളരെ കുറവായതിനാൽ കർഷകർ കൃഷിഭവൻ പാടശേഖര സമിതികൾ പരസ്പരം അകന്നുവരുന്നു

തോട്ടക്കര കിഴക്കുഭാഗം പാടശേഖരം ചേരിക്കുന്ന് 6 ഏക്കർ തരിശായി കിടക്കുന്നു ടൗണിനോട് ചേർന്ന് 5 സെന്റ് KLU നെൽകുന്നത് വെള്ളച്ചാൽ അടയ്ക്കുന്നതിന് കാരണമാകുന്നു.

നെൽകൃഷിമാത്രം ആശ്രയിച്ച് കഴിയുന്നത് ബുദ്ധിമുട്ടായതിനാൽ ഉപതൊഴിലായി കാലിവളർത്തൽ , വാഴകൃഷി, നെൽകൃഷി റബ്ബർ കൃഷി ചെയ്യുന്നു

ചെറുകിടക്കാർ കുറവാണ് , പാട്ടകൃഷിക്കാർ കുടുതൽ ആണ്. പാട്ടക്കരാർ നൽകുവാൻ തയ്യാറാവുന്നില്ല.

കൃഷി അഉ ഓഫീസിൽനിന്ന് ആനുകുല്യങ്ങൾ കൃത്യസമയത്ത് ലഭിക്കുന്നതിനുള്ള സൗകര്യമൊരുക്കണം

പായാർ പാടശേഖര സമിതി – പ്രദീപ്

100 ഏക്കറിലധികം തരിശിട്ടിരിക്കുന്നു.

പണിക്കാരെ കിട്ടാനില്ല

റയിലിന്റെ അപ്പുറത്തേക്ക് ട്രാക്ടർ കടത്താൻ സാധിക്കില്ല, പന്നിശല്യം (തരിശിട്ട സ്ഥലം കാട് പിടിച്ച് പന്നികൾ നിറയുന്നു.)

വിപണന കേന്ദ്രം ഇല്ല.

മാന്ദറ്റി കുളം വരിക്കശ്ശേരി മനയിൽ നിന്ന് വാങ്ങി

പനമണ്ണ പാടശേഖരസമിതിയുടെ ട്രാക്ടറുകൾ ഉപയോഗിക്കുന്നു. മെതിയന്ത്രം കൃഷിഭവൻ നൽകുന്നു ്.

തോട്ടക്കര പാടശേഖര സമിതി പ്രത്യേക നിർദ്ദേങ്ങളില്ല.

ഏറക്കോട്ടിൽ പാടശേഖരസമിതി

ഭാരതപ്പുഴ ര ് ലിഫ്റ്റ് ഇറിഗേഷനെ ആശ്രയിക്കുന്നു.

മോട്ടോർ പഴകി വരുന്നു, ആയതിനുള്ള പ്രശ്നങ്ങളു ്.

2 പൂവ് ചെയ്യുന്നു ് ഇനി ഒരു പൂവ് ചെയ്യാൻ കഴിയുകയുള്ളു

റെയിൽ ക്രോസ്സിങ്ങ് ചെയ്ത് പോകേ തു ്.

കൊയ്ത്തു യന്ത്രം ഉപയോഗിക്കാൻ പറ്റുനില്ല, ട്രാക്ടർ ഉപയോഗിക്കാൻ പറ്റുന്നു ്

ഭരതപ്പുഴയിൽ തടയണ ഉയരം കൂട്ടണം.

പുഴ 6 മീറ്ററോളം താഴ്ന്നു.

താല്ക്കാലിക തടയണയ്ക്ക് പകരം സ്ഥിരം തടണ നിർമ്മിക്കണം

കൃഷിക്ക് വൈദ്യൂതി സൗജന്യം നൽകുമ്പോൾ പുതിയ കണക്ക്ഷന് പോസ്റ്റ് ഇടുന്ന കാശ് സൗജന്യമായി നൽകണം

പല്ലാർ മംഗലം – താൽക്കാലിക തടയണ ഒഴിവാക്കി സ്ഥിരം തടയണ വേണം

e-paymen മുഖാന്തിരം നൽകുന്നതിനാൽ ആനുകൂല്യങ്ങൾ വൈകുന്നു.

1. ഭാരതപ്പുഴ തടയണകൾ കാർഷിക ആവശ്യത്തിനായി
2. തൊഴിൽ സേന / യന്ത്രവത്കരണം
3. കാർഷിക വിപണന കേന്ദ്രം
4. കമ്മിറ്റിയിൽ – അതാത് പാടശേഖരസമിതി സെക്രട്ടറി നിർബന്ധമായും ഉ ായിരിക്കണം
5. ജൈവവളം കിട്ടാനില്ല
6. പാടശേഖരസമിതി പുനരുജ്ജീവിപ്പിക്കണം
7. വളം, വിത്ത് – പാടശേഖരസമിതി മുഖാന്തിരം നൽകണം