CHAPTER 6

LAND USE

Land use refers to the manner of utilisation of land including its allocation, development and management. Municipal Governments divide the land for various land uses like agriculture, residential, commercial, public and semi-public, transportation, recreational, industrial etc. This is inevitable for an urban area to function effectively and to meet all the needs of citizes.

The land use of an area is classified based on major activity of that area. Land use analysis has a key role in spatial planning in which, use of every part and parcel of land is to be specified, both existing and acquired in future. This is 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 Corporation area.

Spatial analysis is carried out by conducting primary survey of existing land use in all 55 wards. The chapter deals with the existing land use, land use breakup, ward wise distribution as well as concentration of major land uses etc. of the planning area.

Table.6.1 Existing land use break up

Sl. No.	Land Use	Area (sq. km)	% Area
1	Residential	41.478	52.92
2	Dry Agriculture	15.339	19.57
3	Road	4.270	5.45
4	Water Body	3.450	4.40
5	Paddy	2.916	3.72
6	Vacant Land	2.503	3.19
7	Commercial	1.556	1.99
8	Wetland	1.311	1.67
9	Educational	0.910	1.16
10	Religious	0.698	0.89
11	Public and Semi Public	0.686	0.87
12	Industrial	0.593	0.76
13	Recreational Open space	0.480	0.61
14	Railway Property	0.477	0.61
15	State Govt Property	0.383	0.49
16	Transportation	0.332	0.42
17	Recreational Built up	0.178	0.23
18	Health Services	0.176	0.22
19	Mangrove	0.171	0.22
20	Mixed	0.106	0.14
21	Solid Waste Management	0.084	0.11
22	Public Utilities	0.071	0.09
23	Central Govt Property	0.065	0.08
24	Wasteland	0.064	0.08
25	Communication	0.039	0.05
26	Traffic Related	0.031	0.04
27	Others	0.012	0.01
Total		**78.38**	**100**

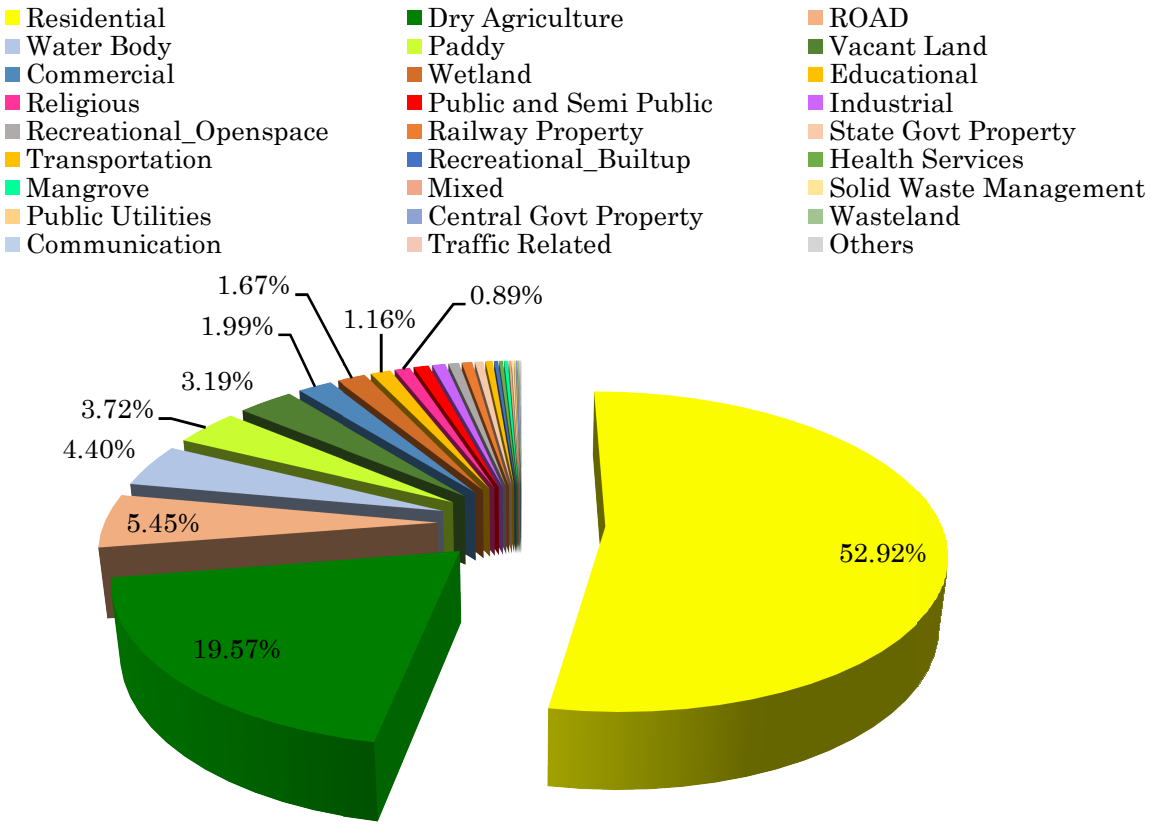

Figure.6.1 Existing land use break up

6.1 LAND USE AT CITY LEVEL

The existing land use breakup of Kannur Municipal Corporation area based on the land use survey conducted with help of satellite images provided by NRSC (National Remote Sensing Centre) is shown in Figure.6.1 and Figure.6.2 and the break up details are tabulated in Table.6.1.

The total land area of the planning area is 78.38 km² out of which 41.478 km² (52.92%) is residential land. The second highest land use is for dry agriculture which contributes 15.339 km² (19.57%). The water body, paddy field and vacant land constitutes 3.45 km² (4.40%), 2.916 km² (3.72%) and 2.503 km² (3.19%) respectively. Other categories of land uses are road (5.45%), commercial (1.99%), wetland (1.67%), educational (1.16%), religious (0.89%), public and semi-public (0.87%), industrial (0.76%), recreational open space (0.61%), railway property (0.61%) etc.

6.2 COMPARISON OF EXISTING LAND USE WITH PLANNING STANDARDS

For the comparison of land use of Kannur Corporation area with

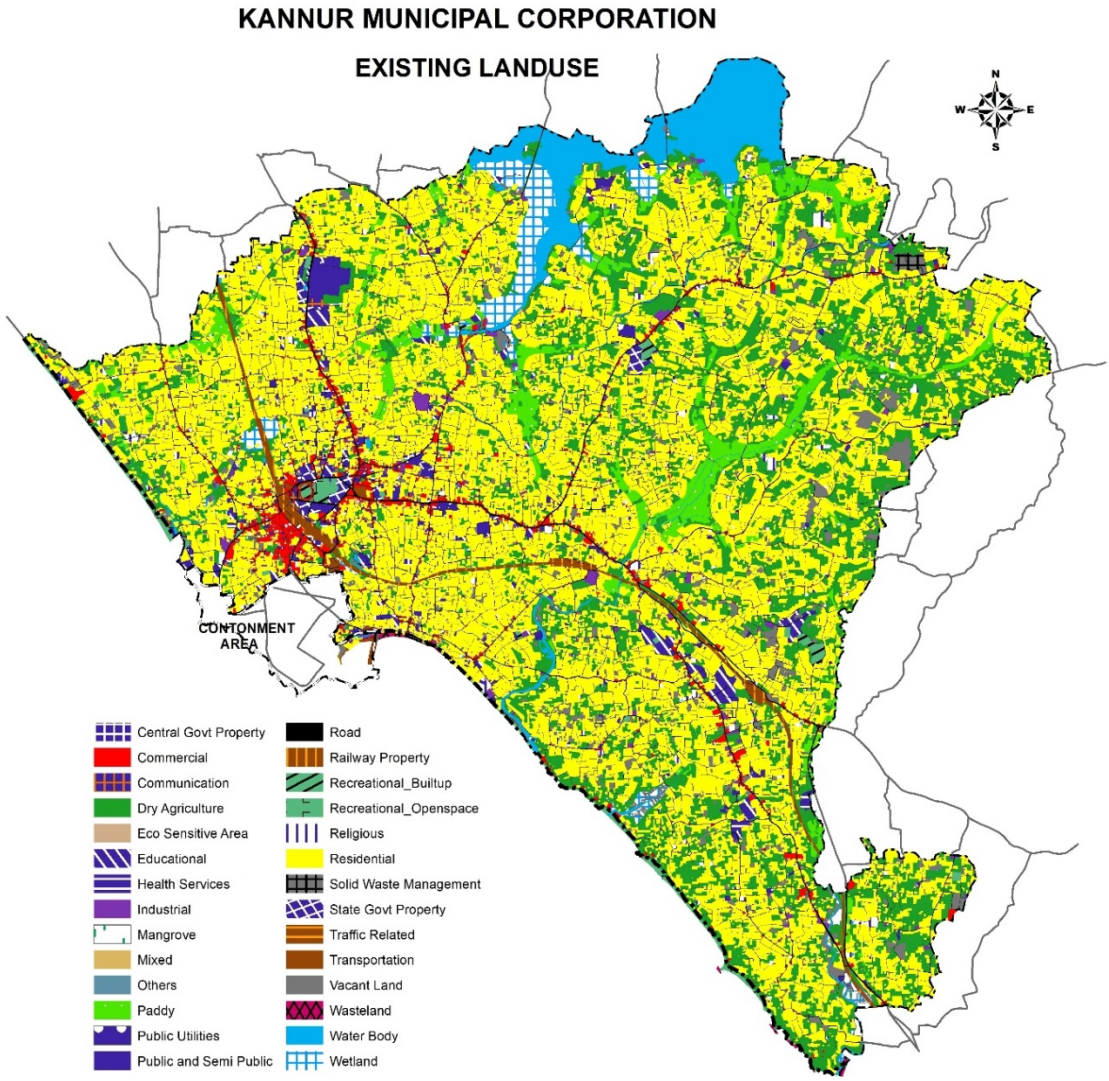

Figure.6.2 Existing land use map of Kannur Corporation area

planning standards, the town has to be categorized based on urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines.

Since the planning area is having population between 50,000 – 5,00,000, as per URDPFI guidelines, it falls under the category of Medium Town. Accordingly, the development area is calculated as the sum total of the land use area of residential, commercial, industrial, public and semi-public, recreational, transport and communication. The value is 52.09 km^2 which accounts to 66.46% of the total area.

Table.6.2 gives the land use comparison of the planning area with planning standards. The table reveals that major portion of the developed area is occupied for residential use (79.72%) which is far beyond the requirement (43%-48%). All other land uses are below the requirement.

Table.6.2 Land use comparison of Kannur Municipal Corporation area with planning standards

Sl. No.	Land use	Area in km²	Existing % of total area	% of developed area	Requirement as per medium plain town as per URDPFI standard
1	Residential	41.478	52.92	79.72	43-48
2	Commercial	1.556	1.99	2.99	4-6
3	Industrial	0.593	0.76	1.14	7-9
4	Public and semi public	3.073	3.92	5.91	6-8
5	Recreational	0.658	0.84	1.26	12-14
6	Transport and communication	4.671	5.96	8.98	10-12
	Total	**52.030**	**66.382**	**100.00**	

6.3 LAND USE CONCENTRATION PATTERN

Land use pattern is the layout or arrangement of uses of the land. It gives an idea about where a particular land use is concentrated within the study area. The concentration pattern of a land use can be ascertained by the Concentration Index of the land use which is calculated as follows.

The concentration index value may be greater than one, equal to one or less than one. The wards with concentration index greater than one indicates that the land use under consideration is intensively concentrated in these wards. According to the above method, the concentration indexes of various categories of land uses are analysed.

Concentration index of a land use in a ward = {(Area of that land use in the ward/ Total area of the ward)} / {(Area of that land use in municipal town/ Total area of the municipal town)}

6.3.1 RESIDENTIAL CONCENTRATION

The residential land use distribution and ward wise residential land use concentration of Kannur Corporation area is shown in Figure.6.3 and Figre.6.4 respectively. In the planning area, the residential land use concentration index ranges from 0.01 to 1.50. Highest value is observed in Palliyamoola, Kokkenpara, Talap, Podikund, Kottali, Khasanakotta, Thana, Arakkal, Neerchal, Vettilapalli, Kappicheri, Melechovva, ThazheChovva, Thottada, Adikadalayi, Kuruva, Padanna.

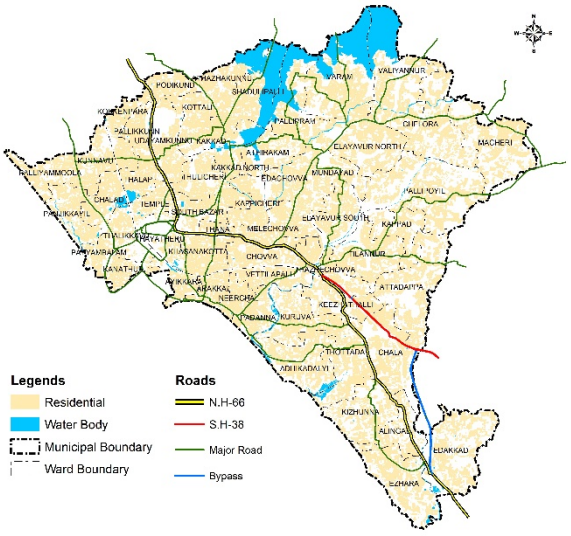

Figure.6.3 Distribution of residential land use

Kizhuthalli, Attadappa, Thilanur, Elayavur South, Elayavur North, Edachovva, Thulicheri, Kakkad, Udayamkunnu, Kunnavu, Panjikkayil, Thalikkavu, Payyambalam, Kanathur, Ayikkara, Pallikkunnu and Kappad wards (1.01 to 1.50). Chalad and Thayatheru have the minimum (0.01 to 0.50).

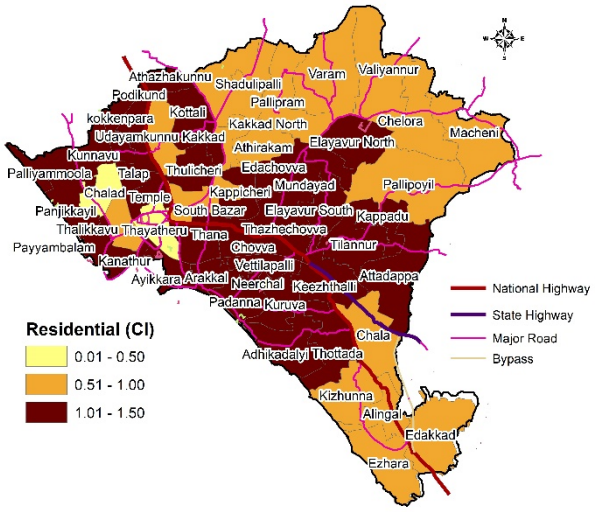

Figure.6.4 Concentration pattern of residential land use

6.3.2 INDUSTRIAL CONCENTRATION

The distribution and concentration index of industrial land use in the Corporation area shown in Figure.6.5

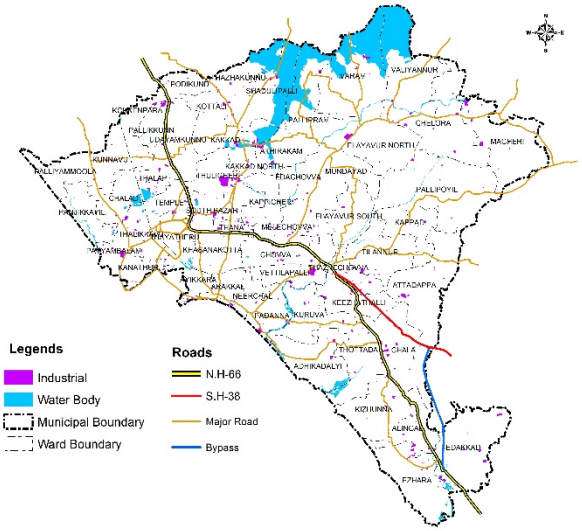

Figure.6.5 Distribution of industrial land use

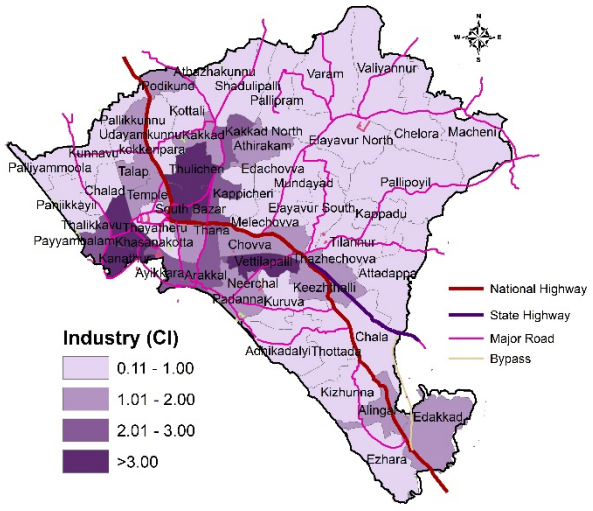

Figure.6.6 Concentration pattern of industrial land use

and Figure.6.6 respectively. The presence of industries in an area represents the urban nature of that town. The industrial land use concentration index of the planning area ranges from 0.11 to 3.00 and above 3.00. Highest value is seen Thulicheri, South Bazar, Vettilappally, Thalikkavu and Kanathur wards (>3) due to the presence of Cannanore spinning mill and Dhanalakshmi weaving mill etc.

Payyambalam, Ayikkara, Arakkal, Kappicheri, Thana and Kakkad North wards have the second highest industrial concentration index (2.01 to 3.00) followed by Pallikkunnu, Talap, Temple, Khasanakotta, Padanna, ThazheChovva, Edakkad, Kizhuhalli, Chovva, Neerchal, Podikkund, Athirkam, Kakkad and Alingal wards (1.01 to 2.00). Remaining wards have industrial concentration index ranging from 0.01 to 1.00.

6.3.3 COMMERCIAL CONCENTRATION

The Figure.6.7 and Figure.6.8 represents the distribution and concentration index of commercial land use in Kannur Municipal Corporation area respectively.

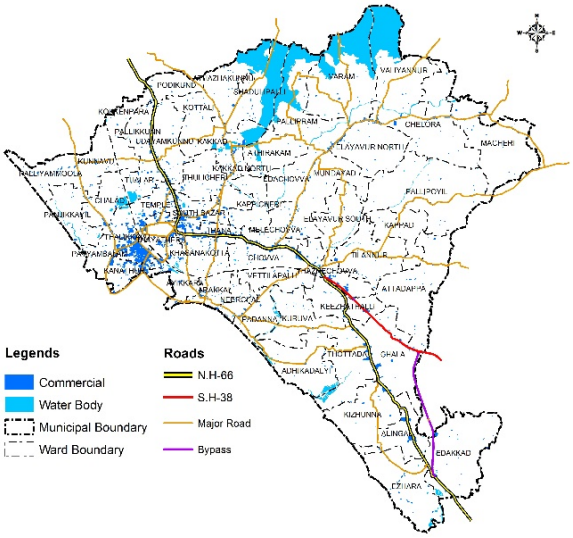

Figure.6.7 Distribution of commercial land use

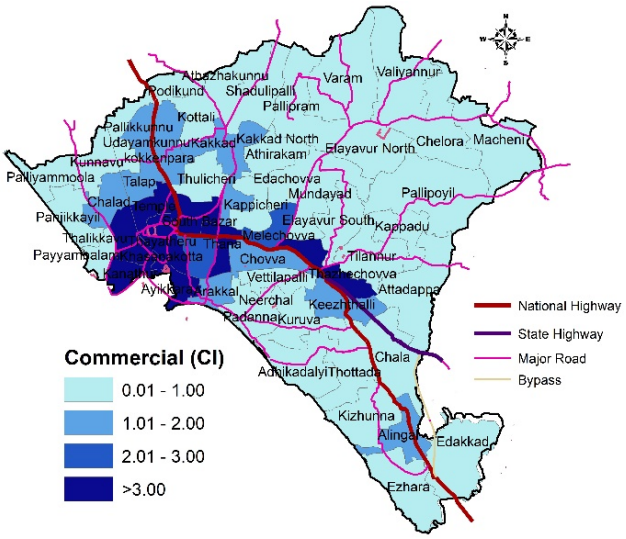

Figure.6.8 Concentration pattern of commercial land use

From the figures, it is evident that the commercial land use is mainly concentrated in the wards situated at the core of the planning area. Thayatheru, Temple, South Bazar, Thana and ThazheChovva wards have the value above 3.00 which is the highest. The second highest commercial concentration is observed in Khasanakotta, MeleChovva and Thayatheru wards (2.01 to 3.00) followed by Chalad, Talap, Pallikkunnu, Udayamkunnu, Kakkad, Kakkad North, Arakkal, Chovva, Keezhthalli and Alingal (1.01 to 2.00). All other wards have concentration index less than one.

6.3.4 PUBLIC AND SEMI PUBLIC CONCENTRATION

The public and semi-public land use distribution includes government establishments, educational facilities, health facilities, social institutions and religious institutions.

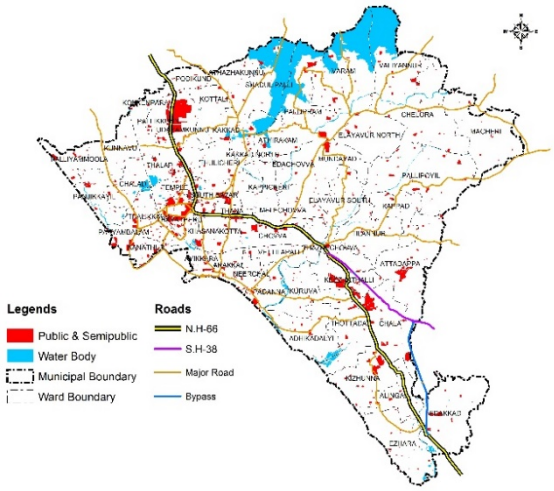

Figure.6.9 Distribution of public and semi-public land use

Figure.6.9 and Figure.6.10 represents the ward wise distribution and concentration pattern of public and semi-public land use in Kannur Municipal Corporation area.

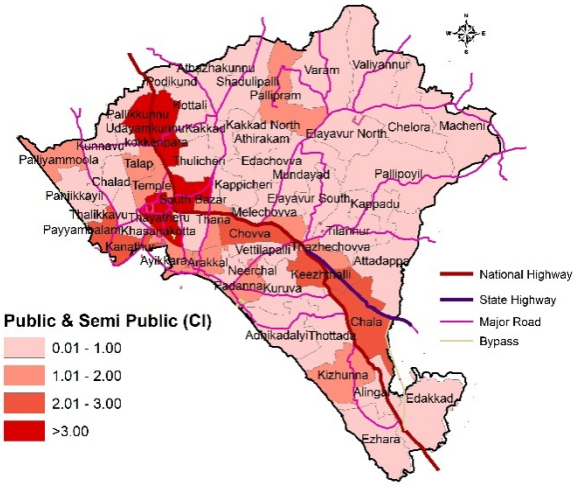

Figure.6.10 Concentration pattern of public and semi-public land use

The concentration index is observed to vary from 0.01 to 3.00 and above 3.00. Pallikkunnu, Thayatheru, Udayamkunnu South Bazar wards have value above 3.00 which is due to the presence of government establishments like Kannur Municipal Corporation Office, Taluk Office, Civil Station, Kannur University, Stadium, Court Complex, Veterinary Hospital, Police Headquarters, Government Sports School, Central Jail, Krishna Menon College etc.

The second highest value of public and semi-public land use concentration index is seen in Payyambalam, Kanathur, Chala, Keezhuthalli and Chovva wards (2.01 to 3.00).

6.3.5 PADDY CONCENTRATION

Paddy land use distribution and concentration of the planning area shown in Figure.6.11 and Figure.6.12 respectively.

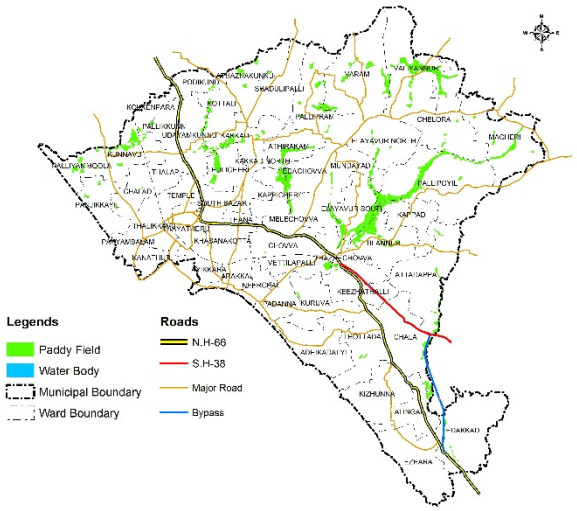

Figure.6.11 Distribution pattern of paddy land use

The figures reveal that the paddy land use is scattered and situated mostly in the north eastern wards of the Municipal Corporation with concentration index ranging from 0.01 to 6.00.

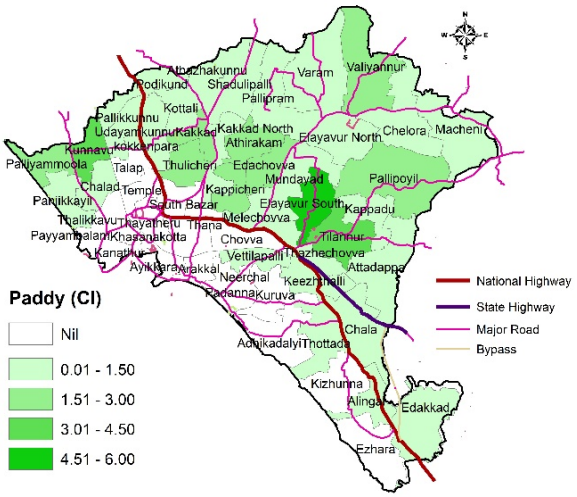

Figure.6.12 Concentration pattern of paddy land use

Higher value is seen in wards situated apart from the town centre or in peripheral wards. Paddy land predominant wards are Elayavur South with concentration index ranging from 4.51 to 6.00 followed by Thilannur and Kunnavu (3.01 to 4.50). Palliyamoola, Kakkad, Thulicheri, Athirakam, Kappicheri, Edachovva, Pallipoyil and Valiyannur wards have concentration ranging from 1.51 to 3.00. Talap, Temple, South Bazar, Thalikkavu, Payyambalam, Kanathur, Ayikkra, Thayatheru, Thana, Arakkal, Khasanakotta, Neerchal, Padanna, Kuruva, Chovva, Aadikadalayi, Kizhunna and Ezhara wards have zero paddy land use concentration because of the urban character of most of these town wards.

6.3.6 DRY AGRICULTURE CONCENTRATION

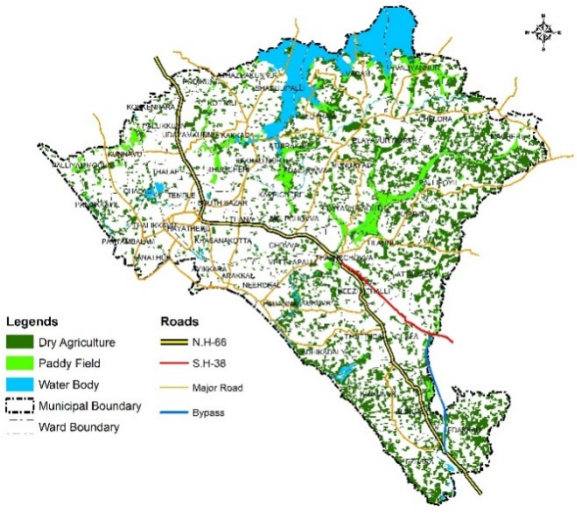

Figure.6.13 Distribution of dry agriculture land use

Dry agricultural land use distribution and its concentration pattern in the planning area are shown in Figure.6.13 and Figure.6.14 respectively.

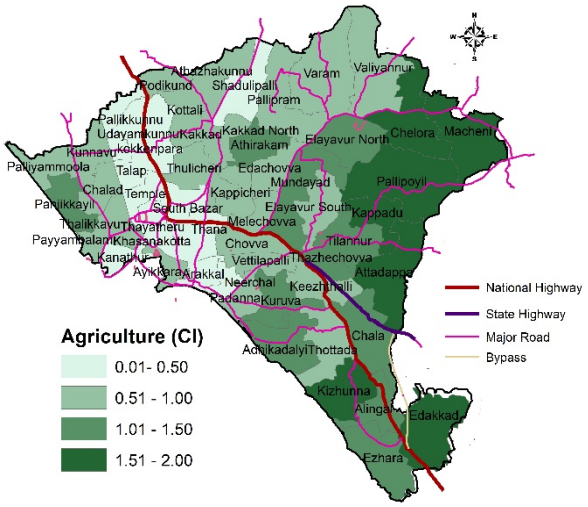

Figure.6.14 Concentration pattern of dry agriculture land use

The figure indicates that the dry agricultural land is scattered in all wards with concentration index ranging from 0.01 to 2.00. Higher value is seen in Chelora, Macheri, Pallipoyil, Kappad, Attadappa, Kizhunna, and Edakkad wards (1.51 to 2.00).

6.3.7 RECREATIONAL CONCENTRATION

Recreational land use includes parks and open spaces of the Corporation area. The concentration of recreational land use is shown in Figure.6.15 which indicates higher concentration is seen in Mundayad, Thayatheru wards of the planning area with concentration index above 3.00.

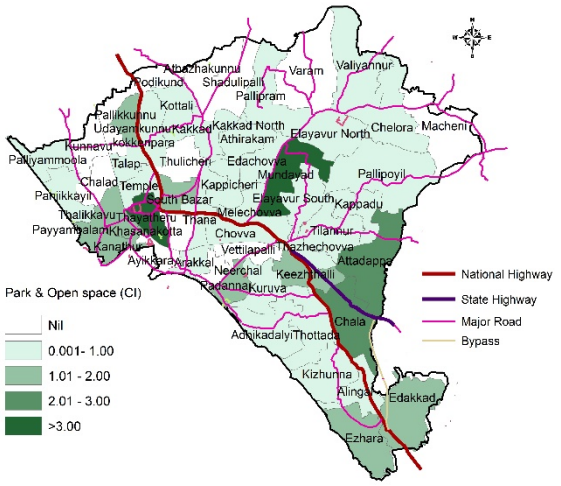

Figure.6.15 Concentration pattern of recreational land use

This is due to Indoor Stadium, Jawahar Municipal Stadium, Police Maidan, Town Square, CollectorateMaidan, Cannanore District Badminton Indoor Court etc.

6.3.8 TRANSPORTATION CONCENTRATION

Transportation land use includes road, railway, bus stand, taxi stand, auto stand, parking lots etc.

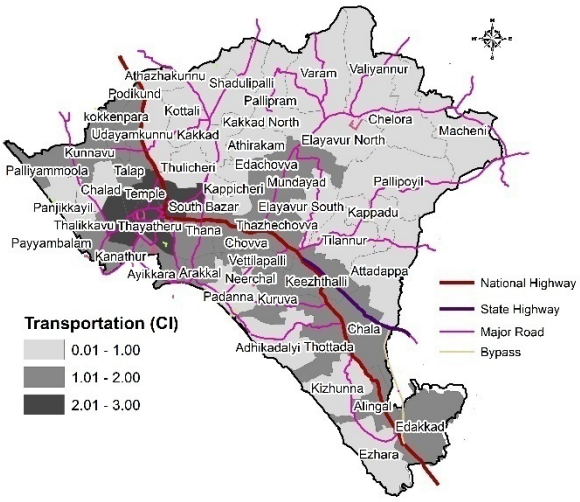

Figure.6.16 Concentration pattern of transportation land use

In Kannur Municipal Corporation area, the transportation concentration index ranges from 0.01 to 3.00 and it is shown in Figure.6.16. The higher concentration is seen in Thayatheru, Thalikkavu, Temple and South Bazar wards (2.01 to 3.00) followed by Edakkad, Alingal, Thottada, Chala, Keezhuthalli, Kuruva, ThazheChovva, Vettilapally, Chovva, MeleChovva, Edachovva, Mundayad, Thana, Arakkal, Payyambalam, Kanathur, Ayikkara, Palliyamoola, Kunnavu, Talap, Kokkenpara wards (1.01 to 2.00). This is due to the presence of Railway station, new bus stand, KSRTC stand, auto and taxi stands, old bus stand etc.

6.3.9 WATER BODIES AND OTHER MAJOR LAND USES

Other major land uses in the planning area includes vacant land, wetlands, mangroves etc. The major rivers flowing through the Corporation area are Kanampuzha, Kakkad river and Kattampally river (Varamkadavu and Pullooppikadavu). ThottadaPuzha, AyyarathPuzha (NadalPuzha) are other minor rivers. Anakulam, Chettyarkulam, Valiyakulam are important ponds in the planning area. Mangroves are identified in the portion of Kattambally River, Thottada River etc.

Pazhassi Canal; a major canal mainly runs through Puzhadi, Elayavur and Chelora zones of the planning area. It comes under Pazhassi Irrigation Project (PIP) in the Valapattanam River. Other thodes and canals flowing are Andathodu, Padannathodu, Ammayithodu, Valiyathodu, Cheloravayalthodu, Macheryvayalthodu and Athirakam Canal etc.

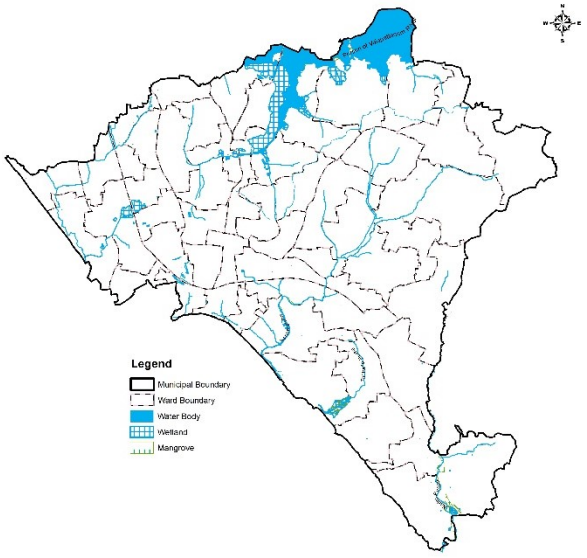

Figure.6.17 Distribution of other important land use

The Figure.6.17 shows the location of other land uses including water bodies in Kannur Municipal Corporation area.

6.4 INFERENCE

The land use of Kannur Corporation area reveals that the major portion the area is occupied for residential use. The second highest land use is dry agriculture areas. The paddy activities are mainly concentrated in the north-eastern and

eastern parts while the dry agriculture is more prominent in eastern part. The planning area is blessed with three major rivers and two minor rivers which enhance agricultural activities to a large extent. Non-agricultural activities including residential, commercial, public and semi-public, industrial land use are mainly concentrated in the middle portion along the major corridors. Activity pattern and functional character are the two major urban parameters determined by the analysis of land use concentration pattern in conjunction with demographic details, hierarchy of junctions, hierarchy of settlements etc.