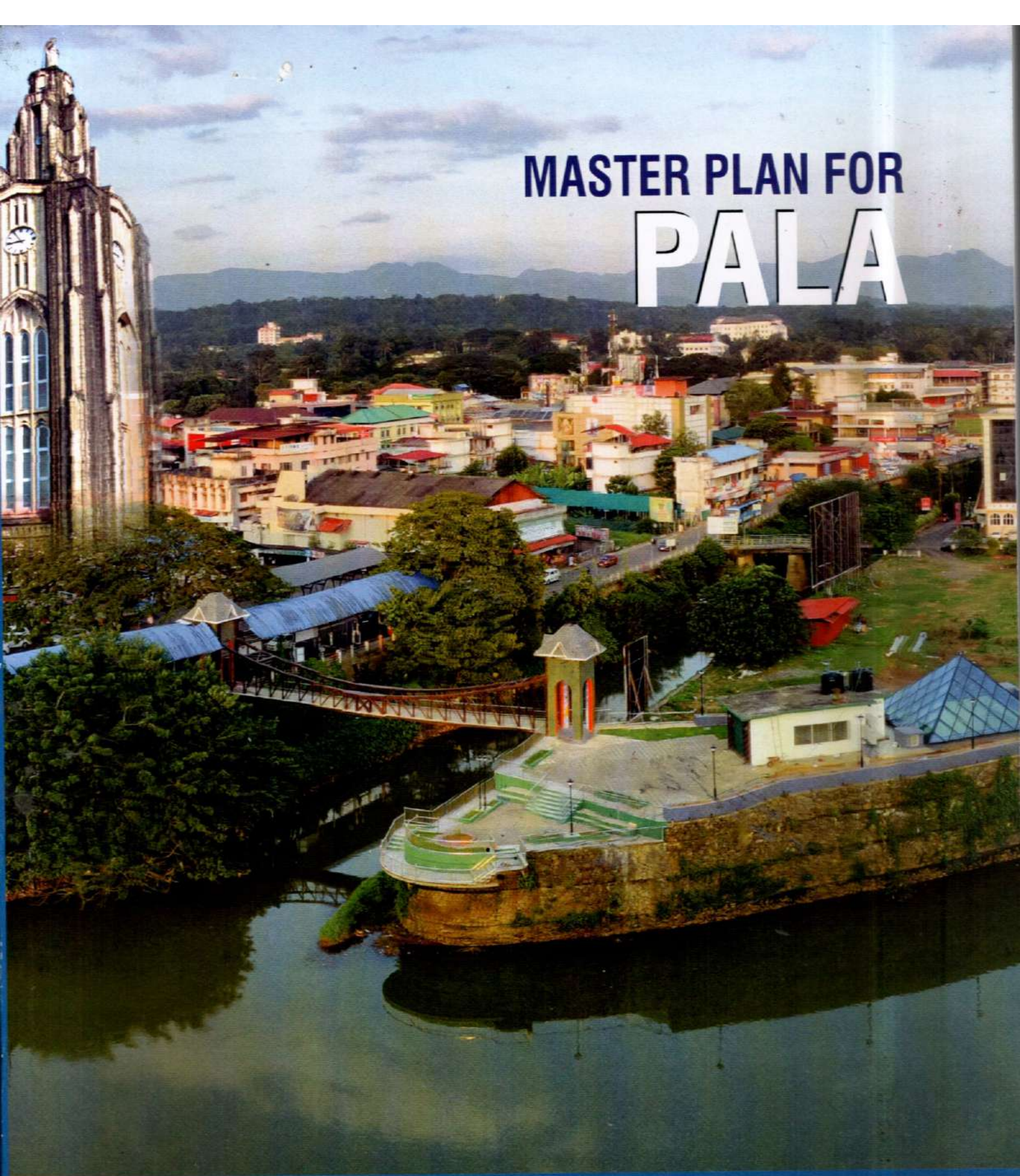




MASTER PLAN FOR PALA

NOVEMBER 2020

PALA MUNICIPALITY

&

**LOCAL SELF GOVERNMENT DEPARTMENT PLANNING
GOVERNMENT OF KERALA**

MASTER PLAN FOR **PALA TOWN**

NOVEMBER 2020

PALA MUNICIPALITY &

LOCAL SELF GOVERNMENT DEPARTMENT PLANNING, GOVERNMENT OF KERALA

MARY DOMINIC
CHAIRPERSON
PALA MUNICIPALITY



Mob : 9400415963
7306630161

Ward - 23

Res : Vypana (House)
(Kaniyarasseril)
Arunapuram P.O.
Pala

Date : 30.10.2020

FOREWORD

Pala Municipality is situated on the banks of Meenachil River and has a rich and prosperous past. The word Pala is said to have been derived from the word 'Palazhi'. Early settlers came here in A.D. 1000. Pala Market, a Place famous for hill products was established by 1736. The Agri-farmers produced a variety of hill products and exported to countries around the world.

Pala town, which is a doorway to the famous pilgrim centres Sabarimala and Bharanaganam is now the hub of development activities. The full fledged office with the state of the art facilities gives better service to the people and crossed a considerable length on the way of digital governance. The city is gifted with new roads, bridges, Municipal stadium with synthetic track, sprawling shopping complexes in different parts of the town. A bouquet of development activities almost touching all human walks of life gave the city the grit and polish of a modern city with the entire infrastructure. The present council during its tenure toiled day and night to bring about all these developments for the upliftment of the Municipal area.

Pala Municipality is touching new heights of developments. At this juncture this city needs a well laid plan for future developments. Pala Municipal Council prepared this Master Plan with the help of Town and Country Planning Department. Strictly in tune with the present legislation and following the procedures of Kerala Town and Country Planning Act-2016, the Municipal council discussed the draft Master Plan in length and breadth.



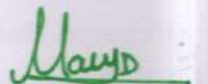
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Suggestions and constructive criticism to a great extent incorporated in the draft Master Plan. The present plan will work as a guide for the future development of Pala Town. The Draft Master Plan was published in the Kerala Gazette dated 01.03.2016 inviting objection suggestions from the public and it was also published in the official website of Pala Municipality. After conducting hearing and a series of special committee meeting and the direction of Government, it was decided to republish the modified Master Plan according to people's aspiration. Vide resolution No.1 of Municipal Council dated 22.05.2017 the master plan has been modified and re-published Vide GO(MS) No. 23/2018/LSGD dated 21.02.2018. The republished Master Plan was again put forth for inviting objection suggestion from the public and following the procedures of Kerala Town & Country Planning Act 2016, modification are included in the map & report as per the special committee decisions. The newly modified Master Plan was approved by Pala Municipal Council vide Council Resolution No. 2 dated 6/10/2020 and decided to forward to government for getting sanction.

First and foremost I would like to extend my profound gratitude to the Chief Town Planner, District Town Planner and the Local Self Government Department Planning (Department of Town and Country Planning) for their worthy contribution in the preparation and completion of this work.

I express my sincere gratitude to the Municipal Secretary and employees for their momentous tutelage, scholarly guidance in the preparation and fulfillment of the Master Plan.

Above all I am grateful to God Almighty for constantly guiding me to lead Pala Municipality for the last year as Chairperson.



**MARY DOMINIC
CHAIRPERSON
PALA MUNICIPALITY**



PREFACE

Planning is a prerequisite for effective development. Development becomes comprehensive when the physical, social and economic variables of an area are planned in an integrated manner. Many functions that a town perform as seats of industry, trade and business and as providers of various services, including higher education, specialized health care services, communication etc have an impact not only on the development and welfare of the resident population but also on the people of a wider service area. Hence planned development of urban area is a matter of priority.

Pala town was developed on the bank of Meenachil River and it is located about 30Km north-east of the district headquarters Kottayam. There is a need for a long term Plan for the development of Pala Town considering the growth trends, resources potential, locational aspects etc. The first Master Plan for Pala Town was prepared and published vide G.O(Rt) 502/95/LAD dated 21/03/1995. But due to various reasons, the further statutory processing of this Master Plan as per the provisions of the Town Planning Legislation could not be completed.

74th Constitution Amendment Act envisages empowerment of the Urban Local Bodies with planning functions, which is enshrined in the Twelfth Schedule to Article 243(W) of 74th Amendment. The Kerala Town and Country Planning Act also mandates the Municipal Councils to prepare Master Plans for the area under their jurisdiction, through a participatory process and the Master Plan shall generally indicate the manner in which development shall be carried out and also the manner in which the use of land shall be regulated. In view of this, Government of Kerala has undertaken the preparation of the Master Plans for all towns in the state in a phased manner, under the 'Scheme of preparation of Master Plans and detailed Town Planning Schemes'. The preparation of Master Plan for Pala town is included under this Scheme.

The Municipal council, Pala vide resolution No. 9 dated 28/10/2011 decided to prepare a new Master Plan considering the present development scenario and also resolved to prepare the plan incorporating re-survey details.

The Municipal Council of Pala extended all support and played crucial role in the time bound preparation of the new Master Plan. Draft Master Plan was approved by the Municipal Council of Pala as per resolution No. 1 of on 22/06/2015 and the same was forwarded to Government for getting approval for publication. Government, vide GO(MS) No. 361/2015/LSGD dated 22/12/2015, accorded sanction to the Municipal Council for publication of the draft Master Plan as per section 36(3) of Kerala Town and Country Planning Ordinance 2015. Accordingly, the draft Master Plan was published in Kerala Gazette dated 01/03/2016, inviting objection/suggestions from the public to be submitted within sixty days from the date of publication of notice in the Gazette. The draft Master Plan was also published in the website of Pala Municipality and in news papers having wide circulation in the planning area.

All the objections and suggestions received on the draft Master Plan were processed by the Special Committee constituted by the Municipal Council as per Section 32 of the Kerala Town and Country Planning Act 2016. Government level meeting was also convened to arrive at a consensus on the extent of variation to be made in the published Master Plan. As there were several variations to be made in the published draft Master Plan, the Municipal Council vide resolution No. 1 dated 22/05/2017, has decided to republish the draft Master Plan modified based on the objections and suggestions received, as provided under Section 36(9) of the Kerala Town and Country Planning Act, 2016 and Government accorded sanction for republishing vide GO.MS No. 23/2018/LSGD dated 21/2/2018.

I would like to appreciate the leadership provided by the Pala Municipality for this endeavor under the chairmanship of Smt. Mary Dominic. I also appreciate the consistent efforts of officials of the Office of the Chief Town Planner (Planning) in processing the draft Master Plan. All the staff of the office of the District Town Planner, Kottayam under the leadership of Smt. Suja Mathai, Town Planner requires special mention for completing this Plan within the stipulated time as directed by Government.

Thiruvananthapuram
03/11/2020



GIRIJA K.S

Chief Town Planner (Planning)

ACKNOWLEDGEMENT

Pala is located in central Kerala and it is one of the six urban centres in the Kottayam district. The service activities, commercial establishments and location of the town indicate the importance of the town. More facilities are required to be provided to have a sustained development of the town and the region. In this context, it is necessary to identify various development requirements and to plan for the future for ensuring a healthy, physical development and a progressive economic growth in the years to come. This exercise was done successfully and secured Government sanction to publish the draft Master Plan as per GO (Ms) No. 361/2015/LSGD dated 22/12/2015. Accordingly, the draft Master Plan was published in Kerala Gazette dated 01/03/2016, website of Pala Municipality and in newspapers having wide circulation, inviting objections /suggestions from the public to be submitted within sixty days from the date of publication of notice in the Gazette.

About 576 objections /suggestions were received at municipality and the special committee constituted by the municipal council under section 32 of The Kerala Town and Country Planning Act 2016, decided to modify the master plan eliminating major road proposals and zone proposals. Government level meeting was also convened to arrive at a consensus on the extent of variation to be made in the published Master Plan due to the objection raised by the Town Planner. Modifications were done in the master plan as per the decisions taken at Government level by the Principal Secretary, LSGD in the meeting held on 08-03-2017. As there was large extent of variation to be made in the published draft Master Plan, the Municipal Council vide resolution No. 1 dated 22.05.2017, has decided to republish the draft Master Plan modified based on the objections and suggestions received, as provided under Section 36(9) of the Kerala Town and Country Planning Act, 2016. The government gave approval to republish the draft master plan vide GO (MS)No.23/2018/LSGD dated 21.02.2018 and was published in Kerala Gazette number 14 dated 03.04.2018. The 90

number of objections suggestions obtained from the public were again scrutinized by the special committee and the approval of Pala municipal council was obtained as per resolution number 2, dated 06.10.2020.

The preparation of modified Master Plan for Pala was done promptly with the joint effort of Pala Municipality and District Town and Country Planning office, Kottayam under the guidance and supervision of state Planning Cell, Thiruvananthapuram. I express my sincere thanks to experts in the State Planning Cell, for their encouragements and reviews for the completion of this project. I am indebted to Smt. Girija K.S, Chief Town Planner (Planning), Smt. C .K. Sabitamini, Town Planner and Smt. Sindhu Rani, Assistant Town Planner for their support and valuable guidance for the completion of this report.

I sincerely thank the leadership rendered by Smt. Mary Dominic, Chairperson of Pala Municipality and the council members for their valuable contributions. They actively participated in all the special committee meetings and discussions conducted as part of preparation of this plan and contributed highly by giving their concept of development.

I thankfully acknowledge the commitment, hard work and whole hearted cooperation of the planning team in Town and Country Planning Department, Kottayam under the leadership of Sri. Sudheer. P. Sukumar, Deputy Town Planner, Smt. Gigi Abraham, Assistant Town Planner and Smt. Beeta Bhadran, Assistant Town Planner of this office in bringing out this report in a time bound manner. I also acknowledge with thanks, the support given by each and every technical and administrative staff of this office for their valuable service in preparing this report within the stipulated time as directed by Government.

Kottayam,
03.11.2020.




Suja Mathai
Town Planner, Kottayam

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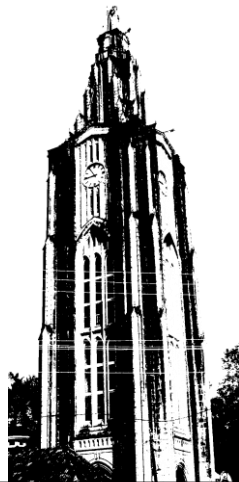
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PART.I



STUDY AND ANALYSIS



1. INTRODUCTION

The general features of Pala town, earlier planning attempts including the findings and proposals of the present draft Development Plan, need for a new Master Plan, methodology, contents of this report etc are included in this chapter.

1.1 INTRODUCTION

The word Pala is said to have been derived from the word 'Palazhi' which indicates the prosperous Hindu dominion here in ancient time. The Pala town was developed on the bank of Meenachil River, and it is located about 30Km north-east of the district headquarters Kottayam. Now Pala



is the headquarters of Pala Revenue division, one of the two Revenue Divisions of Kottayam district and also the headquarters of Meenachil taluk.

Major portion of the town is under rubber cultivation and rubber is the main cultivation in the hinter land. The town has grown as a trade and service centre and still trade and commerce is one of the major activities of the town. Pala is the major trading centre of the sub region and the service town of the



settlements of the north east part of Kottayam district and providing higher order services.

Pala was well known for its religious importance from the early days. Kadapattoor Mahadeva temple, a major centre of Sabarimala Pilgrims, Ananda Shanmugha Kshetram, St.Thomas Church and Lalam Pazhayapalli

are the major religious centers within the town. Bharananganam Church and Alphonsamma Pilgrim centre of Saint Alphonsamma are situated at a distance of 5 km from Pala Town. It is also a famous educational centre from early days and two major educational institutions of the state, St.Thomas College and Alphonsa College are situated in the town. Numbers of Professional educational institutions were established around the town recently. The town is now developed as a major coaching centre in the state for entrance examinations for various professional and other courses.

The extent of the town is 16.06 sq:km and the population of the town as per 2011 census is 22058

1.2 EARLIER PLANNING ATTEMPTS

A Development Plan for Pala town has been prepared and the draft plan was published vide GO (Rt) 502/95/LAD dated 21.03.95. But due to various reasons the further statutory processing of the Development plan as per the Town planning Act has not completed and still the plan is in the draft stage. The studies for the plan were held during 90's. The findings of the studies, regional approach adopted in the Plan, projected



Figure 1.1 Published Draft Development Plan for Pala - 1995

population, planning area, proposed land use and proposals for various sectors of the published plan are included in subsequent paragraphs.

The findings of the studies

Pala was developed as major trade centre with a religious background. The town has an undulating topography. During monsoon season the central area of the town is subject to flooding. The population growth rate is diminishing mainly due to outmigration for employment. Floating population was worked out as 30000.

The total developed land under urban function is only 48% of the town area and rubber plantation is there in 46% of the land and the percentage of water bodies is 2.31%. The land under industry and organized Park and Open space is very low.

Ettumanoor road, Ponkunnam road, Thodupuzha road, Erattupetta road, Vaikom road and Ramapuram road are the main radial distributaries of Pala town and width of these roads varies from 9.00m to 11.00m. The 1.00km stretch of road from Lalam Bridge to Ponkunnam Bridge is the most congested area of the town. A terminal facility at the Municipal bus station is inadequate and a Truck terminal facility is absent and parking space is inadequate.

The Household size of Pala is 5.5. According to 1991 census, shortage of dwelling units in the town is 79 units. 13% of houses are of Kutch type. 2 Slums are there in town. Educational facilities at College level and School level are satisfactory in Pala municipality. There are three government hospitals and 31 other medical units functioning in Pala. This is quite adequate to serve the regional population.

Active recreational facilities of the town are not satisfactory. Other recreational facilities like club, auditorium and cinema theatre are functioning in the town which will continue to contribute the future recreational activities of the town.

The water supply system of the town is not satisfactory and acute shortage of water is experiencing during summer. There is no underground drainage system in Pala and sewerage system of the town is not satisfactory. Solid wastes have collected every day and deposited in the dumping yard at Kanattupara. The distribution of electricity is from 11Kv Sub Station and sufficient numbers of transformers are within the town.

Regional approach adopted in the Plan

Pala Town is one of the most important urban centres in Kottayam district and the head quarters of Meenachil Taluk. The service

activities, commercial establishments and location of the town indicate the regional importance of the town. Pala will be a regional service centre for the entire area within a radius of at least 30Km. A considerable portion of Idukki district falls under the influence region of Pala town, even though they are geographically and administratively attached to Idukki district. The planning region of Pala is a sub region of Kottayam and Idukki region and spread over the hinterlands of other urban centres like Thodupuzha, Erattupetta, Ponkunnam, Ettumanoor, Vaikom and Ramapuram.

Projected population

In the draft Plan it is arrived that the increase in the population growth rate of Pala town is very nominal and increase by migration is almost nil. Outmigration for employment opportunities and modern birth control system are the main cause of diminishing growth rate. The future population was estimated using four mathematical methods. The future population for Pala for the year 2011 was estimated as 23000.

Planning Area

The impact of growth rate of Pala town is comparatively less than that of other towns of Kerala and major portion of the town area comes under rubber plantation, water bodies and paddy fields. These factors are considered for delineating Planning area and also by examining the land use it was concluded that there is no necessity of extending municipal area further.

Proposed land use.

In the draft plan, the proposals were made for the next two decades. It was proposed on the basis of existing land use analysis and considering the balanced development and smooth integration between the activities within the town. The floating population and regional impact were the other factors considered. The land use breakup of proposed land use of the published plan is furnished in Table 1.1

Table 1.1 Proposed Land Use of the Published Plan

Sl: no.	Use	Total Area (in hectare)	%
1	Residential	565.93	35.52
2	Commercial	30.75	01.93
3	Industrial	5.47	00.34
4	Public& semi public	107.43	06.74
5	Transportation	74.57	04.68
6	Park & open space	4.67	00.29
7	Garbage disposal	3.71	00.23
8	Paddy field	33.28	02.09
9	Dry cultivation	690.00	43.31
10	Water body	77.18	04.84

Proposals for Traffic and transportation sector

The circulation pattern adopted in the published plan aims at proper communication between the inter zones to bring out the sound land development in tune with the land use plan, to open up those areas having poor accessibility, to make alternative arrangements for the problematic circulation area, reduce the time spent in movement on road and to develop urban atmosphere among the town area.

Proposals for Trade and commerce sector

In the study for the published plan it is inferred that, over the years Pala was developed as both whole sale and retails business centre. Due to lack of facilities, the trade centre of Pala has diminished and surrounding urban centres were developed as parallel trade centres. In the studies it was also revealed that Pala town has ample scope to develop as a commercial centre if additional facilities are provided. The impact of floating population on commercial activities is very high in Pala. It was worked out that about 30.75 hectares of land is necessary to provide facilities for commercial activities during the plan period. So an additional area of 4.12 hectare is provided for this purpose in the draft plan.

Proposals for Industrial sector

In the studies it is identified that, one of the reasons for the slow economic growth of the town is the absence of Industries and there is ample scope for industrialization by virtue of the availability of agricultural resources in the town and its hinterlands. The introduction of an agro- industrial base in respect of manufacturing and household industries has been adopted as the industrialization policy for Pala during the plan period in the draft Plan. An area of 5 Hectares of land was reserved for agro industries.

Major proposals for Water supply, Sanitary facilities and Electricity

In the studies for the draft plan it was observed that, water supply system is not satisfactory due to shortage of water in Meenachil River. As per the proposal in the plan, Water Authority has to take initiative to cater a population of 23000 by 2011. The daily requirement is worked out to be 42 lakhs litres/day. It was identified that the feeder system is inadequate to serve the existing population. It was proposed that the Kerala Water Authority has to take necessary arrangements for the augmentation of water supply in the town.

Solid waste was deposited in the dumping yard located in Kanattupara which have an area of 0.60 hectares and it was proposed to extend by acquiring an additional area of 3.112 hectares.

The estimated power for the horizon year was worked out as 32200 KWH per day. It is concluded that the present Sub station at Karoor has enough land to accommodate the future requirements.

1.3 COMPARISON OF LAND USE

The draft plan which is published in 1995 is being implemented over the years. A comparison of the proposed land use of 1995 and the existing land use 2012 is made in table 1.2. The analysis shows that the non-agriculture land use of 2012 except transportation and park and open space is slightly higher than that envisaged in the plan. There is reduction in the area of Agriculture land use.

Table 1.2 Comparison Proposed Land Use 1995 and Existing Land use 2012.

Sl: no.	Use	Proposed Land Use 1995		Existing Land use 2012.	
		Total Area (in hect)	%	Total Area (in hect)	%
1	Residential	565.93	35.52	638.81	39.77
2	Commercial	30.75	01.93	46.02	2.87
3	Industrial	5.47	00.34	7.98	0.50
4	Public& semi public	107.43	06.74	101.84	6.34
5	Transportation	74.57	04.68	41.02	2.55
6	Park & open space	4.67	00.29	01.99	0.12
7	Paddy field	33.28	02.09	26.62	1.66
8	Dry cultivation	690.00	43.31	686.08	42.72
9	Water body	77.18	04.84	55.73	3.47

1.4 NEED FOR A NEW PLAN

The scheme of 'Preparation of Master Plans and Detailed Town Plans' was announced in the Budget Speech of 2008-2009. The scheme aims to prepare statutory Town Planning Schemes for towns in the State in a time bound manner, under Town Planning Acts so as to ensure planned development. Pala is one of the 32 towns included in this scheme in the first phase.

As mentioned in the previous paragraph, there was a long gap of about 17 years since publishing the plan. Lot of changes has been occurred in the planning area during the above period. The Municipal Council, Pala vide resolution No: 9, dated 28.10.2011 has decided to prepare a new development plan considering the changed development scenerio and also resolved to prepare the plan in re-survey map.

1.5 METHODOLOGY

The methodology adopted for preparation of the development plan is discussing in this paragraph. The plan preparation process consists of collection of data (both primary and secondary), analysis (both spatial analysis and local level analysis), consolidation of findings, envisioning process (including setting up of goals and objectives, arriving development concepts and framing policies and strategies), and detailing (including the projection of requirements, sector detailing and land use planning). Different steps involved in the plan preparation process, agencies involved etc are shown in Figure 1.1.

The plan was prepared jointly by the Municipal council, Pala and Department of Town and Country Planning, Kerala State. The Working Groups of various sectors has been actively participated in the collection of data and analysis especially local level analysis. All 26 Municipal Councilors also provided information regarding their wards and their views and vision on future development of Pala. The plan has been presented and discussed in detail in various Council meetings, including Special Municipal Council. Detailed regional setting study was carried out in this connection which is documented as the District Urbanization Report (DUR) of Kottayam.

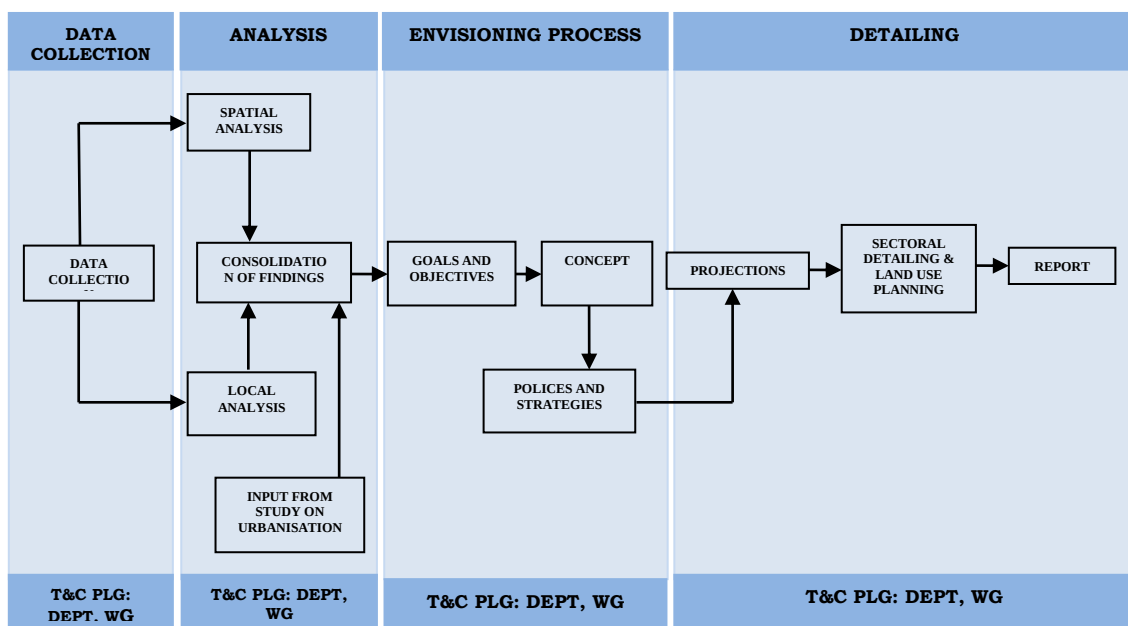


Figure 1.2 Methodology of Plan Preparation

1.6 REPORT

This report consists of 33 chapters and these chapters are grouped into four parts. Part I consists of 23 chapters, containing study and analysis of various sectors giving a detailed information about the existing condition of the town and different planning issues. Part II comprises five chapters about integrated development vision. Part III comprises three chapters about land use, transportation and sectoral proposals. The development regulations are included in Part IV and finance resource planning is included in Part V. The Maps are also attached separately.

2. PHYSICAL CHARACTERISTICS



This chapter discusses the physical features of Pala Town. Location aspects, history of the town, area, geography, climate and rainfall, soil condition, bio-diversity etc are included in this chapter.

2.0 INTRODUCTION

Pala is the headquarters of the Meenachil, one of the five taluks of Kottayam district and the service town of the north east part of Kottayam district and it is the only urban centre in the north –east part of the district. River Meenachil divides Pala Town into two parts known as Thekkekara and Vadakekara. The Vadakkekara is again divided into two by the Lalam thodu which is merging with Meenachil River within the Municipal limit. Hence the Pala municipal boundary is divided into three natural zones by these water bodies. The town was divided into 26 municipal wards in 2010 election to Municipal council and the studies and analysis has been made taking wards as units.

2.1 LOCATION

Pala is one of four statutory urban centers of Kottayam district and is situated in the north – east part of district. The two major State Highways of the state, Punalur-Muvattupuzha road (SH-08) and Athirampuzha-Poonjar road (SH-32) are meeting at Pala. Pala is well connected with major centres like Kottayam, Thodupuzha, Muvattupuzha, Kanjirapally and Kochi and distance to these centers are 27km, 20km, 45km, 30km and 70km respectively. At present there is no railway linkage to Pala town.

The geographical location of the town is between 9 degree 41 minutes to 9 degree 44 minutes North latitudes and between 76 degree 39 minutes to 76 degree 42 minutes East longitudes. The location of the town is shown in Figure 2.1.

The municipality is surrounded by Karoor Grama Panchayat in the north, Bharananganam and Meenachil Grama Panchayat in the east. Karoor Grama

Panchayat shares boundary with Pala in the northern and western part while the Mutholy Grama Panchayat shares boundary with Pala in the western and southern part of the town.

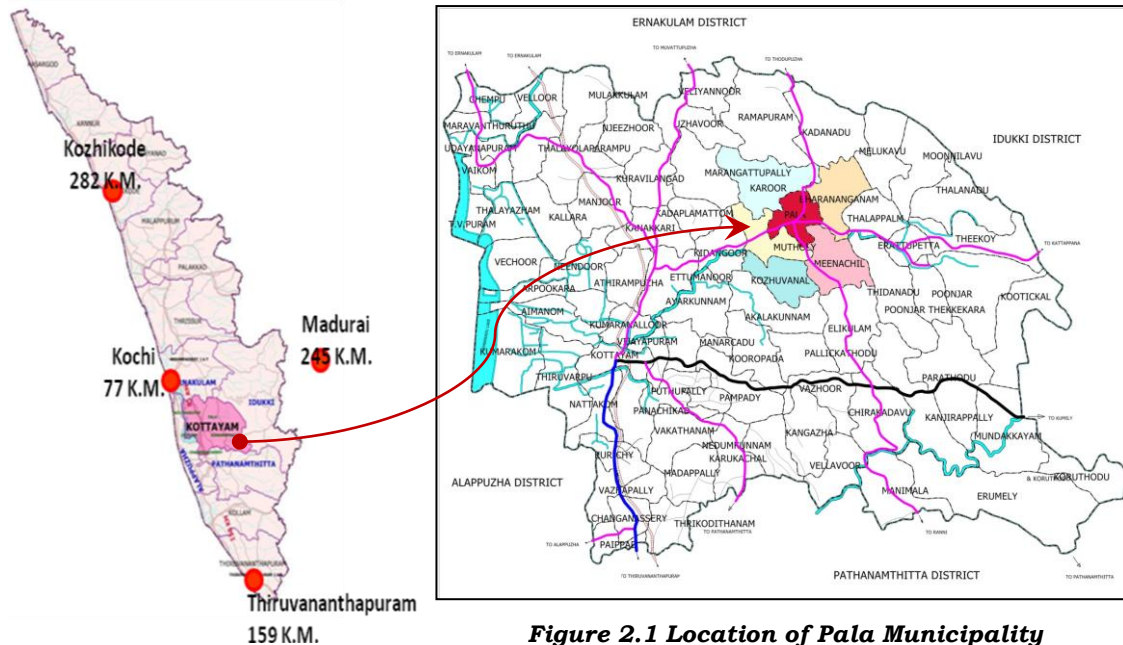


Figure 2.1 Location of Pala Municipality

2.2 HISTORY

There are different versions regarding the origin of the name 'Pala'. According to one version, the name 'Pala' was derived from **Palazhi** (Ksheera Sagara), the mythological Ocean of milk from which nectar was churned out. Another version is that the name was derived from *Palathu Chettiya*r families, the prominent early settlers of the region. The third version is that the Christian settlers from the place Palayoor near Chavakad in Thrissur district, who settled down in Meenachil on the bank of the Meenachil River, named the place as Pala a shortened form of Palayoor.

Pala was part of the erstwhile princely state of Travancore, and was ruled by the "Travancore Rajas" for a long time. Early settlements in the region date back to 1000 AD. Christian settlers came to the area very early, probably at the invitation of the local rulers. According to reliable historical sources the first four Christian families are considered to be Tharayil (Tharayil Mappila) Koottumkal (brother of Tharayil Mappila) Erakonni & Vayalakombil. They were engaged mainly in agriculture and trade. It is believed that Pala market was established around 1736 on the banks of Meenachil River by Christian settlers on the land allotted by Meenachil Karthas, who were the local rulers.

Pala had trade links with Tamil Nadu, and even countries in the Middle East. A jungle route to Gudalloor in Tamil Nadu, through the dense forests in the High Ranges, is believed to have brought a significant number of Vellalas and Chettiars during the Middle Ages. During early 1900s Pala became famous for its spice market. A particular brand of pepper called "Pala Pepper" was quoted in the London market in the early 1900s. Once rubber took a firm root in Central Kerala, Pala became a rubber market.

A road linking Athirampuzha to Erattupetta through Pala was established in 1868. Athirampuzha was one of the major markets and water way facility was available at Athirampuzha and it has improved the links. Pala was linked to Thodupuzha by road in 1893 and this has improved connectivity to the northern and eastern part of the region. Motor vehicles appeared in Pala in the early 1900s and the first bus service was started by a public company by name Meenachil Motor Association which was the 3rd registered company in Travancore.

As per the notification released by Travancore Maharaja on 1947 December 11, the village union of Pala was declared as Pala Municipality.

(Reference: Vikasana Rekha of Pala Municipality- 1995)

2.3 AREA

Pala Municipal town is spreads over part of three villages ie, Lalam, Meenachil and Puliyanloor and the total extent of the town is 16.06 sq:km. Pala municipal town falls in blocks 15 to 148 of Lalam village and blocks 149 to 182 of Meenachil village and 1 to 14 of Puliyanloor village. The extent of the portion in Lalam village is 11 Sq.Km and the extent of Meenachil village is 3.5 Sq.Km and that of Puliyanloor village is 1.56 Sq.Km.

2.4 GEOGRAPHY

Pala presents a beautiful panorama with hillocks and intermittent flat lands. The town is located on the bank of Meenachil River and Meenachil River and Lalam thode divides Pala town into 3 natural zones. Puthanpallykunnu in the North-West zone, Kavikunnu in the North-East zone and Kannadiyirumbukunnu in the South-East zone are the elevated areas in the

town. The height of the town above M.S.L is 46.00m. Generally the topography of the town is undulating and sloping towards town centre.

Meenachil River flows through a length of 4.56 km along the municipal limit in the east west direction. Lalam thodu is another water body which is flowing in the north south direction and merging with Meenachil River at the town centre. Puliannur thodu, Edappadi thodu and Moonnani thodu are the other tributaries of Meenachil River passing through Pala town.

2.5 CLIMATE AND RAIN FALL

Climate of Pala town is fairly moderate and the annual variation of the temperature is between 20°C and 32°C. More or less uniform temperature exists throughout the year. Like all other places in Kerala, Pala also experiences north east and south west monsoons.



Average rainfall varies from 1500 to 1900 mm during south west monsoons and 400 to 800 mm during north east monsoon.

2.6 SOIL CONDITION

The soil of the town mainly consists of sandy soil, gravelly soil, laterite soil, sedimentary soil and clay. Major portion of the town is covered by laterite soil. There are certain areas with rocky surface and boulders. The sub soil water table is below 10.00 m to 20.00m below ground level. The soil is porous and the wells in the areas are with high yield.

2.7 BIO-DIVERSITY

Rubber is the main crop of Pala town. Other crops like plantains, pepper, areca nut, tapioca, mango trees, jackfruits, and cashew trees are also grown here.



3. REGIONAL SETTINGS

Pala is located in central Kerala and it is one of the six urban centers in the Kottayam district. In this Chapter details of the location, linkage, planning area, influence area and characteristics of influence region are specified.

3.1 REGIONAL SETTINGS

The regional setting of a town spells out the hierarchy of settlement in the regional scenario, the activity which the town has to perform and its connectivity with different settlements. Extensive regional setting study has been carried out in connection with the preparation of Development plan for municipalities in Kottayam district. The study was documented as District Urbanization Report of Kottayam. The District Urbanisation report defines the spatial structure of the district which is arrived by integration of hierarchy of settlements, function of settlements and the connectivity between settlements.

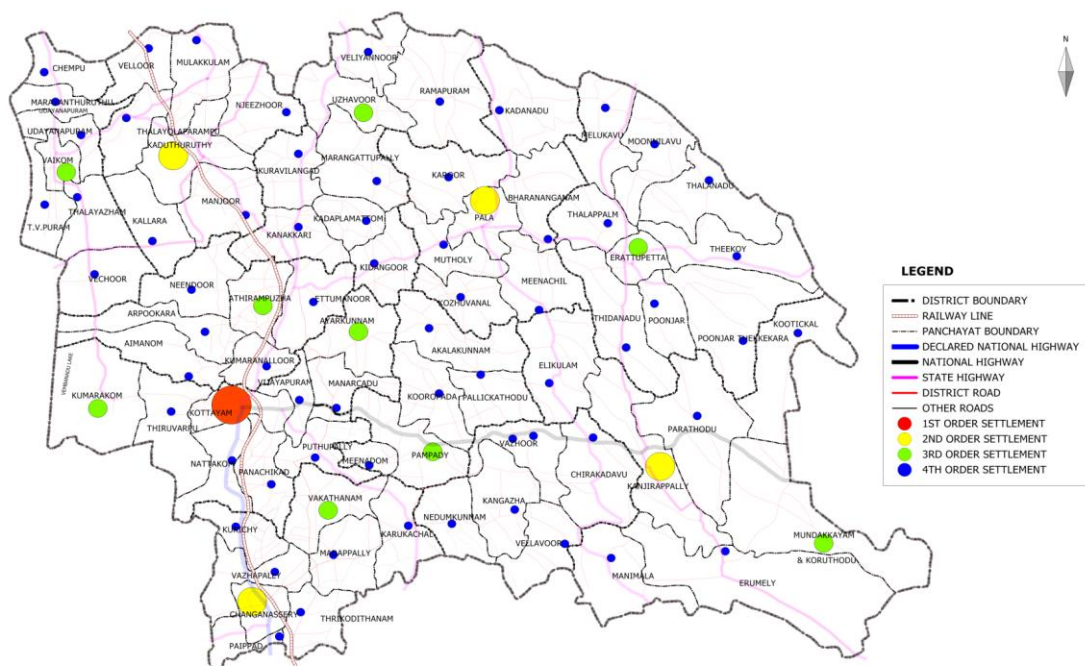


Figure 3.1 Hierarchy of settlements of Kottayam District

The hierarchy of settlements of Kottayam as revealed from regional setting study is shown in Figure 3.1. Kottayam is suggested as first order settlement of the district. Pala along with Changanassery, Vaikom, Kanjirapally and Kaduthuruthy are suggested as second order settlements of the district. The Activity pattern of Kottayam district is shown in Figure 3.2.

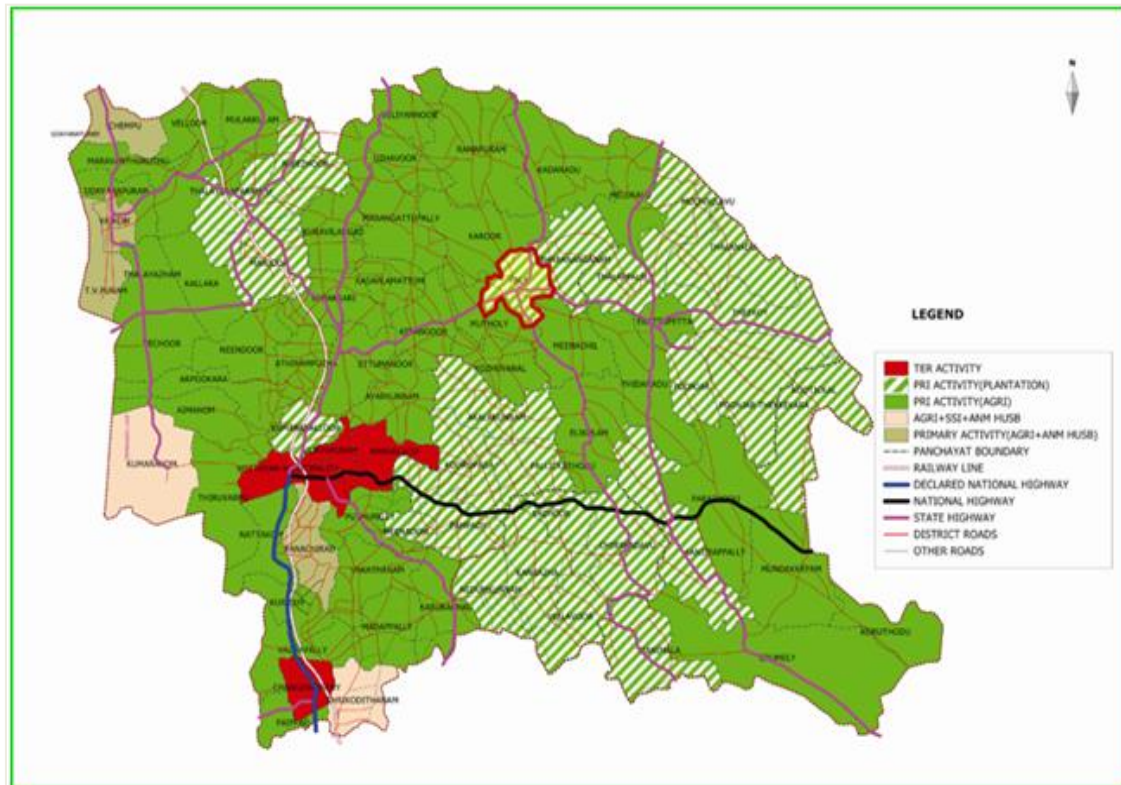


Figure 3.2 Activity Pattern of the District

In this study Tertiary activity, Primary activity (plantation), Primary activity (agriculture), combination of Agriculture SSI and Animal husbandry, Primary activity (agriculture and animal husbandry) are the activities identified for various settlements of the district. In this study primary activity (Plantation) has been identified as the activity of Pala town.

The connectivity network of Kottayam district is revealed from regional studies of the Study on urbanization of the district. In the study Punalur-Muvattupuzha Road, Ettumanoor-Erattupetta road, Pala – Uzhavoor roads are identified as the major roads passing through Pala town. The connectivity of the district is shown in Figure 3.3.

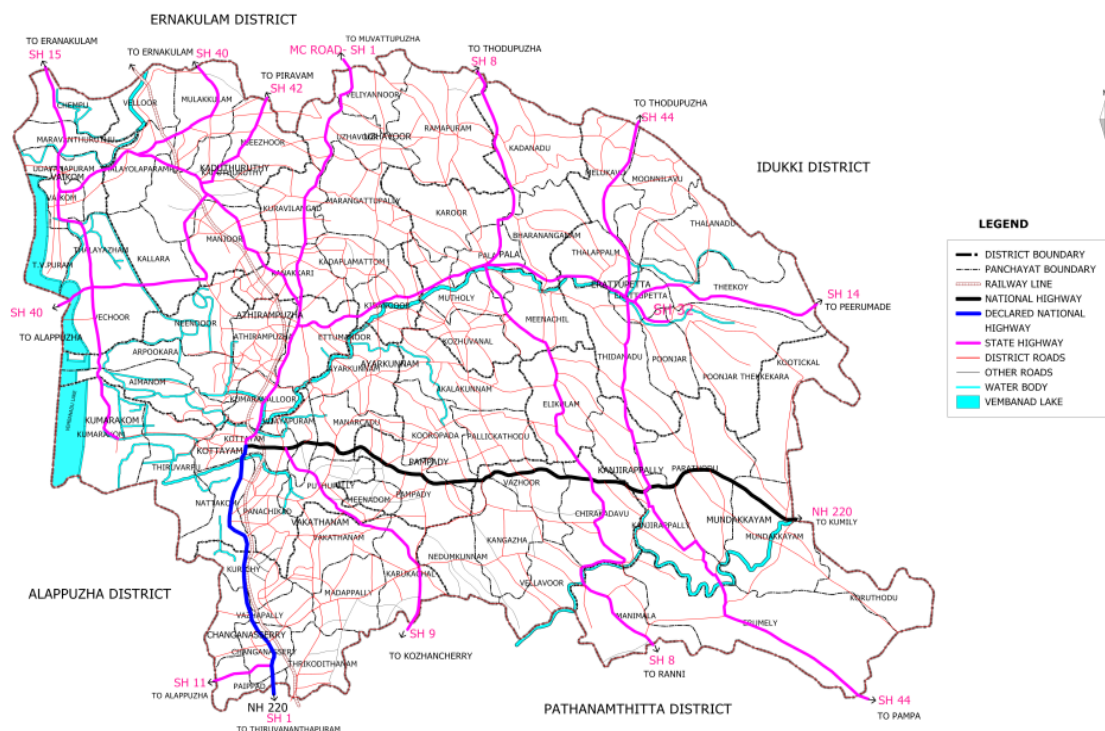


Figure 3.3 Connectivity of the District

3.2. PLANNING AREA

The Planning Area of a Development Plan for Pala strictly adheres to the administrative boundary of Pala municipality. The regional setting study of District Urbanisation Report has been considered for delineation of planning area. Planning Area has been delineated by studying the character of the Grama Panchayats lying adjacent to Pala town. Three characters viz, urban profile, functional character and land use concentration has been studied based on District Urbanisation Report. The character of four adjacent Grama Panchayaths namely Bharananganam, Meenachil, Mutholy and Karoor were studied and it is shown in Table 3.1.

Table 3.1. Character of Adjacent settlements of Pala Municipality

Settlements	Urban Profile	Functional Character	Land use concentration
Pala	Urban	Rural	Urban
Bharananganam	Non-Urban	Rural	Plantation
Meenachil	Non-Urban	Rural	Agriculture
Mutholy	Non-Urban	Rural	Agriculture
Karoor	Non-Urban	Rural	Agriculture-

Source: District Urbanization report, Kottayam district.

From the above table, it is clear that none of the adjacent Grama Panchayats is showing urban character and they are predominantly rural in nature. Even though the functional character of Pala Municipality also shows rural nature it has an urban profile (statutory urban area) and urban land use concentration. But certain wards of the neighboring Grama panchayats outside the municipal limit exhibits a continuum of physical development with the character of Pala town. But these areas being small are ignored and the planning area is taken as the administrative boundary of Pala Municipality for easy implementation of Plan proposals.

3.3 INFLUENCE AREA OF THE TOWN

Pala Municipality is centrally located to many other third order towns with very high regional connectivity linkages. This central location enhances the importance of Pala town and it acts as the major service centre of the region. This centrality effect of the town influences surrounding Grama Panchayats in many ways.

Pala is the headquarters of Pala revenue division and Meenachil taluk. Meenachil and Vaikom taluks are coming under Pala revenue division. A number of State and Central Government offices are functioning in Pala. For the administrative needs people from the entire Taluk are depending on Pala Municipality.

Pala is centrally located with respect to many of the third order towns namely Koothattukulam, Muttom, Erattupetta, Kanjirapally, Ponkunnam, Manarcadu, Ettumanoor, Kuravilangadu, Monipally etc as shown in Figure 3.4. It also proposed as a second order settlement for catering the need of North-East part of the district.



Figure 3.4 Location with respect to other neighboring centers

Once Pala market was major market in the region but gradually it loosed its importance. But still Pala has importance as a major trading and commercial centre in the region due to the presence of major shopping complexes and malls. People from entire taluk is depending Pala for their shopping needs.

Many of the major roads and rural roads from the surrounding area terminate at Pala town. Pala is the meeting point of two major highways, Athirampuzha –Poonjar Road (SH.14) and Punaloor-Muvattupuzha Road (SH.8). Pala - Ramapuram (MDR), Pala –Vaikom Road, Mutholi-Kodungoor Road has also regional importance. It is also acting as a regional transportation node as number of KSRTC and Private Buses operating to various part of the state from Pala.

The presence of many reputed educational institutions including higher education centers functioning in and around Pala town attract lot of students to Pala. Students from the surrounding areas and even from other districts, are depending Pala for higher education.

In the case of health sector the presence of Government General Hospital, Pala, is catering the needs of people of this region. A few major hospitals in private sector are also functioning in Pala town. For medical and educational purposes, people from entire taluk and even beyond depend on Pala Municipality.

Considering the above facts, the Meenachil taluk has been considered as the influence area of Pala town.

3.4 CHARACTERISTICS OF THE INFLUENCE REGION

The constituent LSGIs of the influence area are shown in Figure 3.5.

3.4.1 Population

In addition to Pala town, twenty three Grama Panchayats falls in the influence region of Pala town. The area and population details of the twenty four Local Governments (LGs) in the influence area of Pala town are shown in Table 3.2. The total area of the region is 686.25 Sq: km. Erattupetta is the smallest Grama Panchayat with an area of 7.50 Sq: km and Poonjar Thekkekara is the largest Grama Panchayat with an area of 60.86 Sq: km.

5	Kuravilangad	22.93	17355	18242	796	5.11
6	Maragattupally	37.58	17856	17989	479	0.74
7	Ramapuram	54.54	28708	29467	540	2.64
8	Uzhavoor	25.09	15338	15420	615	0.53
9	Veliyannur	19.49	11333	11686	600	3.11
10	Bharananganam	27.04	16005	16054	594	0.30
11	Kadanad	40.19	18024	18737	466	3.95
12	Karoor	36.84	20986	22026	598	4.95
13	Kozhuvanal	21.13	12550	13304	630	6.00
14	Mutholy	18.12	15267	16489	910	8.00
15	Meenachil	30.14	16054	16961	563	5.64
16	Erattupetta	7.50	21226	25103	3347	18.26
17	Thidanad	37.19	18526	19880	535	7.30
18	Thalappalam	22.73	12150	12740	560	4.85
19	Melukavu	30.49	11228	11397	374	1.50
20	Moonilavu	33.41	9187	9065	271	-1.32
21	Poonjar	24.16	11152	12260	507	9.93
22	Thalanad	32.24	7442	7337	105	-1.41
23	Teekoy	27.19	10272	10947	403	6.57
24	Poonjar Thekkakara	60.86	18486	18623	306	0.74
TOTAL		686.25	3,84,594	403584	588	4.94

Source: Census Reports

The total population of the region as per 1991 census was 3,84,594 and it has increased to 4,03,584 in 2001. Among the constituent local governments, Ramapuram Grama Panchayat has the highest population of 29,467 and Thalanad Grama Panchayat has the least population of 7337 as per 2001 census. Two Grama Panchayats ie Ramapuram and Erattupetta have more population than Pala and population of these Grama Panchayats are 29467 and 25103 respectively as per 2001 census.

While analyzing the population density of the region, it can be seen that there is large variation among the LGs. It is varying from 228 persons per sq: km in Thalanad Grama Panchayat to 3347 persons per Sq: km in Erattupetta Grama Panchayat. Average population density of the region is 588 persons per Sq:km. It is lower than the district population density of 884 person per sq: km. The population density of Erattupetta Grama Panchayat is 3347 persons per Sq: km and it is more than double the population density of Pala Town (1409persons per Sq:km). Melukavu, Moonilavu, Thalanad and Poonjar Thekkakara Grama Panchayat have comparatively low population density.

The average decadal (1991-2001) population growth rate of the region is 4.94%. It is less than the population growth rate of the district (6.86%). In the region the growth rate is high in Grama Panchayat of Erattupetta (18.26%), Poonjar (9.93%) and Mutholi (8.00%) and Pala Municipality (3.43%). The population growth rate is negative in Moonilavu (-1.32%) and Thalanad (-1.41%) Grama Panchayats and except these two Grama Panchayats the other Grama Panchayats have more or less uniform population growth rate.

The literacy rate of the influence region as per 2001 census is 85.47%, which is lower than the district rate of 95.82%. The literacy rate is in the range of 78.79% to 87.41% and the highest literacy rate is in Melukavu Grama Panchayat and the lowest literacy rate is in Erattupetta Grama Panchayat.

3.4.2 Occupational structure

The occupational structure of the influence region is analyzed in this paragraph. The total workers of the region is 1,29,098 and out of that, 1,12,563 is main workers and 16,535 is marginal workers. Out of 1,12,563 main workers of the influence region Cultivators, agriculture labours, house hold

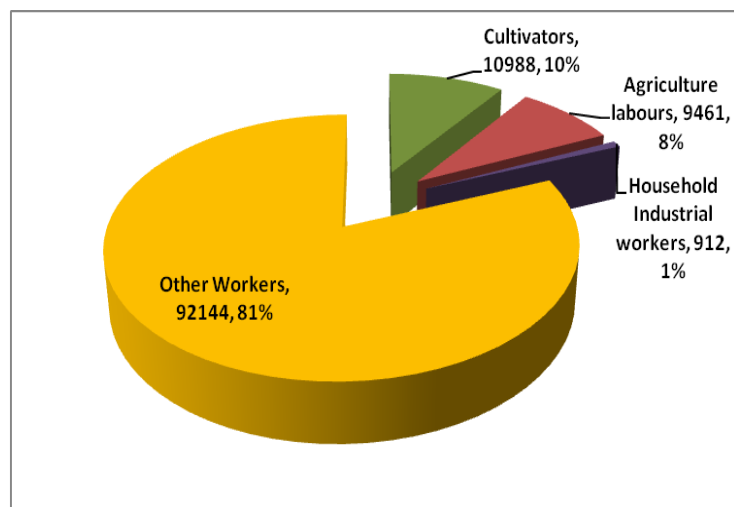


Figure 3.6 Occupational Structure of influence region

industrial workers and other workers are 10,988, 9,461, 1,912 and 92,114 respectively as per 2001 census. But in the 2001 census the plantation labours are included in the other workers category which was included in primary sector in the earlier census and number of workers engaged in plantations are high in the region. The occupational structure of the region is shown in Figure 3.6. From the above analysis based on occupational

structure it can be found that the economy of the region is characterized by primary sector activities.

3.4.3 Land use of the region

The land use of the region is another parameter taken for analysis. The source of the data for analysis of land use is SATELLITE DATA FROM IRS-P6, LISS-IV, AND MX/LISS/ PANS 2003-04 (India Satellite Data). The data form part of the Natural Resources and Environmental Data base (NREDB). The land use of the region is given in Figure 3.7

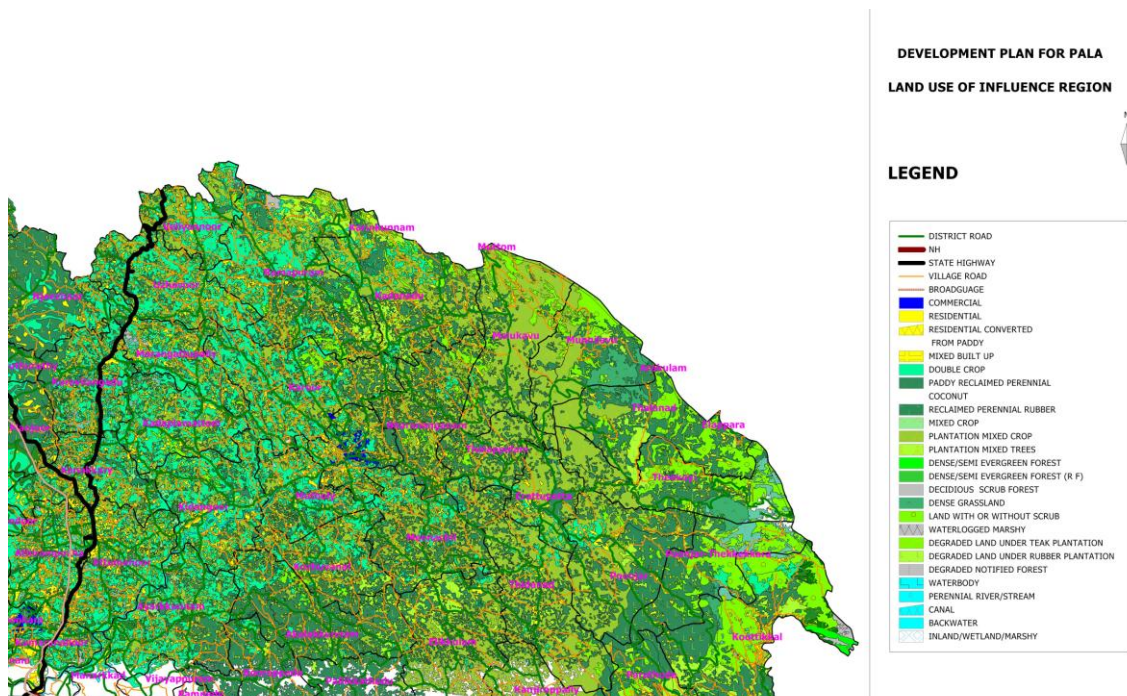


Figure 3.7 Land use of the Region

SOURCE: KERALA STATE LANDUSE BOARD.

3.4.4 Industrialization

No industrial establishments in the category of Large and Medium category are functioning in the region. The number of small scale industrial units in LSGs wise is shown in Table 3.3 and number of industrial units under different category in the region (block wise) is given in Table 3.4 Textile, building material, Engineering and Agro based industrial units are the major categories of SSI units.

Table 3.3 Number of SSI Units in the region

Sl.No	Name of the LSGs	No. of SSI units	Sl.No	Name of the LSGs	No. of SSI units
1	Pala (M)	179	13	Kozhuvanal	28
2	Kidangoor	48	14	Mutholy	53
3	Kadplamattom	19	15	Meenachil	58
4	Kanakkari	45	16	Erattupetta	143
5	Kuravilangad	88	17	Thidanad	25
6	Maragattupally	45	18	Thalappalam	38
7	Ramapuram	69	19	Melukavu	17
8	Uzhavoor	38	20	Moonilavu	6
9	Veliyannur	29	21	Poonjar	30
10	Bharananganam	33	22	Thalanad	35
11	Kadanad	54	23	Teekoy	21
12	Karoor	73	24	Poonjar Thekkekara	38

Table 3.4 Category of Industries in the Region

Sl.No	Blocks	Classification of S.S.I. Units											
		Agro based	Rubber based	Plastic based	Forest based	Animal husbandry	Textiles	Chemical	Engineering	Electronics	Mineral	Building Material	Others
1	Ettumanoor Block	361	126	84	150	0	492	70	194	3	22	107	654
2	Uzhavoor Block	227	50	24	99	0	312	37	86	7	9	32	362
3	Lalam Block	210	79	24	52	0	290	32	85	5	1	24	
	Erattupetta Block	180	37	14	62	0	368	19	47	1	2	20	207
5	Pala Municipality	61	18	5	16	0	111	14	28	2	2	8	286
Total		1039	310	151	379	0	1573	172	387	98	40	168	1533

3.4.5 Facilities

The details of facilities available in the region are shown in Table 3.5. Lower order facilities are available almost uniformly in the Planning area.

Table 3.5 Facilities available in the region

Sl.No	Name of Panchayats/ Municipalities	LP and UP	HS	HSS	Arts & Science College	BEEd College	Teachers Training Institute	Engineering College/ College of Science and Technology/Poly Technic	Banks(National/scheduled/ cooperative bank)	Seed Farm	Market -Weekly	ITC/ITI	Taluk Hospital /CHC	PHC	Veterinary Hospital	Krishi Bhavan	Fire station	Bus stand	Cinema theatre	Telephone exchange
1	PALA (Municipality)	7	0	4	2	1	1	2	12		1	1			1	1	1	3	1	1

2	KURAVILANGAD	4	1	2	1	0	0	1	5	2	1	1		1	1	1		1	1	2
3	ERATTUPETTA	5	1	3	1	1	0	1	10			0		1	1	1	1	1	2	1
4	UZHAVOOR	6	1	1	1	0	0	0	7		2	0	1		1	1		0	1	2
5	RAMAPURAM	1 9	1	2	1	0	0	0	7			0	1			1		0		1
6	KIDANGOOR	9	0	3	1	0	0	1	5			0		1	1	1		0	1	1
7	MARANGATTU PALLY	8	2	2		1	0	0	4		1	0		1	1	1		0		1
8	MEENACHIL	1 0	2	0	0	0	1	0	9			0		1	1	1		0		1
9	BHARANANGAN AM	6	1	1	0	0	0	1	4			0	1			1		0		1
10	MELUKAVU	6	3	1	1	0	0	0	6			0		1	1	1		0		1
11	KAROOR	1 3	3	0	0	0	0	0	3			0		1	1	1		0		1
12	POONJAR- THEKKEKARA	7	1	1	0	0	0	0	3		1	0		1		1		0		3
13	KADANAD	7	3	1	0	0	0	0	4			0		1	1	1		0		2
14	MUTHOLY	7	2	0	0	0	1	0	3			0		1		1		0		1
15	POONJAR	5	1	1	0	0	0	1	1			0		1		1		0	1	1
16	THIDANAD	6	1	1	0	0	0	0	7			0		1		1		0		1
17	THEEKOY	3	1	1	0	0	0	0	2			0		1	1	1		0		2
18	MOONNILAVU	8	1	0	0	0	0	0	1			0		1		1		0		1
19	KADAPLAMATT OM	5	1	1	0	0	0	0	3			0		1		1		0		
20	KANAKKARY	7	0	2	0	0	0	0	1			0		1		1		0		
21	THALAPPALAM	6	0	1	0	0	0	0	2			0		1		1		0		
22	THALANAD	4	2	0	0	0	0	0	1			0		1		1		0		
23	KOZHUVANAL	5	1	1	0	0	0	1	5			0		1	3	1		0		1
24	VELIYANNOOR	5	0	2	0	0	0	0	2			0		1		1		0		1

3.4.6 Resources

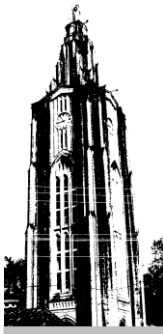
The resources mainly available in the region are the Agro based products especially cash crops. Granite is the major mineral available in the region.

3.5 TRANSPORT LINKAGES

Pala is connected to almost all the Grama Panchayats of the influence region by State Highways / Major District roads. In addition to this the neighboring areas are well connected to Pala by other minor roads also. A good public transport system is available connecting Pala with these settlements.

3.6 CONCLUSIOIN

In the regional context of the district, Pala is proposed as a second order settlement as per District urbanization Report, Kottayam. In the district level analysis Primary agriculture (Plantation) is identified as the activitiy of the town. Five major roads included in the regional road network passes through Pala. The economy of the region is agriculture oriented and primary sector activity is the character of the region. The agro based products are the major resource of the region and the level of industrialization is very low. Grama Panchayats in the region are more or less equally developed as far as the lower order facilities are concerned. The role of Erattupetta in the region needs special mention. Pala has very good transportation linkage with the settlements in the influence region. For higher order functions people are depending more on Kottayam town.



4. DEMOGRAPHY

The population and demographical characteristics of Pala Town like population size, population growth rate, temporal variations, population density, concentration pattern, age-sex pyramid, sex ratio, literacy rate etc are discussed in this chapter.

4.1 INTRODUCTION

The population parameter serves as the basis of all planning process. The estimation of future population is needed for the assessment of various needs and distribution of activities in the available land. This chapter explains the population and demographical characteristics of Pala town. Comparative study is also made with Kottayam district, Kerala state, similler towns and other local self-Government institutions etc. The study is based on the census reports.

4.2 POPULATION SIZE

Population of Kerala as per 2011 census is 3,33,87,677 and that of Kottayam district is 19,79,384. Kottayam district with 5.68% of total geographical area of the state accomodate 5.93% of total population of the state. Pala has least population size among the four urban centers of the district after Kottayam Changanassery and Vaikom.

The population of Pala town as per 2011 census is 22056. It was 17053 as per 1961 census and there after showing an increasing trend up to 2001 and reached the figure of 22640 in 2001. The population size of the town then reduced to

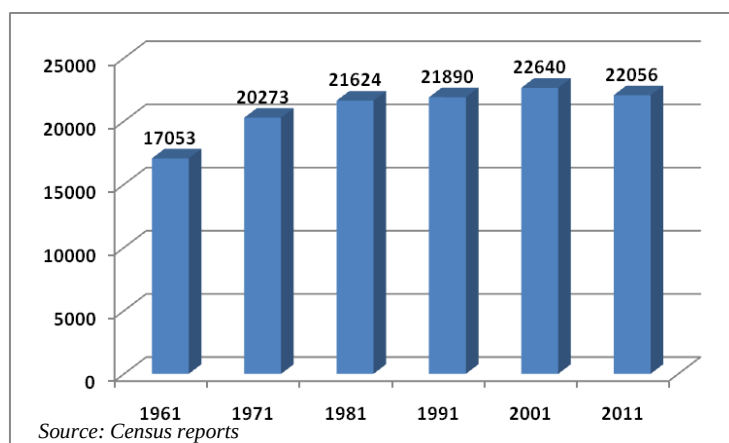


Figure 4.1 Population size from 1961

22056 in the 2011 census. The population size of the town since 1961 is shown in Table 4.1. It is also represented in Figure 4.1

Table 4.1 Population size of Pala town

Year	1961	1971	1981	1991	2001	2011
Population	17053	20273	21624	21890	22640	22056

Source: Census Reports

Pala shares 1.11 % of District Population as per 2011 census. When comparing the population size of Pala with other three Municipal towns of Kottayam district, Pala is in the fourth position. As per 2011 census the four

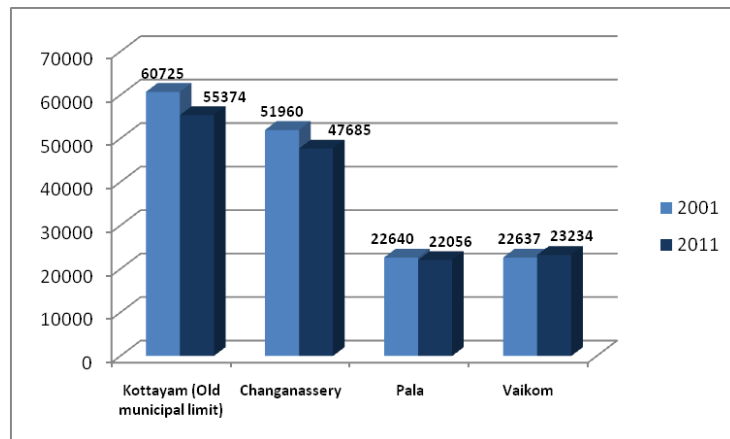


Figure 4.2 Population size of municipalities

Municipalities in the district, ie. Kottayam (old municipal limit), Changanassery, Vaikom and Pala have population size of 55374, 47685, 23234 and 22056 respectively. Among the four urban centers only Vaikom Municipality recorded an increase in population size during the period 2001-2011 and it is represented in Figure 4.2

4.3 POPULATION GROWTH RATE

The decennial population growth rate of Pala town from 1961-71 to 2001-2011 is shown in Figure 4.3. The growth rate of Pala during 1961-71 was 18.8 % and then it reduced to 6.7 % during 1971-81 and further reduced to 1.18 % during

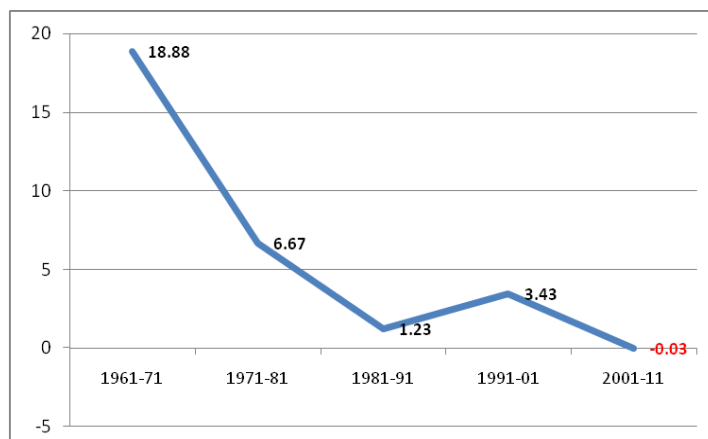


Figure 4.3 Decadal Population Growth Rate

1981-91. There after the growth rate has slightly increased to 3.4% during the period 1991-2001. But during the period 2001-2011 the growth rate of the town is decreased and even recorded a negative growth rate.

Comparison of population growth rate of Pala town with that of Kottayam district, State (total) and state (urban) is shown in Table 4.2 and it indicates that growth rate of Pala is lesser than the district growth rate and state urban growth rate and it even reached negative growth rate. The family size of the town of the town is also showing a decreasing steady trend and it is 6.29, 5.49, 4.95 and 4.18 respectively during the year 1981, 1991, 2001 and 2011.

Table 4.2 Population Growth rate Comparison

	1971-81	1981-91	1991-2001	2001-11
Pala Town	6.67	1.23	3.43	-0.03
Kottayam District	10.29	9.45	5.45	1.32
Kerala State	26.29	19.24	14.32	4.86
Kerala State(urban)	35.72	37.64	60.92	83.80

Table 4.3 and Figure 4.4 gives the comparison of population growth rate of Pala town with other three towns of the district, Kottayam, Changanassery and Vaikom towns.

Table 4.3. Population growth rate Comparison with other towns in the district.

Town	Growth Rate (in %)			
	1971-81	1981-91	1991-01	2001-11
Kottayam (Old Municipal limit)	7.89	-1.98	-3.84	-8.82
Changanassery	7.02	0.94	-0.91	-0.08
Vaikom	5.41	3.28	3.91	2.64
Pala	6.7	1.18	3.42	-0.03

During the decade 1971-81, the population growth rate of Kottayam and Changanassery were greater than the growth rate of Pala. The growth rate of population of these towns were reduced during the

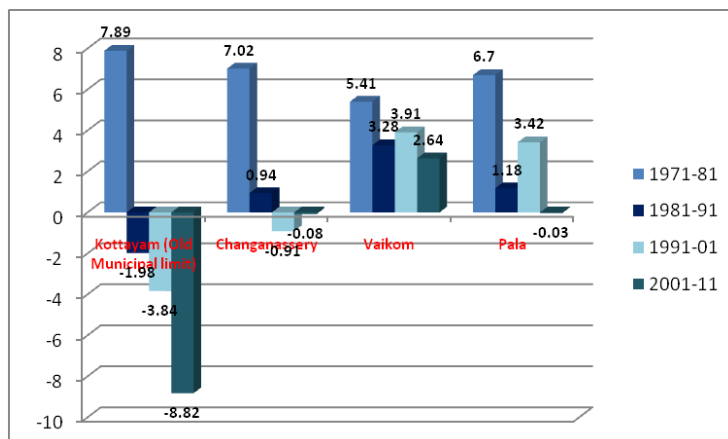


Figure 4.4 Comparison of Population growth rate

period 1981-91. The population growth rate of Pala is lower than that of Kottayam and Vaikom and greater than that of Changanassery town in this period of time. During the period 1991-01, the population growth rate of Pala is greater than Kottayam but lesser than Vaikom. During the period 2001-2011 all towns except Vaikom show negative growth rate.

It shows that all urban centers of the district are showing a decreasing trend in decennial population growth rate and recording even negative population growth rate. But most of the adjacent Grama Panchayats shows high growth rate.

The population growth rate of the period 1991-2001 of the Grama Panchayats in the immediate surroundings is shown in Figure 4.5. Three Grama Panchayats, Mutholi, Karoor and Meenachil recorded more population

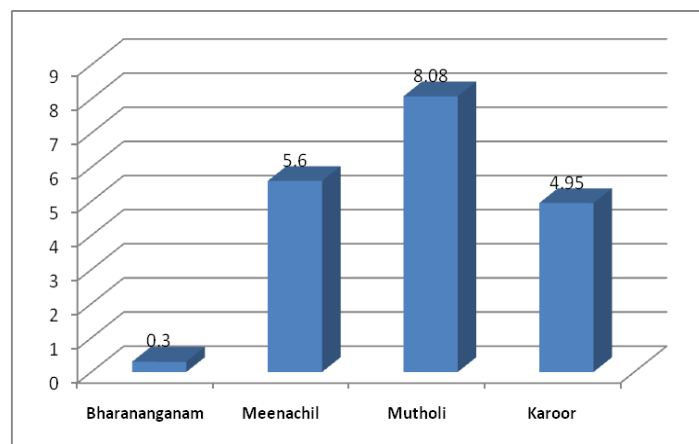


Figure.4.5 Comparison of population growth rate

growth rate than Pala and the growth rate of Bharananganam is lower than that of Pala town. This may be because of the land value or the convenience of captivating the urban facilities by residing in rural areas due to the presence of good connectivity.

4.4 POPULATION DENSITY

Population density of Kerala is 819person/sq.km and that of Kottayam district is 885 person/ sq.km. Kottayam has eighth rank among the districts of the state as per density of population of both in 1991 and 2001 census concerned.

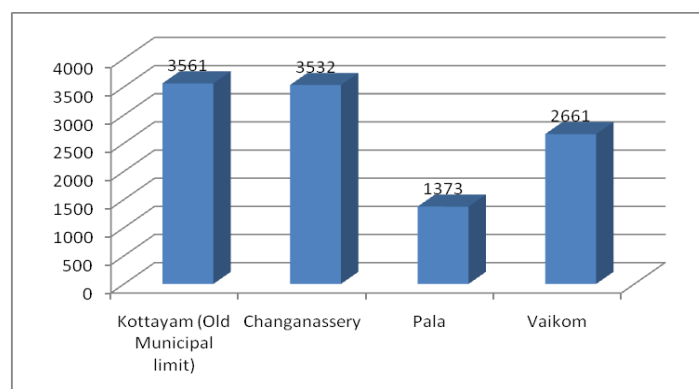


Figure.4.6 Comparison of density of population with other urban centers

The population density of Pala town as per 2011 census is 1373 persons/sq.km. It is lower than the population density of other three towns in the district, viz Vaikom and Changanassery and Kottayam (old municipal limit) which have density of 2661 persons / Sq. Km and 3532 persons/Sq.Km and 3561 persons /Sq:km respectively. The details are furnished in Figure 4.6.

In the district scenario also, the population density of Pala is not high. While comparing with the density of surrounding Mutholy, Bharananganam,

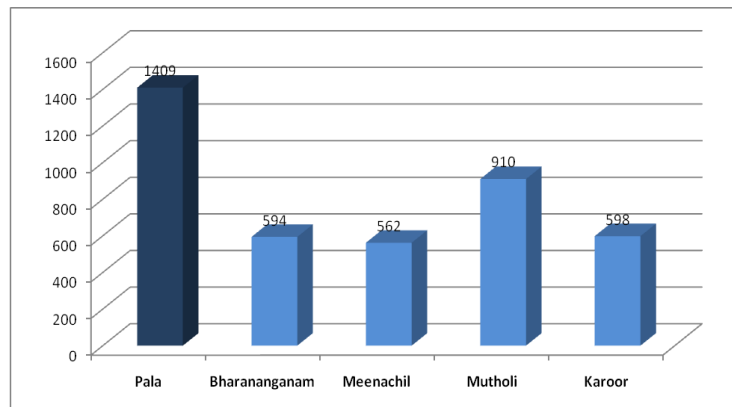


Figure 4.7 Comparison of density of population (2001) with surrounding Grama Panchayats

Meenachil and Karoor Grama Panchayats and it

is seen that population density of these panchayats are lesser than that of Pala. It is shown in Figure 4.7.

4.5 WARD WISE POPULATION DENSITY

4.5.1 Gross Population Density

The variation in density of population among different wards of the town is shown in Table 4.4. It is seen that the density of Population of the town (2011) is 1373 persons per Sq:km and in wards (2011) it varies from 698 to 4645 persons per Sq Km. The low density indicates the availability of large pack of agriculture land mainly rubber plantation where residential buildings are very less. Low density wards are mainly located in the outer areas whereas core areas are seemed to be more densed. Palampuraidam is highly densed ward in Pala Municipality. The presence of agriculture land is very less in this area.

Table 4.4 Ward wise Gross Population Density

Ward no.	Name of ward	Area	Population	Gross density (Persons/Sq:km)
1	Paramalakunnu	54.51	1003	1840
2	Mundupalam	66.79	872	1306
3	Market	49.69	664	1336

4	Plathanam	55.19	766	1388
5	Kanattupara	112.46	923	821
6	Pulimalakunnu	89.22	780	874
7	Kaveekunnu	126.50	883	698
8	Kochidappadi	70.07	924	1319
9	Munnani	56.45	859	1522
10	Monastery	43.19	1009	2336
11	Chethimattom	35.69	871	2440
12	Keezhthadiyoor	88.89	819	921
13	Murikkumpuzha	27.45	710	2586
14	Parippilkkunnu	41.11	676	1645
15	Palampuraidam	18.19	845	4645
16	Kannadiurumbu	95.51	819	857
17	12th mile	97.70	702	719
18	Mukkalikunnu	27.45	834	3038
19	Pala	42.39	795	1875
20	Lalam	65.72	1209	1840
21	Vellapadu	33.84	932	2754
22	Arunapuram	47.05	948	2015
23	College Ward	87.15	916	1051
24	Kottaramattom	41.11	844	2053
25	Nelliyani	55.24	693	1255
26	Puthanpallikunnu	77.55	761	981
Total		1606.11	22056	1373

The pictorial representation of Ward wise population density is shown in Figure 4.8. It shows the spatial distribution of wards with different ranges of population densities. Northern and southern boundaries of Pala town show less density indicating the merging of the rural character with the neighboring Panchayat.

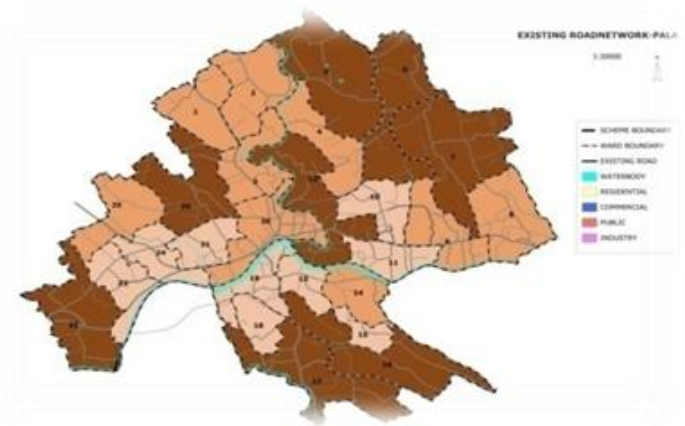


Figure 4.8 Ward wise Population density

4.5.1 Net Population Density

The net population density of the planning area is shown in Figure 4.9. The net population density is high in Parumalakunnu with 7891 persons per sq:km followed by Plathanam ward with 6535 persons per sq:km. Palampurayidam (5221 persons per sq:km) and Kottaramattam (5159 persons per sq:km) are the other wards with high net density. The lower net population density recorded in Kannadiyirambu and 12th Mile wards, where the net population density are 1790 and 1669 persons per sq.km respectively. The ward wise net density is shown in Table 4.5.

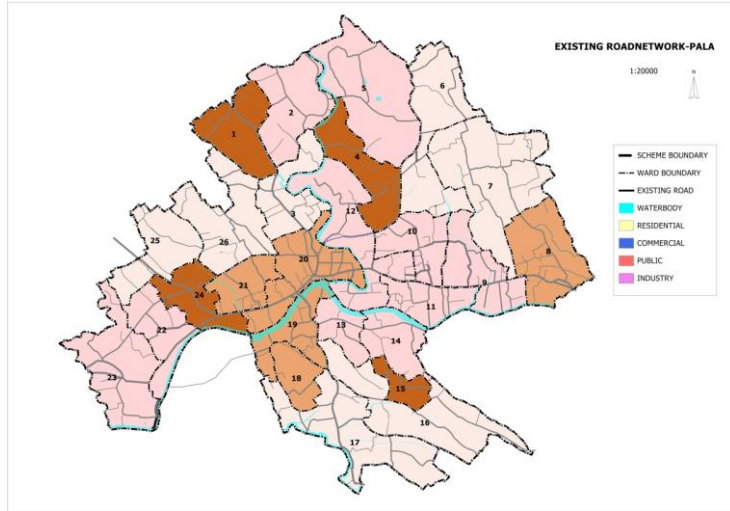


Figure 4.9 Net population density

Table 4.5 Ward wise Net density of population

Ward no.	Ward	Residential area	Population	Net density (Persons/Sq:km)
1	Paramalakunnu	12.71	1003	7891
2	Mundupalam	26.08	872	3344
3	Market	23.82	664	2788
4	Plathanam	11.72	766	6535
5	Kanattupara	28.68	923	3218
6	Pulimalakunnu	35.79	780	2179
7	Kaveekunnu	38.99	883	2264
8	Kochidappadi	19.93	924	4636
9	Munnani	26.67	859	3221
10	Monastery	25.93	1009	3892
11	Chethimattom	22.58	871	3858
12	Keezhthadiyoor	25.65	819	3194
13	Murikkumpuzha	18.81	710	3774
14	Parippilkkunnu	17.18	676	3935

15	Palampuraidam	16.19	845	5221
16	Kannadiurumbu	45.75	819	1790
17	12th mile	42.07	702	1669
18	Mukkalikunnu	18.81	834	4433
19	Pala	17.97	795	4425
20	Lalam	24.28	1209	4978
21	Vellapadu	18.68	932	4991
22	Arunapuram	24.68	948	3840
23	College Ward	26.88	916	3408
24	Kottaramattom	16.36	844	5159
25	Nelliyani	24.86	693	2788
26	Puthanpallikunnu	27.74	761	2744
Total		638.81	22057	3453

4.6 POPULATION CONCENTRATION PATTERN

The population concentration pattern of the town is derived by arriving the cumulative population after arranging the wards in the descending order of density. The population concentration pattern of Pala town (2001) is shown in Figure 4.10. It shows that 1/3 population of the town is concentrated in 9 wards, with an area of 3.16 sq. Km. which

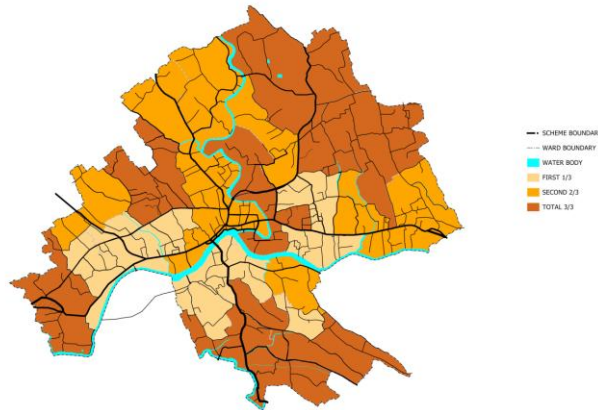


Figure 4.10 Population concentration Pattern

comprising 19.69% of total town area. 1/3 population of the town is concentrated in Munnani, Monastery, Murikkumpuzha, Palampuraidam, Lalam, Vellapadu, Arunapuram, Mukkalikunnu, Chettimattom and Kottaramattom. The 2/3 of population of the town is concentrated in 19 wards with total area of 8.31 sq. km. 51.74% of total town area.

4.7 AGE – SEX PYRAMID

There are different ways to present population data. The most important demographic characteristic of a population is its age-sex structure and the use of an age-sex pyramid, also known as a population pyramid, is considered the best way to graphically illustrate the age and sex distribution of a given population.

An age-sex pyramid consists of two horizontal histograms joined together. It displays the percentage or actual amount of a population broken down by gender and age. The five-year age increments on the y-axis allow the pyramid to reflect the long-term trends in the birth and death rates.

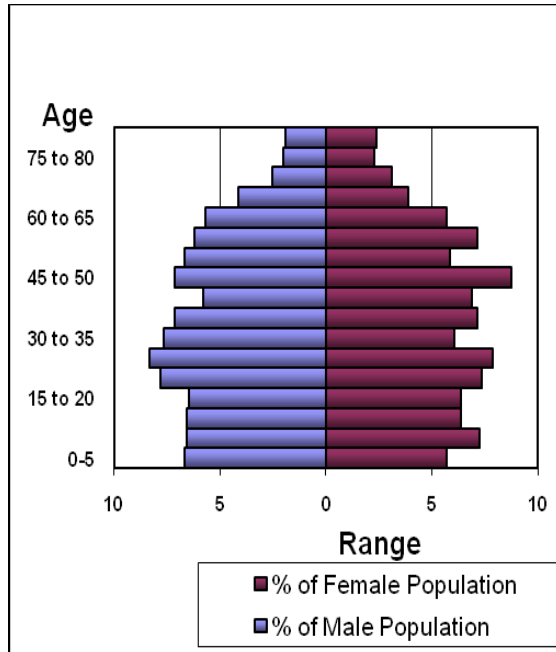


Figure 4.11 Age –sex pyramid of Pala Municipality

The Age –sex pyramid of Pala Town was derived from the Socio-Economic survey (2012) data and percentage of male and female population in different age group is shown in Table 4.6 and in Figure 4.11

Table 4.6 Age –Sex Pyramid % male female population in different ranges

Age range	% of Male Population	% of Female Population	Age range	% of Male Population	% of Female Population
00 to 05	6.67	5.67	45 to 50	7.16	8.75
05 to 10	6.58	7.26	50 to 55	6.67	5.86
10 to 15	6.58	6.36	55 to 60	6.19	7.16
15 to 20	6.48	6.36	60 to 65	5.71	5.67
20 to 25	7.83	7.36	65 to 70	4.16	3.88
25 to 30	8.32	7.85	70 to 75	2.51	3.08
30 to 35	7.64	6.06	75 to 80	2.03	2.29
35 to 40	7.16	7.16	> 80	1.93	2.39
40 to 45	5.80	6.86			

The narrowing down of the base of the pyramid shows that there is decrease in the birth rate. The number of male female varies in different age group. In eight age groups male out number female and in the remaining 9 age groups female out number male. It is a regressive pyramid like that of a developed country, where there are fewer children and more old people and the population is likely to decrease in future. The bulges of the pyramid in the age group of 15 to 40 show the high growth of population during 1970-1995. Age – sex pyramid of Pala town shows that the highest percentage of male and female is seen in the age group of 20 to 25. Lowest percentage is seen in the age group above 75 years. In the case of child population, the age group below 5 years male domination is seen but female domination is seen in the age group between 5 to 15 years.

4.8 SEX RATIO

The total male and female population of Pala as per 2011 census is 10768 and 11288 respectively and the sex ratio of the town is 1048. The variation in sex ratio of the town from 1971 and comparison with the district figures is shown in Table 4.7. It shows that, the sex ratio of the town has gradually increased from 970 to 1048 in 2011 and the sex ratio of the town is generally higher than the district.

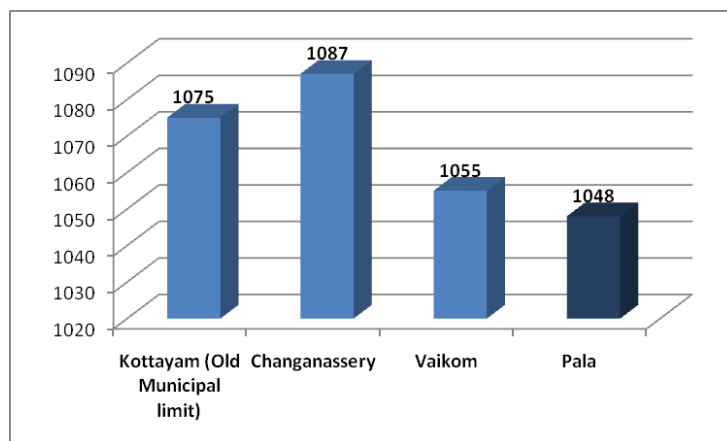


Fig.4.12 Comparison of Sex Ratio with other urban centres

Table 4.7 Sex Ratio – Comparison with District figures

	1971	1981	1991	2001	2011
Kottayam District	996	1001	1006	1025	1040
Pala Town	970	1016	1013	1061	1048

The sex ratio of the district and state (2011) are 1040 and 1084 respectively and the sex ratio of Pala is in between these figures. While comparing with other three towns in the district, as shown in Figure 4.12 Pala is in the last position as far as sex ratio is concerned.

4.9 LITERACY RATE

Literacy rate of Pala town as per 2011 census is 97.63%, with male literacy rate of 97.97% and female literacy rate of 97.32%. It is an indication of high level social standard. Table 4.8 gives a comparison of literacy rate of Pala town with corresponding values of state, district and other three Municipalities of the district. Among the four municipalities in the district, Pala stands in the second place after Kottayam.

Table 4.8 Comparison of Literacy rates (2011)

	Literacy rate (in percentage)
Kerala state	94.00
Kottayam district	97.20
Kottayam Municipality	97.69
Pala Municipality	97.63
Vaikom Municipality	96.84
Changanassery Municipality	97.19

4.10 HOUSEHOLD SIZE

The household size of Pala town as per the 1991 census is 5.49. The corresponding figure for the district is 5.05. The number of occupied households and household size from 1991 is given in Table 4.9. It shows that the household size, which was 5.49 in 1991, has been reduced to 4.95 in 2001 and reduced further to 4.18 in 2011. It shows the success of family planning programme and decrease in the size of family.

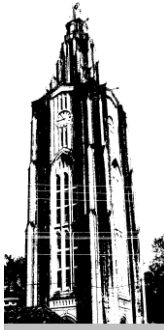
Table 4.9 Variation in household size

	1991	2001	2011
No. of households	3982	4578	5280
Household size	5.49	4.95	4.18

4.11 CONCLUSION

Among the four towns of the district, all towns except Vaikom recorded negative growth rate during the decade 2001-2011. The growth rate of population of surrounding Grama Panchayats during 1991-2001 is comparatively high, except in Bharananganam Grama Panchayat. The density of population of Pala is the lowest when compared with other towns in the district but higher than the neighbouring Grama Panchayats. The population density of different wards in the town is varying from 815 to 2598. Highest population density is seen in Palampuraidam ward. The age sex pyramid of the town shows the availability youth is more than old people and children which will help in the progress of the town. The sex ratio of Pala is higher than state and district figures. Among the urban areas in Kottayam district, Pala town holds least population and population density is also comparatively low and so it has the capacity to hold more population.

5. OCCUPATIONAL STRUCTURE



This chapter reveals the existing pattern of occupational structure of Pala Town. The percentage of workers in different categories of workers, the work participation of Pala Town and its comparison with other local bodies based on census report is made in this chapter. Occupational structure based on Socio-economic survey is also analysed in this chapter

5.1 INTRODUCTION

Economic growth is related to a quantitative sustained increase in the country's per capita output or income accompanied by expansion in its labour force, consumption and volume of trade. Economic development is related to qualitative changes in economic wants, goods, incentives and institutions. In this chapter the existing economic base of the town based on the occupational structure is studied. Work participation rate and its temporal variation, the occupational structure and the change that has happened over the decades.

5.2 WORK FORCE OF THE TOWN

The work force of a place is usually indicated by work participation rate (WPR) which is the ratio of total workers (main and marginal) to the population of the place and it is generally expressed as percentage.

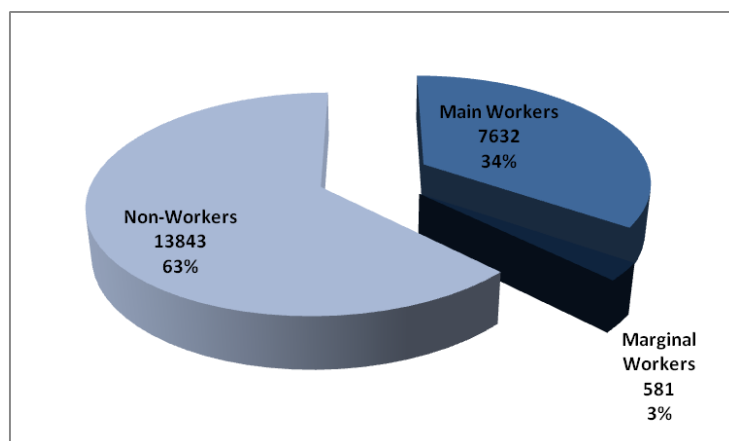


Fig 5.1 Main, Marginal and non workers of Pala town in 2011

As per 2011 census the work participation rate

of Pala Town is 37.23 %. It means, out of total population of 22056 persons, 8213 people is workers (total workers including main and marginal workers). Out of 8213 total workers, 5813 workers are male workers and the remaining

2400 workers are female workers. The total workers are further divided into main workers and marginal workers. The total number of main workers of the town is 7632, which constitute 34.60 % of total population and total number of marginal workers of the town is 581, which constitute 2.63 % of total population and the remaining 13843 persons are non-workers which is 62.767% of total population. It is shown in Figure 5.1.

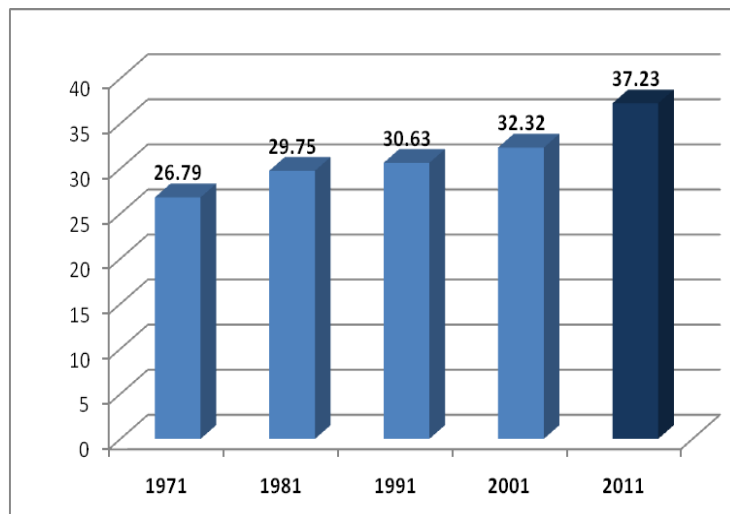


Figure 5.2 Temporal Variation of WPR in Pala Municipality

The temporal variation of work participation rate of Pala is shown in Table 5.1 and Figure 5.2. The number of total workers and work participation rate of Pala is steadily increasing from 1971 to 2011

Table 5.1 Temporal variation in Work Participation Rate

Year	1971	1981	1991	2001	2011
Population	20273	21624	21890	22640	22056
Total workers	5233	6432	6918	7318	8213
Work participation rate	26.79	29.75	31.62	32.32	37.23

Source: Census 1971, 1981, 1991, 2001 and 2011

The growth rate of population and the growth rate of workers from 1971-81 are shown in Table 5.2 and Figure 5.3. Even though the number of workers is increasing over the years, there is no correlation between the

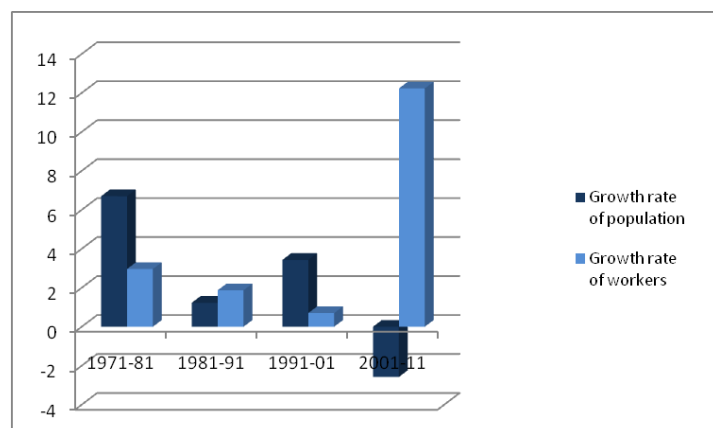


Figure 5.3 Comparison of Growth Rate of Population and Workers

growth rate of workers and the growth rate of population. During 1981- 1991, 2001-12 period the growth rate of workers is more than the growth rate of population. It is interesting to note that there is considerable increase in the number of workers, even though the population is reduced during the period 2001-2011. It indicates the enhancement of the economic base of the town and creation of new opportunities.

Table 5.2 Comparison of Growth Rate of Population and Workers

	1971-81	1981-91	1991-01	2001-11
Growth rate of population	6.70%	1.23%	3.43%	(-) 2.58
Growth rate of workers	2.96%	1.87%	0.70%	12.23

Source: Census 1961, 1971, 1981, 1991, 2001 and 2011

Comparison of work participation rate of Pala is made with corresponding figures of other urban centers of the district (as per 2011 census) and surrounding Grama Panchayats (as per 2001 census).

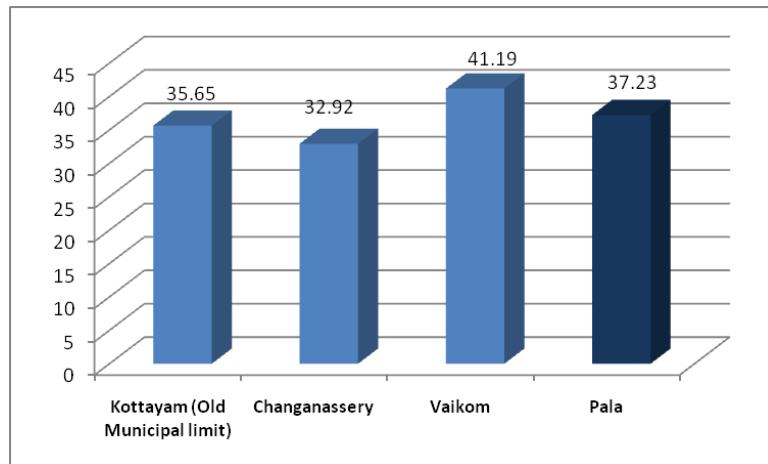


Figure 5.4 Work Force Participation Rate – a comparison

The work participation rate of Pala is higher than Kottayam and Changanassery municipalities but lower than Vaikom municipality. The comparison is shown in Figure 5.4.

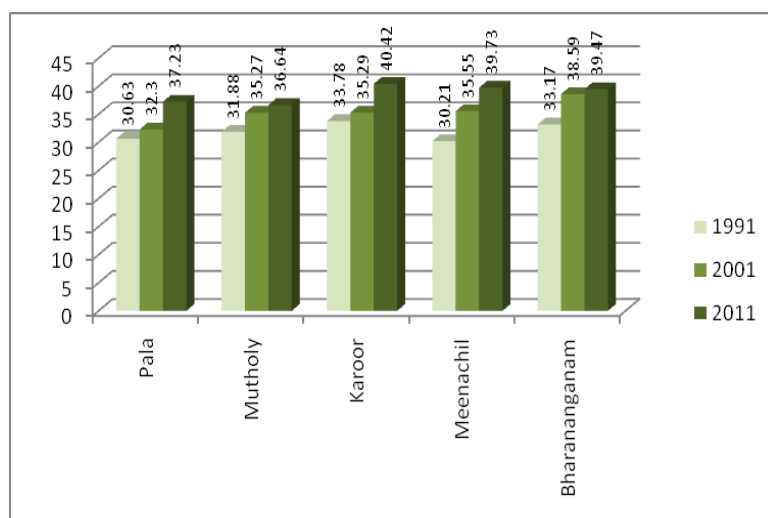


Figure 5.5 Work Force Participation Rate – a comparison with adjacent local bodies

Comparison of work participation rate of

Pala with surrounding Grama Panchayats (as per 2001 census) is shown in Figure 5.5 and it shows that work participation rate of all surrounding Grama panchayats are higher than that of Municipal area. Comparing 1991 and 2001 WFPR it is seen that all LSGIs WFPR is showing an increase during the decade.

5.3 OCCUPATIONAL STRUCTURE

In the 2011 census, the main workers are classified into four categories viz. Cultivators, Agricultural labourers, Household industrial workers and other workers. The Other workers category includes the primary sector workers like fishermen and workers engaged in mining and plantation work. Occupational structure of Pala (2001) is shown in Figure 5.6. In the town, 92.49 % of workers belong to other workers category, 2.96% of workers are Agricultural labours, 2.95 % of workers are cultivators, and 1.59% Household industrial workers.

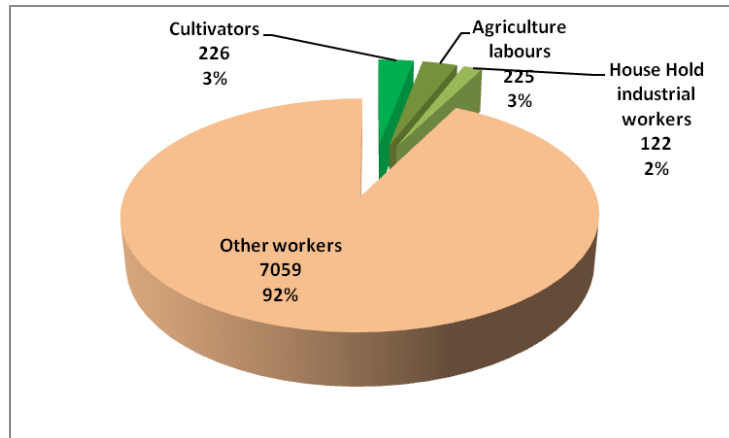


Figure 5.6 Occupational structure of Pala 2001

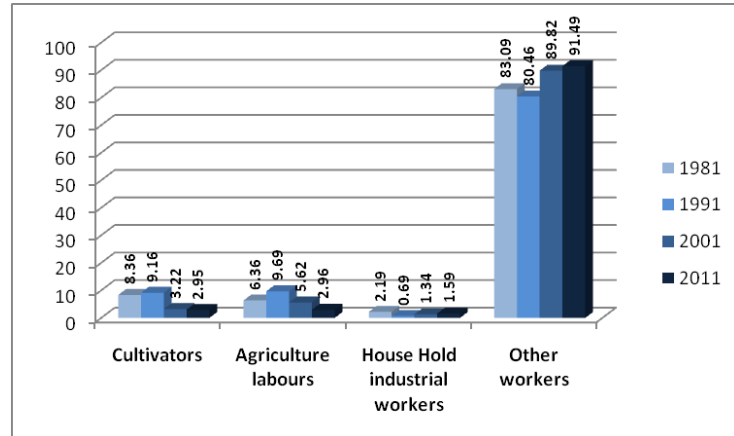


Figure 5.7 Occupational structure of Pala - Temporal Variation

The temporal variation of occupational structure of Pala is shown in Table 5.3. The same is also represented in the Figure 5.7. It shows that number of labours engaged in primary sector (cultivators and agriculture labours) is showing a decreasing trend over the years and there is corresponding increase

in other workers category. The number of household industrial workers is remaining more or less constant.

Table 5.3 Occupational Structure of Pala - Temporal variation

Year	Cultivators	Agriculture laborers	Household industrial workers	Other workers
1981	541	411	142	5375
1991	614	650	46	5395
2001	236	411	98	6573
2011	226	225	122	7059

Source: Census 1981, 1991, 2001 and 2011

More detailed composition of workers is available from the socio-economic survey 2012 and it is given in Table 5.4 and Figure 5.8. The survey reveals that, 25.78% of workers are Government employee and 8.46% of workers are working outside the country. Workers engaged in agriculture and animal husbandry sector constitute 11.37% of workers.

Table 5.4 Composition of Workers- 2012

Category	Percentage	Category	Percentage
Govt Employee, teachers, pensioners	25.78	Hotel Workers	3.17
Agriculture and AH	11.37	Driver	10.32
Working in abroad	8.46	Traders	2.11
Daily wages workers	6.51	Plantation Workers	0.19
Construction Workers	2.81	Professionals	5.55
House hold industrial worker	0.35	Nursing	3.35
Venders	1.4	Shops and Establishments	6.9
Business	11.74		

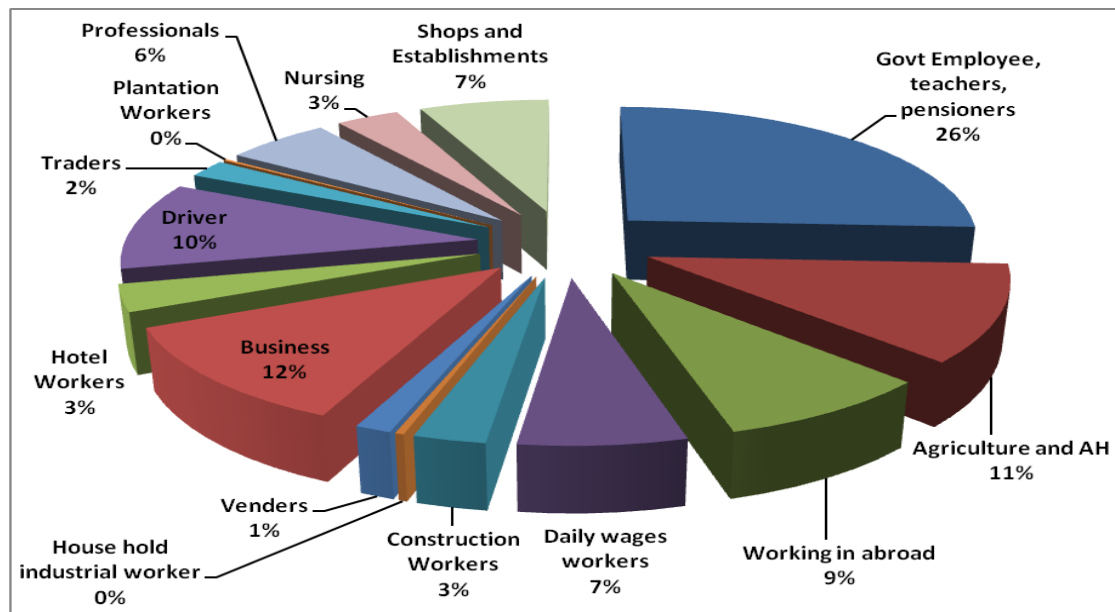


Figure 5.8 Composition of workers as per Socio-Economic survey 2012

5.4 CONCLUSION

The work participation rate of Pala town is almost same as that of the district and other urban centers of the district and less than that of surrounding grama panchayats. The work participation growth rate is also declining over the decade. The growth rate of work participation rate is less than population growth rate. The occupational structure shows that majority of workers belong to the other workers category. There is gradual reduction in the number of workers engaged in agriculture and related activity and there is corresponding increase in other workers category. The analysis shows that production sector and agriculture sector shows a declining trend and during the period 1991- 2001 the industrial sector shows an increasing trend.

6. LAND USE



The existing land use pattern of Pala Town is discussing in this chapter. Comparison of land use with similler towns, temporal variation of land use, the land use concentration pattern etc included in this chapter. The activity pattern based on land use, functional character of the town has also identified and the town centre and central area of the town has also delineated.

6.1 INTRODUCTION

The structure of any city is best understood through the study of the extent and distribution of various existing land uses. The land use of an area is indicated by the predominant activity of that area, be it agriculture, residential, commercial, public and semi-public, transportation, park and open spaces, industrial etc. Hence the analysis of existing land use is inevitable to understand the predominant economic activity of the area and to assess the availability of suitable land for the future urban development activities of the town. From this it is possible to draw the future requirement of land for various uses in the town as per the sectoral analysis. The Department of Town and Country Planning conducted detailed land use survey in the year 2012, as part of preparation of Development Plan for Pala.

6.2 GROWTH OF THE TOWN

The exact year of origin of Pala town is not known. The Pala 'Valiyapally' was established in the year 1002 AD and Lalam temple in the year 1683. It is belived that the 'Chetties' who migrated from Tamilnadu establised Pala market. The priliminary works for market was started in the year 1725 and first shop building was constructed at the place known as Kavalakkunnu presently known as Chettikunnu, where the General hospital is situated now. It was the Meenachil Karthas, who constructed the old Pala market on the Northern bank of Meenachil River to attract Christians, who have special skill in trade and commerce activities. The stables for the horses of soldiers were constructed in the adjacent hill and the name 'Layam' (stables) later become Lalam. (Source: Vikasana Rekha of Municipality 1995)

In the earlier days the trading activities of the town was done through Meenachil River and later it transferred to road. Construction of Athirampuzha –Pala Road, popularly known as AP Road has accelerated development of Pala town. Modern pala town was developed along the A.P.Road. The Establishment of bus stands, offices etc in eastern part of the presesnt CBD has intensified the activities in this part. Establishment of Market and Mini Civil station in Ramapuram road has lead to development towards the north of the town. Progressively, ribbon development took place along the sides of major roads thus extending the town area to a great extent. Currently the commercial and other urban developments are taking place along the major travel corridors like A.P.Road, Thodupuzha road, Ramapuram road and Ponkunnam road.

6.3 EXISTING LAND USE 2012

The existing land use survey was conducted during the year 2012. Residential, Agriculture, Commercial, Public land uses are the major land use of the town and 53% of the total town area is coming under developed land. The land use break up of Pala is given in Table 6.1. Dry agriculture (42.72%) land dominates Pala town followed by residential (39.77%) landuses. Public and Semi public (6.34%), water body (3.47%) and Commercial (2.87%) has significant area. Road networks and transportation facilities occupies 2.55% of land in Municipal area. Other land uses like industrial, open spaces, paddy / filled paddy, Quarry have only nominal area in Pala Town. The land use break up of Pala town is also shown in Figure. 6.1. The Figure 6.3 shows the Existing land use map of Pala 2012.

Table 6.1 Existing Land use break up of Pala Municipality 2012

Sl.No:	Land use	Area in Hect.	Percentage
1	Residential	638.81	39.77
2	Commercial	46.02	2.87
3	Public and Semi Public	101.84	6.34
4	Industrial	7.98	0.50
5	Transportation	41.02	2.55
6	Park and Open space	1.99	0.12
7	Paddy	26.62	1.66
8	Dry Cultivation	686.08	42.72
9	Water body	55.73	3.47
	Total	1606.09	100.00

Source: - Land use Survey 2012

It is clearly seen from the chart and the table that the dry agriculture and the residential land use dominates in Pala Town. The rubber plantation is the major cultivation of the town. The presence of Public and Semipublic land use shows the existence of social infrastructure like educational and Health institutions and other public and religious institutions.

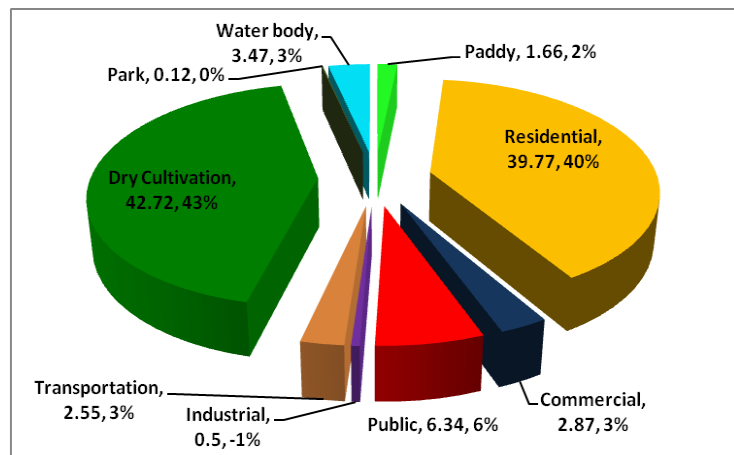


Figure 6.1 Existing Land use breakup

The total extent of land coming under agriculture use is 712.70 hectares which accounts 44.38% of the total town area. 96.26% of agriculture land is under dry cultivation and only 3.74% of agriculture land is coming under the category of paddy fields. It is represented in Figure 6.2. Area wise, **Dry Agriculture** is the major land use of Pala town and 686.08 hectares of land comes under Dry Agriculture land use, which occupies 42.72% of total area of the town.

The Agriculture land includes mainly rubber plantations and mixed cultivation. The area of mixed cultivation is not significant and it is mainly form part of homestead cultivation. The dry cultivation is distributed in all part of the town, but more concentration is in the

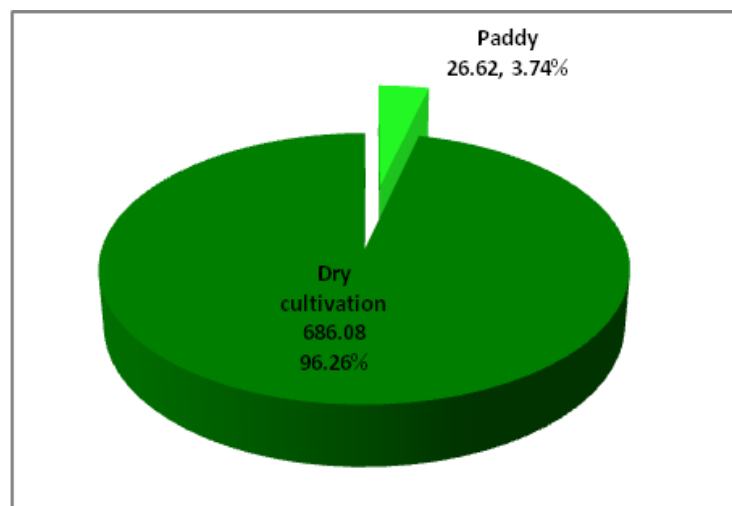


Figure 6.2 Agriculture Land use breakup

northern and eastern parts of the town, especially in the elevated areas. Being a town situated in the midland region, the land in the category of **paddy fields** is very nominal and only 26.62 hectares of land is under this category. Paddy fields are located in western parts of the town and they are isolated pockets without continuity among neighboring paddy fields.

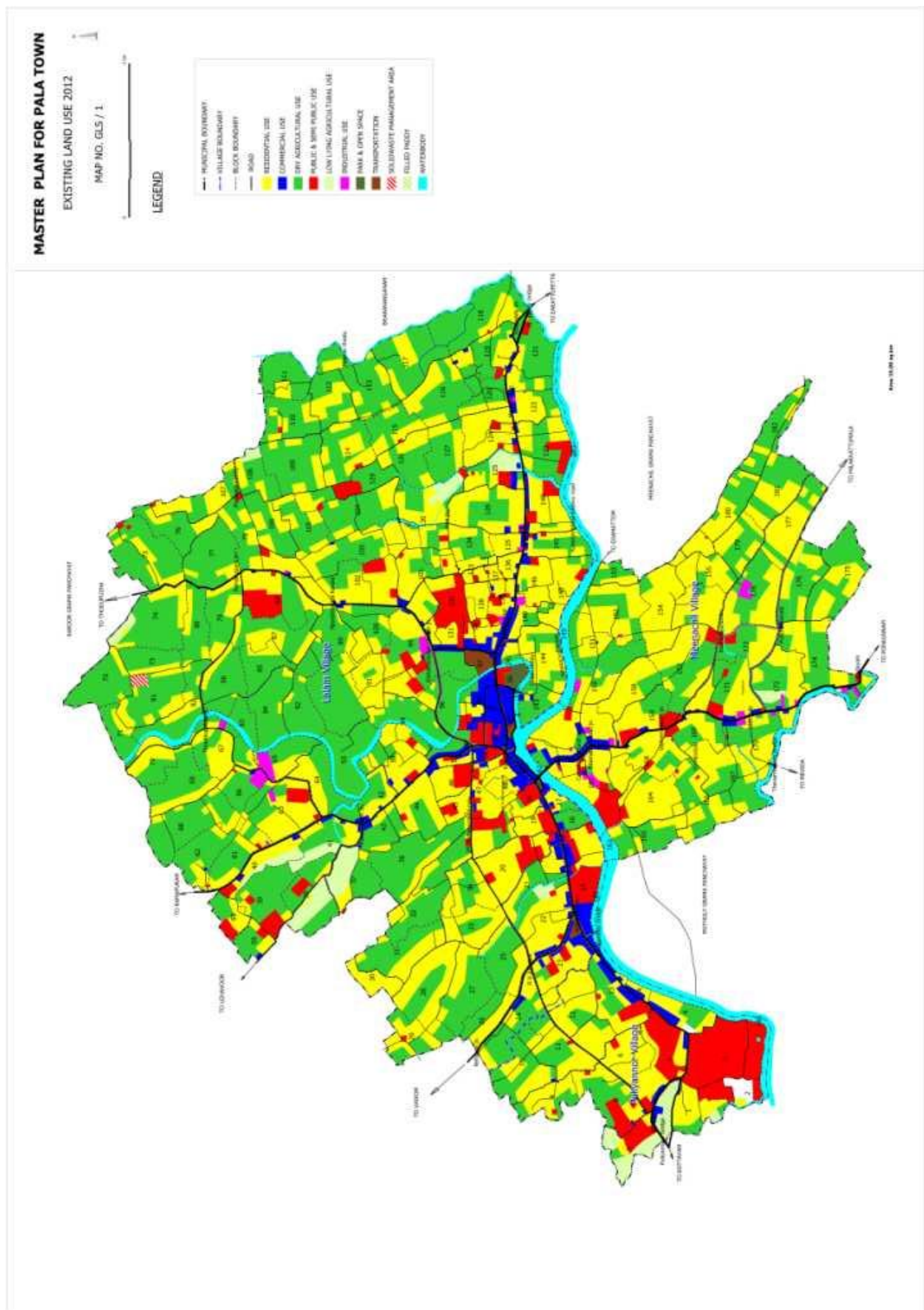


Figure 6.3 Existing Land use of Pala - 2012

Currently majority of these fields are not under paddy cultivation. Most of them are under cultivation of vegetables and other seasonal crops.

Residential area occupies second position in land use with 638.81 hectares which is 39.77 % of the total town area. It is distributed in almost all parts of the town and is mixed up with the agriculture land. The residential density of the town is comparatively low and there is considerable variation in the density in different part of the town.

Commercial area is mainly concentrated in the town centre along major travel corridors of the town. The concentration of commercial activity is mainly there in A.P.Road from Kottaramattam to Chettimattam and in Ramapuram road from Kurisupally junction to Market area. Few pockets of commercial land use are distributed in other parts of the town also.

Public and Semi-public areas includes land where Government and semi-Government establishments, religious centers, educational institutions, health facilities etc are functioning. It is distributed in almost all wards of the town and 101.84 hectares of land which is 6.34% is under this use in the Pala Town.

Only 7.98 hectares of land, which constitutes 0.50% of total municipal area comes under **Industrial land use**. Latex unit of Pala rubber marketing Society is the major unit functioning in the municipal limit. In addition to this there are only few small and micro units in the town. The **Traffic and Transportation use** of the town mainly consists of roads and terminal areas. 41.02 hectares of land, which is 2.55% of total land use comes under transportation use.

55.73 hectares of land which is 3.47% of total area comes under **Water bodies**. Mainly the Meenachil River and its tributaries constitute the water bodies in the town. Only 1.99 hectares of land, which accounts for 0.12% town area comes under the category of **Parks and open space**. Lack of leisure places are seen in the Town.

6.4 TEMPORAL VARIATION OF LAND USE

A comparison of land use break up of Pala Town of the years 1991 and 2012 has been made. The area in hectares and percentage of different land uses for the year 1991 and 2012 is shown in table 6.2. The pictorial representation of temporal variation of land use of Pala Town in percentage is shown in figure 6.4.

Table 6.2 Land use break up of 1991 and 2012 of Pala Town

Sl. No.	Land use	1991		2012	
		Area in Hect:	%	Area in Hect:	%
1	Residential	578.93	36.05	638.81	39.77
2	Commercial	26.56	1.65	46.02	2.87
3	Public and Semi Public	97.92	6.10	101.84	6.34
4	Industrial	3.20	0.20	7.98	0.50
5	Transportation	57.67	3.59	41.02	2.55
6	Park and Open space	3.52	0.22	1.99	0.12
7	Paddy	33.28	2.07	26.62	1.66
8	Dry Cultivation	726.04	45.21	686.08	42.72
9	Water body	37.08	2.31	55.73	3.47
10	Others	41.80	2.60	0	0
	Total	1606.00	100	1606.09	100

Temporal variation of land use from 1991 to 2012 shows that there is reduction in agriculture land and corresponding increase is seen in Residential, Commercial, Public land uses etc. It indicates the growth of urban nature of the town. Increase in non agricultural land use shows the change of economic background from agriculture to other sectors. The variations in other land uses are mainly due to the difference in the methodology adopted in the survey.

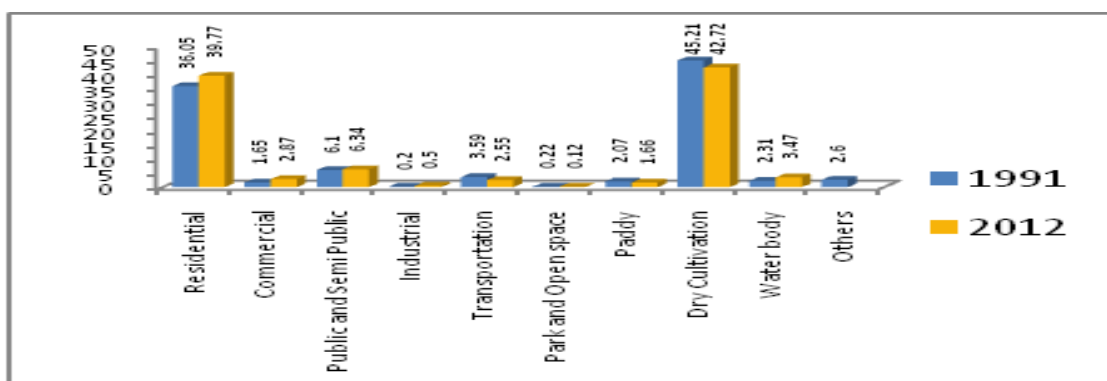


Figure 6.4 Temporal Variation of Land use

6.5 COMPARISON WITH SIMILAR TOWNS

Comparison of land use of Pala is made with similar towns in the region like Adoor, Thodupuzha, Thiruvalla, Muvattupuzha and Changanassery. The percentage of different land use of these towns is shown in Table 6.3. The comparison of percentage of land under different land use of the above town is shown in figure 6.5. Comparison of percentage of developed land of similar towns is shown in Table 6.4

Table 6.3 Comparison of percentage of land use of similar towns

Land use Towns	Pala (2012)	Adoor (2010)	Thodupuzha (2010)	Thiruvalla (2005)	Muvattupuzha (2011)	Changanassery (2002)
Area	16.06	20.42	35.43	27.15	13.18	13.50
Residential	39.77	33.13	27.92	45.45	60.44	56.52
Commercial	2.87	1.5	1.61	0.97	2.21	2.74
Industrial	0.50	0.18	0.68	0.54	0.37	0.43
Public	6.34	1.92	1.92	16.39	5.09	6.56
Agriculture	42.72	50.05	60.37	24.55	13.73	23.63
Open Spaces	1.99	0.12	1.86	2.36	0.91	0.69
Transportation	2.55	6.9	2.99	5.8	5.05	5.99
Water Bodies	3.47	4.08	2.65	3.94	7.20	3.4

The percentage of residential land use is comparatively low in Pala when compared with similar towns.

Muvattupuzha municipality shows maximum percentage of Residential land use among other Municipalities. The percentage of Agriculture land is high in Thodupuzha, Adoor and Pala Municipalities. The

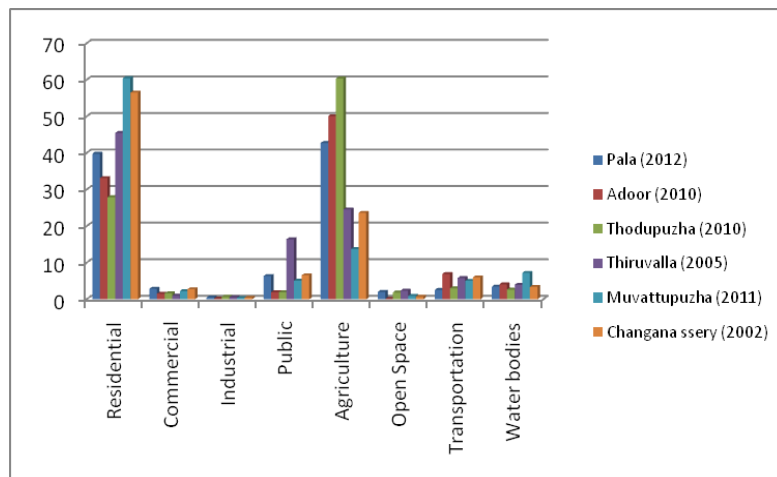


Figure 6.5 Land use – comparison with similar towns

percentage of commercial land use is high in Changanassery and it is followed by Pala Municipality showing the high Trade and Commercial activities of the town. In the case of Public and Semi Public land use Thiruvalla has the highest percentage followed by Changanassery and Pala. The percentage of industrial land use is nominal in almost all Municipalities. In the case of Transportation

land use, Pala is in the lowest position shows inadequate transportation facilities in the town. Generally when compare with other towns, Pala is an agriculture dominant town along with Adoor. Muvattupuzha, Changanassery and Thiruvalla have more percentage of developed area.

Table 6.4 Comparison of percentage of developed land of similar towns

Land use	Pala (2012)	Adoor (2010)	Thodupuzha (2010)	Thiruvalla (2005)	Muvattupuzha (2011)	Changanassery (2002)
Residential	39.77	33.13	27.92	45.45	60.44	56.52
Other urban land use	14.25	10.62	9.06	26.06	13.63	16.41
TOTAL DEVELOPED AREA	53.81	43.75	36.98	71.51	74.07	72.93
AGRICULTURE AREA	46.19	54.13	63.02	28.49	20.93	27.03

6.6 CONCENTRATION PATTERN OF LAND USES

6.6.1 Introduction

The concentration pattern of a particular land use gives an idea about where that particular land use is concentrated within the town. The concentration pattern of a land use can be ascertained by the concentration index (CI) of that land use. The concentration index (CI) of a particular land use = ((Area of that land use in a ward) / (Total area of the ward)) / ((Area of that land use in the town) / (Total area of the town)). The concentration index values may be greater than one, equal to one or less than one. The CI greater than one for a particular land use indicates that the land use under consideration is concentrated more in that ward than other wards of the town. Using the above method, concentration pattern of major land use categories - Residential, Agriculture, Commercial, Public and Semi Public land uses are analysing in the subsequent paragraphs.

6.6.2 Concentration pattern of Residential land use.

The concentration pattern of residential land use is shown in figure 6.6. The concentration index of

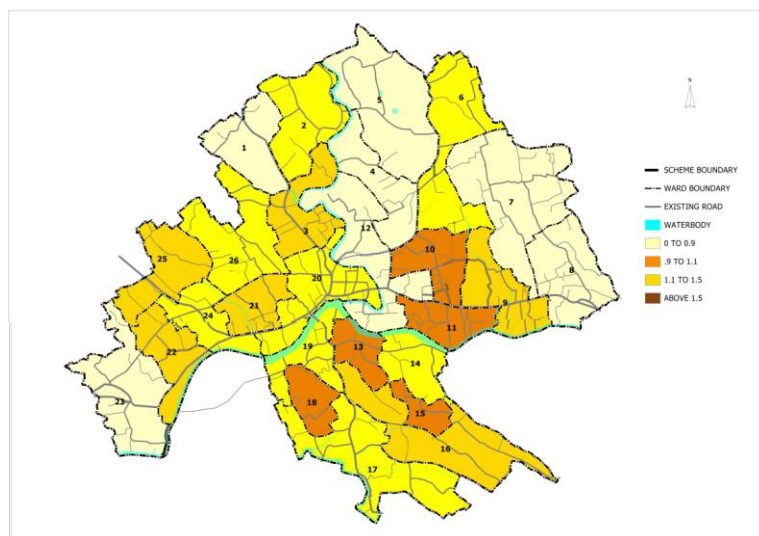


Figure.6.6 Concentration pattern of residential Land use

residential land use varies from 0.60 to 2.19 and the residential area is spread in all wards of the town.

The ward with higher value of Concentration index is seen in Palampuraidam. Generally wards along major travel corridor have high Residential use concentration. The wards with low value of concentration index of residential land use are seen in areas where dry agriculture is predominant, ie in the northern and eastern part of the town.

6.6.3 Concentration pattern of Commercial land use.

The concentration pattern of commercial land use is shown in figure 6.7. The concentration index of commercial land use varies from 0 to 8.51. High concentration of commercial land use is seen in, Market ward, followed by Monastery, Lalam and Pala wards. These wards cover the C.B.D area of the Pala town and the other wards with high concentration index in commercial land use are located along the major travel corridor.

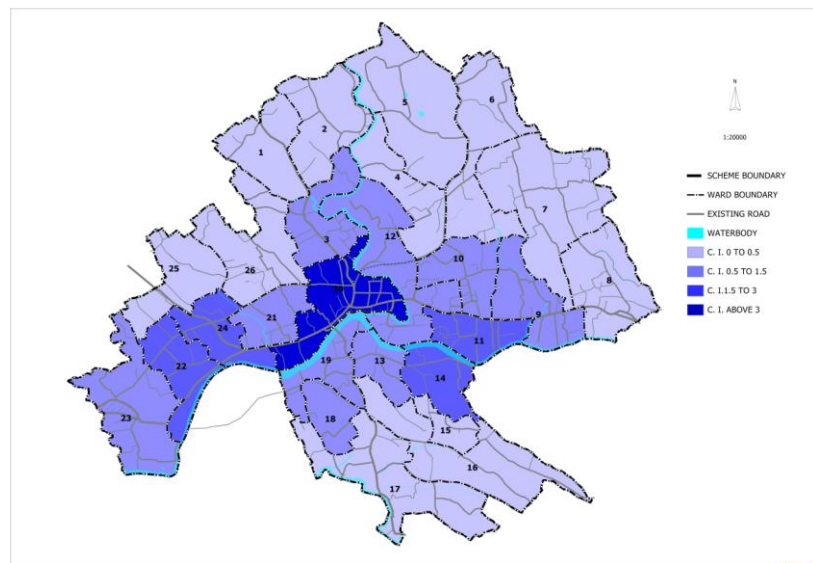


Figure 6.7 Concentration pattern of Commercial Land use

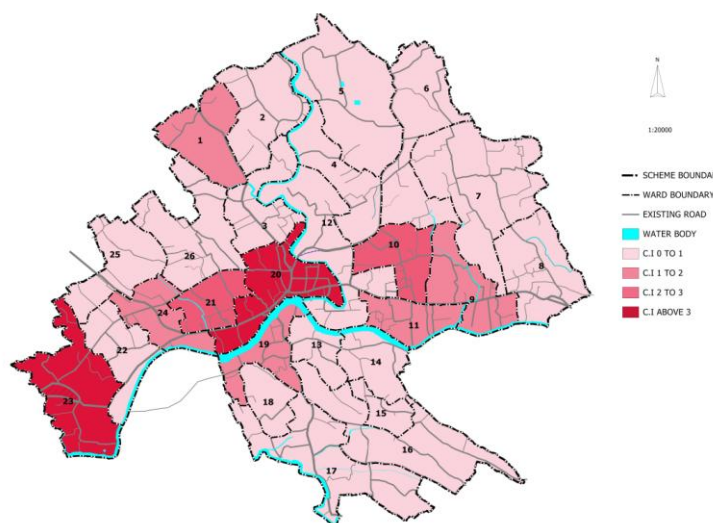


Figure 6.8 Concentration pattern of Public Land use

6.6.4 Concentration Pattern of Public and Semi-Public land use.

The concentration pattern of public and semi-public land use, which includes Government institutions, educational facilities, health facilities, social institutions and religious institutions, is shown in Figure 6.8. The concentration index is varying from 0.00 to 5.42 and is high in College ward where Alphonsa College and St. Thomas colleges are located. The pattern shows in wards with more concentration of public land use, the Commercial concentration of commercial land use also high except in College ward. This indicates the development of Commercial land use in and around the public land use which was existing from ancient period. This category of land use is concentrated more along the sides of major travel corridors.

6.6.5 Concentration pattern of Dry Agriculture land use.

The agriculture land in pala town is broadly classified into dry cultivation (rubber plantation, mixed crops etc) and paddy fields. As mentioned in previous paragraphs major portion of the agriculture land is coming under dry cultivation and share of Paddy field is very nominal.

Dry Agriculture is the major land use of Pala town and 687 hectors of land which is 42.72 % of total town area in coming under dry cultivation. Figure 6.9 shows the concentration pattern of dry Agriculture land use of the town.

The Dry Agriculture land is distributed in all wards of the municipality with more concentration in the northern half of the town. Concentration index of dry cultivation is low in Monastery ward, Lalam ward, Vellapadu, Pala and College wards. These

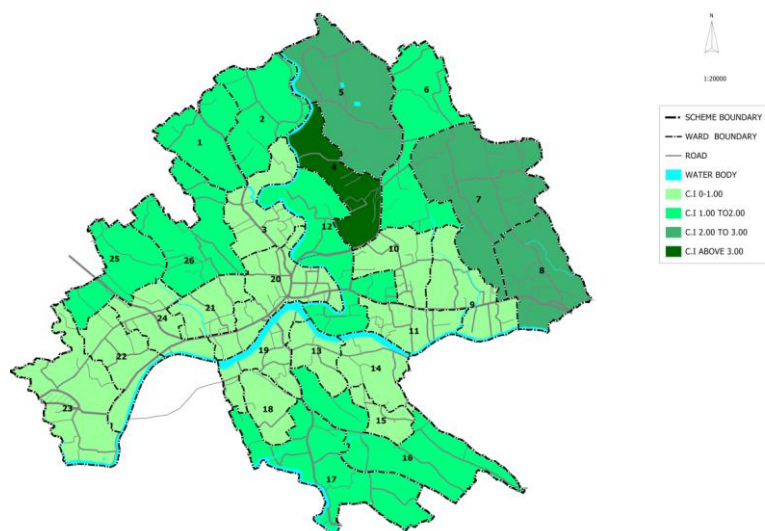


Figure 6.9 Concentration pattern of Dry cultivation Land

wards are located at the town centre and it is having high Commercial and Public land use Concentration.

Paddy fields are seen in Kottaramattom ward and Kanattupara ward. Small extent of Paddy field is there in Puthenpallikunnu, Paramalakunnu and College ward also. In other wards paddy cultivation is not seen.

6.6.6 Transportation

The land coming under Transportation land use, mainly consist of roads and it is distributed in all wards of the town. In addition to the roads the land coming under the transportation use is the bus terminal which is located in Keezhthadiyur,

Arunapuram and market wards. The concentration

pattern of transportation land use is shown in Figures 6.10. In wards where the transport terminals are located have high concentration index for transportation use.

6.6.7 Park and Open Spaces

Land coming under park and open space category includes few small parks and a stadium its extent is also very small. The concentration pattern of park and open spaces are shown in Figures 6.11. Park and Open

space is seen only in two wards which is located at the central area of the town. Concentration index is high in Market ward followed by Pala ward.

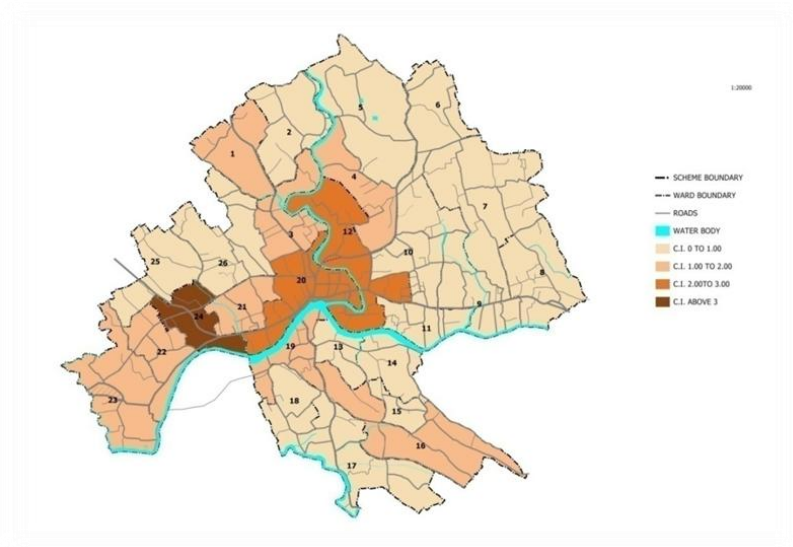


Figure 6.10 Concentration pattern of Transportation

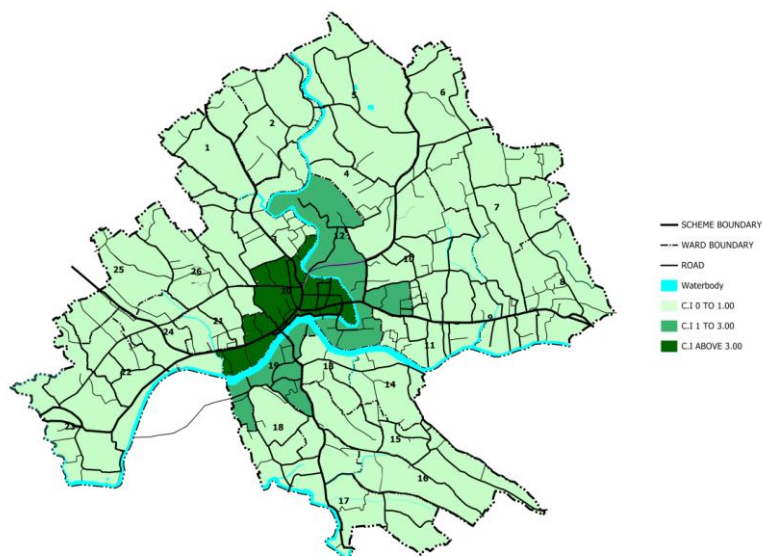


Figure 6.11 Concentration pattern of Park and Open Space

6.7 COMPARISON OF EXISTING LAND USE WITH PLANNING STANDARDS

Comparison of land use breakup of planning area with the proposed land use structure as per UDPFI Guide line has been made and it is shown in Table 6.5. The percentage of residential use is far above (almost double) the suggested standard as per UDPFI guide lines. The percentage of other land uses except Park and Open Spaces are far below the suggested UDPFI standard. The percentage of Public and Semi public land use is slightly below the UDPFI standard.

Table 6.5 Comparison of existing and proposed land use structure as per UDPFI Guide line

Sl: No	Land use	Planning Area		Proposed land use structure as per UDPFI Guide line (for small towns)
		Area of existing land use (in Sq:km)	% of total (existing) developed area	% of Developed area
A	Developed Area			
1	Residential	39.77	77.26	45.00-50.00
2	Commercial	2.87	4.89	02.00-03.00
3	Public and Semi public	6.34	12.76	6.00-8.00
4	Industrial	0.50	0.70	08.00-10.00
5	Transportation	2.55	4.14	10.00-12.00
6	Park and Open space	0.12	0.25	12.00-14.00
	Total Developed Area	52.15	100.00	
B	Agriculture Land and Water bodies	47.85		Balance land

Source: Land use survey, UDPFI Guide line

6.8 LAND USE ACTIVITY PATTERN

As per the Regional studies the activity identified for Pala town is Agriculture. The activity pattern of Pala municipality based on land use is evolved here and municipal wards are adopted as the units in the analysis. Only four major categories of land uses, viz residential, commercial, agriculture, public and semi public use are considered in this study. The concentration index of the above four category of land use is shown in Table 6.6. The activity pattern of the town based on the land use is shown in Figure.6.12

Table 6.6 Activity Pattern based on land use

Ward no.	Ward	Concentration Index				Activity
		Residential	Commercial	Public	Agriculture	
1	Paramalakunnu	0.59	0.38	1.33	1.28	Agriculture
2	Mundupalam	0.98	0.04	0.38	1.27	Agriculture

3	Market	1.21	0.71	0.18	0.98	Residential cum Agriculture
4	Plathanam	0.53	0.12	0.27	1.61	Agriculture
5	Kanattupara	0.64	0.01	0.68	1.55	Agriculture
6	Pulimalakunnu	1.01	0.13	0.43	1.27	Agriculture
7	Kaveekunnu	0.78	0.00	0.27	1.56	Agriculture
8	Kochidappadi	0.72	0.23	0.17	1.57	Agriculture
9	Munnani	1.19	1.01	1.05	0.65	Residential cum Public
10	Monastery	1.51	1.27	2.58	0.40	Residential cum Public
11	Chethimattom	1.59	1.88	1.01	0.39	Residential cum Commercial
12	Keezhthadiyoor	0.73	1.22	0.48	1.13	Commercial cum Agriculture
13	Murikkumpuzha	1.72	1.41	0.24	0.33	Residential cum Commercial
14	Parippilkunnu	1.05	3.85	0.00	0.87	Agriculture
15	Palampuraidam	2.24	0.00	0.00	0.26	Residential
16	Kannadiurumbu	1.20	0.08	0.55	1.03	Residential cum Agriculture
17	12th mile	1.08	0.43	0.25	1.02	Agriculture
18	Mukkalikunnu	1.72	1.41	0.24	0.33	Residential
19	Pala	1.07	1.39	1.51	0.43	Residential cum Public
20	Lalam	0.93	7.92	3.13	0.25	Commercial
21	Vellapadu	1.39	1.28	2.31	0.42	Residential cum Public
22	Arunapuram	1.32	2.38	0.64	0.61	Residential cum Commercial
23	College Ward	0.78	0.53	5.97	0.36	Public
24	Kottaramattom	1.00	3.80	2.00	0.53	Commercial cum Public
25	Nelliyani	1.13	0.04	0.04	1.23	Residential cum Agriculture
26	Puthanpallikunnu	0.90	0.00	0.05	1.22	Agriculture

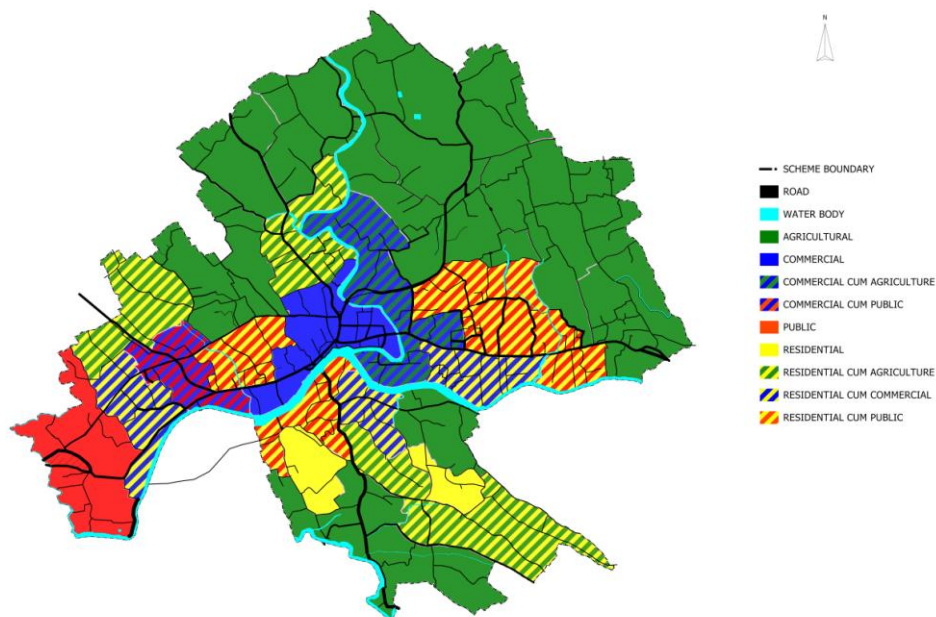


Figure 6.12 Activity Pattern based on Land use

Activity Pattern based on Land use clearly shows that the Commercial activity of the town is concentrated at the central part of the town along major roads. Mixed activities i.e. Residential cum Commercial, Residential cum Public, Residential cum Agriculture, Commercial cum Public are there in the circle around the town centre. The Public activities are concentrated at the western end of the town. The Northern Part of the town is predominantly under agriculture activity.

6.9 FUNCTIONAL CHARACTER OF THE TOWN

The functional character of wards of the town is determined based on population distribution, average plot size and land use. As per the regional studies in the District urbanisation report, Pala has rural character. In the ward wise analysis for functional character of Pala municipality, six wards belong to urban category, five wards near to the town centre shows the semi urban nature and 3 wards show semi rural nature. All the remaining wards belong to rural category. The functional character of the town is shown in Table 6.7 and Figure 6.13.

Table 6.7 Functional Character of Wards

Ward no.	Name of ward	Functional Character	Ward no.	Name of ward	Functional Character
1	Paramalakunnu	semi rural	14	Parippilkunnu	semi urban
2	Mundupalam	rural	15	Palampuraidam	semi urban
3	Market	urban	16	Kannadiurumbu	rural
4	Plathanam	rural	17	12th mile	rural
5	Kanattupara	rural	18	Mukkalikunnu	rural
6	Pulimalakunnu	rural	19	Pala	rural
7	Kaveekunnu	rural	20	Lalam	urban
8	Kochidappadi	rural	21	Vellapadu	urban
9	Munnani	semi urban	22	Arunapuram	urban
10	Monastery	urban	23	College Ward	semi urban
11	Chethimattom	semi rural	24	Kottaramattom	urban
12	Keezhthadiyoor	semi rural	25	Nelliyani	rural
13	Murikkumpuzha	semi urban	26	Puthanpallikunnu	rural

The transition from rural to urban is seen from boundaries to the Town centre. This is mainly because of the topography, availability of better connectivity to the Town centre accumulation of Commercial

activities. Being a trade centre from

ancient times the banks of Meenachil River developed very faster than the outskirts of the Town.

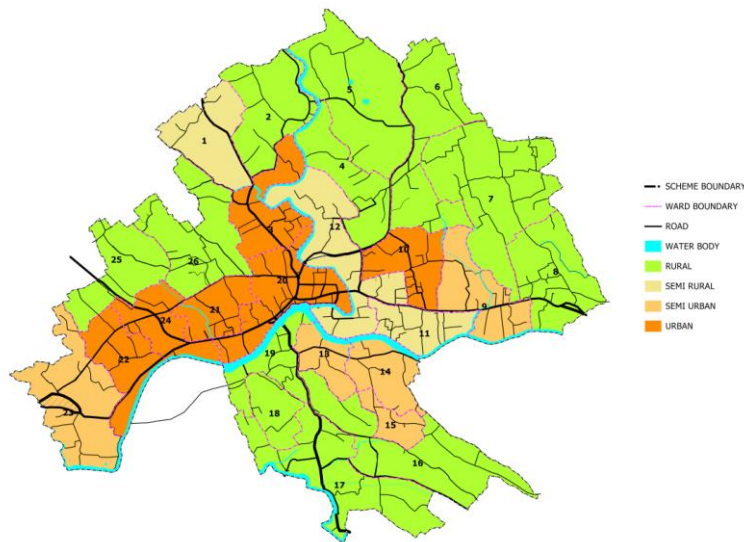


Figure 6.13 Functional Character of the Town

6.10 CENTRAL AREA OF THE TOWN

Central area of the town is the area where major activities of the town like commercial, civic transport, educational, administrative, recreational etc. are located with population in the surrounding

residential area supporting the

C.B.D. functions. Based on the above criteria the twelve Municipal wards of the town i.e. Market, Kizhathadiyoor, Monastory, Moonnani, Chethimattom, Murukkumpuzha, Pala, Lalam, Vellappadu, Kottaramattom, Arunapuram and College wards are included in the delineated central area. The extent of the

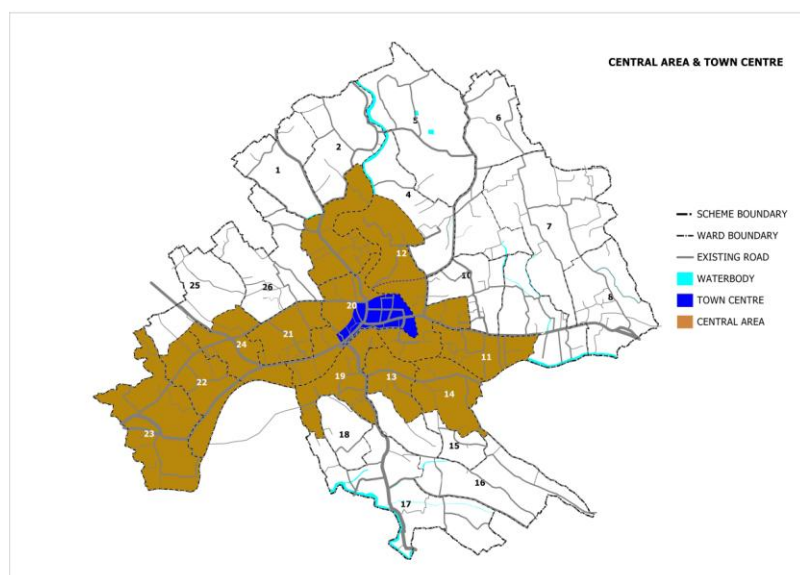


Figure 6.14 Town centre and Central Area

delineated central area is 618.62 hectares and the resident population in this area is 10,576 which is 47.95 percentage of the total town population. The central area of the town is shown in Figure 6.14.

6.11 TOWN CENTRE (C.B.D)

A town centre is a meeting place for the population as a whole. It is the focus of a radial system of roads and either in or near to the central bus terminus. It is the main administrative business, entertainment and cultural centre of the town. For Pala town the area identified as the CBD includes.

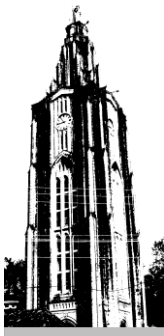
The stretch of A.P.Road from Kottaramattom to Maharani Jn where religious building, educational institutions, shopping centres, bus terminals, business and banking institutions, taluk hospital, municipal stadium etc are located.

Ramapuram road from Kurisupally Junction to Market Junction, where the market, Government offices, commercial establishments etc are located is also considered as town centre. The total area of the town centre is 53.60 hectare, which is 3.34 percentage of the total town area. The town centre is shown in the Map 6.14.

6.12 CONCLUSION

The land use pattern of Pala shows that 44.38% of the town area is coming under Agriculture land. The commercial activities have taken place along the major travel corridors. Agriculture activities are concentrated in the northern and eastern part of the town. Even though agriculture activity is concentrated in the Northern part the residential land uses is seen scattered all over the town area and mixed with agriculture land uses. As per the regional setting study the activity identified for Pala town is Agriculture. Non agriculture activities are concentrated around the central part of the town and the agriculture activities in the periphery of the town. The study on functional character of the town shows majority of wards have rural or semi rural character.

The study on land use shows that Pala Town consists of virgin lands for development purpose and it has capacity to hold more population. Proper planning and introduction of new innovative projects can enhance the development of Pala Municipality.



7. TRADE AND COMMERCE

Trade and commercial activities of Pala town is discussing in this chapter. Details of Land under commercial use, commercial nodes, markets, informal sector, banking etc are included in this chapter.

7.1 INTRODUCTION

The fertile land on either side of Meenachil river was famous for the cultivation of rare agriculture products like pepper, ginger, cardamom and other spices. The name of Pala was famous in Roman markets even before Christian era. Pepper from Pala provides popularity for the town in foreign markets. In the earlier days trading of spices were done in areas around Lalam temple and Kurisupally. In the influence area of Pala the cultivation of spices has been now replaced by rubber. Due to non availability of spices in the adjacent areas and with the development of other markets, the trading of spices in Pala has diminished and now mainly trading of natural rubber is taking place in the town.

7.2 LAND USE UNDER COMMERCIAL USE

The total land under commercial use of Pala Municipality was only 26.56 hectares (1.65%) in 1991 and it has increased to 46.02 hectares, which is 2.87% of the total town area in 2010. A comparative study with similar

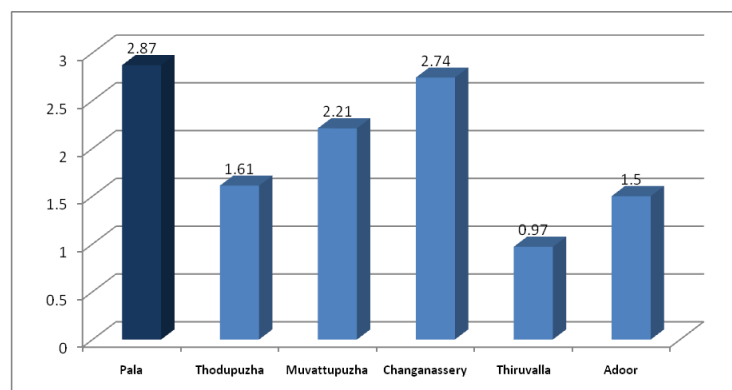


Figure 7.1 Comparison of % share of commercial land use with similar towns

adjacent town in the region has been made and the percentage share of commercial area to the total area of the towns Pala, Thodupuzha, Muvattupuzha, Thiruvalla, Adoor and Changanassery are 2.87%, 1.61%,

2.21%, 0.97%, 1.50% and 2.74% respectively and it is shown in Figure 7.1. It shows that Pala is in second place after Changanassery as far as the percentage of commercial land use is concerned and it shows the commercial importance of the Town. The commercial area of the Pala town was mainly developed along Eattumanoor – Erattupeta (SH-32) road from Kottaramattom to Maharani Jn and in Ramapuram road from Kurisupally Jn to Mini-Civil station Junction.

7.3 COMMERCIAL NODES

A detailed survey regarding the commercial nodes in the town has been conducted by the department. Based on the preliminary survey, 10 commercial nodes in the planning area have been identified for the detailed study. The facilities at various nodes has been generally grouped into Retail shops, Whole sale shops, Commercial Offices, Small Scale Industries, Other facilities and Higher order facilities. The number of shops/units of different categories coming under the above categories was counted. For comparison

total scores for each node were calculated after assigning weightage to each facility. The total score obtained for each node is given in Figure 7.2. Based on the score obtained, the following 3 types of commercial nodes were identified.

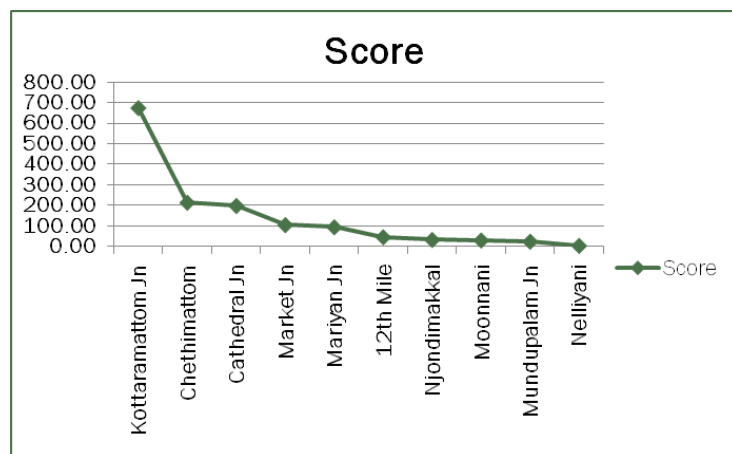


Figure 7.2 Scores obtained for each nodes

- FIRST ORDER – Kottaramattom Jn
- SECOND ORDER - Chethimattom, Cathredal Jn and Market Jn
- THIRD ORDER – Marian, Mundupalam, Chethimattom, Moonnani, 12th Mile and Nelliyan

The location of the existings nodes is shown in Figure 7.3

Higher order nodes are formed along SH -32. With the expansion of nodes the space between nodes were reduced considerably and it appears like Corridor development.

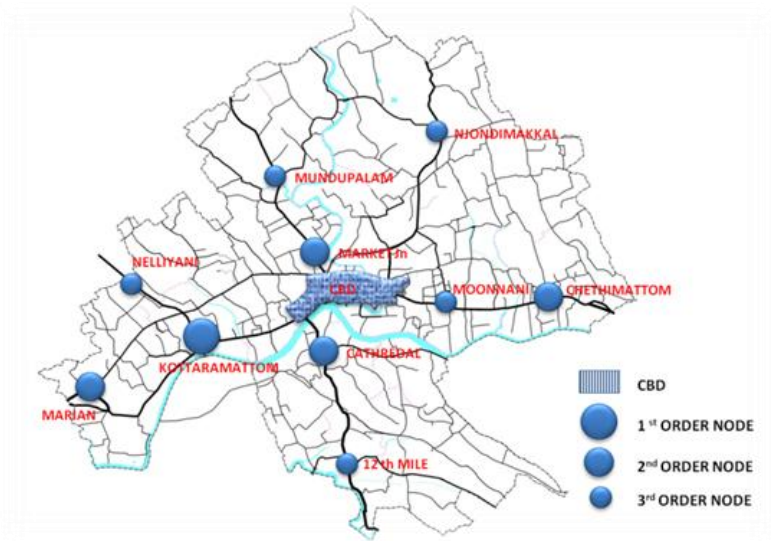


Figure 7.3 Spatial distributions of existings nodes

7.4 MARKETS

The old municipal market was located at Ramapuram road near Civil station. Lack of space and facilities were the main problems of the old market. Commodities were brought to this market from Tamilnadu state and other districts of Kerala. Now a new modern building has been constructed in the Market. Another market i.e., Farmers Open Market is functioning near the Kottaramattom Bus stand. Here also all types of shops are functioning.



The Pala market is Functioning at Pala – Ramapuram road. This area is now developed and a new market in multistoried building with modern facilities and shops are functioning here. Vegetables, fruits, meat, fish and all types of stationary items are available here. Shops, Hotel and shopping



mall are functioning in this building. Vegetables are mainly brought from Tamilnadu and other districts in Kerala.

A Farmers Open market is functioning near Kottaramattom bus stand. Pala is famous for cultivation and trading of rubber; Rubber Marketing Societies engaged in collection, processing and trading of latex are functioning in the town. Also several supermarkets, vegetable shops are functioning along the main roads. Trading of meat and fish is taking place at Pala market located at Ramapuram road and near Municipal stadium Jn.

The details of commodity movement through the Pala Market are shown in Table 7.1. Commodities, average quantity, amount of transaction, places of arrival of commodities, places of distribution of commodities etc are included in the tables.

Table 7.1 Details of Commodity transaction – Pala Market

Sl. No	Commodities	Average Quantity	Price	Arrived From	Distributed to
1	Banana	3.5 tonnes/ week	7,70,000	Adimali, Tamilnadu (March, April)	Pala
2	Rice	21 tonnes/ week	5,69,000	Tamilnadu, Andrapradesh, Karnataka	Pala and surrounding area
3	Sugar	15 tonnes/ week	5,55,000	Tamilnadu, Maharashtra, Karnataka	Pala and surrounding area
4	Pulses	1.5 tonnes/ week	90,000	Andrapradesh, Karnataka	Pala and surrounding area
5	Beetel	500 bundles/ week	40,000	Adoor	Pala and surrounding area
6	Jaggery	1 tonnes/ week	50,000	Tamilnadu	Pala and surrounding area
7	Arecanut	2 bags/ week	6,000	Kottayam	Pala and surrounding area
8	Cattle feed	26 tonnes/ week	2,86,000	Thrissur	Pala and surrounding area
9	Fish	30	30,00,000	Ettumanoor, Kochi and Andrapradesh	Pala, Erattupetta

Source: Primary Survey

7.5 INFRASTRUCTURE FACILITIES

The Pala market is now developed as a major shopping centre. Different types of stalls or platforms are provided in the market. The market is located on the side of Ramapuram road. Sufficient parking space is available for vehicles.

Shopping mall, shops, vegetable shops and fish, meat markets are functioning here.

7.6 OTHER SHOPPING FACILITIES

In addition to markets, there are shopping complexes in various part of the town. Textiles, electronics goods, stationary, building materials, super markets etc are functioning in these shopping complexes. Shopping complexes are developed along all the sides of main roads.



Shopping Complex at Kottaramattom



Sulabha Hyper Market

7.7 INFORMAL SECTOR

Hawkers and vendors have long been a common feature of sidewalks and markets of urban centers. Hawkers contribute substantially in meeting the needs of the community. They indirectly support the local artisans and poorer sections of the community, by making available commodities at a comparatively cheaper rate. Even though their activities can be justified socially, it is conflicting with the management of traffic and pedestrian movement on street and in many cases affects the environmental quality.

Even through in a small scale, the informal sector activity is there in Pala town also. There is no organized space for hawkers in the town and they are mainly utilizing road margins and footpaths. In addition to the above hawkers occupy the road between Hospital Jn and Lalam bridge Jn. Textiles, small house hold equipments, vegetable, fruits are the commodities traded by the hawkers in this area.

7.8 BANKING

Details of different category of banks functioning in Pala Municipal area is shown in table 7.2. 26 branches of various category banks are functioning in

the town. Sufficient number of branches is available for the need of the people.

Natural rubber is the one of the major economic base of the town. Banks in Co-operative sector has major role in the collection, processing and marketing of latex. The functioning of Kizhathadiyoor



SCB, Pala Urban Co-operative Bank, Agriculture Development Bank, Pala Market Co-operative Society, Meenachil Rubber Marketing and Processing Co operative Society need special mention in serving banking needs of people.

Table 7.2 Details of banks functioning in Pala Municipal area

Banks	SBI and Associates	Nationalized Commercial Banks	Scheduled Commercial Banks	District Co-operative Banks Branches	Service Co-operative Banks & Credit Societies	Urban Co-operative Bank	Employees credit society	Kerala state Agri and Rural Development Bank
No. of Branches	2	4	9	2	3	2	3	1

7.9 CONCLUSION

Commercial developments are mainly concentrated at town centre and along the major travel corridor sides. The natural rubber plantation is the major economic backbone of the town. Rubber marketing and trading has very much importance in Pala. Activity of informal sector in small scale is there in the town. Sufficient number of banks is functioning in Pala town.



8. INDUSTRY

This chapter discuss about the industrial scenario of Pala town. Land under industrial use, occupational structure, industrial raw material available in the town and its hinter land, existing industries of the town etc are discussing.

8.1 INTRODUCTION

In this chapter the present scenario of industrial sector of the Pala town is analyzing. Major portion of Pala municipality is under agricultural use and has rural character. No major types of industrial units are functioning in the town and the industrial sector is limited to few industries in the category of MSME. Industrial units in the manufacturing sector are very less and majority of units are in service sector. Secondary sector has no major role in the occupational sector or in the economy of the town. One of the main reasons for the slow economic growth of the town is lack of industrialization.

8.2 INDUSTRIAL LAND USE

As per the land use analysis, 7.98 hectares of land which is just 0.50% of total town area is coming under industrial land use. The land under industrial use is shown in Figure 8.1. It is scattered in different part of the town. It can be seen that more number of industries are located on the Ramapuram road.

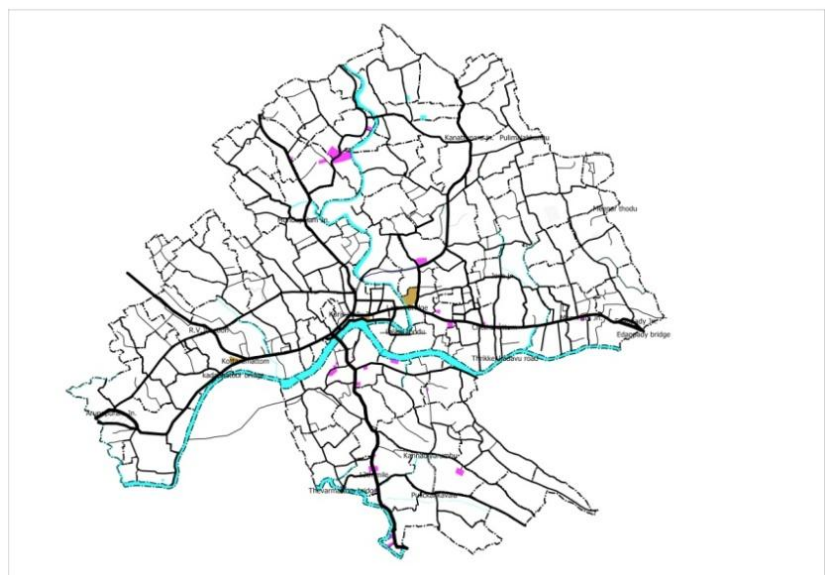


Figure 8.1 Land under industrial use

8.3 OCCUPATIONAL STRUCTURE

As per the census 1981, 1991, 2001 and 2011, the number of workers in House Hold industrial sector are 187, 227, 222 and 122 respectively. It shows that the number of workers in this sector is not recording any growth. Secondary sector has no major role in providing employment opportunities in the town. 89.82 % of workers belong to other workers category, 5.61% of workers are Agricultural laborers, 3.22 % of workers are cultivators and only 1.33% Household industrial workers. High value of agriculture land, lack of availability of labours, high wages etc lead the agriculture sector unattractive. In this circumstance industrialization is a solution for the creation of the employment and economic development of the town.

8.4 RAW MATERIALS

Agro based raw materials are available in this region, which can be utilized as industrial raw material. Latex is the major industrial raw material and is available plenty in Pala. Granite is the other raw minerals available in the influence region. But no major industries utilizing the raw materials of the region is functioning in the town or in the adjacent Grama panchayats. There is ample scope for starting food processing units in the town.

8.5 INDUSTRIAL UNITS

A mini industrial unit along with godown is functioning on the Pala - Ezhachery road about 3km away from the Town centre. The industrial unit is functioning here since 1967 and it is mainly a rubber processing industry. In the initial stage it was a rubber treatment unit. From 1975 it was upgrades as a centrifugi latex



factory. The main production of this industrial unit is concentrated rubber latex. This concentrated rubber latex is used for rubberised roads, foam beds, gloves and surgical products. About 60% of this concentrated rubber latex is used for making these productes. These products are taken to Delhi, Rajasthan, Alahabad. In Kerala the product is maily send to RUBCO, Pampady.

8.6 SMALL SCALE INDUSTRIAL UNITS

The small scale industrial units can be categorized into Agro based, Rubber based, Plastic based, Forest based, Animal Husbandry, Textiles, Chemical, Engineering,



Electronics, Minerals, Building Materials etc. The number of SSI units in various categories is shown in Table 8.1.

Table 8.1 – Classification of Small Scale Industries Units

Agro based	Rubber based	Plastic based	Forest based	Animal Husbandry	Textiles	Chemical	Engineering	Electronics	Minerals	Building Materials	Others	Total
61	18	5	16	0	111	14	28	2	2	8	286	551

Source: Panchayat Level statistics

Ann's house of sweets is one of the major medium scale industries functioning in Pala Town. There are 50 staffs working in the industry and the total sales during 2009-10, 2010-11 and 2011-12 are 4 crores, 5 crores and 6.5 crores respectively.

8.7 TRADITIONAL INDUSTRIES

Coir, cashew, handloom, manufacturing of bamboo bags and mats etc are the major traditional industries of the state. In Pala town there is no such traditional industrial units.

8.8 CONCLUSION

Only SSI units are functioning within town limit and there are no major industries. Pala has no specialization of particular category of industries. Availability of land and comparatively low population density is a potential for industrial development. Agro based raw materials like rubber, coconut, coffee, pepper which can be utilized as industrial raw material. Industrial growth in Pala town is very low whereas there is enough scope for the introduction of rubber based industries. Better connectivity with other parts of the state and neighboring states is an advantage for industrialization of the town.

9. HERITAGE & TOURISM



The heritage and tourism potential of the town is discussed in this chapter. Buildings of heritage values of the town and its surrounding areas, place of tourism importance of the region, the role of the town as a gate way to the pilgrim centers and transit point to tourist centers etc are included in the chapter.

9.1 INTRODUCTION

Changes accompanying urban growth causes the destruction of distinctive and meaningful built and natural elements, eradicating the physical expression of former indigenous ways of life that are very much part of the settlement culture. Since the architecture is a long-term and large scale physical witness to the past, future generations will continue to refer to it as a reflection of the spirit of the historic culture.

During the recent decades, the rehabilitation and regeneration of historic centers has been increasingly recognized as an efficient tool for urban development synthesizing cultural values with economic opportunities. Maintaining and enhancing historic buildings and historic areas can be economically rewarding, and in long term, increase the value of private and public property.

9.2 HERITAGE

As far as Pala town is concerned there are a few religious buildings with heritage value. Detailed description of important buildings is given in the subsequent paragraphs.

9.2.1 St. George Church, Lalam

It is a Christian Worship centre, which is located near South side of Parallel road and north of Hospital



road in Pala Town. This church is 200 years old. The compound situated on a hilltop comprises pallimeda, cemetery etc. apart from the church. There is a Manimalika (Bell Tower) behind the church, constructed in the same architectural style with the church building. The church wall is made of laterite with arched doors and openings. The church is located in the heart of Pala town and has historical importance.

9.2.2 St.Thomas Cathedral, Pala

This Christian worship centre is also an important church in Pala Town. It is located in West side of Ponkunnam road and south of Meenachil River. There are two Church Buildings in the compound among them, the old one has an age 1000 years and is conserved. There is a Prasanga Peedom (pulpit) made of a single wood. Other features are pallimeda, parish hall, and ding-dong bell of British make etc. The wall of the church is made of laterite stones and roof with wooden frames. The arched doors and windows are supported by pilasters. This church has an old flag mast made of copper.



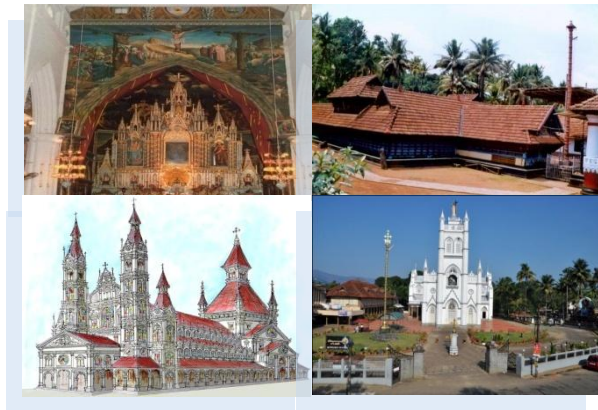
9.2.3 Buildings of heritage value in the influence area of the town

Pilgrim centre of Blessed Alphonso is located in Bharananganam Grama Panchayat about 5 Km from Pala and it is located in Pala-Erattupettah Road (SH 32). It is



believed that this church was constructed about 1000 years back and reconstructed about 90 years back. This is one of the largest churches in Kerala. The church has ancillary structures such as *Kalvilakku*, *Silalikhithangal* etc. Blessed Sr. Alphonso was buried here and in her name Bharananganam became a famous pilgrim centre.

Holly Cross Forane Church, Cherpunkal, Puliyanur Temple, Kadappattoor temple, Ramapuram church, St. George Church Aruvithura area the other important buildings with heritage value.



9.3 TOURISM

At present tourism sector is not playing a substantial role in the economy of Pala. Being located in the mid-land region of the state, there is no place of natural beauty like beaches, backwaters or hills within in the town limit. But there are ancient churches and temples, well known for festivals are increasing the potential for tourism development of the town. The Jubilee festival being celebrated on 8th December of every year is very famous.

9.4 GATE WAY TO TOURIST AND PILGRIM CENTERS

Pala is the ideal take-off point for visits to Bharananganam, Vagamon, Elaveezhapoonchira, Peerumadu, Munnar, Idukki etc. Kadappattoor temple located on the boundary of the municipality is one of the major way side centers of the pilgrims



who are visiting Sabarimala. Pala is well linked by road to other prominent centers of the state. The nearest airport is Cochin International Airport which is about 70 kilometers away.

Vagamon hill station, Kurisumala Ashramam, Kolahalamedu, Elaveezhapoonchira and Poonjar Palace are the stations with tourism potential and well connected with Pala. Lalam Temple, Vellappattu Temple, Oorasala Temple and Ramapuram Nalambalam have pilgrim tourism

potential and situated within the town and in the influence area of Pala Municipality.

9.5 AESTHETICS

The visual ill effects of parking due to the absence of off street parking areas are being experienced at many parts of the town. Numerous advertisement boards set up all along the streets, mars the beauty of the surrounding landscape.

The roads of the town and road junctions and road furniture do not have a geometry or uniform standard. In almost all roads, the buildings are abutting the road without adequate setback from the road margin. This together with the insufficient right of way of roads and poor road geometrics is degrading the aesthetic beauty of the town. In addition to this there is the problem of road encroachment.

9.6 CONCLUSION

Buildings/precincts of heritage importance are very limited in the town. There is limited potential for tourism within the town. But utilizing the location advantage of the town, Pala can be developed as a tourist transit center. The aesthetic appearance of the town is to be improved.

10. AGRICULTURE & ANIMAL HUSBANDRY



This chapter analyses the existing status and development issues of Agricultural and the animal husbandry sector in the planning area. Area under agriculture use, labours engaged in agriculture sector, land under different crops, trading facilities, statistics of animal husbandry sector etc are included.

10.1 INTRODUCTION

Pala town and its adjoining areas have strong agriculture base. In the earlier days Pala was famous for cultivation of pepper and ginger. Pepper, ginger, turmeric, tapioca etc were the major crops of Pala and adjacent areas. Pala was a major trade centre of hill products. Now the area where pepper and ginger were cultivated earlier is being replaced for cultivation of rubber. The topography, soil and climate of the town are more suitable for cultivation of rubber.

The Functional character of the town shows that out of 26 wards, 12 wards are rural and 3 wards are semi-rural. Only 6 wards are urban and the remaining 5 wards are Semi-urban. Dry agriculture is one of the major land use activities of Pala town and

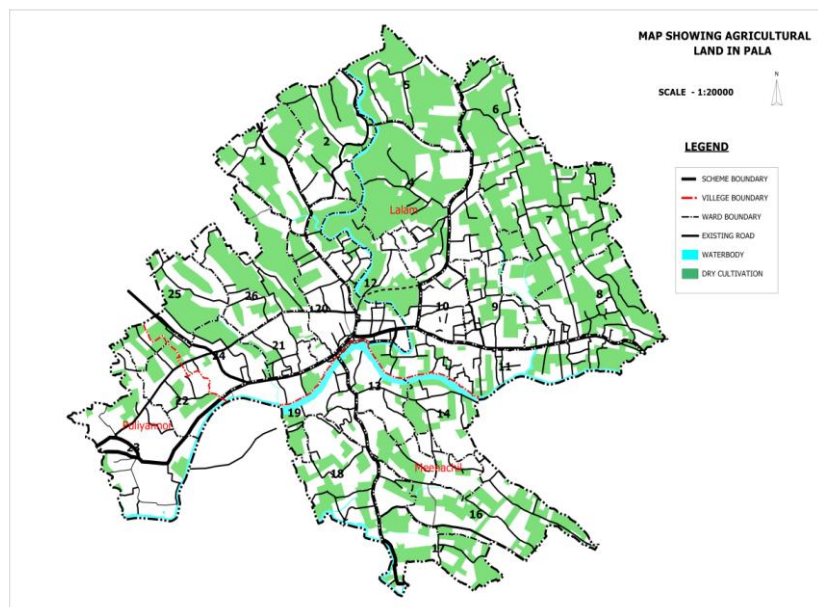


Figure 10.1 Distribution of Dry Agriculture in Pala Municipality

majority of the land use of the town is coming under agriculture. Agriculture and allied activities have major role in the economy of the town. In this

circumstance study on Agriculture sector is more relevant as far as Pala town is concerned.

10.2 AGRICULTURAL LAND USE

As per the land use survey 2012, dry agriculture land dominates in the Town and consists of 686.08 hectares of land which is 42.72% of total town area. In fact it is the single largest land use of the town. The dry agriculture land is

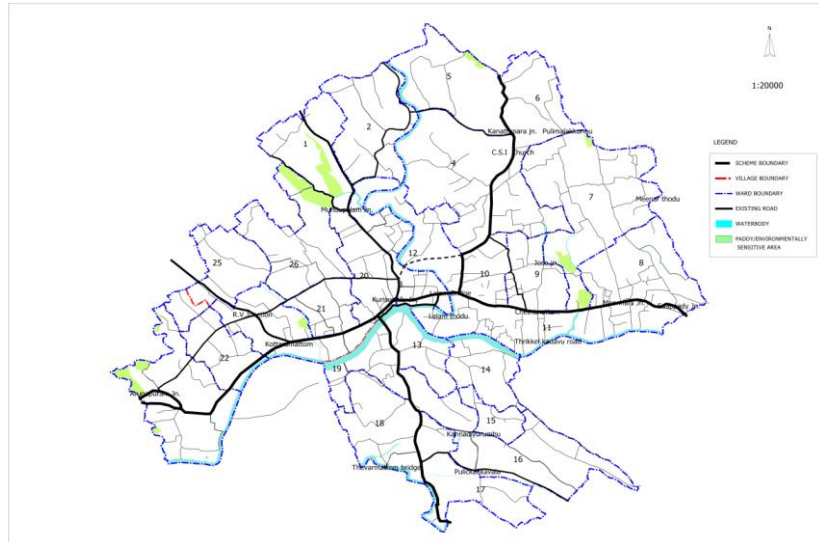


Figure 10.2 Distribution of wet lands (Paddy) in Pala

distributed in almost all part of the town and it is shown in Figure 10.1. Only 26.62 hectares land, which is 1.66 % of the total area is coming wet land. Most of the paddy fields are remaining vacant and cultivated paddy fields are much less. The available paddy fields are scattered and does not have continuity and it shown in Figure 10.2.

10.3 CONCENTRATION OF AGRICULTURE LAND USE

As mentioned in paragraph 10.2, the agriculture area is distributed in all parts of the town. In fact it is mixed with other urban land uses especially the residential area. The concentration pattern of Agriculture land use has been

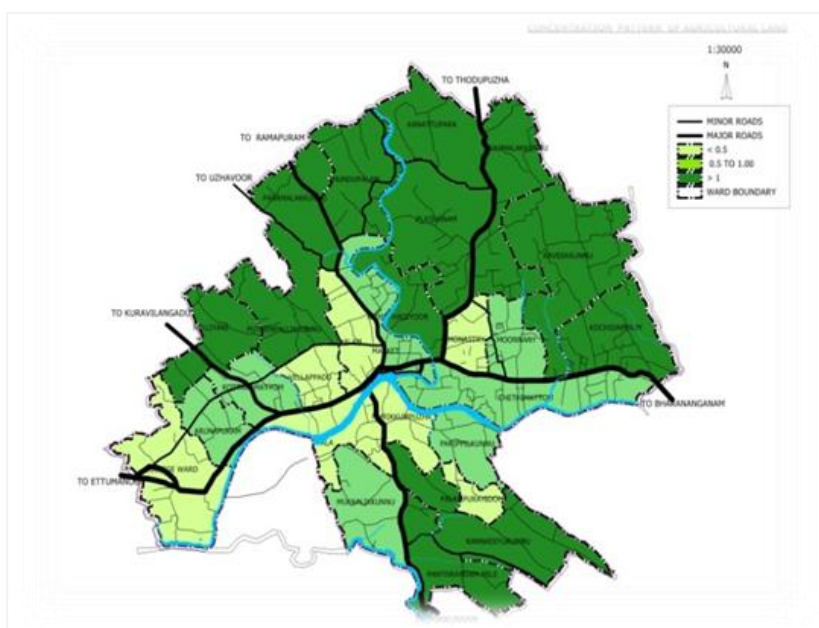


Figure 10.3 Concentration pattern of Agriculture land

discussed in detail in previous land use chapter. More concentration of Agriculture land is along the northern part of the Municipality. The concentration pattern of Agriculture land use is shown in Figure 10.3.

Area under Paddy and Dry cultivation is reducing over the years and these areas are being converted for non agriculture purpose. Paddy cultivation is negligible and it is because of labour cost, water scarcity etc. leading it to a profit less production area. From the comparison of land uses of 1991 and 2012 it is clearly seen that the area under dry and wet agriculture is reduced. Paddy cultivation is reduced from 2.07 % to 1.66 % and Dry agriculture reduced from 45.21% to 42.72%. It is shown in Figure 10.4.

10.4 LAND UNDER DIFFERENT CROPS

Land under different crops is shown in Table 10.1. Rubber is the major crop of the town and 654.00 hectares of land which is 91.72 % of total agriculture land (93.02 % of the agriculture land) is under rubber cultivation. Paddy cultivation is there in 2.16 hectares of land which is 0.23 of agriculture land. Area under mixed crops and coconut are 110.00 hectares (15.64 %of total agriculture land) and

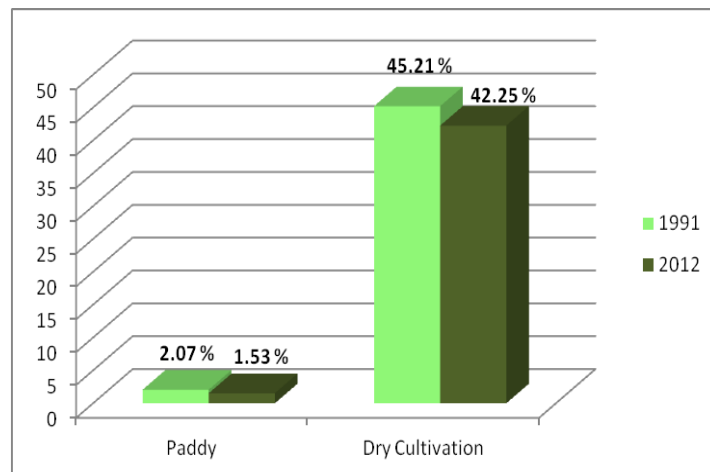


Figure 10.4 Comparison of paddy and dry cultivation

175.00 hectares (24.89% of agriculture land) respectively. The breakup of Agriculture land is shown in Figure 10.4. Only 0.23% of agriculture land is wet land and the remaining 99.77% agriculture land is wet land.

Table 10.1 Breakup of agriculture land

Sl.No.	Crops	Area (in Ha)	% of town area	% of Agriculture land
1	Paddy	2.16	0.13	0.23
2	Coconut	175.00	10.89	18.59
3	Mixed crops	110.00	6.84	11.69
4	Rubber	654.00	40.72	69.49
TOTAL		941.16	58.58	100.00

10.5 LABOUR STRENGTH

As per 1991 census out of total workers of 6918, 614 (9.16%) workers are cultivators, 650 (9.69%) workers are agriculture labours. In the 2001 census, the percentage of cultivators has reduced to 236 (3.22%) and the agriculture labourers have reduced to 411 (5.62%). The number of cultivators and agriculture labours has further reduced to 226 (2.96%) and 225(2.94%) respectively in 2011 census. But in the census the plantation labourers, which is a predominant group in the town are included in the other category of workers and it is difficult to assess the exact percentage of this category. As per the Socio – Economic survey 2012 the percentage of Agriculture Labourers is 2.45%, percentage of Cultivators is 4.73% and the percentage of Live Stock Workers is 0.33%. The total percentage of workers engaged in Agriculture and allied sector is 7.51%. It shows that the number of laboures engagaged in agriculture and allied sector is reducing consisistantly over the years.

10.6 MAJOR CROPS OF THE TOWN

Major crops, their area of cultivation and productivity of Pala town is shown in Table 10.2. Rubber is the major crop of the town as far as the area of cultivation concerned, followed by Coconut. Rubber cultivation covers an area of about 654 Ha and 175 Ha of land is cultivated with coconut. Most of the elevated agriculture land is under rubber cultivation. Vegetables, pepper, areca nut, pulses, fruits and spices are the other crops. Paddy cultivation is there in 2.16 hectares of land and fruit cultivation of about 10 Ha of land.

Availability of good quality and chemical free vegetables can be ensured only by promoting homestead cultivation of vegetables. Efficient and economic use of water is ensured with the implementation of schemes such as promotion of micro irrigation. Drip and sprinkler irrigation systems can reduce the wastage of water through irrigation.

Table 10.2 Area of cultivation of Major crops

Crops	Area of cultivation (in hect)	Productivity	Crops	Area of cultivation (in hect)	Productivity
Coconut	175	5200 Nuts/ha	Pulses	3	750kg/ 1 Ha
Tapioca	17	25M T/1 Ha	Fruits	8	21T/ 1 Ha

Vegetables	18	20T/ 1 Ha	Pineapple	2	400 T/ 1 Ha
Banana	25	17 MT/ 1 Ha	Spices	27	4T/1 Ha
Rubber	654	4T/ 1 Ha	Paddy	2.162	2T/ 1 Ha
Pepper	23	1500 kg/ 1 Ha	Other crops	2 Ha	425kg/Ha
Areca nut	10	800nuts/ 1 Ha			

Source: Krishi Bhavan, Pala

Increase in use of organic manures, compost, biological agents, bio fertilizers and bio pesticides can be utilized for increasing productivity in the available agriculture land. Pala has enough scope for organic farming.

10.7 TRADING FACILITIES

Pala municipality does not have modern organized market facilities for the trading of agriculture products. Even though there is a Karshaka Market, its facilities are limited.

10.8 ANIMAL HUSBANDRY

In olden days most of the people depends on agriculture as their main source of income. Hence cattle are reared for milk, ploughing in field, pulling the bullock carts and as a source of bio fertilizer. The decrease in area of paddy cultivating lands, modernization of cultivation methods, non-availability of workers were resulted in the degradation of cattle rearing. Now cattle are used only for milk and meat. Animal husbandry sector provides milk, meat, egg, manure, hide and work force.

Table 10.3 gives the details of Livestock population in Pala town. It is clearly seen that the livestock population is decreasing to great extent. Except in the case of Buffalo all other livestock are found to be reducing. This shows that the primary sector occupational structure is gradually changing to urban nature or to the service sector. The presence of Emu is showing the changing nature of livestock Population.

Table:10.3 Livestock Population of Pala

Animals	2007	2012
Cattle	741	581
Buffalo	27	32

Pig	72	36
Poultry	4882	4904
Emu		30
Goat	728	407

Source: Veterinary Polyclinic, Pala

There are no dairy farms or approved slaughter house in Pala municipality. There are two private Poultry farms in the municipal area. Milk societies are functioning for collection of milk from local people.

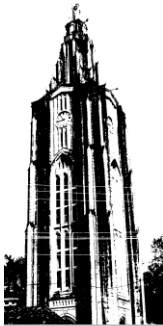
The production of milk and egg in the municipal area is negligible compared to the consumption. The low residential density in majority of wards, availability of large extent of agriculture land is the potentials of the town to promote live stock activities and promotion of poultry farms.

The Veterinary Clinic is the major institution in this sector functioning in the town. The number of Government schemes like Niravu mandalam Scheme, Doorstep and Domiciliary Veterinary Services, Comprehensive health care programs etc are implemented by the Veterinary Polyclinic for the enhancement of animal Husbandry.

10.9 CONCLUSION

From the above studies it can be concluded that, the land under agricultural purposes and workers engaged in agriculture sector is consistently decreasing. The conversion of agriculture land for development purpose, high land value is the main reason behind this. Large percentage of agriculture land of Pala town is used for cultivation of cash crops and the cultivation of food crops is very nominal. The low residential density, presence of more percentage of land under agriculture use, high demand for meat and egg etc provide enough opportunity to develop animal husbandry as a significant economic activity of the town.

11. HOUSING



The housing condition of Pala Town is discussed in this chapter. Plot size, ownership of houses, structural condition of houses, sanitary system, electrification etc are taken as parameters. Availability of services to the residential area also studied.

11.1 INTRODUCTION

Housing is one of the basic needs of human being and it is important next to food and clothing. Normally the quality of housing reflects the quality of living. Falling of birth rate and the social changes has lead to a gradual decrease in the population growth rate. So renovation and modernization of existing stock is a higher priority than provision of new housing. The assessment of housing need is important as far as Pala Town is concerned.

11.2 RESIDENTIAL AREAS

Pala town has scattered homestead type of residential developments. No multi storied residential apartments in the town. Residential areas are scattered in all part of the town. But the density of

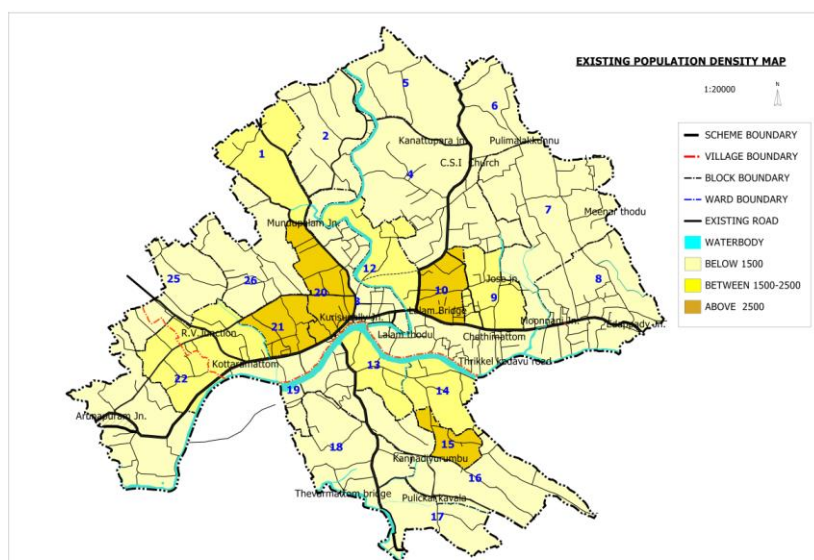


Figure 11.1 Ward wise Population density

population is varying and residential areas are concentrated more in major travel corridors of the town. The residential areas are comparatively less in the northern and eastern part of the town. The ward wise population density

of Pala town is shown in Figure 11.1 and residential concentration is shown in Figure 11.2.

11.3 HOUSING STOCK

The number of households and number of houses available from 1981 onwards is shown in Table 11.1. The analysis shows that the deficiency of house is high in the town and measures are to be taken to provide houses to houseless people.

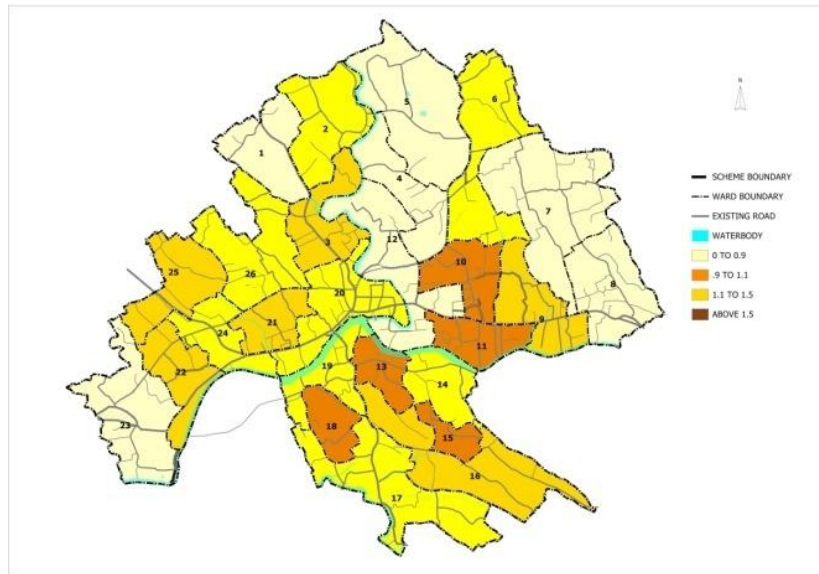


Figure 11.2 Residential concentration

Table 11.1 Variation in number of houses and households

Sl. No	Year	Population	Number of houses	Number of households	No. of houses per 1000 HH
1	1981	21264	3213	3433	936
2	1991	21890	3810	3982	957
3	2001	22640			

***Source: Census reports, Panchayat level statistics*

11.4 RESIDENTIAL PLOTS

11.4.1 Plot size

Details regarding the size of plots and ownership of plots have been collected in the Socio Economic survey 2010. The percentage of plot in different ranges of plot size as per Socio-economic

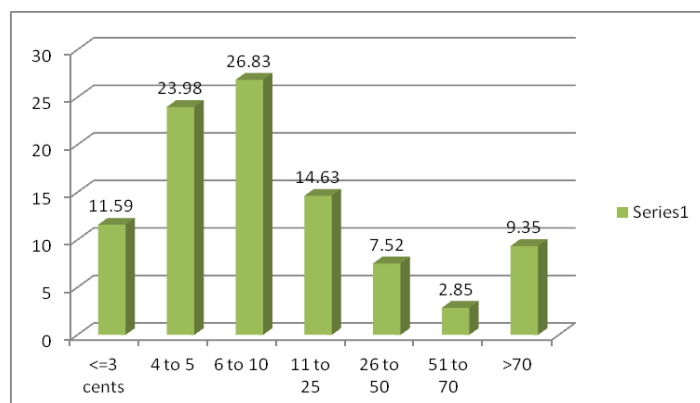


Figure 11.3 Average plot size

survey (2010) is shown in figure 11.3. It shows that comparatively small size plots are more in the town. 26.83% of the plots are in the range of 6 to 10 cents and 23.98% of plots are in the range of 4 to 5 cents.

11.4.2 Ownership of plot

In the Socio Economic Survey it is revealed that majority of households in the town, i.e. 94.31% have their own land, 0.61% of household have lease land and the remaining 3.66% have other type of land ownership. It is shown in Figure 11.4 and Table 11.2

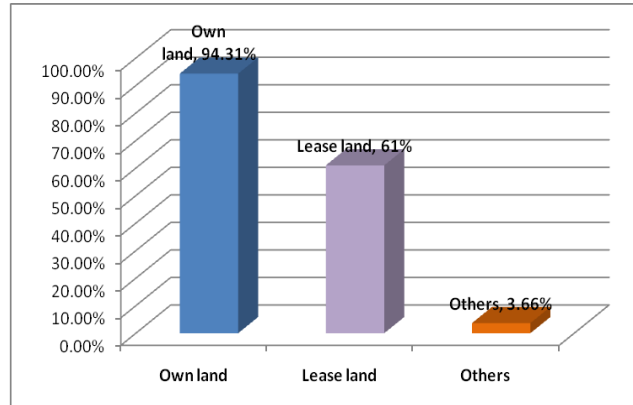


Figure 11.4 Land Ownership Details

Table 11.2 Land Ownership details

Land Owner ship	Own	Lease	Others
Average % for the LSGI	94.31	0.61	3.66

11.5 SIZE AND STRUCTURAL CONDITION OF HOUSES

In Pala Town, more houses (32.52%) have plinth area in the range of 75-150 sqm, followed by 25.4% houses are in the range of 50-75 sqm plinth area. The houses having plinth area 150-250 sq.m is 15.24%. It is shown in the Table 11.3 and Figure 11.4.

Table 11.3 Percentage of House in each range of plinth area

Range of plinth area	< 20	20-50	50-75	75-150	150-250	>250
Percentage	2.64	15.65	25.41	32.52	15.24	7.52

The structural condition of houses shows that 61.79% of houses are pucca building, 34.76% of buildings are moderate buildings, 2.03% of buildings are kutcha buildings and 1.42% of buildings are huts. It is represented in Table 11.4 and Figure 11.5.

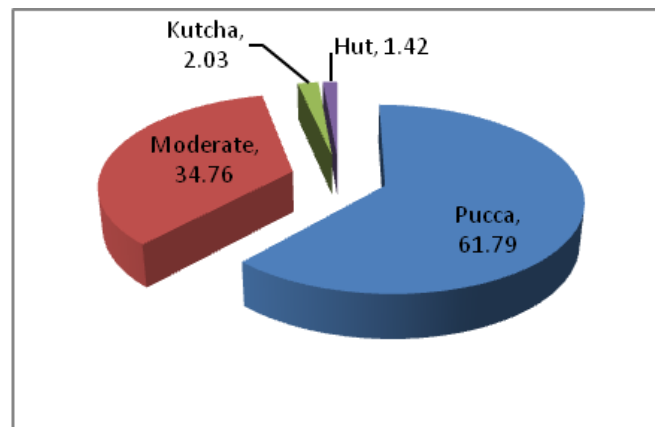


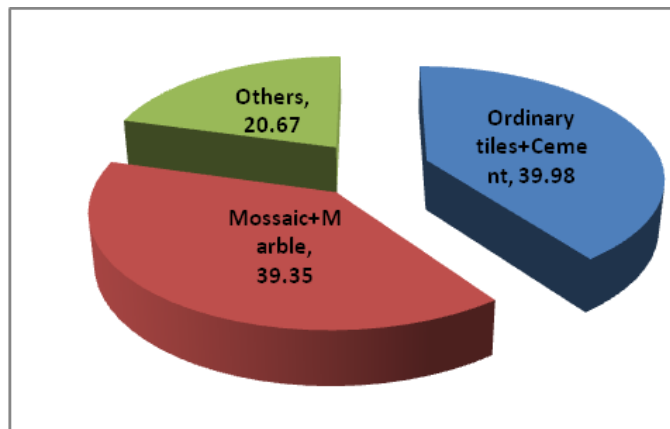
Figure 11.5 Structural condition of houses

Table 11.4 Structural condition of Buildings

Type of Building	Pucca	Moderate	Kutcha	Hut
Percentage	61.79	34.76	2.03	1.42

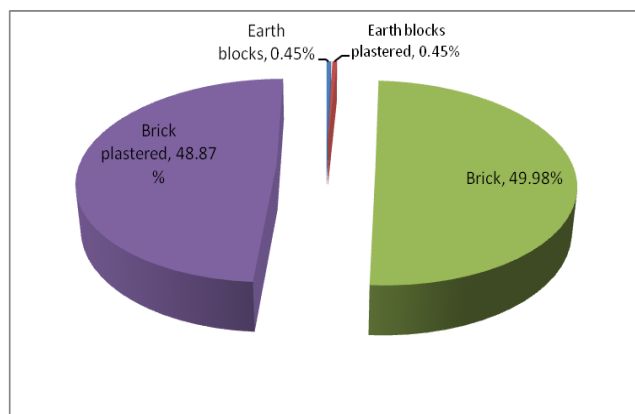
Distribution of houses with different types of floor material, different types of walls and different types of roof are shown in figures 11.5, 11.6 and 11.7 respectively. It indicates the better structural condition of houses in Pala Town.

Study results of different types of flooring used in the houses are given in the Table 11.5 and Figure 11.6. From the figure 11.6 it can be seen that 39.98% of houses are with ordinary tiles and 39.35% of houses are with Mosaic and Marble tiles and only 20.67% of houses are with other flooring materials.

**Figure 11.6 Condition of floors of houses****Table 11.5 Percentage Variation for Different Types of Floor**

Type of floor	Ordinary tiles and cement	Mosaic and Marble	Others
Percentage	39.98	39.35	20.67

The different type of materials used for the construction of the wall has been studied. The results are shown in Table 11.6 and Figure 11.7. It can be seen that 49.98% of houses are constructed with brick wall and 48.87% of houses are constructed with brick plastered walls. The remaining

**Figure 11.7 Materials used for walls**

buildings are with other type wall materials like plastic, grass, coconut leaves, earth blocks etc and its percentage is very less.

Table 11.6 Percentage Variation for Different Types of Wall

Type of wall	Earth blocks	Earth blocks plastered	Brick	Brick plastered
Percentage	0.45	0.45	49.98	48.87

The Table 11.7 and Figure 11.8 show the percentage of different types of roof. From the Figure 11.8, it can be observed that 64.62% of houses are with concrete roof, 34.96% of houses are with moderate quality roofing materials like tin sheet, asbestos sheet and tiled roof. Only 0.42% of houses are with plastic and perishable materials like grass, coconut leaves etc.

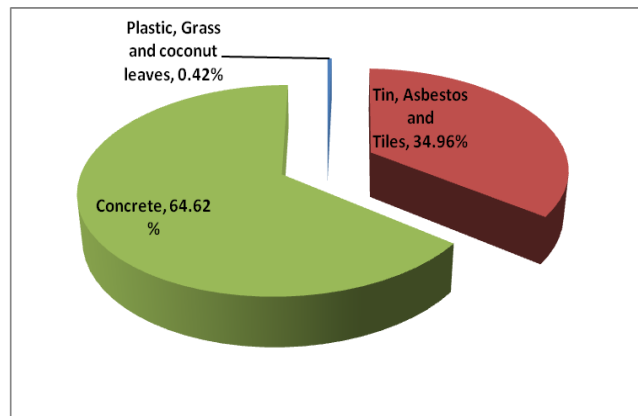


Figure 11.8 Type of roofing materials

Table 11.7 Percentage Variation for Different Types of Roof

Type of roof	Plastic, Grass and coconut leaves	Tin, Asbestos and Tiles	Concrete
Percentage	0.42	34.96	64.62

11.6 SANITARY SYSTEM AND SOLID WASTE DISPOSAL SYSTEM

As per the Socio-Economic Survey 2012, 100% of houses in Pala Town area have some sort of sanitary system. No public sewerage system is there in the Town. Septic tank is the major form of sanitary waste disposal system and it is followed by pit latrine. Percentage wise usage of

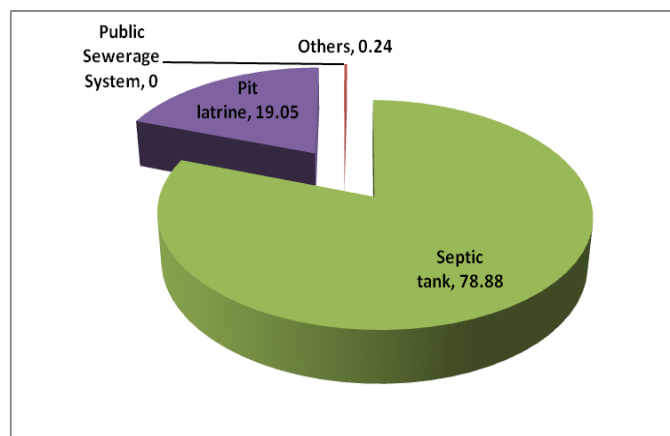


Figure 11.9 Method of sanitary waste

different sanitary waste disposal systems of the town is shown in Figure 11.9.

The survey also reveals that 96.58% of wastes from the houses are disposed in their own compound. Streets, garbage bin etc are the other places of disposal. The percentage of disposal at different places is shown in Figure 11.10.

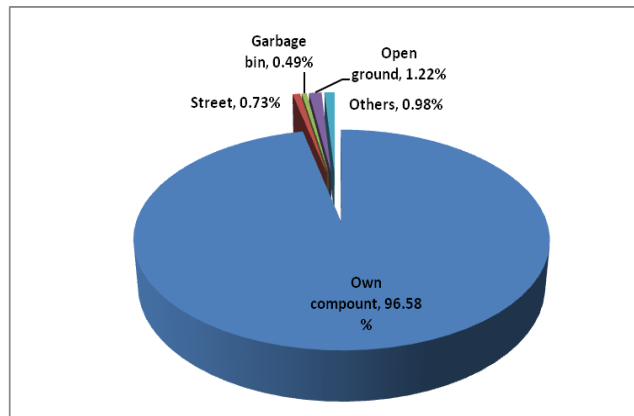


Figure 11.10 Method of Solid Waste Disposal

Better Sanitation system is available for the houses in the town and nearly 78.88 % of houses have septic tanks. But the system for collection of wastes from the houses is very poor. A system for collection of wastes from the houses has to be evolved especially in high density wards.

11.7 ELECTRIFICATION OF HOUSES

As per the Socio-economic survey (2012) conducted by the Town and country Planning Department, 100% of houses of the town are electrified.

11.8 AVAILABILITY OF SERVICES

The average distance in kilometer (As per the Socio-Economic survey 2012) from houses to facilities like motorable roads, bus stops, schools, Post offices, health facilities, hospitals, ration shops, play grounds etc are shown in Figure 11.11. The Socio-Economic survey data is also analyzed by comparing the distance to various facilities with certain

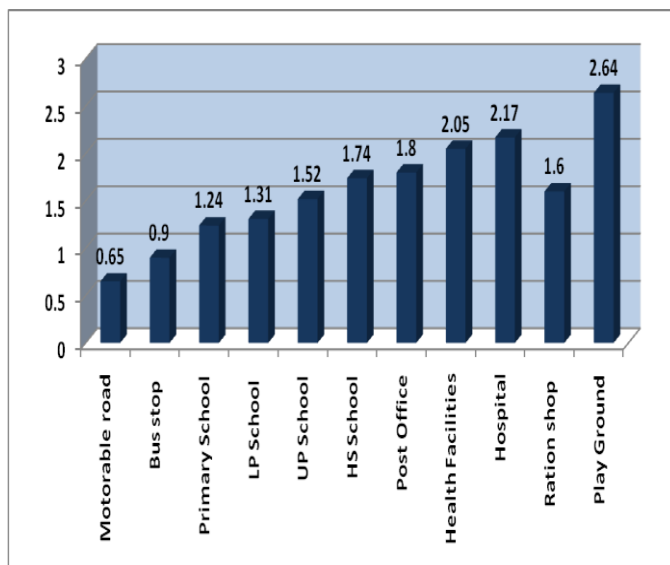


Figure 11.11 Average distance to various services

standard. The average distance to various services and comparison with adopted standards are shown in Table 11.8.

The analysis shows that when compare with the adopted standards, the facilities like motorable roads, high school, Post office, helth facilities, ration shops, play ground are available at a close distance to the residential areas. But more distance has to travel for the facilities like bus stops and schools other than primary schools.

Table 11.8 Distance to facilities and comparison with standards

Sl.No	Facilities and standard	% of people with the opinion that distance to facilities are higher than standard
1	Distance to mortorable road greater than 0.5 km	12.8
2	Distance to bus stop greater than 0.5 km	43.5
3	Distance to Primary school greater than 0.5 km	63.41
4	Distance to LP school greater than 0.5 km	64.84
5	Distance to UP school greater than 1 km	20.73
6	Distance to HS school greater than 3 km	0.41
7	Distance to Post Office is greater than 3 km	0.2
8	Distance to Health greater than 5 km	0
9	Distance to Hospital greater than 5 km	0
10	Distance to Ration shop greater than 5 km	0
11	Distance to Play Ground greater than 5 km	0

Source: Socio – Economic Survey 2010

11.9 SQUATTER SETTLEMENTS

There are no approved slums in Pala Town. But the following colonies are there with poor housing condition and need special attention.

Njavallil Nagar colony

Parumalakkunnu Davis Nagar

Theruvumkunnunagar

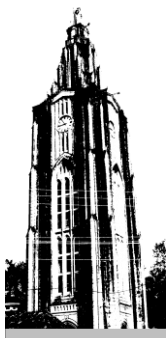
Monthaakkara

Nellithanam Nagar

Janatha Colony

11.10 CONCLUSION

Pala town has comparatively better housing condition. The town has low residential density and the average size of the plot is comparatively high and 94.31% of people have their own houses. The size of the residences is also high and its structural condition also good. Better sanitary system is available but a system has to be evolved for the disposal of solid waste. The facilities are available at a reasonable distance when compare with adopted standards. The squatter dwellings are less in Pala Town.



12. DRINKING WATER

This chapter discuss about the drinking water schemes of the town, consumption of water by different category of consumers, different source of water, scarcity of water and water conservation measures.

12.1 INTRODUCTION

For the survival of human life, one of the important components is pure water. The water supply scheme for Pala Town was commissioned in 1970 and before that individual wells are the main source of drinking water. Undulating topography of the town is the major hurdle in providing drinking water. The details like water supply scheme, consumption of water, source of water, scarcity of water etc are discussed in the subsequent paragraphs.

12.2 WATER SUPPLY SCHEME

Drinking water to Pala and adjacent Grama Panchayaths are provided through the scheme called “Water Supply Scheme to Pala”. The scheme covers Pala Municipality and part of Mutholy, Meenachil and Karoor Grama Panchayaths. The source of water is Meenachil River and the intake facilities are located at the municipal limit near Valiyapalam. Yield from the source is 5 MLD. The treatment Plant of 4.2 MLD capacity is located at Puthenpallikkunnu, 600m away from Valiyapalam. Aeration, sedimentation, filtration and chlorination are the treatments done at the treatment plant. The distribution to various part of the town is made from the Over head storage reservoir tanks located at Puthenpallikunnu (3.67 lakhs litre), Poothankunnu (0.60 lakhs litres), Kaveekunnu (1 lakhs litres) and Kannadiyirumbu (1 lakhs litres) and Ground level tanks located at Puthenpallikunnu (8 lakhs litres) and Kannadiyirumbu (0.75 lakhs litres). All the 26 wards of Pala municipality are covered by the Network of Kerala Water Authority.

12.3 MINI WATER SUPPLY SCHEMES

There are 7 Mini water supply schemes in Pala Town and out of that 6 are functioning now. Name of the scheme, year of establishment, location, agency

established the scheme, agency maintaining the scheme, source of water, yield from source etc are given in Table 12.1.

Table 12.1 Details of mini water supply schemes

Sl.No	Name of the scheme	Year of establishment	Location/Ward No	Established by	maintained by	Source of water	Yield (in Liters/day)
1	Arunapuram Water Supply Scheme	2003	Arunapuram (Ward 22)	Municipality	Beneficiaries	Pond and supporting well	1,00,000
2	Mamparambil janakeeya water supply scheme	2000	Tank at Kanattupara and Well at Punchirikavala in Lalam thode	Beneficiaries	Beneficiaries	River well	12,00,000
3	Theckekkara jelavitharana scheme	2005	Tank - Mukkalikkunnu near by Ware house. Well at Meenachil rivar- near Pala bridge	Municipality	Beneficiaries	Theckekkara WSS samithi	1,10,000
4	Theckekkara Kudivella Padathi	2011-Not completed	Tank-ward -16, well-ward-19 Koottumakal Purayidam	Municipality, M P fund	Beneficiaries	Well -River	1,00,000
5	Kaveekunnu Jala Vitharana Padhathi	2004	Kaveekunnu Tank, Pond is located at ward IX	Municipality	Beneficiaries	Pond in pady and well in Meenachil river	1,50,00
6	Parippil kadavu water supply scheme	Not completed	Parippil kadavu (ward 14,15)	Municipality, MP Fund	Beneficiaries	Bore well at Parippilkadavu	1,50,000
7	Attikkunnu	Scheme dropped	Ward 16	Municipality			

Source: Primary survey 2013

In addition to above sources, there are 1284 private wells and 6 tube wells in Municipal area.

12.4 CONSUMPTION OF WATER

The supply of protected water in the town is made by Kerala Water Authority (KWA). The number of connections and consumption of water under different category, ie domestic, non-domestic, industrial and public taps etc is shown in Table 12.2. The category wise consumption and its percentage

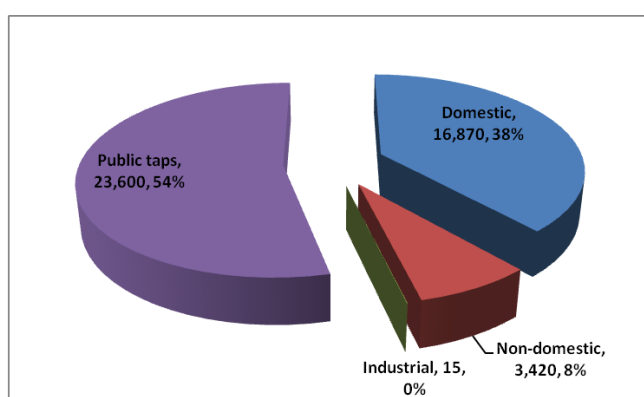


Figure 12.1 Connection details of KWA

are shown in Figure 12.1. Major portion of the water supplied by KWA is through Public taps followed by domestic connection. Supply of water for Industrial purpose is very nominal.

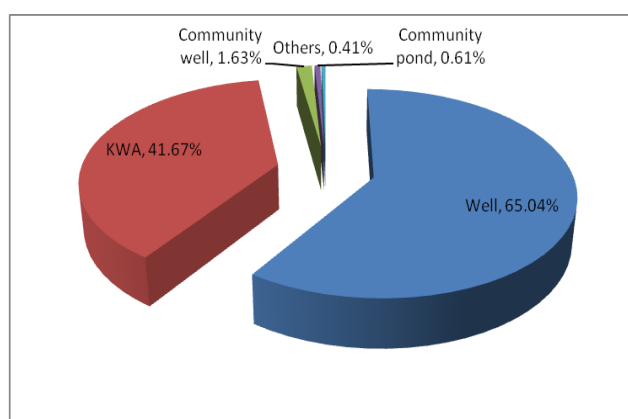
Table 12.2 Average monthly consumption of water.

Sl.No.	Categories	Average Monthly Consumption (in Kilo liters)
1.	Domestic	16,870
2.	Non-domestic	3,420
3.	Industrial	15
4.	Public taps	23,600
TOTAL		43,905

Source: Kerala Water Authority

12.5 SOURCE OF WATER

In the Socio-Economic survey 2012, 65.04% of people reported that well is the major source of water and 41.67% of people reported that water supplied by KWA is the main source of water. Community well (1.63%), Community pond (0.61%), other sources (0.41%) is the other sources of water as per the socio-economic survey. It is shown in Table 12.3 and also in Figure 12.2.

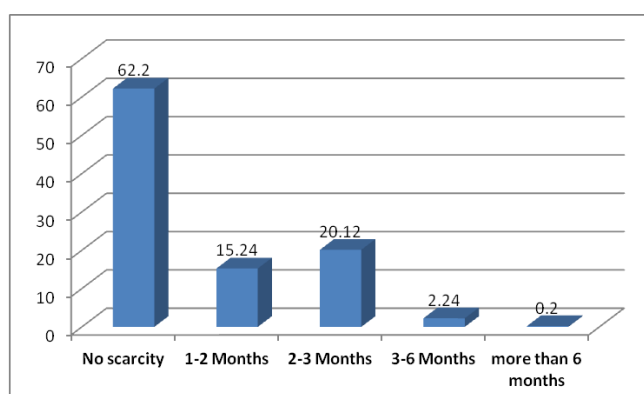
**Figure 12.2 Source of Water****Table 12.3 Source of Drinking Water**

Source of water	Well	KWA	Community well	Community pond	Others
Percentage	65.04	41.67	1.63	0.61	0.41

Source: Socio Economic Survey 2012

12.6 SCARCITY OF WATER

As per the socio-economic Survey (2012) conducted by Town and Country Planning Department, 62.2% of the households reported that there is no scarcity of water, 15.24% reported that there is scarcity for 1-2 months, 20.12% reported that there is

**Figure 12.3 Scarcity of water**

scarcity for 2-3 months, 2.24% reported that there is scarcity for 3-6 months and 0.2% reported that there is scarcity for more than 6 months. The scarcity details are shown in Figure 12.3 and Table 12.4

Table 12.4 Scarcity of water

Category of scarcity	No scarcity	1-2 Months	2-3 Months	3-6 Months	more than 6 months
Percentage	62.2	15.24	20.12	2.24	0.2

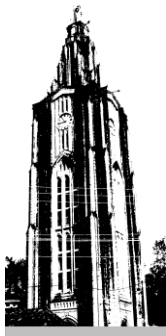
Source: Socio Economic Survey 2012

12.7 WATER CONSERVATION

River Meenachil and its tributaries are the major source of drinking water in Pala Town. Even though there is sufficient quantity of water in the river and flooding during rainy season, the river will be dried up suddenly with the beginning of summer. The depth of river has been lowered due to collection of sand from the river and the available water also contaminated by draining out waste water and by the deposition of waste into the river. When the river reaches Pala, it carries wastes from the settlements of the up stream side especially Bharananganam and Erattupetta. Effort has to be made to prevent contamination of water and also to improve the storage of water. Permanent check dams to be constructed to improve the availability of water during summer. Protection of Meenachil River has to be done at regional level. The town has an undulating terrain and the rain water drains out immediately after the rain and recharging of ground water is not taking place properly. Efforts are to be made for ground water recharging.

12.8 CONCLUSION

System for distribution of water to all major habitable area of the town is available. 62.2% of the households reported that there is no scarcity of water (as per Socio-Economic Survey). In the Socio-Economic Survey, majority of the people has the opinion that water is not an issue of top priority of the people. Undulating topography is a major hurdle in providing piped water supply. Only 25% of households getting protected water from KWA. For 95% of the households, well is the main source of water. Certain areas of the town needed special attention as there is more scarcity of water.



13. TRANSPORTATION

Transportation system of Pala Municipality, road network, road inventory, vehicle population, link volume and capacity utilization, parking characteristics, pedestrian volume, traffic volume at outer cordon points is the content of this chapter

13.1 INTRODUCTION

For the balanced development of an urban centre planned growth of spatial activities, coupled with provision of adequate infrastructural facilities like transport system, a well defined hierarchy of road network, drainage, water supply, power supply etc are required. But in most of the cities and towns the available road system is not able to cater to the present traffic. The fast development of socio-economic and commercial activities coupled with inadequate supporting facilities and ever increasing demand due to centralization of employment centres in C.B.D area caused a perpetual vicious circle of traffic problems.

Among the various urban infrastructure facilities transportation is the one, which shapes the structure and growth of the city. A workable circulation plan ensuring efficient operation of the transportation system facilitates economic growth of the town. With progressive urbanization travel demand in towns has increased tremendously. This is evident from the long delays and traffic congestion observed on urban roads in most of the towns. In order to make the transport system efficient, there is a continuous need to maintain a balance between demand and supply of facilities within the town and its environs.

As part of preparation of Master Plan for Pala Town various studies related to Traffic and Transportation has been conducted. Study about vehicle population, road network, speed and delay, traffic volume, parking, pedestrian movement etc were carried out.

13.2 TRANSPORTATION SYSTEM

The transportation system of Pala town consists of only one mode, ie road ways. No railway or water way is passess through the town. The road network plays most vital role in the all round development of any area. The existing road network of Pala consist of SH, MDR under Kerala Public Work Department and other roads under Municipality.



The town is located 27 km east of Kottayam, the district head quarters and is well connected to other major centres of the state by a network of State High ways and other PWD roads. Punallor – Muvattupuzha (SH No-8), Eattumanoor – Poonjar (SH-32) are the State Highways and Pala-Vaikom road, Pala – Ramapuram Road, Pala-Uzhavoor Road, Pala-Edamattam Road are the other important roads of regional importance passes through the town.

No railway linkage to Pala Town, Eattumanoor and Kottayam are the nearest railway stations and these stations are located at a distance of 18km and 27km respectively from Pala town. As per the priliminary alignment of this railway line, the proposed Angamali-Azhutha Sabari Railway line is passing adjacent to Pala town.

Nearest airport is Cochin International Airport located at a distance of 70 Km from Pala Town. Another International Airport Thiruvananthapuram is 190 Km away from the town.

Road Transport

Road transport is the most important mode of transport in Pala. Public transport in the town is largely dependent on buses, run by both private operators and the Kerala State Road Transport Corporation (KSRTC) buses.

There are three bus stations serving Pala town and out of that two of them are used for the operation of private buses and the third one is exclusively for KSRTC buses which is located on the side of Pala - Thodupuzha road. The Kottaramattom bus station is the major operating centre of private buses located in A.P Road in the western part of the town and the second one Town Bus Stand is located at the heart of the town.



Pala is well-connected to the rest of Kerala through the services operated by KSRTC.

13.3 ROAD NETWORK

Pala is well connected by roads to the surrounding centers. Town level linkages are mainly by roads and there is no rail and water transport facilities in Pala. Meenachil River and Lalam thodu pass through the centre of the town and in the earlier days this river was used for water transportation and now there is no scope for water transportation. The major road from Pala to surrounding areas are Athirampuzha -Poonjar road (SH 32), Punaloor - Muvattupuzha road (SH-8), Pala - Vaikom road, Pala - Ramapuram road,

Pala- Uzhavoor road, Pala-Edamattam Road. River View Road, By –Pass Road (Kottavazhy Road), By-Pass road connecting Ramapuram Road and Thodupuzha Road are the other major roads within the town. In addition to that there is a network of Municipal roads connecting the above roads.

State High way No.32 (Athirampuzha – Poonjar) passes through the heart of the town in the east-west direction and all other major roads in the network are branches off from this road. Two Municipal bus stations and the KSRTC Bus station located in this road. Pala-Ponkunnam Road (SH.8), Pala – Thodupuzha Road (SH.8), Pala –Ramapuram Road and Pala-Vaikom Road are originating from this road at various points. By pass Road (Kottavazhy Road) and River view road are the other two important roads of the town run parallel to the A.P.Road. The above higher order roads are connected by number of collector roads mainly maintained by the Municipality.

Eventhough there is certain elements of grid - iron pattern in the central part of the town, generally the town has ring and radial pattern. The existing road network of the town is shown in Figure 13.1.

The total length of the motorable roads in the town is 33.86 Km of which 13.75 Km is PWD roads. The following are the various categories of roads classified according to the surface condition of the roads.

Table 13.1 Categories of roads according to surface conditions

Sl. No.	Type of road	Length in Km	Percentage
1	Concrete	2.07	6.11
2	Tarred	11.02	32.54
3	Metalled	5.00	14.77
4	Earthen	15.77	46.08
		33.86	100.00

13.4 ROAD INVENTORY

An understanding of the extent and quality of road network is very important to formulate plans for the future. Road inventory survey was carried out on all the major roads of the study area to obtain information like road length, cross-sections, hierarchical pattern of roads, surface condition, intersections, street furniture, parking area, bus bays etc.

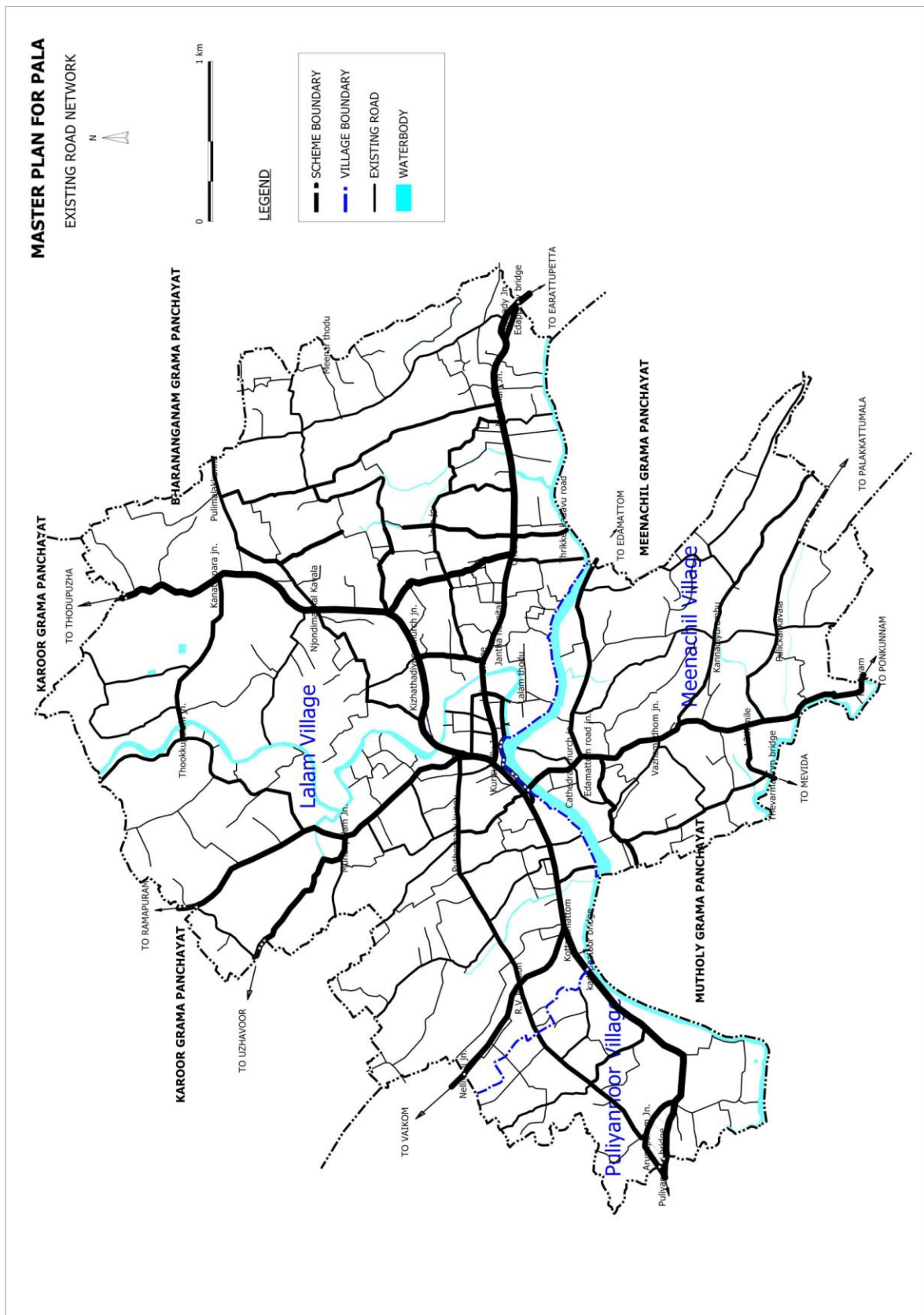


Figure 13.1 Existing Road Network of Pala

13.5 ROAD NETWORK CHARACTERISTICS

All arterial roads are connected by a network of local distribution roads which are inter linked. The widths of arterial and distribution roads are only 3 meter to 6.5 meter and are maintained by the municipality.

Punallor – Muvattupuzha Road (State High way No.8) passes for a length of 4.80km within the municipal area through the heart of the town in the North –South direction. It is one of the major roads used by the Sabarimala Pilgrims who are coming from the northern part of the state as well as



Southern state. The width varies from 9 meter to 12 meter and either side of this road is fully developed. Reconstruction of this road has been included in the Kerala state transport Project (KSTP).

Athirampuzha – Poonjar Road (SH.32) is other important travel corridor and this road connects the north eastern part of the district with the district headquarters, Kottayam. The width of the road varies from 8 meter to 14 meter and has a length of 3.50 km in the municipal area.

13.6 VEHICLE POPULATION

Details regarding the number of registered motor vehicles in planning area are difficult to delineate as there is very high level of integration with regard to vehicle flow and traffic from adjoining areas. But the data regarding the number of motor vehicles at district level is available and it is considered for the analysis. The trend in growth of vehicle population has been phenomenal all over the State and Kottayam is no exception. The growth of motor vehicles in Kottayam district during the years from 2000 to 2009 is given in Table 13.2.

Table 13.2: Growth of Motor Vehicles in Kottayam District

Year	No. of vehicles	Growth index
2000-01	300988	100.00
2001-02	323530	107.49
2002-03	348154	115.67
2003-04	375873	124.88
2004-05	403641	134.11
2005-06	439442	146.00
2006-07	475083	157.84
2007-08	341454	113.44
2008-09	371203	123.33
2009-10	404109	206.00
2010-11	445940	227.00
2011-12	497638	253.00

Note: Base year (2000-01) index = 100.00

Table 13.3 presents the number of motor vehicles having valid registration in the district as on 31.03.2009. It is of interesting to note that the major component of vehicle population in the district continues to be two-wheelers (52.43%) followed by cars constituting 20.52 per cent. Most of the vehicular growth in the district is in the urban areas of the district. As such, Kottayam Urban Area containing the district headquarters and major commercial, economic, medical and educational activities ensure the increased vehicle population resulting in over-crowded and congested road network. This has resulted in poor serviceability of road, traffic delay, increased vehicle operating cost and high accident risk.

Table: 13.3 Number of Vehicles having Registration as on 31.03.2009 in Kottayam District.

Sl. No.	Type of Vehicle	Number
1	Goods Vehicles	
	i. Four wheelers and above	23822
	ii. Three wheelers and Tempos	7416
2	Buses	

	i. Stage carriages	1444
	ii. Contract carriages/Omni-buses	12176
3	Four wheelers	
	i. Cars	114839
	ii. Taxis	16858
	iii. Jeeps	11130
4	Three wheelers	
	i. Auto rickshaws	46607
	ii. Motorised cycle rickshaws	0
5	Two wheelers	
	i. Scooters and Motor cycles	257778
6	Tractors	
	i. Tractors	712
	ii. Tillers	124
	iii. Trailers	63
	iv. Others	4531
	Total	497500

The trend in growth of vehicle population has been phenomenal all over the State and Pala is no exception.

13.7 LINK VOLUME AND CAPACITY UTILIZATION

Knowledge of the traffic volume using a particular road network is important to understand the efficiency at which the system works and the general quality of service offered to road users. Data pertaining to traffic volume and its composition was collected for all major roads through link volume survey.

It has been seen that the traffic on the Eattumanoor-Erattupetta Road, especially within the CBD area is very high. A maximum daily traffic of 20,260 PCU was observed at Hospital Jn-Kurishupalli Jn in A.P.Road which caters the traffic from Kottaramattom and Ponkunnam sides. Also maximum daily traffic of 29,130 PCU was observed between SBT Jn and Lalam Bridge Jn and 28,620 PCU was observed between Kottaramattom and Post office Jn which are the outer ends of CBD area. In almost on all roads the peak hour traffic is between 9.00AM – 10.00 AM. It is noted that on Ponkunnam road,

Ettumanoor road and Ramapuram road carries major share of traffic volume in the town.

Capacity utilization of the road stretches was measured by volume-capacity ratio (V/C Ratio). It is the ratio of volume of traffic playing on the road stretch to the capacity of the road stretch. For working out the capacity of different road sections, the information collected 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 traffic volume and volume capacity ratio of major roads of the town is shown in Table 13.4. It shows that many sections of roads in the town area has been utilized to almost two times its capacity.

Table 13.4 Volume – Capacity Ratio on Major Road Links in Pala

No.	Name of Road	Road Link	Capacity (PCU/day)	Volume (PCU/day)	Volume-Capacity Ratio
1	SH-32	Puliyanoor-Arunapuram	15000	19360	1.29
2	SH-32	Arunapuram - Kottaramattom	15000	17800	1.19
3	SH-32	Kottaramattom - Post Office Jn	15000	28620	1.91
4	SH-32	Post Office Jn - Hospital Jn	15000	22260	1.48
5	SH-32	Hospital Jn - Kurisupalli Jn	24000	20260	0.84
6	SH-32	Kurisupalli Jn - SBT Jn	24000	16530	0.69
7	SH-32	SBT Jn - Lalam Bridge Jn	15000	29130	1.94
8	SH-32	Lalam Jn- Chethimattom	15000	15540	1.04
9	SH-32	Chethimattom-Kochidappadi	15000	13000	0.87
10	SH-8	Kizhathadiyoor church Jn- Njondimakkal	15000	12180	0.81

11	SH-8	Njondimakal – Municipal boundary	15000	11470	0.76
12	SH-8	Murikumpuzha- 12 th Mile	15000	18620	1.24
13	SH-8	12 th Mile- Municipal boundary	15000	13330	0.89
14	Vaikom Rd	Kottaramattom- Nelliyani	15000	7470	0.50
15	Vaikom Rd	Nelliyani- Municipal boundary	15000	6690	0.45
16	Ramapuram Rd	Market Jn- Mundupalam	15000	17800	1.19
17	Ramapuram Rd	Mundupalam- Municipal boundary	15000	13890	0.93
18	River view Rd	Stadium Jn - Town Bus stand Jn (River view road)	24000	17020	0.71
19	River view Rd	Town Bus stand Jn - Hospital Jn(River view road)	24000	16380	0.68

Source: Primary survey 2013

13.8 TRAFFIC VOLUME AT OUTER CORDON POINTS

Survey for assessing the volume of vehicles entering/exiting the study region was conducted at six outer cordon points of the study region. Classified volumes of vehicles were recorded according to their direction of travel.



The maximum daily traffic volume of 31,500 was observed at Arunapuram in SH 32, comprising mostly with 12,500 cars and 10,500 two wheelers. 28,000

PCU was observed on Murikkumpuzha on Papa - Ponkunnam road followed by 25,000 PCU at Chethimattom. Cars constituted the maximum in both locations, followed by two wheelers and passenger auto rickshaws. In other locations traffic volume ranged from 5,000 to 22,000 PCU per day.

13.9 PARKING CHARACTERISTICS

Parking surveys were carried out on major road sections of Pala town area to obtain the peak parking demand and parking duration of various categories of vehicles on these road sections. The parking area in KSRTC bus stand is the major off-street parking place which provides pay & park facility for both two wheelers and four wheelers.



Other major parking locations are near the Lalam Bridge in front of the municipal complex, in front of the shopping complex at Kottaramattom, River view road etc. Off street parking area is inadequate and this in turn leads to on street parking in almost all main roads.

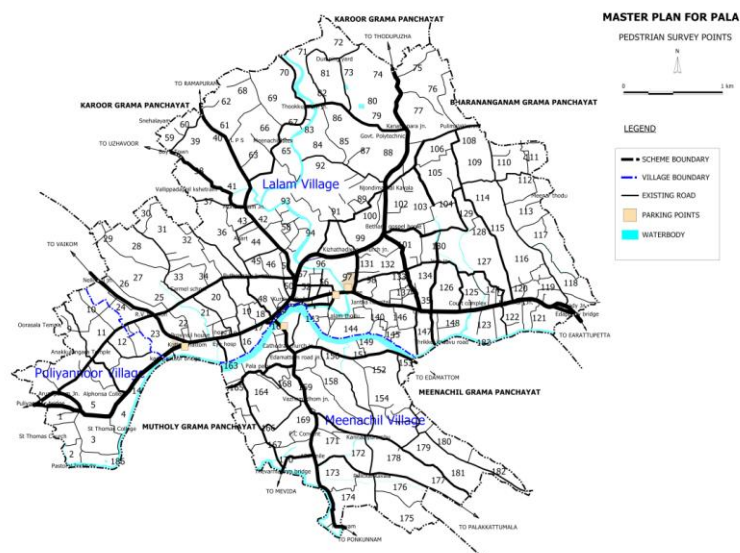


Figure 13.2 location of major parking areas

Majority of the vehicles parked at most of parking corridors were found to be for short duration of less than 30 minutes. 60 to 95 per cent of the vehicles parked on selected parking corridors were found to be parked for duration less than 30 minutes. Long duration vehicles constituted only around five per cent of the total vehicles.

The Pay & Park near KSRTC Bus stand is the only off-street parking area of the town. Adequate off-street parking area has to be provided in the town. On street parking should be controlled as delay is experiencing in main roads of the town due to on street parking. More number of organized Taxi/auto rickshaw stand is required within the town.

13.10 PEDESTRIAN VOLUME

Pedestrian movement in the town is comparatively high in the central area, since a number of offices, schools, shops etc. are concentrated to the city centre. Locations where identified for doing the reconnaissance survey. Pedestrian volume surveys were conducted at these locations where the pedestrian movements were found to be high. Locations of selected for pedestrian survey and pedestrian volume at selected location are given in Figure 13.3 and the pedestrian volume of these points is shown in Table 13.5.

Table 13.5 Peak Hour Pedestrian volume at major locations

Sl.No.	Name of location	Peak time		No. of Pedestrians
		From	To	
1	Near Lalum Bridge	11	12	1365
2	SBT Jn	10	11	2430
3	Kurisupalli	9	10	659
4	Hospital Jn	9	10	1605
5	St Thomas School Jn	9	10	1043
6	Kottaramattom	9	10	1017

Analysis of the pedestrian cross movement at major activity/traffic

generation areas revealed that a maximum of 2430 pedestrian movements

occurred in the SBT Jn. Also high volume of pedestrian cross movements, in the

order of above 1000, occurred at various points in the CBD area viz, near Lalum Bridge, at SBT Jn, Kurisupalli Jn and at Hospital Jn.

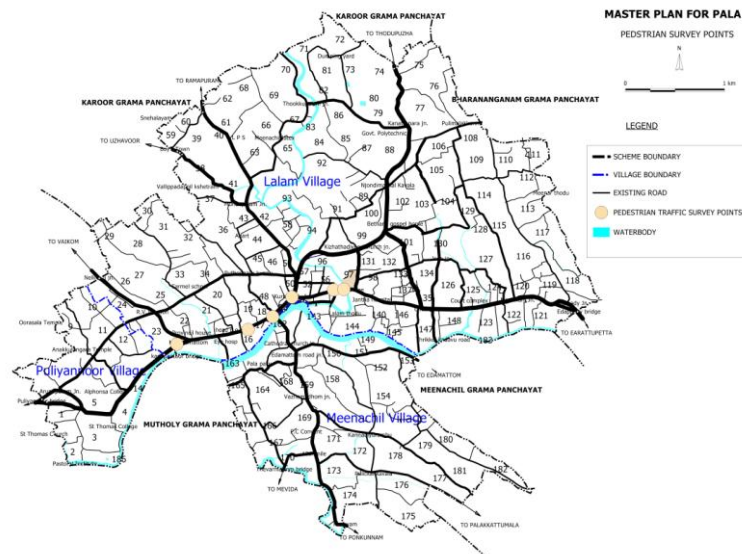


Figure 13.3 location of major pedestrian crossing areas

13.11 TRANSPORT TERMINALS

Pala town has three bus terminals, one at Kottaramattom where Private buses are halting and starting the trips, Old bus stand at town centre which caters both KSRTC & Private buses. The KSRTC bus stand and depot is located on the Thodupuzha road near Maharani Jn.



At present there is no terminal for goods vehicles in the town.

13.12 CONCLUSION

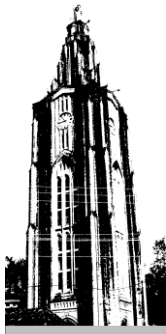
The configuration of the existing road network within Pala town does not reflect any regular form, although it resembles more or less like ring and radial type having radial roads connected with partial ring roads. The

road inventory shows that majority of roads are with inadequate right of way and carriage way width. The local road network system is needed to be improved.

The traffic volume of A.P.Road (SH.32) and P.P.Road (SH.8), Ramapuram road are exceeding its capacity. Volume capacity ratio of roads at the town centre is very high. The facilities at all bus terminals of the town are inadequate.

Absence of by-pass roads and link roads, inter-mixing of intra-city and inter-city traffic, narrow width of roads in the central part of the city, heavy movement of vehicular and pedestrian traffic, lack of pedestrian facilities, and encroachment of right-of-way etc are the major problems identified.

The most important aspect of traffic and transportation problem of Pala town is the congested central core with limited scope for road widening. Hence, emphasis has been given to develop alternative linkages so as to divert the traffic passing through the CBD area. This would also help to reduce the unwanted inter-mix of intra-city and inter-city traffic on urban roads within the central part of the town.



14. ENERGY

The power distribution system of Pala Town, category wise conception of electricity in the municipality is included in this chapter

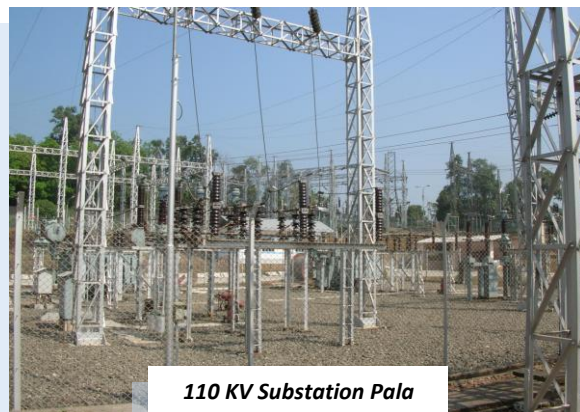
14.1 INTRODUCTION

Pala town is under the Electrical Major Section Pala. Major portion of the Town is coming under the Pala Major Section. The office is located in the Vydyuthi Bhavan in the Ramapuram road near the Mini Civil Station. The Circle office, Division office, Sub-division office and Section office are functioning in the Vydyuthi Bhavan building. Power distribution to Pala major section is coming from the 110KV substation Pala through 11KV feeder.



14.2 POWER DISTRIBUTION

Electric power to Pala major section is distributed from Pala 110 KV Sub-Station located at Pala – Ezhachery road near Mundupalam Jn. There are 6 transformers installed in the Sub-Station and the present load is 450A. Supply to the substation is coming from Pallom, Neryamangalam and Chengulam Substations. Power is distributed from Pala substation to different locations outside Pala. Distribution of power from the Sub Station to the different



locations is through 8 feeders of 11 KV, 3 feeders of 33 KV and one 66KV feeder. Distribution to Pala, Paika, Kidangoor and Eattumanoor sections are taken from the Pala 110KV substation.

14.3 CATEGORY WISE CONNECTION

As mentioned in the previous paragraph, major portion of Pala Municipal town is coming under the Electrical Major Section, Pala. So category wise connection and consumption details (it also include the details of customers of the Grama Panchayats

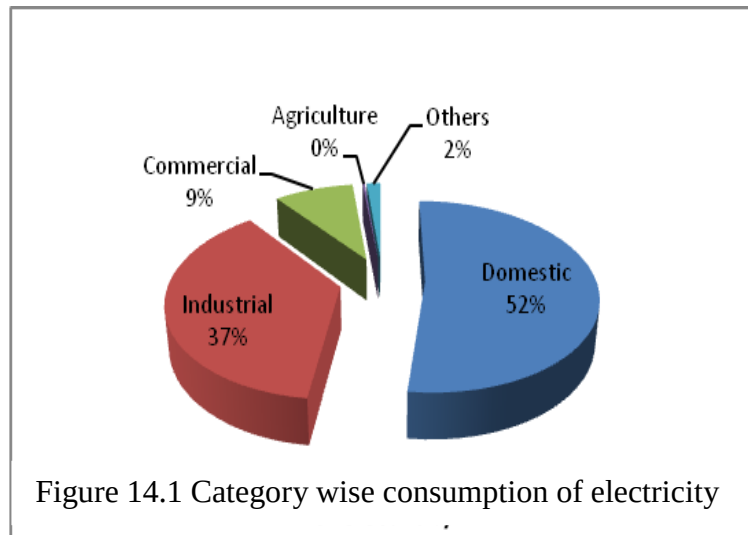


Figure 14.1 Category wise consumption of electricity

coming under the electric major section also.) of Electrical Major Section, Pala is discussed here.

Table 14.1 Category wise electricity Consumption (in KWH) details/Month

Sl.No.	Total KWA	Domestic	Industrial	Commercial	Agriculture	Others
1.	1741006	905316	651105	153653	4248	26684

Source: KSEB

More percentage of electric power (in terms of connection and consumption) is used for domestic purpose. Consumption for Industrials is coming next. Commercial consumption is very less compared to domestic and Industrial usage. We can see that for Agriculture purpose the consumption is also very less. This indicates low level of commercial and agricultural activities of the Town.

14.4 CONCLUSION

Low voltage is not a problem in the town. All the houses are electrified and they are satisfied with the facilities. Now importance shall be given for improving the quality of supply. More number of street lights has to be provided in the major roads.



15. WASTE DISPOSAL

This chapter reveals the existing solid waste collection and disposal system, disposal of bio-medical system, sanitary waste disposal, drains, condition of Meenachil river and public comfort system etc.

15.1 INTRODUCTION

Handling of solid wastes is one of the major problems faced by the urban local bodies. Increase in the volume of urban waste is principally due to increasingly affluent life style, rather than urban growth. The municipal solid waste productions continue to grow both in per capita and over all time. Assuming that 300 gm of solid waste is generated per day, the present quantum of solid waste generated will be about 7 tonnes.

15.2 SOLID WASTE COLLECTION SYSTEM

The Health wing of the municipality is headed by a Health supervisor. The Health Supervisor is assisted by Health Inspectors and Junior Health Inspectors. The sanctioned strength of Contingent Employees of the Health wing is 49. 1 tipper, 1 lorry, 2 tractor and 8 autorikshaws are the vehicles attached with the Health Wing.

The system of 'disposal at source' is adopted in the Municipality. Wastes from hotels are being utilized in Pig farms of adjacent areas. It is the responsibility of the owners to dispose the wastes generated at their premises. Town sweeping is done by the Municipal staff and the town sweeping covers the AP Road, PM Road, Ramapuram Road and the roads and lanes in the CBD area, Bus stands etc. Barring the CBD area and few wards adjacent to the CBD Area the town has very low density and rural or semi-rural character and problem of waste disposal is not experiencing in these areas.

15.3 WASTE DISPOSAL SYSTEM

The waste disposal yard is located at Kanattupara and 0.60 hectares of land is available here. Earlier there was a plant for manufacture of manure from

degradable waste installed by Kerala State Agro Industries Corporation. Now the plant is not functioning and the dumping yard is remaining closed from 2012 and solid wastes are not brought to this yard from other places. Now the solid waste generated is disposing at different place



Dumping yard at Kanattupura

especially at source itself. Non-degradable wastes are disposed by land filling at different places.

In the Socio-Economic Survey (2010) conducted by the Town and Country Planning Department, 99.00% households reported that they are disposing the solid waste in their own compound, 0.64% disposing in open ground. The share

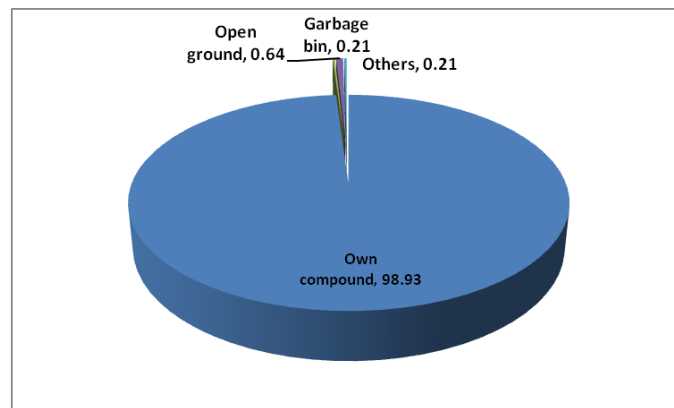


Figure 15.1 Place of disposal of Solid Waste

of places of disposal is shown in Figure 15.1. Nearly 62% of the residential buildings are situated in plots of area less than 10 cents. So the waste collection system has to be extended for collection of wastes from residences in wards of high population density.

15.4 DISPOSAL OF BIO MEDICAL WASTES

No system managed by the Municipality is there for collection and disposal of bio-medical wastes from the Hospitals functioning in the town. They are depending on a private agency (IMAGE, Palakkad) for collection and disposal of bio-medical waste.

15.5 SANITARY WASTES

There is no sewage system for the town. As per the Socio-economic survey conducted by the Town and Country Planning Department (2012) almost all houses have some sort of sanitation system. In the survey it is also inferred that 78.88% of houses have septic tank, 19.05% of houses have pit latrine. It

is represented in Figure 15.2 and the analysis shows that better Sanitation system is available for the houses in the town

15.6 DRAINS

Meenachil river and Lalamthodu flow through the town and these natural drains divide the town into three

parts. The town has a generally slop towards these drains and major portion of surface run off is drains into Meenachil river and its tributaries. For the disposal of surface run off, drains are available along the major roads. These drains are ultimately leading to natural drains for the disposal of water.

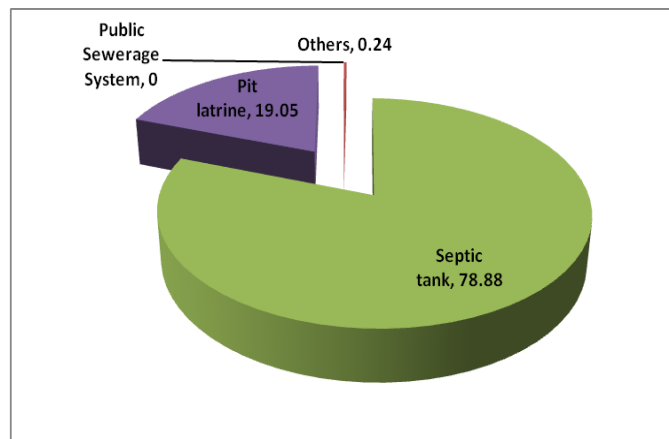


Figure 15.2 Disposal of Sanitary wastes

15.7 MEENACHIL RIVER

The major source of drinking water for major portion of Kottayam district, is Meenachil River, which flows a distance of 4.56Km through the town. During the rainy season the river is flooded with water and sufficient quantity of water is not available



during the summer season. The drainage pattern of the town and the other settlements on the bank of the river is such a way that the waste water is disposing into the river. In addition to that few industrial units functioning on the bank of Meenachil river also disposing wastes into the river. Traces of metals have been found at different locations of the river. So the pollution and non availability of water during the rainy season is a major issue to be addressed urgently.

15.8 PUBLIC COMFORT STATIONS

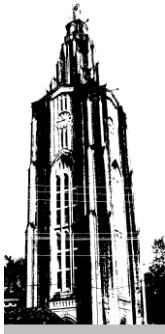
The availability of Public toilet / comfort station is very less in the town and at present only three Public comfort stations – at Kottaramattam Bus stand,

Town Bus Stand, Mundupalam, Moonnani, Kurisupally, Stadium etc. E-toilets are functioning at Town Bus Stand. More public Comfort Stations are to be provided at different parts of the town.

15.9 CONCLUSION

Town sweeping is confined to the CBD Area of the town and the major roads of the town. 'Disposal of waste at source' is adopted in the town and it is the responsibility of the owners to dispose the wastes generated at their premises and practically there is no system for collection, conveyance and disposal of solid wastes in the town. Almost all houses in the town have some form of sanitation system and 86% of houses have septic tanks. It indicates the better sanitary condition of the town. The contamination of Meenachil River is another issue to be considered.

16. EDUCATION



This chapter details out the existing educational status, school education including number of schools, ownership of schools, students-teacher ratio, distance to travel to schools, basic infrastructural facilities etc. It also discuss about higher education and technical education sector of Pala Town.

16.1 INTRODUCTION

The first school of Pala town associated with the St.Thomas Church was established in 1896. This school was elevated as a high school in 1921. Later three more high schools including a Government High school were established in different part of the town. In the field of higher education, St.Thomas College,



Pala was established in 1951 and Alphonsa College was established in 1964. In addition to that a number of educational institutions in aided and unaided sector are also functioning in the town. The educational institutions in Plala town are also meeting the demands of the people from adjacent areas.

16.2 GENERAL EDUCATION STATUS

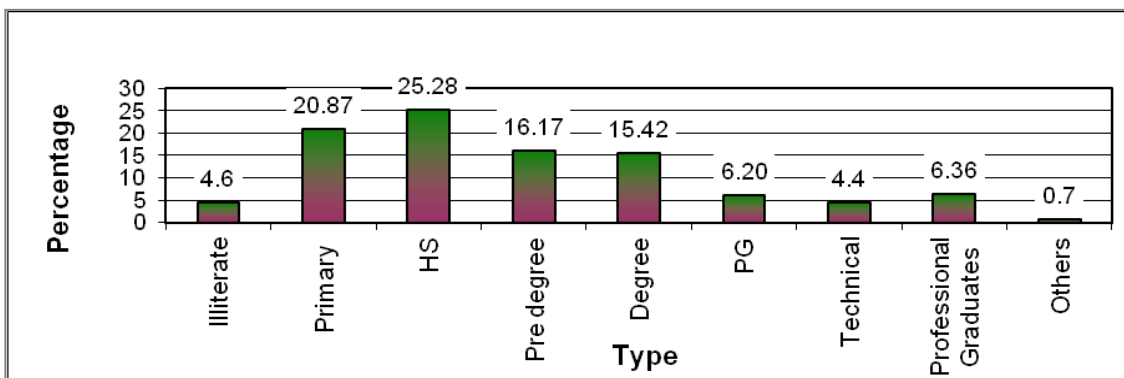
The general Education status is assessed based on literacy rate, number of educational institutions per 1 lakh population and educational status. The literacy rate of Pala Town as per 2011 census is 97.63% which is slightly less than district and higher than the state literacy rate. There is enough number of educational institutions in the town to cater the needs of the resident population as well as of the students from the neighboring areas. The educational status of the town is assessed by comparing the qualification of the people. It is shown in Table 16.1 and Figure16.1

Table 16.1 Educational status of Pala town

Type	Illiterate	Primary	High School	Pre Degree	Degree	Post Graduate	Technical	Professional Graduate	Others
Percentage	4.60	20.87	25.28	16.17	15.42	6.20	4.40	6.36	0.7

Source: Socio Economic Survey 2012

From the above table and figure, it can be observed that 20.87% of people have only Primary Education, 25.28% of people have High school education and 16.17% of people have Pre-degree qualification. In Pala Town 15.42% of people hold Degree Qualification, 6.2 % have Post Graduate Degree, 4.4%

**Figure 16.1 Comparison of educational status of people**

possess Technical qualification and 6.36% acquired Professional Degrees. The remaining 0.7% possesses other types of Educational Qualifications. The above analysis shows that Pala has comparatively high literacy rate and the educational qualification. It indicates the high educational status of the town and the town attained this status mainly due to the availability of educational institutions a number of educational institutions in the town.

16.3 SCHOOL EDUCATION

There are four colleges, 14 technical institutions, one Polytechnic, 6 High schools, 3 upper Primary schools and 4 Lower Primary schools at Pala, which serve needs of the town as well as the surroundings region. The total number of students for the lower primary, Upper primary, High school and Higher secondary school are 702, 542, 2003 and 1710 respectively. The total number of teachers in the schools is 208. The teacher student ratio for school is 1:24.

The High schools and Colleges are attracting students from the influence region of the town also.

Table 16.2 Number of schools in various categories

Category	L.P. School	U.P. School	High School	Hr. Sec.Schools
No.of schools	6	3	3	4

Source: Primary Survey 2012

The **ownership of schools** i.e. in Government sector or private sector of various categories is shown in Figure 16.2. All schools in Higher Secondary and U.P. School level in municipal limit are functioning in private sector. Higher secondary schools are

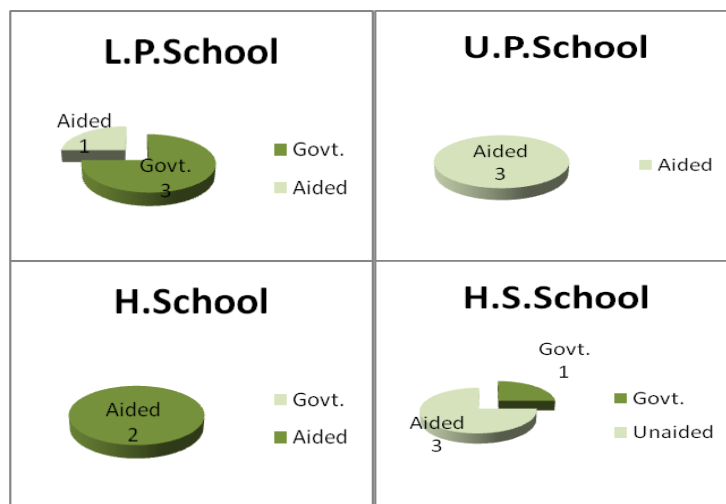


Figure 16.2 Comparison of various categories of schools

functioning as unaided schools. But in the case of U.P schools, 3 schools are functioning in private sector, 1 school is in Government sector. In the case of L.P School, seven schools each are functioning in government and private sector. This shows the predominance of private sector in the school education of Pala town.

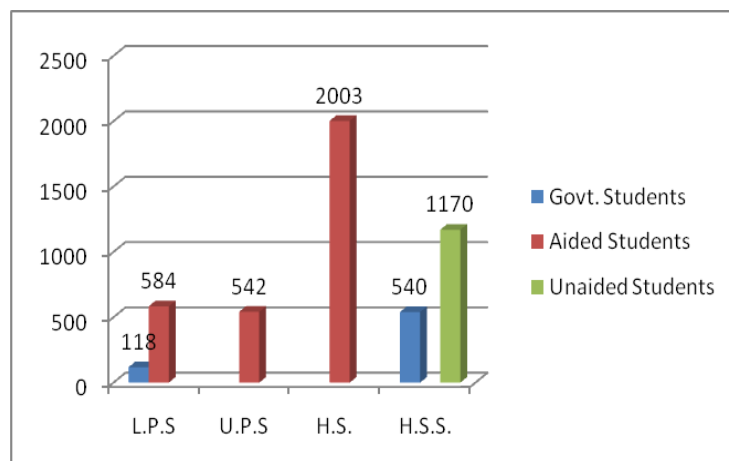


Figure 16.3 Comparison of students in various categories of schools

In High school and Higher secondary section there is no

Government institutions and hence students have to depend either aided or unaided institutions. But in primary section (both L.P. School and U.P. School) the situation is comparatively better. The number of students

studying in Government school and Government aided school is more than number of students in unaided school. Number of students in three categories of school in primary, High school and Higher Secondary categories is shown in Figure 16.3

The **student – teacher ratio** of Government Schools, Aided schools and unaided schools of the town is shown in figure 16.4. It can be observed that the ratio is almost same in aided school and unaided school level. But in lower primary school level the ratio for aided school is more than four times of Government school. But in primary school level the ratio is lower than other school sections.

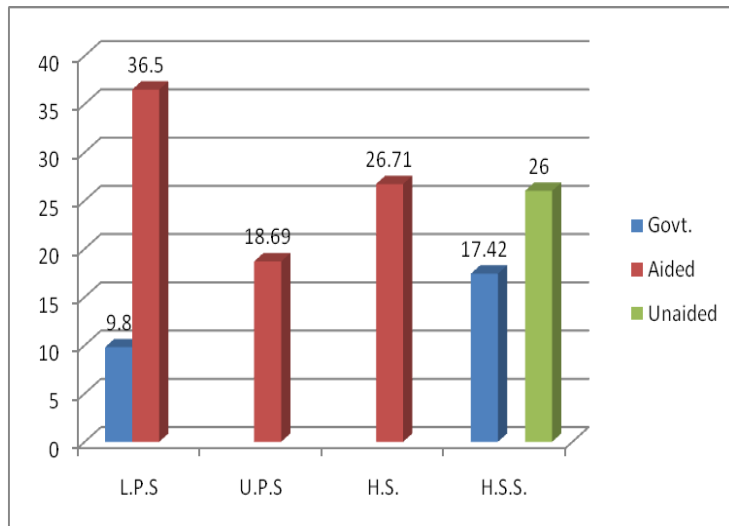


Figure 16.4 Student - teacher ratio of schools

Regarding facilities available at school, the parameters like play ground, separate toilets for girls, computer labs, internet facilities, drinking water, good road etc.... were considered. It shows that except internet facilities and transportation facilities (school vehicles) most of the facilities are available in all schools. Generally in Government schools, the facilities are less, when compared with aided and unaided schools. Basic facilities are available in most of the school.

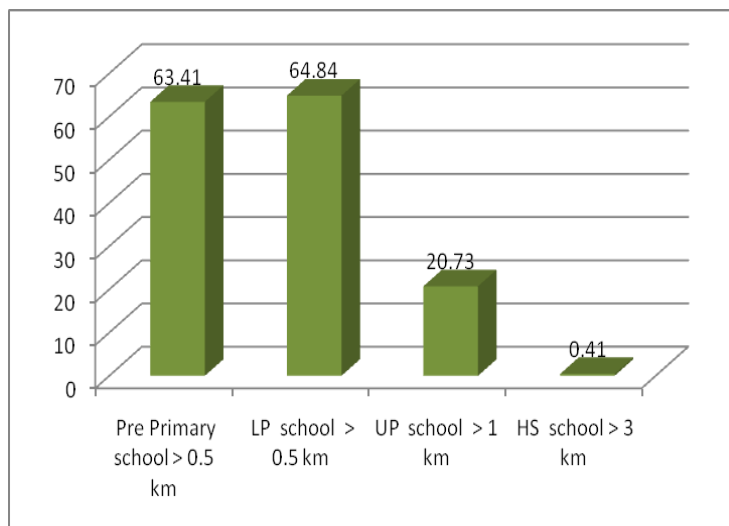


Figure 16.5 Percentage of students with Distance to school

The distance to various categories of schools is compared with certain standards. The adopted standards based on studies related to preparation of IDDP and LDPs in Kollam district, are the pre primary school, primary school upper primary schools and high schools shall be available within a distance of 0.50, 0.50, 1.00 and 3.00Km respectively.

The percentage of people saying that distances to different category of schools are greater than the standard is shown in Figure 16.5. The figure shows that in the case of Pre-primary schools, lower primary schools, upper primary schools, the travel distance is more for a major percentage of students.



Even though there are sufficient number of schools in the town there is concentration in certain part of the town. The selection of school by the beneficiaries is based on the standard and the syllabus followed in the schools. This may be the reason for increase in travelling distance.

16.4 SPATIAL DISTRIBUTION OF SCHOOLS

A map showing the distribution of schools in Pala Town shows that the schools are available in every part of the Town and travelling distance is not much high. All higher and higher secondary schools are located on the northern side of Meenachil River and no such institutions are there in Thekkekkara.

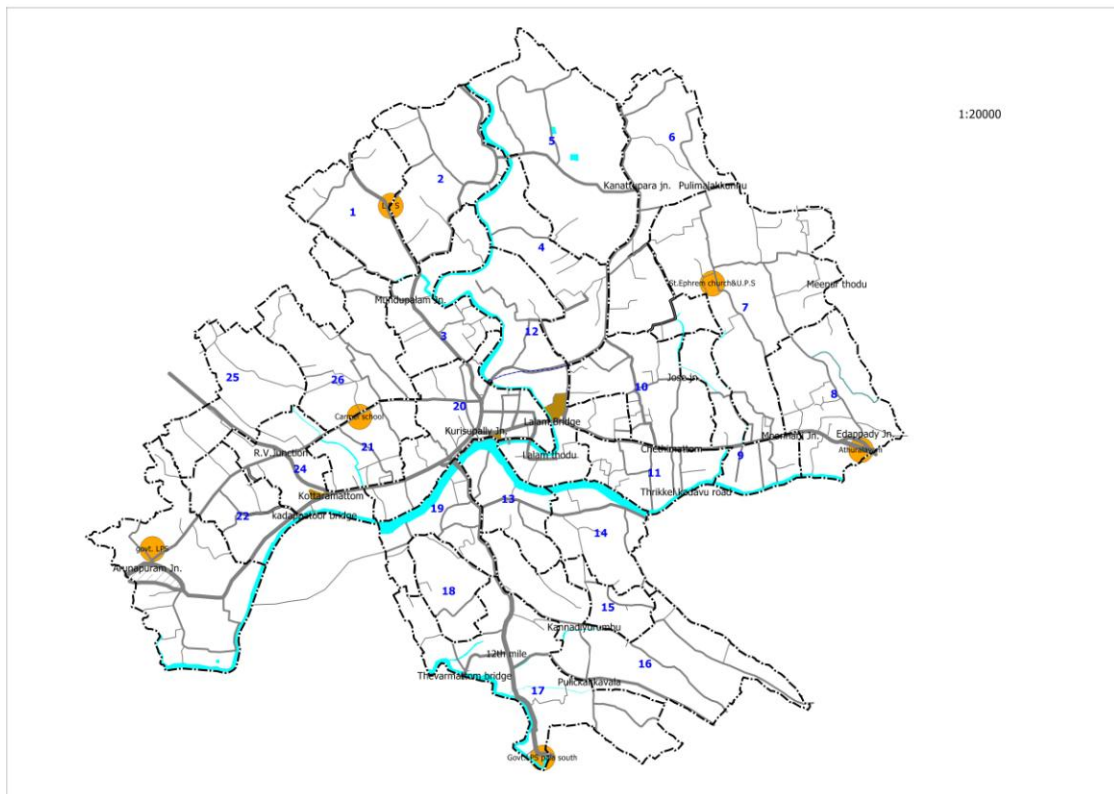


Figure 16.6 Map showing location of schools

16.5 HIGHER EDUCATION

There are two Arts and Science Colleges functioning in the town limit. St. Thomas College and Alphonsa College Pala is located in the town and offering courses in Graduation and Post-Graduation in various Arts and Science subjects. For college education students from the neighboring panchayats are depending on these two colleges.

One Nursing College is also functioning in the Pala Municipal boundary.



16.6 TECHNICAL EDUCATION

The Government Poly Technique College is functioning near Kaveekunnu adjacent to Pala - Thodupuzha road. A private Polytechnic namely St. Mary's institute of Engineering with Civil and Mechanical Diploma facilities are also functioning in the municipal limit. Two ITCs in private sector are functioning in Pala Municipal limit.

Three Engineering colleges are functioning around Pala town. They are St. Joseph College of Engineering, Choondachery, IHRD College of Engineering, Poonjar and College of Engineering owned by LBS centre for Science and Technology, Kidandoor.

16.7 OTHER INSTITUTIONS

Pala has emerged as the prime centre in the state for students seeking entry into the professional courses. Coaching Centres for those who are preparing for Engineering, Medical and other professional courses Entrance examinations. An academy for training of persons who are preparing for All India Civil Services examinations are also functioning in the town. These institutions are attracting people from other part of the state also and has influence in the economy of the town

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16.8 RELATED FACILITIES

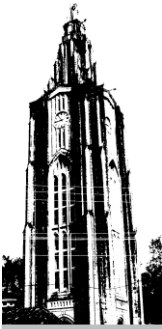
Even though there are a number of educational institutions functioning in the town, the related facilities like libraries, hostel and sports facilities are inadequate in the town.

16.9 CONCLUSION

The town has high literacy rate and Educational standard. The facilities of many government schools are not fully utilized. The surplus land and infrastructure available can be utilized for starting new generation Education institutions. More number of students are studying in aided school when compared with Government or unaided schools. Travel distance to the schools in primary level and upper primary level is higher

than standards. In Higher Education sector, certain new generation Colleges are established within the Municipal limit and in the outskirts of the town recently for catering the needs of the town and surrounding area. Considering the availability of a number of higher education institutions in the town and surrounding area Pala can be developed as a center of educational service for the region.

17. HEALTH



The existing systems of medicare is discussing in this chapter. Institutions in three systems of medicine ie, Allopathy, Ayurveda and Homeo are functioning in the town. The existing status of medical facilities, spatial distribution of medical facilities, major diseases reported in the town etc. are discussed in the subsequent paragraphs.

17.1 INTRODUCTION

Pala the headquarters of Meenachil taluk and is also the centre of Medi-care of the sub region. Initially traditional system of medi-care was adopted and later numbers of hospitals in various system of medicine were established in the town. In this chapter the existing status of medical facilities in three systems are discussed.

17.2 MEDICAL INSTITUTIONS

Health facilities include all medical institutions such as hospitals, dispensaries, nursing homes, clinics, maternity and child welfare centres etc. There are 55 medical institutions in the Pala Town comprising of different types of hospitals and clinics. Details of hospitals and clinics/dispensaries are explained in Table 17.1 and Table 17.2 respectively. There are 8 Allopathic Hospitals with 66 doctors and 717 beds, 4 Ayurvedic hospitals with 6 doctors and 65 beds and a Homeo hospital with 2 doctors and 25 beds. This is quite adequate if the town alone is considered, but they also serve the region surrounding it.

Table 17.1 Details of Hospitals in Pala Town

Type of Hospital	No: of Hospitals	No: of Doctors	No: of Beds
Allopathic	8	103	1008
Ayurvedic	4	6	65
Homeopathic	1	2	25

Source: DMO Office

There are more than sufficient primary health facilities for the residents of Pala but the absence of a super speciality Health facilities are seen in the Town.

Table 17.2 Details of clinics / Dispensaries in Pala Town

Type of Clinics/Dispensaries	Number	No: of Doctors
Allopathic	19	27
Ayurvedic	14	17
Homeopathic	9	10

Comparing the Doctors in different types of medicine it is seen that 72.66 % of doctors are in Allopathic system of medicine followed by 17.97% of Ayurvedic system of medicine. In Homeopathic system of medicine only there is 9.37% doctors.

17.3 ALLOPATHIC SYSTEM OF MEDICINE

List of hospitals in allopathic system of medicine functioning in the town is shown in Table 17.3. The institutions in allopathic system are functioning both in government and private sector. General Hospital (Government Taluk Hospital), Pala is the major



medical institution of the town in public sector and all other hospitals are functioning in private sector. While comparing the availability of beds in Pala Town it is seen that 33.83% of beds are in government hospital and the remaining 66.17% beds are in private sector. The facilities in the hospitals like number of beds and number of doctors are given in Table.17.1.

Table 17.3 Details of Allopathic Hospitals

Sl:No	Hospitals	No. of beds	No. of Doctors
1	Govt. Taluk Hospital (General Hospital)	341	49
2	Janatha Children Hospital	60	1
3	Alphonsa Eye Hospital	12	2
4	Marian Medical Hospital	250	25
5	Upasana Hospital	20	3

6	Christuraja Hospital	25	1
7	Cherupushpam Trust Hospital	150	17
8	Carmel Medical Centre	150	5



The Government General Hospital is the major medical institution in Government sector functioning in the town and serving the people of entire Meenachil taluk. Total bed strength of the hospital is 341 and 49 doctors are permanently functioning in the Hospital.

Orthopaedics, Respiratory Medicine, Dental Unit, General Medicine, Surgery, Gynecology, Anesthesia, Pediatrics, psychiatry, Radiology, Physical Medicine, Pathology, Ophthalmology and ENT are the departments presently functioning in the Government Taluk Hospital, Pala. The work of Blood Bank is in progress. X ray unit, Scanning Unit and 3 tables' Mortuary are

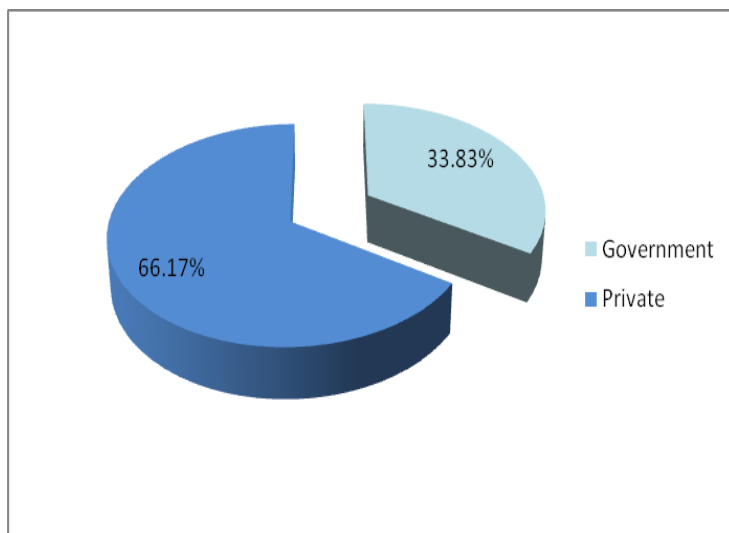


Figure 17.1 Comparison between Government and private health bed Facilities in Pala

functioning in the hospital. Facilities like portable X-ray unit, freezing unit in the Mortuary, Trauma Care Unit, Tele Medicine unit etc are not available in this General Hospital. For higher order facilities, people have to depend the Medical College Hospital, Kottayam. Details of patients of General Hospital,

pala is shown in Table 17.3. Expansion of the General Hospital, Pala is in progress

Table 17.4 Details of Patients of General Hospital, Pala

Year	Out Patient / month	Inpatient / year
2009	9544	9544
2010	7650	7519
2011	7200	7319
2012	7650	8156

Source: General Hospital Office

In addition to the above allopathic hospitals there are 3 diagnostic centres, 2 labs, 1 eye hospital, 2 skin clinics, 2 Psycho therapy centres and 7 dental clinics are functioning in the Pala Town with outpatient facilities. All these dispensaries and clinics are functioning in private sector and services of about 22 doctors are available there.

17.4 INDIAN SYSTEM OF MEDICINE - AYURVEDA

In Ayurvedic system of medicine there are four major hospitals with inpatient facilities are available in Pala Town. Government Ayurveda Hospital is also located in Pala Town where the services of 4 doctors are available with 20 beds for inpatients. Details of Ayurveda hospitals are given in Table 17.4. In addition to that there are 14 Ayurvedic dispensaries/Oushadasalas are functioning at different parts of the town. Service of consulting about 17doctors and sales of various Ayurvedic medicines are available in these dispensaries/Oushadasalas. A Pranic Healing centre is also functioning near Kottaramattom with the service of a doctor in private sector is also functioning in the town.

Table 17.5 Details of Ayurvedic Hospitals

Sl:No	Hospitals	No. of beds	No.of Doctors
1	Govt. Ayurveda Hospital	20	4
2	Sridhar Vydyasala	25	..
3	Matha Ayurveda Hospital	10	1
4	Karuna Ayurveda Hospital	10	1

17.5 HOMEOPATHIC SYSTEM OF MEDICINE

In Homeopathic system of medicine one Hospital in government sector with 25 beds and 2 doctors is functioning near Chethimattom road in Pala Town. There are 9 Homeo clinics functioning at different part of the town and service of 10 doctors is available in these clinics. No higher order facilities are available in this system of medicine.

17.6 SPATIAL DISTRIBUTION OF MEDICAL FACILITIES

Distances to a Medical facility and hospital have been assessed in the Socio-Economic Survey conducted in 2012. The distance to the hospital is analyzed by assessing the percentage of households with travel distance more than 5.00 km and less than 5.00m. It is found that for almost all households have hospital facility within 5.00km distance in the form of clinics or as dispensary or as Hospital. The spatial locations of major hospitals are shown in figure 17.2.

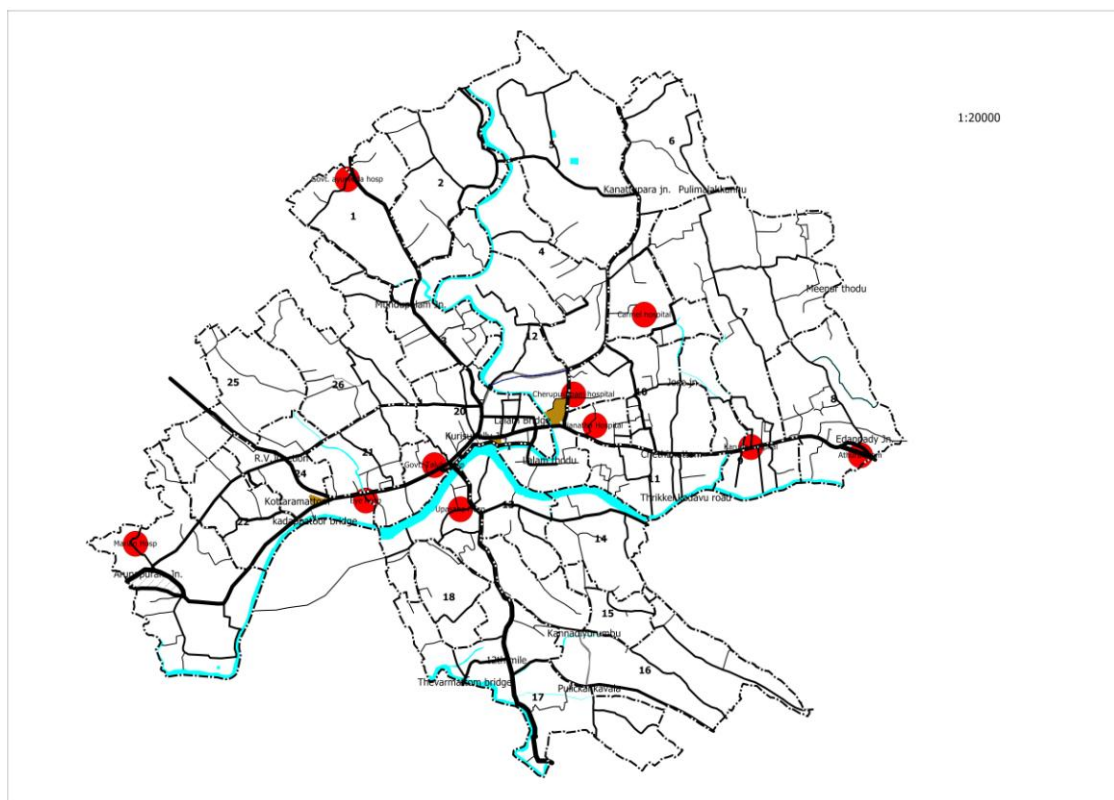


Figure 17.2 Spatial Distributions of Hospitals

17.7 MAJOR DISEASES

As per the Socio Economic Survey conducted in the year 2012 as part of preparation of Development Plan, details regarding major diseases occurred in the town during the past five years have been collected. Major diseases occurred and percentage of houses diagnosed with diseases is shown in Figure 17.3. Chickun Guinea was reported as the major disease of the town during the last five years.

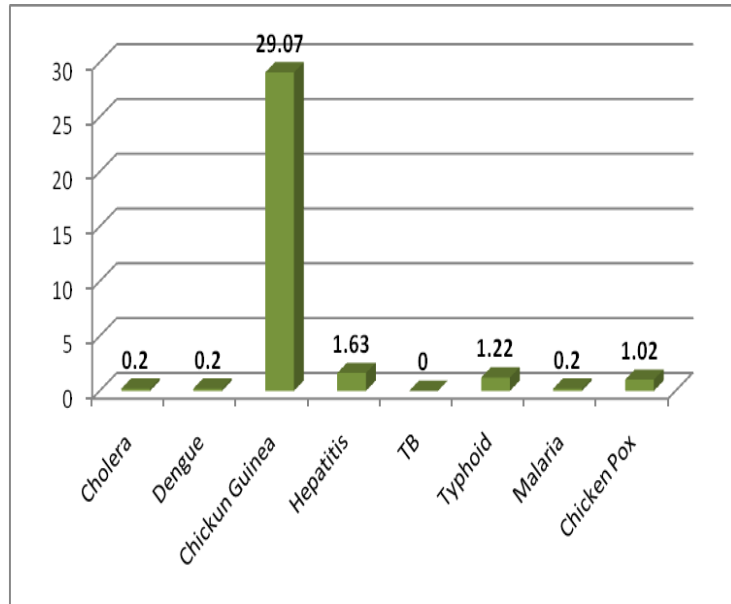


Figure 17.3 Percentage of Houses diagnosed with diseases within last 5 years

17.8 CONCLUSION

The General Hospital (Government Taluk Hospital), Pala is the major Medical Institution in the town in terms of number of patients and availability of departments. Adequate infrastructures and advanced diagnosis facilities shall be made available in hospitals of Government sector. The expansion of the General Hospital will definitely improve the medical facility of the town. Pain and palliative care clinic must be made available in all PHCs. Sufficient bed strength as per standards is available at the hospital in the town. Super specialty Hospitals for critical diseases are not available here. More concentration is needed on public health and preventive aspects of communicable diseases.

18. RECREATIONAL FACILITIES & CULTURE



This chapter describes about existing status, problem and potential of the recreational and civic facilities available in Pala Town.

18.1 INTRODUCTION

Recreation is an essential part of human life and finds many different forms which are shaped naturally by individual interests but also by the surrounding social construction. Public space such as Parks and beaches are essential venues for many recreational activities. Tourism has recognized that many visitors are specifically attracted by recreational offerings. In support of recreational activities government has taken an important role in their creation, maintenance and organization. Recreation-related business is an important factor in the economy.

18.2 PARKS AND OPEN SPACES

Only limited facilities, that also in lower scale for recreational purposes of the people, are available in the town. The total land use coming under Park and Open Space in the town is 1.99 Sq.Km, which is 0.12% of total town area and it is far below the planning standards. The one and



only Municipal Park is located in the town centre near Valiyapalam which is partially developed and is not being used properly. The area of park is inadequate and the garden is not properly maintained and the furniture inside the Park is inadequate. Pala town needs another park with adequate entertainment facilities.

18.3 STADIUM AND GROUNDS

The stadium of an area 1.5Ha is located near the Municipal office complex and facing the River view Road. This stadium is now used for all common gatherings, sports, fairs, exhibition etc. The stadium has to be set apart for sports purpose only. Another open



maithan has to be provided for all other gatherings, trade and fares, exhibitions etc.

18.4 TOWN HALL AND AUDITORIUMS

Town hall of Pala is located near Kurusupally junction with a seating capacity of 1000 is the major Auditorium in the town. 9 more auditoriums under the ownership of different institutions are available for conducting different functions and other institutional purposes. Mainly these private auditoriums are fulfilling the requirement of public gatherings in Pala Town.

18.5 THEATRES

There are four cinema Theatres namely Universal, Maharani, Yuvarani and Jose are functioning in Pala Town. These are releasing centers of new cinemas and catering the needs of large population of town and surrounding area.



18.6 RELIGION, CULTURE

The number of religious institutions in Pala municipal area is very high. There are about 35 religious institutions in 16.06 Sq.Km area of Pala Town. There are 23 churches of different denominations, 11 temples and a mosque are functioning in Pala Town.

Eventhough the exact date of establishment is not available, Lalathambalm situated in the central part of the town is the oldest religious centre of the

town. Pala Valiyapally, which was established in the year of 1002 AD is the oldest church in the town.

All these temples and churches have their own festivals and related cultural activities. The 'Rakkulithirunal' associated with Valiyapally was very famous. The 'Jubily Thirunal' celebrating every January and the festival of



Lalathambalam are very famous festivals of Pala. The 'Meenachil Nadithada Hindu Sangamam' is conducting convention every year.

18.7 PUBLIC LIBRARIES AND READING ROOMS

There are 3 libraries/ reading rooms in Pala Town. Bishop Vialil Library, Mathew. M Kuzhivelil Memorial Library and Vijayodayam reading room are located in different parts of the town. These libraries are very old and modern facilities are not available here. Therefore modernization of these libraries or introduction a new library is essential.

18.8 OTHER PUBLIC CONVENIENCES

There are 12 public toilets and 4 comfort stations functioning in Pala Town for the convenience of travelers as well as the public visiting the town for various purposes.

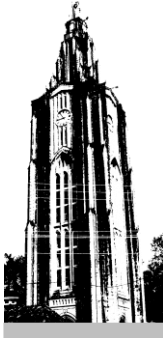
Street lights are established in almost all roads and a number of about 250 street lights are functioning now. Public water taps are located in almost all wards and a total of about 150 numbers are available in Pala Town.

18.9 CONCLUSION

Pala Town is blessed with enough natural beauty with Meenachil River passing through the middle of the municipal area. But the beauty of land is not fully utilized for recreational purpose. The existing facilities are not enough for future generation. The beautification work of river and their surrounding will enhance the

tourism sector also. Only lower order recreational facilities are available in the town. Being a regional centre the recreational facility in the town has to be improved considering the people of the town and its influence area. A stadium for sports, open ground and a town hall for conducting different cultural activities and fairs are also needed. Small grounds at neighborhood level are also needed. A cultural centre is also needed in the town. The provision of more open spaces for common gathering will uplift the healthy living and environmental condition.

19. ENVIRONMENT



Various environmental issues of the town like collection and disposal of solid waste, industrial pollution, air pollution and noise pollution are discussed in this chapter. The environmental problems faced by Meenachil River have special mention in this chapter. Other environmental issues like reduction in the area of paddy and wet lands, soil erosion and flooding are also included.

19.1 INTRODUCTION

Environmental protection is a practice of protecting the environment, on individual, organizational or governmental level, for the benefit of the natural environment and human. Due to the pressure of population and our technology the biophysical environment is being degraded, sometimes permanently. This has been recognized and government began placing restraints on activities that caused environmental degradation.

The unmanageable increase in population has placed a tremendous burden on natural resources. This has resulted in shortage of food and due to excessive farming, use of chemicals and pesticides and excessive use of ground water, the natural resources have affected. Water resources are badly polluted and emission of toxic fumes from industry and vehicles has deprived us of clean air. Industrialization and a growing consumer economy have led to the problem of indisposed garbage and uncontrolled sewage.

Localized environmental health problems such as inadequate house hold water and sanitation and indoor air pollution, Town level environmental problems such as air pollution, noise pollution, inadequate waste management and pollution of water bodies, degradation of natural areas and infrastructure deficit are major factors affecting our urban areas. Environmental problems specifically affecting Pala Town is discussed in this chapter.

19.2 MUNICIPAL SOLID WASTE

Collection, conveyance and disposal of solid waste of the town is not doing in an organized manner. The dumping yard is remaining closed now and no processing of solid waste is there in the yard and it is directed to dispose the waste at the source itself. All commercial institutions are carrying their own wastes to some other places and disposing them. But this system cannot be continuing for a long period. This may lead to the pollution of natural water bodies and other public places. But a permanent solution for disposing the solid waste has to be introduced for the pollution free environment and healthy living condition. The available dumping yard must be used with modern equipments to dispose the solid waste and convert into usable fertilizers or any other value added products.

19.3 INDUSTRIAL POLLUTION

The industrial development of Pala is limited to few small scale industrial units. No large scale industrial units are functioning in the town. Industries are categorized as Red, Orange and Green according to the nature of pollution. Red category being the highest pollution potential is not present in the Town. There are 161 service industries in the town and 6 manufacturing industries are functioning in the town. There is not much pollution from industrial units. But there is complaint about pollution of rivers by the effluents from latex factories.

19.4 AIR POLLUTION

Air pollution is not a serious issue in Pala at present. Usually emission from industries and vehicles are the main cause for air pollution in urban area. In central area of the town there is air pollution in limited extent due to traffic congestion.

19.5 NOISE POLLUTION.

There is no major industry in the town producing noise pollution. The important source of noise pollution is motor vehicles. Such pollution is experienced during day and night in two major travel corridors A.P.Road and P.M.Road.

19.6 MEENACHIL RIVER

Meenachil River which is the major source of drinking water for major portion of Kottayam district flows a distance of 4.56km through the town. During the rainy season the river is flooded with water and sufficient quantity of water is not available during the summer season. The drainage pattern of the town and the other settlements on the bank of the river are in such way that the water is disposing into the river. In addition to that few industrial units on the bank of Meenachil river also disposing wastes into the river. Traces of metals have been found at different locations of the river. So the pollution and non availability of water during the rainy season are the major issues to be addressed urgently.



19.7 PADDY FIELDS AND WET LAND

The paddy fields and wet lands, in addition to its agriculture importance, are also acting as a collection basin of rain water and in turn, recharging the ground water resources. There is drastic reduction in the area of paddy fields in Pala town. The total area of paddy field is 26.62Ha in 2012. The limited paddy fields are being converted for various urban activities like construction of buildings, roads etc. So the conversion of paddy fields is another environmental problem.

19.8 SOIL EROSION

The municipal limit of Pala has an undulating terrain with three hills and low lying land in between the hill. Certain area with steep slop is also there in the town and these areas need special attention. The vegetation and green cover of these areas to be protected and other preventive measures are to be taken to prevent soil erosion.

19.9 DRAINAGE PATTERN

The topography of Pala town is undulating nature. Meenachil river and Lalam thodu are the major water bodies and collecting run-off from the adjacent

elevated areas. Only few major roads have side drains. Detailed drainage plan has to be prepared for conserving the existing drain and protecting rivers from pollution after sanctioning of the plan.

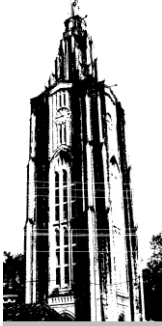
19.10 FLOODING

Flooding of Pala town due to overflowing of Meenachil River is a common phenomenon in the earlier days in many part of the town like Kottaramattom. But now a day the shortage in rain fall and increase in depth of the river due to sand mining has reduced the occurrence of flooding. The drainage facilities are not so strong enough to cater the over flow of running water. A proper storm water drainage system is essential for remedying the flood problem.

19.11 CONCLUSION

The town is experiencing various environmental issues, but in different magnitude. Priority has to be given for protection of environmentally sensitive areas, waste disposal, and protection of wet land and water bodies. Since Pala is a growing town the environmental issues need to be addressed at this stage itself and planned growth of the town also has to be ensured.

20. SOCIAL WELFARE AND SECURITY



This chapter contains the analysis of the present status of weaker section of the society namely women, children, old aged people and scheduled cast and tribe people. The safety aspects of the town are also discussed in the chapter.

20.1 INTRODUCTION

The security of the weaker section of the society ie, children, women and aged people has been emerged as a major sector in the planning process. In the changed social structure of the society, these sections of the society need special attention.

20.2 WOMEN

More than half of the population the town belongs to women and the sex ratio of the town as per 2011 census is 1048. Even though the literacy rate is high; the literacy rate of female is lower than male. The literacy rate of male and female of the town is 90.06% and 90.35% respectively. There is a College exclusively for women and there are few Girls' schools also.

The work participation of female (16.12%) is far below the work participation of male (49.50%). Now various community development agencies are engaged in the social and economic development of women. An industrial estate for women entrepreneurs is suggested by the Pala municipal council for women empowerment. The land has been acquired for this project, but the project has not yet fulfilled.

A number of projects like Computer training programs, Municipal women canteen, self employment facilities etc are also introduced. But the deficiency in proper training for management skills and the anomaly in production sector are affecting the self employment sector.

20.3 CHILD DEVELOPMENT

Population in the age group of 0 to 15 is considered Child group. As per the socio economic survey 2012, 19.83 % male population and 19.29% of female population are in the child group. Anganawadies are the grass root level delivery point of social welfare activities. 26 Anganawadies are functioning in the Town and out of these, 15 are functioning in own buildings, 11 are functioning in rented building. New buildings are to be constructed for those Anganawadies functioning in rental buildings. Also the standard of facilities of Anganawadies has to be improved and the infrastructure facilities like water supply, toilet facilities, playing materials etc has to be improved in Anganwadies.

20.4 OLD AGED PEOPLE

The people above 60 years are considered as the old age people. As per the socio-economic survey 2012, 16.34% of male population and 17.31% of female population is coming under this group. At present five old age homes are functioning in the town 1) Paikada athuralayam, 2) Daivadan center, 3) Jubily bhavan, 4) Mariyan sadanam, 5) Carmel home. Pala municipality has a project for buying land for old age home. In the local level analysis major suggestion in this sector is construction of old age homes and providing necessary medical facilities for old age people.

20.5 S.C, S.T DEVELOPMENT

The Scheduled Caste population of Pala town as per 2001 census is 621 and it is 2.74% of total population. The total number of Scheduled Tribe population in the town is only 45 (19 male and 26 female).

A Pre-Metric hostel for S.C students is functioning at Pala. A Visram Sanketh for SC/ST development is located near Government Hospital. There are no other major institutions for Scheduled Caste in the town. Providing land for land less and distribution of free solar lamps through Anert etc are some of the other projects now introduced for the empowerment of SC/ST people.

In the local level analysis, the major suggestion related to this sector was for improvement of housing condition, improvement of infrastructural facilities of S.C Colonies and programmes for improving the educational standards and job opportunities for them.

20.6 FIRE AND SAFETY

The main objective of the fire and rescue service is to protect the people and their properties from fire and other calamities, which include both natural and incidental. Office of the fire and rescue service is functioning at Keezhathadiyoor, in Pala.



20.7 POLICE STATION

There is a Police station and a Dy.S.P Office functioning in Pala for safeguarding the citizens and offer law and order in the town. About 70 officials are working in this office for doing the security and safe guarding works. A Traffic Unit is also functioning



in Pala for controlling and guiding the traffic and transportation network for free flow of vehicles in all direction. About 25 persons are engaged in traffic controlling unit.

20.8 CONCLUSION

For the welfare of weaker section of the town more attention is needed. There are number of programmes for the welfare of the society and these programmes are to be implemented more effectively. The programmes for creating employment for the women are to be improved and ensured the economic upliftment. In the changed social structure and with the emergence of nuclear families more attention is needed for the welfare of Old age people. More projects have to be evolved for the economic development of women, Scheduled Caste and Scheduled Tribe people.

21. RESOURCES



Various resources available in the Planning area are discussed in detail in this chapter. Details of fiscal resources, human resources, land, mineral resources and agriculture resources are included in this chapter.

21.1 INTRODUCTION

Money, man power and land are the main resources for planning and development of urban centres. Among these resources, land is limited and its availability differs from place to place. As a basic principle, allocation of these resources among various competing land use must be such that it helps in achieving a high level of economic efficiency.

21.2 FISCAL RESOURCES

The main source of income of Pala Municipality is municipal taxes, fees for various services, income from properties, government grant (plan fund), deposits and cess. The total receipts for the financial year 2012-2013 was Rs.5,10,02,718 and the total revenue including the opening balance was Rs.6,03,82,476. But only a small share of the total income is available for capital improvement programme and it is inadequate to provide infrastructural facilities and services in par with demand.

In addition to the above, various programmes including infrastructure development projects are being implemented through various State government Departments and also under various centrally sponsored schemes. Procuring funds for implementation of urban development plans and services delivery system from alternate sources shall be thought of.

21.3 HUMAN RESOURCES

The details of human resources have already been discussed in the chapter 5. Steps are to be taken for the effective utilization of the human resources for

the development of local economy and in the provision of infrastructure and services.

21.4 LAND

Urban land is emerging as a new area for local resources generation. There already exist innovative examples of generation of substantial funds using urban land as a resource in many parts of the country. No steps in this direction have been adopted in Pala, even though there is enough potential for utilizing land as a major resource.

21.5 MINERAL RESOURCES

Hardly any mineral resources are available in Pala Municipal town limit. But in the influence area of the town there is enough deposit of granite.

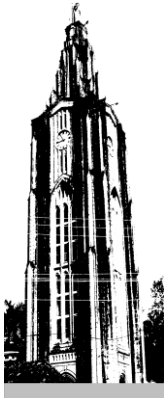
21.6 AGRICULTURE RESOURCES

Natural rubber is the major agriculture product of the town. As far as the region is concerned, only Agro-based products are available. Rubber is the major crop in the region.

21.7 CONCLUSION

Still conventional method of resource mobilization is adopted in the Town. Human resources which are available in plenty have to be utilized properly. The land resources can also be used more effectively. The major resource of the area is agro based. Innovative approaches have to be adopted for resource mobilization and to provide better services to the people.

22. DEVELOPMENT ADMINISTRATION & MUNICIPAL FINANCE



This chapter deals with the roles of Government departments related to the development activities of Pala Town and also discussing the functions and the financial status, income and expenditure of Pala Municipality.

22.1 INTRODUCTION

The role of different departments involved in the development activities of Pala Municipality is discussed in this chapter. The municipality has major role in the development activity of the town. In addition to the Municipality, Public Works Department, Kerala water Authority, Kerala State Electricity Board, Agriculture Department etc are the major departments involved in the development activities. According to the Kerala Municipal Act, 1994, the Municipal Corporation/local self-government is responsible for;

Civic service delivery that consists of

- Preparing and implementing a water supply and sewage disposal scheme
- Providing adequate sanitation through solid waste collection and disposal (including biomedical and hazardous waste), low cost sanitation and surface drainage
- Providing street lighting facilities
- Constructing and maintaining roads
- Providing facilities for public conveniences

Administrative services that consist of

- Issuing various certificates
- Maintaining public amenities
- Maintaining public utility services
- Providing ambulance services

Regulatory services that consist of

- Issuing licenses and permits
- Registering births, deaths, marriages, and private hospitals and tutorials
- Issuing notices and other certificates for taxation purposes
- Maintaining records and registers of all municipal transactions

- Abating nuisances

Transferred services that consist of undertaking

- Maintenance and operations of health and educational institutions
- Economic development in the LSGI jurisdiction
- Social welfare programs
- Social security schemes

State-level Departments, Programs and Missions and Institutions also govern urban management and basic service delivery in the State's urban local bodies.

22.2 PALA MUNICIPALITY

22.2.1 Introduction

The historical adoption of 74th Constitutional Amendment Act by the Central Government in 1992 has paved the ways and means for independent functioning of local bodies. This act makes election to the urban local government's



mandatory, in addition to greater devolution of administrative and financial powers.

22.2.2 The elected council

The elected council consists of 26 members, which includes 14 women members. The Chairperson who is the head of the council has been elected from the elected members of the council. The Vice-chairperson, to assist the chairperson and also to discharge the duties of chairperson in absence is also elected by the members of the municipal council. There are six standing committees, ie, for finance, works, development, health, education, welfare and education arts sports & culture to assist the municipal council in respective fields. Each Standing committee consists of four members except finance committee where there are five members. The vice-chairperson is the chairman of the finance standing committee and the members of the council will elect the chairpersons of other standing committees.

22.2.3 Administrative Structure of the Municipality

The municipal secretary is the executive head of the Municipality and he is supported by the following six sections of staff.

- General Administration section

- ii. Revenue section
- iii. Engineering section
- iv. Public health section and
- v. Peoples planning section and
- vi. Accounts and Auditing.

General Administration section

The General Administration section is headed by the Junior Superintendent and consists of three sub-divisions i.e. Establishment, accounts and other general matters.

Revenue Section

Revenue section is headed by the Revenue Officer. The section deals with the revenue of the Municipality.

Engineering section

The Engineering section is headed by Municipal Engineer in the cadre of Assistant Executive Engineer and is assisted by Assistant Engineer and Public works overseers. This section is responsible for the project planning, execution and maintenance of basic services and other infrastructure within the town. This section looks after the implementation of the development plans and other town planning schemes, approval of building plan and lay out plans, detection of unauthorized construction, eviction of encroachments etc.

Public Health section

This section is headed by the public health officer Grade. I. This section attends works like collection and disposal of solid wastes, cleaning of drains and work related to public health, mother and child care, C.D.S works etc.

People's Planning section

This section co-ordinates the plan formation under decentralized planning process. Annual plans and five year plans for the municipality are being prepared under decentralized planning process.

22.2.4 Functions of the Municipal Council

Pala Municipality is the major agency implementing development works in Pala. The development works under the responsibility of Pala Municipal Council include, the construction of Municipal roads and their maintenance, Public health - Primary health centre, Community health centre, Solid waste disposal, Construction of public market and their maintenance, Public

cremation ground and its construction procedures, Open spaces, parks and their construction works, Providing infrastructure in slums, Protection of common ponds, The maintenance of the institutions transferred to the Municipal Council such as Schools, Hospitals and other institutions

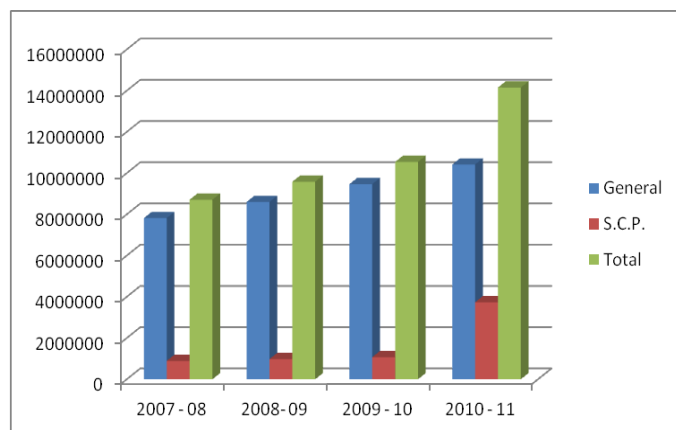
22.3 MUNICIPAL FINANCE

22.3.1 Introduction

The 74th Constitution Amendment Act 1992 paved the way for devolution of financial and administrative powers to urban local bodies in a large way. By this amendment the financial position of the urban local bodies improved and a sizeable share of the total plan fund of the state Government has devolved to the local bodies for plan implementation. The financial position of the municipality is discussed in the subsequent paragraphs.

22.3.2 Receipts of municipality

The receipts of the municipality have been grouped into, three categories i.e. Revenue, Capital and debt. The receipts under **revenue** include income from taxes, income from other laws, income from the municipal



Figur22.1 Receipts of the Municipality from 2007-08

properties, municipal fees, grant in aid from Government, Grand in aid from Government for the maintenance of assets transferred from Government etc. The receipts under **capital** includes Government Grants, government loans, income from municipal institutions, income from deposits, endowment Grant for implementing the programmes of the departments transferred to the municipality, Government Grant for decentralized planning etc. The receipts under **debt** include deposits, provident fund, pension fund, return from advances, sinking funds, library cess, surcharges, sale tax., income tax, labour welfare fund etc. The Table 22.1 and Figure 22.1 present an abstract of total receipts from the financial year 2007-08 onwards. It shows the steady increase in revenue from general and S.C.P funds

Table 22.1 Abstract of Municipal Income

Sl.No	Item	2007 - 08	2008 - 09	2009 - 10	2010 - 11
1	General	78,18,000	86,04,000	94,69,000	1,04,18,000
2	S.C.P.	8,92,000	9,81,000	10,76,000	37,37,000
3	Total	87,10,000	95,85,000	1,05,45,000	1,41,55,000

Source: Municipal Office, Pala

22.3.3 Expenditure of the Municipality

Like the receipts, the expenditure of the Municipality is also classified into three accounts revenue account, capital account and debts account. The expenditure under revenue account includes the expenditure for administration and tax collection, public works,

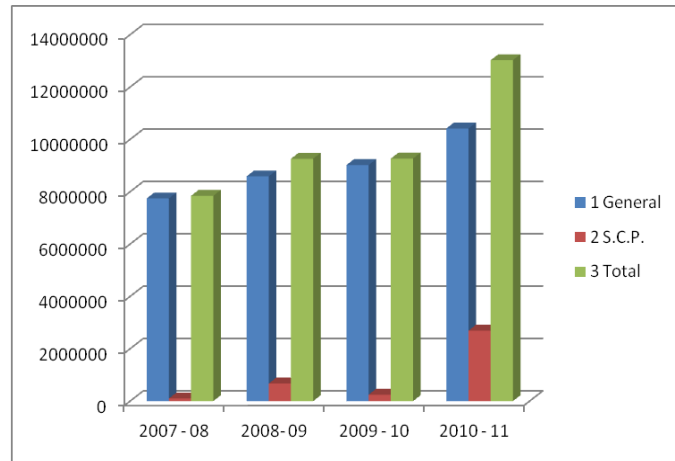


Figure 22.2 Expenditure of the Municipality from 2007-08

town planning, education, water supply and drainage, public health, street light, maintenance of municipal properties, Grant for maintenance of transferred assets etc.

The expenditure under capital account includes expenditure for management, public works, education, water supply and drainage, public health, street lighting, endowments, deposits, poverty eradication programmes, expenditure for the programmes implemented through the departments transferred to the municipality, programmes under decentralized planning etc. An abstract of the total expenditure of the Municipality under the above three heads is presented in the Table 22.2 and Figure 22.2. The expenditure under debt account include the expenditure for the repayment of deposits, repayment of cash deposits, pensions, re-payment of advances, library cess, sale tax, income tax, payment of welfare funds etc.

Table 22.2 Abstract of Municipal Expenditure

Sl.No.	Item	2007 - 08	2008 - 09	2009 - 10	2010 - 11
1	General	7744573	8588109	9020353	10418000
2	S.C.P.	100980	673230	248264	2695478
3	Total	7845553	9261339	9268617	13027397

22.4 GOOD GOVERNANCE

The office building now available for Pala Municipality does not have sufficient space for efficient functioning. A new building complex with modern facilities considering the next 50 years demand is required. The computerization of the Municipal office with network facilities has not been completed. Collection of taxes and other revenues, issue of certificates, accounting etc are computerized. A Janasevanakendram is so functioning at the Municipal Office for providing various services to the people. But the front office is not functioning in the Municipality.

22.5 OTHER DEPARTMENTS

Kerala Water Authority is dealing the distribution of drinking water in Municipal area. Office of the Assistant Executive Engineer is functioning at Pala. The Electricity distribution system is maintained by the Kerala State Electricity Board. The Electrical major section functioning at Pala is in charge of distribution of Electricity. The Kerala State Public Works Department (Roads) is in charge of construction and maintenance of roads other than those roads owned by the Municipal Council. The Kerala State Public Works Department (Buildings) is constructing major buildings.

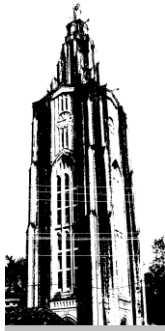
22.6 PUBLIC OFFICES FUNCTIONING IN THE TOWN

Pala is the headquarters of Revenue sub division from the beginning of 19th century. It was the Headquarters of Meenachil taluk of Kottayam district and Pala revenue division. All taluk level offices are functioning in Pala. Nearly half of the Government offices are functioning in rented building. A Civil Station is functioning in the town.

22.7 CONCLUSION

Pala municipality has major role in providing various infrastructure facilities and civic amenities to the people. It is a third grade municipality and the present staff pattern is inadequate considering the responsibilities, powers and assets transferred to the Municipality. The total receipt of the Municipality is showing an increasing trend but it is inadequate to meet the demands. All Taluk level offices are functioning at Pala town and nearly half of them are functioning in rented building and a new building is needed for those offices which are functioning in rented building. More reforms are to be introduced for providing better services to the people and a co-ordination committee has to be constituted for monitoring and co-ordination of various developmental activities.

23. EXISTING SPATIAL STRUCTURE



The methodology adopted in arriving the existing spatial structure of Pala is explained in this chapter. Factors like land use activity pattern, functional character of the town, environmentally sensitive areas, population distribution of the town, existing road network, existing commercial nodes etc were considered in this connection.

23.1 INTRODUCTION

The existing spatial structure of the planning area has been arrived by analyzing the *activity based on Land use, Environmentally Sensitive Areas, Functional character, spatial distribution of population, Road Network, Commercial Nodes* etc. Detailed description of each of the above factors are discussing in the subsequent paragraphs.

23.2 LAND USE ACTIVITY PATTERN

The Meenachil River and Lalam thode are acting as physical barriers of the town and dividing town into three parts of almost equal area, ie Thekkekara, North East portion and South East portion. The existing land use reveals that the rivers and streams criss crossing the planning area influence the spread of physical development in the planning area. Topography has also played an important role in the land utilization. The total area of the town is undulating and sloping towards town centre.

The State Highway No.32 (A.P Road) is passing in the East-West direction parallel to Meenachil River. Major urban activities and developments are taken place along this road. Development is also starts taking place along Ponkunnam, Thodupuzha and Ramapuram roads branching off from A.P.Road. Mainly corridor development is taking place in the town. Major commercial land uses are along these roads.

The public and semi public uses which mainly consist of religious, educational and medical institutions are scattered, but there is more

concentration in the western and central part of the town adjacent to A.P.Road.

Concentration of Dry cultivation areas is seen mainly on the northern and eastern part of the town. Eventhough in limited extent, it is also there in the southern part of the town. It is generally the elevated area of the

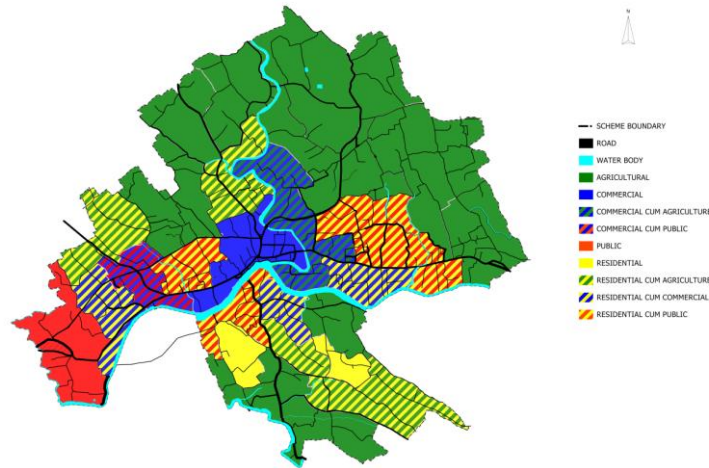


Figure 23.1 Activity Pattern Based on Land use

town with mixed use of dry cultivation and low density residential development. Very small extent paddy fields and wet lands (uncultivated paddy fields) are also there in the town, which is scattered in the North western part of the Town.

The activity pattern based on land use is shown in figure 23.1. The existing land use of the planning area is categorized in to Residential activity, Commercial activity, Public and semi public activity, Agricultural activity, Residential cum Agriculture activity, Residential cum Public and semi public activity, Residential cum Commercial activity, Commercial cum Agriculture activity and Commercial cum public activity areas. As per the activity based on land use, the major commercial activities and public activities are located along the central part of the town. Northern part mainly consists of Agriculture, low density residential development. The land under industrial land use is very nominal in the town.

23.3 FUNCTIONAL CHARACTER

The functional character of the planning area is shown in figure 23.2. Based on functional character the planning area has been divided into urban, semi urban, semi rural and rural areas. Wards are taken as the unit for the analysis. Six wards in the central area of the town along the major roads have

urban character. Five wards have semi-urban character. Three wards have semi rural character and remaining 12 wards have rural character and these wards are located in the peripheral area of the town. The majority of wards of the town have rural character.

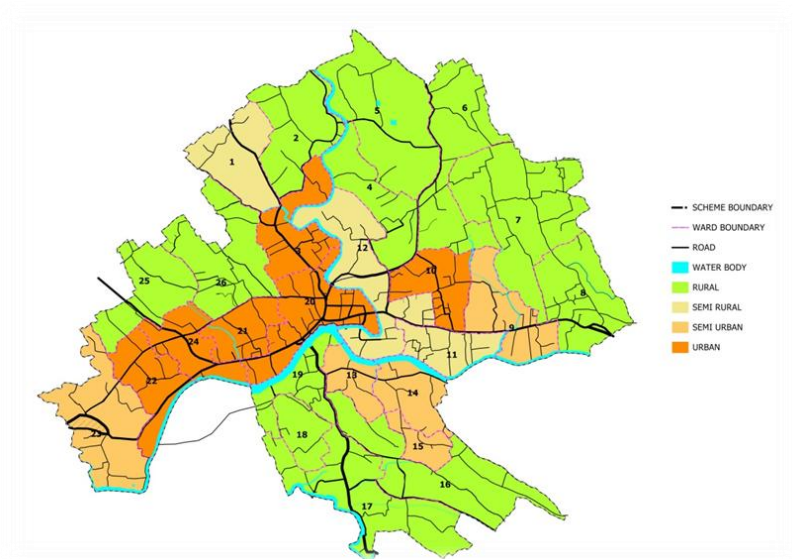


Figure 23.2 Functional Character of the town

23.4 ENVIRONMENTALLY SENSITIVE AREA

The environmentally sensitive area of the planning area is mainly consists of rivers, thodus and paddy fields. Certain elevated areas with steep slop are also environmentally sensitive considering the possibility of soil erosion. The environmentally sensitive area of the planning area is shown in Figure 23.3.

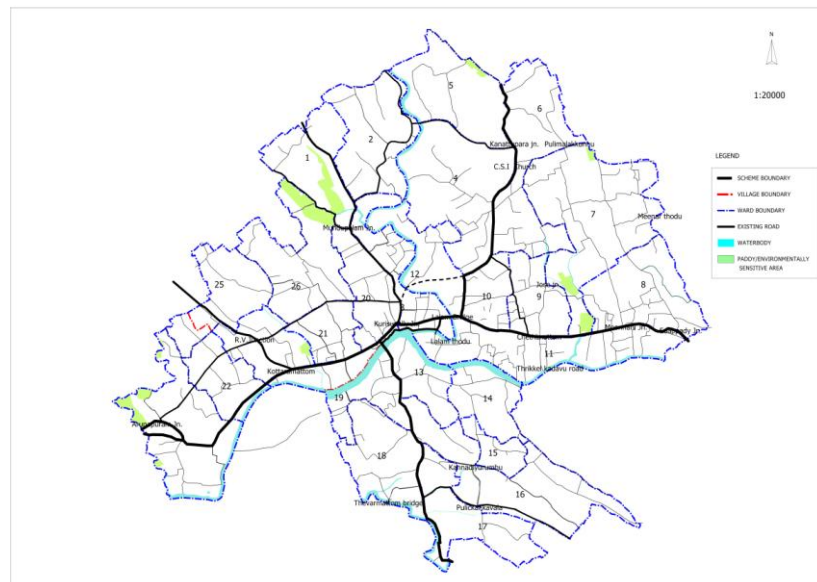


Figure 23.3 Environmentally sensitive area

23.5 POPULATION DISTRIBUTION

The population distribution of the town has studied based on gross density of population and it is shown in Figure 23.4. Based on ward wise density of

population, the planning area has been divided into high density, medium and low density areas. High population density is seen only in 4 wards of Pala Town. Three wards are adjacent to the major roads in the central part of the town and one ward (Palampuraidam) is located on the Thekkekara.

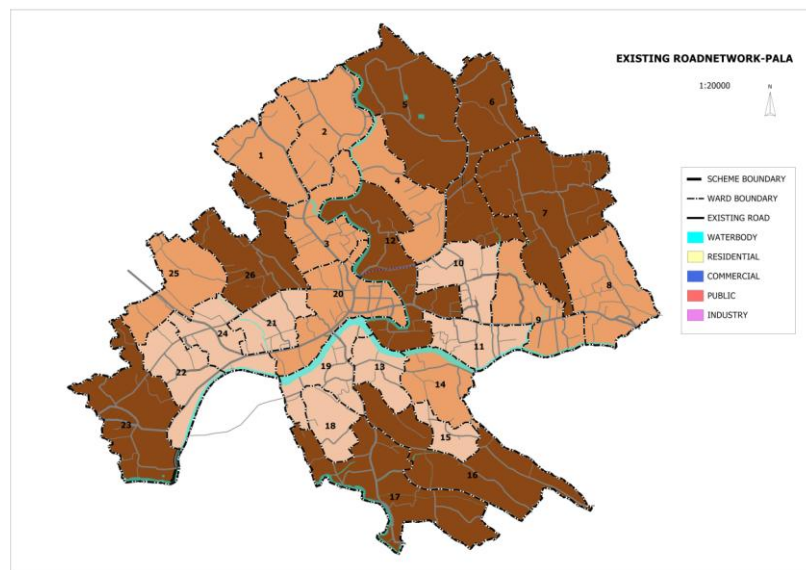


Figure 23.4 Ward wise Population Density

23.6 ROAD NETWORK

Existing road network have no specific pattern but closely resembles ring and radial pattern. The A.P.Road (SH-32) is the spine of road network of the town. Ponkunnam road, Thodupuzha road, Ramapuram road, Uzhavoor

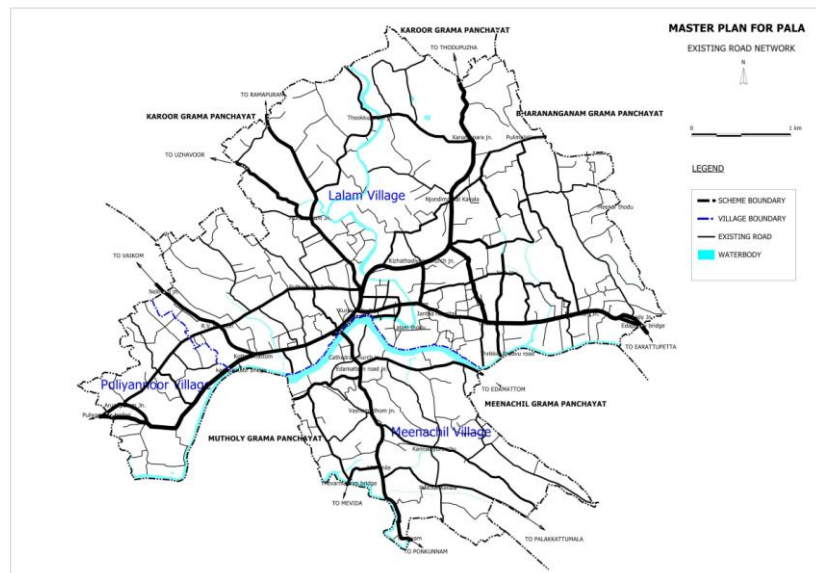


Figure 23.5 Existing Road Network

road, Vaikom road are the other important roads of the town with regional importance. In addition to that there are other roads maintained by PWD and Town connecting the above roads. The topography of the town is the major deciding factor regarding the alignment of roads. The existing road network of Pala is shown in Figure 23.5.

23.7 COMMERCIAL NODES

The major commercial area of Pala Town (CBD) lies around Kurissupally junction. In addition to that there are commercial nodes in different part of the town. The hierarchy of nodes of the town has

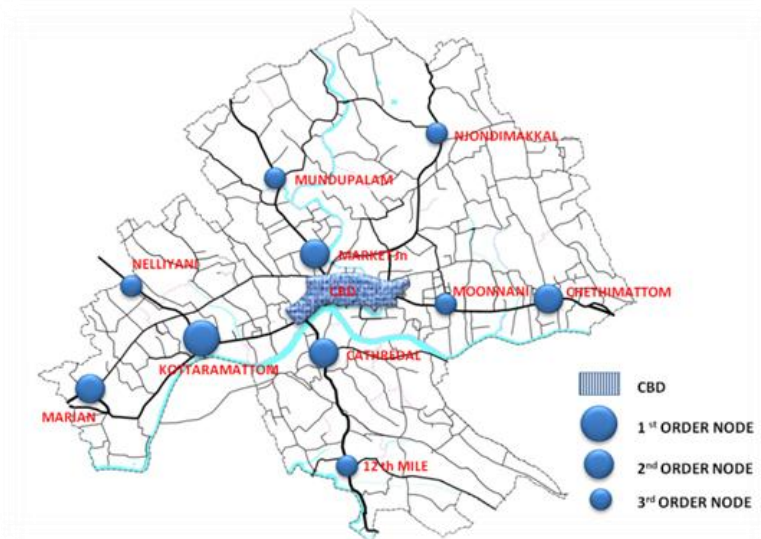


Figure 23.6 Existings commercial nodes

been identified based on primary survey. Kottaramattom is the first order node, Chettimattam, Cathredal Jn, Marian Jn, Market Jn are the second order nodes and Moonnani, Mundupalam, Nelliyan, Njondimakkal and 12th Mile are third order nodes as per existing hierarchy of settlement. The existing Commercial nodes of the Planning area are shown in Figure 23.6.

23.8 EXISTING SPATIAL STRUCTURE

The existing spatial structure is evolved by overlaying the above aspects spatially and the methodology adopted is shown in Figure 23.7. By considering different combination of above aspects, the existing spatial structure has been arrived.

Town Centre, urban activities (Commercial, Public and semi public) with high density residential developments, residential area, residential with home stead cultivation, (low density residential area cum agriculture area / residential agriculture mix area), public activities, agriculture activity, environmentally sensitive area and nodes are major components of existing spatial structure. The existing spatial structure of the town is shown in Figure 23.8.

As per the existing spatial structure of the town urban activities are along the central part of the town and along A.P.Road.

Residential activities are concentrated in the central and southern part of the town. The agriculture

activities and low density residential developments are in the northern part of the town. The existing nodes are almost equally distributed.

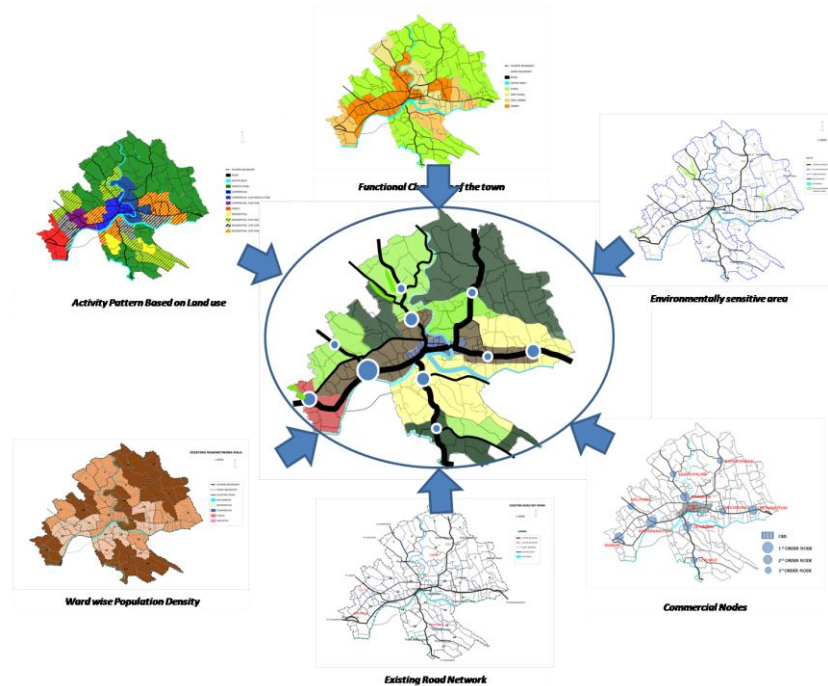


Figure 23.7 Existing Spatial Structure- Methodology

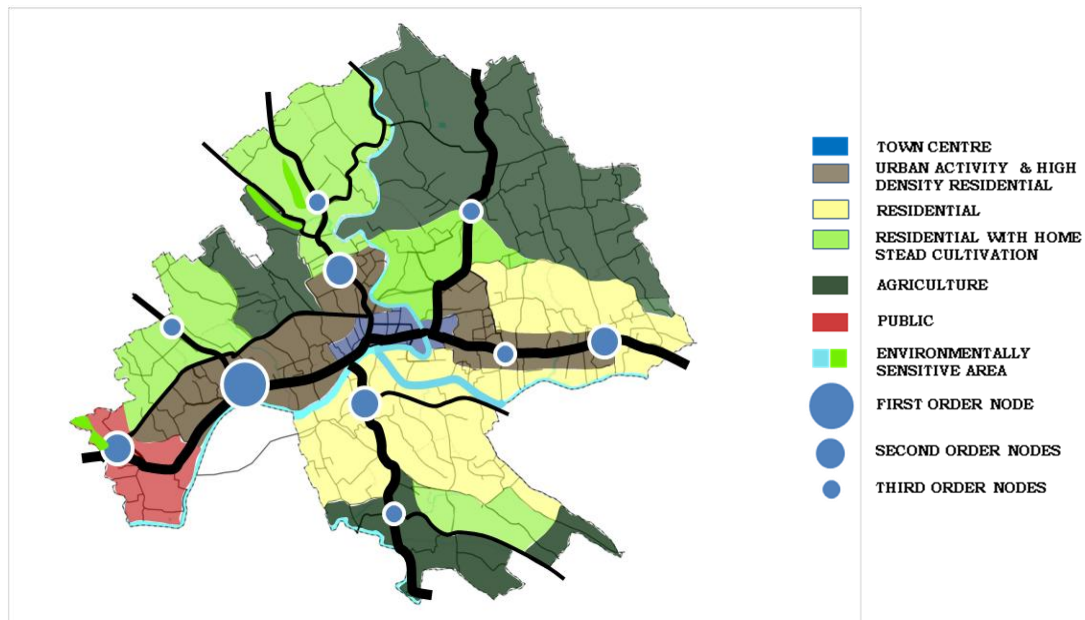
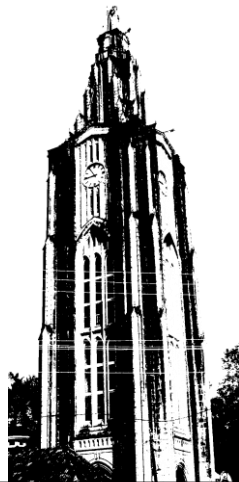
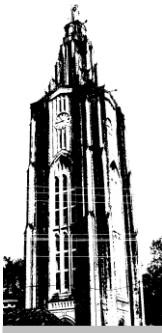


Figure 23.8 Existing Spatial Structure of Pala town.

PART.II



INTEGRATED DEVELOPMENT VISION



24. FINDINGS

A summary of the studies and analysis on various sectors of Pala Town that described in the previous chapters has included in this chapter.

24.1 INTRODUCTION

The word Palai is said to have been derived from the word 'Palazhi' which indicates the prosperous Hindu dominion here in ancient time. The Palai town was developed on the bank of Meenachil River. The town was developed as a trade centre on the bank of Meenachil River when water transport was predominant mode of transportation. Now Pala is major trading centre of the sub region and the service town of the settlements of the north east part of Kottayam district and providing higher order services. The extent of the town is 16.06 sq: km and the population as per 2011 census are 22056.

24.2 EARLIER PLANNING ATTEMPTS

A Development Plan for Pala town has prepared and the planning area was the Pala municipal town. The plan was published on 08.06.1995 vide GO (Rt) 502/95/LAD dated 21.03.95. But due to various reasons the further statutory processing as per the Town planning Act of the development plan could not be completed and still the plan is in the draft stage.

24.3 LOCATION

Pala is located in the North West quarter of Kottayam district. The geographical location of the town is between 9degree 41 minutes to 9 degree 44 minutes North latitudes and between 76 degree 39 minutes to 76 degree 42minutes East longitudes. A.P.Road (SH.32) and P.M.Road are the major roads of regional importance passing through Pala.

24.4 PHYSIOGRAPHY

The town is located on the bank of Meenachil River and Meenachil river and Lalam thodu divides Pala town into 3 natural zones. Puthanpallykunnu in the North-west zone, Kavikunnu in the North –east zone and Kannadiyirumbukunnu in the South east zone are the elevated areas in the town. The height of the town above M.S.L is 46m. Generally the topography of the town is undulating and sloping towards town centre.

24.5 REGIONAL SETTINGS

Kottayam is suggested as first order settlement of the district. Pala along with Changanassery, Vaikom, Kanjirapally and Kaduthuruthy are suggested as second order settlements of the district. Primary activity (Plantation) has been identified as the activity of Pala town.

24.6 PLANNING AREA

The Planning Area of a Master Plan for Pala is the administrative boundary of Pala municipality.

24.7 INFLUENCE REGION OF THE TOWN

The Meenachil Taluk has been identified as the influence area of Pala town. In addition to Pala Municipality 24 Grama Panchayats are included in the Influence area of the town. The total area of the region is 686.25 Sq: km and population as per 2001 census is 403584. The economy of the region is agriculture oriented and primary sector activity is the character of the region.

24.8 LAND USE

Residential, Agriculture, Commercial, Public land uses are the major land use of the town and 53% of the total town area is coming under developed land. Dry agriculture (42.72%) land dominates Pala town followed by residential (39.77%) land uses. Public and Semi public (6.34%), water body (3.47%) and Commercial (2.87%) has significant area. Agriculture activities are concentrated in the northern and eastern part of the Municipality. Non agriculture activities are concentrated around the central part of the town and the agriculture activities in the periphery of the town. The study on functional character of the town shows majority of wards have rural or semi rural character.

24.9 DEMOGRAPHY

The population of Pala town as per 2011 census is 22056. It was 17053 as per 1961 census and there after showing an increasing trend up to 2001. The growth rate of the town is showing a decreasing trend. The population density of Pala town as per 2011 census is 1373 persons/sq.km. and it is lowest among the four urban centers of the district. The gross population density of different wards in the municipality (2001) is varying from 698 to 4645 persons per Sq:Km.

24.10 OCCUPATIONAL STRUCTURE

As per 2011 census the work participation rate of Pala Municipality is 37.23%. The temporal variation of work participation rate shows that work participation rate of Pala is showing an increasing trend. The occupational structure shows that majority of workers belong to the other workers category. There is gradual reduction in the number of workers engaged in agriculture. The production sector and agriculture sector show a declining trend and the service sector showing an increasing trend.

24.11 TRADE AND COMMERCE

Presently there is no public market functioning in Pala. Commercial developments are mainly concentrated at town centre and along the major travel corridor sides. Commercial nodes are developed at major road intersections. Trading of rubber is one of the major activities of the town. Activity of informal sector in small scale is there in the town. Sufficient number of banks is functioning in Pala town.

24.12 INDUSTRY

Only SSI units are functioning within town limit and there are no major industries. Pala is not specialized in any particular category of industries. Availability of land and comparatively low population density is a potential for industrial development. Agro based raw materials like rubber, coconut, coffee, pepper which can be utilized as industrial raw material. Better connectivity with other parts of the state and neighboring states is another advantage. Industrial growth in Pala Town is very low whereas there is enough scope for the introduction of rubber based industries.

24.13 HERITAGE AND TOURISM

Buildings/precincts of heritage importance are very limited in the town. There is limited potential for tourism within the town. But utilizing the location advantage of the town, Pala can be developed as a tourist transit center. The aesthetic appearance of the town is to be improved.

24.14 AGRICULTURE AND ANIMAL HUSBANDRY

The land under agricultural purposes and workers engaged in agriculture sector are consistently decreasing. The agriculture land is converted for various development needs. More percentage of agriculture land of Pala town is used for cultivation of cash crops and cultivation of food crops are very nominal. The low residential density, presence of more percentage of land under agriculture use, high demand for meat and egg etc provide enough opportunity to develop animal husbandry as a significant economic activity of the town.

24.15 HOUSING

The town has low residential density and the average size of the plot is comparatively high and 94.31% of people have their own houses. The size of the residences are also high and its structural condition also good. Better sanitary system is available but a system has to be evolved for the disposal of solid waste. The facilities are available at a reasonable distance when compare with adopted standards. No approved slums within the Municipal limit.

24.16 DRINKING WATER

Undulating topography is a major hurdle in providing piped water supply. Only 25% of households getting protected water from KWA. For 95% of the households, well is the main source of water. Certain areas of the town needed special attention as there is more scarcity of water.

24.17 TRANSPORTATION

The configuration of the existing road network within Pala town does not reflect any regular form, although it resembles more or less like ring and radial type having radial roads connected with partial ring

roads. The road inventory shows that majority of roads are with inadequate right of way and carriage way width. The most important aspect of traffic and transportation problem of Pala town is the congested central core with limited scope for road widening. Hence, emphasis has been given to develop alternative linkages so as to divert the traffic passing through the CBD area. This would also help to reduce the unwanted inter-mix of intra-city and inter-city traffic on urban roads within the central part of the town. The pedestrian, parking and terminal facilities need to be improved.

24.18 ENERGY

Electric power to Pala major section is distributed from Pala 110 KV Sub-Station located at Pala – Ezhachery road near Mundupalam Jn. More percentage of electric power (in terms of connection and consumption) is used for domestic purpose. Attention shall be given for improving the quality of supply. More number of street lights should be provided in the major roads.

24.19 EDUCATION

Pala town is catering the need of higher education of the influence region. The town has high literacy rate and Educational standard. The facilities of many government schools are not fully utilized. The surplus land and infrastructure available can be utilized for starting new generation Education institutions. Considering the availability of a number of higher education institutions in the town and surrounding area Pala can be developed as a center of educational service for the region.

24.20 HEALTH

The General Hospital, Pala is the major Medical Institution in the town in terms of number of patients and availability of departments. In addition to this, hospitals in private sector provide necessary medical aid to the residents as well as people from the neighboring local bodies. Sufficient bed strength as per standards is available at the hospital in the town. Super specialty Hospitals for critical diseases are not available here. More concentration is needed on public health and preventive aspects of communicable diseases.

24.21 RECREATIONAL AND CIVIC AMENITIES

Only lower order recreational facilities are available in the town. Being a regional centre the recreational facility in the town has to be improved considering the people of the town and its influence area. The provision of more open spaces for common gathering will uplift the healthy living and environmental condition.

24.22 ENVIRONMENT

As density of population is less and due to availability of sufficient land the disposal of solid waste is not a major problem of the town. But in feature this may causes health problem and proper intervention is needed in the sector. Air pollution, sound pollution is less in the town. The protection of Meenachil river which is the major source of drinking water of the district need special attention.

24.23 RESOURCES

Still conventional method of resource mobilization is adopted in the municipality. Human resources which is available in plenty has to be utilized properly. The land resources can also be used more effectively. The major resource of the area is agro based.

24.24 GOVERNANCE

The total receipt of the Municipality is showing an increasing trend but it is inadequate to meet the demands. All Taluk level offices are functioning at Pala town and nearly half of them are functioning in rented building and a new building is needed for those offices which are functioning in rented building.

24.25 SPATIAL STRUCTURE

Town Centre, urban activities (Commercial, Public and semi public) with high density residential development, residential area, residential with home stead cultivation, (low density residential area cum agriculture area / residential agriculture mix area), public activities, agriculture activity, environmentally sensitive area and nodes are major features of existing spatial structure.

24.26 THE SMART CITY CONCEPT

24.26.1 Introduction

A city can be defined as ‘smart’ when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory governance.

The smart city infrastructure is introductory step for establishing the overall smart city framework and architecture. Planning urban and development seeks to create an operational platform that would manage the operational resources in order to reduce the overall running operational cost. The smart infrastructure development framework and the surveying positional accuracy of locating assets from the base of smart city development architecture integrated with all the facilities and systems related to the smart city governance.

Smart cities can be identified (and ranked) along six main axes or dimensions. These axes are: smart **economy**; smart **mobility**; smart **environment**; smart **people**; smart **living**; and, finally, smart **governance**. These six axes connect with the traditional regional and neoclassical theories of urban growth and development. In particular, the axes are based - respectively - on theories of regional competitiveness, transport and ICT economics, natural resources, human and social capital, quality of life, and participation of citizens in the governance of cities.

24.26.2 Smart city frame work

Smart city framework can now enhance Urban Planning and Development in the areas of:

Elasticity: Plans can now have flexibility to provide for ever-growing and ever-expanding city boundaries and provide quality of life to all inhabitants.

Participatory: People’s participation in preparation of policies, perspective plan, development plan and annual plans will now be ensured.

Information system: A well maintained information system will now make it possible the fine-tuning of the plan proposals at the various stages of implementation according to the changing urban scenario.

Urbanisable Areas: The development potential can now be assessed for the areas located in the periphery of the developed areas by optimizing the possibility of the existing infrastructure to prioritise development of these areas.

Growth Centers: Given the paucity of resources, it will now be more feasible to promote strategic development initiatives in the selected regional centers, growth centers and their hinterland.

Policy Guidelines: Policy guidelines can now be more realistic, transparent, accessible, can help in identifying priority areas and subsequent modifications in the plans and administration in general. It can now further achieve Governance as its outcome+

Mixed Use: With a view to provide for development, the zoning regulations will now be realistic and simplified.

Financial Planning will now be visualized, as Land development and infrastructure investment needs to be coordinated through integration of physical, financial and investment planning. This will be possible to link spatial development plans with resource mobilization plans focusing on credit enhancement mechanisms.

Land Policy and Management can now be friendly and in consensus with people's participation, as opposed to the process of compulsory land acquisition, and the related issue of low compensation rates and the ULBs will be able to adopt collaborative approaches within the existing legal framework.

Legal Framework: Plan implementation would now call for a legal framework so as to make it enforceable and mandatory. The legal framework will be supported by effective and efficient machinery which would see that no aberrations of master plan proposals take place on ground.

Standards: Plot sizes, layout and social overheads may be designed to reduce costs aligned to the affordability of different income groups

Building Bye-laws: Building bye laws and zoning regulations for the city/town will match the local needs and will be simplified and transparent. Adequate provision for **parking facilities** is another area that will be addressed.

Database at Metropolitan, district and state levels: The planning exercise through GIS needs continuous data collection, analysis, interpretation and updating. A computer-generated data base and information system in GIS

environment needs be developed at various levels which would provide support to development planning.

The above elements are considered in setting the goals and objectives, arriving development concept and framing policies and strategies. In land use planning and development regulations due importance has been given for the above elements.

24.26.3 Smart City Concept in the context of Pala

Economy

Smart economy includes entrepreneurship and innovation, productivity, local and global interconnectedness. The total land under commercial use of Pala town was only 26.56 hectares(1.65%) in 1991 and it has increased to 46.02 hectares ,which is 2.87% of the total town area in 2012. The economy of the town is mainly depending on natural rubber. Rubber marketing and trading has very much importance in the economy of Pala. Activity of industry and informal sector is only in small scale in the town.

Presence of few premium educational institutions in and around the town has providing an opportunity to develop the town as an educational hub.

A shopping complex of international standards with modern facilities, new multi level parking plazas at commercial areas, infrastructure improvements in commercial areas, introduction hawking area for the rehabilitation of Hawkers and vendors at suitable locations in the town are to be considered in view of status of town as service centre.

Environment

The town is experiencing various environmental issues, but in different magnitude. Priority has to be given for protection of environmentally sensitive areas, waste disposal and protection of wet land and water bodies. Since Pala is a growing town the environmental issues need to be addressed at this stage itself and planned growth of the town also to be ensured. Emissions from industries and vehicles are the main cause for air pollution in urban area. The important source of noise pollution

is motor vehicles. There is drastic reduction in area of paddy field, due to conversion of these for various urban activities. Flooding of Pala town due to overflowing of Meenachil river is a regular phenomenon.

Conservation of paddy fields, conservation of natural drains, effective waste management and protection of Meenachil river and its tributaries are to be considered for smart environment.

Mobility

The road network plays the most vital role in all round development of any area. The town is well connected to other major centres of the state by a network of State High ways and other PWD roads and many roads of regional importance pass through the town. Existing network is radial pattern and diverging from the central area to various directions of Pala town. No railway linkage to Pala town. The pedestrian and parking facilities are inadequate.

A ring and radial road pattern is to be adopted for an efficient road network system and other related infrastructures are to be provided for smart mobility.

Governance

For providing better services to the people and to improve the efficiency of functioning, the infrastructure of government offices and the municipal office has to be improved.

Modernization and reforms in various activities are also proposing for providing more services to the people. A co-ordination and monitoring of various municipal level projects is needed for smart governance.

Smart living

The housing quality of the town is comparatively better. The facilities for education and health care are sufficiently available. The social infrastructure facilities of the town are limited to a stadium, town hall, few auditoriums and cinema theatres. The other facilities for passive recreation are absent in the town. The social infrastructure facilities with importance for recreational facilities have to be introduced for smart living condition.

25. DEVELOPMENT GOALS & OBJECTIVES



This chapter contain the analysis of the present status of weaker section of the society namely women, children, old aged people and scheduled cast and tribe people. The safety aspects of the town are also discussed in the chapter.

25.1 INTRODUCTION

The future direction, or vision, that the Pala Town should follow, as a result of the Master Plan, is explained in this chapter. These vision principles described as goals are the general target to be reached through completing a series of tasks. These tasks named as objectives are designed to meet the goal. The development goals are formulated from the observations and findings derived from the analysis of the sectors. The Master Plan Goals will drive development alternatives and serve as the ultimate criteria for the selection of the preferred development option and other major decisions throughout the plan process. The goals of a plan not only direct the focus of the actual plan preparation, they are also the basis for regulation changes, for capital improvements program funding, and for future planning priorities. The goal of new Master Plan is to provide a comprehensive framework for physical development planning within the Town area.

25.2 DEVELOPMENT GOALS

The analysis shows that, Pala was developed as a medium service town. The town has the status of Taluk Headquarters and Revenue divisional headquarters. In the district level studies (District Urbanization Report, Kottayam) Pala has been proposed as a second order settlement of the district. Hence to develop *Pala as the major Service town of the region is the first goal.*

The town is lacking many infrastructure facilities. In fact it is the major problem faced by the town and is one of the reasons for the decline in other

sector of the town. *The integrated development of the infrastructure is the second goal.*

Pala is a major educational centre from early days and serves the need of the people of surrounding area. Number of professional colleges was established in the surrounding areas and there is proposal for national level institutions adjacent to Pala. *Develop Pala as a major educational hub is the third goal.*

Trade and commerce has been identified as the notable economic activities of the town. The hinter land of the town has agriculture resources especially cash crops. There is scope for developing agro based industries in the planning area. Tourism especially pilgrim tourism has developed as a major economic activity of the town due to its location, adjacent to the major tourist destination of the state like Bharananganam and on the way to pilgrim centers like Sabarimala. *Optimum utilization of resources for diversification and strengthening the economy of the town is the fourth goal.*

Environmental protection is another urgent need of the town. The town is located in the mid land region of the state. The wet lands, natural drains and river, hills etc are the environmentally sensitive areas of the planning area. So *the conservation of environmentally sensitive area is another goal.*

The security of the weaker section of the society and senior citizen is the need of the time. *To ensure the social welfare and security of the society is another goal.*

Thus the development goals set are summarized as follows.

- *To develop Pala as a major Service contributor of regional importance.*
- *The integrated development of the infrastructure.*
- *Develop Pala as a major educational centre.*
- *Optimum utilization of resources for diversification and strengthening the economy of the town.*
- *Conservation of environmentally sensitive areas.*
- *To ensure the social welfare and security of the society.*

25.3 DEVELOPMENT OBJECTIVES

The Optimum utilization of potentials and resources creates new economic base for Pala. This will ultimately improve the quality of life of the people.

Development based on available potentials and resources are the action towards achieving the development goal. The development objectives for Pala town are summarized below.

In connection with the first goal to *develop Pala as a major Service contributor of regional importance*, the objectives set are

- To develop various higher order facilities to cater the service demands of the region
- To develop trade and commercial activities of the town
- To develop the regional road net work of the town so as to ensure better connectivity with influence areas.
- To improve the traffic and transportation facilities of central area of the town aiming at the decongestion of central area and to ensure the free flow of traffic.
- Provision of accommodation facilities, traffic and transportation, sanitation etc.
- Renovate the existing Trade and Commerce centers of Pala town
- Promote the trading of selected produces specific to the region.

Second goal is the ***integrated development of infrastructure*** and the objectives set are

- To improve the traffic and transportation facilities in the central area of the town aiming at the decongestion of central area and to ensure the free flow of traffic.
- To decentralize the urban activities from inner core to other areas of the town.
- Introduce sewage collection system for the central area of the town.
- To improve other infrastructure facilities like drinking water, waste disposal, housing etc
- To develop Pala to cater the higher order requirements regarding social infrastructure like health and education of the people of the town and the region.

In connection with the third goal, **Optimum utilization of resources for diversification and strengthening the economy of the town**, the objectives set are.

- To promote value addition products under agriculture especially cash crops.
- To promote small scale industry based on the resources of the region
- To develop tourism activities utilising existing potentials and develop Pala as a tourist transit centre
- To develop the agriculture and animal husbandry sector.
- To increase the economic growth by enhancing job opportunities and better socio economic environment.

Regarding the fourth goal, *Develop Pala as a major educational centre the objectives are*

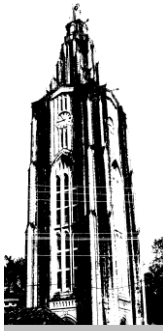
- To diversify the courses in the existing educational institutions
- Improve the infrastructure facilities of existing educational centres

Conserve the **environmentally important areas of the town** is the sixth goal

- To rejuvenate and protect all sensitive natural drains, ponds and other water bodies etc
- To conserve the cultivable paddy land of the town.
- To conserve ecologically sensitive areas and minimize environmental pollution.
- Protection of Meenachil river

Finally the objectives set for the seventh goal regarding the **welfare of weaker sections of the society** are

- To ensure welfare of the economically weaker section of the society like aged people, women and socially backward people
- Up-lift the weaker section of the society by rendering job opportunities, better services and living conditions.
- To ensure the security of the citizen.



26. DEVELOPMENT CONCEPT

This chapter explains the methodology of deriving the proposed spatial structure of the town from the existing spatial structure and the factors considered for it. Finally the development concept for Pala town has formulated by inducing appropriate economic inputs to the proposed spatial structure

26.1 INTRODUCTION

The development concept of a particular area is derived based on the development objectives formulated. The problems and potentials existing in the area, the conclusions and recommendations of sectoral studies are also considered for the formulation of development concept. The development concept is derived by integration of the spatial particulars of the area and the above factors. The proposed spatial structure for the area has to be evolved first for formulation of the concept plan.

Analysis of various sectors clearly points out the development of Pala Town as a second order settlement and service contributor of the north-east part of the district, with an aspiration to develop as one of the major commercial, educational and health care hub of the influence area of the town by enhancement of infrastructure facility. The potential for the development of service sector due to the presence of good linkages has to be encouraged for better economic growth.

Eco- friendly development without affecting the sensitive areas has to be considered. The development impact of other sectors must not affect the environmental perceptive of the area. But the suitable change in land use has to be implemented for the developmental demand after evaluating the existing spatial structure of the Pala Town.

26.2 PROPOSED SPATIAL STRUCTURE

After evaluating the existing spatial structure of Pala town, the proposed spatial structure is evolved out by considering the factors like spatial distribution of existing developments, proposed population distribution,

proposed road network, proposed commercial nodes, and the environmentally sensitive areas. It is represented in Figure 26.1.

The **Spatial distribution of existing development** is influenced by the topographical features like undulating terrain of the town, physical barriers like rivers and canals etc. Existing Town centre (CBD) is located around

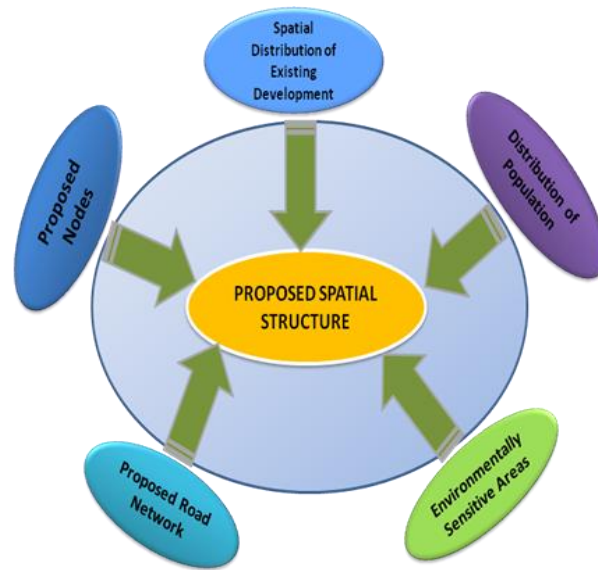


Figure 26.1 Proposed Spatial Structure- Methodology

Kurisupally Jn. Corridor development with urban activities like commercial and public land use mixed with residential development is taking place along A.P.Road. Commercial nodes are developed along major road intersections.

Residential areas, residential areas with homestead cultivation, agriculture land are in the remaining part of the town. The Spatial distribution of existing

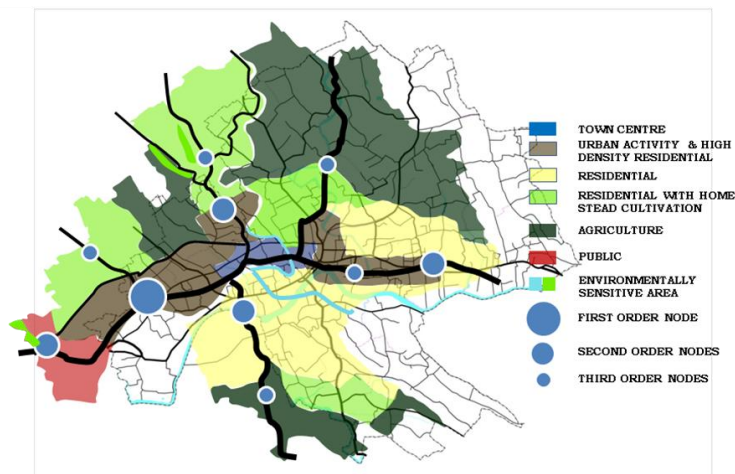


Figure: 26.2 Spatial Distribution of Existing Development

development of the planning area is shown in Figure 26.2.

The **Paddy fields and water bodies** are taken into account considering its environment sensitiveness. The extent of paddy field is very limited and only a few isolated pockets are there in the town. But river Meenachil is flowing through a distance of 4.56 Km through the town and the Lalam Thodu one of the main tributaries of the river also flowing through the town. The town also

has hills of steep slope also. The environmentally sensitive area of the town is shown in Table 26.3.

Spatial distribution of population

is proposed in such a way that the densification of the area around immediate

surroundings of CBD Area, area

adjacent to Ramapuram Road, Thodupuzha Road and Thekkekara. Factors like existing residential pockets, topography, land suitability, proposed road net work etc are considered for identifying locations for high density and low density

development.

Dense development is not recommended in the other areas of the town where the agriculture is more predominant and land is with steep slope. The Figure 26.4 shows the future distribution of population.

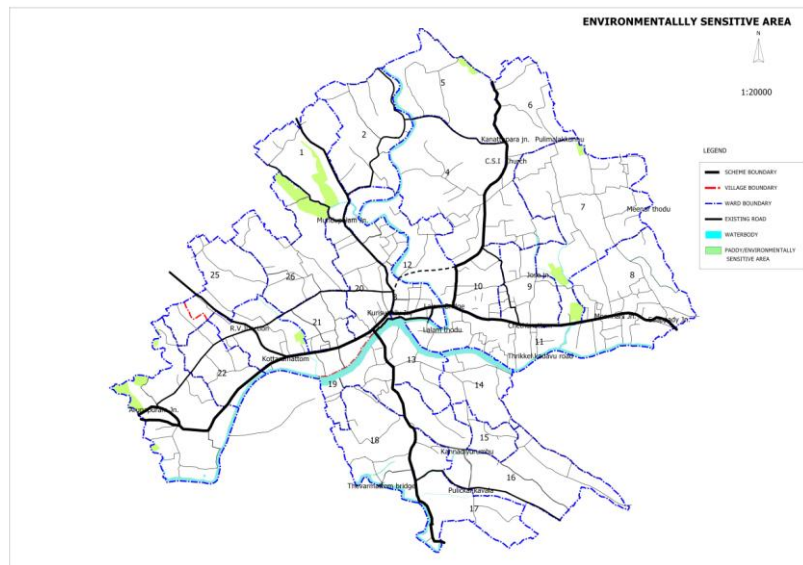


Figure: 26.3 environmentally sensitive areas

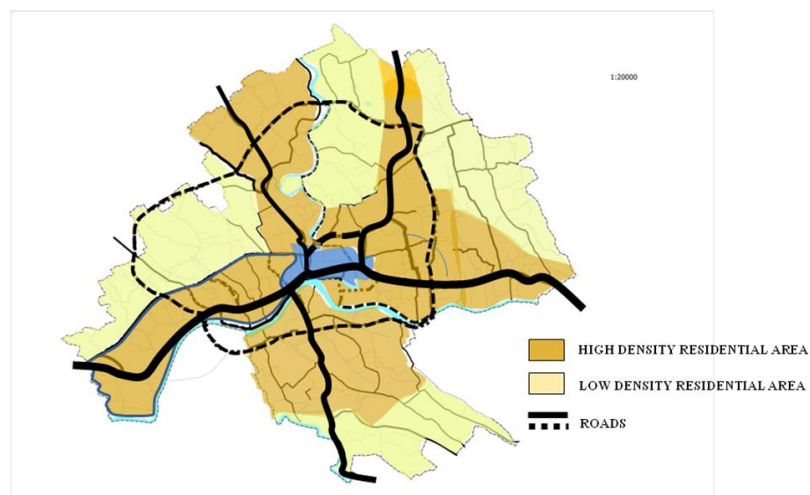


Figure: 26.4 Spatial Distribution of Population

Proposed

Transportation

Network is planned based on the traffic and transportation survey and the capacity required for future requirements. The topography of the town is also a deciding factor.

Existing network is

radial pattern and diverging from the central area to various directions of Pala town. No major ring roads and the radial roads are connected by few roads in the category of collector road only. A road network with ring and radial pattern with few parallel roads is proposed for the town. Parallel road and outer ring road can be a solution for the congestion free traffic. Introduction of new ring roads can avoid the congestion in the central area by diverting the traffic from the town centre. Major activity areas are connected with new links. The figure 26.5 shows the proposed road network.

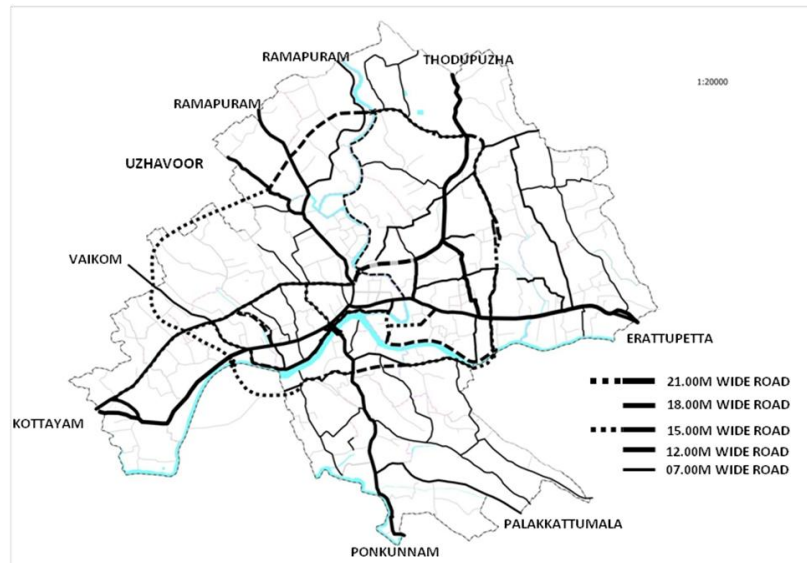


Figure: 26.5 Proposed Road network

Proposed **Commercial nodes** of the town are shown in Figure 24.6. In addition to the CBD area Commercial nodes are proposed at different part of the town considering the future distribution of population and proposed road network.

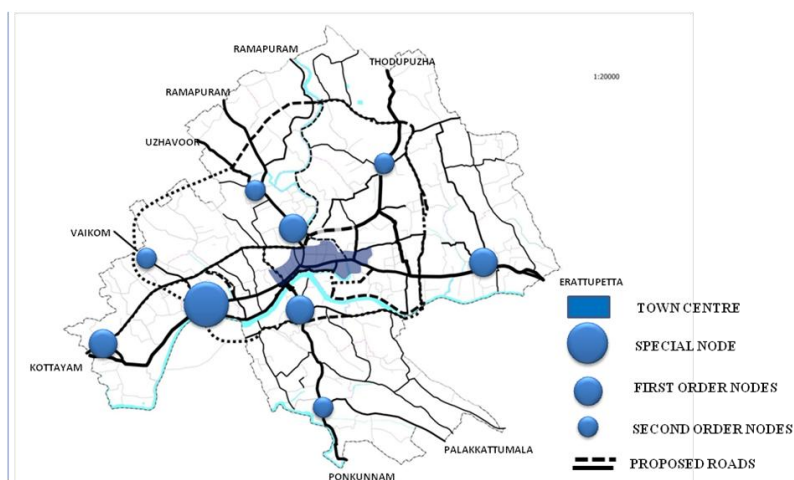


Figure: 26.6 Proposed commercial nodes

Kottaramattom has been proposed as a special node. Marian Jn, Cathedral

Jn, Chettimattom Jn and Market Jn are proposed as first order nodes. 12th Mile, Mundupalam, Njondimakkal and Nelliyani are proposed as second order nodes

Considering all the above factors and super laying all these indicators proposed spatial structure is evolved. Town Centre (CBD Area), Commercial Public activity domination area, Residential activity domination area, Agriculture activity domination area, Environmentally Sensitive area, Commercial nodes etc are the features of Proposed Spatial Structure. It is represented in Figure 26.7

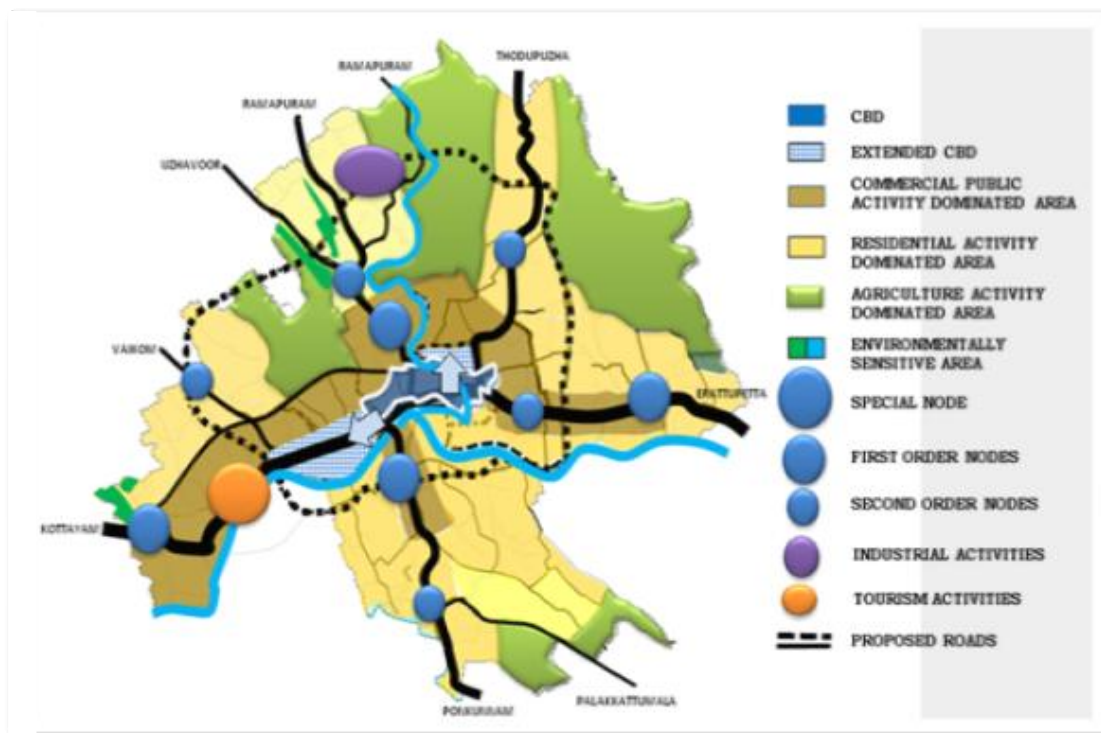


Figure: 26.7 Proposed spatial structure

26.3 DEVELOPMENT CONCEPT

Along with the spatial structure of the town, those factors influencing the development of the town have to be considered for the formulation of development concept. The various studies and analysis point out that Pala Town has the potential of becoming a major centre for rubber trading and rubber based industries apart from being the higher order service centre for education and Medicare institutions. The potential for the development of the above sectors has to be utilized maximum for the economic growth of the

region. As far as Pala town is concerned the following sectors have significant influence in the formulation of development concept.

Trade and Commerce,

Agriculture and Animal Husbandry

Status of the town as a second order centre

Administrative center

Committed Projects

SSI and IT

Educational Centre

The ancillary development sector like SSI sector is to be considered for finalizing development concept. The above factors are represented in Figure 26.8.

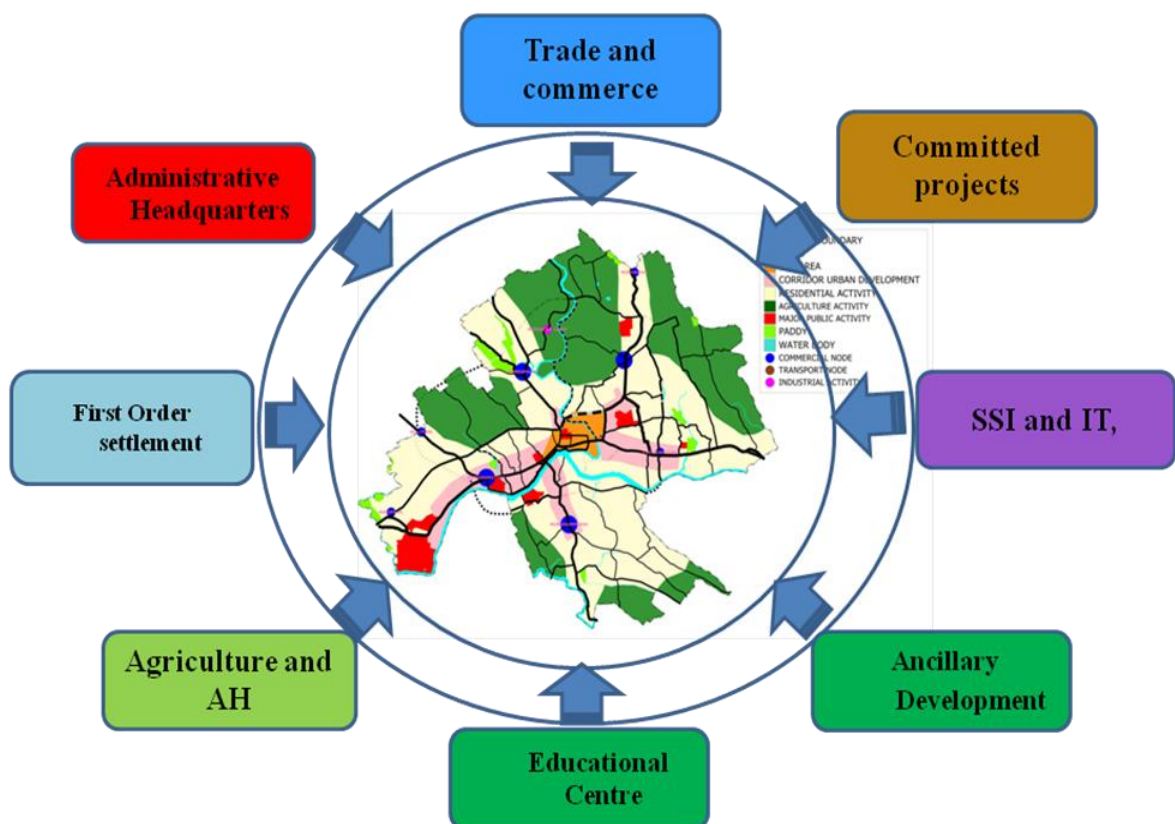


Figure 26.8 Sectors influencing the Development concept

Based on the above factors the development concept for Pala has been evolved. The development concept of Pala is shown in Figure 27.9. Following are the major features of the Development Concept.

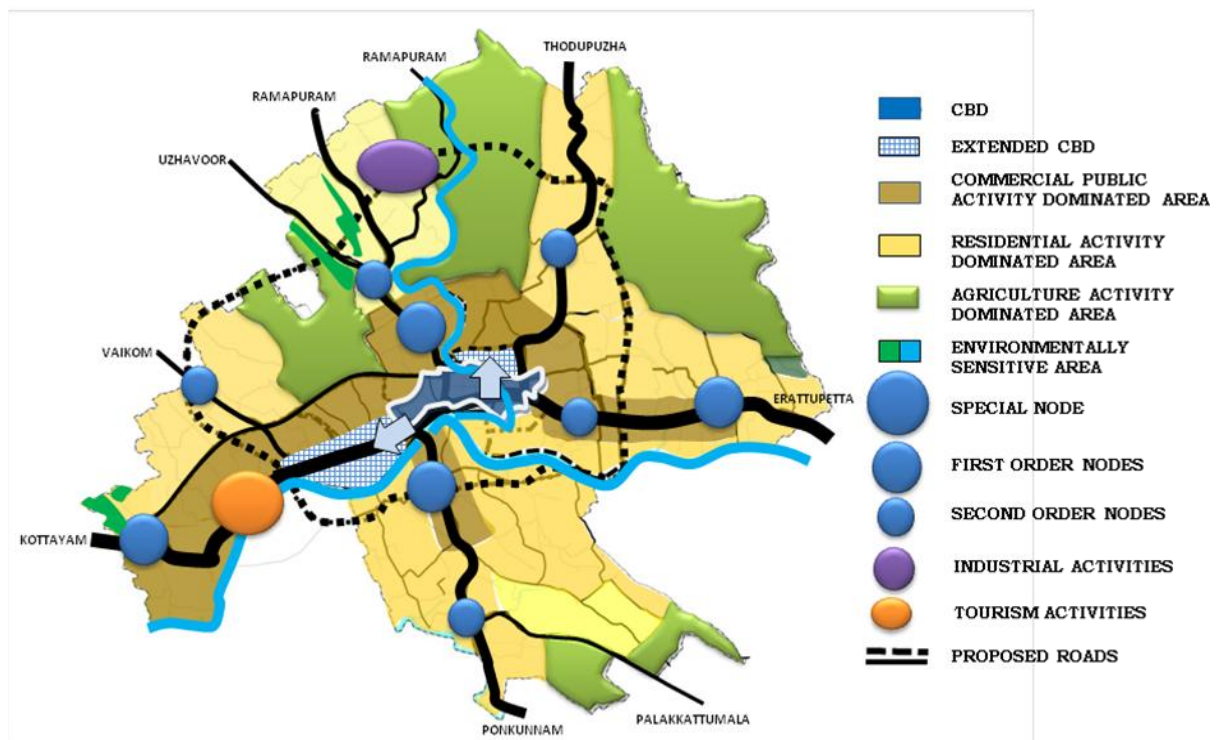


Figure 26.9 Development Concepts for Pala

- Expansion of present C.B.D towards west along A.P.Road up to Kottaramattom and towards north up to new By-pass road for extension of commercial activities to decongest town centre.
- Mixed activity ie Commercial, Public & Semi public and residential area around CBD are promoted.
- Residential activities around the central core
- First order and second order nodes to meet the local needs

- *Small scale industrial development in residential area as the proposed residential density is very low.*
- *Provision of I.T. establishments, Small Apparel parks along by pass area, as large area has open up for development thus diverting the traffic congestion in town centre.*
- *Promotion of Tourism facilities at Kottaramattom area by providing infrastructure.*
- *Intense Agriculture activities in Agriculture areas of the town.*
- *Conservation of environmentally sensitive areas/heritage precincts.*
- *Promotion of home stead cultivation in residential area.*

Note: The Master Plan with the above mentioned concept was approved by Government to publish vide G.O (Ms) No: 361/2015/LSGD dated 22/12/2015 and published in Kerala Gazette Number 9 dated 01.03.2016. Even though the concept for the Master Plan for Pala is prepared on the basis of various studies, it was forced to change certain traffic and transport facilities like ring roads due to public objection and suggestion. The Master Plan was republished vide GO (MS) No: 23/2018/LSGD dated 21.02.2018 incorporating people's aspiration and published in Kerala Gazette No:14 dated 03.04.2018. Again after various discussions with special committee as per Kerala Town and Country Planning Act - 2016, the objections and suggestions from public were scrutinized and certain modifications were incorporated in maps and report and submitting to Government for sanctioning the Master Plan for Pala....

27. POLICIES AND STRATEGIES



This chapter discusses about development policies and strategies adopted in the Master Plan. General policies are discussing first and the sector wise policies and strategies.

27.1 INTRODUCTION

A development concept has been evolved based on the studies and analysis on various physical features and economic factors affecting the planning area. This chapter contains the development policies and strategies evolved for the implementation of the development concept formulated for a period of 20 years. The general development policy and sectoral development policy are included in this chapter.

27.2 GENERAL DEVELOPMENT POLICIES

The general development policies adopted for implementation of development concept is furnished below.

Trade, commerce and shopping have been identified as a major activity of the town. Develop Pala as a major Market and shopping centre of the region. Also develop Pala as a market centre of cash crops of the planning region.

Develop the economy of the planning area utilizing the resources available in the influence region. It includes utilizing the raw materials especially, the locally available cash crops, tourism potentials, human resources etc.

Develop Pala as a second order center of the district with required facilities especially infrastructure facilities.

Providing better service facilities to the people by provision of better health services, quality education, quality power, water and various

infrastructure facilities and ensure the welfare of economically weaker sections of the society.

Future development of the town has to be done with due consideration to the environment, with protection of all existing environmentally sensitive areas.

The sector wise policies and strategies for the major sectors identified for Pala town are furnished below.

27.3 TRADE AND COMMERCE

Policy:

Strengthen the economy of the town by developing and diversifying the Trade and Commerce activities and developing the town as a commercial centre.

Strategies:

- Opening up of new land for commercial activities with easy access
- Establishment of commercial complexes of International standards
- Renewal of existing commercial areas which are in delapidated condition.
- Extension of Commercial area and providing connected facilities like parking place, drainage, waste disposal system etc.
- Provision of facilities for informal sector.
- Establishment of new commercial complexes by Municipality and other agencies.
- Provision of Parking areas in Market Places and Commercial areas
- Provide market facilities for locally produced value added products and agriculture products.

27.4 INDUSTRIAL SECTOR

Policy:

The development Policy is to establish new industrial units for value addition of products available in the hinterland and diversification of industrial activities

Strategies:

- Expansion of industrial estates and starting of new units
- Promotion of small I.T. establishments.
- Provision of infrastructure facilities like road, telecommunication facilities.
- Marketing facilities for the value added products.
- Industrial units for socially and economically weaker sections and industrial units under social organizations like Kudumbasree.

27.5 HERITAGE AND TOURISM**Policy:**

Total exploitation of tourism potentials – rivers, hill locks, rich culture, literacy, heritage, festivals, famous pilgrim centers, locational advantage etc and develop tourism as one of major economic activities of the town.

Strategies:

- Develop as a tourist transit centre considering the location of the town between tourist centers like Vagamon, Ilaveezhapoonchira, Bharananganam and provide support facilities for pilgrims visiting Sabarimala
- Increasing connectivity of the town with neighbouring centers with roads of highways standard.
- Utilizing the tourism potentials of religious festivals, cultural festivals, fares.

27.6 AGRICULTURE AND ANIMAL HUSBANDRY**Policy:**

- *To Strengthen the economic base of the town to an extent through strengthening the agricultural and animal husbandry sector by proper integration of these sectors and increasing productivity in this sector. Improving the environmental condition of the area can be done by rejuvenating water bodies.*

Strategies:

- Promotion of homestead cultivation in low density residential area and intense cultivation in the area identified for agriculture. Priority for cultivation of vegetables
- Promoting organic farming and usage of bio fertilizer in agriculture activity, the solid waste may be converted in to bio fertilizer and reduce the quantity of solid waste at disposal point.
- Promotion of units for the value addition of agriculture products.
- Establish more dairy, goat, pig and poultry farms and increase productivity through scientific methods.

27.7 TRANSPORTATION.**Policy:**

- *Provide an efficient road network, considering the traffic need of the town, connecting the various activities and nodes of the town.*

Strategies:

- Developing a hierarchical system of road network within the planning area.
- Providing new road links for diverting traffic in the central area and decongesting the town center.
- Improvement of transport infrastructures like terminal facilities, parking facilities, pedestrian facilities.

27.8 HOUSING**Policy:**

- *Provision of houses for the newly added population, improvement of structural condition of houses of economically weaker sections and improvement of housing quality.*

Strategies:

- Provide adequate residential areas in land use plan.
- Promotion of planned development of residential activities

- Improvement / provision of basic infrastructure like quality roads, street light, recreational facilities, drainage etc in residential areas.

27.9 DRINKING WATER

Policy:

- *Ensure drinking water of required standard throughout the day for all households of the town. Increase the coverage of protected water supply system. Also provide sufficient water to the commercial and industrial establishments.*

Strategies:

- Conservation and protection of water sources within the planning area. Protection of conventional water sources
- Augmentation and extension of protected water supply system to more areas.
- New schemes for uncovered area
- Provision of separate water distribution system for elevated area.
- Replacement of damaged pipe lines and fittings.
- Conservation of paddy fields and ponds for recharging the ground water sources.
- Promote water Harvesting.

27.10 POWER

Policy:

- *Provide quality power to the existing consumers and ensure quality power for the new establishments. Provide a good street light system for the town.*

Strategies:

- Provide system for uninterrupted power supply.
- Provide a good street light system for the town.
- Electrification of the houses of socially and economically weaker section.

- Adoption of non-conventional source of energy to the extent possible.

27.11 WASTE DISPOSAL AND DRAINAGE

Policy:

- *Improve the system of collection, conveyance and disposal of generated waste with participation of people and provide a hygienic environment. Promotion of a system of disposal of wastes at source itself. Maintain the habitable area free from flooding.*

Strategies:

- Strengthening the present collection system with additional labours, vehicles etc.
- Effective mechanism for waste disposal at the existing dumping yard
- Promoting the system of waste disposal at source itself. Extension of waste collection system to more public area with people's participation and adoption of decentralised disposal system.
- Popularising Bio fertilizer manufacturing units.
- New public comfort stations.
- Maintenance of existing road side drains and natural drains to avoid flooding.

27.12 EDUCATION

Policy:

- *Establishing institution with new generation courses, diversification of courses in the existing institutions and improve the general education status of the town.*

Strategies:

- Provision of adequate infrastructural facilities for General education institutions in Government and Aided sector.
- Modernization of educational institutions with facilities like smart classes, language labs etc.

- Utilize the unutilized potentials, including land for starting new institutions/courses.
- Supporting facilities like hostels, libraries, sports complexes and career development centers.

27.13 HEALTH

Policy:

- *Improve the general health condition of the people by preventive measures and maintaining a healthy and hygienic conditions. Provide modern health facilities to cater the needs of people of Pala and its influence region. Provide quality treatment through three systems of medicines.*

Strategies:

- Further advancement of Super Specialty facilities at hospitals
- Providing infrastructure facilities for Indian System of Medicine and Homeopathic Medicine System.
- Promotion of health tourism linking with other tourist activities
- Creation of a healthy and hygienic environment.
- Centre for care of Aged people, disabled persons, children etc

27.14 CIVIC AMENITIES AND RECREATION FACILITIES

Policy:

- *Provide higher order civic amenities and recreational facilities as per standard considering the resident as well as population of the region.*

Strategies:

- Provide new Parks, fair ground and Open spaces.
- Provision of water front recreational areas
- Improvement of existing recreational facilities.
- Improvement to the existing libraries and provision of modern facilities.

27.15 ENVIRONMENT

Policy:

- *To make Pala as an eco-friendly, hygienic and aesthetically pleasing town by reducing pollution, improving and protecting environmentally sensitive areas.*

Strategies:

- Conservation of wet lands and water bodies.
- Conservation of identified heritage precincts and sacred grooves.
- Effective solid waste management.
- Improving aesthetics of the town through various efforts like planned street scape, town squares, organized open space etc.

28. PROJECTED REQUIREMENTS



This chapter contains various projected requirements of the town. Perspective population for the year 2021 and 2031, anticipated change in occupational structure of the town, future land use requirements, future requirement of housing sector, future water requirements, estimated quantity of solid wastes etc are included.

28.1 INTRODUCTION

The developments envisaged in the town through the Development concept will increase the Job opportunities and population of Pala town. *Trade and Commerce, activities related to an Administrative center, Service center activities, Agriculture and animal husbandry, small scale industries and tourism related activities* etc are envisaged in the development concept. In addition to that Pala is proposed as a second order settlement in the district and the facilities in this regard has to be provided and this will create job opportunities especially in service sector.

28.2 PERSPECTIVE POPULATION FOR THE YEAR 2021 AND 2031

Population projection is usually done by understanding the pattern of population growth in the past and assuming that the same pattern will continue in the future also. The present population is projected to the desired future period by using various projection methods. Population growth of an area depends on number of births, deaths, in migrants and out migrants over a time period and these factors are also taken for the population projection.

Mathematical population projection methods are used for finding out the projected population. Arithmetic increase method, incremental increase method and linear growth method are used for calculation purpose and the average of it is considered as the projected population for the horizon period. The mathematical methods of projection show that the population of the town will decrease in future.

The perspective population is arrived by taking average of all population projection by various mathematical methods and factors like migration also taken into consideration. The district and the town are showing a negative growth rate of population. But it is expected that the population of the town will increase by a certain extent due to various policies adopted and the town should register an increase in population for its sustainability. The projected population by mathematical methods and perspective population of Pala town arrived using different methods is shown in Table 28.1 and Figure 28.1.

Table 28.1 Projected Populations

Sl.No:	Method	Projected Population	
		2021	2031
1	Arithmetic Increase Method	24220	25010
2	Incremental Increase Method	23616	24104
3	Geometric Increase Method	24520	25520
	Average	24118	24878
	Rounded to	24200	25000

The expected population of Pala Town is shown graphically in the Figure 28.1. Population is expected to reach 24200 by 2021 and 25000 by 2031. The provision of new developmental policies will attract people towards Pala.

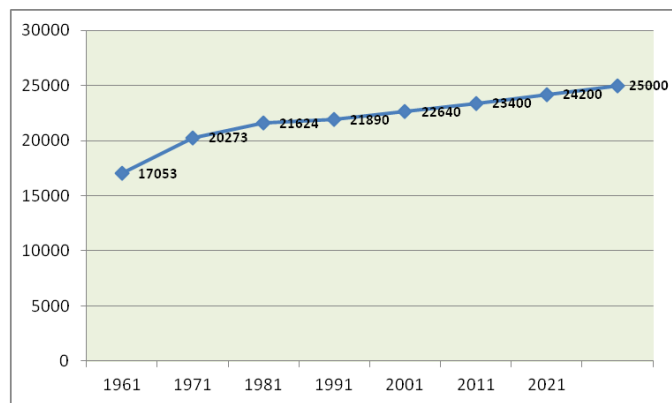


Figure 28.1 Projected Population

28.3 CHANGES IN OCCUPATIONAL STRUCTURE

The economic activities govern the occupational structure of the area. The expected population by 2031 is 25000. The work participation rate for Pala is 37.23% during the census 2011. As per UDPFI Guide lines, for a Municipal Area, the minimum work participation rate shall be 33%. The work participation rate of the town is higher than the standard. 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 Planning area. Based on this it is assumed that the work

participation rate for Pala will maintain the higher ratio and for the year 2031 also it is adopted as 38%. The Working force during 2031 is 9500 (38% of 25000).

28.4 AREA REQUIREMENT FOR VARIOUS URBAN USES

Pala town can be considered as a small town as per UDPFI guidelines (population less than 50,000). The requirements for the small town as per UDPFI guidelines are worked out in the following paragraphs.

Residential Areas

At present an area of 6.39 Sq.km (39.77 %) is being occupied for residential purpose. As per UDPFI guidelines an area of 45-50% is to be provided under residential land use category. Additional land has to be identified for residential purpose. Residences can also accommodate in the dry cultivation area.

Commercial Uses

Existing land use survey, shows that only 0.46 Sq: km (2.87% of total area) of land is coming under commercial use in Pala Municipality. UDPFI guidelines propose an area of 2-3% for commercial uses. As trade and commerce is considered as one of the major activity in the town, a projected area of 3% of total land use have to be allotted for this section which comes to be around 0.48 sq.km area.

Industrial Area

As per UDPFI guidelines, for small and medium towns, industrial workers are taken to be about 20% of total working population. Thus it is estimated that there will be around 1700 industrial workers in Pala by 2031. As per UDPFI guidelines, density of industrial workers must be in the range of 100 pph to 125 pph. Assuming employment density as 100 pph, the extent of industrial area will be 48ha. Thus about 0.48 sq.km of town area can be estimated to be occupied by industries by 2031.

Public & Semi-public Use

According to land use survey, there is 1.02 sq.km (6.34%) of land area is under public and semi public use in Pala town. As per UDPFI guidelines, area of 6-8% of total area must be provided for public and semi-public uses for a medium town. So the town has attained more or less same percentage of land under public and semi-public land use as per standard.

Transport & Communication

According to UDPFI guidelines, an area of 10-12% should be allotted for transport and communication purposes in the case of small town. It can be found that only 0.41% of total area is used for this purpose in Pala. In order to accommodate the fast growing traffic in the town and to reduce the traffic problems existing here, more road networks have to be introduced. From the road inventory survey, it was found that the width of many roads have to be increased so as to accommodate the traffic volume.

Recreational Uses

Land uses coming under this category are playing fields, stadium, parks and open maidans, gardens, etc. Current area available for recreational uses is 0.12% of total town area which is found to be very less. According to UDPFI guidelines, 12-14% of total land area must be used for recreational purposes for the case of a small town. But while considering the current unavailability of land, this guideline cannot be followed. Recreational open spaces shall be provided at the rate of 1.4-1.6 ha/ 1000 persons. By taking this provision, the area to be provided comes around 0.34 sq.km for this purpose.

Agricultural land & Water Bodies

At present 7.68 Sq.km of area is under agricultural and water bodies. In order to meet the demand in the coming years, uncultivated land will have to be converted to other land uses. It is proposed to retain land predominantly under agricultural use and low lying land which are environmentally

sensitive lands are to be conserved for future. Thus most sensitive and cultivable lands of agriculture area are taken into consideration and retained as such by imposing required zoning regulations.

In case of dry agricultural land, some active areas like rubber plantations, mixed crop areas etc are included under agricultural use zone. This area also has to be protected by enforcing proper rules so as to prevent from conversion to other uses indiscriminately. Rest area can be utilized for other land uses as per the demand.

At present 0.55 sq.km of land area is used by water bodies. This area has to be retained as such from encroachment and waste dumping by providing buffer zones for water bodies and also to reduce the water scarcity in future.

28.5 HOUSING AND SHELTER

It is estimated that 2.03% residential buildings in the town are kutcha buildings and require immediate up gradation. About 34.76% of buildings are moderate & 61.79% of houses are pucca buildings. 1.42% of huts are reported in the socio-economic survey which needs immediate attention.

The projected population of Pala town by 2031 is 25000. So an additional population of has to be accommodated in the town. Approximately additional 500 new houses need to be constructed in the next twenty years.

28.6 DRINKING WATER

The steps adopted for the estimation of requirement of drinking water for the year 2031 is furnished below

<i>Projected Population (2031)</i>	<i>– 25000</i>
<i>Per capita domestic water demand as per standards</i>	<i>– 135 lpcd</i>

As per socio-Economic survey, well is the main source of water for 65.04% of houses. On the assumption that part of requirement of drinking water is met from the domestic well also, it is assuming that 100 lpcd is to be supplied through pipe line for domestic purpose. It is also assumed that 50 lpcd is required for non-domestic purposes.

Total lpcd required	-150
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Water to be distributed through pipe line is $25000 \times 150 = 3750000$ lakh
liters or $= 3.75\text{MLD}$

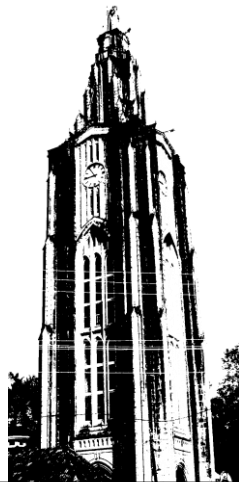
28.7 SOLID WASTE

At present in 99% of household wastes are disposed in their own compound. Since a major portion of the town is proposed as Agriculture area and considering low density, it is assumed that only half the waste need to be collected. The waste to be collected from the remaining portion of the town is estimated as follows.

<i>Projected population</i>	- 25000
<i>Half of projected population</i>	- 12500
<i>Waste to be collected</i>	$- 12500 \times 0.25 \text{ Kg/day} = 3.125\text{tonnes/day.}$

So a system has to be evolved for collection and disposals of a quantity equal to 3 tonnes/day by 2031.

PART.III



LAND USE AND SECTORAL PROPOSALS



29. LAND USE PLAN

The proposed land use of Master Plan for Pala is included in this chapter. Different zones, proposed land use break up and description of each zone are included in this chapter.

29.1 INTRODUCTION

Land use plays a major role in the process of evolving better environment for the town. Better management and distribution of activities in the town will reduce many problems relating to traffic and provision of service. The land use plan for the horizon year is proposed in tune with the policies and strategies mentioned in previous chapters, considering the present trend of land development, ongoing and committed projects and projected requirements and based on the development concept evolved.

The Published Master Plan for Pala as per G.O. (MS) No. 361/2015/LSGD, dated 22.12.2015 had already included Outer ring roads, Inner ring roads, Arterial roads etc. But due to the objections on these proposals, a discussion was conducted at Government level regarding the Special Committee/Municipal Council decisions on the Objection/Suggestions received for the Published Master Plan. As per the decision of the Special Committee / Municipal Council decision and based on the Government level discussion, Modification in Land use Plan has been incorporated for re-publishing the Master Plan for Pala.

In the proposed land use plan, the town has been divided into various zones. *Town Centre, Multi functional zone, Residential zone, Public and Semi-Public zone, Industrial zone, Transportation zone, Park and open space zone, Dumping Yard, Low lying agriculture land, Dry agriculture zone and Water bodies* are the zones proposed. The proposed land use of the town is shown in Figure 29.1.

29.2 LAND USE BREAK UP

The proposed land use break up in hectare and percentage of different land uses of the planning area is shown in Table 29.1. The residential zone occupies 43.23 % of planning area followed by the dry agriculture zone with 24.10 % of the Planning area.

Table 29.1 Proposed Land use break up

Sl.No	Land Use	Area (In Ha)	Percentage
1	Town Centre	38.73	2.41
2	Multi Functional zone	218.90	13.63
3	Residential zone	775.79	48.31
4	Public and Semi-Public zone	102.52	6.38
5	Industrial zone	4.44	00.28
6	Transportation zone	38.21	2.38
7	Park and Open Spaces	2.03	00.13
8	Solid waste management area	0.86	00.05
9	Lowlying Agriculture land	15.32	00.95
10	Dry Agriculture zone	357.64	22.27
11	Water Bodies	51.57	03.21

29.3 TOWN CENTRE

The proposed Town centre covers the present CBD of the town and its extension proposed in the plan. All major commercial and business activities of the planning area are concentrated in this zone. In addition to commercial activities, Public uses like temples and churches, hospitals, recreational areas, educational institutions, etc. are there in the town centre. The entire area in this zone has organic development with high intensity of activities with high and moderately built up areas. Town Centre serves as the main business centre for the taluk.

29.4 MULTI FUNCTIONAL ZONE

The stretch of major roads such as A.P.Road and Ponkunnam Road emanating from the town centre are acting as development corridors, the existing land use shows the mixed use development along these corridors. In order to regulate the development along the corridor and provide adequate land for future urban development a mixed zone named as multifunctional zone has been proposed.

29.5 RESIDENTIAL ZONE

In the proposed land use plan residential zones are proposed around the Town centre and Multi functional zone. In addition to that residential uses are permissible in zones like Dry Agriculture, Multi functional zone etc with certain condition.

29.6 PUBLIC AND SEMI PUBLIC ZONE

The existing public and semi-Public uses are proposed to retain as such. The public and Semi-Public zones are scattered all over the Planning area. In addition to that there are provisions for Public and Semi-Public uses in other zones also.

29.7 INDUSTRIAL ZONE

All major industrial land uses are proposed as exclusive Industrial Zone in the proposed land use map. In addition to that there is provision for setting up industrial units in other zones also with certain restrictions.

29.8 TRANSPORTATION ZONE

The proposed road network of the Planning area consists of roads of width 15.00m, 12.00m, 10.00m and 8.00m. The existing Bus stations have been included in the transportation zone.

29.9 PARK AND OPEN SPACE ZONE

At present a total extent of 1.99 hectares of land is coming under this zone. It mainly consists of existing Stadium and Park. The existing land under Park and Open Space has proposed to retain as Park and Open Space in the proposed land use also.

29.10 SOLID WASTE MANAGEMENT AREA

The existing dumping yard at Kanattupara is proposed to retain for the same use.

29.11 LOW LYING AGRICULTURE LAND

Major portion of the remaining paddy fields and wet lands has been proposed as low lying agriculture land.

29.12 DRY AGRICULTURE ZONE

1.98 Sq:km of land in the North –East part of the planning area has been proposed as Dry agriculture land. This area is mainly consists of rubber plantations, mixed cultivation land and also low density residential areas.

29.13 WATER BODIES

Meenachil River and Lalam thodu and number canals and other water bodies constituting water bodies in the Planning area.

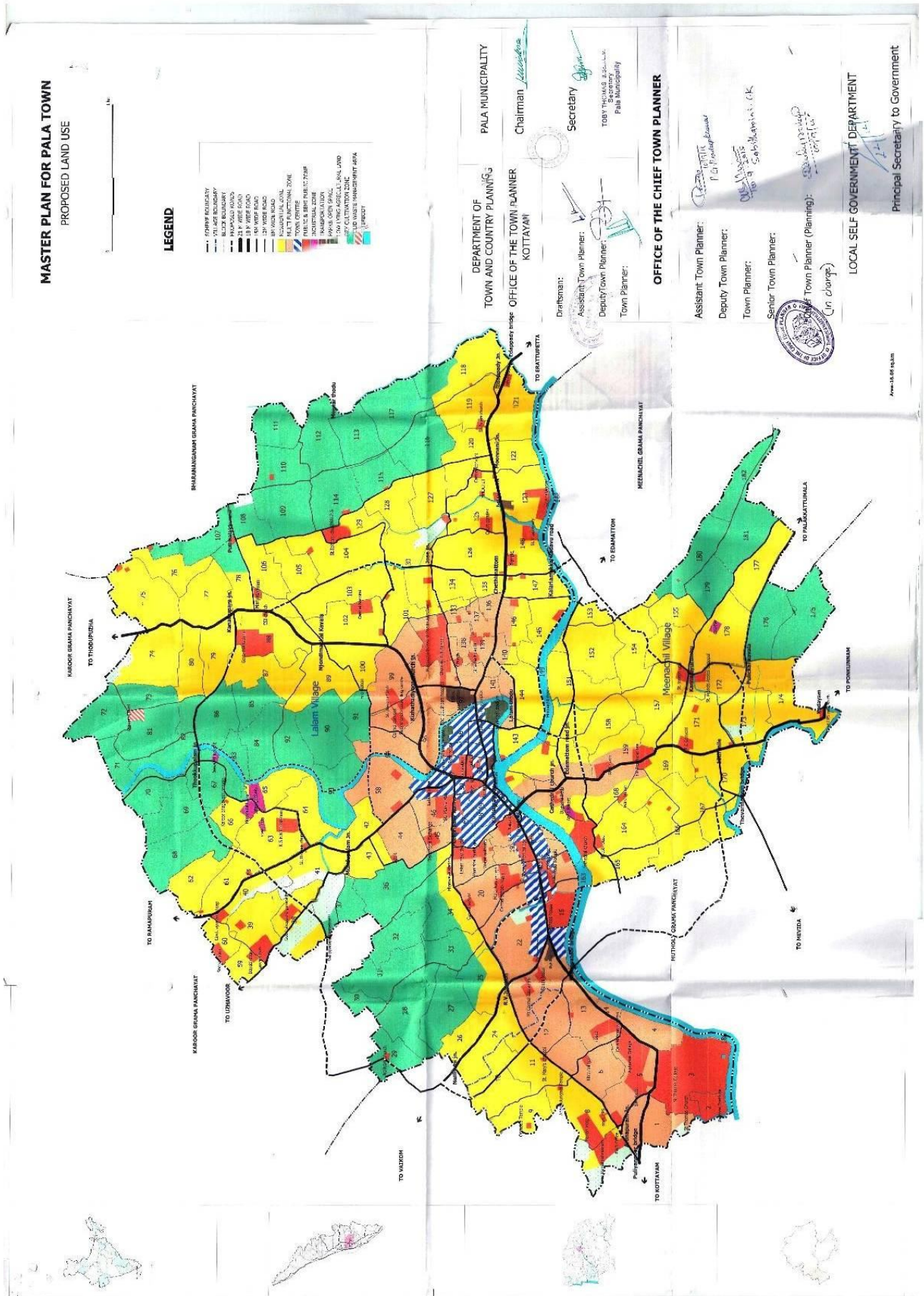
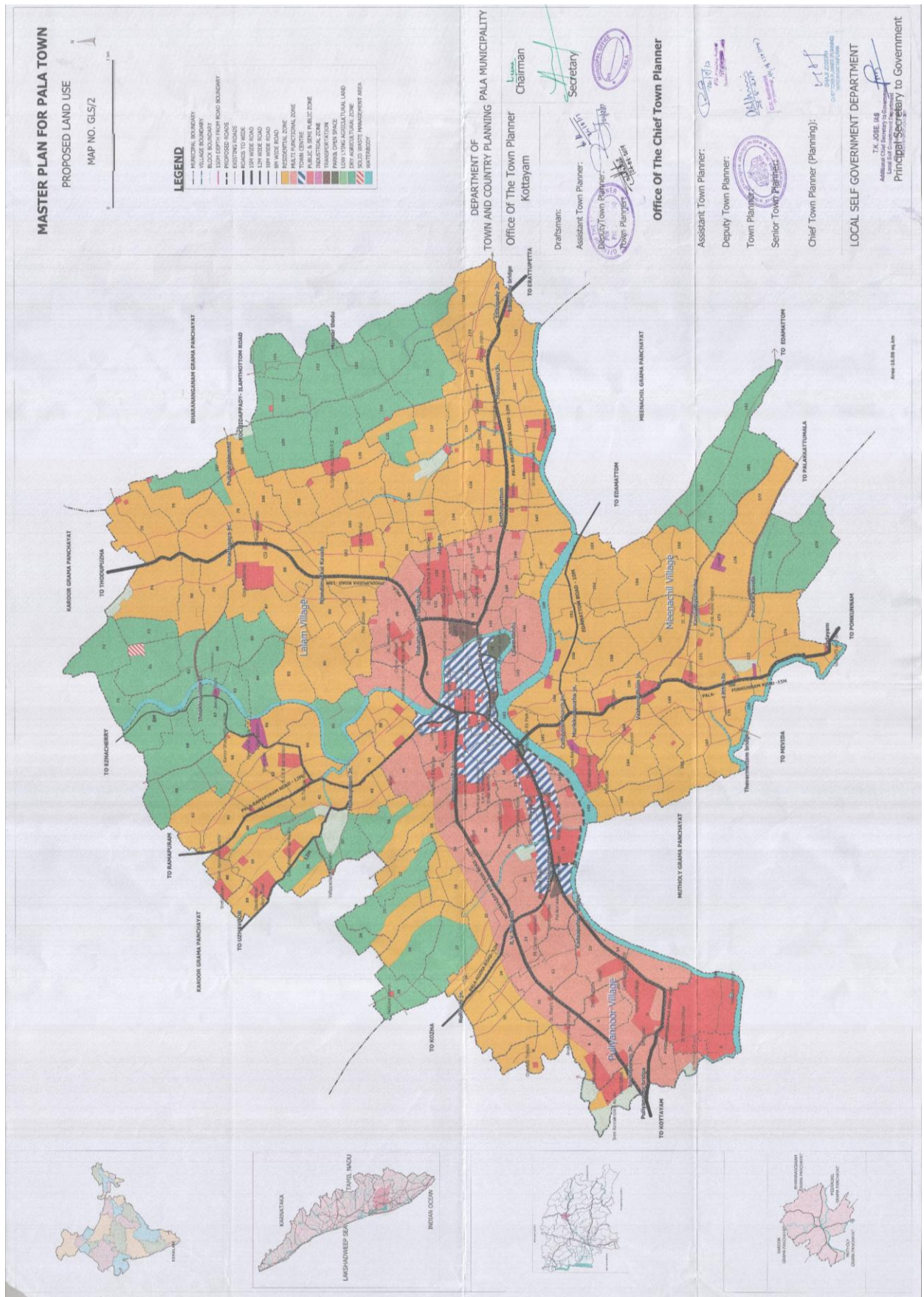


Figure 29.1 Published Master Plan as per G.O. (MS) No. 361/2015/LSGD, dated 22.12.2015



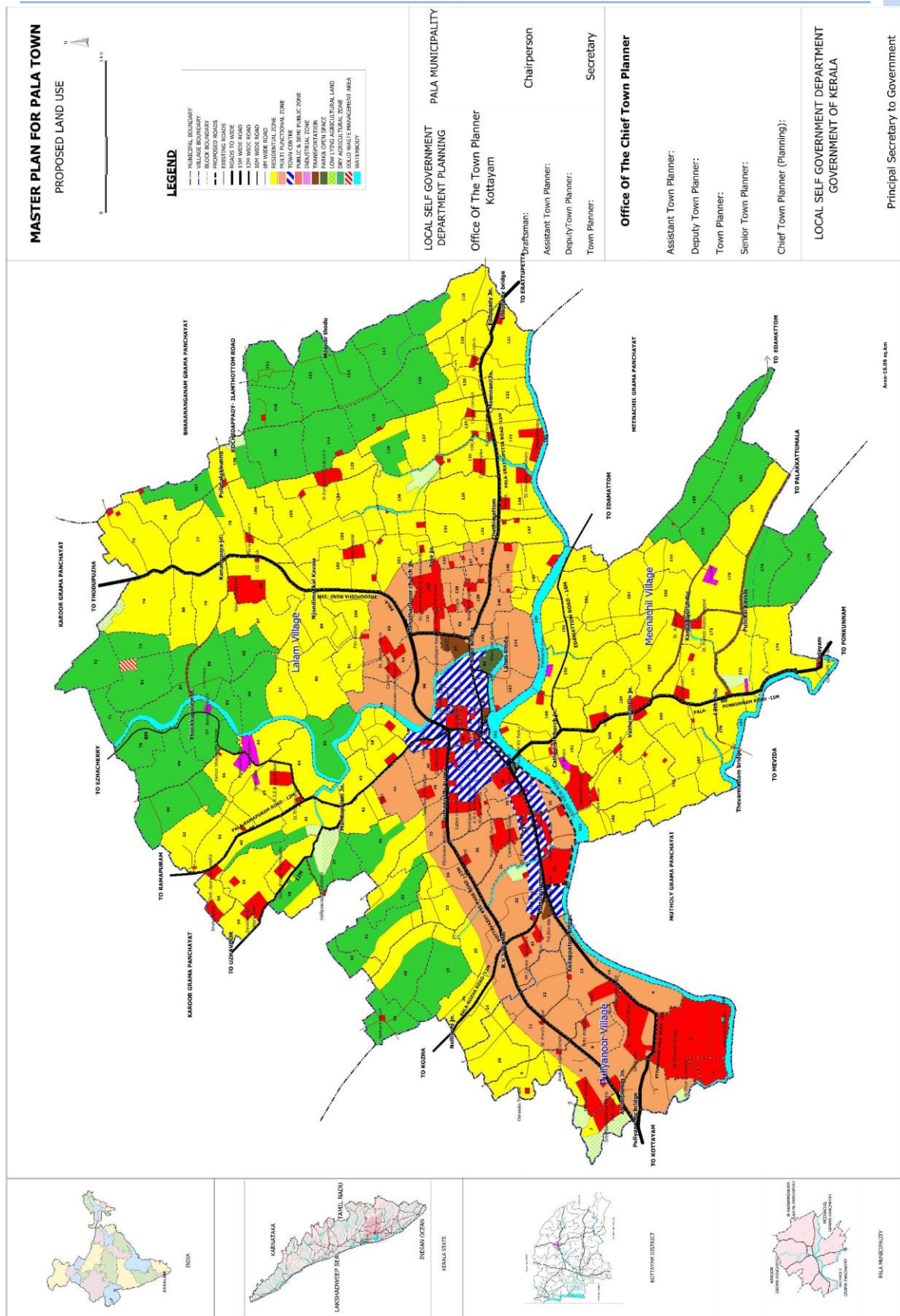
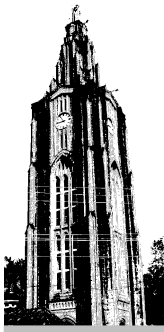


Figure 29.3 Proposed Land Use Map – November 2020



30. TRANSPORTATION PLAN

The development strategy for the horizon year and future transportation network of the town is included in this chapter. Other transport related proposals also included in this chapter.

30.1 INTRODUCTION

Transportation is one of the major sectors as far as an urban area is concerned and this chapter details the development proposals to be implemented in the transport sector within the plan period of 20 years in the Planning area. Due importance has been given for providing an efficient transportation system considering the future traffic also. Proposals for an efficient road network, terminal facilities, parking facilities and pedestrian facilities are included in this chapter.

Transport plan for Pala Municipality is prepared taking into account of the existing traffic scenario and based on an evaluation of the future traffic on the base year traffic in the road network. All ongoing and committed development schemes were taken into account while formulating the transportation plan.

The Published Master Plan for Pala as per G.O. (MS) No. 361/2015/LSGD, dated 22.12.2015 had already included Outer ring roads, Inner ring roads, Arterial roads etc. But due to the objections on these proposals, a discussion was conducted at Government level regarding the Special Committee/Municipal Council decisions on the Objection/Suggestions received for the Published Master Plan. During this discussion held at Government level, it was suggested to explore the possibility of ring roads, flyovers, bypass, etc. This require a detailed study by a technical competent agency, which cannot be completed within the stipulated time as per the direction from government based on the judgment dated 11.04.2017 on WP(C) 13229/2017

30.2 DEVELOPMENT STRATEGY FOR THE HORIZON YEAR

The configuration of the existing road network within Pala Town does not reflect any regular form, although it resembles more or less like ring and radial type having radial roads connected with partial ring roads. The SH - 32 road passing through the heart of the town is the spinal cord of the town road

network. SH- 8 is the other important road carrying heavy traffic. These roads carry major share of intra-city and inter-city traffic. These roads carry traffic far exceeding its capacity at present and it is very difficult to accommodate additional traffic. The traffic in the CBD area, especially from Kottaramattom Junction to Lalam Bridge Jn. is very high and the traffic volume exceeds its capacity. The major reasons of the high traffic volume are concentration of activities like commercial, educational institutions, public and semi-public activities, location of bus station etc. Also in Sabarimala season the town has to carry additional traffic volume. The existing problems as well as the future projected traffic volume also considered for formulating the long term transportation plan for the horizon year.

The most important aspect of traffic and transportation problem of Pala town is the congested central core with limited scope for road widening. Hence, emphasis has been given to develop alternative linkages so as to divert the traffic passing through the CBD area. This would also help to reduce the unwanted inter-mix of intra-city and inter-city traffic on urban roads within the central part of the town.

As the level of service of urban roads are depend to a great extent by the capacity of intersections, the development proposals should give importance to increase the capacity of major intersections by proper planning and design of these junctions. Special emphasis should also be given to improve the pedestrian facilities and in developing off-street parking lots.

30.3 ROAD NETWORK

The widening of SH-32 and SH-8 roads taking in to account of the anticipated traffic volume is to be given in the first priority and the proposed width of these roads are 15m. A hierarchy of roads of 15m, 12m, 10m and 8m has been prepared in the road network plan and it is shown in fig 30.1. The list of proposed roads is shown in Table 30.1.

The road network proposed will be implemented when the local body or concerned department take necessary action for acquiring land and constructing new roads.

Junction Improvements- Adequate improvements are immediately warranted for the intersections *viz.*, Kottaramattom, RV Junction (Bye pass), Lalam Bridge Jn, Kurisupalli Junction, Hospital Jn, Kizhathadiyoor Church

Jn, Civil station Jn (Bye pass), Stadium Jn, Murikkumpuzha Jn, St.Thomas College Jn, Arunapuram Jn.

Table 30.1 List of roads Proposed Roads

Sl. No.	From	To	Proposed Width (in m)	Name of the Road
15.00m WIDE ROAD				
1	Arunapuram	Hospital Jn	15.00	SH-32 (Ettumanoor- Pala Road)
2	Lalam bridge Jn	Kochidappadi Bridge (Municipal boundary)	15.00	SH-32 (EP Road)
3	Kadayam (Municipal boundary)	Hospital Jn	15.00	SH-8, Ponkunnam Road
4	KC Sebastian square (SH-8)	Mundumackal (Municipal boundary)	15.00	SH-8, Thodupuzha Road
5	Puliyanoor bridge	KC Sebastian square	15.00	Kottavazhi by-pass
12.00 m WIDE ROAD				
6	Hospital Jn	Lalam bridge Jn	12.00	SH-32
7	Kurisupally Jn	Govt. Ayurveda Hospital Jn (Municipal Boundary)	12.00	Ramapuram Road
8	Mundupalam Jn (Ramapuram road)	Karoor (Municipal Boundary)	12.00	Uzhavoor Road
9	Kottaramattom	Nelliyani (Municipal Boundary)	12.00	Vaikom Road
10	RV Park	Kottaramattom	12.00	River view road
10.00 m WIDE ROAD				
11	Murikumpuzha Jn (SH-8)	Municipal Boundary	10.00	Edamattom road
12	Stadium Jn (SH-32)	Hospital Jn	10.00	River view road
8.00 m WIDE ROADS				
13	Mundupalam church jn	Municipal Boundary	8.00	Ezhachery road

30.4 OTHER PROPOSALS

30.4.1 Parking Facilities

Providing off street parking facilities at the following places

- Kottaramattom
- Ramapuram Road
- Kurisupally Jn

30.4.2 Terminal Facilities

Following are the proposals in this category

- Providing adequate facilities at Kottaramattom Bus stand
Municipal Bus Stand
- Remodelling of KSRTC Bus Stand
- Truck Terminal at Murukumpuzha

30.4.3 Pedestrian Facilities

Providing Pedestrian subways at the CBD area and improvement of foot paths

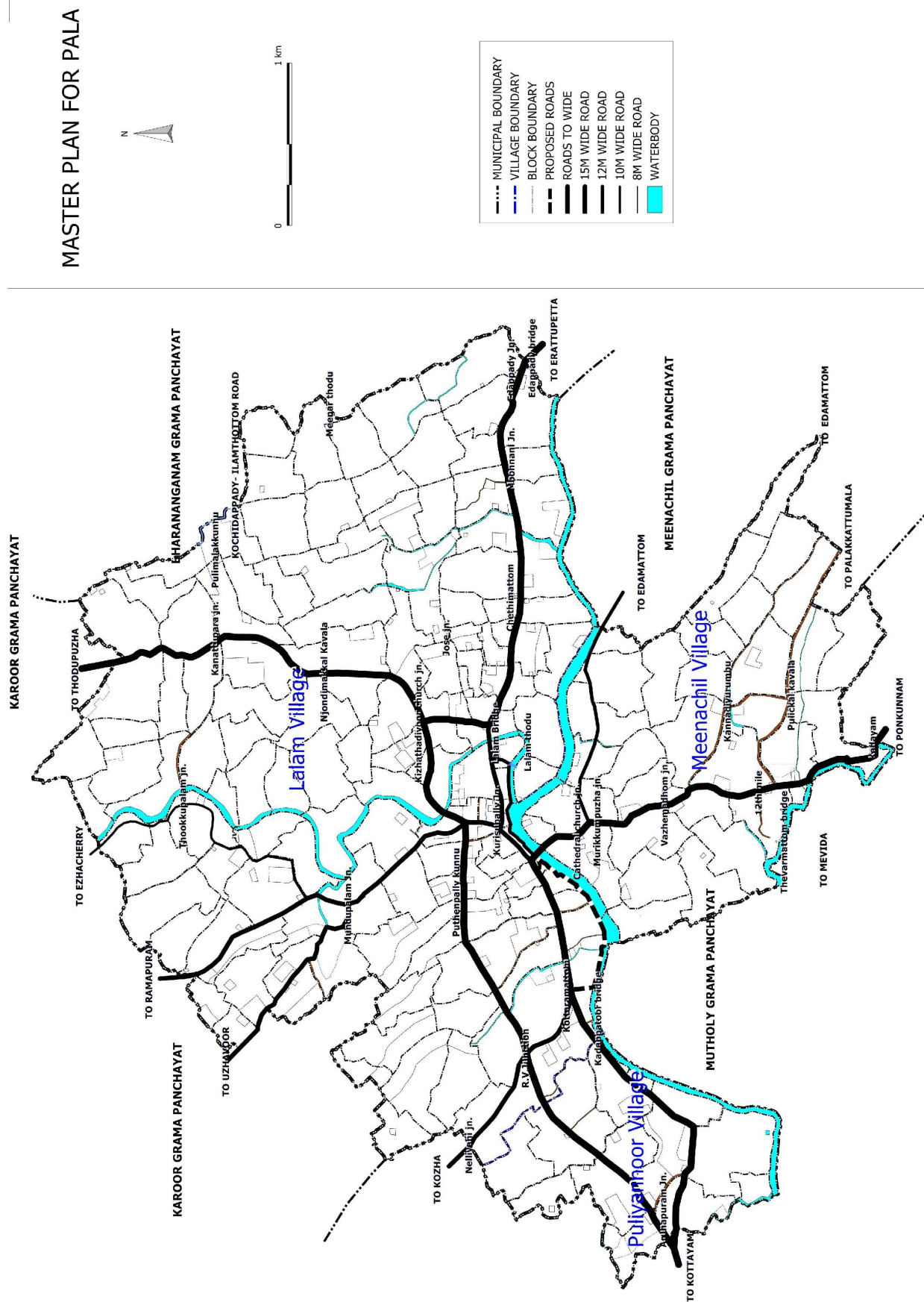
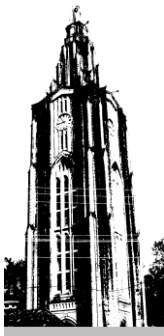


Figure 30.1 Proposed Road Network



31. SECTORAL PROPOSALS

The proposal of the Master Plan for Pala is included in this chapter. Details of 14 sectors has included in this chapter and the concerned implementing agencies can include these proposals in their annual and five year plan and implement it.

31.1 INTRODUCTION

The sector wise proposal of Development Plan for Pala is included in this chapter. The sector wise proposals are derived based on development concept and development issues pertaining to the sector. The economic feasibility and the environmental feasibility etc are considered for finalizing the proposals. But detailed environmental impact assessment has to be conducted for the major projects. The sector wise proposals are furnished below.

31.2 TRADE AND COMMERCE

Earlier Pala was one of the major trade and commerce center especially rubber from its vast hinter land. Absence of an organized market is experiencing in Pala. It is proposed to make free of the existing problems of the present Town Centre and expand it further.

31.2.1 International Shopping Complexes

Shopping complexes of international standards with facilities like storage area, loading and unloading area, connectivity with neighbouring centres, modern drainage and waste disposal facilities etc are proposed at Multi functional zone of the town.

31.2.2 Parking Plaza

A new multi level parking plazas at Commercial areas at Kottaramattom, Kurisupally, Ramapuram Road and adjacent to KSRTC Bus Station can accommodate the parking need of the town.

31.2.3 Markets

Expansion of Market in Ramapuram road and new markets at special nodes at Kottaramattom and Chethimattom can improve trade.

31.2.4 Shopping Complexes

New shopping complexes by Municipality and other agencies in commercial areas can be promoted.

31.2.5 Trade and Fair Area

An area for conducting Trades and Fares is required for public purpose.

31.2.6 Commercial Area Development

Development of Major commercial area of the town by provision of parking area, drainage facilities, and waste collection facilities are required

31.2.7 Hawking Area

A hawking area for the rehabilitation of Hawkers and vendors at suitable locations in the town

31.2.8 Truck Terminal

A modern truck terminal cum shopping complex in Pala- Ponkunnam road area

31.3 INDUSTRY

Major types of industrial units are not functioning in the town and the industrial sector is limited to few industries in the category of MSME. Other small units were scattered in different part of the town. There is an industrial unit along with godown is located near Pala –Ramapuram road. Anns House of Sweets is another major medium scale industry in Pala municipality.

31.3.1 I.T Based units / Apparel Park

IT based hardware and software units / Apparel Park.

31.3.2 Small Industrial units

Small industrial units for value addition of agricultural produces of the region proposed.

31.3.3 Food Processing Units

Establishing food processing units

31.3.4 Exhibition cum Sale Centre

Permanent Exhibition cum sale Centre for selling locally manufactured industrial products.

31.3.5 Training Programme

Training Programme in Rubber Processing and building construction.

31.4 AGRICULTURE

In addition to increase the production in agricultural sector, the rejuvenation of agriculture sector of planning area is necessary as measure to ecological conservation also. In the proposed land use, these factors are considered and the agricultural area has proposed in with certain restriction on other

activities. Similarly in the low density areas there is ample scope for home stead cultivation. A combined action in agriculture, animal husbandry and solid waste management will improve the self sufficiency and health standard of inhabitants.

Cultivation of rubber is predominant in Pala. The other cultivations in the planning area are tapioca, coconut, arecanut, plantain, banana, pineapple, pepper, nutmeg, clove etc and these cultivations are to be further promoted by giving technical support and joint farming programmes where ever possible.

31.4.1 Agriculture labour bank

The agriculture sector of the town is facing lack of supply of agriculture labours. An agriculture labour bank is proposed to meet this problem. The details of the agriculture labours may be kept in a register in the municipality. The agriculture labourers may be supplied from the labour bank to the cultivators based on demand. This programme can be implemented jointly by Krishibhavans and Pala Municipality

31.4.2 Cultivators Group / Group Farming and Implements bank

For facing the current problems in agriculture sector effectively measures like cultivator's group / group farming may be formed. An agricultural implements bank is also to be setup. Cultivation in the uncultivated land by leasing out the land to interested cultivators groups may be promoted.

31.4.3 Bio-fertilizer Plants

Promoting organic farming and usage of bio fertilizer is one of the agriculture promotion strategies for the town. This is to be achieved through the following measures.

Installation of Mini Bio fertilizer plant in all houses of the town for the disposal of the degradable wastes and for the production of bio gas and manure with the subsidy of Government can promote homestead farming.

31.4.4 Farm Tourism

Promotion of farm tourism as an additional income for farmers can be implemented.

31.4.5 Floriculture

Promotion of Floriculture for catering the local demands for flowers can promote economy and homestead cultivation.

31.4.6 Vegetable Cultivation

Scheme for attaining self sufficiency to an extent in the production of commonly used vegetables by extension of vegetable cultivation to more areas. Possibility of exporting vegetables also can be explored.

31.4.7 Value addition of Agro based products

Units for value added products from the agricultural products of the town and its hinter land.

31.4.8 New dairy farms

Considering the vast agriculture land available in the periphery of planning area establishing small scale dairy farms with 10 to 25 cows in a unit are proposed.

31.4.9 Poultry farm / Broiler farm

As in the case of dairy farms small poultry farms with 75 to 100 hens per unit can be started in those areas identified as suitable for agriculture, for meeting the demand of eggs and meat of the town to an extent.

31.4.10 Slaughter House

Construction of a modern hygienic slaughter house

31.4.11 Protection of ponds and Canals

Protection of existing canals and ponds to improve irrigation facilities

31.5 TOURISM AND HERITAGE

Buildings/precincts of heritage importance are very limited in the town. There is limited potential for tourism within the town. But utilizing the location advantage of the town, Pala can be developed as a tourist transit center. The aesthetic appearance of the town is to be improved.

31.5.1 Pilgrim Tourism

Development of Pilgrim tourism by utilizing the presence of famous pilgrim centres of the state like Sabarimala, Erumeli, Bharanaganam. Providing adequate parking and other infrastructural facilities at Kadappattoor/Kottaramattam for Sabarimala Pilgrims.

31.5.2 Heritage

Conservation and preservation of temples, churches having heritage value.

31.5.3 Aesthetic Beauty of the town

Improvement of aesthetic beauty of the Pala town beautification programme. It includes junction improvements, street designing, river bank beautification, providing uniformity in street furniture etc

31.5.4 Tourism Infrastructure

Establishing new hotels, shopping malls

31.5.5 Permanent Exhibition Centre

Establishing a permanent exhibition centre

A tourist circuit connecting Illickkalkallu, Vagamon, Kurisumala, Elaveezhapoonchira, Bharananganam, Cherpungal, Cathedral Church, Aruvithura Church etc

31.6 TRANSPORTATION

The proposals of this sector has already included in Chapter 30

31.7 HOUSING

In the proposed land use map sufficient area has been proposed for residential development. The structural condition of houses is found to be better in the town. Nearly 2.03% of the total residential buildings of the town are Kutcha-huts group. Danaparambu and Mundakal Purayidam are the main two slums existing in this town. In housing sector the proposals are related with the improvement of slum area.

31.7.1 Slum Areas

Improvement of infrastructure facilities of slum area

31.7.2 Improvement of existing housing stock

Improvement structural condition of kutcha houses and huts

31.7.3 New Houses

Providing new houses for additional population

31.8 DRINKING WATER

The projected population of Pala or town for the year 2031 is 25000 and it is estimated that a quantity of 3.75MLD of water is required for the Planning Area in the horizon year (Present supply is only 3.32 MLD).

31.8.1 Augmentation scheme

Augmentation scheme of present water supply scheme is to ensure supply of 3.32 MLD water for Planning Area by the year 2031.

31.8.2 Isolated distribution of elevated area (Mini schemes)

In order to ensure adequate water, provide separate distribution tanks at elevated areas and schemes utilizing the available resources.

31.8.3 Replacement of damaged pipe lines

Replacement of damaged pipe lines of the existing water distribution network is necessary.

31.8.4 Public Wells

Maintenance of public wells

31.8.5 Small Schemes

Expansion of water supply schemes mainly small water supply schemes functioning in the town.

31.8.6 Extension of Pipe lines

Ensure the distribution network by extension of pipe lines to areas which are uncovered from water supply.

31.8.7 Protection of natural water sources

Protection of wells, ponds and natural drains has to be ensured. The protection of Meenachil River is highly essential as it is the major source of drinking water to the town as well as the district.

31.8.8 Water Harvesting

Adoption of water harvesting methods to ensure water supply is essential.

31.9 ENERGY

The proposal in the power sector is furnished below.

31.9.1 Improvement of Power distribution

Installation of new Transformers, 11 KV lines etc.

31.9.2 Street Lighting

Provision of High mast lights and Sodium vapour lights in the town and at road intersections, Provision of separate street mains for street lights, proper lighting of residential areas etc has to be ensured.

31.9.3 Electrification of houses

Electrification of all houses especially the houses of economically weaker section.

31.9.4 Non-Conventional Energy

Incorporating energy conservation and efficiency by adoption of Non-conventional sources of energy like bio gas, solar energy and green buildings etc.

31.10 WASTE DISPOSAL

It is estimated that the total generation of solid waste of the town by the year 2031 is 3.125 tons/day. The analysis shows that 78.88 % of houses have septic tank and 19.05 % of houses have dry pits. Drains are available for few stretches of roads only. The proposals in this sector are given below.

31.10.1 Solid Waste Collection

The waste collection by the municipality from roads, public places and more densely populated wards has to be ensured. Strengthening and modernization of present waste collection, conveyance and disposal system.

31.10.2 Decentralized waste disposal plants

Biogas plants to houses, by providing biogas plants at different subsidized rate to households based on their income.

31.10.3 Septic tanks

78.88 % of houses have septic tank. Continue this system of waste disposal. Provide septic tanks for remaining houses. Provide subsidy to economically weaker sections.

31.10.4 Sewage System

Provision of sewage collection and treatment system for the town centre and densely populated part of the town is required.

31.10.5 Road side drain

Provision of road side drains for all major roads in the town.

31.10.6 Natural drains

Cleaning of all canals and protection work to prevent further disposal of wastes has to be enforced. Special project for protection of Meenachil River from waste disposal and contamination has to be implemented.

31.10.7 Public Comfort Stations / E-Toilets

New public comfort stations / E-toilets are to be provided at public places.

31.10.8 Awareness Programme

Conduct awareness programme on health, hygiene and environment.

31.11 EDUCATION

Educational Institutions in the category of High school, Higher Secondary Schools, Arts and Science College, Polytechnic College, ITI/ITC etc as per planning standards are available. Professional Colleges are there in the

adjacent Grama Panchayaths. Now efforts are to be made to convert Pala as an educational Hub. The projects which are to be implemented in educational sector are detailed below.

31.11.1 Research and Technical institutions

Establish advance Research Centres in various disciplines in existing Colleges.

31.11.2 Finishing School

Establish a Finishing School at Pala mainly to train those who are trying jobs in abroad.

31.11.3 Tourism Institute

Establish an Institute of Tradition, tourism and management at Pala.

31.11.4 Improvement of Infrastructural facilities and modernization of Government and aided schools

Improvement of infrastructure facilities of Government and Aided schools like new buildings, play grounds, toilets, computer lab, language lab, internet facilities, drinking water, vehicles etc. for government and aided schools.

31.11.5 Utilization of surplus land and buildings

Utilize the unutilized facilities of existing educational institutions including land, buildings etc for new institutions with new generation courses.

31.11.6 Sports Complex

A sports complex for students

31.11.7 Students Centre

A student's centre with hostel, library and career development centre for students of colleges in the town and surrounding area.

31.12 HEALTH

Health facilities as per standards for the population of the town as well as Meenachil taluk are available now. The projects which are to be implemented in health sector are detailed below.

31.12.1 General Hospital

Providing all necessary super specialty departments, equipments and infrastructural facilities in the General Hospital will help the public.

31.12.2 Emergency Medical services

An emergency Medical service with all necessary equipments with priority for aged people is required.

31.12.3 Ayurveda Hospital

Necessary infrastructural facilities shall be provided for Ayurveda Hospital.

31.12.4 Homeo Hospital

A building for Taluk level Homeo Hospital is required.

31.12.5 Centre for Aged and disabled people

Centres for the care of Aged people, disabled children, mentally retarded persons etc

31.12.6 Health Tourism

Health tourism can be promoted utilising the available institutions.

31.13 CIVIC FACILITIES, CULTURE

Recreational and other civic facilities are inadequate in the town. As regional centre higher order facilities are to be provided in the town.

31.13.1 Parks

New park at Pala town on the bank of Meenachil River in the municipal land and renovation of existing Parks

31.13.2 Stadium

Renovation of existing Municipal Stadium.

31.13.3 Indoor Stadium

An Indoor Stadium for the town.

31.13.4 Town Hall

Renovation of the existing town hall and construction of a new town hall with modern facilities for public gatherings is required.

31.13.5 Crematorium

A new crematorium for the town

31.14 ENVIRONMENT

Small extent of Paddy fields, water bodies, agriculture land in the steep slop of hills is included in the category of environmentally sensitive areas of the town. Regulation has been included in the zoning regulation for the protection of the environmentally sensitive areas. Following are the proposals in this regard

Conservation of paddy fields, Conservation of natural drains, Effective waste management and protection of Meenachil river and its tributaries are the proposals in this sector.

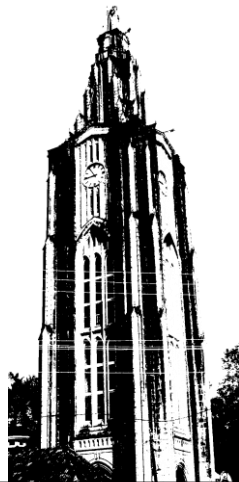
31.15 GOVERNANCE

For providing better services to the people and to improve the efficiency of functioning, the infrastructure of government offices and the municipal office has to be improved.

A new building for municipal office and a new office complex for those government offices functioning in rented buildings is required for good governance. Modernization in service sector and reforms in various activities are also essential for providing good services to the people.

A synchronization committee under the Chairmanship of the Municipal chairman for the coordination and monitoring of various municipal level projects for the development process is required.

PART.IV



DEVELOPMENT REGULATION

32. ZONING REGULATION



Residential Zone, Town centre, Multi Functional Zone, Public and Semi public zone, Industrial zone, Transportation zone, Park and open space zone, Solid waste management area, Low lying agriculture area, Dry agriculture Zone and Water bodies are the zones as per Master Plan for Pala. The development regulation of Master Plan for Pala has been included in this chapter.

32.1 INTRODUCTION

Zoning is a device of land use planning used in a Master Plan. The word is derived from the practice of designating permitted uses of land based on mapped zones which separate one set of land uses from another. Zoning Regulations are the means to achieve development of a use zone as envisaged in the Master Plan. In other words Zoning Regulations are laws that define and restrict how to use a particular property coming under a Master Plan. Thus it is the public regulation of land and building use to control the character of a place.

The development suggestions of a Master plan will be spatially located in the proposed land use plan. Areas will be zoned under various categories such as *Residential Zone, Town centre, Multi Functional Zone, Public and Semi public zone, Industrial zone, Transportation zone, Park and open space zone, Solid waste management area, Low lying agriculture area, Dry agriculture Zone and Water bodies etc* for securing the most efficient and effective use of land in public interest. Therefore, a set of zoning regulations for the implementation and enforcement of the proposals envisaged in the Development Plan will also be part of the Master Plan. Zoning regulations will specify the details regarding the nature of uses ‘permitted’, uses ‘restricted’ and uses ‘prohibited’ in each zone.

32.2 ZONING REGULATIONS

32.2.1 All future developments shall be in conformity with the provisions of the Master plan and future construction shall conform to the Kerala Municipality Building Rules in force unless otherwise specified in this regulations.

32.2.2 For the implementation and enforcement of the proposals envisaged in the Master plan for Pala, areas have been zoned under various uses such as **Residential Zone, Town centre, Multi Functional Zone, Public and Semi public zone, Industrial zone, Transportation zone, Park and open space zone, Solid waste management area, Low lying agriculture area, Dry agriculture Zone and Water bodies**. Details regarding the nature of uses “permitted”, uses “restricted” and uses “prohibited” in each zone are given in subsequent paragraphs

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, Pala Municipality, hereinafter referred to as Secretary. In some cases it may be possible to permit some other uses also, which are not likely to affect the quality and environment in a zone specified for a particular use. Such cases have to be individually studied based on their performance characteristics and special location factors. Such cases which come under this category are classified as “Uses Restricted”.

Uses **Restricted -1** Category deals with the uses that shall be restricted by the Secretary with the concurrence of the Town Planner of the District office of the LSGD Planning (Department of Town and Country Planning) having jurisdiction over the area.

Uses **Restricted -2** Category deals with the uses that shall be restricted by the Secretary with the concurrence of the Chief Town Planner concerned of the LSGD Planning (Department of Town and Country Planning).

“Uses prohibited” enlists the various objectionable uses in each zone which shall not be permitted under normal circumstances.

32.2.3 Zoning regulations are not intended to prohibit existing uses that have been lawfully established prior to the enforcement of these regulations. They are essentially intended to help the competent authority in decisions

regarding granting or refusal of planning permissions for land use conversions and construction of buildings /structures or any other matter specifically mentioned in these regulations.

32.2.4 If any space in a zone is put to a “**Uses Prohibited**” as stated in Para 32.2.2, 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.

32.2.5 Existing areas and structures of archaeological importance, agriculture uses and religious uses may be permitted to continue in all the zones and shall not constitute non conforming uses.

32.2.6 Regulation of constructions and/or land developments on the sides of new roads/roads proposed for widening as per the Plan shall be governed by the distance from the centre line of the road, unless otherwise specified in the Plan or in any detailed road alignment approved by the Chief Town Planner concerned.

32.2.7 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.

32.2.8 The provisions of Noise Pollution (Regulation and Control) Rules 2000, at places notified as ‘silent zones’ by respective government orders shall be followed.

32.2.9 The Government shall have the power to issue clarifications in respect of technical interpretations, if any, required in any of the provisions of the scheme in consultation with the Chief Town Planner concerned.

32.2.10 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.

32.2.11 The zoning regulation of Master Plan for Pala is given in the subsequent table.

Paragraph No.	Uses Permitted	Uses Restricted -1	Uses Restricted-2	Uses Prohibited
1	2	3	4	5
32.2.11.1	RESIDENTIAL ZONE			
	All residences, Residential Flats/Apartments and its incidental uses - night shelters, Orphanages/Old Age Homes/Dharmasalas, Convents, Residential Quarters, Farm Houses and Residential plot development.			Any other uses not specified in columns 2,3 and 4
	Shops, Commercial offices, and Restaurants,/ Canteen/ hotels, Bakery, Milk booth, cold storages, confectionaries, Banking and Financial institutions and Professional Offices, Movie hall, Godowns, ware houses, storage non-hazardous, IT software-subject to the condition that built-up area shall be limited to 1000 sq.m.			
	Auditorium / Wedding Halls / Community halls / Exhibition Centres Art Gallery, Cultural and information Centre, Museum, Other Public Utility Areas & Buildings, Places of Worship, social welfare centres-subject to the condition that built-up area shall be limited to 1000 sq.m ATMs,Gymnasium/ Yoga Centres.			

	All educational institutions up to Higher Secondary School, Day Care and Crèche, Nursery/ Kindergarten, Library and Reading Rooms, Swimming Pool.	All educational Institutions		Any other uses not specified in columns 2,3 and 4
	Smokehouse attached to Residential Buildings			
	Clinics (Outpatient) and Diagnostic centres built-up area shall be limited to 300sq.m.	Hospitals with 10 beds, Nursing Home / Clinics (Outpatient) subject to the condition that built-up area shall be limited to 1000 sq. m		
	All Government and public sector offices and institutions, Open air Theatre.			
	Non – obnoxious and non- nuisance Service and manufacturing type of Industries /Food processing units with number of workers limited to 6, without power or 3 workers with power limited to 5 HP as per Annex 32.1 -subject to the condition that built-up area shall be limited to 200 Sq:m, Water Treatment Plants below 5 MLD	Automobile workshops for 2/3 wheelers, Automobile workshops with power limited to 10 HP, Non – obnoxious and non- nuisance Service and manufacturing type industries engaging not more than 9 workers with power limited 10 HP or 19 workers without power-subject to the condition that built-up area shall be limited to 200 sq. m . IT hardware / Electronic Industries-subject to the condition that built-up area shall be limited to 300 sq. m Fuel Filling Stations		
	Tot Lots/park/play ground	Outdoor game stadium, open air theatre, amusement park,Parking Plaza, Zoological and Botanical Gardens, Bird Sanctuary		

	Storage of Agricultural Produce and Seeds, Green Houses			Any other uses not specified in columns 2,3 and 4
	Transmission towers, Telecommunication towers and Wireless Stations, P&T office.			
	Plant Nursery, Agriculture, Seed Farms, Pump House, Wells and Irrigation, Ponds			
32.2.11.2	TOWN CENTRE <i>(This zone can be considered as exclusively zoned for commercial use and any commercial occupancy building can abut as per KMBR rule)</i>			
	All residences, Ashram/ Mutt, Residential apartments with lower floors for commercial uses, Hostels, Boarding houses, Guest Houses, Lodges, Night Shelters, Orphanages/Old Age Homes/Dharmasala, Convents, Residential Quarters, Farm Houses, Smokehouse attached to Residential Buildings			Any other uses not specified in columns 2,3 and 4
	All Shops including Shopping Complexes, Shopping malls, Multiplex, Hypermarkets, Automobile show rooms, Restaurants, Hotels, Motels, and Markets			
	Professional offices, Commercial Offices & Establishments, Banking and financial institutions, Gymnasium / Yoga Centres, Weigh bridges, IT software units			
	Auditorium, wedding hall, convention centres – all the above uses subject to the condition that built-up area shall be limited to 1500 sq. m	Auditorium, Wedding Hall, Convention centres Places of worship, Museum, Exhibition centre and Art galleries, Movie Hall		

	Educational institutions up to Higher Secondary level, expansion of all existing educational institutions, Day Care and Crèche, Nursery/Kindergarten - all the above uses subject to the condition that built-up area shall be limited to 1500 sq. m	Educational institutions above Higher Secondary level		Any other uses not specified in columns 2,3 and 4
	Clinics, Diagnostic Centres and hospitals up to 50 beds, Library and Reading Rooms	Hospitals.		
	All Govt. or Public Sector offices, Public Utility Areas & Building, Social welfare centre, - all the above uses subject to the condition that built-up area shall be limited to 1000 sq.m.	Public Utility Areas & Building, Social welfare centre, civil defence and home guard		
	Non – obnoxious and non-nuisance Service and manufacturing type of Industries as per Annex 32.1, IT Hardware/ Electronic units	Automobile workshops for 2/3 wheelers , Automobile workshops, Automobile Service Stations, Service and manufacturing Industries of non-nuisance nature (Annex 32.1) engaging not more than 19 workers without power or 9 workers with power limited to 30 HP, Printing press, Water treatment plants, IT Hardware / Electronic Industries, Marble and Granite Storage/Cutting centres,		
		Godowns, Ware houses, Storage of non-hazardous materials, Stacking yard, Cremation ground/ crematorium, Burial Ground/ Common Vault.		

	Tot Lots/Parks/Play Grounds, Open air theatre, Fairground, Swimming pool, Camping site	Indoor / Outdoor game stadium, Amusement parks, R & D institutes,		Any other uses not specified in columns 2, 3 & 4.
	Parking Plaza, Taxi/Jeep Stand, Auto rickshaw Stand	Bus terminal/stand, Lorry stand – all the above uses		
	Plant Nursery, Storage of Agricultural Produces and Seeds			
	Transmission Towers and wireless stations, Telecommunication tower	Radio and TV station,		
32.2.11.3	MULTI FUNCTIONAL ZONE			
	All residences including Apartments, Night shelters, Residential Quarters, Hostels and boarding houses, Lodges and Guest houses, Ashram/Mutts, Convents, Orphanages, Old age homes, Dharmasalas			Any other uses not specified in columns 2, 3 & 4.
	All Shops including Shopping Complexes, Shopping malls, Multiplex, Bear pubs/Parlour, Liquor Bars, Restaurants, Hotels, Motels, Markets, Professional offices, Commercial Offices & Establishments, Weighbridge, Banking and financial institutions, IT/ software units-all the above uses with built-up area up to 8000 sqm	All Shops including Shopping Complexes, Shopping malls, Multiplex, Hyper markets, Restaurants, Hotels, Motels, Markets, Professional offices, Commercial Offices & Establishments, Banking and financial institutions, IT/ software units-all the above uses above 8000 sqm		

	Social welfare centres, Auditorium, Wedding hall, Swimming pool, Exhibition Centre, Museum and art galleries, Community halls, Public Utility Areas & Building, Cultural and information centres, Places of worship-all the above uses subject to the condition that built-up area shall be limited to 1500 sqm	Auditorium, Wedding hall, Movie halls, Convention centres, Museum, Swimming pool, Exhibition centre and art gallery, Places of worship all the above uses.		Any other uses not specified in columns 2, 3 & 4.
	Day Care and Crèche, Nursery/ Kindergarten, Library and Reading Rooms			
	All educational institutions, Forensic science lab – all the above uses subject to the condition that built-up area shall be limited to 300 sqm	All educational institutions,		
	Hospitals up to 100 beds	Hospitals above 100 beds		
	All Government , Public sector offices and Institutions	Public Utility Areas & Building, Social welfare centre,		
	Automobile show rooms, Storage, IT/ software units, Stacking yard, Gymnasium/ Yoga Centres	Godown, Warehouses, Automobile workshops with power limited up to 30HP, Manufacturing and service industries engaging not more than 9 workers with power limited 30 HP or 19 workers without power (see Annexure 32.1), IT hardware/ Electronic Industries, Automobile service station for heavy vehicles, Saw mill, Fuel Filling Stations,		

	Cottage industry, Automobile workshops for 2/3 Wheelers, Automobile service station light vehicles, Printing press,			Any other uses not specified in columns 2, 3 and 4.
	Ice factory, Cold storage, Water treatment plants up to 5 MLD, Marble and granite storage/cutting centres			
	Godown, Warehouses, Storage, Automobile show rooms -all the above uses subject to the condition that built- up area shall be limited to 6000 sq. m	Godown, Warehouses, Storage, Automobile show rooms-all the above uses subject to the condition that built-up area above 6000 sq. m		
	Outdoor game stadium, Amusement parks	Indoor game stadium,		
	Parking Plaza, Taxi/Jeep Stand/ Lorry stand, Auto rickshaw stand, Sewage treatment plant up to 2MLD	Bus terminals/stand, Cremation ground/ Crematorium, Burial Ground/ Common Vault, Sewage treatment plant above 2MLD		
		Dairy Farms, Poultry Farms		
	Tot Lots/Parks/ Play Grounds, Open air theatre, Camping site			
	Transmission towers and wireless stations, Telecommunication towers	Radio and TV station,		
	Smoke house attached to Residential Buildings, Smoke house			

32.2.11.4	PUBLIC AND SEMI PUBLIC ZONE			
	All Residences - built-up area up to 500 sq. m, Residential uses incidental to the public and semi public uses.			Any other uses not specified in columns 2, 3 & 4.
	Night Shelters, Orphanages/ Old Age Homes/ Dharmasala, Residential Quarters, Farm Houses, Ashram/ Mutt, Convents			
	Shops, ATMs, Cyber café, Restaurant/ Canteen, Beauty parlours, Gymnasium/ Yoga centre - all the above uses subject to the condition that total built-up area shall be limited to 300 sq.m,			
	Commercial offices, Professional Offices , Banking and Financial institutions – all the above uses subject to the condition that built-up area shall be limited to 500 sq. m			
	Places of worship / Religious institutions, Library and Reading rooms, Social welfare centres, Museum, Auditorium, Wedding hall, Swimming pool, Exhibition Centre and art galleries, Community halls, Cultural and information centres, Public utility buildings	Convention centre,		

	All educational institutions/medical institutions/ Hospitals of area up to 1500 sqm	All educational institutions /medical institutions / Hospitals above 1500 sqm		Any other uses not specified in columns 2, 3 & 4.
	All Government and Public sector offices and Institutions, Transmission Towers and wireless stations, R & D institutes, Radio and TV station, Civil defence and home guard			
	IT Hardware / Electronic Industries, Automobile workshops for 2/3 wheelers, Water treatment plant below 5 MLD	Cremation ground/ crematorium, Burial Ground/ Common Vault Water treatment plant above 5 MLD Fuel filling stations,		
	Tot Lots/Parks/ Play Grounds, Open air theatre , Camping site	Indoor and Outdoor game stadium, Amusement parks,		
	Plant Nursery, Storage of Agricultural Produces and Seeds			
	Parking Plaza			
32.2.11.5	INDUSTRIAL ZONE			
	All type of Industries, Medium and Heavy Industries, Automobile showrooms/ Workshops, Automobile Service Stations – light/heavy vehicles, Spray painting workshops	Industrial Estates and Industrial Parks		Any other uses not specified in columns 2, 3 & 4.

	Cold Storage, Ice Factory, Water Treatment Plants	Saw mills with Timber Yards, Metal crusher/ M.sand units		Any other uses not specified in columns 2, 3 & 4.
	Marble and Granite Storage/Cutting Centres, Minor Storage of Explosives and Fireworks, Gas Godowns			
	Dairy Farm, Poultry farms, Smoke houses, Fish and Meat Processing Centre, Sewage Treatment Plants, Junk Yards, Dairy related industries			
	Residential Quarters, Residences with built- up area up to 500 sqm, Residential uses incidental to industrial use			
	Cyber Café, Restaurant / Canteen, Retail Business and Wholesale Business incidental to the industries - all the above uses subject to the condition that Built-up area shall be limited to 200 sqm.	Commercial office/ Professional offices, Banking and Financial institutions with built-up area up to 300 sq.m		
	ATMs, Godowns/ Warehouse/ Storage of non-hazardous, Weighbridge, IT Software unit, Stacking yard, Other uses incidental to Industrial use.			

32.2.11.6	TRANSPORTATION ZONE			
	All buildings and uses connected with Transport and communication such as Bus Terminal/Lorry/Car/Jeep stand, Truck terminal, Auto Rickshaw stand, Essential repair and service shops related to the transport and communication use, Parking plaza, Container terminal, Residential uses incidental to main use including lodging rooms. All Shops including Shopping Complexes, ATMs, Restaurants/canteen, Weigh bridges			Any other uses not specified in columns 2,3 and 4.
	Public Utility areas and buildings, Fuel filling station, Parks which form an integral part of the transportation use.			
	Police Post/Station, Post & Telegraph office, Transmission Towers and Wireless Stations, Telephone Exchange, Electric Sub-Station			
	Tot lots, Parks and play grounds			
32.2.11.7	PARK AND OPEN SPACES			
	Any construction for the development / improvement of park and open space, Tot Lots/Parks/ Play Grounds, Minor Public Utility buildings.	Incidental Retail shops, Snack bars, Parking Plazas		Any other uses not specified in columns 2, 3 & 4.

32.2.11.8	SOLID WASTE MANAGEMENT AREA			
	Dumping yard, Treatment plants, Agricultural Nurseries, Social forestry.			Any other uses not specified in columns 2, 3 & 4.
32.2.11.9	LOW LYING AGRICULTURE AREA			
	Agriculture/ Horticulture/ Fodder cultivation/ Fish Farms/ Seed Farms/ Wells and Irrigation Ponds without any building construction. Pump House	Maintenance and extension of existing authorized building up to 300Sq.m. Minor Public Utility areas & buildings which will not affect the character of the area.		Any other uses not specified in columns 2, 3 & 4.
	Paddy cultivation	Tourism activities satisfying the provisions of Kerala Paddy and Wet land conservation ACT.		
32.2.11.10	DRY AGRICULTURAL ZONE			
	Residences, Orphanages, Old Age Homes, Dharmasala, Ashram/ Mutt, Convent – all the above uses subject to the condition that built- up area of each building shall be limited to 500 sqm	Residences, Orphanages, Old Age Homes, Dharmasala, Ashram/Mutt, Convent - all the above uses subject to the condition that built-up area above 500 sqm		Any other uses not specified in columns 2, 3 and 4.
	ATMs, Shops, Professional Offices, Commercial Offices/ Establishments, Banking and Financial institutions, Restaurants/ Canteens Markets – all the above uses subject to the condition that built-up area shall be limited to 500 sqm.			

	Places of Worship, Auditorium/ Wedding Halls/ Community halls, Convention centre Social Welfare centres – all the above uses subject to the condition that built-up area shall be limited to 1500 sqm.			Any other uses not specified in columns 2, 3 & 4.
	Gymnasium/Yoga Centres Day Care and Crèche, Nursery/Kindergarten/ Primary & Upper primary schools, Library and Reading Rooms, Public Utility Areas & Buildings, Swimming pools			
	Clinics (Outpatient) and Diagnostic centres – built-up area up to 200 sq. m. Hospitals and Health centres – all the above uses subject to the condition that built-up area shall be limited to 500 sq. m			
	Godowns/ Warehouses/Storage – non-hazardous – all the above uses subject to the condition that built- up area shall be limited to 500sq.m	Stacking Yards, Godowns/ Warehouses /Storage – non-hazardous, - all the above uses subject to the condition that built-up area above 500 sq. M.		
	Small and medium service and manufacturing type industries.	Service industries of non-nuisance type (Annex 32.1) 20 workers without power or 10 workers + 50HP, Dumping yards, Sewage Treatment plants Fuel Filling Stations, Automobile workshops for 2/3 Wheelers and Four wheelers Slaughter houses, Storage of explosive and fireworks, Gas Go Downs,		

		Saw Mills, Saw mills with Timber yard Fish / Meat processing centres, Dairy farm, Poultry farm, Piggery farm, Junk yards, Cremation Ground/ Crematorium, Burial Ground/ Common Vault		Any other uses not specified in columns 2, 3 & 4
	Transmission towers, Telecommunication towers and Wireless Station, Telephone Exchange.			
	Tot Lots/Parks/ Play Grounds, Open air theatre, Camping site.			
	Smokehouses attached to residential buildings, Smokehouses.			
	Plant Nursery, Agriculture, Horticulture, Fodder cultivation, Pastures, Grazing grounds, Fish Farms, Seed Farms, Pump House, Wells and Irrigation Ponds.			
	Storage of Agricultural Produces and Seeds, Green houses.			
32.2.11.11	WATER BODIES			
	Water landings, Pump houses, Boat jetties, Terminals, Bridges, Side protection walls, Fish landing centres, Bathing Ghats	Fish farms, Minor Public Utility areas & buildings which will not affect the character of the area.		Any other uses not specified in columns 2, 3 & 4

32.2.11.12	GREEN STRIP			
	Area to be used only for planting trees in order to retain as Green areas, Parks, Pump houses, Foot paths with paving tiles, Seating arrangements, Wells and irrigation ponds, Storage of agricultural products and seeds, Green house-having single floors with a coverage not exceeding 30.00%			Any other uses not specified in columns 2, 3 & 4

32.2.12. A green strip of 5.00m width shall be provided along the sides of Meenachil River and a 2.00m width green strip shall be provided on either side of Lalam thodu.

32.2.13. If a plot under a particular survey number/numbers included in a single document registered before date of sanction of this plan and falls under two different zones, zoning regulation of major portion, ie. more than 70% is applicable to the entire plot

32.2.14. Subject to zoning regulations of the respective use zones, more than one uses may be combined in a building, provided that the built-up area of such a building shall not exceed the maximum built-up area permitted for any of such use premises in that use zone.

32.2.15. For the purpose of these regulations, built-up area means the total built-up area of the building in all floors.

32.2.16. Land to a depth of 150 m in **Residential, Public and Semi public, Town centre and Dry agricultural zones** along the sides of the roads with existing or proposed width 8 meter and above, uses permitted in **Residential, Public and Semi Public zones and Multifunctional zone** may also be permitted by the Secretary of Local Self Government Institutions if the uses are not permissible otherwise.

32.2.17. Land to a depth of 300 m in **Residential, Public and Semi Public, Dry agricultural zones and Town centre** along the sides of roads with existing or proposed width 12 meter and above, uses permitted in **Residential, Public and Semi Public and Multifunctional Zone** may also

be permitted by the Secretary of Local Self Government Institutions if the uses are not permissible otherwise.

32.2.18. The provisions of the Detailed Town Planning schemes or Area Development Plans will prevail over the regulations mentioned above.

32.2.19. Only the existing public and semi-public areas (as on the date of publishing the plan) has been included in the public and semi-public use zone of the proposed land use Map and no new plots has been included in this zone. The public and semi public zones are limited to the boundary of the plot with existing public and semi-public uses. In case any adjacent plots which are marked as public and semi-public zone in the map but not under the public and semi public use will be considered to be included in the adjacent zone as per proposed land use map. In these cases, each case has to be studied individually and concurrence of the Town Planner shall be obtained.

32.2.20. Large Scale development proposals in an area not less than 2 hectares, exceeding an investment of Rs.50 crores, which provide direct employment (after commissioning of the project) to the tune of not less than 500 may be permitted in all zones other than Heritage and Park & Open space, Major government Institution and Higher education and Research Centres may be permitted in all zones except following zones namely park and open spaces zones, water body and green strips provided on either side of rivers and thods if not already included under 'uses permitted' or 'uses restricted' category as per these regulations, subject to the satisfaction of relevant Acts and rules in force and also 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 Department, consisting of the Chief Town Planner of Kerala State LSGD Planning (Town and Country Planning Department), the Town Planner, District office of the LSGD Planning Kerala State (Town and Country Planning Department), Kottayam, the Secretary, Pala Municipality and satisfying the following conditions. The Chief town planner will be the Convener of the Committee.

- i. The developer shall produce project-cum-feasibility report and Environmental Impact Assessment Report, if required, of the project to the convener of the committee, 15 days in advance of the committee meeting.

- ii. The developer shall produce before the committee all required clearances from the State and Central Government agencies concerned.
- iii. Adequate provision shall be made for supporting infrastructure such as parking, 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 cost.
- iv. Adequate MOU between the developer and the Secretary Pala Municipality shall be undertaken to bring this into effect.
- v. The permissible FSI shall be as permitted in the Building Rules and minimum access width shall be 12.00m.
- vi. The project shall be completed within a period of 5 years if not specified otherwise.

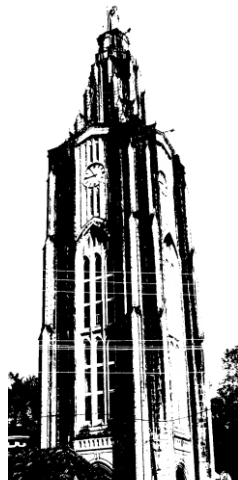
32.2.21. (i) No construction shall be permitted in zones where building construction is prohibited except for repair or reconstruction of existing authorised dwelling units not exceeding existing FSI/existing built-up area.

(ii) Town centre can be considered as exclusive commercial zone for the purpose of commercial building construction.

32.2.22. (i) Expansion of existing Public and Semi public institutions to adjacent plots shall be permissible without regard to the land use in which such adjacent plot is zoned and the development regulations imposed by such zoning, subject to the provisions of Paddy Land and Wetland Act in force or other applicable statutes.

(ii) The Secretary of Local Self Government Institutions, with the concurrence of the District Officer of the LSGD Planning (Department of Town and Country Planning) having jurisdiction over the area, shall permit in land uses such as Paddy Land or Water body, such uses that are permissible in adjacent land use zone, if that particular land in the Paddy Land Zone or Water body Zone is not classified as Paddy Land or Water body as per revenue records.

PART.V



FINANCE RESOURCE PLANNING AND PHASING

33. FINANCE RESOURCE PLANNING AND PHASING



Details of sector wise rough cost estimate of projects included in the Master Plan, phasing of the projects, additional studies to be conducted, detailed road alignment plan and other implementation mechanisms etc are included in this chapter.

33.1 INTRODUCTION

The financial resource planning and phasing of major projects included in the Master Plan for Pala, which are to be implemented within the plan period of 20 years, is discussed in this chapter. The project Cost (Rough cost estimate), implementing agency, phasing of the project, further studies and actions etc are included in this chapter.

33.2 PROJECT COST

Sector wise abstract of rough cost estimate is given in Table 33.1. Cost for taking possession of land, land development, construction, infrastructure facilities, maintenance/ construction, other expenses etc are considered in arriving total project cost. Project wise abstract is given in table 33.2. The total estimated cost of the projects at the 2013 price level is 67290 lakhs (rough cost estimate only). Detailed project report, financial analysis and cost estimation of each project is to be done during the implementation stage. Project wise rough cost estimate is given in Annex.33.1

Table 33.1 Rough Cost Estimate of Projects

Sl.No.	Sector	Rough Cost Estimate (In Lakhs)	Implementing Agency
1	Road Network	47324	PWD, Local Bodies
2	Other projects in Transportation Sector	5159	PWD, Local Bodies
3	Trade and Commerce	2935	Government, Private Sector
4	Industry	935	Government, Private Sector
5	Tourism and Heritage	475	Government, Private Sector
6	Agriculture	600	Government, Private Sector
7	Animal Husbandry	600	Government, Private Sector

8	Housing	337	Government, Municipalities, Private Sector
9	Drinking Water	1170	Government, Private Sector
10	Energy	800	KSEB
11	Waste Disposal	1175	Government, Municipality, Private Sector
12	Education	1685	Government, Private Sector
13	Health	900	Government, Private Sector
14	Civic Facilities, Culture	1250	Government, Private Sector
15	Environment	195	Government, Private Sector
16	Governance	1750	Government, Municipality

Project wise estimate has to be done at the time of implementation by considering the timely financial need for the fulfillment of these projects. The above table gives a very rough outline of the project cost and it has to be updated appropriately.

ANNEX 32.1

**TYPE OF NON-OBNOXIOUS AND NON-NUISANCE TYPE OF SERVICE
OR LIGHT INDUSTRIES**

1. Apparel making.
2. Aerated water and fruit beverages
3. Assembly of bicycles, baby carriage and other small non-motorised vehicles.
4. Atta-Chakkies.
5. Bakery products, biscuit confectionery.
6. Bamboo and cane products (only dry operations)
7. Block making for printing.
8. Cardboard or corrugated box and paper products (Paper or pulp manufacturing excluded)
9. Carpet weaving.
10. Cement blocks, paving tile units
11. Chilling plants and cold storage.
12. Cotton and woollen hosiery.
13. Electronic equipment, electrical goods.
14. Fountain pen making.
15. Flour mills.
16. Furniture making without machinery.
17. Garments stitching, tailoring.
18. Gold and Silver smithy.
19. Gold and Silver thread sari works.
20. Ground nut decorticating (Dry).
21. Ice-cream or Ice making.
22. Insulation and other coated papers (Paper or pulp manufacturing excluded).
23. Jobbing and machining.
24. Leather footwear and leather products excluding tanning and hide processing.
25. Manufacture of formulated synthetic detergent products.
26. Manufacture of soaps involving process without generation of trade effluent (saponification of fats and fatty acids only)

27. Medical and surgical instruments.
28. Manufacture of mineralised water.
29. Musical instruments manufacturing.
30. Oil ginning/expelling (no hydrogenation/refining)
31. Manufacture of Optical-frames.
32. Paint (by mixing process only)
33. Manufacture of Paper pins and U-clips.
34. Power looms/handlooms (without dyeing and bleaching).
35. Printing press.
36. Radio assembling.
37. Rice mullers.
38. Manufacture of Rope (cotton and plastic)
39. Scientific and mathematical instruments.
40. Shoelace manufacturing.
41. Sports goods manufacturing.
42. Steeping and processing of grains.
43. Thermometer making.
44. Toys making.
45. Spice grinding operation.
46. Furniture making.
47. Electro plating.
48. Gold and Silver smithing.
49. Rubber goods industry (Micro and Tiny units only)
50. Servicing and repairing of motor vehicle
51. Tyre and tube repairing

