

## GENERAL INFORMATION

Kozhikode district came into existence on 1<sup>st</sup> January 1957. District is bounded on the North by Thalassery taluk of Kannur district, on the East by Mananthavady and Vythiri taluks of Wayanad district, on the South by Ernad and Tirur taluks of Malappuram district and on the West by Lakshadweep Sea. Kozhikode covers an area of 234566 ha. consisting 12 blocks 2 municipality 1 corporation and 3 taluks. District lies between North latitude 11<sup>0</sup>07'23" to 11<sup>0</sup>48'18" and between East longitudes 75<sup>0</sup>31'48" to 76<sup>0</sup>08'40". Based on physiographic features district falls under three sub micro regions namely i) Kozhikode coast ii) Nadapuram-Mavoor undulating plain iii) Kozhikode forested hills. District has a humid climate with oppressive summer and plentiful seasonal rainfall. Forest is classified as Southern tropical moist deciduous, Western tropical wet evergreen and semi evergreen. Large forest reserves favourably affect the climate and induce more rain in the district. Mineral reserves can also be seen in this district. Kozhikode covers sandy, laterite and hilly or forest soil. Main rivers are Mahe, Kuttiadi, Korapuzha, Chaliyar and Kallai. Agriculture plays a vital role with a total cropped area of 200116 ha. District contributes major part of mango, coconut etc. The coastal area extends to 71 km. consisting 42 fishing villages. Animal husbandry activities are the major subsidiary occupation of the district, as per the latest survey report there is a total live stock population 2.24 lakhs. Besides the conventional sources for irrigation like tanks, wells and private canals district has a major and lot of minor irrigation schemes. Watershed has become an acceptable unit of planning for optimum use and conservation of soil and water resources. Land use category is observed in this category are built-up land, forest, water bodies, agricultural land, wasteland and wetland. Major categories of wasteland are Land with dense scrub, Barren rocky and Scrub dominated forest. Kozhikode is a historical town with charming physical features and prosperity.

## History

Kozhikode as a district came into existence on the 1<sup>st</sup> January, 1957. There are different versions as to the name Kozhikode. It is said that it was formed from 'Koyilkotta'. As per Komattil Achuthamenon, the name Kozhikode was formed from Ko-King, Azhi-Harbour and Code or Kode-Fortress. The district, which initially had 5 taluks, had undergone several changes and the present district with 3 taluks was in existence from the 1<sup>st</sup> November 1980. During the Sangam Age the district formed part of the Empire of the Cheras. During the Sangam age i.e., in the first two centuries of AD, the district was known as Poozhinad, which was later, annexed to Chera Empire. The history of Kozhikode district for the next few centuries i.e., up to 8<sup>th</sup> century AD is obscure. Kozhikode and its surroundings were part of Polanad ruled by Kolathiris. The ancestors of present Zamorin family defeated Kolathiri's Forces and established their headquarters at Kozhikode. Because of the persistent efforts and administrative abilities of the rulers who were later known as Zamorin, Kozhikode became an important commercial and trading centre during post Sangam Age.

During the Pre-Portuguese period the Zamorin achieved the suzerainty over a large track of land and many neighbouring Rajas accepted him as their protector. When Portuguese arrived in the political scene of Kerala, there were a few major and minor Rulers in this part of the country. The major Rulers comprised of Kolathiri Raja in the North, Zamorin in the central belt and the King of Venad in the South.

Vasco De Gama landed at Kappad near Calicut on the 27<sup>th</sup> May 1498 and this visit can be considered as an important event in the History of Kerala. The Dutch entered the political scene of Kerala only in 1663 by the capture of Cochin from the Portuguese though the Zamorin's Territories were also frequently visited by many Dutch Admirals. The Dutch was in Kerala only for short period. The modern history of Kozhikode starts with the arrival of the British. In 1615, they entered at Calicut Coast. The Mysorean intervention in Kerala started as early

as 1757. Hyder Ali who ascended the throne of Mysore in 1761 brought Calicut also under his control after conquering Kolathiri, Kottayam and Kadathanad. After the departure of Hyder Ali from Calicut in 1768, revolts from local chieftains against his authority started. At the end of 1773, Hyder made a second invasion of Kerala through Coorg and Wayanad.

Zamorin left Calicut and took refuge in the Kingdom of Travancore. Hyder Ali ruled the area by appointing a Military Governor for some period. In 1778, rebellion broke out against the Mysorean Ruler with the encouragement of the English East India Company. After the death of Hyder Ali, Tippu Sultan succeeded him. Tippu's conquests and the founding of Feroke are the important events during the period. Tippu again came to Malabar in 1789 through the Thamarasseri pass. By the treaty of Srirangapatnam which concluded on the 18<sup>th</sup> March 1792, the whole of erstwhile Malabar district including the present Kozhikode district was ceded to the English East India Company. Malabar became part of Madras Presidency till the Re-organisation of States in 1956.

In the freedom struggle Kozhikode became memorable when an annual session of congress party was held at Calicut towards the close of the 19<sup>th</sup> century and later in 1903. A branch of Home Rule League started functioning at Calicut with Shri K.P.Kesava Menon as its Secretary. The second political conference was held at Calicut in 1917.

## KOZHIKODE AT A GLANCE

Table: 1.1

### ADMINISTRATIVE SET UP

SI. No.	Particulars	Kozhikode	Kerala
1	No. of Revenue Divisions	1	21
2	No. of Taluks	3	63
3	No. of Revenue Villages	117	1453
4	No. of Corporations	1	5
5	No. of Corporation Wards	75	359
6	No. of Municipalities	2	60
7	No. of Municipality Wards	91	2216
8	No. of Block Panchayat	12	152
9	No. of Block Panchayat Wards	169	2095
10	No. of Grama Panchayat	75	978
11	No. of Grama Panchayat Wards	1335	16680
12	No. of Assembly Constituencies	13	140
13	No. of Parliament Constituencies	2	20
14	No. of District Panchayat Wards	27	332

Table: 1.2

### DEMOGRAPHY

SI. No.	Particulars	Kozhikode	Kerala
1	Total Population	3089543	33387677
2	No. of Literates	2634493	28234227
3	No. of Migrant	161236	1625653

Table: 1.3

### GEOGRAPHICAL PARTICULARS

SI. No.	Area Categorization	Kozhikode	Kerala
1	Total Area (Ha)	234566	3886287
2	Forest Area (Sq.Km.)	290.45	11309.41
3	Length of Coastal Line (Kms)	71	590

Table: 1.4

**AGRICULTURE**

<b>Sl. No.</b>	<b>Land Utilization Pattern</b>	<b>Kozhikode (Ha.)</b>	<b>Kerala (Ha.)</b>
1	Total geographical area	234641	3886287
2	Forest area	41386	1081509
3	Land put to non agricultural use	29798	405826
4	Barren & uncultivable land	784	13655
5	Permanent pastures and other grazing land	0	8
6	Land under misc. tree crops	103	2521
7	Cultivable waste	2585	97069
8	Fallow other than current fallow	1581	57346
9	Current fallow	2151	70976
10	Net area sown	151899	2050994
11	Area sown more than once	48217	565676
12	Total cropped area	200116	2616670

Table: 1.5

**ANIMAL HUSBANDRY**

<b>Sl. No.</b>	<b>Livestock Population</b>	<b>Kozhikode</b>	<b>Kerala</b>
1	Cattle	133494	1740117
2	Buffaloes	1495	58145
3	Goats	86925	1729127
4	Pigs	2509	59017
5	Sheep	0	965
6	Ducks	10773	865331
7	Fowls	780813	11820376

Table: 1.6

**FISHERIES**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Kozhikode</b>	<b>Kerala</b>
1	Length of coastal line	71	590
2	No. of fishing villages		
a)	Marine	34	222
b)	Inland	8	113
3	Fisher folk population		
a)	Marine	97520	780156
b)	Inland	11861	233034

Table: 1.7

**INDUSTRIES**

<b>Sl. No.</b>	<b>Industrial Units</b>	<b>Kozhikode</b>	<b>Kerala</b>
1	Number of SSI units Registered	18271	234251
2	Number of Women SSI units Registered	3128	58774
3	Number of Industrial Co-operative Societies Registered	0	13

Table: 1.8

**COMMUNICATION**

<b>Sl. No.</b>	<b>Communication Divisions</b>	<b>Kozhikode</b>	<b>Kerala</b>
1	Total Number of Post Offices	304	5067
a)	Number of Head Office	3	51
b)	Number of Sub Office	71	1457
c)	Number of ED Branch Office	230	3559
2	Total Number of Telephone Exchanges	93	1266

Table: 1.9

**HEALTH**

<b>Sl. No.</b>	<b>Institutions</b>	<b>Kozhikode</b>	<b>Kerala</b>
1	General Hospital	1	18
2	Women & Children Hospital	1	8
3	District Hospital	1	16
4	Taluk Hospital	7	79
5	Primary Health Centre	57	682
6	Leprosy Control Unit/Hospitals	1	3
7	TB Centre/Clinic	1	20
8	Mental Health Centre	1	3

Table: 1.10

**EDUCATION**

<b>Sl. No.</b>	<b>Institutions</b>	<b>Kozhikode</b>	<b>Kerala</b>
1	Government Lower Primary Schools	182	2602
2	Government Upper Primary Schools	67	858
3	Government High Schools	79	1159
4	Government Higher Secondary Schools	64	831
5	Government Vocational Higher Secondary Schools	20	261
6	Teachers Training Institute	10	222
7	Kendriya Vidyalaya	2	30
8	Jawahar Navodaya Vidyalaya	1	14
9	CBSE School	63	978
10	ICSE School	4	139
11	Government Engineering Colleges	1	9
12	Government Medical Colleges	1	5
13	Government Polytechnic Colleges	2	49

Table: 1.11

**WATER SUPPLY CONNECTIONS AND STREET TAPS**

Sl. No.	Particulars	Kozhikode	Kerala
1	<b>Water supply connection</b>		
a)	Domestic	56354	1407778
b)	Non-Domestic	4101	108185
c)	Industrial	30	1094
2	<b>Street taps</b>		
a)	Panchayat	4436	160415
b)	Corporation/Municipality	3522	45030

Table: 1.12

**POWER**

Sl. No.	Particulars	Kerala
1	No. of Pump sets Energised	524568
2	No. of Streetlight Energised	1202988
3	No. of Transformers	58104

Table: 1.13

**WATER RESOURCES**

<b>River</b>	Chaliyar
	Kallai
	Korapuzha
	Kuttiadi
	Mahe
<b>Back Waters</b>	Kadalundi kayal
	Beyepore kayal
	Kallai kayal
	Kora puzha
	Payyoli puzha
	Kotta puzha
	Mahe puzha



Table: 1.14

### MAJOR TOURIST SPOTS

Sl.No.	Tourist Centre	Focus
1	Kakkayam	Dam, Wild sanctuary, Waterfalls
2	Peruvannamuzhy	Dam, Wild sanctuary
3	Kolavipalam	Turtle beach
4	Thusharagiri	Waterfalls
5	Kakkavayal Vanaparvam	Biodiversity park
6	Kakkad	Natural forest
7	Janakikkadu	Evergreen forest
8	Kappad	Historical beach
9	Vellarimala	Picnic spot
10	Payyoli	Beach
11	Kadalundi	Bird sanctuary

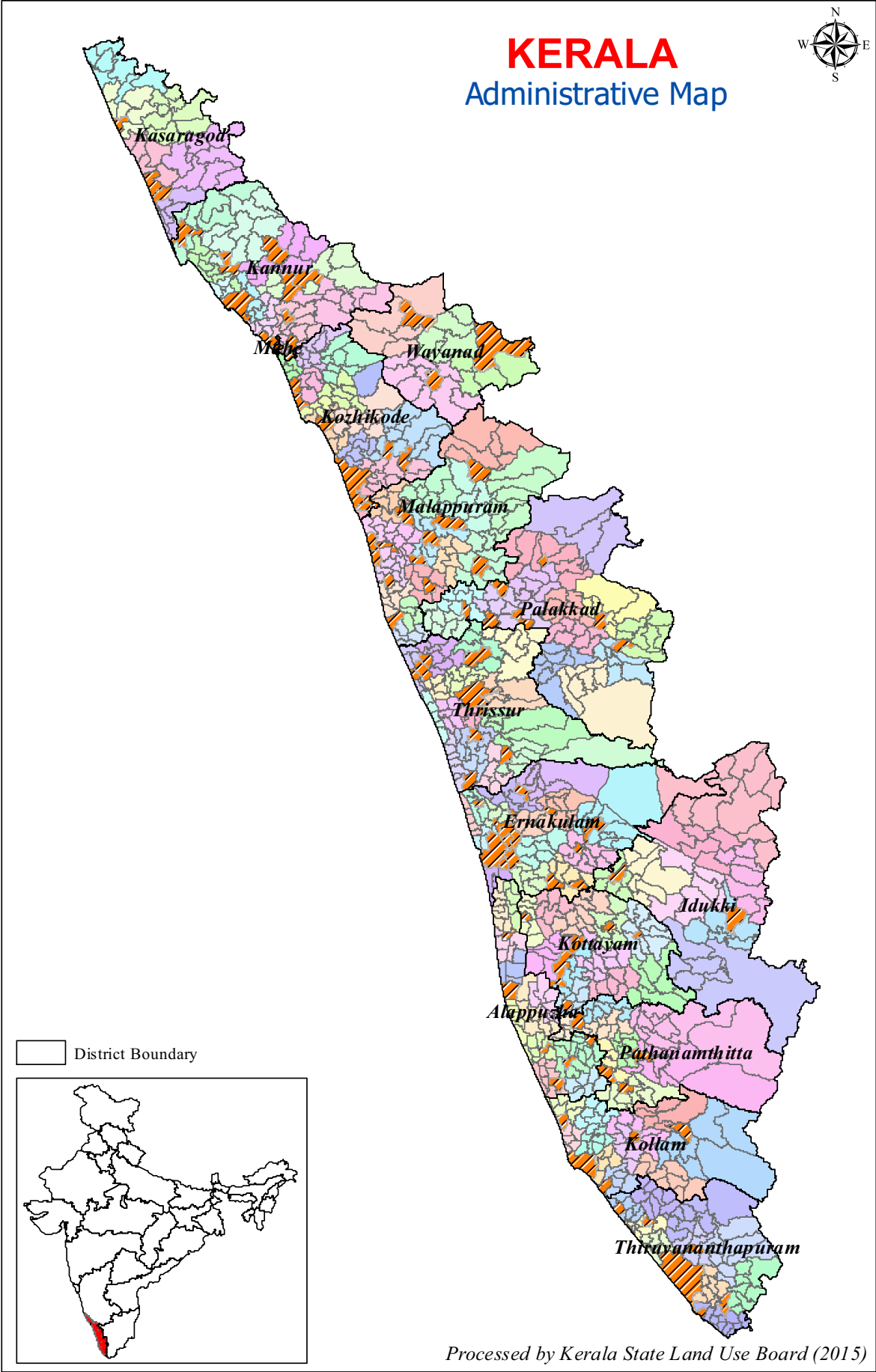
Source: Various

**NB: Data based on 2015 statistics**



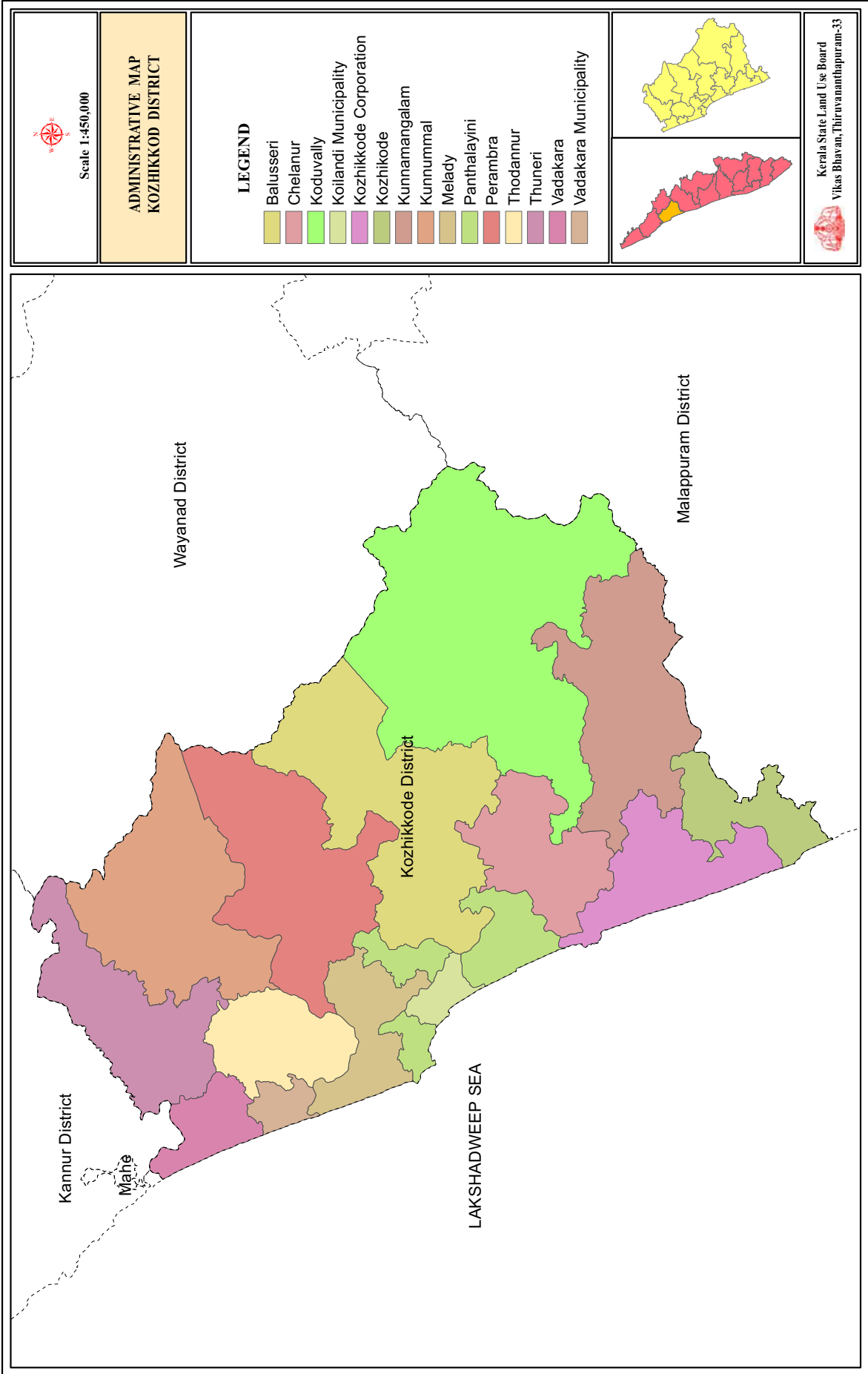
# KERALA

## Administrative Map



Processed by Kerala State Land Use Board (2015)

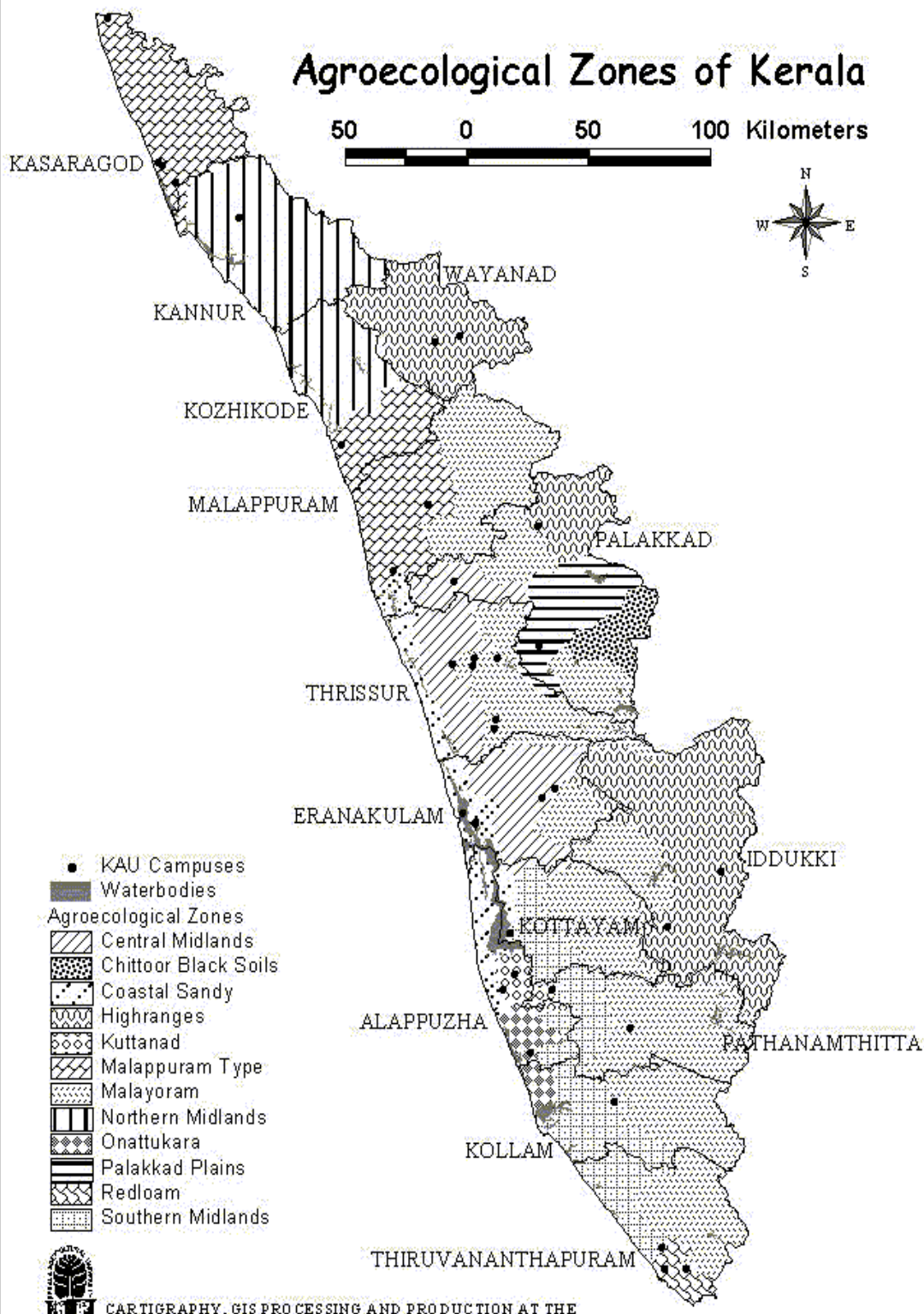






# Agroecological Zones of Kerala

50 0 50 100 Kilometers



- KAU Campuses
- Waterbodies
- Agroecological Zones
- ▨ Central Midlands
- ▩ Chittoor Black Soils
- ▧ Coastal Sandy
- ▦ Highranges
- ▥ Kuttanad
- ▤ Malappuram Type
- ▣ Malayoram
- ▢ Northern Midlands
- Onattukara
- Palakkad Plains
- ▧ Redloam
- ▦ Southern Midlands



CARTOGRAPHY, GIS PROCESSING AND PRODUCTION AT THE  
CENTRE FOR LAND RESOURCES RESEARCH AND MANAGEMENT, KAU P.O., THIRUVANANTHAPURAM - 680 636

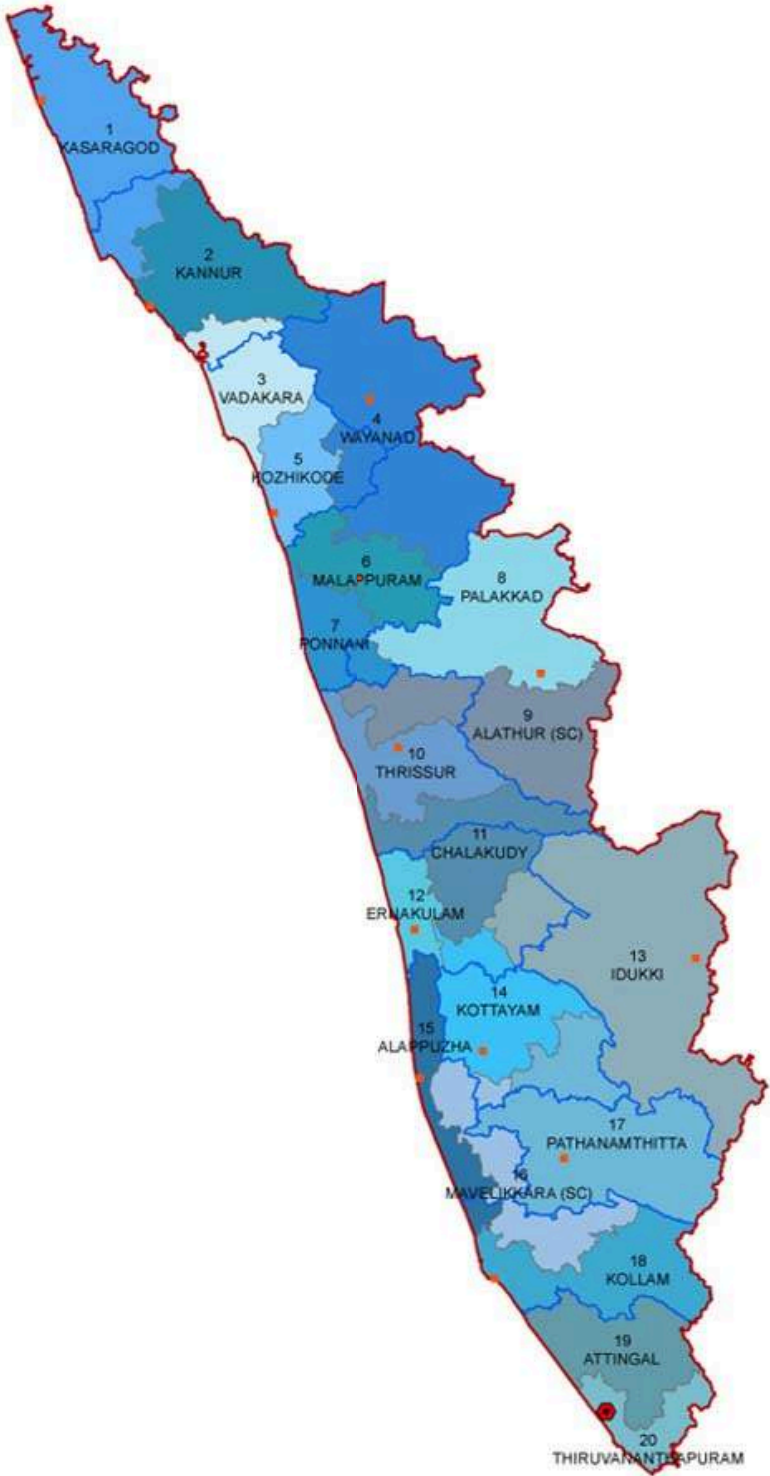








# Parliamentary Constituencies Kerala



- Legend**
- State Head Quarter
  - District Head Quarters
  - State Boundary
  - District Boundary

Map compiled by NIC



## DEMOGRAPHY

### INDIA'S POPULATION – CENSUS 2011

Table: 4.1

Current Population of India in 2011	1,210,193,422 (1.21 billion)
Total Male Population in India	623,700,000 (623.7 million)
Total Female Population in India	586,500,000 (586.5 million)
Sex Ratio	940 females per 1,000 males
Age structure	
0 to 25 years	50% of India's current population
Currently, there are about 51 births in India in a minute.	
India's Population in 2001	1.02 billion
Population of India in 1947	350 million

#### KEY FINDINGS OF THE CENSUS

- Population grows to 1.21 billion
- 181 million people added during 2001-11
- Growth declines to 17.64% from 21.15% during 1991-2001
- There are 623.7 million males and 586.5 million females
- India accounts for 17.5% of the world's population, China 19.4%
- First decade (with exception of 1911-1921) which saw addition of lesser people than the previous decade.
- Child sex ratio — 914 females against 1,000 males — lowest since independence
- Overall sex ratio rises by seven points — 940 females per 1,000 males
- Literacy rate goes up from 64.83% to 74.04%
- 74% people aged seven and above are literate
- 82.14% male literacy, 65.46% female literacy
- In 2001, male literacy was 75.26%, female literacy was 53.67%
- Delhi (11,297 people per square km) has the highest population density, followed by Chandigarh (9,252)
- Uttar Pradesh is the most populous state with 199 million people while Lakshadweep is the least populated at 64,429

Table: 4.2

<b>Population</b>	<b>1991 Census</b>	<b>2001 Census</b>	<b>2011 Census</b>
Total population (lakhs)	290.99	318.41	333.88
Male population (lakhs)	142.89	154.69	160.21
Female Population (lakhs)	148.10	163.73	173.66
Density per sq.km.	749	819	859
Sex ratio (Females per 1000 males)	1036	1058	1084
Literacy (%)	89.81	90.86	93.91
Male Literacy	93.62	94.24	96.02
Female Literacy	86.17	87.72	91.98
Rural population (lakhs)	214.18	235.75	174.56
Urban population (lakhs)	78.80	82.67	159.32
Increase of population (%)	13.88	9.43	4.86
Life Expectancy (years)	68	71	74
Infant Mortality (per 1000)	22	16	12
Birth Rate (per 1000)	19.8	18.3	14.7

Source: Census Report 2011

Table: 4.3

**CENSUS OF INDIA 2011 - PROVISIONAL POPULATION TOTALS INDIA, KERALA STATE AND DISTRICTS**

India/State/District	Area in Sq.km.	Total Population			Population in age group 0-6		
		Persons	Males	Females	Persons	Males	Females
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
INDIA	31,66,285	1,21,01,93,422	62,37,24,248	58,64,69,174	15,87,89,287	8,29,52,135	7,58,37,152
Kerala	38,863	3,33,87,677	1,60,21,290	1,73,66,387	33,22,247	16,95,935	16,26,312
Kasaragod	1,992	13,02,600	6,26,617	6,75,983	1,49,280	76,149	73,131
Kannur	2,966	25,25,637	11,84,012	13,41,625	2,65,276	1,35,189	1,30,087
Wayanad	2,131	8,16,558	4,01,314	4,15,244	89,720	45,776	43,944
<b>Kozhikode</b>	<b>2,344</b>	<b>30,89,543</b>	<b>14,73,028</b>	<b>16,16,515</b>	<b>3,23,511</b>	<b>1,64,800</b>	<b>1,58,711</b>
Malappuram	3,550	41,10,956	19,61,014	21,49,942	5,52,771	2,81,958	2,70,813
Palakkad	4,480	28,10,892	13,60,067	14,50,825	2,88,366	1,46,947	1,41,419
Thrissur	3,032	31,10,327	14,74,665	16,35,562	2,89,126	1,48,428	1,40,698
Ernakulam	3,068	32,79,860	16,17,602	16,62,258	2,89,281	1,48,047	1,41,234
Idukki	4,358	11,07,453	5,51,944	5,55,509	1,00,107	51,132	48,975
Kottayam	2,208	19,79,384	9,70,140	10,09,244	1,68,563	86,113	82,450
Alappuzha	1,414	21,21,943	10,10,252	11,11,691	1,86,022	95,565	90,466
Pathanamthitta	2,637	11,95,537	5,61,620	6,33,917	91,501	46,582	44,919
Kollam	2,491	26,29,703	12,44,815	13,84,888	2,38,062	1,21,484	1,16,581
Thiruvananthapuram	2,192	33,07,284	15,84,200	17,23,084	2,90,661	1,47,777	1,42,884

Table: 4.3 Continued.....

India/State/District	Number of Literates						Literacy rate (in percentage)			Percentage decadal growth rate of population	Sex Ratio (Number of Females per 1000 Males)	Sex Ratio 0-6 population
	Males		Females		Persons	Males	Females	2001-11	2011			
	Persons	10	11	12								
<b>1</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>			
INDIA	77,84,54,120	444,203,762	334,250,358	74.04	82.14	65.46	17.64	940	914			
Kerala	2,82,34,227	1,37,55,888	1,44,78,339	93.91	96.02	91.98	4.86	1084	959			
Kasaragod	10,36,289	5,17,031	5,19,258	89.95	93.93	86.13	8.18	1079	960			
Kannur	21,56,575	10,22,972	11,33,603	95.41	97.54	93.57	4.84	1133	962			
Wayanad	6,49,186	3,30,093	3,19,093	89.32	92.84	85.94	4.6	1035	960			
<b>Kozhikode</b>	<b>26,34,493</b>	<b>12,76,384</b>	<b>13,58,109</b>	<b>95.24</b>	<b>97.57</b>	<b>93.16</b>	<b>7.31</b>	<b>1097</b>	<b>963</b>			
Malappuram	33,28,658	16,08,229	17,20,429	93.55	95.78	91.55	13.39	1096	960			
Palakkad	22,32,190	11,19,360	11,12,830	88.49	92.27	84.99	7.39	1067	962			
Thrissur	26,89,229	12,86,141	14,03,088	95.32	96.98	9385	4.58	1109	948			
Ernakulam	28,61,509	14,27,572	14,33,937	95.68	97.14	94.27	5.6	1028	954			
Idukki	9,28,774	4,74,988	4,53,786	92.2	94.84	89.59	1.93	1006	958			
Kottayam	17,45,694	8,59,038	8,86,656	96.4	97.14	95.67	1.32	1040	957			
Alappuzha	18,63,558	8,95,476	9,68,082	96.26	97.9	94.8	0.61	1100	947			
Pathanamthitta	10,70,120	5,03,171	5,66,949	96.93	97.7	96.26	3.12	1129	964			
Kollam	22,42,757	10,76,509	11,66,248	93.77	95.83	91.95	1.72	1113	960			
Thiruvananthapuram	27,95,195	13,58,924	14,36,271	92.66	94.6	90.89	2.25	1088	967			

Source : Census Report 2011



Table: 4.4

**TALUK WISE POPULATION OF KOZHIKODE DISTRICT (2011 CENSUS)****Total Population**

Sl.No.	Name of Taluk	Population		
		Male	Female	Total
1	Vadakara	322566	365160	687726
2	Quilandy	344176	385331	729507
3	Kozhikode	806286	866024	1672310
	<b>District Total</b>	<b>1473028</b>	<b>1616515</b>	<b>3089543</b>

**Child Population**

Sl.No.	Name of Taluk	Child Population in the age group 0-6		
		Male	Female	Total
1	Vadakara	37563	36823	74386
2	Quilandy	36097	34903	71000
3	Kozhikode	91140	86985	178125
	<b>District Total</b>	<b>164800</b>	<b>158711</b>	<b>323511</b>

**Literate Population**

Sl.No.	Name of Taluk	Literates		
		Male	Female	Total
1	Vadakara	275593	298087	573680
2	Quilandy	300446	322861	623307
3	Kozhikode	700345	737161	1437506
	<b>District Total</b>	<b>1276384</b>	<b>1358109</b>	<b>2634493</b>

Source: Panchayat Statistics, 2011

Table: 4.5

## Demography Details of Kerala (2011 Census)

Sl. No.	Community Development/Block/Panchayat	No. of House Holds	Population			Scheduled Caste Population			Scheduled Tribe Population			Literates			Total workers	Main Workers	Main Agricultural Labours	Marginal Workers	Marginal Agricultural Labours
			Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female					
<b>I</b>	<b>Vadakara</b>	<b>28182</b>	<b>131576</b>	<b>60595</b>	<b>70981</b>	<b>2602</b>	<b>1233</b>	<b>1369</b>	<b>254</b>	<b>114</b>	<b>140</b>	<b>111811</b>	<b>51946</b>	<b>59865</b>	<b>35651</b>	<b>29642</b>	<b>1100</b>	<b>6009</b>	<b>458</b>
1	Onchiam	6289	28650	13224	15426	393	179	214	48	21	27	24615	11392	13223	7717	6404	128	1313	81
2	Eramala	7722	34658	15858	18800	801	367	434	50	22	28	29263	13606	15657	9702	7579	632	2123	234
3	Azhiyur	6082	30023	13595	16428	716	349	367	76	37	39	25466	11567	13899	7553	6560	85	993	59
4	Chorode	8089	38245	17918	20327	692	338	354	80	34	46	32467	15381	17086	10679	9099	255	1580	84
<b>II</b>	<b>Thuneri</b>	<b>32123</b>	<b>145884</b>	<b>68097</b>	<b>77787</b>	<b>2087</b>	<b>1048</b>	<b>1039</b>	<b>1770</b>	<b>896</b>	<b>874</b>	<b>117811</b>	<b>56855</b>	<b>60956</b>	<b>38784</b>	<b>28797</b>	<b>2215</b>	<b>9987</b>	<b>1844</b>
1	Vanimel	5554	25412	12300	13112	135	76	59	1195	616	579	20425	10279	10146	7274	5608	330	1666	127
2	Valayam	4136	18374	8799	9575	226	113	113	226	111	115	14936	7467	7469	5394	3356	407	2038	346
3	Purameri	6185	27612	12743	14869	530	250	280	43	23	20	22696	10753	11943	7158	5401	485	1757	404
4	Chekkid	5051	24246	11194	13052	303	163	140	220	112	108	18892	9020	9872	5779	4167	284	1612	304
5	Thuneri	5212	23421	10693	12728	352	179	173	31	13	18	18729	8836	9893	5947	4631	184	1316	181
6	Edacheri	5985	26819	12368	14451	541	267	274	55	21	34	22133	10500	11633	7232	5634	525	1598	482
<b>III</b>	<b>Kunnummal</b>	<b>45521</b>	<b>198156</b>	<b>93967</b>	<b>104189</b>	<b>4577</b>	<b>2242</b>	<b>2335</b>	<b>963</b>	<b>467</b>	<b>496</b>	<b>162859</b>	<b>79871</b>	<b>82988</b>	<b>58491</b>	<b>43619</b>	<b>4150</b>	<b>14872</b>	<b>2781</b>
1	Narippatta	6206	26529	12625	13904	416	193	223	227	101	126	21998	10836	11162	8111	5794	890	2317	701
2	Kavilumpara	5528	22828	11142	11686	323	174	149	280	143	137	19128	9604	9524	7816	6647	959	1169	203
3	Kayakkodi	5664	24578	11627	12951	612	302	310	54	31	23	20211	9950	10261	7162	4877	632	2285	540
4	Velom	6082	26738	12761	13977	1127	553	574	89	42	47	21412	10674	10738	7829	5669	430	2160	320
5	Kuttiadi	4511	19351	9100	10251	434	208	226	49	20	29	16091	7765	8326	5573	4081	309	1492	295
6	Maruthonkara	4772	19871	9533	10338	701	351	350	167	81	86	16388	8163	8225	6976	4853	163	2123	105
7	Kunnummal	4303	18031	8479	9552	392	183	209	24	10	14	15274	7415	7859	5512	4106	246	1406	408
8	Nadapuram	8455	40230	18700	21530	572	278	294	73	39	34	32357	15464	16893	9512	7592	521	1920	209
<b>IV</b>	<b>Thodannur</b>	<b>30940</b>	<b>136354</b>	<b>63873</b>	<b>72481</b>	<b>5037</b>	<b>2491</b>	<b>2546</b>	<b>304</b>	<b>123</b>	<b>181</b>	<b>114151</b>	<b>54661</b>	<b>59490</b>	<b>36118</b>	<b>27010</b>	<b>2296</b>	<b>9108</b>	<b>2080</b>
1	Thiruvallur	7950	35598	16704	18894	1314	666	648	56	21	35	29356	14119	15237	9247	6348	707	2899	815
2	Ayancheri	5864	26293	12372	13921	707	353	354	79	34	45	21823	10443	11380	6550	5227	621	1323	326
3	Villiappally	7829	34502	15948	18554	692	332	360	75	35	40	29188	13747	15441	9108	6954	432	2154	307
4	Maniyur	9297	39961	18849	21112	2324	1140	1184	94	33	61	33784	16352	17432	11213	8481	536	2732	632

Sl. No.	Community Development/Block/Panchayat	No. of House Holds	Population			Scheduled Caste Population			Scheduled Tribe Population			Literates			Total workers	Main Workers	Main Agricultural Labours	Marginal Workers	Marginal Agricultural Labours
			Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female					
<b>V</b>	<b>Melady</b>	<b>30922</b>	<b>133742</b>	<b>62139</b>	<b>71603</b>	<b>9582</b>	<b>4705</b>	<b>4877</b>	<b>172</b>	<b>88</b>	<b>84</b>	<b>112215</b>	<b>53293</b>	<b>58922</b>	<b>38256</b>	<b>28854</b>	<b>1404</b>	<b>9402</b>	<b>941</b>
1	Payyoli	11210	49470	23152	26318	2856	1383	1473	53	30	23	41836	19927	21909	14059	11561	364	2498	149
2	Meppayyur	6584	27929	13061	14868	1821	885	936	58	31	27	23537	11294	12243	8534	5759	335	2775	311
3	Thurayur	3257	14176	6531	7645	2117	1062	1055	13	4	9	11638	5499	6139	3653	2243	180	1410	185
4	Thikkody	6201	27051	12334	14717	1416	697	719	27	13	14	22410	10406	12004	6749	5532	213	1217	104
5	Keezhariyur	3670	15116	7061	8055	1372	678	694	21	10	11	12794	6167	6627	5261	3759	312	1502	192
<b>VI</b>	<b>Perambra</b>	<b>40224</b>	<b>166946</b>	<b>80031</b>	<b>86915</b>	<b>18121</b>	<b>9032</b>	<b>9089</b>	<b>819</b>	<b>393</b>	<b>426</b>	<b>140660</b>	<b>69357</b>	<b>71303</b>	<b>59447</b>	<b>40261</b>	<b>3608</b>	<b>19186</b>	<b>3607</b>
1	Cheruvannur	5556	23388	11054	12334	2870	1425	1445	33	18	15	19747	9594	10153	8226	5691	532	2535	386
2	Changaroath	7548	32107	15302	16805	2812	1399	1413	205	98	107	26588	13020	13568	10554	7038	731	3516	666
3	Chakkittapara	5210	21086	10353	10733	2966	1487	1479	345	169	176	18038	9016	9022	8422	5938	376	2484	278
4	Koothali	4127	16969	8169	8800	1751	889	862	26	11	15	14168	7058	7110	5867	3521	397	2346	540
5	Nochad	6456	26857	12815	14042	2347	1147	1200	31	12	19	22544	11117	11427	8993	6410	511	2583	424
6	Kayanna	3418	13755	6665	7090	1390	687	703	63	31	32	11677	5858	5819	5380	3666	540	1714	351
7	Perambra	7909	32784	15673	17111	3985	1998	1987	116	54	62	27898	13694	14204	12005	7997	521	4008	962
<b>VII</b>	<b>Balusseri</b>	<b>59713</b>	<b>245392</b>	<b>116410</b>	<b>128982</b>	<b>28931</b>	<b>14187</b>	<b>14744</b>	<b>2098</b>	<b>1039</b>	<b>1059</b>	<b>210023</b>	<b>101626</b>	<b>108397</b>	<b>84359</b>	<b>58142</b>	<b>4567</b>	<b>26217</b>	<b>5389</b>
1	Koorachundu	4155	17027	8424	8603	1334	670	664	116	57	59	14480	7243	7237	6223	5364	809	859	156
2	Kottur	7611	30982	14832	16150	3299	1652	1647	981	488	493	26370	13028	13342	11104	6905	615	4199	1055
3	Panangad	8483	33971	16133	17838	4383	2092	2291	414	209	205	29464	14182	15282	12660	8561	1046	4099	1371
4	Unnikulam	11713	49348	23438	25910	4784	2332	2452	272	135	137	42400	20311	22089	16060	11458	877	4602	870
5	Naduvarannur	6207	25979	12260	13719	2936	1458	1478	55	25	30	21777	10646	11131	8231	5376	371	2855	492
6	Balusseri	6810	27363	12977	14386	3722	1843	1879	182	87	95	23725	11470	12255	10051	6388	299	3663	602
7	Ulliyeri	7901	32509	15285	17224	3990	1954	2036	29	16	13	27724	13407	14317	10714	7517	314	3197	286
8	Atholi	6833	28213	13061	15152	4483	2186	2297	49	22	27	24083	11339	12744	9316	6573	236	2743	557
<b>VIII</b>	<b>Panthalayani</b>	<b>25814</b>	<b>110158</b>	<b>51119</b>	<b>59039</b>	<b>6812</b>	<b>3276</b>	<b>3536</b>	<b>180</b>	<b>94</b>	<b>86</b>	<b>93367</b>	<b>44229</b>	<b>49138</b>	<b>32306</b>	<b>25541</b>	<b>992</b>	<b>6765</b>	<b>957</b>
1	Moodadi	6906	30170	13910	16260	2109	1045	1064	45	22	23	25233	11907	13326	7634	6252	246	1382	117
2	Arikkulam	4409	18378	8651	9727	1562	750	812	44	20	24	15351	7448	7903	6095	4228	219	1867	483
3	Chengottukavu	6409	26791	12446	14345	1331	629	702	55	33	22	23189	10876	12313	8359	6883	272	1476	104
4	Chemancheri	8090	34819	16112	18707	1810	852	958	36	19	17	29594	13998	15596	10218	8178	255	2040	253

Sl. No.	Community Development/Block/Panchayat	No. of House Holds	Population			Scheduled Caste Population			Scheduled Tribe Population			Literate			Total workers	Main Workers	Main Agricultural Labours	Marginal Workers	Marginal Agricultural Labours
			Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female					
<b>IX</b>	<b>Koduvally</b>	<b>66589</b>	<b>291622</b>	<b>139929</b>	<b>151693</b>	<b>23651</b>	<b>11487</b>	<b>12164</b>	<b>2762</b>	<b>1345</b>	<b>1417</b>	<b>242518</b>	<b>118132</b>	<b>124386</b>	<b>87043</b>	<b>65576</b>	<b>6703</b>	<b>21467</b>	<b>3867</b>
1	Kattippara	5318	22706	10897	11809	3287	1619	1668	204	93	111	18987	9219	9768	7324	5528	484	1796	471
2	Kizhakkoth	6940	31261	14855	16406	1852	915	937	46	25	21	25969	12536	13433	6983	4981	428	2002	374
3	Koduvally	10628	48687	23235	25452	2638	1300	1338	367	182	185	39380	19197	20183	12338	9562	526	2776	317
4	Thamarassery	8172	35706	17053	18653	3374	1635	1739	127	57	70	30192	14641	15551	10287	8137	696	2150	273
5	Omassery	7933	35009	16764	18245	3340	1622	1718	132	56	76	28725	14072	14653	10710	7843	580	2867	406
6	Puthupadi	9806	42083	20148	21935	3940	1875	2065	624	331	293	34619	16801	17818	12977	8828	779	4149	707
7	Koodaranji	4423	18678	9242	9436	812	412	400	627	310	317	15836	7919	7917	7464	5573	834	1891	536
8	Thiruvambadi	6771	28820	13988	14832	1673	776	897	365	154	211	24629	12011	12618	11477	9041	1831	2436	544
9	Madavoor	6598	28672	13747	14925	2735	1333	1402	270	137	133	24181	11736	12445	7483	6083	545	1400	239
<b>X</b>	<b>Chelannur</b>	<b>54776</b>	<b>232922</b>	<b>110572</b>	<b>122350</b>	<b>21612</b>	<b>10530</b>	<b>11082</b>	<b>2111</b>	<b>1011</b>	<b>1100</b>	<b>203390</b>	<b>97631</b>	<b>105759</b>	<b>76104</b>	<b>60026</b>	<b>2872</b>	<b>16078</b>	<b>1650</b>
1	Kakkur	5551	22788	10696	12092	2950	1456	1494	251	118	133	19836	9469	10367	7052	4818	348	2234	356
2	Narikkunni	5785	24290	11596	12694	2853	1393	1460	245	118	127	20896	10051	10845	7447	5911	561	1536	223
3	Nanmanda	6761	27316	12910	14406	3130	1523	1607	1207	588	619	23914	11457	12457	8768	6225	691	2543	334
4	Chelannur	9716	40697	19574	21123	4493	2198	2295	223	105	118	35736	17422	18314	13922	10332	398	3590	401
5	Thalakkulathur	6897	29388	13753	15635	2517	1220	1297	25	10	15	25361	12024	13337	9297	7757	528	1540	172
6	Kakkodi	10163	42866	20434	22432	3745	1804	1941	70	32	38	37853	18204	19649	14637	11897	208	2740	107
7	Elathur	9903	45577	21609	23968	1924	936	988	90	40	50	39794	19004	20790	14981	13086	138	1895	57
<b>XI</b>	<b>Kunnamangalam</b>	<b>86851</b>	<b>382488</b>	<b>188045</b>	<b>194443</b>	<b>36401</b>	<b>17723</b>	<b>18678</b>	<b>2196</b>	<b>1103</b>	<b>1093</b>	<b>324548</b>	<b>161653</b>	<b>162895</b>	<b>119636</b>	<b>96801</b>	<b>5415</b>	<b>22835</b>	<b>2289</b>
1	Kodencheri	8578	34854	17170	17684	1913	943	970	1003	483	520	29761	14805	14956	12526	10112	1015	2414	405
2	Mukkom	9270	40670	19654	21016	5494	2657	2837	110	42	68	34375	16825	17550	13165	10564	929	2601	305
3	Chathamangalam	10526	46688	23567	23121	5888	2907	2981	109	64	45	39889	20541	19348	14168	10721	833	3447	412
4	Karassery	6847	31536	15114	16422	3026	1488	1538	606	297	309	26028	12577	13451	9600	7893	952	1707	352
5	Kodiyathur	6024	28335	14013	14322	2261	1146	1115	58	25	33	23215	11550	11665	7645	6517	505	1128	165
6	Kuruvattur	8151	34241	16451	17790	3129	1517	1612	27	12	15	29907	14493	15414	10866	8588	226	2278	129
7	Kunnamangalam	11841	53223	26833	26390	4835	2343	2492	119	90	29	46028	23597	22431	15787	12922	324	2865	216
8	Mavoor	6783	29781	14431	15350	3915	1883	2032	37	20	17	24474	12059	12415	8952	6419	233	2533	151
9	Peruvayal	10852	47700	23333	24367	3652	1758	1894	70	40	30	40772	20169	20603	15046	12738	230	2308	111

Sl. No.	Community Development/Block/Panchayat	No. of House Holds	Population			Scheduled Caste Population			Scheduled Tribe Population			Literates			Total workers	Main Workers	Main Agricultural Labours	Marginal Workers	Marginal Agricultural Labours
			Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female					
10	Perumanna	7979	35460	17479	17981	2288	1081	1207	57	30	27	30099	15037	15062	11881	10327	168	1554	43
<b>XII</b>	<b>Kozhikode</b>	<b>69135</b>	<b>332325</b>	<b>160857</b>	<b>171468</b>	<b>17527</b>	<b>8542</b>	<b>8985</b>	<b>507</b>	<b>239</b>	<b>268</b>	<b>281437</b>	<b>137853</b>	<b>143584</b>	<b>100921</b>	<b>87349</b>	<b>740</b>	<b>13572</b>	<b>297</b>
1	Olavanna	15074	68432	33625	34807	2667	1301	1366	141	66	75	58871	29259	29612	22539	20155	189	2384	76
2	Ramanattukara	7755	35937	17574	18363	3605	1778	1827	38	20	18	30529	15081	15448	10875	8681	175	2194	68
3	Cheruvannur- Nallalam	12319	61614	29777	31837	2170	1051	1119	57	30	27	51793	25239	26554	18288	15964	63	2324	30
4	Beyypore	14035	69752	33399	36353	1282	626	656	107	48	59	59205	28665	30540	21189	18786	125	2403	31
5	Feroke	11301	54074	26101	27973	4884	2385	2499	81	40	41	45379	22210	23169	15521	13417	82	2104	36
6	Kadalundi	8651	42516	20381	22135	2919	1401	1518	83	35	48	35660	17399	18261	12509	10346	106	2163	56

Source : Census Report 2011



INDIA/ STATE/ DISTRICT	Total/ Rural/ Urban	Population			Percentage of decadal growth 2001-2011	Percentage of child population in the age-group 0-6			Literacy Rate			Sex ratio of child population in the age group 0-6	Sex ratio of total population	Percentage share of urban population
		Males #	Females #	Persons		Persons #	Males #	Females #	Persons	Males #	Females #			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INDIA	T	1,21,01,93,422	62,37,24,248	58,64,69,174	17.64	13.12	13.30	12.93	74.04	82.14	65.46	940	914	31.16
	R	83,30,87,662	42,79,17,052	40,51,70,610	17.19	14.11	14.32	13.90	68.91	78.57	58.75	947	919	
	U	37,71,05,760	19,58,07,196	18,12,98,564	18.12	10.93	11.07	10.78	84.98	89.67	79.92	926	902	25.96
KERALA	T	3,33,87,677	1,60,21,290	1,73,66,387	4.86	9.95	10.59	9.36	93.91	96.02	91.98	1084	959	47.72
	R	1,74,55,506	84,03,706	90,51,800	-25.96	10.01	10.61	9.45	92.92	95.29	90.74	1077	960	
	U	1,59,32,171	76,17,584	83,14,587	92.72	9.88	10.56	9.27	94.99	96.83	93.33	1091	958	
Kasaragod District	T	13,02,600	6,26,617	6,75,983	8.18	11.46	12.15	10.82	89.85	93.93	86.13	1079	960	38.78
	R	7,97,424	3,87,324	4,10,100	-17.82	11.07	11.61	10.56	88.71	93.11	84.61	1059	964	
	U	5,05,176	2,39,293	2,65,883	116.16	12.07	13.03	11.21	91.67	95.27	88.49	1111	956	
Kannur District	T	25,25,637	11,84,012	13,41,625	4.84	10.50	11.42	9.70	95.41	97.54	93.57	1133	962	65.05
	R	8,82,745	4,26,243	4,56,502	-26.20	10.46	11.07	9.89	93.88	96.50	91.48	1071	956	
	U	16,42,892	7,57,769	8,85,123	35.45	10.53	11.61	9.60	96.23	98.12	94.64	1168	965	
Wayanad District	T	8,16,558	4,01,314	4,15,244	4.60	10.99	11.41	10.58	89.32	92.84	85.94	1035	960	3.87
	R	7,84,981	3,85,922	3,99,059	4.52	10.89	11.40	10.59	89.22	92.77	85.82	1034	960	
	U	31,577	15,392	16,185	6.64	11.03	11.58	10.52	91.63	94.58	88.87	1052	955	
Kozhikode District	T	30,89,543	14,73,028	16,16,515	7.31	10.47	11.19	9.82	95.24	97.57	93.16	1097	963	67.15
	R	10,14,765	4,85,654	5,29,111	-42.93	10.91	11.63	10.25	94.79	97.42	92.41	1089	961	
	U	20,74,778	9,87,374	10,87,404	88.42	10.26	10.97	9.61	95.47	97.64	93.52	1101	964	
Malappuram District	T	41,10,956	19,61,014	21,49,942	13.39	13.45	14.38	12.60	93.55	95.78	91.55	1096	960	44.19
	R	22,94,473	10,95,465	11,99,008	-29.82	13.40	14.31	12.56	92.67	94.97	90.61	1095	961	
	U	18,16,483	8,65,549	9,50,934	410.00	13.51	14.47	12.64	94.66	96.81	92.74	1099	959	
Palakkad District	T	28,10,892	13,60,067	14,50,825	7.39	10.26	10.80	9.75	88.49	92.27	84.99	1067	962	24.09
	R	21,33,699	10,31,940	11,01,759	-5.63	10.39	10.94	9.88	87.23	91.27	83.49	1068	964	
	U	6,77,193	3,28,127	3,49,066	89.92	9.84	10.37	9.34	92.45	95.41	89.70	1064	958	
Thiruvananthapuram District	T	31,10,327	14,74,665	16,35,662	4.58	9.30	10.07	8.60	95.32	96.98	93.85	1109	948	67.19
	R	10,20,537	4,85,875	5,34,662	-52.20	9.43	10.13	8.79	93.99	96.09	92.11	1100	955	
	U	20,89,790	9,88,790	11,01,000	148.95	9.23	10.03	8.51	95.97	97.41	94.70	1113	944	
Ernakulam District	T	32,79,860	16,17,602	16,62,258	5.60	8.82	9.15	8.50	95.68	97.14	94.27	1028	954	68.07
	R	10,47,296	5,18,040	5,29,256	-35.70	8.44	8.74	8.16	94.34	95.96	92.76	1022	954	
	U	22,32,564	10,99,562	11,33,002	51.15	9.00	9.35	8.65	96.32	97.70	94.98	1030	954	
Idukki District	T	11,07,453	5,51,944	5,55,509	-1.93	9.04	9.26	8.82	92.20	94.84	89.59	1006	959	4.70
	R	10,55,428	5,26,420	5,29,008	-1.51	9.02	9.24	8.80	92.03	94.73	89.34	1005	957	
	U	52,025	25,524	26,501	-9.67	9.49	9.83	9.16	95.74	97.10	94.45	1038	968	
Kottayam District	T	19,79,384	9,70,140	10,09,244	1.32	8.52	8.88	8.17	96.40	97.17	95.67	1040	957	28.58
	R	14,13,773	6,94,308	7,19,465	-14.52	8.56	8.91	8.23	97.17	97.97	96.40	1036	957	
	U	5,65,611	2,75,832	2,89,779	88.66	8.41	8.80	8.03	94.49	95.16	93.86	1051	958	
Alappuzha District	T	21,21,943	10,10,252	11,11,691	0.61	8.77	9.46	8.14	96.26	97.90	94.80	1100	947	54.06
	R	9,74,916	4,62,571	5,12,345	-34.47	9.08	9.82	8.42	96.72	98.24	95.38	1108	950	
	U	11,47,027	5,47,681	5,99,346	84.57	8.50	9.16	7.90	95.87	97.62	94.30	1094	944	
Pathanamthitta District	T	11,95,537	5,61,620	6,33,917	-3.12	7.85	8.29	7.09	96.83	97.70	96.26	1129	964	11.00
	R	10,64,076	4,99,745	5,64,331	-4.16	7.65	8.29	7.08	96.87	97.64	96.19	1129	964	
	U	1,31,461	61,875	69,586	6.19	7.70	8.32	7.15	97.42	98.15	96.79	1125	967	
Kollam District	T	26,29,703	12,44,815	13,84,888	1.72	9.05	9.76	8.42	93.77	95.83	91.95	1113	960	45.11
	R	14,43,363	6,78,969	7,64,394	-31.89	9.02	9.78	8.35	94.10	96.15	92.30	1126	961	
	U	11,86,340	5,65,846	6,20,494	154.59	9.09	9.73	8.50	93.38	95.46	91.52	1107	958	
Thiruvananthapuram District	T	33,07,284	15,84,200	17,23,084	2.25	8.79	9.33	8.29	92.66	94.60	90.89	1088	967	53.80
	R	15,28,030	7,25,230	8,02,800	-28.69	9.15	9.82	8.55	91.98	94.27	89.95	1107	963	
	U	17,79,254	8,58,970	9,20,284	62.99	8.48	8.91	8.07	93.24	94.89	91.71	1071	970	

# Males include both males and others

ADMINISTRATIVE UNITS-KERALA			
No. of Districts	2001		2011
	14	14	
No. of Sub-Districts (Talukas)	2001		2011
	63	63	
No. of Towns	2001		2011
	159	520	
No. of Villages	2001		2011
	1,364	1,018	
		2001	2011
		25.96	47.72

NUMBER OF TOWNS AND URBAN POPULATION IN KERALA	
Census Year	Urban population
1901	21
1911	27
1921	44
1931	53
1941	62
1951	94
1961	92
1971	88
1981	106
1991	197
2001	159
2011	520

GROWTH IN NO. OF TOWNS (KERALA)	
Towns	% Growth (Rounded to next digit)
2001	2011
60	59
99	461
Total	227 %





### Some Concepts and Definitions

#### **What is census?**

Population census is the total process of collecting, compiling, analyzing or otherwise disseminating demographic, economic and social data pertaining, at a specific time, to all persons in a country or a well defined part of a country. As such, the census provides a snapshot of the country's population and housing at a given point of time.

#### **Classification of Area:**

For Census purposes total geographical area is broadly classified into Rural and Urban.

**Urban:** Constituents of urban areas are Statutory Towns, Census Towns and Outgrowths.

**Statutory Town (ST):** All places with a municipality, corporation, cantonment board or notified town area committee etc. No. of STs in Kerala: 59\*

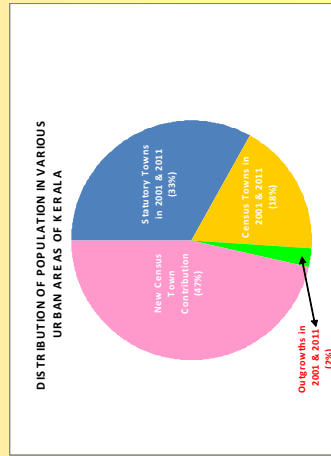
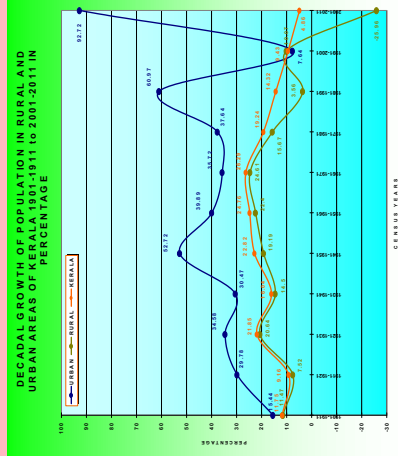
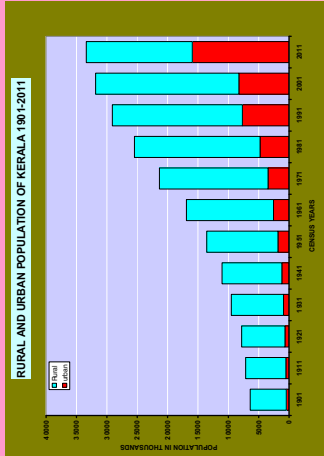
**Census Town (CT):** Places that satisfy the following criteria are termed as Census Towns (CTs). (a) A minimum population of 5000 (b) At least 75% of the male main working population engaged in non-agricultural pursuits (c) A density of population of at least 400 per sq.km No. of CTs in Kerala: 461 \*

**Out Growth (OG):** Out Growth should be a viable unit such as a village or part of a village contiguous to a statutory town and possess the urban features in terms of infrastructure and amenities such as pucca roads, electricity, taps, drainage system, education institutions, post offices, medical facilities, banks, etc. Examples of OGs are Railway colonies, University campuses, Port areas, that may come up near a city or statutory towns outside its statutory limits but within the revenue limit of a village or villages contiguous to the town or city. No. of OGs in Kerala: 16 \*

**Urban Agglomeration (UA):** It is a continuous urban spread constituting a town and its adjoining urban outgrowths (OGs) or two or more physically contiguous towns together and any adjoining urban out-growths of such towns. No. of UAs in Kerala: 19 \*

**Rural:** All areas other than urban are rural. The basic unit for rural areas is the revenue village. No. of Villages in Kerala: 1018 \*

\* All administrative units are as on 31.12.2009, the date of freezing of administrative boundaries for Census.



## CENSUS OF INDIA 2011

### SUMMARY OF PROVISIONAL POPULATION FIGURES KERALA

#### RURAL – URBAN DISTRIBUTION

Census of India, 2011 is the second Census of the 21<sup>st</sup> century and 7<sup>th</sup> Census after Independence. The provisional results of 2011 show that Population of Kerala as on 1<sup>st</sup> March 2011 is 3,33,87,677 with 1,74,55,506 in Rural and 1,59,32,171 in Urban.



Our Census, Our Future

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## **METEOROLOGY**

Meteorology is the interdisciplinary scientific study of the atmosphere. Meteorology, climatology, atmospheric physics and atmospheric chemistry are sub-disciplines of the atmospheric sciences. Meteorology and hydrology compose the interdisciplinary field of hydrometeorology. Interactions between Earth's atmosphere and the oceans are part of coupled ocean-atmosphere studies. Weather information and forecasts are of vital importance to many activities like agriculture, aviation, shipping, fisheries, tourism, defense, industrial projects, water management and disaster mitigation. Kerala's climate condition is divided into four seasons viz winter, Summer, South-West monsoon and North-East monsoon.

The district has humid climate with very hot season extending from March to May. From October onwards the temperature gradually increases and reaches a maximum in May which is the hottest month of the year. Humidity is very high in the coastal region. The most important rainy season is during the South West monsoon which sets in the first week of June and extends upto September. The rainfall of the district is 2773.6 mm and normal rainfall is 2603 mm during South West monsoon. The North East monsoon extends from the second half of October through November. Average rainfall is 446.5 mm and normal rainfall is 417.4 mm during North East monsoon period.

Table: 5.1

**ACTUAL RAINFALL, NORMAL RAINFALL AND PERCENTAGE OF DEPARTURE FOR THE YEAR 2014**

<b>Pre-Monsoon Rainfall (March to May)</b>			
<b>District/State</b>	<b>Actual Rainfall (mm)</b>	<b>Normal Rainfall (mm)</b>	<b>Percentage departure</b>
Kozhikode	345.9	352.6	-2
<b>Kerala</b>	<b>364.4</b>	<b>379.9</b>	<b>-4</b>

<b>South West Monsoon Rainfall (June to September)</b>			
<b>District/State</b>	<b>Actual Rainfall (mm)</b>	<b>Normal Rainfall (mm)</b>	<b>Percentage departure</b>
Kozhikode	2773.6	2603.1	7
<b>Kerala</b>	<b>2163.3</b>	<b>2039.7</b>	<b>6</b>

<b>North East Monsoon Rainfall (October to till 17<sup>th</sup> December 2014)</b>			
<b>District/State</b>	<b>Actual Rainfall (mm)</b>	<b>Normal Rainfall (mm)</b>	<b>Percentage departure</b>
Kozhikode	446.5	417.4	7
<b>Kerala</b>	<b>496.8</b>	<b>472.2</b>	<b>5</b>

Source: Economic Review

Table: 5.2

**RAINFALL DISTRIBUTION OF DISTRICT FOR THE YEAR 2013-14**

(Rainfall in mm)

<b>2013</b>						
<b>District/State</b>	<b>JUL</b>	<b>AUG</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
Kozhikode	1113.8	391.6	235	269	96.6	13.8
Kerala (Average)	833.2	374.2	321.9	259.1	155	16.6

<b>2014</b>						
<b>District/State</b>	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>	<b>MAY</b>	<b>JUN</b>
Kozhikode	0	0	0.8	90.7	254.4	508.2
Kerala (Average)	4.7	10.3	17.9	156.1	250.7	454.4

<b>2013-14</b>			
<b>District/State</b>	<b>Actual</b>	<b>Normal</b>	<b>Departure (%)</b>
Kozhikode	2973.9	3514	-15.4
Kerala (Average)	2819.2	2946.1	-4.3

Source: Agricultural Statistics, DES



## **GEOLOGY & GEOMORPHOLOGY**

Kozhikode district has an area of 234566 Ha. District lies between North latitude  $11^{\circ}07'23''$  to  $11^{\circ}48'18''$  and between East longitudes  $75^{\circ}31'48''$  to  $76^{\circ}08'40''$ . It is on the Southern part of the peninsular shield having a gently sloping terrain, from the Wynad plateau to the East to the coastal plain in the West. The Northeastern part is hilly and covers part of the Wynad plateau. Rolling midlands intervene between the hills and the coast.

### **GEOLOGY**

The district can be divided into three geological belts: i) a linear NW-SE trending gneissic belt, along the middle extending from North to South ii) a charnockite belt occupying large areas in the Northeast and South, extending to the adjacent districts and also occurring as pockets within the gneissic terrain. iii) a narrow coastal belt.

Granite gneiss belonging to Peninsular Gneissic Complex is the oldest unit of the area and occurs North of Alampore. Charnockite belonging to the Charnockite Group has a very wide distribution, especially in the Northeast and South with variations like biotite-hypersthene gneiss, biotite-hornblende-hypersthene gneiss and hornblende-hypersthene gneiss. Magnetite quartzite, another unit of this group, occurs as narrow linear bodies within charnockite. Hornblende-biotite gneiss of the Migmatite Complex extends from North to South and is well foliated. Garnetiferous quartzo-feldspathic gneiss, another member of the Migmatite Complex, occurs as lenses within charnockite, in the East. NW-SE trending dolerite dykes traverse these older rocks. These dykes are 10-20 m wide.

Pebble bed occurs on the coast and along the banks of the Beypore river. The pebble bed is associated with grit and clay and is lateritised. It comprises well rounded pebbles of quartz, granite, quartzite and granulite. It is considered

to be of Pleistocene origin. Sporadic laterite is recorded from the charnockite country to the Southwest. Quarternary deposits are of marine and fluvial origin. Periyar Formation is a fluvial deposit comprising an admixture of sand, silt and clay. Guruvayur Formation is a strand line deposit of palaeo-marine origin and mostly comprises medium to fine sand. Kadapuram Formation represents contemporary marine deposits, constituting the present beach and barrier beach.

## **GEOMORPHOLOGY**

The district is divisible into three physiographic regions from West to East viz., i) the coastal plain, ii) the midland region and iii) the hilly terrain. The coastal plain is very narrow, 5-10 km wide, gently sloping with a maximum height of about 10 m in the East. It comprises depositional landforms of marine, fluvial and fluviomarine origin. There is a well developed beach all along the coast with sea cliffs and rocky beaches near Quilandi, Elattur and Kappad. The midland region is quite wide with elevations ranging from 30-300 m. The region is characterized by an undulating topography with numerous narrow ridges, moderately sloping spurs, intervening valleys, flat and domal hills and broad valley floors, all alternating with laterite capped hummocks and narrow alluvial strips. The hilly region to the East is again very narrow. Its elevation ranges from 300-600 m. The terrain is characterized by steep to very hill ranges. Kuttiyadi and Chaliyar are the major rivers draining the area.

Source: GSI, Kerala



Table:6.1

## GEOLOGY DETAILS

## BALUSSERI BLOCK

Sl. No.	Category	Balusseri	Koorachundu	Kottoor	Naduvannoor	Panangad	Ulliyeri	Unnikulam
1	Basic rocks	92.27	528.33	140.59	56.48	118.49	195.10	101.43
2	Charnockite group of rocks	1933.44	16.88	259.04	202.53		320.84	424.50
3	Migmatite complex	230.92	12006.03	2732.57	1891.49	2617.60	1967.34	3104.75
4	Peninsular gneissic complex							
5	Sand and silt							
6	Tank/WB/River						111.44	
	<b>Panchayat Total</b>	<b>2256.63</b>	<b>12551.24</b>	<b>3132.20</b>	<b>2150.50</b>	<b>2736.09</b>	<b>2594.72</b>	<b>3630.68</b>
	<b>Block Total</b>				<b>29052.06</b>			

Table:6.2

## KUNNUMMAL BLOCK

Sl. No.	Category	Kavilumpara	Kayakkodi	Kunnummal	Kutyadi	Maruthonkara	Narippatta	Velom
1	Basic rocks	178.15		55.08	113.04	174.8	37.10	12.76
2	Charnockite group of rocks	6778.28	1274.42	155.71	77.08	9.04	4012.82	10.82
3	Migmatite complex	2342.14	1444.89	960.39	1316.68	1909.74	701.64	2589.07
4	Peninsular gneissic complex					131.58		
5	Sand and silt							
6	Tank/WB/River							
	<b>Panchayat Total</b>	<b>9298.57</b>	<b>2719.31</b>	<b>1171.18</b>	<b>1506.8</b>	<b>2225.16</b>	<b>4751.56</b>	<b>2612.65</b>
	<b>Block Total</b>				<b>24285.23</b>			

Table:6.3

## THUNERI BLOCK

Sl. No.	Category	Chekyad	Edacherri	Nadapuram	Purameri	Thuneri	VanimeI	Valayam
1	Basic rocks	52.30		40.02			4.84	57.86
2	Charnockite group of rocks	360.94		8.34	145.22		2796.02	75.96
3	Migmatite complex	2126.62	1683.25	1941.38	1876.98	1517.73	1398.81	2297.14
4	Peninsular gneissic complex						51.65	
5	Sand and silt							
6	Tank/WB/River							
	<b>Panchayat Total</b>	<b>2539.86</b>	<b>1683.25</b>	<b>1989.74</b>	<b>2022.20</b>	<b>1517.73</b>	<b>4251.32</b>	<b>2430.96</b>
	<b>Block Total</b>				<b>16435.06</b>			

Table:6.4

## CHELANNUR BLOCK

Sl. No.	Category	Chelannur	Kakkodi	Kakkoor	Nanmanda	Narikkuni	Thalukulathur
1	Basic rocks	124.74	22.82	77.15	128.27	93.37	
2	Charnockite group of rocks	956.03	1457.10	808.56	1498.22	398.91	1086.93
3	Migmatite complex	1082.01	179.90	1203.00	648.97	1257.75	523.95
4	Peninsular gneissic complex						
5	Sand and silt						
6	Tank/WB/River	62.07	82.35				229.31
	<b>Panchayat Total</b>	<b>2224.85</b>	<b>1742.17</b>	<b>2088.71</b>	<b>2275.46</b>	<b>1750.03</b>	<b>1840.19</b>
	<b>Block Total</b>				<b>11921.41</b>		

Table:6.5

## KODUVALLI BLOCK

Sl. No.	Category	Katti ppara	Kizha kkoth	Koden cherri	Koduvalli	Kooda ranji	Madavoor	Omassery	Puthu ppadi	Thamara ssery	Thiru vambadi
1	Basic rocks	9.42	83.26	49.44	88.24	24.33	98.98		73.75	35.31	60.82
2	Charnockite group of rocks	5.99	1447.61	6530.26	2084.86	2848.15	1666.32	1321.10	568.52	901.79	3825.64
3	Migmatite complex	4680.10	494.49	5719.80		4393.95	196.90	1655.52	5448.05		2873.27
4	Peninsular gneissic complex										
5	Sand and silt										
6	Tank/WB/River										
	<b>Panchayat Total</b>	<b>4695.51</b>	<b>2025.36</b>	<b>12299.50</b>	<b>2173.10</b>	<b>7266.43</b>	<b>1962.20</b>	<b>2976.62</b>	<b>6090.32</b>	<b>937.10</b>	<b>6759.73</b>
	<b>Block Total</b>					<b>47185.87</b>					

Table:6.6

## KUNNAMANGALAM BLOCK

Sl. No.	Category	Chatha mangalam	Kara sseri	Kodi yathur	Kunna mangalam	Kuru vattur	Mavoor	Mukkam	Peru manna	Peru vayal
1	Basic rocks	161.64	5.28	27.38	72.87	52.96	97.34	116.65		77.55
2	Charnockite group of rocks	3872.73	326.91	1865.14	2621.03	1685.41	1833.56	1195.22	1656.23	2269.36
3	Migmatite complex		3439.01	1000.84				1801.68		
4	Peninsular gneissic complex									
5	Sand and silt						188.22			51.24
6	Tank/WB/River									
	<b>Panchayat Total</b>	<b>4034.37</b>	<b>3771.20</b>	<b>2893.36</b>	<b>2693.90</b>	<b>1738.37</b>	<b>2119.12</b>	<b>3113.55</b>	<b>1656.23</b>	<b>2398.15</b>
	<b>Block Total</b>					<b>24418.25</b>				

Table:6.7

**PERAMBRA BLOCK**

Sl. No.	Category	(Area in Ha)						
		Changaroath	Cheruvannoor	Kayanna	Koothali	Nochad	Perambra	Chakkitta para
1	Basic rocks	120.36	93.08	223.75	106.39	109.84	169.48	908.66
2	Charnockite group of rocks	4.62	55.33			132.42	247.58	1391.17
3	Migmatite complex	2953.89	1968.62	1879.32	1599.51	2192.46	2242.66	7041.77
4	Peninsular gneissic complex							942.27
5	Sand and silt							
6	Tank/WB/River							
	<b>Panchayat Total</b>	<b>3078.87</b>	<b>2117.03</b>	<b>2103.07</b>	<b>1705.9</b>	<b>2434.72</b>	<b>2659.72</b>	<b>10283.87</b>
	<b>Block Total</b>				<b>24383.18</b>			

Table:6.8

**MELADI BLOCK**

Sl. No.	Category	(Area in Ha)					
		Keezhari yoor	Meppayoor	Payyoli	Thikkodi	Thurayoor	
1	Basic rocks	246.18	5.39	357.58	166.68	141.57	
2	Charnockite group of rocks	342.17	444.53			147.16	
3	Migmatite complex	718.58	1910.00	715.71	894.05	690.9	
4	Peninsular gneissic complex						
5	Sand and silt			1095.94	450.62		
6	Tank/WB/River						
	<b>Panchayat Total</b>	<b>1306.93</b>	<b>2359.92</b>	<b>2169.23</b>	<b>1511.35</b>	<b>979.63</b>	
	<b>Block Total</b>			<b>8327.06</b>			

Table:6.9

### THODANNUR BLOCK

SI.No.	Category	(Area in Ha)			
		Ayancheri	Maniyoor	Thiruvallur	Villiyapally
1	Basic rocks		266.06	2.31	30.54
2	Charnockite group of rocks		311.5	107.64	5.69
3	Migmatite complex	1954.92	2568.28	2662.75	1726.66
4	Peninsular gneissic complex				
5	Sand and silt				
6	Tank/WB/River				
	<b>Panchayat Total</b>	<b>1954.92</b>	<b>3145.84</b>	<b>2772.70</b>	<b>1762.89</b>
	<b>Block Total</b>		<b>9636.35</b>		

Table:6.10

### VADAKARA BLOCK

SI.No.	Category	(Area in Ha)			
		Azhiyoor	Cherod	Eramala	Onchiyam
1	Basic rocks	28.37	72.53		2.58
2	Charnockite group of rocks				
3	Migmatite complex	1110.71	1254.14	1829.58	938.93
4	Peninsular gneissic complex				
5	Sand and silt		23.59		
6	Tank/WB/River				
	<b>Panchayat Total</b>	<b>1139.08</b>	<b>1350.26</b>	<b>1829.58</b>	<b>941.51</b>
	<b>Block Total</b>		<b>5260.43</b>		

Table:6.11

## PANTHALAYANI BLOCK

Sl.No.	Category	Arikkulam	Atholi	Chemancheri	Chengottukavu	Moodadi	(Area in Ha)
1	Basic rocks	16.16	46.51	10.05	26.52	150.10	
2	Charnockite group of rocks	323.82	2.29		115.42	290.91	
3	Migmatite complex	1300.52	1924.66	646.95	850.56	943.00	
4	Peninsular gneissic complex						
5	Sand and silt			914.88	323.37	224.78	
6	Tank/WB/River		181.96	136.86	125.60		
	<b>Panchayat Total</b>	<b>1640.50</b>	<b>2155.42</b>	<b>1708.74</b>	<b>1441.47</b>	<b>1608.79</b>	
	<b>Block Total</b>			<b>8554.92</b>			

Table:6.12

## KOZHIKODE BLOCK

Sl.No.	Category	Feroke	Kadalundi	Olavanna	Ramanattukara	(Area in Ha)
1	Basic rocks					
2	Charnockite group of rocks	794.22	671.01	1974.51	1156.37	
3	Migmatite complex					
4	Peninsular gneissic complex					
5	Sand and silt	653.53	467.11		34.19	
6	Tank/WB/River					
	<b>Panchayat Total</b>	<b>1447.75</b>	<b>1138.12</b>	<b>1974.51</b>	<b>1190.56</b>	
	<b>Block Total</b>		<b>5750.94</b>			

Table: 6.13

**MUNICIPALITY/CORPORATION****(Area in Ha)**

<b>Sl. No.</b>	<b>Category</b>	<b>Koyilandy Municipality</b>	<b>Vadakara Municipality</b>	<b>Kozhikode Corporation</b>
1	Basic rocks	140.31	264.20	
2	Charnockite group of rocks	164.51		7581.36
3	Migmatite complex	2364.44	1254.10	
4	Peninsular gneissic complex			
5	Sand and silt	192.68	662.98	4218.93
6	Tank/WB/River	41.98		130.18
	<b>Total</b>	<b>2903.92</b>	<b>2181.28</b>	<b>11930.47</b>





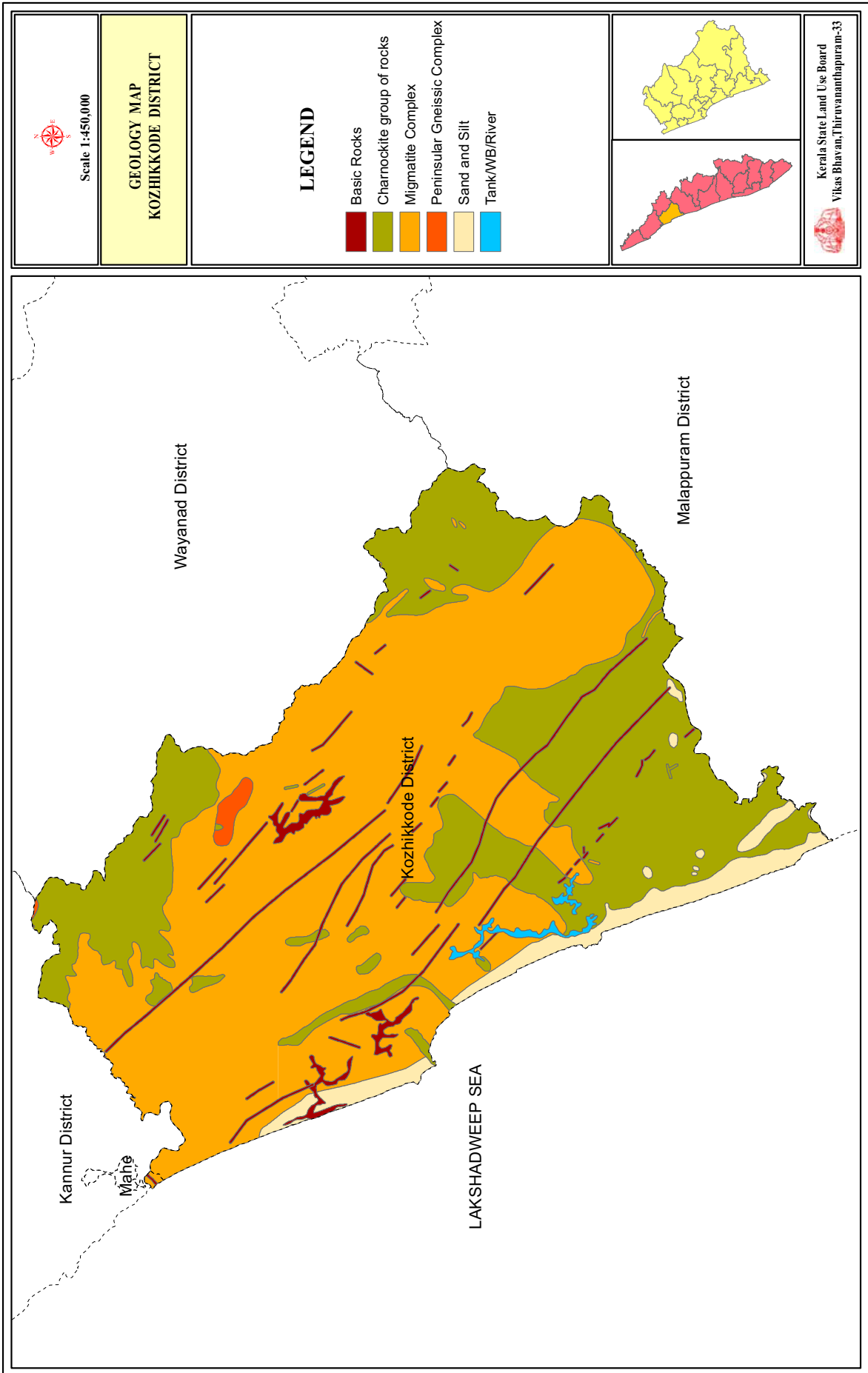




Table: 6.14

**GEOMORPHOLOGY DETAILS  
BALUSSERI BLOCK**

Sl. No.	Category	Balusseri	Koorachundu	Kottoor	Naduvannoor	Panangad	Ulliyeeri	Unnikulam
1	Beach (Coastal plain)							
2	Butte							
3	Channel bar (Flood plain)							
4	Coastal plain							
5	Denudational hills	119.37						
6	Denudational structural hills		9697.30	374.84		830.76		
7	Linear ridge (Lower plateau)							
8	Linear ridge (Piedmont zone)							21.02
9	Lower plateau (Lateritic) - dissected	1808.70			1089.80	194.10	1767.53	2070.37
10	Marshy				29.22			
11	Mesa							
12	Mud flat (Coastal plain)							
13	Piedmont zone		2107.05	2019.53	493.88	1794.15		1094.34
14	Point bar (Flood plain)							
15	Residual hill			298.20	15.05	128.06		
16	Residual mount	1.90			66.24		187.63	48.61
17	Residual mount (Pediment)	71.38	152.22	28.74	41.41	121.96	22.30	33.60
18	Rock exposure		172.22			3.08		
19	Spit (Coastal plain)							
20	Stabilized channel bar (Flood plain)							
21	Swale (Coastal plain)							
22	Valley							
23	Valley fill	238.69	351.40	401.03	372.68	362.46	503.46	362.72
24	Water body	16.59	71.03	9.85	42.22	21.18	113.82	
	<b>Panchayat Total</b>	<b>2256.63</b>	<b>12551.22</b>	<b>3132.19</b>	<b>2150.50</b>	<b>3455.75</b>	<b>2594.74</b>	<b>3630.66</b>
	<b>Block Total</b>				<b>29771.69</b>			

Table: 6.15

## CHELANNUR BLOCK

Sl. No.	Category	Chelannur	Kakkodi	Kakkoor	Nanmanda	Narikkuni	Thalakulathur
1	Beach (Coastal plain)						
2	Butte						
3	Channel bar (Flood plain)						
4	Coastal plain						
5	Denudational hills			146.91	261.19		
6	Denudational structural hills						
7	Linear ridge (Lower plateau)				4.35		
8	Linear ridge (Piedmont zone)						
9	Lower plateau (Lateritic) - dissected	1515.99	1206.87	1582.94	1701.13	1411.72	1166.72
10	Marshy						
11	Mesa						
12	Mud flat (Coastal plain)						
13	Piedmont zone						
14	Point bar (Flood plain)						
15	Residual hill						
16	Residual mount	164.05	14.66	77.24	51.94	164.81	31.76
17	Residual mount (Pediment)			4.64	24.15		39.58
18	Rock exposure						
19	Spit (Coastal plain)						
20	Stabilized channel bar (Flood plain)						14.97
21	Swale (Coastal plain)						
22	Valley						
23	Valley fill	485.23	445.70	275.32	232.70	173.51	429.99
24	Water body	59.59	74.94	1.67			157.18
	<b>Panchayat Total</b>	<b>2224.86</b>	<b>1742.17</b>	<b>2088.72</b>	<b>2275.46</b>	<b>1750.04</b>	<b>1840.20</b>
	<b>Block Total</b>			<b>11921.45</b>			

Table: 6.16

## KODUVALLI BLOCK

Sl. No.	Category	Katti ppara	Kizha kkoth	Koden cherri	Kodu valli	Kooda ranji	Mada voor	Oma ssery	Puthu ppadi	Thamara ssery	Thiruvam badi
1	Beach (Coastal plain)										
2	Butte										
3	Channel bar (Flood plain)										
4	Coastal plain										
5	Denudational hills										
6	Denudational structural hills	2355.01		6006.75		5442.18			2727.16		3808.58
7	Linear ridge (Lower plateau)			33.74							
8	Linear ridge (Piedmont zone)										
9	Lower plateau (Lateritic) - dissected	271.13	1684.86	1095.78	1847.89		1605.86	2423.73		1127.07	
10	Marshy										
11	Mesa										
12	Mud flat (Coastal plain)										
13	Piedmont zone	1876.72		4177.42		1411.97			2868.41	1157.66	2683.64
14	Point bar (Flood plain)										
15	Residual hill	63.85		472.23		242.69			46.96		183.32
16	Residual mount		160.87	2.26	175.67		143.91	184.52			
17	Residual mount (Pediment)	14.57		172.34		140.38			82.49	104.35	1.32
18	Rock exposure	67.03		29.62		29.21			116.46		26.44
19	Spit (Coastal plain)										
20	Stabilized channel bar (Flood plain)										
21	Swale (Coastal plain)										
22	Valley										
23	Valley fill	47.21	175.29	271.12	115.55		205.84	324.20	218.87	149.13	40.76
24	Water body		4.34	38.24	33.99		6.59	44.17	29.96	18.81	15.66
	<b>Panchayat Total</b>	<b>4695.52</b>	<b>2025.36</b>	<b>12299.50</b>	<b>2173.10</b>	<b>7266.43</b>	<b>1962.20</b>	<b>2976.62</b>	<b>6090.31</b>	<b>2557.02</b>	<b>6759.72</b>
	<b>Block Total</b>					<b>48805.78</b>					

Table: 6.17

## KOZHIKODE BLOCK

Sl. No.	Category	Feroke	Kadalundi	Olavanna	Ramanattukara
1	Beach (Coastal plain)	6.63			
2	Butte				
3	Channel bar (Flood plain)			1.85	
4	Coastal plain	562.32	367.01	97.91	9.78
5	Denudational hills				
6	Denudational structural hills				
7	Linear ridge (Lower plateau)				
8	Linear ridge (Piedmont zone)				
9	Lower plateau (Lateritic) - dissected	339.98	437.13	1169.08	695.42
10	Marshy				
11	Mesa			24.57	
12	Mud flat (Coastal plain)	195.81	99.64	23.88	
13	Piedmont zone				
14	Point bar (Flood plain)				
15	Residual hill				
16	Residual mount		50.72	75.26	
17	Residual mount (Pediment)				
18	Rock exposure				
19	Spit (Coastal plain)				
20	Stabilized channel bar (Flood plain)	4.77			
21	Swale (Coastal plain)		19.09		
22	Valley				
23	Valley fill	128.21	99.38	484.72	408.26
24	Water body	210.03	65.16	97.25	77.09
	<b>Panchayat Total</b>	<b>1447.75</b>	<b>1138.13</b>	<b>1974.52</b>	<b>1190.55</b>
	<b>Block Total</b>		<b>5750.95</b>		

Table: 6.18

## KUNNAMANGALAM BLOCK

Sl. No.	Category	Chatha mangalam	Karasseri	Kodi yathur	Kunna mangalam	Kuru vattur	Mavoore	Mukkam	Perumanna	Peru vayal
1	Beach (Coastal plain)									
2	Butte									
3	Channel bar (Flood plain)						3.21			
4	Coastal plain									
5	Denudational hills									
6	Denudational structural hills		1261.75	1022.78						
7	Linear ridge (Lower plateau)	71.62					56.66		70.86	
8	Linear ridge (Piedmont zone)									
9	Lower plateau (Lateritic) - dissected	3345.44			2247.78	1337.44	1479.99	2541.45	1087.00	1709.88
10	Marshy									
11	Mesa									
12	Mud flat (Coastal plain)									
13	Piedmont zone		2299.31	1541.87						
14	Point bar (Flood plain)									
15	Residual hill									
16	Residual mount	199.37		54.58	188.75	118.14	107.67	149.94	125.16	147.07
17	Residual mount (Pediment)	132.75		42.91						
18	Rock exposure			2.43						
19	Spit (Coastal plain)									
20	Stabilized channel bar (Flood plain)									
21	Swale (Coastal plain)									
22	Valley			9.99						
23	Valley fill	342.18	56.11	176.86	220.28	274.01	310.56	372.02	309.97	490.71
24	Water body	75.76	21.27	41.94	37.09	8.78	161.03	50.13	63.24	50.50
	<b>Panchayat Total</b>	<b>4167.12</b>	<b>3638.44</b>	<b>2893.36</b>	<b>2693.90</b>	<b>1738.37</b>	<b>2119.12</b>	<b>3113.54</b>	<b>1656.23</b>	<b>2398.16</b>
	<b>Block Total</b>					<b>24418.24</b>				

Table: 6.19

## KUNNUMMAL BLOCK

Sl. No.	Category	Kavilum para	Kayakkodi	Kunnummal	Kutyadi	Maruthon kara	Narippatta	Velom
1	Beach (Coastal plain)							
2	Butte							
3	Channel bar (Flood plain)							1.28
4	Coastal plain							
5	Denudational hills	166.31				160.24		
6	Denudational structural hills	7003.00	800.74			42.10	2646.67	
7	Linear ridge (Lower plateau)			27.09	31.56			9.08
8	Linear ridge (Piedmont zone)			30.86				
9	Lower plateau (Lateritic) - dissected	107.23	742.11	818.31	1210.71	479.98	441.82	1823.58
10	Marshy							
11	Mesa							
12	Mud flat (Coastal plain)							
13	Piedmont zone	1906.02	873.31	141.52		1353.19	1327.84	
14	Point bar (Flood plain)							1.88
15	Residual hill		59.85			88.38	9.11	150.47
16	Residual mount		4.85	21.63	38.65		37.59	82.06
17	Residual mount (Pediment)					18.2	9.12	
18	Rock exposure	116.01					109.03	
19	Spit (Coastal plain)							
20	Stabilized channel bar (Flood plain)							
21	Swale (Coastal plain)							
22	Valley							
23	Valley fill		237.24	131.76	207.19	50.18	138.14	495.94
24	Water body		1.22		18.69	32.9	32.24	48.37
	<b>Panchayat Total</b>	<b>9298.57</b>	<b>2719.32</b>	<b>1171.17</b>	<b>1506.80</b>	<b>2225.17</b>	<b>4751.56</b>	<b>2612.66</b>
	<b>Block Total</b>				<b>24285.25</b>			



Table: 6.20

## MELADI BLOCK

Sl.No.	Category	Keezhariyoor	Meppayoor	Payyoli	Thikkodi	Thurayoor
1	Beach (Coastal plain)					
2	Butte					
3	Channel bar (Flood plain)	1.85		6.21	1.32	
4	Coastal plain	17.06		1565.19	968.40	244.18
5	Denudational hills					
6	Denudational structural hills					
7	Linear ridge (Lower plateau)		10.87			
8	Linear ridge (Piedmont zone)					
9	Lower plateau (Lateritic) - dissected	810.88	1735.47		2.10	243.75
10	Marshy					
11	Mesa					
12	Mud flat (Coastal plain)	40.81		234.73	406.86	275.92
13	Piedmont zone					
14	Point bar (Flood plain)					
15	Residual hill					
16	Residual mount	91.19	233.91	15.94		56.52
17	Residual mount (Pediment)					
18	Rock exposure		5.23	6.68		
19	Spit (Coastal plain)					
20	Stabilized channel bar (Flood plain)					
21	Swale (Coastal plain)			130.88		
22	Valley					
23	Valley fill	192.15	372.35			70.31
24	Water body	153.00	2.08	209.6	132.66	88.96
	<b>Panchayat Total</b>	<b>1306.94</b>	<b>2359.91</b>	<b>2169.23</b>	<b>1511.34</b>	<b>979.64</b>
	<b>Block Total</b>		<b>8327.06</b>			

Table: 6.21

## THODANNUR BLOCK

Sl.No.	Category	Ayancherri	Maniyoor	Thiruvallur	Villiyapally
1	Beach (Coastal plain)				
2	Butte				
3	Channel bar (Flood plain)		14.66		
4	Coastal plain				
5	Denudational hills				
6	Denudational structural hills				
7	Linear ridge (Lower plateau)		144.32	10.35	
8	Linear ridge (Piedmont zone)				
9	Lower plateau (Lateritic) - dissected	1419.32	1949.77	2114.47	1366.95
10	Marshy				
11	Mesa				
12	Mud flat (Coastal plain)				
13	Piedmont zone				
14	Point bar (Flood plain)				
15	Residual hill				
16	Residual mount	84.21	211.07	145.09	118.52
17	Residual mount (Pediment)				
18	Rock exposure	3.08			
19	Spit (Coastal plain)				
20	Stabilized channel bar (Flood plain)				
21	Swale (Coastal plain)				
22	Valley				
23	Valley fill	448.31	609.56	461.78	264.09
24	Water body		216.45	41.02	
	<b>Panchayat Total</b>	<b>1954.92</b>	<b>3145.83</b>	<b>2772.71</b>	<b>1749.56</b>
	<b>Block Total</b>		<b>9623.02</b>		

Table: 6.22

## PANTHALAYANI BLOCK

Sl. No.	Category	Arikkulam	Atholi	Chemancheri	Chengottukavu	Moodadi
1	Beach (Coastal plain)					
2	Butte					
3	Channel bar (Flood plain)					
4	Coastal plain			711.34	334.09	512.81
5	Denudational hills					
6	Denudational structural hills					
7	Linear ridge (Lower plateau)		60.53			
8	Linear ridge (Piedmont zone)					
9	Lower plateau (Lateritic) - dissected	1186.59	1430.26	449.00	757.80	666.41
10	Marshy	70.02		17.84		
11	Mesa					
12	Mud flat (Coastal plain)		7.96	205.67		241.07
13	Piedmont zone					
14	Point bar (Flood plain)					
15	Residual hill					
16	Residual mount	100.08	181.15			66.55
17	Residual mount (Pediment)		15.38			
18	Rock exposure	7.43				
19	Spit (Coastal plain)					
20	Stabilized channel bar (Flood plain)				2.45	
21	Swale (Coastal plain)				13.39	
22	Valley					
23	Valley fill	273.91	333.66	166.47	242.80	24.36
24	Water body	2.47	126.47	158.42	90.94	97.56
	<b>Panchayat Total</b>	<b>1640.50</b>	<b>2155.41</b>	<b>1708.74</b>	<b>1441.47</b>	<b>1608.76</b>
	<b>Block Total</b>			<b>8554.88</b>		

Table: 6.23

## THUNERI BLOCK

Sl. No.	Category	Chekyad	Edacherri	Nadapuram	Purameri	Thuneri	Valayam	Vanimel
1	Beach (Coastal plain)							
2	Butte	26.40						
3	Channel bar (Flood plain)							
4	Coastal plain							
5	Denudational hills							
6	Denudational structural hills	350.92					142.93	2703.02
7	Linear ridge (Lower plateau)			44.97	76.10			
8	Linear ridge (Piedmont zone)							
9	Lower plateau (Lateritic) - dissected	1581.29	1253.59	1555.93	1520.87	1160.73	1314.86	88.33
10	Marshy							
11	Mesa							
12	Mud flat (Coastal plain)							
13	Piedmont zone	239.81					677.12	1318.74
14	Point bar (Flood plain)							
15	Residual hill							
16	Residual mount	85.27	14.73	58.55	60.81	24.42	17.96	
17	Residual mount (Pediment)						34.59	93.88
18	Rock exposure							5.00
19	Spit (Coastal plain)							
20	Stabilized channel bar (Flood plain)							
21	Swale (Coastal plain)							
22	Valley							
23	Valley fill	225.75	396.84	310.42	364.43	316.14	240.51	5.01
24	Water body	30.41	18.08	19.87		16.44	2.99	37.34
	<b>Panchayat Total</b>	<b>2539.85</b>	<b>1683.24</b>	<b>1989.74</b>	<b>2022.21</b>	<b>1517.73</b>	<b>2430.96</b>	<b>4251.32</b>
	<b>Block Total</b>				<b>16435.05</b>			

Table: 6.24

## PERAMBRA BLOCK

Sl. No.	Category	Changa roth	Cheru vannoor	Kayanna	Koothali	Nochad	Perambra	Chakkitta para
1	Beach (Coastal plain)							
2	Butte							
3	Channel bar (Flood plain)	2.51						
4	Coastal plain							
5	Denudational hills							
6	Denudational structural hills			709.10				4935.46
7	Linear ridge (Lower plateau)		111.33			4.85		
8	Linear ridge (Piedmont zone)							51.89
9	Lower plateau (Lateritic) - dissected	1693.87	1417.81	123.10	722.80	1612.62	2043.00	
10	Marshy							
11	Mesa							
12	Mud flat (Coastal plain)							
13	Piedmont zone	754.06		996.79	632.95	243.59	11.97	4843.74
14	Point bar (Flood plain)							
15	Residual hill			15.02		25.38		
16	Residual mount	42.15	79.71		27.43	130.30	130.15	
17	Residual mount (Pediment)	47.49		53.63	84.45		2.33	243.56
18	Rock exposure			4.07				15.02
19	Spit (Coastal plain)							
20	Stabilized channel bar (Flood plain)							
21	Swale (Coastal plain)							
22	Valley							
23	Valley fill	454.66	470.85	197.64	207.43	417.97	460.48	96.16
24	Water body	84.13	37.35	3.73	30.83		11.78	98.03
	<b>Panchayat Total</b>	<b>3078.87</b>	<b>2117.05</b>	<b>2103.08</b>	<b>1705.89</b>	<b>2434.71</b>	<b>2659.71</b>	<b>10283.86</b>
	<b>Block Total</b>				<b>24383.17</b>			

Table: 6.25

## VADAKARA BLOCK

SI.No.	Category	Azhiyoor	Cherod	Eramala	Onchiyam	(Area in Ha)
1	Beach (Coastal plain)					
2	Butte					
3	Channel bar (Flood plain)					
4	Coastal plain	420.95	157.20		182.72	
5	Denudational hills					
6	Denudational structural hills					
7	Linear ridge (Lower plateau)					
8	Linear ridge (Piedmont zone)					
9	Lower plateau (Lateritic) - dissected	544.85	940.60	1307.31	595.20	
10	Marshy					
11	Mesa					
12	Mud flat (Coastal plain)				4.20	
13	Piedmont zone					
14	Point bar (Flood plain)					
15	Residual hill					
16	Residual mount	10.33	2.86	31.16		
17	Residual mount (Pediment)					
18	Rock exposure					
19	Spit (Coastal plain)					
20	Stabilized channel bar (Flood plain)					
21	Swale (Coastal plain)	18.49	7.99			
22	Valley					
23	Valley fill	97.10	241.62	481.10	159.39	
24	Water body	47.37		10.00		
	<b>Panchayat Total</b>	<b>1139.09</b>	<b>1350.27</b>	<b>1829.57</b>	<b>941.51</b>	
	<b>Block Total</b>		<b>5260.44</b>			

Table: 6.26

## MUNICIPALITY/CORPORATION

Sl. No.	Category	Koyilandy Municipality	Vadakara Municipality	Kozhikode Corporation	(Area in Ha)
1	Beach (Coastal plain)				
2	Butte				
3	Channel bar (Flood plain)	4.60		2.04	
4	Coastal plain	339.35	524.99	5937.96	
5	Denudational hills				
6	Denudational structural hills				
7	Linear ridge (Lower plateau)				
8	Linear ridge (Piedmont zone)				
9	Lower plateau (Lateritic) - dissected	1734.3	1199.84	3698.78	
10	Marshy	92.98		127.37	
11	Mesa				
12	Mud flat (Coastal plain)	42.00		906.31	
13	Piedmont zone				
14	Point bar (Flood plain)				
15	Residual hill				
16	Residual mount	36.06		109.26	
17	Residual mount (Pediment)				
18	Rock exposure				
19	Spit (Coastal plain)			3.67	
20	Stabilized channel bar (Flood plain)			19.85	
21	Swale (Coastal plain)			89.49	
22	Valley				
23	Valley fill	527.66	346.23	656.22	
24	Water body	126.98	110.22	379.51	
	<b>Total</b>	<b>2903.93</b>	<b>2181.28</b>	<b>11930.46</b>	





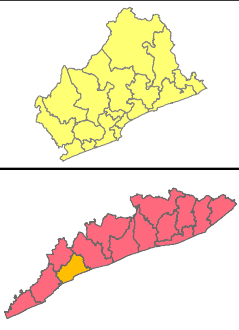


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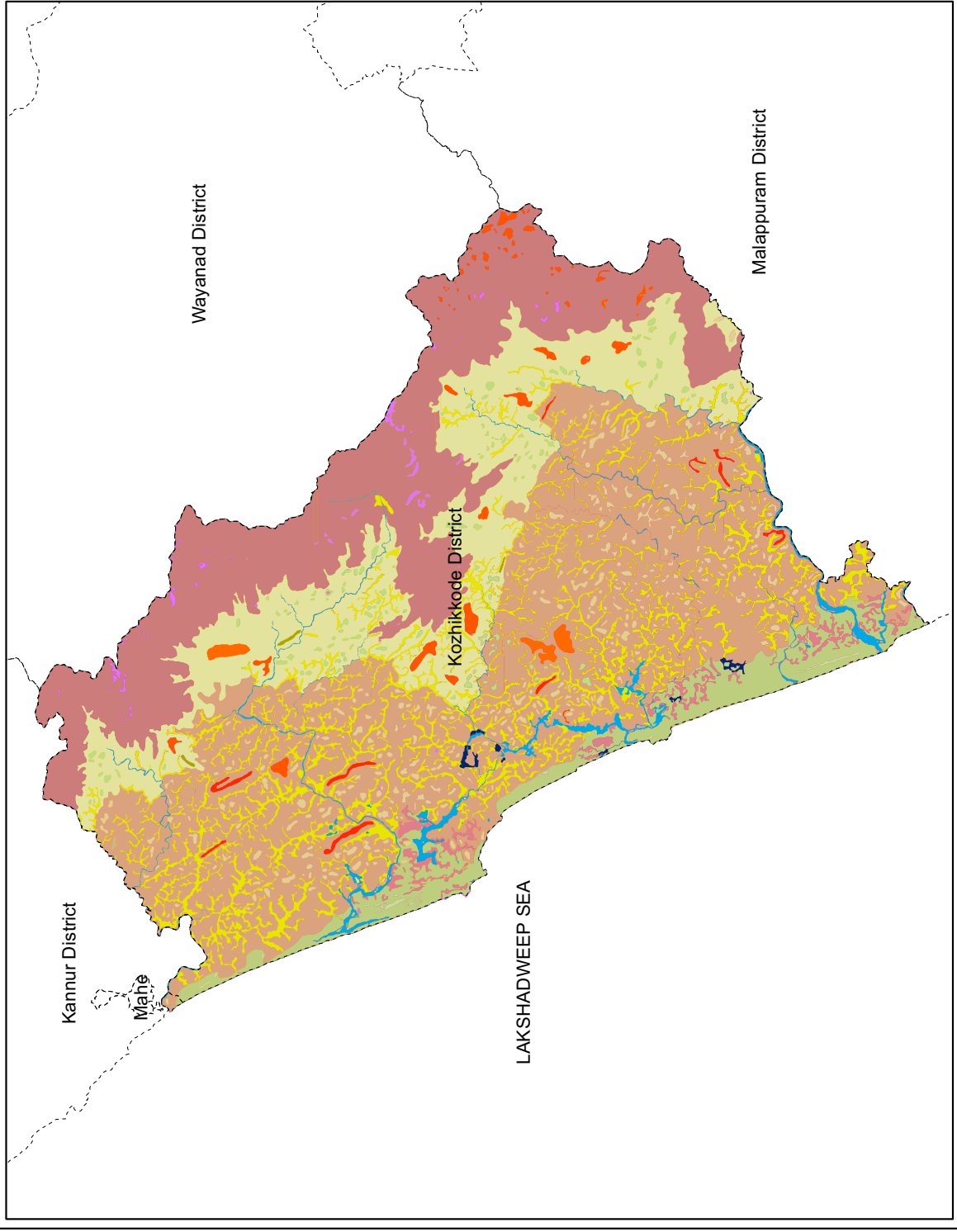
### GEOMORPHOLOGY MAP KOZHICKODE DISTRICT

#### LEGEND

- Residual Mount(Pediment)
- Beach(Coastal Plain)
- Butte
- Channel bar(Flood Plain)
- Coastal Plain
- Denudational Hills
- Denudational Structural Hills
- Linear ridge(Lower Plateau)
- Linear ridge(Piedmont Zone)
- Lower Plateau (Lateritic) - Dissected
- Marshy
- Mesa
- Mud flat(Coastal Plain)
- Piedmont Zone
- Point bar(Flood Plain)
- Residual Hill
- Residual Mount
- Rock Exposure
- Spit(Coastal Plain)
- Stabilized channel bar (Flood Plain)
- Swale(Coastal Plain)
- Valley
- Valley Fill
- Water Body



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33





## PHYSIOGRAPHY

Based on physiographic nature, Kerala is divided into three regions namely **highland**, **midland** and **lowland**. Kozhikode district falls under three sub micro regions viz. i) Kozhikode coast, ii) Nadapuram-Mavoor Undulating Plain, iii) Kozhikode forested hills. Kozhikode coast region lies all along the coast of Kozhikode district dissecting all taluks of the district. It is bounded on the North by Kannur district, on the East by Nadapuram-Mavur Undulating Plains and on the West by the Lakshadweep sea. Six rivers, backwaters and canals drain the coastal tract and Kozhikode coast is generally lower than the Kannur coast. The Kuttiyadi, the Kottapuzha, the Chaliyar, the Murat and the Agalapuzha are the important rivers of the region. This coastal tract is well served by the West Coast Railway Line and network of roads. The Broad-gauge Railway Line and NH-17 pass through this region. Nadapuram-Mavoor Undulating Plain region is hemmed between the Kozhikode coast and the Kozhikode Forested Hills. Its boundaries are Taliparamba-Koothuparamba Plain in the North, Kozhikode Forested Hills in the East, Malappuram Undulating Plain in the South and Kozhikode coast in the West. Maximum height (244m) is found at the village of Panangad and minimum height (122 m) in the Chekkiad Desam of Chekkiad village of Vadakara taluk. This region slopes towards West. All the rivers of this district pass through this region. In the southern portion of this region, subdued and isolated hills separated from the main mountain chain are found. Kozhikode Forested Hills

region forms the border of Wayanad and Kozhikode districts intersecting all the taluks of the district. Its boundaries are Kannothe Forested Hills in the North, Wayanad Forested Hills in the East, Nilambur Forested Hills in the South and Nadapuram-Mavoor Undulating Plain in the West. It is a sharp slope area and has a sudden drop of 600 to 700 m. in height within a distance of 1 km from the edge of the plateau. The maximum height (2339 m) of this region is located at the reserve forest area in the eastern portion and maximum height (152 m) is at the Valayamkara of Valayam village of Vada-kara taluk. This region has dense forest of wet evergreen to moist deciduous forest type.

Table: 7.1

**NATURAL REGIONS OF KOZHIKODE - DETAILS OF TALUKS/VILLAGES AND WITH  
AREA BY REGIONS**

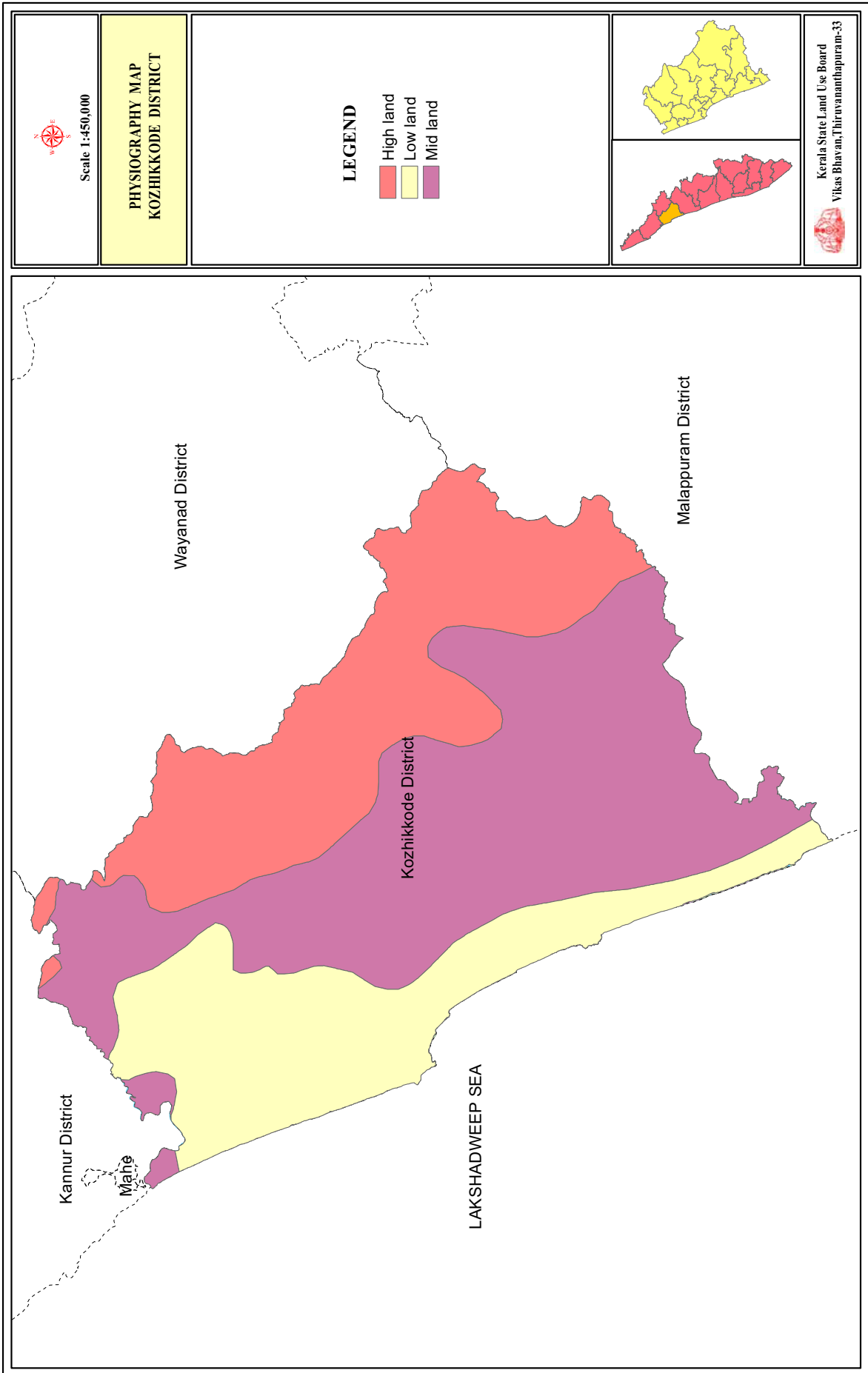
(Area in ha)				
Sl.No.	Taluks/Villages	Low land	Mid land	High land
<b>Kozhikode Taluk</b>				
1	Beypore	1060.27	17.52	
2	Chelannur		2323.07	
3	Chelavoor		1085.74	
4	Cheruvannur	127.15	967.56	
5	Chathamangalam		1136.66	
6	Chevayur		904.89	
7	Elathur	1399.32	7.67	
8	Eangapuzha		784.23	1159.42
9	Feroke		670.55	
10	Kadalundi	828.10	343.01	
11	Kakkad	1042.23		
12	Kakkodi	278.91	1497.01	
13	Kakkur		2033.78	
14	Karuvanthuruthy	368.50	329.68	
15	Kasaba	623.82	31.52	
16	Katcheri	613.52	21.51	
17	Kedavoor		582.41	4287.24
18	Kizhakoath		2026.78	10.74
19	Kodanchery		961.01	1703.09
20	Koodaranji			11590.53
21	Kodiyathur	0.20	2631.39	335.95
22	Koduvally		1352.07	
23	Koodathai		2270.92	
24	Kumaranalloor		1197.12	642.09
25	Kunnamangalam		2374.89	
26	Kuruvattur		1764.29	
27	Kuttikattur		1150.15	
28	Kottuli	16.45	515.55	
29	Madavoor		2049.92	

SI.No.	Taluks/Villages	Low land	Mid land	High land
30	Mavoor		2107.55	
31	Nagaram	245.74		
32	Nanminda		2305.03	
33	Narikuni		1818.71	
34	Neeleswaram		1320.11	51.72
35	Nellicode		1094.31	
36	Nellippoyil			3290.98
37	Olavanna		1050.35	
38	Panniyankara	613.76	133.44	
39	Pantheerankavu		956.21	
40	Perumanna		1611.57	
41	Peruvayal		1543.37	
42	Poolakode		2880.56	
43	Puthiyangadi	623.80		
44	Puthuppadi			3745.18
45	Puthur		1635.80	
46	Ramanattukara		1215.30	
47	Raroth		1066.37	1338.79
48	Thalakuilathur	1103.31	642.62	
49	Thiruvambadi		616.06	8083.17
50	Valayanad	12.81	729.46	
51	Vavad		817.00	5.30
52	Vengeri	187.74	921.85	
	<b>Total</b>	<b>9145.63</b>	<b>55496.57</b>	<b>36244.20</b>
<b>Koyilandy Taluk</b>				
1	Arikkulam	289.83	2114.65	
2	Atholi	1035.34	118.46	
3	Avitanallur		1636.85	
4	Balusseri		2250.15	
5	Chakkittappara			11744.5
6	Changaroath		1478.99	196.41
7	Chempanoda			5193.10
8	Chemancherry	1644.44		
9	Chengottukavu	1430.82		

Sl.No.	Taluks/Villages	Low land	Mid land	High land
10	Cheruvannur	1569.88	533.85	
11	Eravattur	4.81	1572.65	
12	Iringal	1213.82		
13	Kanthalad		61.22	3552.25
14	Kayanna		1924.39	311.46
15	Keezhariyur	1200.08	74.73	
16	Kinaloor		1302.28	
17	Koorachundu		2865.70	218.37
18	Koothali		792.70	
19	Kottur		1117.70	
20	Kozhukkallur	758.86	533.66	
21	Meppayur	604.65	425.79	
22	Menhaniam		1064.15	
23	Moodadi	1727.70		
24	Naduvannur		2134.43	
25	Nochad		2489.24	
26	Paleri	9.59	1381.76	
27	Panthalayani	1280.84		
28	Payyoli	966.95		
29	Perambra		793.35	679.85
30	Sivapuram		1846.11	
31	Thikkodi	1405.6		
32	Thurayur	997.06		
33	Ulliyeri	447.16	2166.87	
34	Unnikulam		1769.89	42.97
35	Viyyur	860.58		
	<b>Total</b>	17448.01	32449.57	21938.91
<b>Vadakara Taluk</b>				
1	Ayancherry	1992.11		
2	Azhiyur	1141.98		
3	Chekkyad	1107.68	1454.58	
4	Chorodu	1367.61		
5	Edacherry	708.50	959.53	
6	Eramala	1806.03	29.17	

SI.No.	Taluks/Villages	Low land	Mid land	High land
7	Kavilumpara		599.02	7628.13
8	Kayakkodi	203.10	2181.10	335.95
9	Kottappally	1650.99		
10	Kunnummal	1138.90	55.64	
11	Kuttiady	1347.36	95.82	
12	Maniyur	1899.93		
13	Maruthomkara		526.80	2417.50
14	Nadakkuthazhe	1291.77		
15	Nadapuram	1985.46		
16	Narippatta	701.87	1388.61	
17	Onchiyam	937.42		
18	Palayad	1243.91		
19	Purameri	2000.41		
20	Thinur		2879.05	135.46
21	Thiruvallur	1146.68		
22	Thuneri	1017.24	465.45	
23	Vadakara	888.17		
24	Valayam	478.75	1705.27	
25	Vanimel	856.58	1519.07	
26	Velom	1328.63	1313.75	
27	Vilangad	3.36	2090.90	
28	Villiyappally	1764.21		
	<b>Total</b>	<b>30008.65</b>	<b>17263.76</b>	<b>10517.04</b>







## SOIL

Soil is an important natural resource, through which we get everything directly or indirectly. Its thickness varies from a few centimeters to a few meters on earth's surface, but it takes millions of years for its formation. Formation of soil is formed due to weathering by chemical, mechanical and biological forces. Formation is a very slow process as 21/2 cm of soil is formed in one thousand years. Soil is one of the major resources of land which determines the use of potential. Factors upon which formation of soil depend are (i) the parent rock (ii) topography or relief (soil cover is thin in hilly areas than on the plains) (iii) climate (it is the most important soil forming factor; weathering, i.e. breaking or disintegration of rocks depends upon the elements of climate, i.e. heat (hot/cold), rain, wind, etc.) (iv) vegetation. Soil is the natural body consisting of layers (soil horizons) that are primarily composed of minerals which differ from their parent materials in their texture, structure, consistency, colour, chemical, biological and other characteristics. The result of soil is the end product of the influence of the climate (temperature, precipitation), relief (slope), organisms (flora and fauna), parent materials (original minerals), temperature and time. Kerala State is endowed with wide range of soil types.

The soils of the district are classified into sandy, laterite and hilly or forest soil. The sandy soil occurs all along the western side of Vadamara, Quilandi and Kozhikode taluk. The laterite soil occurs east of the sandy track which covers in major part of the district.

Table: 8.1

## SOILS IN KOZHIKODE DISTRICT (COMPREHENSIVE LEGEND)

Soil Mapping Unit	Description Major Soil	Classification	
		Major Soils	Inclusions
K01	<p>Very deep, moderately well drained, sandy soils with moderately shallow water table on very gently sloping subdued sand dunes, with slight erosion:</p> <p>Associated with very deep, moderately well drained, sandy soils.</p>	<p>Mixed, Aquic Ustipsamments</p> <p>Mixed Typic Ustipsamments</p>	<p>Fine-loamy, Mixed, Typic Dystrupepts</p> <p>Coarse-loamy, Mixed Aquic Ustorthents</p>
K02	<p>Very deep, somewhat excessively drained sandy soils with moderately deep water table on very gently sloping beaches, with slight erosion:</p> <p>Associated with very deep, moderately well drained, sandy soils with moderately shallow water table.</p>	<p>Mixed, Typic Ustipsamments</p> <p>Mixed, Aquic Ustipsamments</p>	<p>Coarse-loamy, Mixed Aquic Ustorthents</p> <p>Fine, Mixed Aeric Tropaquepts</p>
K05	<p>Very deep, imperfectly drained, clayey soils with shallow water table on level lands with valleys, with slight erosion.</p>	<p>Fine, Mixed Typic Dystrupepts</p> <p>Fine, Mixed Aeric Tropaquepts</p>	<p>Fine, Mixed Typic Tropaquepts</p> <p>Fine-loamy, Mixed Ustic Kanhaplohumults</p>
K07	<p>Very deep, well drained, gravelly clay soils on gently sloping coastal laterites, with moderate erosion:</p> <p>Associated with very deep, well drained, gravelly clay soils with moderate surface gravelliness.</p>	<p>Clayey-skeletal, Kaolinitic, Typic Kandiusults</p> <p>Clayey-skeletal, Kaolinitic, Typic Kanhaplusts</p>	<p>Loamy- skeletal, Mixed Ustoxic Dystrupepts</p> <p>Clayey, Kaolinitic, Typic Kandiusults</p>

Soil Mapping Unit	Description Major Soil	Classification	
		Major Soils	Inclusions
K08	Very deep, moderately well drained, clayey soils with moderately shallow water table in nearly level narrow valleys, with slight erosion:  Associated with very deep, imperfectly drained clayey soils with moderately shallow water table on nearly level land.	Fine Mixed Typic Dystropepts  Fine Mixed Typic Tropaquepts	Clayey, Kaolinitic, Typic Kanhaplustults  Fine Mixed Typic Ustropepts
K09	Very deep, well drained, gravelly clay soils with moderate surface gravelliness on moderately steeply sloping laterite mounts, with moderate erosion:  Associated with deep, well drained, gravelly clay soils on gently slopes.	Clayey-skeletal, Kaolinitic, Oxic Humitropepts  Clay-skeletal, Kaolinitic, Ustic-Haplohumults	Clay-skeletal, Kaolinitic, Ustic-Kandihumults  Fine-loamy, Mixed Typic Kandihumults
K10	Very deep, well drained, gravelly clay soils on gently sloping midland laterite with valleys of northern Kerala, with moderate erosion:  Associated with deep well drained gravelly clay soils with moderates surface gravelliness and ironstone layer at 100 to 150 cm on nearly level lands, slightly eroded.	Clayey, Kaolinitic, Ustic-Kandihumults  Clay-skeletal, Kaolinitic, Typic Kanhaplustults	Clayey, Kaolinitic, Typic Kanhaplustults  Clay-skeletal, Kaolinitic, Type Kandiusults
K15	Very deep, poorly drained, loamy soils with moderately shallow water table in very gently sloping valleys of Wayanad plateau, with slight erosion:  Associated with very deep, imperfectly drained clayey soils with moderately shallow water table on nearly level lands.	Fine loamy mixed Aeric Tropaquepts  Fine mixed Aeric Tropaquepts	Fine loamy mixed Typic Ustropepts  Fine Mixed Typic Ustropepts

Soil Mapping Unit	Description Major Soil	Classification	
		Major Soils	Inclusions
K18	Very deep, well drained, clayey soils on gently sloping lands of Wayanad Plateau, with moderate erosion;  Associated with very deep, well drained, clayey soils.	Clayey, mixed Ustic  Clayey, mixed, Ustic Haplohumults	Clayey-skeletal, mixed, Ustic Palehumults,  Clayey-skeletal, kaolinitic, Kanhaplic Haplustults
K19	Very deep, well drained, clayey soils on moderately sloping high hills with thin vegetation, with moderate erosion;  Associated with rock outcrops.	Clayey, mixed, Ustic Palehumults  Rock land	Fine-loamy, mixed, Ustic Humitropepts  Fine-loamy, mixed, Ustic Palehumults
K20	Deep, somewhat excessively drained, gravelly clay soils with moderate surface gravellines on steeply sloping high hills with thick vegetation, with moderate erosion;  Associated with very deep, well drained, clayey soils on gentle slopes.	Clayey-skeletal, mixed Ustic Haplohumults  Clayey-mixed Ustic Palehumults	Rock land  Fine, Mixed Ustic Humitropepts
K21	Moderately deep, somewhat excessively drained gravelly clay soils with coherent material at 75 to 100 cm on moderately sloping medium hills with thick vegetation, with moderate erosion;  Associated with moderately shallow, somewhat excessively drained gravelly clay soils with moderate surface gravelliness and coherent material at 50 to 75 cm on very steep slopes, severely eroded.	Clayey-skeletal, mixed, Ustic Haplohumults  Clayey-skeletal, Kaolinitic, Typic Kanhaplustults	Rock land  Fine, Mixed Ustic Humitropepts

Soil Mapping Unit	Description Major Soil	Classification	
		Major Soils	Inclusions
K22	Very deep, well drained clayey soils on gently sloping low hills with isolated hillocks, with moderate erosion.  Associated with deep well drained, gravelly clay soils on moderately steep slopes.	Clayey-mixed Ustic Palehumults  Fine, Mixed, Ustic Humitropepts	Clayey-skeletal, Mixed Ustic Humitropepts  Fine loamy, Mixed Ustic Haplohumults
K23	Moderately shallow, well drained, gravelly clay soils with ironstone layer at 50 to 75 cm on very gently sloping foothills and valleys, with slight erosion;  Associated with very deep, well drained, clayey soils on nearly level lands.	Clayey, Mixed Ustic Aplohumults  Fine, Mixed, Typic Dystrypepts	Clayey-skeletal, Kaolinitic, Petroferric Dystrypepts  Clayey-skeletal, Kaolinitic, Typic Kanhaplustults
K24	Deep, well drained, gravelly loam soils with ironstone layer at 100 to 150 cm on moderately steeply sloping medium hills with thin vegetation, with moderate erosion;  Associated with rock outcrops.	Fine-loamy, Mixed Ustic Haplohumults  Rock land	Clayey, Mixed, Ustic Palehumults  Clayey-skeletal, Mixed, Ustic Haplohumults

Soils of the Lowland - K01, K02, K05, K07  
Soils of the Midland - K08, K09, K10  
Soils of the Central Sahyadri - K15, K18, K19, K20, K21, K22, K23, K24

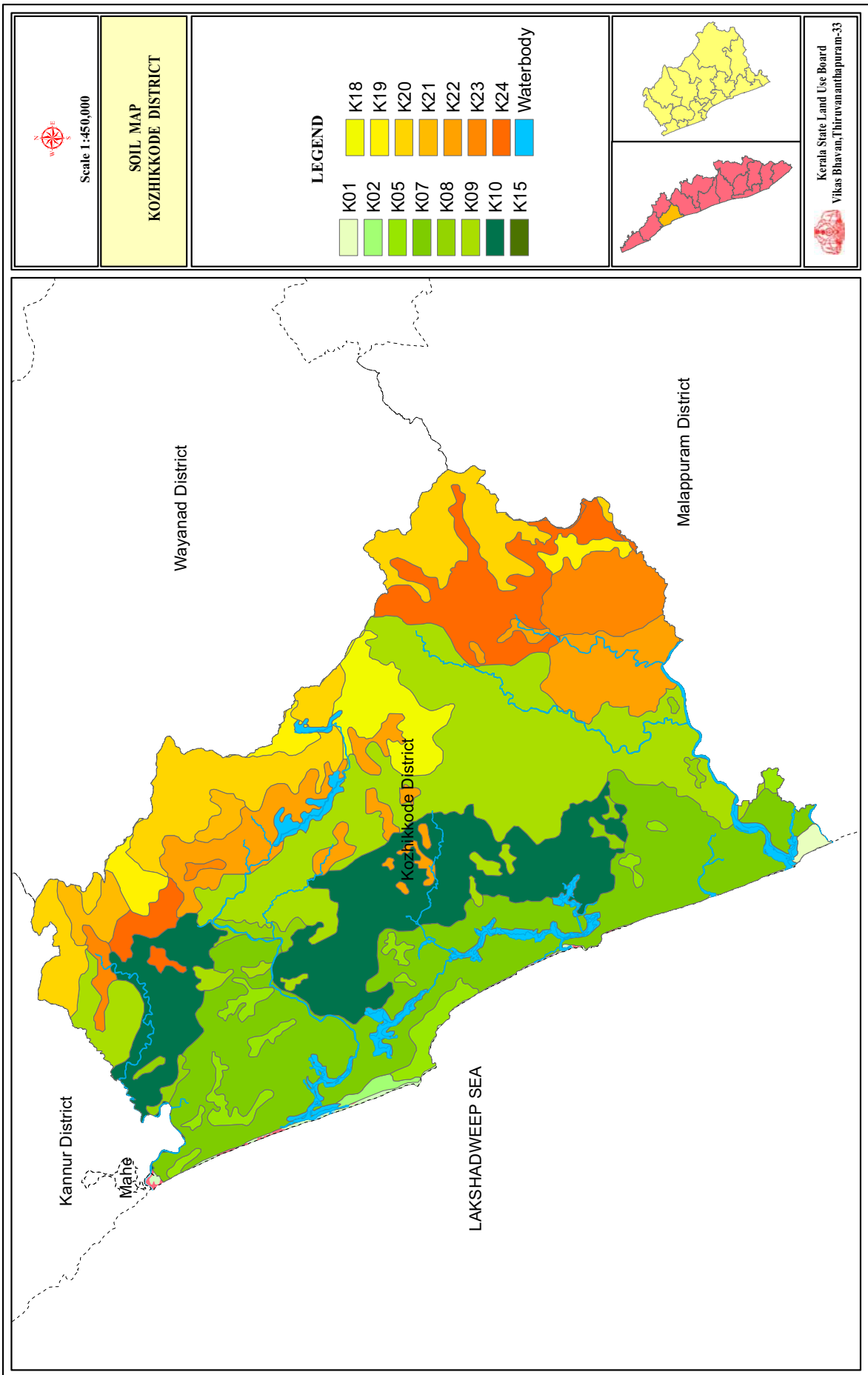
Table: 8.2

**LEGEND FOR THE SOIL MAP OF KOZHIKODE DISTRICT**

Sl.No.	Map Symbol	Depth	Texture	Slope	Drainage
1	K01	vd	s	vg	mw
2	K02	vd	s	vg	e
3	K05	vd	c	vg	i
4	K07	vd	gc	g	w
5	K08	vd	c	vg	mw
6	K09	vd	gc	ms	w
7	K10	vd	gc	g	w
8	K15	vd	l	vg	p
9	K18	vd	c	g	w
10	K19	vd	c	m	w
11	K20	d	gc	s	e
12	K21	md	gc	m	e
13	K22	vd	c	g	w
14	K23	ms	gc	vg	w
15	K24	d	gl	ms	w

Depth		
1	d	deep
2	vd	very deep
3	md	moderately deep
4	ms	moderately shallow
Slope		
1	g	gentle
2	vg	very gentle
3	m	moderate
4	s	steep
5	ms	moderately steep
Texture		
1	s	sandy
2	gc	gravelly clay
3	c	clay
4	l	Loam
5	gl	gravelly loam
Drainage		
1	mw	moderately well drained
2	w	well
3	e	excessive
4	i	imperfectly







## **WATER RESOURCES**

In most developing countries, agriculture is the dominant user of water, accounting for more than 85% of all water use. Use of water in agriculture raises significant issues for water resources management like issues dealing with water scarcity, competing demands from other sectors, irrigation service delivery and system management, water use efficiencies are so forth. The primary objective in coming years will be to balance water supply and demand among users to ensure adequate water for agriculture and sustainable irrigation system management while satisfying other needs. Investments in irrigation are changing globally in response to changes in environment and experience with previous projects. In 1970's and 1980's investment typically involved large irrigation and drainage projects with considerable infrastructure development. In 1990's investment often supported system rehabilitation and management and more recently to small irrigation schemes. Increased water scarcity has shifted the focus from exploitation of water resources and building infrastructure to improvement of water use efficiency.

The basic premise of water resource management is that manages and develops the river basins as an integrated approach. This is always legally and politically complex due to the challenges of allocation between users and uses. In many cases the need of river infrastructure such as weirs, dykes, regulators and other storage structures are primary drivers for adopting institutional solutions. The investment in storage structures is essential to optimize water use as well as to address the growing number of water conflicts. The surface irrigation consists of major chunk of irrigation infrastructure in the state. There are 18 dams in the state intended for irrigation. Out of this, 14 have storages and remaining are barrages.

Table: 9.1

### LIVE STORAGE POSITION IN THE IRRIGATION RESERVOIRS

(Million cubic meter)

Sl. No.	Item	2012	2013	2014
1	Storage at the beginning of the Monsoon	403.66	280.56	415.16
2	Storage at the end of the Monsoon	743.98	1290.25	1316.46
3	Increase due to Monsoon	340.32	1009.69	901.30
<b>Live storage position (Average for 10 years)</b>				
i	Storage at the beginning of the Monsoon	430.8	395.63	360.5
ii	Storage at the end of the Monsoon	1116.76	1186.48	1087.27
iii	Increase due to Monsoon	685.96	790.85	726.77

### RIVERS

There are 41 west flowing and 3 east flowing rivers, most of them having their source in the Western Ghats and draining into the Arabian Sea. Some of these rivers have a portion of their catchments in the adjoining States of Karnataka and Tamil Nadu. In addition, there are three rivers which also originate from the Western Ghats, but they flow eastwards into the States of Karnataka and Tamil Nadu. The important rivers in the district are Kuttiadi, Korapuzha, Kallai, Chaliyar and Mahe.

#### **Kuttiadi River**

Rising from the Narikota ranges on the western slopes of the Wayanad hills, a part of western ghats Kuttiyadi river flows through Vadagara, Kollam and Kozhikode taluks. The river is also known as the Murat river. The river passes through Oorakuzhi, Kuttiyadi, Thiruvalur, Muyipot, Maniyur and Karuvancheri. The historical Kottakkal fort situated at the mouth of the river.

### **Korapuzha River**

The Korapuzha is formed by the confluence of two streams called Agalapuzha and Punnurpuzha and it joins the sea at Elanthoor. Punnurpuzha originates from Arikkakunni hills. Agalapuzha originates from Kodiyandumala.

### **Kallai River**

The Kallai River has its origin in Cherukulathur village. The river passes through Cherukulathur, Kovur, Olavanna, Manava and Kallai before it reaches the Lakshadweep Sea at Kozhikode. Kallai, the largest timber trading centre is situated on the banks of the river.

### **Chaliyar River**

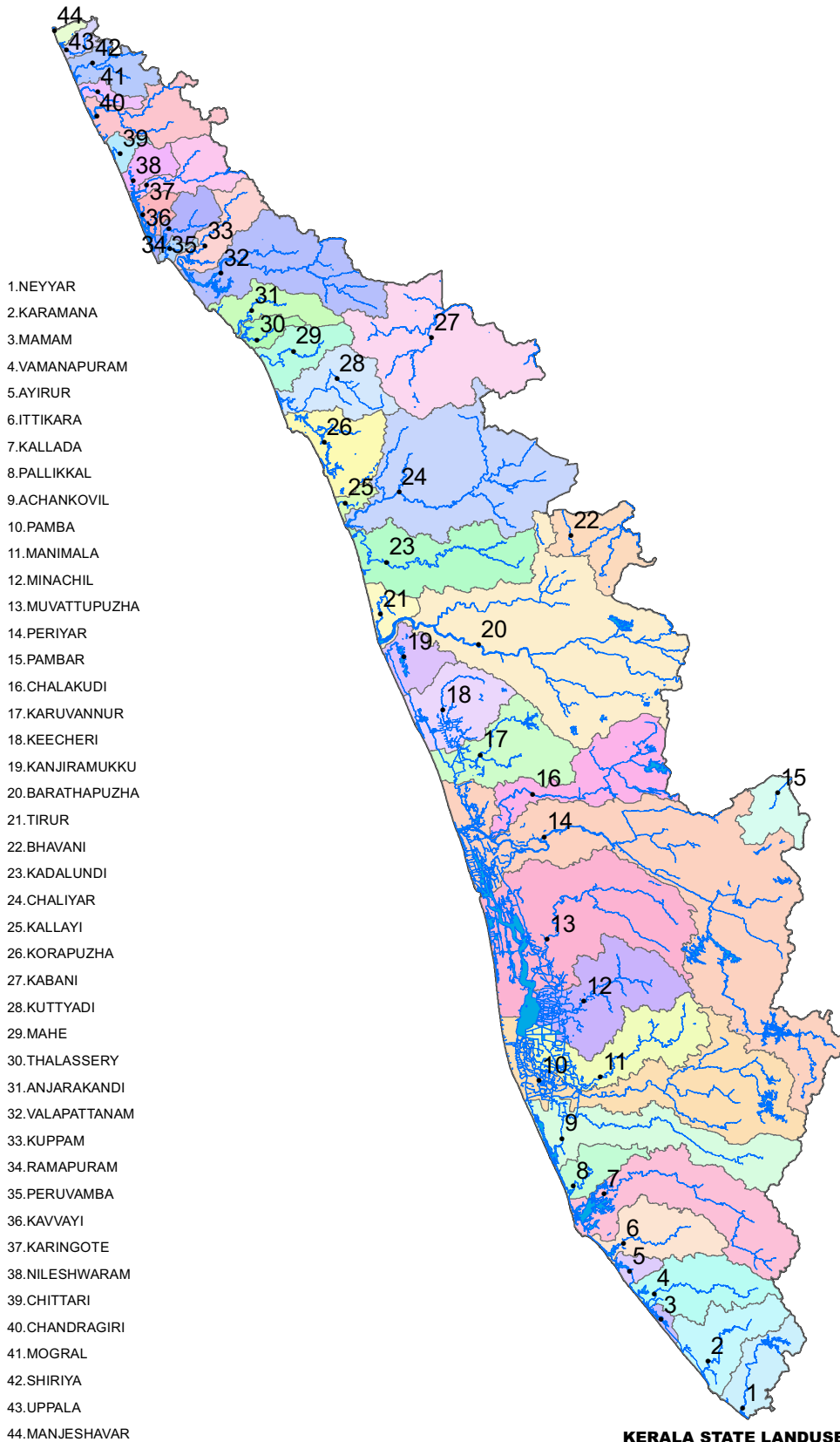
This river originates from the Illambilari hills in Gudalur taluk of Nilagiri district in Tamil Nadu. This is an inter-State river lie in Kerala and Tamil Nadu. The Chaliyar river flows to Nilambur, Mambad, Edavanna, Areecode, Vazhakkad in Malappuram district and Feroke in Kozhikode district before it joins the Lakshadweep Sea.

### **Mahe River**

Mahe River also called the Mayyazhipuzha originates from the forests on the Western slopes of the Wayanad hills. This river flows through the villages of Naripettah, Vanimel, Iyyancode, Bhekiyad, Iringannur, Tripangathur, Peringalam, Edachery, Kacheri, Eramala, Kariyad, Olavilam, Kunnumakkara, Azhiyoor and Mahe.



# RIVERS OF KERALA



KERALA STATE LANDUSE BOARD





Table: 9.2

## GROUND WATER STATISTICS KOZHIKODE (2011)

Sl. No.	Assessment Unit	Command/ Non-Command/ Total	Recharge from rainfall during monsoon season	Recharge from other sources during monsoon season	Recharge from rainfall during non-monsoon season	Recharge from other sources during non-monsoon season	Total Annual Ground Water Recharge (4+5+6+7)	Provision for Natural Discharges
1	2	3	4	5	6	7	8	9
1	Balussery	Non-Command	2612.89	39.45	0.00	248.54	2900.88	290.09
2	Chelannur	Non-Command	2596.60	16.98	0.00	110.29	2723.87	272.39
3	Koduvally	Non-Command	5112.31	25.30	0.00	150.42	5288.02	528.80
4	Kozhikode	Non-Command	3601.75	21.44	0.00	122.63	3745.83	187.29
5	Kunnamangalam	Non-Command	3173.94	39.37	0.00	241.82	3455.12	345.51
6	Kunnummal	Non-Command	2814.74	15.63	0.00	99.68	2930.06	293.01
7	Melady	Non-Command	3131.29	13.99	0.00	84.93	3230.20	161.51
8	Panthalayani	Non-Command	3954.61	11.53	0.00	77.01	4043.15	404.32
9	Perambra	Non-Command	3830.89	20.03	0.00	150.07	4000.99	400.10
10	Thodannur	Non-Command	1812.15	5.56	0.00	48.09	1865.81	186.58
11	Thuneri	Non-Command	1845.89	12.77	0.00	79.25	1937.91	193.79
12	Vadakara	Non-Command	1740.27	7.29	0.00	34.46	1782.02	178.20
	<b>Total (Ha.m)</b>	<b>Non-Command</b>	<b>36227.34</b>	<b>229.34</b>	<b>0.00</b>	<b>1447.19</b>	<b>37903.86</b>	<b>3441.58</b>
	<b>Total (MCM)</b>	<b>Non-Command</b>	<b>362.27</b>	<b>2.29</b>	<b>0.00</b>	<b>14.47</b>	<b>379.04</b>	<b>34.42</b>

Table: 9.2 Continued.....

Sl. No.	Assessment Unit	Net Annual Ground Water Availability (8-9)	Existing Gross Ground Water Draft for irrigation	Existing Gross Ground Water Draft for domestic and industrial water supply	Existing Gross Ground Water Draft for all uses (11+12)	Provision for domestic and industrial requirement supply in 2025	Net Ground Water Availability for future irrigation development (10-11-14)	Stage of Ground water Development (13/10 * 100) (%)
1	2	10	11	12	13	14	15	16
1	Balussery	2610.79	859.06	1255.09	2114.15	1413.38	338.36	80.98
2	Chelannur	2451.49	399.81	1128.83	1528.63	1271.19	780.49	62.36
3	Koduvally	4759.22	581.00	1417.24	1998.24	1595.98	2582.24	41.99
4	Kozhikode	3558.54	503.24	2656.38	3159.61	2991.38	63.91	88.79
5	Kunnamangalam	3109.61	881.65	1794.54	2676.19	2020.85	207.10	86.06
6	Kunnummal	2637.05	367.23	1027.53	1394.76	1157.11	1112.70	52.89
7	Melady	3068.69	314.66	682.37	997.04	768.43	1985.60	32.49
8	Panthalayani	3638.84	259.98	939.87	1199.84	1058.40	2320.46	32.97
9	Perambra	3600.89	448.88	862.51	1311.39	971.29	2180.73	36.42
10	Thodannur	1679.23	146.58	690.27	836.85	777.33	755.32	49.84
11	Thuneri	1744.12	292.52	731.69	1024.22	823.98	627.62	58.72
12	Vadakara	1603.82	145.80	837.59	983.39	943.23	514.79	61.32
	<b>Total (Ha.m)</b>	<b>34462.28</b>	<b>5200.40</b>	<b>14023.92</b>	<b>19224.32</b>	<b>15792.55</b>	<b>13469.33</b>	<b>55.78</b>
	<b>Total (MCM)</b>	<b>344.62</b>	<b>52.00</b>	<b>140.24</b>	<b>192.24</b>	<b>157.93</b>	<b>134.69</b>	<b>55.78</b>

Table: 9.3

## PRE-POST MONSOON WATER LEVEL TREND (2011)

Sl. No.	Assessment Unit	Stage of Ground Water Development (%)	Pre-monsoon		Post-monsoon		Category (Safe/Semi-critical/Critical/Over-exploited)
			Water level trend (Rise (-)/Decline (+) (cm/yr)	Is there a significant decline (Yes/No)	Water level trend (Rise (-)/Decline (+) (cm/yr)	Is there a significant decline (Yes/No)	
1	2	3	4	5	6	7	8
1	Balusseri	80.98	4.21	No	-7.12	No	*Semi Critical
2	Chelannur	62.36	-21.73	No	-4.24	No	Safe
3	Koduvally	41.99	-3.98	No	-8.54	No	Safe
4	Kozhikode	88.79	-25.75	No	-10.65	No	Safe
5	Kunnamangalam	86.06	-8.84	No	-6.74	No	*Semi Critical
6	Kunnummal	52.89	-4.75	No	-3.50	No	Safe
7	Melady	32.49	-7.43	No	-9.65	No	Safe
8	Panthalayani	32.97	-2.60	No	-8.93	No	Safe
9	Perambra	36.42	10.93	No	-7.70	No	Safe
10	Thodannur	49.84	-4.41	No	-4.71	No	Safe
11	Thuneri	58.72	1.57	No	-0.56	No	Safe
12	Vadakara	61.32	-2.69	No	-10.78	No	Safe

\*Water levels not representative

Source: Central Ground Water Board



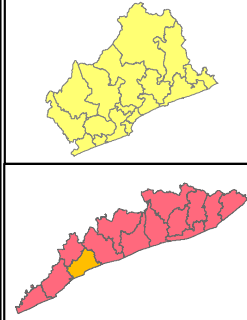


Scale 1:450,000

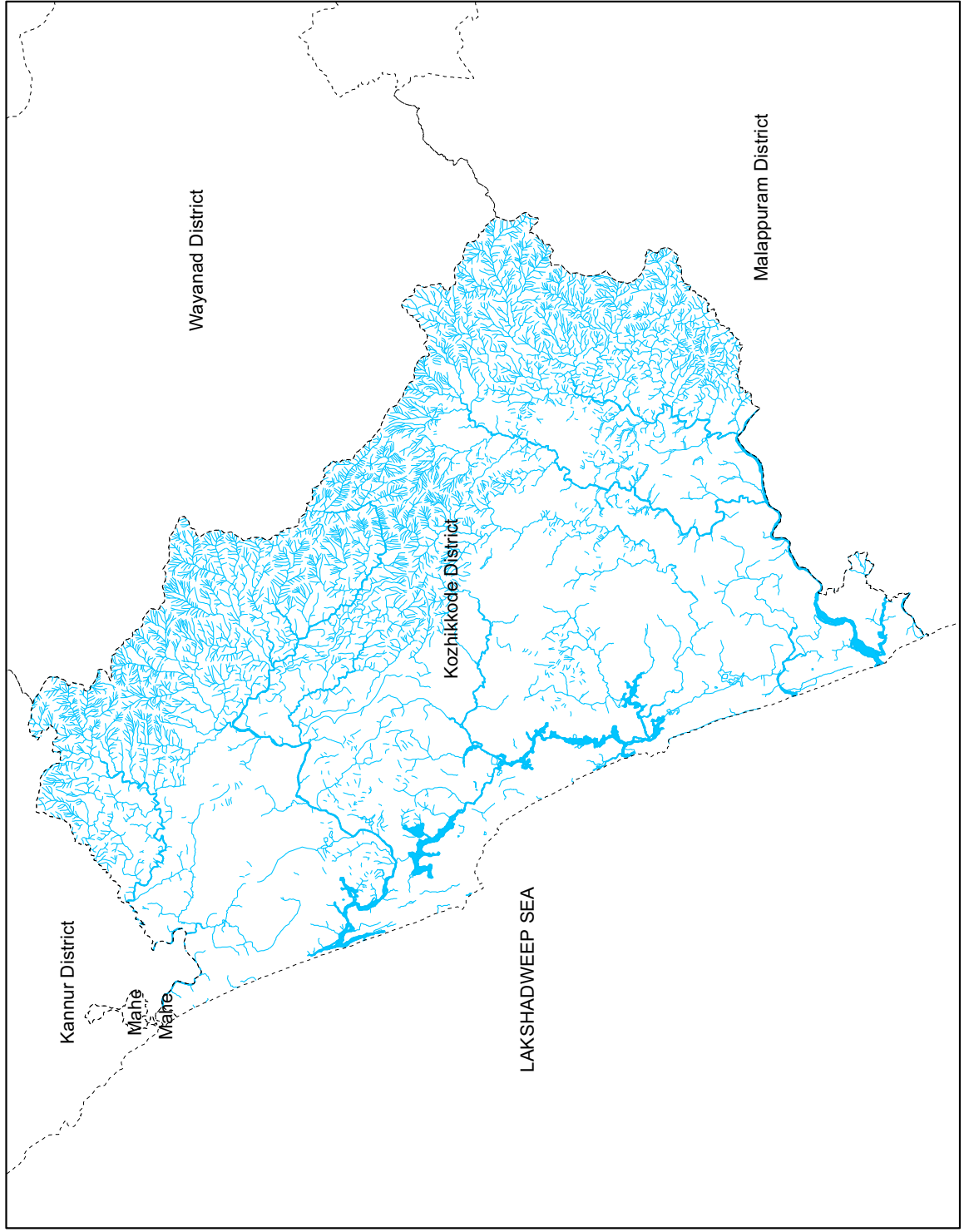
**WATER RESOURCES MAP  
KOZHIKKODE DISTRICT**

**LEGEND**

-  River
-  Drains



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33





## **MINERALS**

The availability of minerals determines the pace of economic development of a State to a great extent. Minerals are basically natural resources. Kerala is endowed with a number of occurrences/deposits of minerals such as Heavy Mineral Sands (Ilmenite, Rutile, Zircon, Monazite, Sillimanite), Gold, Iron Ore, Bauxite, Graphite, China Clay, Fire Clay, Tile and Brick Clay, Silica Sand, Lignite, Limestone, Limeshell, Dimension Stone (Granite), Gemstones, Magnesite and Steatite etc. However mining activities on large scale are confined mainly to a few minerals - Heavy Mineral Sands, China Clay and to a lesser extent Limestone/Limeshell, Silica Sand and Granite. In fact, Heavy Mineral Sand and China Clay contribute more than 90% of the total value of mineral production in the State.

Clay, limeshell, magnetic iron ore, ilmenite and building stones are the economic minerals seen in this district. Lime shell is exploited from the Kadalundi and the Korapuzha rivers. Magnetic iron ores occur at a number of places such as Nanmanda, Cheekilode, Kanniparamba, Naduvallur and Alampara. Limeshell occurs in the backwaters between Kozhikode and Vadakara. Large quality of limeshell is reported from the lower reaches of Beypore, Korapuzha, Murat and Agalapuzha river beds. Beach sands along a small stretch between Beypore and Kallayi rivers contain good concentration of ilmenite. Primary clay (China clay) occurs at a number of places in the midland region.

Table: 10.1

### INVENTORY OF THE MINERAL RESOURCES OF KERALA

Sl. No.	Name of Minerals	Occurrence	Reserves (Million Tonnes)	Uses
1	Gold	Wayanad, Maruda, Nilambur, Malappuram	0.55	Manufacture of ornaments
2	Iron	Kozhikode (Eleyettimala, Naduvallur Nanminda, Cheruppa, Alampara) Malappuram (Korattimala)	83.04	Iron is useful in building (Bridge, highway, rail road, etc.), transportation (car, train, boats, plane, etc.) tools (knife, machines, etc.)
3	China clay	Thiruvananthapuram, Kollam, Kannur, Kasaragod	172	Ceramics, pottery, paper, textiles, rubber and paints
4	Ball clay	Thiruvananthapuram (Nadayara) Kollam (Kumbalam, Kanjirottusery, Mulavana) Kannur (Pattuvam, Karivalloor, Earipuram, Pazhayangadi)	1.67	Manufacture of Refractory products, Ceramic Granite Tiles, Glazed Tiles, Table Ware & High Tension Electric insulators etc.
5	Fire clay	Kollam (Kundamon, Pallikkal), Alappuzha (Thamarakulam), Ernakulam (Amballoor, Kanjiramattom, Keezhumadu), Thrissur (Poomangalam) Kannur (Pattuvam)	11.55	Manufacture of firebrick and of various accessory utensils, such as crucibles, saggars, retorts and glass pots, used in the metal working industries.
6	Silica	Coastal area of Alappuzha	28.40	Used in ceramics and to make glass with. It can also be used to strengthen iron and steel.



<b>Sl. No.</b>	<b>Name of Minerals</b>	<b>Occurrence</b>	<b>Reserves (Million Tonnes)</b>	<b>Uses</b>
7	Bauxite	Thiruvananthapuram (Mangalapuram, Chilambil, Sasthavattom), Kollam (Poruvazhy, Aadichanalloor) Kannur, Kasaragod	12.5	Manufacture of Aluminium. It is used in cement, chemicals, face makeup, soda cans, dishwashers, siding for houses.
8	Lime shell	Alappuzha, Ernakulam (Vembanad lake), Kottayam, Thrissur (Vadanapally) Kannur (Payyannur, Thrikkaripur)	4.05	Manufacture of a variety of products including white cements.
9	Limestone	Palakkad (Walayar)	24	Manufacture of cement, calcium carbide, Iron & Steel Industry etc.
10	Graphite	Thiruvananthapuram (Veli, Kuttichal), Ernakulam (Vadakode), Kottayam (Chirakadavu)	2.81	Crucible Foundry, Refractory, Paints & Lubricant Industries
11	Lignite	Kannur (Madai), Kasaragod (Nileswaram, Palayi)	9.65	Used as fuel for steam electric power generation in some countries
12	Magnesite	Palakkad (Attapadi)	0.03	Refractory bricks for furnaces

Table: 10.2

**NUMBER OF MINERAL QUARRIES (PERMITS ISSUED) DURING 2011-12**

Sl. No.	Districts	Name of Mineral						Total
		Granite building stone	Laterite	Brick clay	Ordinary sand	Sea shell	Lime shell	
1	Thiruvananthapuram	158	10	0	7	0	0	175
2	Kollam	60	4	5	2	0	0	71
3	Pathanamthitta	137	20	3	0	0	0	160
4	Alappuzha	0	38	4	0	0	0	42
5	Kottayam	240	3	17	151	0	0	411
6	Idukki	125	0	0	1	0	0	126
7	Ernakulam	288	10	0	11	0	0	309
8	Thrissur	126	64	38	0	0	0	228
9	Palakkad	194	46	3	132	0	0	375
10	Malappuram	268	429	0	0	0	0	697
<b>11</b>	<b>Kozhikode</b>	<b>260</b>	<b>106</b>	<b>31</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>400</b>
12	Wayanad	167	0	4	4	0	0	175
13	Kannur	203	571	0	0	0	0	774
14	Kasaragod	163	342	0	181	0	0	686
	<b>Total</b>	<b>2389</b>	<b>1643</b>	<b>105</b>	<b>492</b>	<b>0</b>	<b>0</b>	<b>4629</b>

Table: 10.3

**NUMBER OF MINERAL WISE MINING LEASES IN KERALA AS ON  
2012-13**

Sl. No.	Districts	Name of Mineral									
		Graphite	China clay	Laterite	Iron ore	Quartz	Lime shell	Mineral sand	Lime stone	Silica sand	Quartzite
1	Thiruvananthapuram		28								
2	Kollam		2					4			
3	Pathanamthitta										
4	Alappuzha			1			2			30	
5	Kottayam						3				
6	Idukki										
7	Ernakulam	1									
8	Thrissur										
9	Palakkad						1		1		
10	Malappuram										
11	<b>Kozhikode</b>				1						1
12	Wayanad										
13	Kannur			5							
14	Kasaragod			1							
	<b>Total</b>	<b>1</b>	<b>30</b>	<b>7</b>	<b>1</b>		<b>6</b>	<b>4</b>	<b>1</b>	<b>30</b>	<b>1</b>

Table: 10.4

**PRODUCTION OF MAJOR MINERALS IN KERALA**

(Production in tonnes)

SI. No.	Major Mineral	2011-12	2012-13
1	China clay	812977.66	434121.88
2	Lime stone	546304	560828.95
3	Ilminite	146401.78	1283489
4	Silica sand	45638.00	88091.64
5	Lime shell	63781.14	43470.97
6	Laterite	76859.35	107683.96
7	Zircon	16164.68	7919.35
8	Sillimanite	5988.31	39.98
9	Rutile	10490.44	49.99
10	Graphite	327.04	696
11	Quartz	0	3488.37

Table: 10.5

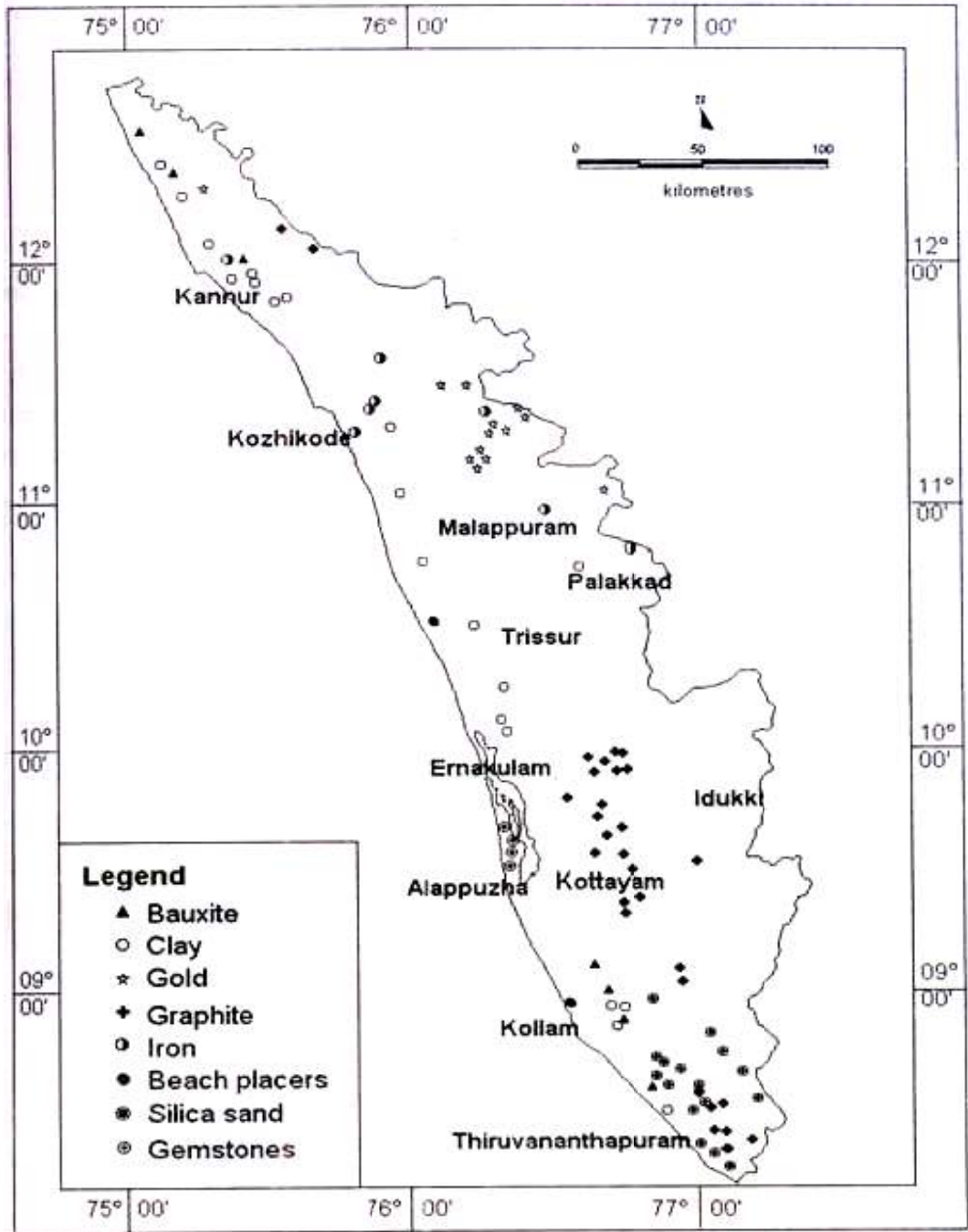
**PRODUCTION OF MINOR MINERALS IN KERALA**

(Production in tonnes)

SI. No.	Minor Mineral	2011-12	2012-13
1	Granite (building stone)	13101468.63	15227650.75
2	River sand*	3697269.80	2629390.80
3	Ordinary sand	3814079.10	3187035.70
4	Laterite	1757764.31	2070631.50
5	Brick clay	1588373.40	1515292.50
6	Lime shell	9486.54	4804.66
7	Granite (dimension stone) (in cubic meters)	373.96	1245.11

Source: Infrastructure Statistics of Kerala, DES

### Mineral reserves (2000-01)



Mineral map of Kerala (After Dept. of Mining and Geology, 2005)

Source: [www.Kerenvis.nic.in](http://www.Kerenvis.nic.in)



## **LAND USE**

The spatial information on land use/land cover and their pattern of change is essential for planning, utilization and management of the country's land resources. Land use/land cover inventories are assuming increasing importance in various resource sectors like agriculture planning, settlement and cadastral surveys, environmental studies and operational planning based on agro-climatic zones. Information on land use/ land cover permits a better understanding of the land utilization aspects on cropping pattern, fallow land, forest and grazing land, wasteland, surface water bodies etc., which is very vital for developmental planning. Further the draft outline of the National land Use Policy having strongly re-iterated the main thrust and strategy on "Optimum Land Use Planning" for sustained efforts and economic returns, up to date information on the nature, distribution and extent of land use/land cover will be of great relevance. Space remote sensing with its wider scope, rapid and repetitive coverage capabilities, can provide highly reliable and accurate estimate on the various resources.

### **METHODOLOGY**

The methodology is essentially digital interpretation of IRS-1C (LISS - IV) geo-coded image (FCC) for identification of different categories of land use/land cover using standard visual image interpretation techniques which is based on interpretation elements such as tone, texture, shape, size, etc. supplemented by the local knowledge of the interpreter. Other ancillary data like topographical maps and any other available information will be used for identification and mapping of land use/ land cover. The interpreted details are to be verified on the ground in order to rectify the doubtful areas, and based on the ground verification, the wasteland boundaries (interpreted details) are to be finalized. The geographical area under different land use/land cover categories was then

computed and expressed as simple percentage to the total geographical area of each district.

### **Land use/Land cover categories and their spatial distribution** **Kozhikode**

Land use refers to man's activities and the various use which are carried on land. Land cover refers to, "natural vegetation, water bodies, rock/soil, artificial cover and others resulting due to land transformations".

A brief description of the major land use/land cover categories observed in the Kozhikode district and their spatial distribution is given below:

#### **i) Agricultural Land**

It is defined as the land primarily used for farming and for production of food, fibre and other commercial and horticultural crops. It includes land under crops (irrigated and unirrigated), fallow land and plantation area under agricultural tree crops planted adopting certain agricultural management techniques. This category is occupying an area of 167496.05 ha. accounting for 71.40% of the total geographical area.

#### **ii) Forest**

It is an area bearing an association predominantly of trees and other vegetation types capable of producing timber and other forest produce. It includes notified forests, private forests and vested forests, of which only the notified forests possess territorial boundaries. This category accounts for 45407.69 ha. which is 19.36% of the total geographical area.

#### **iii) Waste lands**

It is described as degraded land which can be brought under vegetative cover with reasonable efforts and which is currently under utilized and land which is deteriorating due to lack of appropriate water and soil management or on account of natural causes. The three major classes in the category are;



a) Land with or without scrub which occupy higher topography like uplands or high grounds with or without scrub, generally prone to degradation or erosion  
 b) underutilized/degraded notified forest – scrub dominated and c) barren rocky/ stony waste/ sheet rock area which are rock exposures of varying lithology and devoid of soil cover and vegetation. They occur amidst hill forests as opening or scattered as isolated exposures or loose fragments of boulders or as sheet rocks on plateau and plains. The waste lands occupy an area of 10551.76 ha. accounting for 4.49% of the total geographical area.

#### **iv) Built up land**

It is defined as an area of human habitation developed due to non-agricultural use and that which has a cover of buildings, transport and communication, utilities in association with water, vegetation and vacant lands. An area 8488.20 ha. accounting for 3.61% of the Total geographical area is estimated under this category.

The land use/land cover categories identified and mapped in the district is furnished in the table below:

Table: 11.1

#### **LAND USE / LAND COVER CATEGORIES - KOZHIKODE**

<b>Sl. No.</b>	<b>Category</b>	<b>Area in ha.</b>
1	Agricultural Plantation (Banana)	129.97
2	Agricultural Plantation (Cashew)	321.78
3	Agricultural Plantation (Coconut)	1264.02
4	Agriculture plantation (Arecanut)	6.32
5	Agriculture Plantation (Banana)	46.11
6	Agriculture Plantation (Mixed crops)	16195.39
7	Agriculture Plantation (Mixed trees)	483.98
8	Agriculture plantation (Rubber)	4690.76
9	Barren Rocky/Stony Waste/Sheet Rock	1363.93

<b>Sl. No.</b>	<b>Category</b>	<b>Area in ha.</b>
10	Barren Rocky/Stony Waste/Sheet Rock (Forest)	929.57
11	Beaches	176.25
12	Built-up land	6363.29
13	Built-up land ( Rural)	1682.54
14	Built-up land (Urban)	442.37
15	Coconut dominant mixed crop	123232.37
16	Crop land - Paddy (Virippu + Mundakan)	11069.15
17	Cultivable waste land	160.23
18	Degraded grass land	94.03
19	Dense mixed forest	40240.95
20	Dense mixed forest (R.F)	4354.13
21	Dense mixed forest mainly bamboo	120.88
22	Eucalyptus (R.F)	673.99
23	Land with scrub	4536.42
24	Land without scrub	714.63
25	Marshy	422.87
26	Mining/Industrial wastelands	334.79
27	Paddy converted to Banana	439.56
28	Paddy converted to Built-up land	119.95
29	Paddy converted to Coconut	1159.46
30	Paddy converted to Mixed crop	1920.15
31	Paddy converted to Rubber	47.49
32	Paddy converted to Tapioca	2.11
33	Pineapple	190.33
34	River/stream/waterbodies	6177.15
35	Scrub forest	17.74
36	Under utilized/degraded notified forest	4441.36
	<b>Total</b>	<b>234566.02</b>

Table: 11.2

**BALUSSERI BLOCK**

SI.No.	Land Use	Balusseri	Koorachundu	Kottoor	Naduvannoor	Panangad	Ulliyeri	Unnikulam
1	Agriculture plantation (Areca nut)				5.31			
2	Agriculture plantation (Banana)				10.66	8.67		
3	Agriculture plantation (Cashew)							
4	Agriculture plantation (Coconut)	3.85	2.51	6.94		6.31		2.32
5	Agriculture plantation (Mixed crops)	122.62	44.52	186.16	192.95	122.81	225.57	105.90
6	Agriculture plantation (Mixed trees)	2.15	15.15					
7	Agriculture plantation (Rubber)		11.76			91.10		58.42
8	Agriculture plantation (Teak)							
9	Barren rocky/Stony waste/Sheet rock		24.50					
10	Barren rocky/Stony waste/Sheet rock (Forest)		110.02	8.88				
11	Beaches							
12	Built-up land	41.51	111.20	42.68	25.25	39.38	30.92	40.10
13	Built-up land (Rural)	7.09	8.88	17.44	5.47	19.35	16.00	8.28
14	Built-up land (Urban)	3.41						
15	Coconut dominant mixed crop	1710.89	1403.78	1772.92	1508.19	1204.13	1797.26	2767.02
16	Crop land - Paddy (Virippu+Mundakan)	133.63	6.86	237.98	291.47	164.98	290.92	248.62
17	Cultivable wasteland		1.25					
18	Degraded grass land							
19	Dense mixed forest		7547.06	792.03		1514.46		243.39
20	Dense mixed forest (R.F)		1686.77					
21	Dense mixed forest mainly bamboo		8.34					
22	Eucalyptus (R.F)		473.77					
23	Land with scrub		33.58	24.20	8.17	31.16	88.92	31.64
24	Land without scrub	2.94	22.28		47.53	5.41		1.36
25	Marshy		9.43					3.86
26	Mining/Industrial wastelands	1.22		8.59	1.74	3.64	8.15	5.53
27	Paddy converted to banana	2.32	3.00					
28	Paddy converted to built-up land				4.40			
29	Paddy converted to coconut		8.81		8.19	15.74		
30	Paddy converted to mixed crop		13.46		4.75			
31	Paddy converted to rubber							
32	Paddy converted to tapioca							
33	Pineapple		17.38	16.98		155.74		
34	River/Stream/Waterbodies	10.08	570.06	4.58	36.43	3.16	136.99	
35	Scrub forest							
36	Under utilized/degraded notified forest	214.93	416.91	12.82		69.71		114.23
	<b>Panchayat Total</b>	<b>2256.64</b>	<b>12551.28</b>	<b>3132.20</b>	<b>2150.51</b>	<b>3455.75</b>	<b>2594.73</b>	<b>3630.67</b>
	<b>Block Total</b>				<b>29771.78</b>			

(Area in Ha)

Table: 11.3

## CHELANNUR BLOCK

Sl.No.	Land Use	Chelannur	Kakkodi	Kakkoor	Nanmanda	Narikkuni	Thalikulathur	(Area in Ha)
1	Agriculture plantation (Arecanut))							
2	Agriculture plantation (Banana)							
3	Agriculture plantation (Cashew)							
4	Agriculture plantation (Coconut)			12.04	1.42	4.90		
5	Agriculture plantation (Mixed crops)	106.30	57.28	100.40	75.66	80.47	83.33	
6	Agriculture plantation (Mixed trees)			1.51	3.00			
7	Agriculture plantation (Rubber)	1.83						
8	Agriculture plantation (Teak)							
9	Barren rocky/Stony waste/Sheet rock	4.36		3.31			1.95	
10	Barren rocky/Stony waste/Sheet rock (Forest)							
11	Beaches							
12	Built-up land	24.08	188.86	10.97	42.08	27.56	46.82	
13	Built-up land (Rural)	10.76	8.01	13.28	5.39	8.61	6.40	
14	Built-up land (Urban)			1.70		1.31		
15	Coconut dominant mixed crop	1604.38	1209.77	1556.21	1416.06	1500.52	1175.29	
16	Crop land - Paddy (Virippu+Mundakan)	199.36	105.81	212.17	164.28	106.22	196.78	
17	Cultivable wasteland							
18	Degraded grass land							
19	Dense mixed forest							
20	Dense mixed forest (R.F)							
21	Dense mixed forest mainly bamboo							
22	Eucalyptus (R.F)							
23	Land with scrub	156.79	32.77	166.40	27.32	8.77	177.33	
24	Land without scrub	2.57	9.31		3.77			
25	Marshy				1.45			
26	Mining/Industrial wastelands	18.88	18.97		14.42	11.67		
27	Paddy converted to banana	1.04						
28	Paddy converted to built-up land							
29	Paddy converted to coconut				2.99			
30	Paddy converted to mixed crop	25.84	18.29		2.17		1.06	
31	Paddy converted to rubber							
32	Paddy converted to tapioca							
33	Pineapple							
34	River/Stream/Waterbodies	68.65	93.09				151.25	
35	Scrub forest							
36	Under utilized/degraded notified forest			10.73	515.45			
	<b>Panchayat Total</b>	<b>2224.84</b>	<b>1742.16</b>	<b>2088.72</b>	<b>2275.46</b>	<b>1750.03</b>	<b>1840.21</b>	
	<b>Block Total</b>			<b>11921.42</b>				

Table: 11.4

## KODUVALLI BLOCK

Sl. No.	Land Use	Katti ppara	Kizha kkoth	Koden cherri	Kodu valli	Kooda ranji	Mada voor	Oma ssery	Puthu ppadi	Thamarass ery	Thiru vambadi
1	Agriculture plantation (Areca nut)										
2	Agriculture plantation (Banana)					94.94					
3	Agriculture plantation (Cashew)	22.18							24.57		
4	Agriculture plantation (Coconut)		1.68		6.26	7.02	8.46	112.94	76.53	7.02	28.72
5	Agriculture plantation (Mixed crops)	115.89	75.47	1579.98	53.36	178.09	73.07	93.15	229.88	58.82	293.97
6	Agriculture plantation (Mixed trees)			2.20					4.05		
7	Agriculture plantation (Rubber)	272.61		609.55		267.21		24.88	838.82	980.39	586.77
8	Agriculture plantation (Teak)										
9	Barren rocky/Stony waste/Sheet rock		1.96	102.77	8.86	141.76		53.70	12.22		327.54
10	Barren rocky/Stony waste/Sheet rock (Forest)								8.45		
11	Beaches										
12	Built-up land		53.97		96.81	8.06	21.58	111.85		57.98	15.34
13	Built-up land (Rural)		4.75	339.85	18.33	1.39	17.86	12.80	11.59	2.83	5.88
14	Built-up land (Urban)						1.37				
15	Coconut dominant mixed crop	268.79	1794.75	4140.07	1848.53	2628.33	1647.86	2259.66	2040.01	1080.48	2528.83
16	Crop land - Paddy (Virippu+Mundakan)	71.38	59.28	58.94	56.07		144.61	142.21	224.09	116.23	58.22
17	Cultivable wasteland										
18	Degraded grass land					12.97			5.02		
19	Dense mixed forest	3162.87		4703.43		3330.90			1798.07	1.41	2608.43
20	Dense mixed forest (R.F)										
21	Dense mixed forest mainly bamboo								28.99		
22	Eucalyptus (R.F)	11.88							188.35		
23	Land with scrub	564.72	4.27	171.84	10.95	105.00	29.70	29.06	153.28	232.41	33.39
24	Land without scrub	58.79	4.39	169.30		23.24			68.31		15.16
25	Marshy		2.95		1.61			4.41			
26	Mining/Industrial wastelands		8.44		1.19	11.88	6.23	7.89	3.31		
27	Paddy converted to banana						4.36	3.52			
28	Paddy converted to built-up land						4.38	1.87		1.02	
29	Paddy converted to coconut	2.74		30.36	29.68			36.59		2.71	19.94
30	Paddy converted to mixed crop		5.79		18.43			32.85		4.28	
31	Paddy converted to rubber							4.30			36.18
32	Paddy converted to tapioca										
33	Pineapple										
34	River/Stream/Waterbodies	2.13	7.67	43.09	23.03	34.94	2.72	44.94	29.93	11.46	40.17
35	Scrub forest										
36	Under utilized/degraded notified forest	141.52		348.12		420.60			344.83		161.20
	<b>Panchayat Total</b>	<b>4695.50</b>	<b>2025.37</b>	<b>12299.50</b>	<b>2173.11</b>	<b>7266.33</b>	<b>1962.20</b>	<b>2976.62</b>	<b>6090.30</b>	<b>2557.04</b>	<b>6759.74</b>
	<b>Block Total</b>					<b>48805.71</b>					

Table: 11.5

## KOZHIKODE BLOCK

Sl.No.	Land Use	Feroke	Kadalundi	Olavanna	Ramanattukara	(Area in Ha)
1	Agriculture plantation (Areca nut)					
2	Agriculture plantation (Banana)					
3	Agriculture plantation (Cashew)					
4	Agriculture plantation (Coconut)	6.10		2.17		2.26
5	Agriculture plantation (Mixed crops)	141.01	132.03	51.72		39.36
6	Agriculture plantation (Mixed trees)					
7	Agriculture plantation (Rubber)					
8	Agriculture plantation (Teak)					
9	Barren rocky/Stony waste/Sheet rock					
10	Barren rocky/Stony waste/Sheet rock (Forest)					
11	Beaches					
12	Built-up land	57.86	20.99	108.47		64.23
13	Built-up land (Rural)	8.38	3.16	12.46		11.25
14	Built-up land (Urban)		2.46			6.24
15	Coconut dominant mixed crop	924.56	762.34	1306.17		679.73
16	Crop land - Paddy (Virippu+Mundakan)	54.50		266.96		240.16
17	Cultivable wasteland	12.48				
18	Degraded grass land					
19	Dense mixed forest					
20	Dense mixed forest (R.F)					
21	Dense mixed forest mainly bamboo					
22	Eucalyptus (R.F)					
23	Land with scrub			93.75		
24	Land without scrub			20.56		
25	Marshy			1.55		
26	Mining/Industrial wastelands					
27	Paddy converted to banana			1.04		
28	Paddy converted to built-up land					
29	Paddy converted to coconut	10.39	6.39	1.21		25.66
30	Paddy converted to mixed crop	30.96	104.50	2.65		48.07
31	Paddy converted to rubber					
32	Paddy converted to tapioca					
33	Pineapple					
34	River/Stream/Waterbodies	201.49	106.25	105.78		73.58
35	Scrub forest					
36	Under utilized/degraded notified forest					
	<b>Panchayat Total</b>	<b>1447.73</b>	<b>1138.12</b>	<b>1974.49</b>		<b>1190.54</b>
	<b>Block Total</b>		<b>5750.88</b>			

Table: 11.6

## KUNNAMANGALAM BLOCK

Sl. No.	Land Use	Chatha mangalam	Kara sseri	Kodi yathur	Kunna mangalam	Kuru vattur	Mavoor	Mukkam	Peru manna	Peru vayal
1	Agriculture plantation (Arecanut)							1.01		
2	Agriculture plantation (Banana)	6.93	2.85							
3	Agriculture plantation (Cashew)									
4	Agriculture plantation (Coconut)	25.70	54.52	13.07	39.78		9.49	179.15		
5	Agriculture plantation (Mixed crops)	263.32	81.89	154.13	136.08	107.49	68.61	220.43	55.29	99.59
6	Agriculture plantation (Mixed trees)									
7	Agriculture plantation (Rubber)	7.87	429.40	37.39	24.14			54.82		26.36
8	Agriculture plantation (Teak)									
9	Barren rocky/Stony waste/Sheet rock		281.49	35.56				46.21		
10	Barren rocky/Stony waste/Sheet rock (Forest)									
11	Beaches									
12	Built-up land	261.12	82.65	91.07	175.46	14.51	89.25	168.27	4.82	20.54
13	Built-up land (Rural)	21.87	24.16	5.51	6.54	7.80	2.44	16.76		16.91
14	Built-up land (Urban)	3.56								
15	Coconut dominant mixed crop	2896.47	2507.61	2117.31	1995.37	1369.82	1205.38	2077.85	1091.89	1452.30
16	Crop land - Paddy (Virippu+Mundakan)	243.67	28.00	64.38	123.69	151.04	358.98	206.51	283.78	445.44
17	Cultivable wasteland									
18	Degraded grass land		36.64							
19	Dense mixed forest		3.41	28.05						
20	Dense mixed forest (R.F)									
21	Dense mixed forest mainly bamboo									
22	Eucalyptus (R.F)									
23	Land with scrub	135.57	69.91	171.42	72.78	44.98	174.66	47.46	116.28	211.53
24	Land without scrub	2.61	1.01	11.27	26.62		12.70	21.48	17.40	3.50
25	Marshy		10.67	16.15	1.02	2.22	34.08	1.64	2.66	6.12
26	Mining/Industrial wastelands	9.29	59.25	15.37	9.75	10.63		10.11		6.64
27	Paddy converted to banana	3.33		12.25	1.24	1.85		19.33		
28	Paddy converted to built-up land	9.48			9.44		4.84	9.30	2.08	
29	Paddy converted to coconut	46.49	1.45		12.15		14.38	10.87	7.02	13.42
30	Paddy converted to mixed crop	49.74	23.13	48.11	24.94	22.42	17.50	2.32		34.65
31	Paddy converted to rubber		4.75	1.76						
32	Paddy converted to tapioca							2.11		
33	Pineapple									
34	River/Stream/Waterbodies	47.34	44.33	67.05	34.90	5.62	126.80	17.93	75.01	61.15
35	Scrub forest									
36	Under utilized/degraded notified forest			3.50						
	<b>Panchayat Total</b>	<b>4034.36</b>	<b>3747.12</b>	<b>2893.35</b>	<b>2693.90</b>	<b>1738.38</b>	<b>2119.11</b>	<b>3113.56</b>	<b>1656.23</b>	<b>2398.15</b>
	<b>Block Total</b>					<b>24394.16</b>				

Table: 11.7

## KUNNUMMAL BLOCK

SI.No.	Land Use	Kavilumpara	Kayakkodi	Kunnummal	Kutyadi	Maruthonkara	Narippatta	Velom
1	Agriculture plantation (Areca nut)							
2	Agriculture plantation (Banana)			1.40			20.21	
3	Agriculture plantation (Cashew)							
4	Agriculture plantation (Coconut)	31.62	64.00	28.48	67.35			106.34
5	Agriculture plantation (Mixed crops)	226.06	197.30	135.56	259.42	83.88	288.51	559.16
6	Agriculture plantation (Mixed trees)	42.79	3.07				174.98	13.85
7	Agriculture plantation (Rubber)	36.26		1.18		7.30		129.54
8	Agriculture plantation (Teak)							
9	Barren rocky/Stony waste/Sheet rock	36.83		2.21		1.25	2.54	
10	Barren rocky/Stony waste/Sheet rock (Forest)	237.89	4.53				376.78	
11	Beaches							
12	Built-up land	16.55	48.50	95.39	61.13	51.61	16.13	22.65
13	Built-up land (Rural)	17.03	13.93	10.05	11.27	9.89	12.23	14.91
14	Built-up land (Urban)							
15	Coconut dominant mixed crop	2856.37	1107.75	806.65	917.38	2001.79	1141.64	1268.39
16	Crop land - Paddy (Virippu+Mundakan)		112.27	16.67	92.44	17.07		305.41
17	Cultivable wasteland					3.67		
18	Degraded grass land							
19	Dense mixed forest	5054.85	971.11			1.24	2467.28	
20	Dense mixed forest (R.F.)							
21	Dense mixed forest mainly bamboc							
22	Eucalyptus (R.F.)							
23	Land with scrub	53.89	5.57	34.42	3.63	2.56	16.47	32.15
24	Land without scrub	13.56	1.27	3.51				2.07
25	Marshy							20.09
26	Mining/Industrial wasteland	4.47	1.93		2.22	4.25	6.69	3.52
27	Paddy converted to banana		1.48		14.44			10.10
28	Paddy converted to built-up land			2.96				10.55
29	Paddy converted to coconut	9.54	38.45	3.98	51.02		22.53	25.71
30	Paddy converted to mixed crop	8.26	36.82	28.73	1.11			23.01
31	Paddy converted to rubber							
32	Paddy converted to tapioca							
33	Pineapple							
34	River/Stream/Waterbodies	41.67	18.62		25.39	40.67	37.47	65.21
35	Scrub forest							
36	Under utilized/degraded notified forest	610.93	92.73				168.09	
	<b>Panchayat Total</b>	<b>9298.47</b>	<b>2719.33</b>	<b>1171.19</b>	<b>1506.80</b>	<b>2225.18</b>	<b>4751.63</b>	<b>2612.66</b>
	<b>Block Total</b>				<b>24285.26</b>			



Table: 11.8

**MELADI BLOCK**

Sl.No.	Land Use	Keezhariyoor	Meppayoor	Payyoli	Thikkodi	Thurayoor
1	Agriculture plantation (Areca nut)					
2	Agriculture plantation (Banana)					
3	Agriculture plantation (Cashew)	17.48			1.61	
4	Agriculture plantation (Coconut)	25.00		3.76	48.25	
5	Agriculture plantation (Mixed crops)	59.24	247.79	241.45	130.16	60.47
6	Agriculture plantation (Mixed trees)					
7	Agriculture plantation (Rubber)		26.05			22.60
8	Agriculture plantation (Teak)					
9	Barren rocky/Stony waste/Sheet rock					
10	Barren rocky/Stony waste/Sheet rock (Forest)	40.59	64.08	11.63		6.18
11	Beaches					
12	Built-up land	14.15	92.03	68.25		57.29
13	Built-up land (Rural)	14.71	17.33	8.99		6.03
14	Built-up land (Urban)		3.05		9.41	
15	Coconut dominant mixed crop	892.13	1645.48	1410.83	1209.64	442.87
16	Crop land - Paddy (Virippu+Mundakan)	36.61	108.72	122.13	67.72	82.57
17	Cultivable wasteland	69.19				20.04
18	Degraded grass land					
19	Dense mixed forest					
20	Dense mixed forest (R.F.)					
21	Dense mixed forest mainly bamboc					
22	Eucalyptus (R.F.)					
23	Land with scrub	5.56	14.95			
24	Land without scrub					
25	Marshy	1.83				
26	Mining/Industrial wasteland:					
27	Paddy converted to banana		2.08			
28	Paddy converted to built-up land	2.14	2.52			
29	Paddy converted to coconut	11.27	39.17			59.81
30	Paddy converted to mixed crop		20.20			117.11
31	Paddy converted to rubber					
32	Paddy converted to tapioca					
33	Pineapple					
34	River/Stream/Waterbodies	117.02	76.47	302.18	44.55	104.65
35	Scrub forest					
36	Under utilized/degraded notified forest					
	<b>Panchayat Total</b>	<b>1306.92</b>	<b>2359.92</b>	<b>2169.22</b>	<b>1511.34</b>	<b>979.62</b>
	<b>Block Total</b>		<b>8327.02</b>			

Table: 11.9

## PANTHALAYANI BLOCK

Sl.No.	Land Use	Arikkulam	Atholi	Chemancheri	Chengottukavu	Moodadi
1	Agriculture plantation (Arecanut)					
2	Agriculture plantation (Banana)					
3	Agriculture plantation (Cashew)		4.43	4.57	1.03	130.66
4	Agriculture plantation (Coconut)		187.33	98.48	33.96	3.61
5	Agriculture plantation (Mixed crops)	149.23				141.36
6	Agriculture plantation (Mixed trees)					
7	Agriculture plantation (Rubber)					
8	Agriculture plantation (Teak)					
9	Barren rocky/Stony waste/Sheet rock	4.86				4.06
10	Barren rocky/Stony waste/Sheet rock (Forest)					
11	Beaches			60.73	46.58	
12	Built-up land	17.78	9.29	64.08	7.22	20.43
13	Built-up land (Rural)	7.15	8.89	3.96	18.61	1.90
14	Built-up land (Urban)		2.75	11.63		11.92
15	Coconut dominant mixed crop	1112.73	1588.66	1113.74	1057.41	1045.12
16	Crop land - Paddy (Virippu+Mundakan)	272.07	81.87	112.23	156.39	175.32
17	Cultivable wasteland			10.63		
18	Degraded grass land					
19	Dense mixed forest					
20	Dense mixed forest (R.F.)					
21	Dense mixed forest mainly bamboc					
22	Eucalyptus (R.F.)					
23	Land with scrub	59.27	102.59	7.59		
24	Land without scrub		7.08			
25	Marshy		1.60	1.73	1.63	1.80
26	Mining/Industrial wasteland					
27	Paddy converted to banana					
28	Paddy converted to built-up land	2.46		9.64		4.87
29	Paddy converted to coconut				12.78	
30	Paddy converted to mixed crop	14.94	3.21	8.01	13.94	
31	Paddy converted to rubber					
32	Paddy converted to tapioca					
33	Pineapple					
34	River/Stream/Waterbodies		158.14	201.73	91.92	67.74
35	Scrub forest					
36	Under utilized/degraded notified forest					
	<b>Panchayat Total</b>	<b>1640.49</b>	<b>2155.84</b>	<b>1708.75</b>	<b>1441.47</b>	<b>1608.79</b>
	<b>Block Total</b>			<b>8555.34</b>		

Table: 11.10

## THODANNUR BLOCK

Sl.N	Land Use	Ayancherri	Maniyoor	Thiruvallur	Villiyapally
1	Agriculture plantation (Arecanut)				
2	Agriculture plantation (Banana)		2.24		
3	Agriculture plantation (Cashew)				
4	Agriculture plantation (Coconut)	66.57		1.01	
5	Agriculture plantation (Mixed crops)	254.62	546.97	272.32	213.96
6	Agriculture plantation (Mixed trees)				
7	Agriculture plantation (Rubber)		42.86	2.66	
8	Agriculture plantation (Teak)				
9	Barren rocky/Stony waste/Sheet rock			2.49	
10	Barren rocky/Stony waste/Sheet rock (Forest)				
11	Beaches				
12	Built-up land		9.21		13.60
13	Built-up land (Rural)		17.47	34.96	33.26
14	Built-up land (Urban)				12.35
15	Coconut dominant mixed crop	1271.91	2105.64	1979.44	1401.43
16	Crop land - Paddy (Virippu+Mundakan)	220.26	31.83	139.27	15.44
17	Cultivable wasteland				
18	Degraded grass land				
19	Dense mixed forest				
20	Dense mixed forest (R.F.)				
21	Dense mixed forest mainly bamboo				
22	Eucalyptus (R.F.)				
23	Land with scrub	20.71	12.51	32.65	
24	Land without scrub		5.79	1.10	
25	Marshy				6.71
26	Mining/Industrial wasteland:	4.93			
27	Paddy converted to banana	25.07			
28	Paddy converted to built-up land				
29	Paddy converted to coconut	23.95	12.87		
30	Paddy converted to mixed crop	19.29	185.56	215.52	28.43
31	Paddy converted to rubber				
32	Paddy converted to tapioca				
33	Pineapple				
34	River/Stream/Waterbodies	35.21	172.90	91.30	37.70
35	Scrub forest				
36	Under utilized/degraded notified forest				
	<b>Panchayat Total</b>	<b>1954.93</b>	<b>3145.85</b>	<b>2772.72</b>	<b>1762.88</b>
	<b>Block Total</b>		<b>9636.38</b>		

Table: 11.11

## PERAMBRA BLOCK

SI.No.	Land Use	Changaroath	Cheruvannoor	Kayanna	Koothali	Nochad	Perambra	Chakkittapara
1	Agriculture plantation (Arecanut)							
2	Agriculture plantation (Banana)	5.81			7.27		3.33	6.26
3	Agriculture plantation (Cashew)							
4	Agriculture plantation (Coconut)	22.63	3.60	4.65	1.63	8.00	7.48	24.17
5	Agriculture plantation (Mixed crops)	213.57	233.18	65.28	110.96	179.47	210.53	160.89
6	Agriculture plantation (Mixed trees)							6.88
7	Agriculture plantation (Rubber)	2.26				2.36	8.00	47.92
8	Agriculture plantation (Teak)							
9	Barren rocky/Stony waste/Sheet rock		6.15		8.62	6.52		79.05
10	Barren rocky/Stony waste/Sheet rock (Forest)			65.41				72.98
11	Beaches							
12	Built-up land	87.96		28.10	46.32	112.74	145.58	69.58
13	Built-up land (Rural)	28.49	12.07	16.23	24.44	17.11	21.12	14.95
14	Built-up land (Urban)						9.42	
15	Coconut dominant mixed crop	2289.74	1330.22	1210.23	1347.60	1756.08	1884.29	2744.43
16	Crop land - Paddy (Virippu+Mundakan)	253.13	235.11	118.39	74.22	183.17	167.87	30.59
17	Cultivable wasteland							17.28
18	Degraded grass land							39.41
19	Dense mixed forest			531.98				2903.77
20	Dense mixed forest (R.F.)							2657.82
21	Dense mixed forest mainly bamboc							83.38
22	Eucalyptus (R.F.)							
23	Land with scrub	11.49	42.32	17.12		77.96	20.74	80.05
24	Land without scrub		6.00			9.62	9.30	47.33
25	Marshy		28.74				35.37	44.88
26	Mining/Industrial wasteland:	2.73		1.15	1.65	4.59	5.01	14.94
27	Paddy converted to banana	35.16	66.63		58.70	10.96	106.04	
28	Paddy converted to built-up land	2.68	1.18			6.21	3.38	
29	Paddy converted to coconut	54.66	12.82	12.85	9.73	40.16	4.55	2.72
30	Paddy converted to mixed crop	23.04	5.88			19.75	5.78	10.35
31	Paddy converted to rubber							
32	Paddy converted to tapioca							
33	Pineapple							
34	River/Stream/Waterbodies	45.52	133.15	2.44	14.75		11.92	782.69
35	Scrub forest							17.74
36	Under utilized/degraded notified forest			29.23				323.79
	<b>Panchayat Total</b>	<b>3078.87</b>	<b>2117.05</b>	<b>2103.06</b>	<b>1705.89</b>	<b>2434.70</b>	<b>2659.71</b>	<b>10283.85</b>
	<b>Block Total</b>				<b>24383.13</b>			

Table: 11.12

## THUNERI BLOCK

Sl.No.	Land Use	Chekyad	Edacherri	Nadapuram	Purameri	Thuneri	Valayam	Vanimel
1	Agriculture plantation (Areca nut)							
2	Agriculture plantation (Banana)							2.06
3	Agriculture plantation (Cashew)	124.83						
4	Agriculture plantation (Coconut)	24.66		22.51	3.31	2.32	14.61	1.28
5	Agriculture plantation (Mixed crops)	427.13	244.08	336.26	252.74	196.71	730.03	269.98
6	Agriculture plantation (Mixed trees)	98.78					21.28	93.05
7	Agriculture plantation (Rubber)						20.80	17.57
8	Agriculture plantation (Teak)							
9	Barren rocky/Stony waste/Sheet rock					9.69		29.84
10	Barren rocky/Stony waste/Sheet rock (Forest)	11.67						32.97
11	Beaches							
12	Built-up land			176.61	32.63		17.65	39.32
13	Built-up land (Rural)	5.64	2.21	6.86	12.28	10.17	15.67	10.37
14	Built-up land (Urban)			6.46				
15	Coconut dominant mixed crop	1325.89	736.03	1404.20	1463.29	1089.48	1424.12	890.20
16	Crop land - Paddy (Virippu+Mundakan)		616.79	2.46	109.12	93.38		
17	Cultivable wasteland							
18	Degraded grass land							
19	Dense mixed forest	245.46					66.96	2268.50
20	Dense mixed forest (R.F.)							9.54
21	Dense mixed forest mainly bamboo							
22	Eucalyptus (R.F.)							
23	Land with scrub	218.25			49.60		96.02	121.23
24	Land without scrub	17.99			19.27			12.07
25	Marshy							
26	Mining/Industrial wasteland:		5.56		6.30			1.97
27	Paddy converted to banana				6.97			
28	Paddy converted to built-up land							
29	Paddy converted to coconut		9.62		29.01			
30	Paddy converted to mixed crop	11.09	18.97		35.68	83.45		
31	Paddy converted to rubber							
32	Paddy converted to tapioca							
33	Pineapple							
34	River/Stream/Waterbodies	20.47	49.98	34.37	2.01	32.54		41.82
35	Scrub forest							
36	Under utilized/degraded notified forest	7.99					23.81	409.55
	<b>Panchayat Total</b>	<b>2539.85</b>	<b>1683.24</b>	<b>1989.73</b>	<b>2022.21</b>	<b>1517.74</b>	<b>2430.95</b>	<b>4251.32</b>
	<b>Block Total</b>				<b>16435.04</b>			

Table: 11.13

## VADAKARA BLOCK

Sl.No.	Land Use	Azhiyoor	Cherod	Eramala	Onchiyam
1	Agriculture plantation (Arecanut)				
2	Agriculture plantation (Banana)				
3	Agriculture plantation (Cashew)				
4	Agriculture plantation (Coconut)			24.26	
5	Agriculture plantation (Mixed crops)	140.02	303.17	291.90	70.98
6	Agriculture plantation (Mixed trees)				
7	Agriculture plantation (Rubber)				
8	Agriculture plantation (Teak)				
9	Barren rocky/Stony waste/Sheet rock				
10	Barren rocky/Stony waste/Sheet rock (Forest)				
11	Beaches				
12	Built-up land	312.60	127.14		90.51
13	Built-up land (Rural)		42.59	37.67	57.80
14	Built-up land (Urban)				
15	Coconut dominant mixed crop	486.25	680.77	946.32	672.19
16	Crop land - Paddy (Virippu+Mundakan)	42.04	149.37	99.56	
17	Cultivable wasteland			15.43	
18	Degraded grass land				
19	Dense mixed forest				
20	Dense mixed forest (R.F)				
21	Dense mixed forest mainly bamboo				
22	Eucalyptus (R.F)				
23	Land with scrub				
24	Land without scrub				
25	Marshy				
26	Mining/Industrial wastelands			8.48	
27	Paddy converted to banana				
28	Paddy converted to built-up land				
29	Paddy converted to coconut	22.32	43.08	128.69	8.18
30	Paddy converted to mixed crop	47.72	4.14	207.76	41.84
31	Paddy converted to rubber				
32	Paddy converted to tapioca				
33	Pineapple				
34	River/Stream/Waterbodies	88.13		69.51	
35	Scrub forest				
36	Under utilized/degraded notified forest				
	<b>Panchayat Total</b>	<b>1139.08</b>	<b>1350.26</b>	<b>1829.58</b>	<b>941.50</b>
	<b>Block Total</b>		<b>5260.42</b>		

Table: 11.14



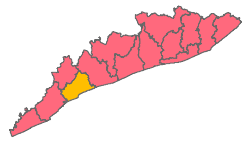

**MUNICIPALITY/CORPORATION**

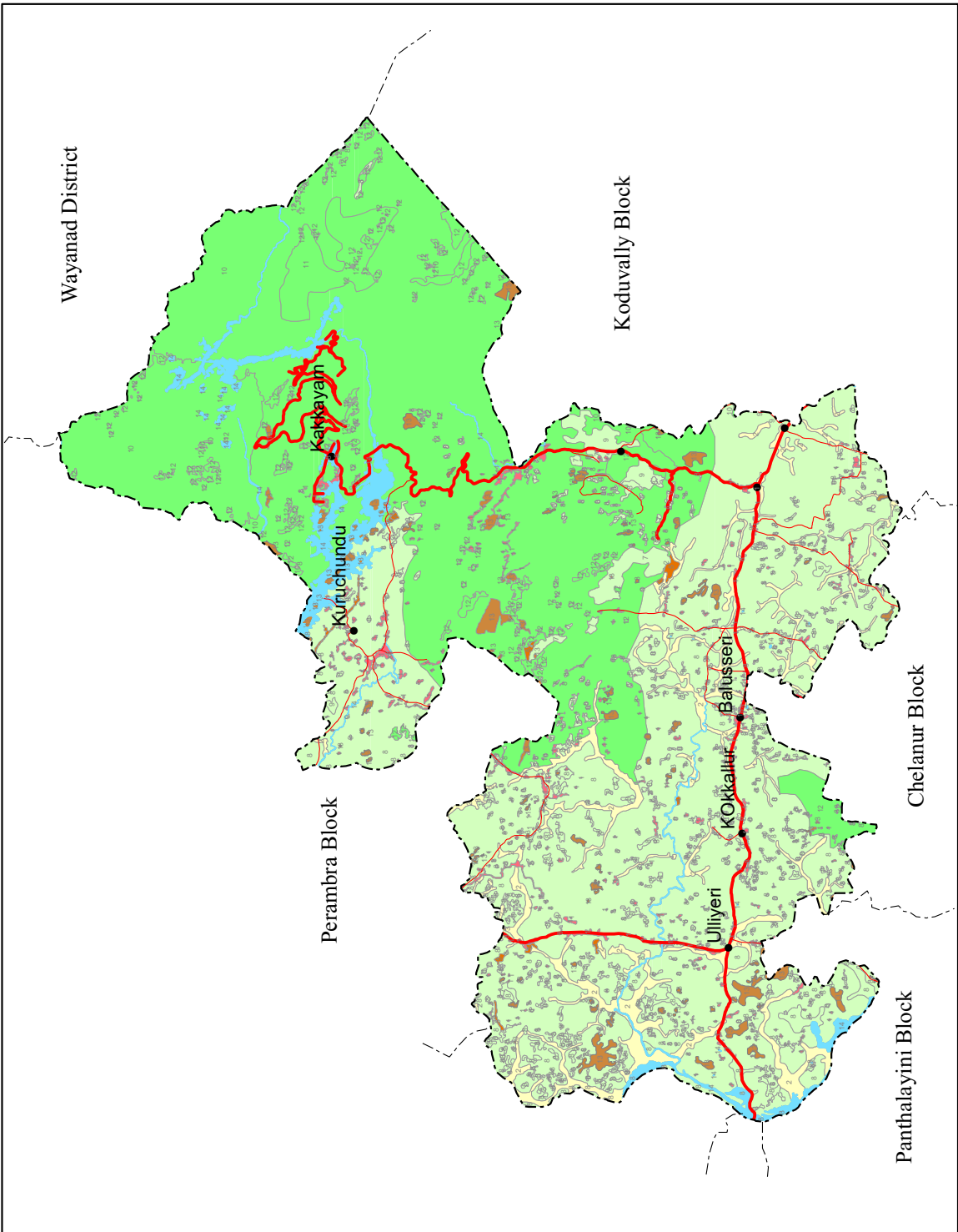
(Area in Ha)

SI.No.	Land Use	Koyilandy Municipality	Vadakara Municipality	Kozhikode Corporation
1	Agriculture plantation (Arecanut))			
2	Agriculture plantation (Banana)			
3	Agriculture plantation (Cashew)			
4	Agriculture plantation (Coconut)	6.98		10.94
5	Agriculture plantation (Mixed crops)	358.12	508.69	697.82
6	Agriculture plantation (Mixed trees)			
7	Agriculture plantation (Rubber)			
8	Agriculture plantation (Teak)			
9	Barren rocky/Stony waste/Sheet rock			
10	Barren rocky/Stony waste/Sheet rock (Forest)			
11	Beaches	15.79		52.87
12	Built-up land	43.22	262.03	1889.15
13	Built-up land (Rural)	24.34	49.38	309.45
14	Built-up land (Urban)	3.11		348.44
15	Coconut dominant mixed crop	1804.93	790.05	7367.19
16	Crop land - Paddy (Virippu+Mundakan)	392.80	272.26	305.40
17	Cultivable wasteland			7.67
18	Degraded grass land			
19	Dense mixed forest			
20	Dense mixed forest (R.F)			
21	Dense mixed forest mainly bamboo			
22	Eucalyptus (R.F)			
23	Land with scrub	63.98		72.11
24	Land without scrub			4.14
25	Marshy	78.14	64.74	32.50
26	Mining/Industrial wastelands			
27	Paddy converted to banana			21.89
28	Paddy converted to built-up land	9.19		8.93
29	Paddy converted to coconut		132.70	29.16
30	Paddy converted to mixed crop	18.37	17.57	107.72
31	Paddy converted to rubber			
32	Paddy converted to tapioca			
33	Pineapple			
34	River/Stream/Waterbodies	84.95	83.86	665.09
35	Scrub forest			
36	Under utilized/degraded notified forest			
	<b>Municipality Total</b>	<b>2903.92</b>	<b>2181.28</b>	<b>11930.47</b>





 Scale 1:150,000	<b>LANDUSE</b> <b>BALUSSERY BLOCK</b> <b>KOZHIKODE DISTRICT</b>	<b>LEGEND</b> 1 - Built up land 2 - Paddy 3 - Paddy Converted - Built up land 4 - Paddy Converted - Seasonal crops 5 - Paddy Converted - Perennial crops 6 - Paddy fallow 7 - Agricultural crops - Seasonal 8 - Agricultural crops - Perennial 9 - Agricultural crops - Plantation 10 - Forest 11 - Forest - Plantation 12 - Forest - Degraded 13 - Waste land 14 - Waterbodies Places Railway Roads	 	Kerala State Land Use Board Vikas Bhavan, Thiruvananthapuram-33 
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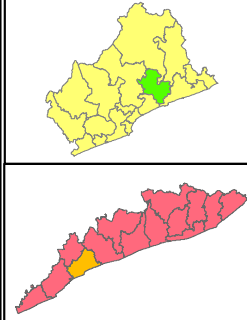


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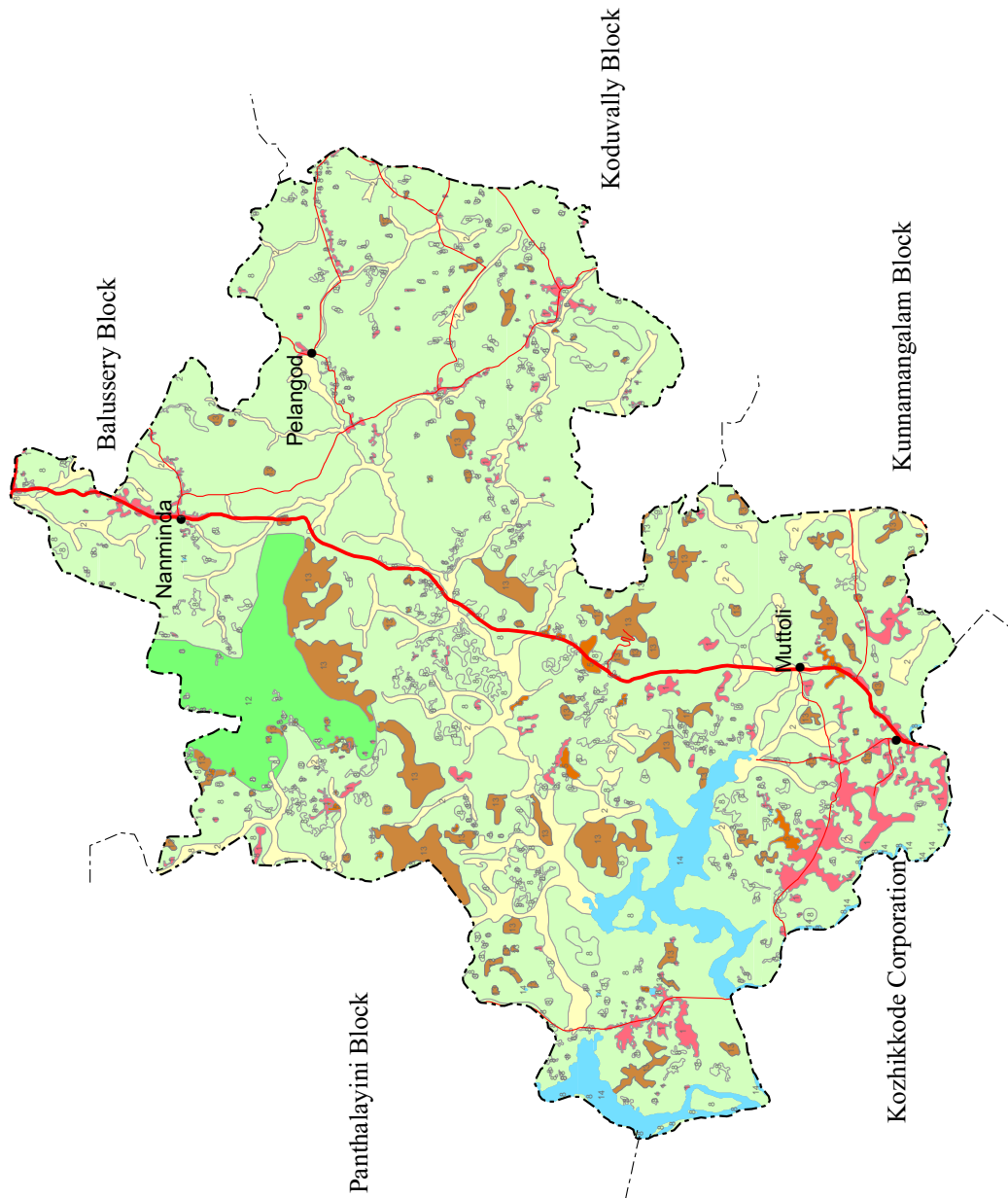
**LANDUSE  
CHELANUR BLOCK  
KOZHICKODE DISTRICT**

**LEGEND**

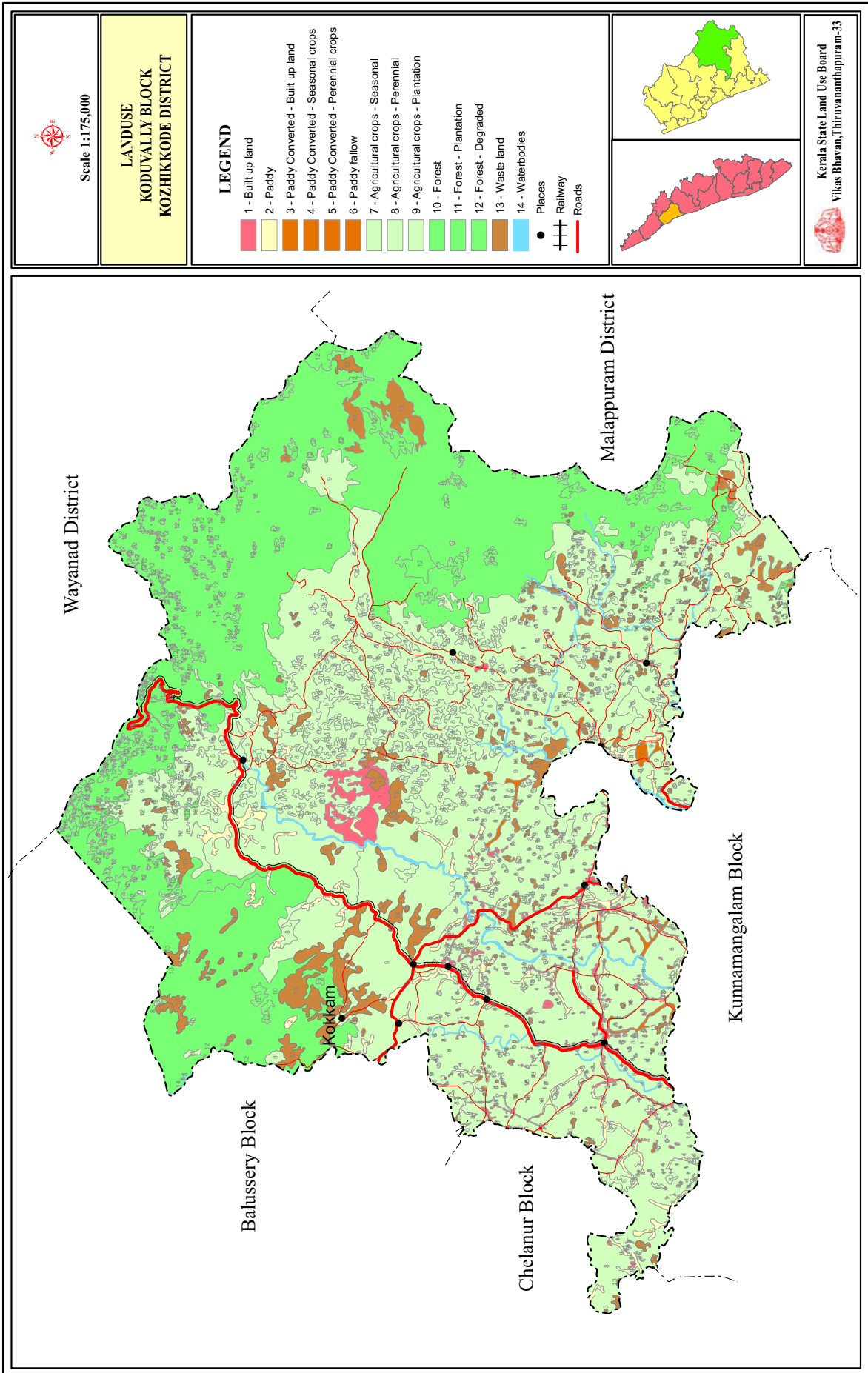
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- 2 - Paddy
- 3 - Paddy Converted - Built up land
- 4 - Paddy Converted - Seasonal crops
- 5 - Paddy Converted - Perennial crops
- 6 - Paddy fallow
- 7 - Agricultural crops - Seasonal
- 8 - Agricultural crops - Perennial
- 9 - Agricultural crops - Plantation
- 10 - Forest
- 11 - Forest - Plantation
- 12 - Forest - Degraded
- 13 - Waste land
- 14 - Waterbodies
- Places
- Railway
- Roads



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33









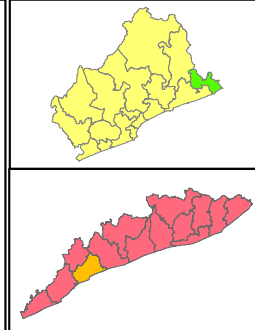


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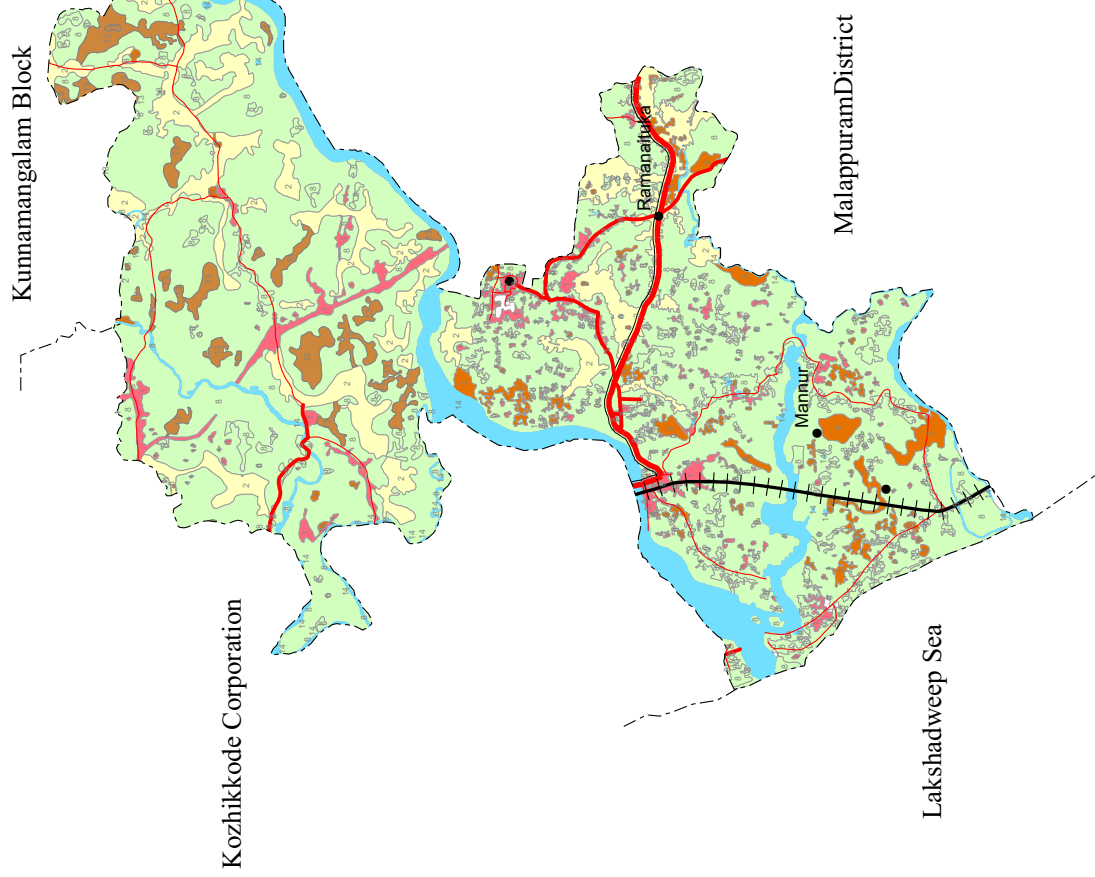
**LANDUSE  
KOZHICKODE BLOCK  
KOZHICKODE DISTRICT**

**LEGEND**

- 1 - Built up land
- 2 - Paddy
- 3 - Paddy Converted - Built up land
- 4 - Paddy Converted - Seasonal crops
- 5 - Paddy Converted - Perennial crops
- 6 - Paddy fallow
- 7 - Agricultural crops - Seasonal
- 8 - Agricultural crops - Perennial
- 9 - Agricultural crops - Plantation
- 10 - Forest
- 11 - Forest - Plantation
- 12 - Forest - Degraded
- 13 - Waste land
- 14 - Waterbodies
- Places
- Railway
- Roads



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33







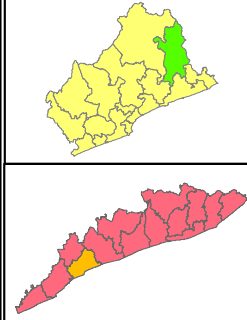


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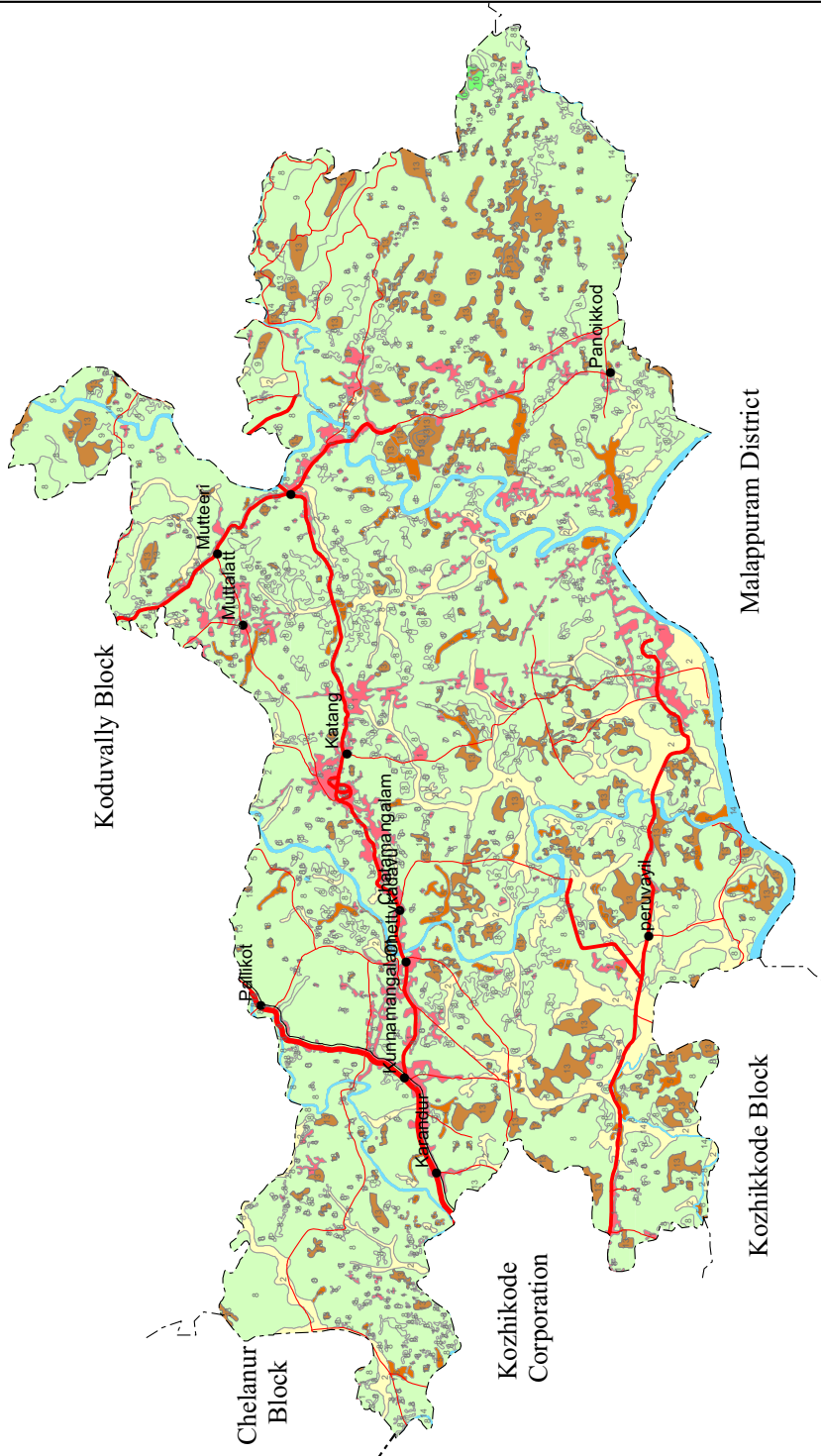
**LANDUSE  
KUNNAMANGALAM BLOCK  
KOZHIKODE DISTRICT**

**LEGEND**

- 1 - Built up land
  - 2 - Paddy
  - 3 - Paddy Converted - Built up land
  - 4 - Paddy Converted - Seasonal crops
  - 5 - Paddy Converted - Perennial crops
  - 6 - Paddy fallow
  - 7 - Agricultural crops - Seasonal
  - 8 - Agricultural crops - Perennial
  - 9 - Agricultural crops - Plantation
  - 10 - Forest
  - 11 - Forest - Plantation
  - 12 - Forest - Degraded
  - 13 - Waste land
  - 14 - Waterbodies
- Places  
 + Railway  
 — Roads



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33



Koduvally Block

Malappuram District

Chelanur Block

Kozhikode Corporation

Kozhikkode Block



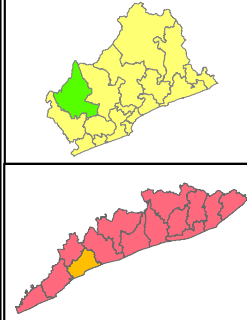


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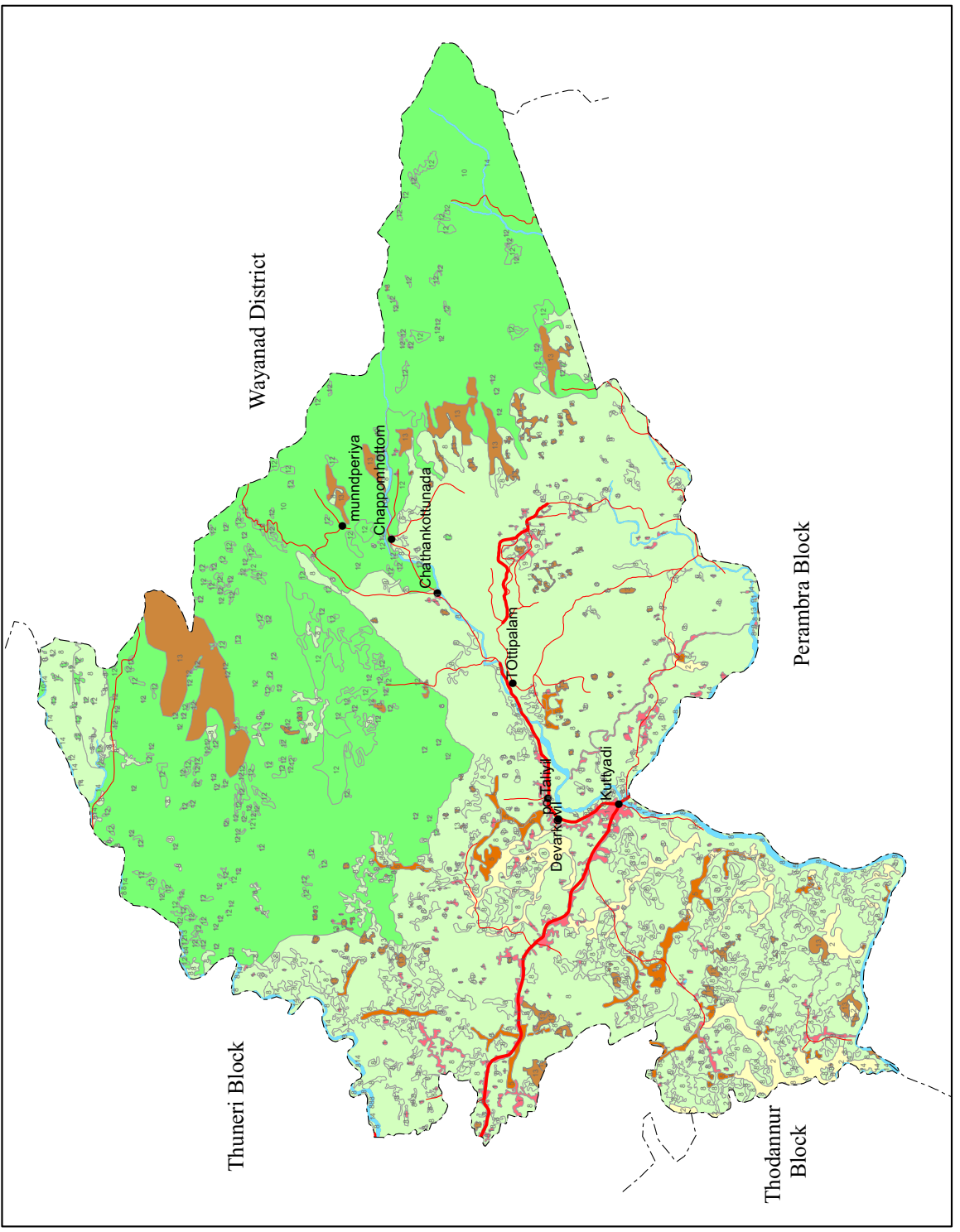
**LANDUSE  
KUNNUMMAL BLOCK  
KOZHIKODE DISTRICT**

**LEGEND**

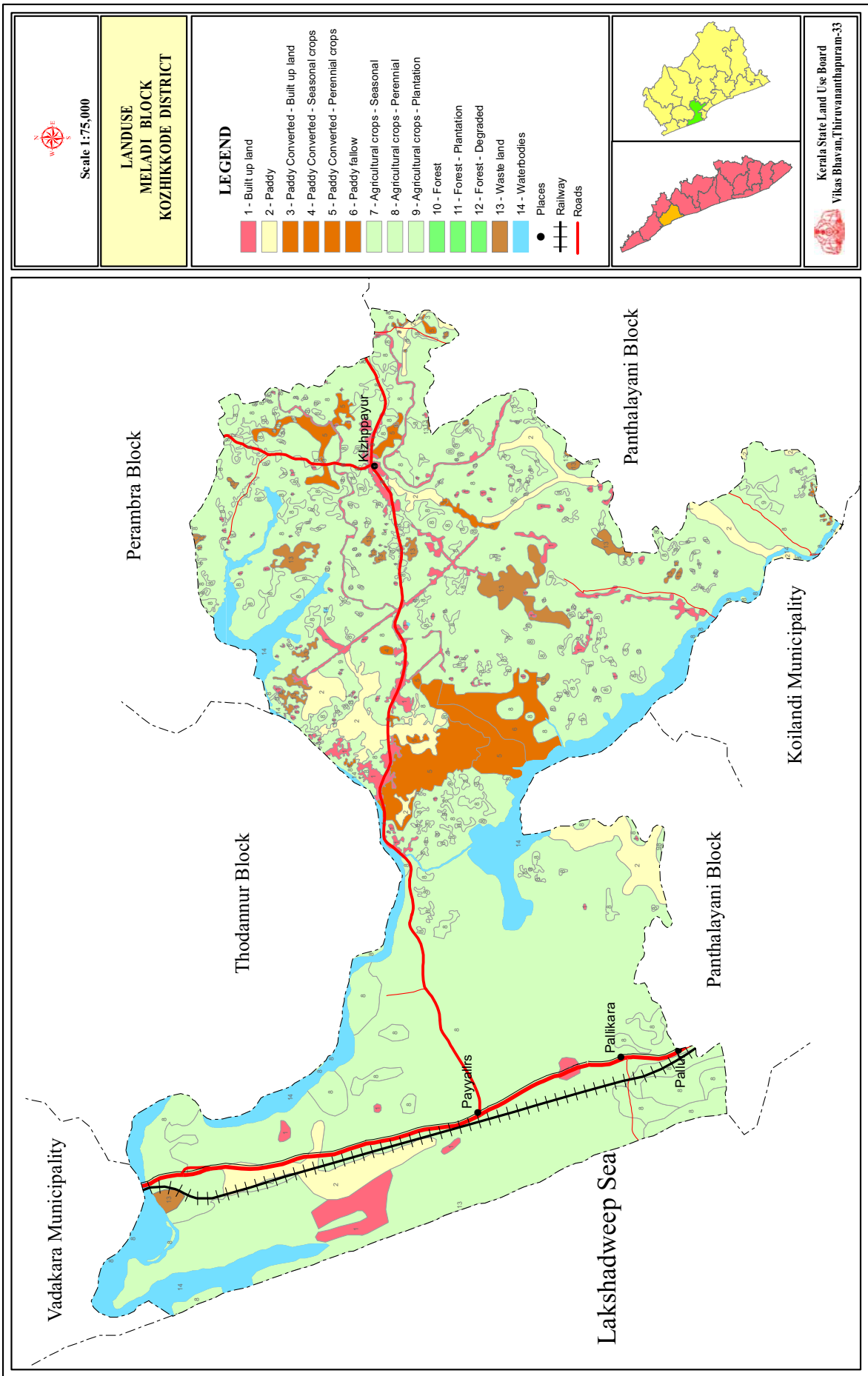
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- 3 - Paddy Converted - Built up land
- 4 - Paddy Converted - Seasonal crops
- 5 - Paddy Converted - Perennial crops
- 6 - Paddy fallow
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- 9 - Agricultural crops - Plantation
- 10 - Forest
- 11 - Forest - Plantation
- 12 - Forest - Degraded
- 13 - Waste land
- 14 - Waterbodies
- Places
- Railway
- Roads



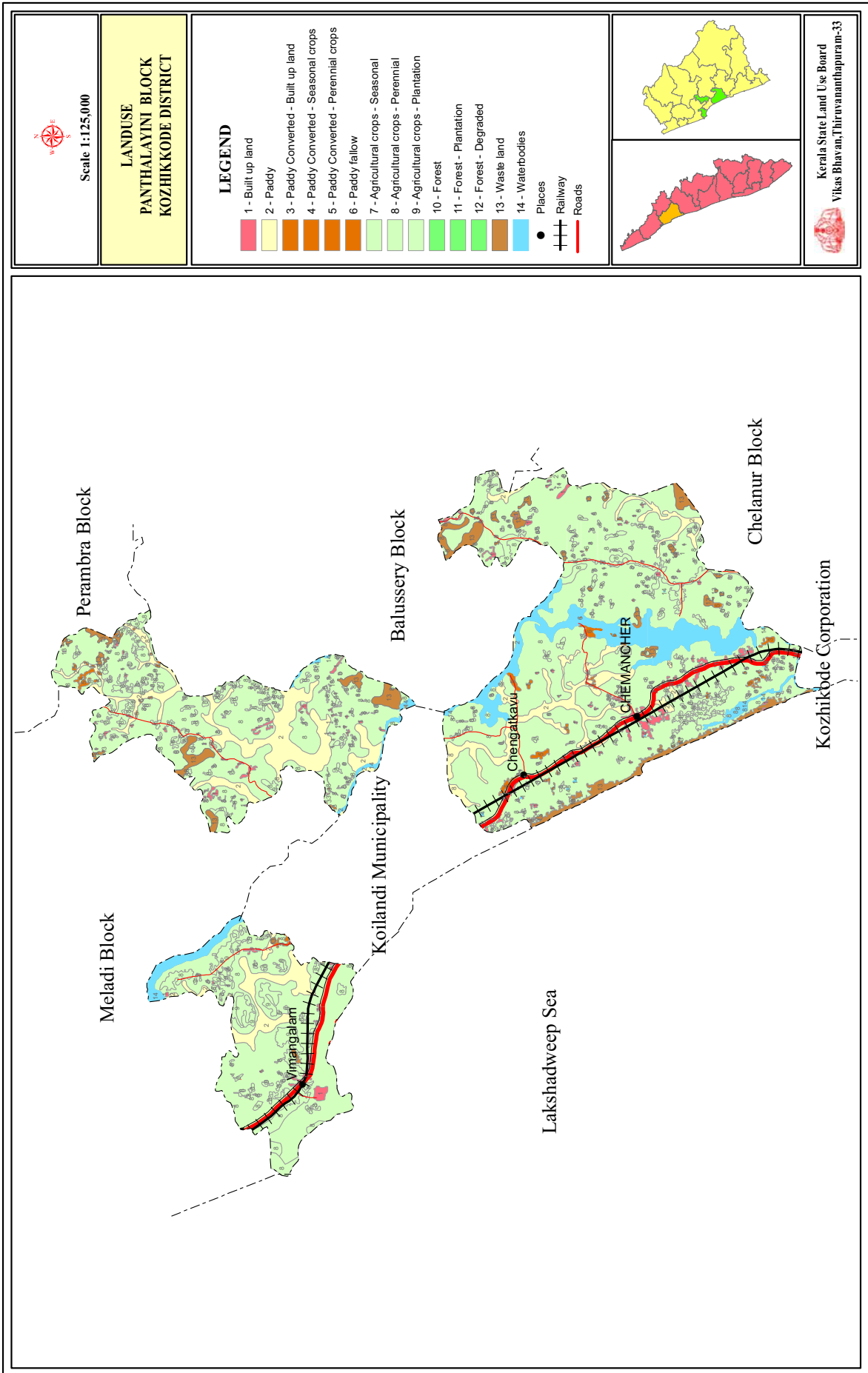
Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33















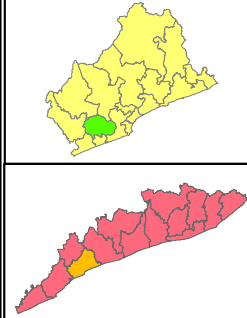


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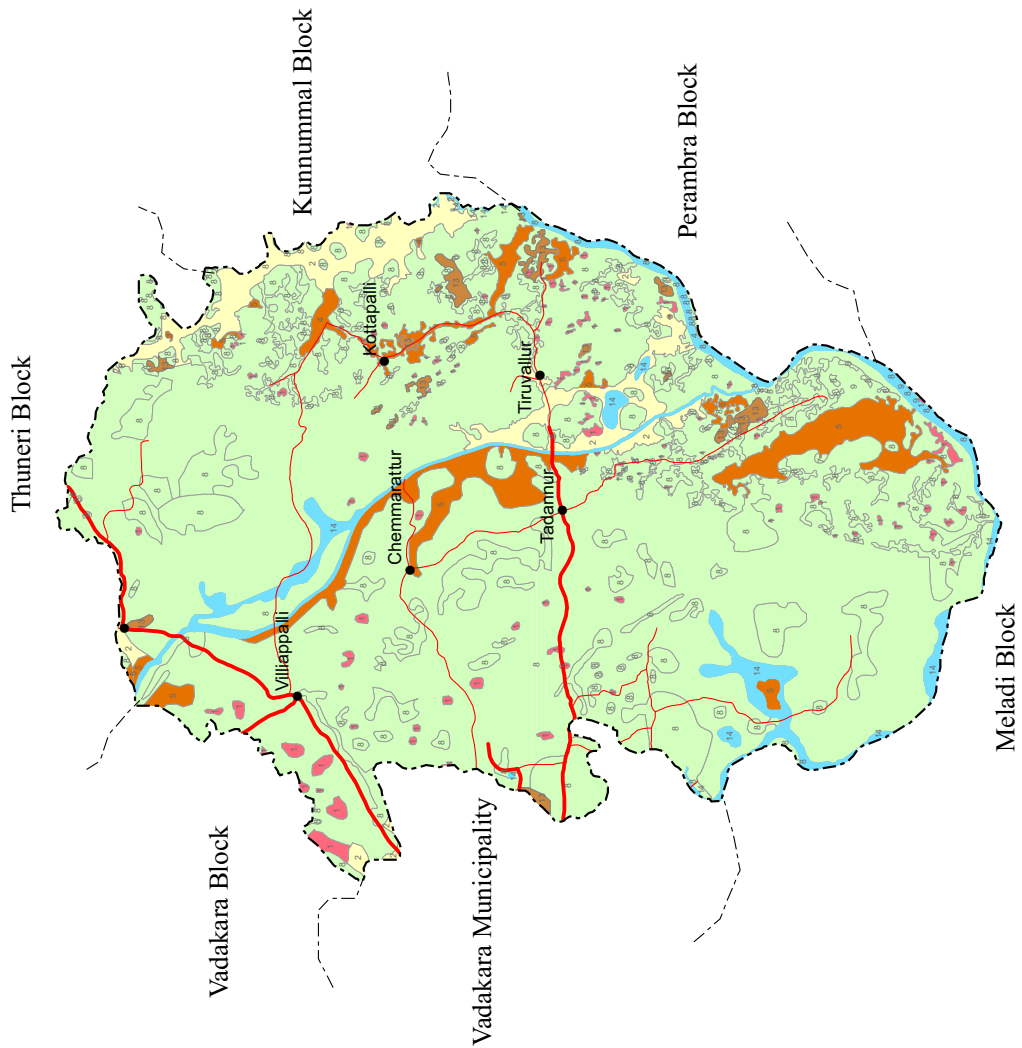
**LANDUSE  
THODANNUR BLOCK  
KOZHIKODE DISTRICT**

**LEGEND**

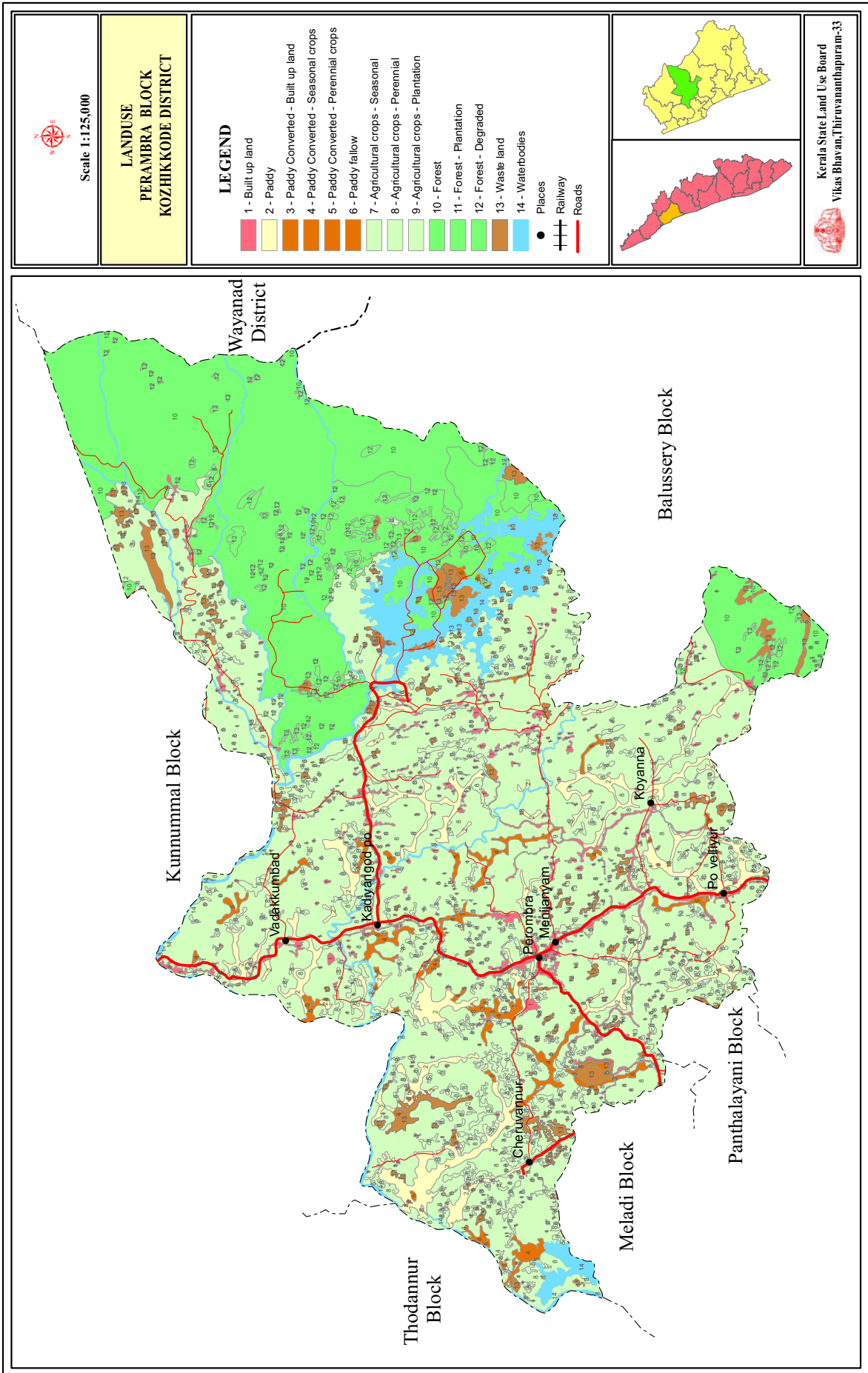
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- 2 - Paddy
- 3 - Paddy Converted - Built up land
- 4 - Paddy Converted - Seasonal crops
- 5 - Paddy Converted - Perennial crops
- 6 - Paddy fallow
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- 10 - Forest
- 11 - Forest - Plantation
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- 13 - Waste land
- 14 - Waterbodies
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- Railway
- Roads



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33









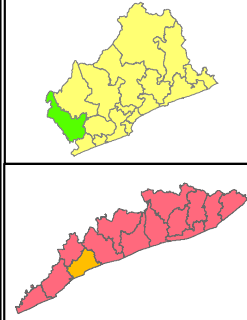


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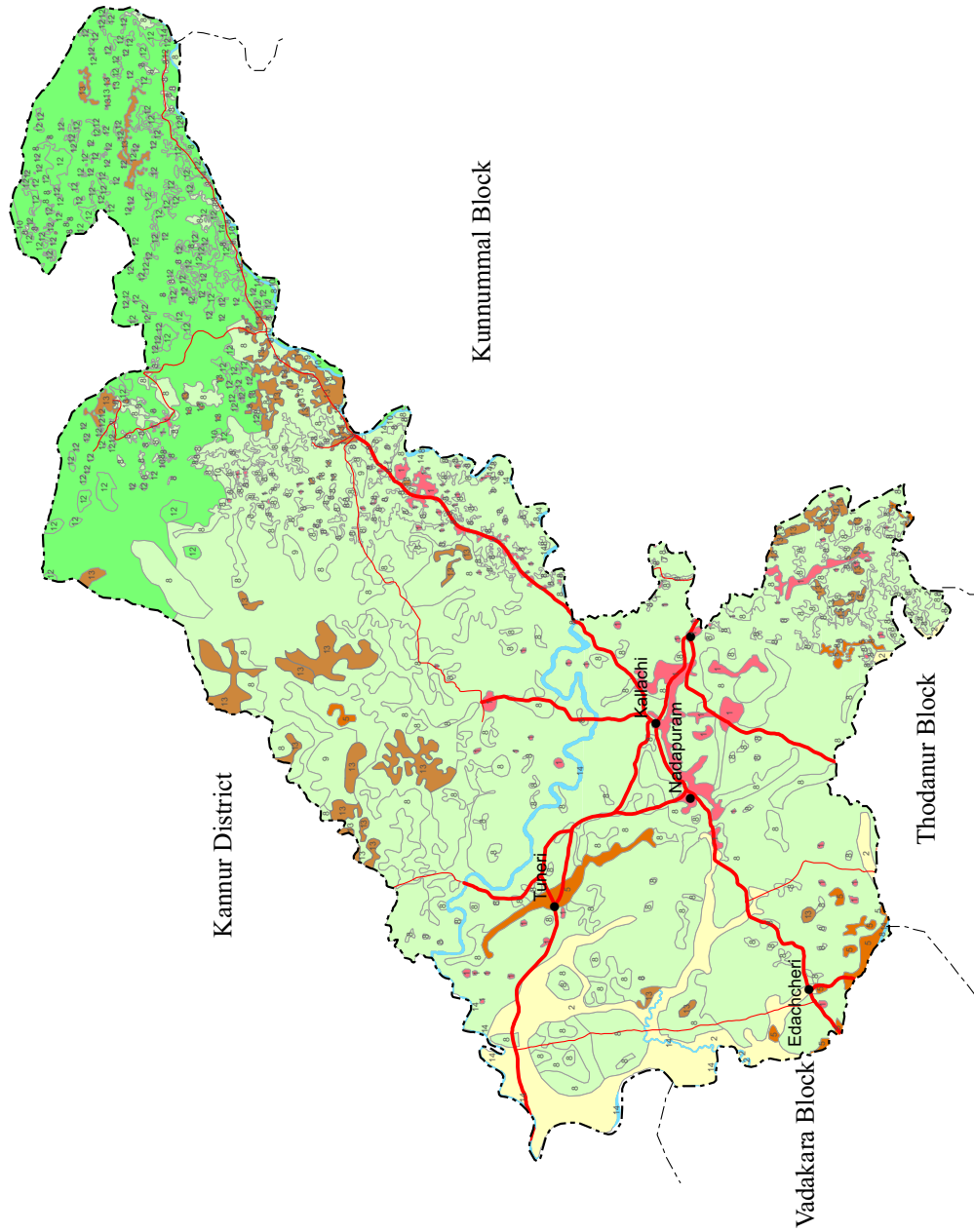
**LANDUSE  
THUNERI BLOCK  
KOZHIKODE DISTRICT**

**LEGEND**

- 1 - Built up land
- 2 - Paddy
- 3 - Paddy Converted - Built up land
- 4 - Paddy Converted - Seasonal crops
- 5 - Paddy Converted - Perennial crops
- 6 - Paddy fallow
- 7 - Agricultural crops - Seasonal
- 8 - Agricultural crops - Perennial
- 9 - Agricultural crops - Plantation
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- 11 - Forest - Plantation
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- 13 - Waste land
- 14 - Waterbodies
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Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33





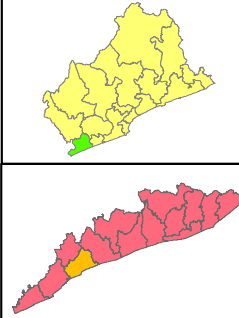


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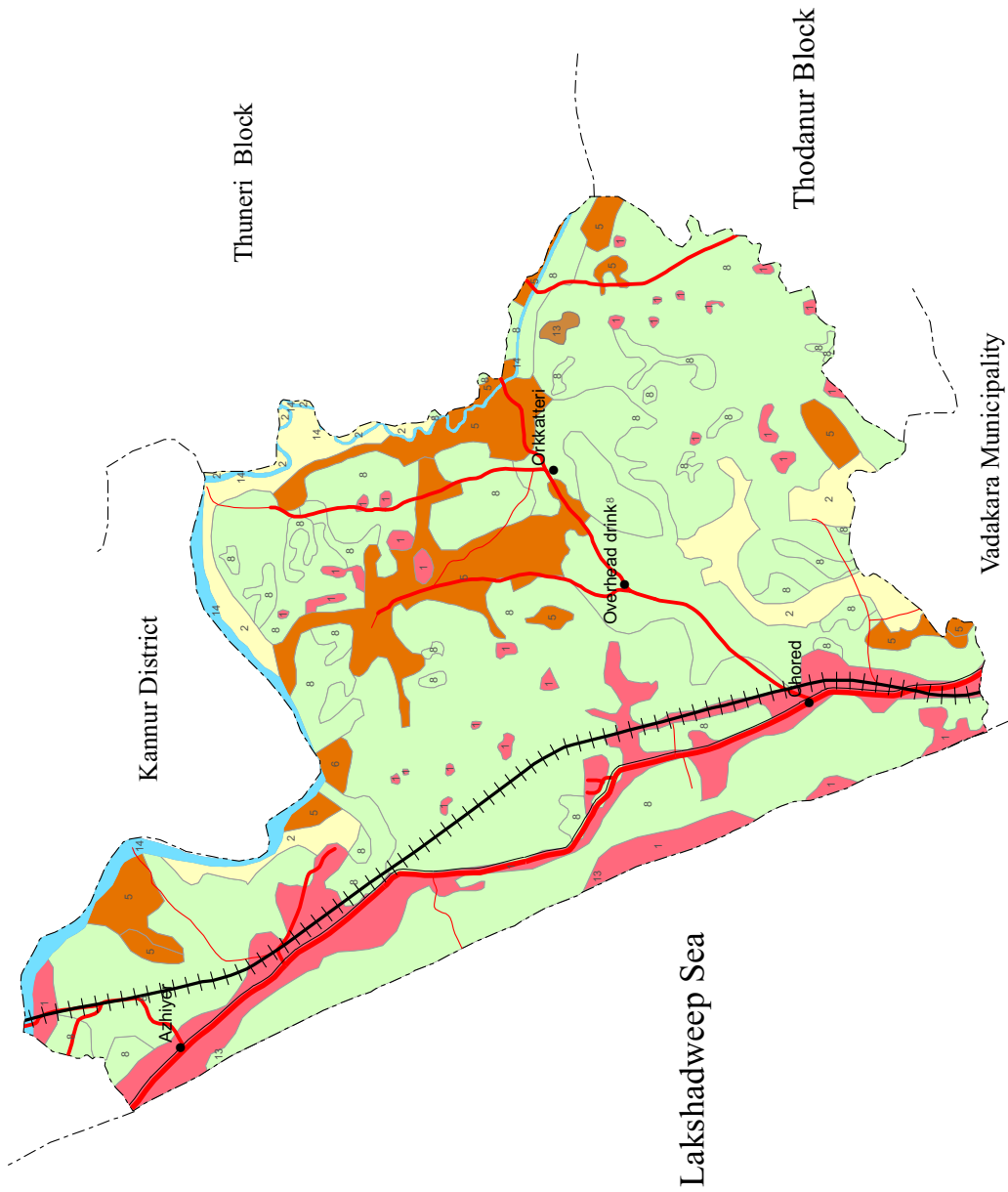
**LANDUSE  
VADAKARA BLOCK  
KOZHIKODE DISTRICT**

**LEGEND**

- 1 - Built up land
- 2 - Paddy
- 3 - Paddy Converted - Built up land
- 4 - Paddy Converted - Seasonal crops
- 5 - Paddy Converted - Perennial crops
- 6 - Paddy fallow
- 7 - Agricultural crops - Seasonal
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Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33







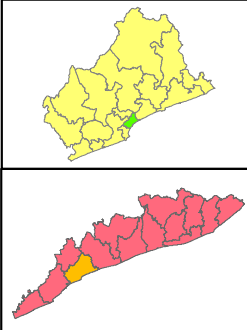


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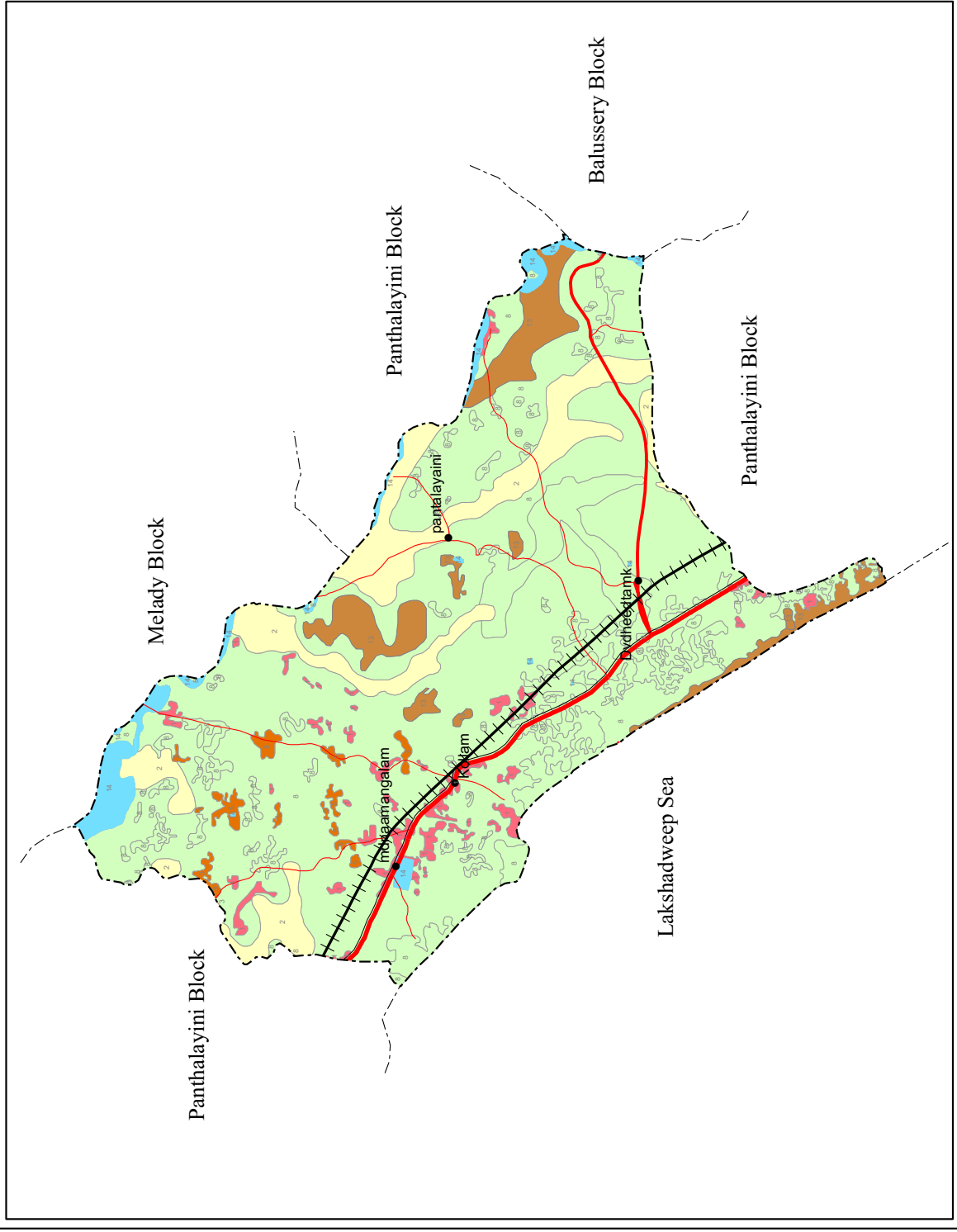
**LANDUSE**  
**KOILANDI MUNICIPALITY**  
**KOZHIKKODE DISTRICT**

**LEGEND**

- 1 - Built up land
  - 2 - Paddy
  - 3 - Paddy Converted - Built up land
  - 4 - Paddy Converted - Seasonal crops
  - 5 - Paddy Converted - Perennial crops
  - 6 - Paddy fallow
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  - 8 - Agricultural crops - Perennial
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  - 13 - Waste land
  - 14 - Waterbodies
- Places
  - ++ Railway
  - Roads



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33





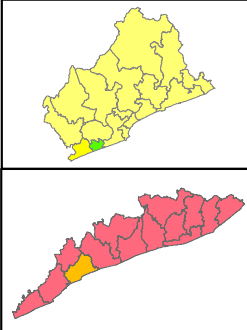


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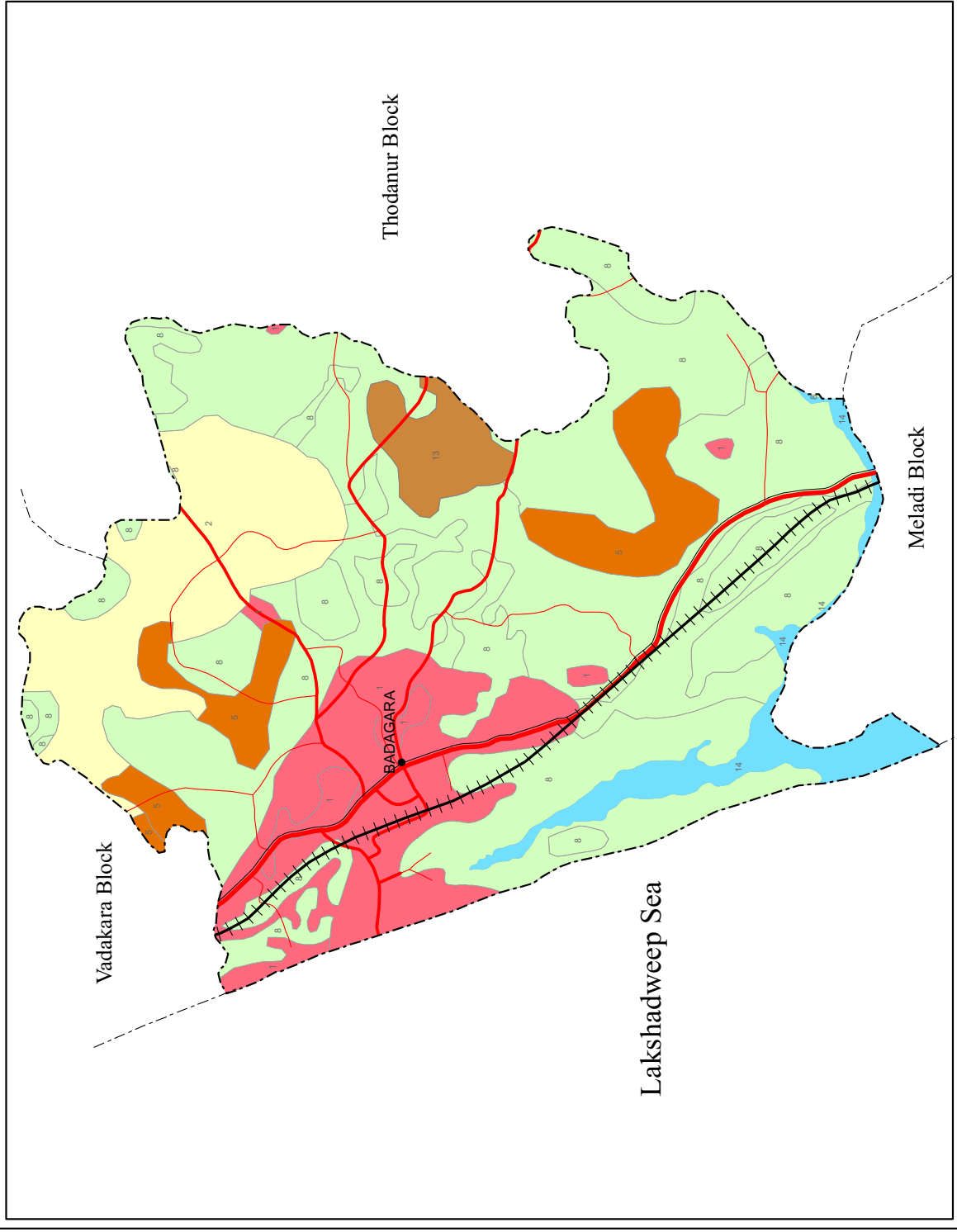
**LANDUSE**  
**VADAKARA MUNICIPALITY**  
**KOZHIKODE DISTRICT**

**LEGEND**

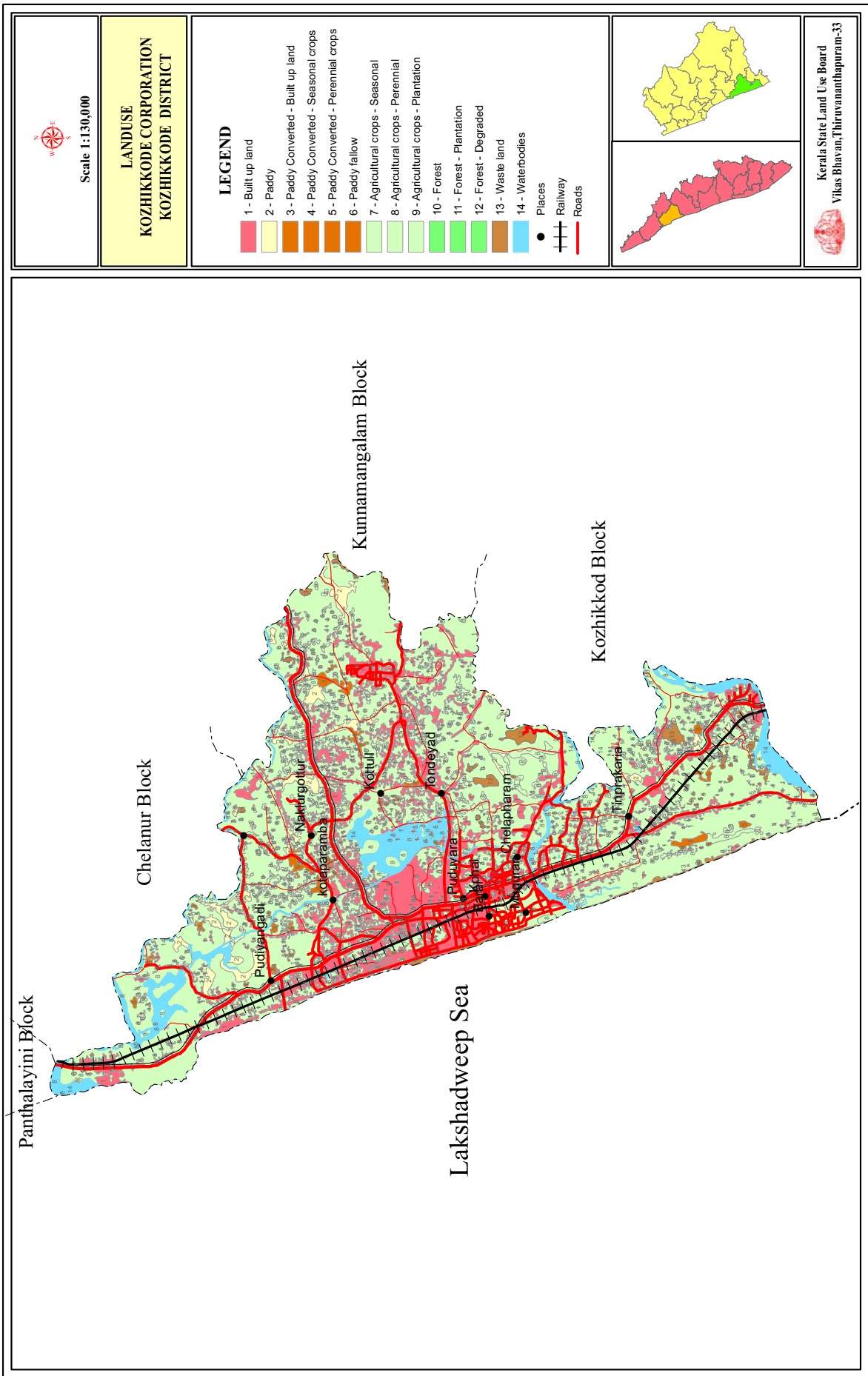
- 1 - Built up land
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- Places
  - +—+—+—+— Railway
  - Roads



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33









## **BIODIVERSITY**

Biodiversity refers to the variety and variability of life on earth. It is the variety of all living organisms including all species. Biodiversity is expressed at three levels on earth viz., genetic diversity, species diversity and ecosystem diversity. Its direct and indirect services are crucial for the subsistence of life on earth. Biodiversity ensures food, fuel, shelter, medicines and other resources vital for our survival. Most of the crop pests are controlled by a variety of other organisms including insects, birds and fungi which are certainly superior natural pesticides than their chemical equivalents. Genetic diversity is the variety of genetic information contained in all individual plants, animals and micro organisms. Species diversity is the variety species on earth. Species diversity is usually a measure of the number of species and their relative abundances for a given area at a given point in time. Ecosystem diversity is the variety of habitats, biotic communities and ecological processes.

Western Ghats, one of the Biodiversity hot spots is running along the length of Kerala. Almost a fourth of India's 10,000 plant species are found in the State. Among the 4,000 flowering plant species (1,272 of which are endemic to Kerala and 159 threatened) almost 900 species are of medicinal plants. Its 9,400 km<sup>2</sup> of forests include tropical wet evergreen and semi-evergreen forests (lower and middle elevations-3,470 km<sup>2</sup>), tropical moist and dry deciduous forests (mid-elevations-4,100 km<sup>2</sup> and 100 km<sup>2</sup> respectively), montane subtropical and temperate (shola) forests (highest elevations-100 km<sup>2</sup>). Altogether, 29% of Kerala is forested.

Table: 12.1

**PLANT DIVERSITY**

<b>Sl. No.</b>	<b>Items</b>	<b>Nos.</b>
1	Flowering plants	4000
2	Grass species	350
3	Bamboo species	15
4	Reeds species	9
5	Orchid species	214
6	Gymnosperms	4
7	Ferns and fern allies	200
8	Liverworts	200
9	Algae	231
10	Fungi	1044
11	Lichens	800

Table: 12.2

**ANIMAL DIVERSITY**

<b>Sl. No.</b>	<b>Items</b>	<b>Nos.</b>
1	Large and medium sized mammals	48
2	Birds species	475
3	Water birds	101
4	Reptiles genera	60
5	Lizard (endemic) species	30
6	Snake (endemic) species	57
7	Amphibian (endemic) species	87
8	Fresh water fish (endemic) species	84
9	Butterflies	313

Source: Economic Review.



Table: 12.3

**WESTERN GHAT BLOCKS, GRAMA PANCHAYATS OF  
KOZHIKODE DISTRICT**

<b>Block</b>	<b>Panchayat</b>
Chelannur	Chelannur
	Elathur
	Kakkodi
	Kakkoor
	Nanmanda
	Narikkuni
	Thalakupathur
Koduvally	Kizhakothe
	Koduvally
	Koodaranji
	Madavoor
	Omassery
	Puthupady
	Thamarassery
	Thiruvambadi
Kunnamangalam	Chathamangalam
	Karassery
	Kodencherry
	Kodiyathoor
	Kunnamangalam
	Kuruvatoor
	Mavoor
	Mukkam
	Peruvayal
Kozhikode	Beyyore
	Cheruvannoor
	Feroke
	Olavanna
	Perumanna
	Ramanattukara
	Nellalam

Source: Western Ghat Development Programme



## FOREST

Kerala has a total recorded forest cover of 11309.47 Sq.Km which is 29.09% of the total geographical area of the State (38863 Sq.Km). 11309.47 Sq.km of forest cover includes reserve forest (9176.30 Sq.Km), proposed reserve (295.37 Sq.Km), vested forest + EFL (1837.79 Sq.Km). The total area under forest in Kozhikode district is estimated as 290.45 Sq.Km. and covers 29.44% of the total area of this district. Kozhikode forest division comprises of three forest division viz. Thamarassery (114.95 Sq.Km.), Kuttiyadi (44.80 Sq.Km.) and Peruvannamoozhi (44.80 Sq.Km.). The natural forest of the Kozhikode falls under three main types the southern tropical moist deciduous, Western tropical wet evergreen and semi evergreen.

Table: 13.1

### CLASSIFICATION OF FOREST TYPES AS ON 31-03-2013

Sl.No.	Type	Area (Km <sup>2</sup> )	% of total
1	Tropical Wet Evergreen and Semi Evergreen	3877.44	34.28
2	Tropical Moist Deciduous	3615.98	31.97
3	Tropical Dry Deciduous	391.36	3.46
4	Montane Sub-tropical Temperate Sholas	386.42	3.42
5	Plantations	1523.09	13.47
6	Grass Lands	501.08	4.43
7	Others	1014.07	8.95
	<b>Total</b>	<b>11309.47</b>	<b>100.00</b>

Table: 13.2

**CLASSIFICATION OF FOREST AREA ACCORDING TO UTILIZATION AS ON  
31-03-2013**

Sl.No.	Mode of Utilisation	Area (Km <sup>2</sup> )	% of total
1	Dense Forests/Degraded Forest	8779.75	77.63
2	Plantation	1523.10	13.47
3	Area under lease	595.97	5.27
4	Forest land diverted under FCA	410.64	3.63
	<b>Total</b>	<b>11309.47</b>	<b>100.00</b>

Table: 13.3

**DISTRICT WISE FOREST AREA AS ON 31-03-2013**

Sl.No.	District	Area (Km <sup>2</sup> )
1	Thiruvananthapuram	463.83
2	Kollam	840.56
3	Pathanamthitta	1533.79
4	Kottayam	100.84
5	Ernakulam	823.83
6	Idukki	2713.72
7	Thrissur	1022.75
8	Palakkad	1527.35
9	Malappuram	723.91
<b>10</b>	<b>Kozhikode</b>	<b>290.45</b>
11	Wayanad	907.04
12	Kannur	241.57
13	Kasaragod	119.73
	<b>Total</b>	<b>11309.41</b>

Table: 13.4

**DISTRICT WISE ECOLOGICALLY FRAGILE LAND (EFL)**

Sl.No.	District	Area (Ha.)
1	Thiruvananthapuram	881.75
2	Kollam	273.72
3	Idukki	1247.46
4	Thrissur	75.76
5	Palakkad	5158.02
6	Malappuram	1265.13
<b>7</b>	<b>Kozhikode</b>	<b>1544.99</b>
8	Wayanad	2814.80
9	Kannur	498.42
10	Kasaragod	396.41
	<b>Total</b>	<b>14156.49</b>

Table: 13.5

**DISTRIBUTION OF FOREST AREA ACCORDING TO LEGAL STATUS  
(KERALA)****(Km<sup>2</sup>)**

Reserve Forest	Proposed Reserve	Vested Forest + EFL	Total
9176.30	295.37	1837.79	11309.47
81.14%	2.61%	16.25%	100%

Table: 13.6

**RANGE WISE AREA OF FOREST AS ON 31.03.2013**

Sl. No.	Division/Range	Area (Km <sup>2</sup> )
1	Peruvannamoozhi	130.69
2	Kuttiyadi	44.80
3	Thamarassery	114.95
	<b>Total</b>	<b>290.45</b>

Table: 13.7

**FOREST AREA (APPROX) BY LEGAL STATUS AS ON 31.03.2013**

Division	Reserve Forest/Proposed Reserve	Vested Forest + EFL	Total (Km <sup>2</sup> )
Kozhikode	47.36	243.08	290.45
<b>Total</b>	<b>47.36</b>	<b>243.08</b>	<b>290.45</b>

Table: 13.8

**DISTRICT WISE FOREST COVER IN KERALA (Area in Km<sup>2</sup>)**

Sl. No.	District	Geographical Area	2013 Assessment				Percentage to Area
			Very dense	Moderate dense	Open forest	Total	
1	Thiruvananthapuram	2192	60	719	537	1316	60.04
2	Kollam	2491	100	675	620	1395	56.00
3	Pathanamthitta	2642	158	1216	380	1754	66.39
4	Alappuzha	1414	0	45	68	113	7.99
5	Kottayam	2203	12	534	344	890	40.40
6	Idukki	5019	350	2108	1394	3852	76.75
7	Ernakulam	2407	12	287	399	698	29.00
8	Thrissur	3032	181	447	440	1068	35.22
9	Palakkad	4480	319	685	624	1628	36.34
10	Malappuram	3550	143	421	691	1255	35.35
<b>11</b>	<b>Kozhikode</b>	<b>2344</b>	<b>31</b>	<b>313</b>	<b>346</b>	<b>690</b>	<b>29.44</b>
12	Wayanad	2131	142	1312	322	1776	83.34
13	Kannur	2966	21	344	501	866	29.20
14	Kasaragod	1992	0	295	326	621	31.17
	<b>State Total</b>	<b>38863</b>	<b>1529</b>	<b>9401</b>	<b>6992</b>	<b>17922</b>	<b>46.12</b>

Source: Forest Statistics, Forest Department

Table: 13.9

## TYPES OF FORESTRY

Sl. No.	Type of Forestry	Characteristics
1	<b>Agroforestry</b>	Agroforestry or agro-silviculture is a land use management system in which trees or shrubs are grown around or among crops or pastureland. It combines agricultural and forestry technologies to create more diverse, productive, profitable, healthy and sustainable land-use systems.
2	<b>Analog Forestry</b>	Analog forestry is a system of planned, managed forests primarily employed in tropical or subtropical areas. The forests are designed to mimic the function and ecology of the pre-existing climax vegetation for the area and are also designed to provide economic benefits. It arose in Sri Lanka around 1981 as an alternative to monocultures of Pinus and Eucalyptus and has spread to India, Vietnam, Philippines, Australia, Peru, Ecuador, Colombia, Brazil, Costa Rica, Dominican Republic, Honduras, Mexico, Canada, Kenya and Zimbabwe at present.
3	<b>Arboriculture</b>	Arboriculture is the cultivation, management and study of individual trees, shrubs, vines and other perennial woody plants. It is both a practice and a science.
4	<b>Close to Nature Forestry</b>	Close to nature forestry is a theory and practice that takes the forest as an ecosystem and manages it as such. It is based on reduced human intervention that should be directed to accelerate the processes that nature would do by itself more slowly. It aims at overcoming the divorce between forestalist and ecologist management systems of forest. As an important consequence it concludes that if properly applied, it would render the segregation of forest lands into 'productive' and 'reserves' or national parks unnecessary.
5	<b>Community Forestry</b>	Community forestry is an evolving branch of forestry whereby the local community plays a significant role in forest management and land use decision making by themselves in the facilitating support of government as well as change agents. It involves the participation and collaboration of various stakeholders including community, government and non-government organizations (NGO's).

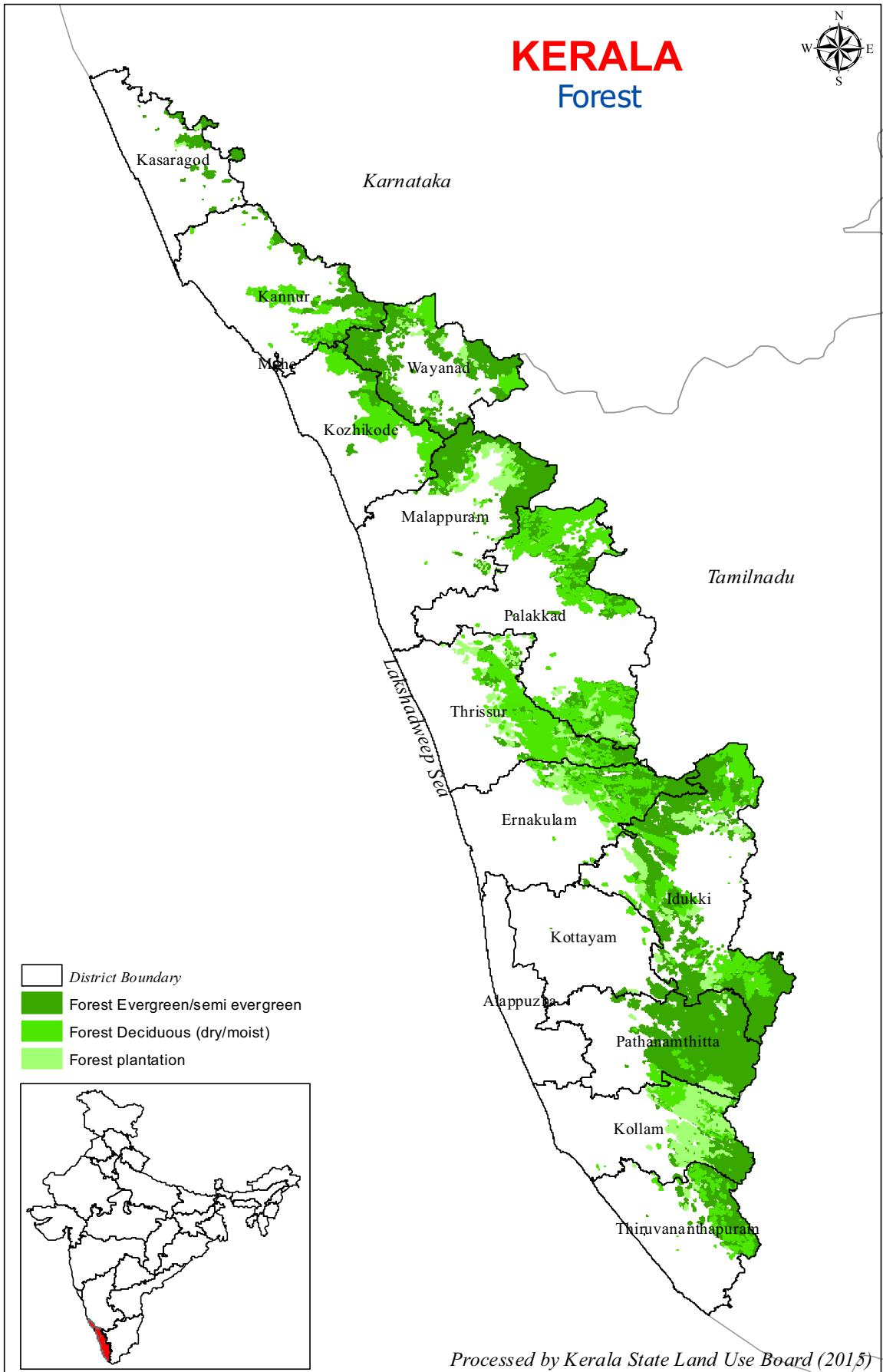
6	<b>Ecoforestry</b>	Ecoforestry has been defined as selection forestry or restoration forestry. The main idea of Ecoforestry is to maintain or restore the forest to standards where the forest may still be harvested for products on a sustainable basis. Ecoforestry is forestry that emphasizes holistic practices which strive to protect and restore ecosystems rather than maximize economic productivity.
7	<b>Energy Forestry</b>	<p>Energy forestry is a form of forestry in which a fast-growing species of tree or woody shrub is grown specifically to provide biomass or bio-fuel for heating or power generation.</p> <p>The two forms of energy forestry are short rotation coppice and short rotation forestry:</p> <ul style="list-style-type: none"> <li>• Short rotation coppice is crops of Poplar or Willow, grown for 2 to 5 years before harvest.</li> <li>• Short rotation forestry are crops of Alder, Ash, Birch, Eucalyptus, Poplar, and Sycamore, grown for 8 to 20 years before harvest.</li> </ul>
8	<b>Mycoforestry</b>	Mycoforestry is an ecological forest management system implemented to enhance forest eco-systems and plant communities through the introduction of mycorrhiza land saprotrophic fungi. Mycoforestry is considered a type of permaculture and can be implemented as a beneficial component of an agro-forestry system. Mycoforestry can enhance the yields of tree crops and produce edible mushrooms an economically valuable product. Mycoforestry is an alternative to the practice of clear cutting which removes dead wood from forests thereby diminishing nutrient availability and reducing soil depth.
9	<b>Permaforestry</b>	Permaforestry is an approach to the wild-crafting and harvesting of the forest biomass that uses cultivation to improve the natural harmonious systems. It is a relationship of interdependence between humans and the natural systems in which the amount of biomass available from the forest increases with the health of its natural systems.
10	<b>Plantation Forestry</b>	A plantation is a large piece of land (or water) usually in a tropical or semitropical area where one crop is specifically planted for widespread commercial sale and usually tended by resident labourers. The crops grown include fast growing trees (often conifers), cotton, coffee, tobacco, sugar cane, sisal, oil seeds (example oil palms), rubber trees and various fruits. Protectionist policies and natural comparative advantage have sometimes contributed to determining where plantations were located.



11	<b>Social Forestry</b>	Social Forestry means the management and protection of forests and afforestation on barren lands with the purpose of helping in the environmental, social and rural development.
12	<b>Sustainable Forestry</b>	Sustainable Forest Management (SFM) is the management of forests according to the principles of sustainable development. Sustainable forest management uses very broad social, economic and environmental goals. A range of forestry institutions now practice various forms of sustainable forest management and a broad range of methods and tools are available that have been tested over time and space.
13	<b>Urban Forestry</b>	Urban Forestry is the careful care and management of urban forests, i.e., tree populations in urban settings for the purpose of improving the urban environment. Urban forestry advocates the role of trees as a critical part of the urban infrastructure. Urban foresters plant and maintain trees, support appropriate tree and forest preservation, conduct research and Promote the many benefits trees provide. Urban forestry is practiced by municipal and commercial arborists, municipal and utility foresters, environmental policymakers, city planners, consultants, educators, researchers and community activists.
14	<b>Silviculture</b>	Silviculture is the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values. The name comes from the Latin silvi-(Forest) + culture (as in growing). The study of forests and woods is termed silvology. Silviculture also focuses on making sure that the treatment(s) of forest stands are used to preserve and to better their productivity.



# KERALA Forest



- District Boundary
- Forest Evergreen/semi evergreen
- Forest Deciduous (dry/moist)
- Forest plantation

Processed by Kerala State Land Use Board (2015)



## **AGRICULTURE**

The agricultural sector is the important sub-sector of the primary sector in Kerala. Agriculture has been a way of life and continues to be the single most important livelihood of the masses. Stabilization and augmentation of productivity assume critical importance, given the limited scope for increasing area under cultivation of various crops. Agricultural crops in the State are broadly classified as food crops and non-food crops. Food crops are cereals & condiments, fresh fruits, vegetables etc. The major non-food crops are rubber, betel leaves, lemon grass etc. Another classification of crops is seasonal crops, annual crops and perennial crops which are based on their life time.

Agriculture is the main economic activity of the district. Out of the total geographical area 214566 ha, the total cropped area covers 200116 ha. in the district. Area under paddy cultivation was 6737 ha. during 2000-01 period and it is now declined to 2433 ha. for 2013-14 agricultural year. Coconut occupies maximum area under crops in Kerala. The district stands 1<sup>st</sup> position in the cultivation of coconut with an area of 123115 ha; it is about 15% of the total area. Coconut cultivation is centered in Balussery and Thuneri blocks. In 2000-01, about 17690 ha. of land was under rubber cultivation and it is risen to 21800 ha. during the agricultural year 2013-14. Arecanut cultivation was spread an area of 10692 ha. with an annual production of 15285 tonnes in 2000-01 period. Now it had declined as 10247 ha. with an annual production of 8875 tonnes during 2013-14 agricultural year. Plantain, green manure plants, pepper, jack, mango tree, papaya and banana are also grown in the district.

Table: 14.1

**CLASSIFICATION OF AREA ON THE BASIS OF LAND UTILISATION****(Area in Ha.)**

Year	Total Geographical area	Forest	Land put to non agricultural use	Barren & uncultivable land	Permanent pastures & other grazing land
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
2013-14	234641	41386	29798	784	0
2012-13	234641	41386	28945	763	8
2011-12	234641	41386	28483	936	0

Year	Land under misc. tree crops	Cultivable waste	Fallow other than current fallow	Current fallow	Marshy land
<b>1</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
2013-14	103	2585	1581	2151	5
2012-13	119	2580	1341	2015	5
2011-12	123	2118	1305	2663	5

Year	Still water	Water logged area	Social forestry	Net area sown	Area sown more than once	Total cropped area
<b>1</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>
2013-14	3933	382	34	151899	48217	200116
2012-13	3879	382	34	153184	50091	203275
2011-12	3879	382	34	153327	53644	206971

Table: 14.2

## BLOCK WISE AREA OF CROPS 2013-14

Sl. No.	Name of Blocks/ Municipalities/ Corporation	Paddy						Tapioca			Drumstick	Amaran thus	Brinjal	Ladies finger
		Autumn		Winter		Summer		Autumn	Winter	Summer				
		3	4	5	6	7	8							
1	2	3	4	5	6	7	8	9	10	11	12			
1	Kozhikode	0.27	29.52	2.08	3.86	5.63	17.54	64.61	3.53	0.37	1.67			
2	Chelannur	4.01	91.27	16.53	28.86	34.76	42.55	59.07	4.10	0.10	1.09			
3	Kunnamangalam	6.57	175.07	44.72	19.24	46.03	128.64	157.61	11.10	0.80	8.51			
4	Koduvally	10.57	121.83	3.51	29.10	215.76	190.08	374.31	12.93	0.72	1.68			
5	Balussery	2.84	274.71	2.15	25.49	51.76	156.04	130.22	14.98	0.93	2.98			
6	Perambra	16.34	434.67	177.47	42.79	81.76	117.15	126.17	12.39	1.64	1.57			
7	Melady	10.75	67.06	91.13	5.16	7.76	16.04	46.58	11.44	0.72	0.48			
8	Panthalayani	6.77	132.57	26.91	4.00	4.96	13.47	39.48	5.01	0.45	0.86			
9	Vadakara	1.95	27.94	0.13	6.49	16.07	9.42	31.49	2.04	0.28	1.33			
10	Thodannur	0.88	183.00	143.73	12.04	14.96	30.87	91.32	3.30	0.25	0.67			
11	Thuneri	13.75	87.57	0.00	21.79	33.30	51.44	215.05	8.00	0.86	1.95			
12	Kunnummel	1.07	126.05	40.61	29.00	63.72	55.80	132.50	8.44	0.10	0.90			
	<b>Blocks Total</b>	<b>75.77</b>	<b>1751.26</b>	<b>548.97</b>	<b>227.82</b>	<b>576.47</b>	<b>829.04</b>	<b>1468.41</b>	<b>97.26</b>	<b>7.22</b>	<b>23.69</b>			
	Municipalities	3.17	34.40	13.97	1.67	0.85	4.14	26.20	4.57	0.16	0.33			
	Corporation	0.00	5.41	0.07	1.52	1.86	4.07	94.02	2.12	0.14	0.69			
	<b>District Total</b>	<b>78.94</b>	<b>1791.07</b>	<b>563.01</b>	<b>231.01</b>	<b>579.18</b>	<b>837.25</b>	<b>1588.63</b>	<b>103.95</b>	<b>7.52</b>	<b>24.71</b>			

Table: 14.2 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)									
		13	14	15	16	17	18	19	20	21	
1	2	1.03	1.1	0.65	1.03	3.84	2.16	1.48	0.4	1.81	
1	Kozhikode	1.03	1.1	0.65	1.03	3.84	2.16	1.48	0.4	1.81	
2	Chelannur	1.05	0.33	0.97	1.01	5.39	2.42	1.07	0.09	4.32	
3	Kunnamangalam	5.3	2.9	2.06	2.12	23.73	2.48	6.87	1.53	7.13	
4	Koduvally	4.07	0.5	3.82	1.94	22.68	2.86	4.61	0.42	8.49	
5	Balussery	7.16	1.77	0.9	3.76	9.34	2.03	8.35	0.00	8.4	
6	Perambra	5.18	1.55	0.43	4.92	11.62	2.54	9.43	0.00	8.85	
7	Melady	5.70	1.85	0.42	6.96	7.02	2.43	6.32	0.00	9.36	
8	Panthalayani	2.00	0.82	0.55	3.46	2.78	0.9	2.99	0.18	5.78	
9	Vadakara	1.05	0.66	0.47	1.87	5.42	0.44	4.42	0.01	2.85	
10	Thodannur	2.81	1.19	1.48	2.64	6.61	0.84	2.5	0.08	6.19	
11	Thuneri	3.87	1.92	0.99	6.49	18.8	3.3	10.77	0.09	13.77	
12	Kunnummel	3.56	0.93	0.63	3.46	7.22	3.65	11.88	0.08	7.46	
	<b>Blocks Total</b>	<b>42.78</b>	<b>15.52</b>	<b>13.37</b>	<b>39.66</b>	<b>124.45</b>	<b>26.05</b>	<b>70.69</b>	<b>2.88</b>	<b>84.41</b>	
	Municipalities	1.22	0.18	0.04	0.52	3.92	1.18	2.31	0.08	1.48	
	Corporation	0.58	0.03	0.45	1.42	1.09	1.16	0.31	0.03	1.97	
	<b>District Total</b>	<b>44.58</b>	<b>15.73</b>	<b>13.86</b>	<b>41.60</b>	<b>129.46</b>	<b>28.39</b>	<b>73.31</b>	<b>2.99</b>	<b>87.86</b>	



Table: 14.2 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)										
		Cabbage	Tomato	Cauli flower	Beans	Other vegetables	Elephant foot yam	Colocasia	Yam	Koorika		
1	2	22	23	24	25	26	27	28	29	30		
1	Kozhikode	0	0.08	0	0	0.22	2.69	16.9	0.6	0		
2	Chelannur	0	0.04	0	0	0	14.62	24.28	2.28	1.47		
3	Kunnamangalam	0	0	0	0	0.46	21.41	36.21	4.18	1.77		
4	Koduvally	0	0.05	0	0	0.53	59.43	90.38	7.14	1.24		
5	Balusseri	0	0	0	0	0.14	45.43	47.32	1.6	1.23		
6	Perambra	0	0	0.12	0	2.7	22.84	35.08	0.64	0.88		
7	Melady	0.02	0.06	0	0.02	0.18	3.7	14.53	0.53	0		
8	Panthalayani	0	0.23	0	0	0.09	2.64	8.06	0.12	0		
9	Vadakara	0	0.07	0	0	1.9	0.7	7.33	0.13	0		
10	Thodannur	0	0.03	0	0	4.06	2.88	12.68	0.39	0		
11	Thuneri	0	0.27	0	0	4.8	3.53	45.76	1.06	0.07		
12	Kunnummel	0	0.15	0	0	2.19	10.52	43.54	2.00	0		
	<b>Blocks Total</b>	<b>0.02</b>	<b>0.98</b>	<b>0.12</b>	<b>0.02</b>	<b>17.27</b>	<b>190.39</b>	<b>382.07</b>	<b>20.67</b>	<b>6.66</b>		
	Municipalities	0	0.05	0	0	2.31	0.37	2.96	0	0		
	Corporation	0	0.09	0	0	0.16	1.6	9.44	0.21	0		
	<b>District Total</b>	<b>0.02</b>	<b>1.12</b>	<b>0.12</b>	<b>0.02</b>	<b>19.74</b>	<b>192.36</b>	<b>394.47</b>	<b>20.88</b>	<b>6.66</b>		

Table: 14.2 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)									
		Sweet potato	Nana kizhangu	Other tubers	Pulses	Ginger	Turmeric	Coconut	Areanut	Cashew	
<b>1</b>	<b>2</b>	<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>38</b>	<b>39</b>	
1	Kozhikode	0.55	0.01	0.73	0	0.2	3.36	4046.46	156.91	30.6	
2	Chelannur	0.6	2.16	4.51	0	1.95	22.57	8145.74	556.61	91.2	
3	Kunnamangalam	2.08	0.32	3.75	0	6.3	34.78	12560.34	1396.23	220.4	
4	Koduvally	2.2	1.53	20.52	0	16.51	37.84	16180.79	2283.21	186.92	
5	Balusseri	0.72	1.44	4.46	2.4	7.06	74.71	15036.92	1232.80	213.83	
6	Perambra	1.3	0.57	0.98	0.31	4.77	43.76	11221.38	818.66	199.10	
7	Melady	0.02	0.02	3.8	0.49	1.48	8.86	5988.82	201.50	78.65	
8	Panthalayani	0.24	0	2.88	2.6	0.35	9.63	5999.18	276.01	97.41	
9	Vadakara	0.3	0	3.01	1.3	0.02	1.91	4129.62	172.37	51.87	
10	Thodannur	0.95	0.25	1.98	0	1.04	4.82	7185.07	276.61	202.25	
11	Thuneri	1.85	1.81	8.32	3.38	1.04	23.55	12385.24	787.36	397.14	
12	Kunnummel	0.77	0.42	2.87	2.25	4.85	32.02	11018.16	1102.35	279.30	
	<b>Blocks Total</b>	<b>11.58</b>	<b>8.53</b>	<b>57.81</b>	<b>12.73</b>	<b>45.57</b>	<b>297.81</b>	<b>113897.72</b>	<b>9260.62</b>	<b>2048.67</b>	
	Municipalities	0.02	0	0.39	0.1	0	2.1	3526.91	181.09	28.91	
	Corporation	0.44	0	1.88	0	0.03	0.93	5690.84	455.45	25.31	
	<b>District Total</b>	<b>12.04</b>	<b>8.53</b>	<b>60.08</b>	<b>12.83</b>	<b>45.60</b>	<b>300.84</b>	<b>123115.47</b>	<b>9897.16</b>	<b>2102.89</b>	

Table: 14.2 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	Pepper	Jack	Mango tree	Tamarind	Clove	Nutmeg	Cocoa	Pappaya	Banana
<b>1</b>	<b>2</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>48</b>
1	Kozhikode	80.8	338.90	306.62	34.85	0.06	5.86	0.71	112.91	27.47
2	Chelannur	175.42	603.94	429.05	45.04	0.67	5.21	3.16	135.55	134.22
3	Kunnamangalam	313.31	1139.87	932.84	134.73	0.81	26.57	21.31	219.44	528.24
4	Koduvally	391.82	1794.70	1124.01	98.99	6.66	167.90	328.51	372.06	179.47
5	Balussery	516.12	1209.69	968.40	110.46	5.57	67.91	207.77	175.97	197.72
6	Perambra	366.30	663.40	555.34	69.97	1.53	30.44	24.02	92.49	235.96
7	Melady	124.39	349.40	394.58	42.42	0.52	4.60	0.22	66.14	33.72
8	Panthalayani	136.08	356.07	364.47	43.01	1.18	9.95	2.03	76.48	28.91
9	Vadakara	93.44	250.34	267.61	17.24	0.3	3.23	0.23	32.31	11.06
10	Thodannur	175.28	588.61	605.41	61.22	0.94	5.59	0.25	95.95	39.09
11	Thuneri	468.76	989.28	953.27	75.58	2.76	14.01	3.59	141.50	110.17
12	Kunnummel	353.43	909.16	826.55	58.98	10.37	24.73	16.08	93.32	100.59
	<b>Blocks Total</b>	<b>3195.15</b>	<b>9193.36</b>	<b>7728.15</b>	<b>792.49</b>	<b>31.37</b>	<b>366.00</b>	<b>607.88</b>	<b>1614.12</b>	<b>1626.62</b>
	Municipalities	58.6	172.55	182.28	20.55	0.23	5.4	0.35	39.16	5.54
	Corporation	91.71	439.52	364.37	22.05	0.46	11.89	1.82	136.73	1.12
	<b>District Total</b>	<b>3345.46</b>	<b>9805.43</b>	<b>8274.80</b>	<b>835.09</b>	<b>32.06</b>	<b>383.29</b>	<b>610.05</b>	<b>1790.01</b>	<b>1633.28</b>

Table: 14.2 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)									
		Betel leaves	Pine apple	Plantain	Sugar cane	Lemon grass	Fodder grass	Green Manure Plants	Teak	Medicinal Plants	
<b>1</b>	<b>2</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>52</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56</b>	<b>57</b>	
1	Kozhikode	0.02	1.48	174.11	0	0	1.05	61.64	6.34	1.56	
2	Chelannur	0.02	4.68	143.66	0.39	0	1.38	70.15	14.26	2.13	
3	Kunnamangalam	1.74	20.52	392.72	0	0	1.80	156.46	83.98	1.86	
4	Koduvally	1.12	19.30	463.23	0	0	17.63	276.71	95.09	2.54	
5	Balussery	0.65	20.50	401.03	0	1.04	26.86	215.07	58.39	13.49	
6	Perambra	3.42	11.36	208.63	0	0	6.74	137.98	69.30	9.32	
7	Melady	0.18	3.81	174.32	0	0	1.54	74.85	12.82	3.83	
8	Panthalayani	0.39	4.72	129.56	0	0	0.43	77.17	15.26	5.13	
9	Vadakara	0.02	3.39	78.51	0	0	0.36	32.37	4.63	1.33	
10	Thodannur	0.1	6.98	168.11	0	0	1.47	65.35	9.19	2.84	
11	Thuneri	1.67	10.78	266.49	0	0	2.2	155.04	16.12	3.87	
12	Kunnummel	0.67	25.13	274.17	0	0	1.41	99.24	31.66	5.19	
	<b>Blocks Total</b>	<b>10.00</b>	<b>132.65</b>	<b>2874.54</b>	<b>0.39</b>	<b>1.04</b>	<b>62.87</b>	<b>1422.03</b>	<b>417.04</b>	<b>53.09</b>	
	Municipalities	0.03	2.43	61.82	0	0	0.3	28.74	5.96	1.5	
	Corporation	0.03	1.75	118.39	0	0	0.3	36.84	9.24	0.99	
	<b>District Total</b>	<b>10.06</b>	<b>136.83</b>	<b>3054.75</b>	<b>0.39</b>	<b>1.04</b>	<b>63.47</b>	<b>1487.61</b>	<b>432.24</b>	<b>55.58</b>	

Table: 14.3

## BLOCK WISE AREA OF CROPS 2012-13

Sl. No.	Name of Blocks/ Municipalities/ Corporation	Paddy						Tapioca			Drumstick	Amaranthus	Brinjal
		Autumn		Winter		Summer		Autumn	Winter	Summer			
		3	4	5	6	7	8						
1	2	3	4	5	6	7	8	9	10	11			
1	Kozhikode	2.59	78.06	2.03	3.32	13.11	19.64	66.48	4.88	0.29			
2	Chelannur	4.87	271.08	52.07	30.72	32.50	41.66	46.74	4.36	0.14			
3	Kunnamangalam	13.73	342.05	25.51	41.52	64.72	115.63	143.16	15.12	0.5			
4	Koduvally	27.65	288.05	2.59	61.25	161.84	141.51	262.15	11.94	0.85			
5	Balussery	5.76	354.85	1.91	43.97	122.26	126.36	120.43	15.64	1.24			
6	Perambra	22.47	550.89	187.28	56.58	107.74	183.09	130.33	21.37	2.33			
7	Melady	9.08	99.04	96.09	10.03	10.18	17.73	51.46	9.24	0.76			
8	Panthalayani	12.92	181.23	25.02	4.27	5.37	16.12	43.5	5.22	0.06			
9	Vadakara	4.88	32.61		6.12	12.10	14.02	35.8	2.27	0.25			
10	Thodannur	5.84	145.80	147.94	22.65	23.78	42.38	90.12	4.73	1.02			
11	Thuneri	20.41	87.34		18.57	30.69	44.96	218.2	9.45	1.24			
12	Kunnummel	0.95	209.42	77.72	31.04	64.74	63.69	135.65	5.58	0.41			
	<b>Blocks Total</b>	<b>131.15</b>	<b>2640.42</b>	<b>618.16</b>	<b>330.04</b>	<b>649.03</b>	<b>826.79</b>	<b>1344.02</b>	<b>109.80</b>	<b>9.09</b>			
	Municipalities	12.31	71.06	12.55	3.68	1.17	7.75	25.83	5.44	0.21			
	Corporation		25.26	0.76	1.59	1.52	2.90	70.12	1.36	0.35			
	<b>District Total</b>	<b>143.46</b>	<b>2736.74</b>	<b>631.47</b>	<b>335.31</b>	<b>651.72</b>	<b>837.44</b>	<b>1439.97</b>	<b>116.60</b>	<b>9.65</b>			

Table: 14.3 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)									
		Ladies finger	Bitter gourd	Snake gourd	Little gourd (Koval)	Ash gourd (Kumbalam)	Payar (Achinga)	Pumpkin (Mathan)	Cucumber (Vellari)	Bottle gourd	
1	2	12	13	14	15	16	17	18	19	20	
1	Kozhikode	1.83	1.89	1.45	0.99	1.07	5.38	3.6	2.96	0.92	
2	Chelannur	1.59	6.37	0.8	0.42	1.4	7.26	5.86	3.57	0.11	
3	Kunnamangalam	3.9	9.26	6.03	3.27	2.41	42.46	3.98	14.68	0.13	
4	Koduvally	3.05	5.64	1.71	3.29	4.33	24.28	4.79	2.65	0.21	
5	Balusseri	4.14	8.72	2.24	1.61	1.9	11.66	4.11	9.27	0.04	
6	Perambra	1.72	8.87	2.58	0.88	8.49	18.08	5.28	13.37	0.12	
7	Melady	0.33	4.94	1.05	0.11	7.09	4.93	2.99	6.39		
8	Panthalayani	0.21	2.16	0.75	0.33	2.22	1.77	1.15	1.55		
9	Vadakara	1.52	1.54	0.44	0.76	1.82	3.98	0.45	5.69	0.04	
10	Thodannur	1.46	4.24	1.46	2.93	4.33	7.91	1.97	4.02	0.03	
11	Thuneri	2.03	3.47	1.5	1.14	6.3	24.5	3.97	11.55	0.11	
12	Kunnummel	1.27	2.92	1.26	0.66	2.68	8.5	3.36	6.99	0.08	
	<b>Blocks Total</b>	<b>23.05</b>	<b>60.02</b>	<b>21.27</b>	<b>16.39</b>	<b>44.04</b>	<b>160.71</b>	<b>41.51</b>	<b>82.69</b>	<b>1.79</b>	
	Municipalities	0.29	1.22	0.2	0.1	1.08	2.1	3.12	4.23	0.21	
	Corporation	0.58	0.48	0.03	0.42	0.75	1.98	0.93	0.21	0.03	
	<b>District Total</b>	<b>23.92</b>	<b>61.72</b>	<b>21.50</b>	<b>16.91</b>	<b>45.87</b>	<b>164.79</b>	<b>45.56</b>	<b>87.13</b>	<b>2.03</b>	

Table: 14.3 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)										
		Green chilli	Tomato	Cauli flower	Beans	Other vegetables	Elephant foot yam	Colocasia	Yam	Koorika		
1	2	21	22	23	24	25	26	27	28	29		
1	Kozhikode	2.12	0.04			0.07	3.42	20.06	1.33			
2	Chelannur	3.24		0.04			15.8	30.16	1.65	1.46		
3	Kunnamangalam	8.07				1.19	37.63	33.71	4.47	2.18		
4	Koduvally	8.08	0.16			0.22	58.42	83.23	6.5	3		
5	Balussery	13.65		0.04		0.3	55.59	65.11	2.57	1.39		
6	Perambra	14.75				0.21	21.44	47.8	2.6	0.62		
7	Melady	11.92	0.1	0.04	0.02	0.38	4.26	24.72	0.21	0.02		
8	Panthalayani	6.34	0.05			0.06	3.21	13.76	0.97	0.03		
9	Vadakara	5.27	0.06			1.46	1.37	8.41	0.15			
10	Thodannur	8.96	0.06			6.81	2.54	21.61	0.95			
11	Thuneri	13	0.13			4.48	4.37	49.11	0.97			
12	Kunnummel	6.44	0.13			0.79	10.15	41.54	4.97			
	<b>Blocks Total</b>	<b>101.84</b>	<b>0.73</b>	<b>0.12</b>	<b>0.02</b>	<b>15.97</b>	<b>218.20</b>	<b>439.22</b>	<b>27.34</b>	<b>8.70</b>		
	Municipalities	2.83	0.15			0.3	0.58	3.27	0.04			
	Corporation	2.06	0.03			0.06	0.94	4.81	0.4	0.15		
	<b>District Total</b>	<b>106.73</b>	<b>0.91</b>	<b>0.12</b>	<b>0.02</b>	<b>16.33</b>	<b>219.72</b>	<b>447.30</b>	<b>27.78</b>	<b>8.85</b>		

Table: 14.3 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)										
		Sweet potato	Nana kizhangu	Other tubers	Pulses	Ginger	Turmeric	Sesamum	Coconut	Arecanut		
<b>1</b>	<b>2</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>38</b>		
1	Kozhikode	0.59	0.04	1.84		0.18	4.06		4053.23	174.77		
2	Chelannur	1.02	1.21	6.81		2.25	24.08		8134.41	533.69		
3	Kunnamangalam	3.9	0.29	2.51		8.22	32.69	1.33	12522.89	1561.55		
4	Koduvally	2.39	0.94	15.25		20.88	40.66		16557.13	2254.42		
5	Balusseri	1.32	3.63	4.37	2.73	8.11	80.65		14775.22	1370.81		
6	Perambra	0.49	0.97	2.92	0.97	10.94	58.78		12052.91	930.62		
7	Melady	0.43	0.11	6.56		2.98	11.68		5927.88	201.05		
8	Panthalayani	0.02	0.19	3.14	3.1	0.73	9.72		6070.51	262.29		
9	Vadakara	0.25	0.05	3.31	0.73	0.26	1.61		4235.76	190.61		
10	Thodannur	0.92	0.58	2.74		1.22	4.57		7400.36	290.56		
11	Thuneri	1.12	0.59	6.94	3.32	1.27	21.64		12638.64	718.36		
12	Kunnummel	0.85		2.31	2.55	5.23	35.45		10954.87	1109.37		
	<b>Blocks Total</b>	<b>13.30</b>	<b>8.60</b>	<b>58.70</b>	<b>13.40</b>	<b>62.27</b>	<b>325.59</b>	<b>1.33</b>	<b>115323.80</b>	<b>9598.10</b>		
	Municipalities	0.17		0.55	3.09	0.03	2.28		3529.8	180.69		
	Corporation	0.29		1.43		0.17	0.58		5965.63	468.23		
	<b>District Total</b>	<b>13.76</b>	<b>8.60</b>	<b>60.68</b>	<b>16.49</b>	<b>62.47</b>	<b>328.45</b>	<b>1.33</b>	<b>124819.20</b>	<b>10247.02</b>		



Table: 14.3 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)									
		Cashew	Pepper	Jack	Mango tree	Tamarind	Clove	Nutmeg	Cocoa	Pappaya	
<b>1</b>	<b>2</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	
1	Kozhikode	37.47	93.34	300.34	240.54	41.61	0.12	8.39	1.43	94.08	
2	Chelannur	98.21	211.01	599.54	425.81	32.66	2.01	12.55	2.09	97.72	
3	Kunnamangalam	222.36	359.07	1044.76	869.54	119.64	1.07	26	16.62	194.56	
4	Koduvally	235.05	357.08	1615.2	977.15	117.71	4.92	149.56	309.21	356.57	
5	Balussery	170.57	455.51	1279.34	927.27	100.25	4.42	72.42	221.03	178.67	
6	Perambra	252.75	418.77	866.37	763.44	90.45	2.98	45.62	48.61	126.82	
7	Melady	99.49	114.86	391.58	424.6	29.26	0.97	3.37	1.2	61.42	
8	Panthalayani	102.59	140.56	373.79	408.02	41.83	0.93	6.71	2.03	83.12	
9	Vadakara	58.75	91.21	276.17	294.03	18	0.22	3.26	0.16	36.88	
10	Thodannur	175.73	169.15	622.29	632.96	65.7	0.87	6.57	0.34	102.8	
11	Thuneri	384.51	456.04	1021.38	992.94	79.07	1.88	14.28	3.54	145.03	
12	Kunnummel	286.41	345.9	927.87	816.48	60.79	12.6	25.02	21.23	101.42	
	<b>Blocks Total</b>	<b>2123.89</b>	<b>3212.50</b>	<b>9318.63</b>	<b>7772.78</b>	<b>796.97</b>	<b>32.99</b>	<b>373.75</b>	<b>627.49</b>	<b>1579.09</b>	
	Municipalities	28.52	59.41	203.43	192.67	20.35	0.32	5.27	0.5	46.6	
	Corporation	26.65	60.31	488.45	296.65	17.89	0.53	11.98	1.86	138.64	
	<b>District Total</b>	<b>2179.06</b>	<b>3332.22</b>	<b>10010.51</b>	<b>8262.10</b>	<b>835.21</b>	<b>33.84</b>	<b>391.00</b>	<b>629.85</b>	<b>1764.33</b>	

Table: 14.3 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Area in Ha)									
		Banana	Betel leaves	Pine apple	Plantain	Sugar cane	Lemon grass	Fodder grass	Green Manure Plants	Teak	Medicinal Plants
<b>1</b>	<b>2</b>	<b>48</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>52</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56</b>	<b>57</b>
1	Kozhikode	20.07	0.04	2.73	168.55			0.45	52.04	10.51	2.55
2	Chelannur	134.56	0.02	5.57	213.64			3.91	89.54	19.07	2.45
3	Kunnamangalam	528.65	0.83	14.5	371.53			9.29	126.19	61.27	1.69
4	Koduvely	344.9	0.87	19.04	415.05	0.05		11.6	329.59	114.94	2.53
5	Balussery	138.59	0.46	19.52	399.62		1.33	22.4	236.03	55.52	16.65
6	Perambra	111.23	5.08	21.9	240.46			8.08	155.57	31.43	6.92
7	Melady	49.61	0.35	3.48	138.41		0.04	1.12	92.26	15.95	7.03
8	Panthalayani	25.56	2.68	6.96	131.37			0.35	85.88	15.86	4.1
9	Vadakara	17.71	0.04	3.46	83.93			0.43	31.85	4.29	0.73
10	Thodannur	59.75	0.06	9.4	179.46		0.82	2.07	62.91	6.82	2.33
11	Thuneri	107.68	0.03	15.04	238.26		0.04	1.41	147.23	16.59	3.78
12	Kunnummel	143.77	0.1	17.96	282.04	0.04		1.83	88.3	31.21	3.03
	<b>Blocks Total</b>	<b>1682.08</b>	<b>10.56</b>	<b>139.56</b>	<b>2862.32</b>	<b>0.09</b>	<b>2.23</b>	<b>62.94</b>	<b>1497.39</b>	<b>383.46</b>	<b>53.79</b>
	Municipalities	14.53	0.02	2.72	57.32			0.22	34.27	8.33	3.12
	Corporation	3.78	0.06	2.01	125.34			0.43	28.89	8.18	1.09
	<b>District Total</b>	<b>1700.39</b>	<b>10.64</b>	<b>144.29</b>	<b>3044.98</b>	<b>0.09</b>	<b>2.23</b>	<b>63.59</b>	<b>1560.55</b>	<b>399.97</b>	<b>58.00</b>

Table: 14.4

## BLOCK WISE PRODUCTION OF CROPS 2013-14

Sl. No.	Name of Blocks/ Municipalities/ Corporation	Rice			Arecanut	Banana	Black Pepper	Betel leaves	Raw cashew	(Production in Tonnes)		
		Autumn	Winter	Summer						Cured Ginger	Cured Turmeric	Cured Turmeric
1	Kozhikode	0.23	35.03	4.88	136.73	256.00	9.53	0.56	8.20	0.50	5.67	5.67
2	Chelannur	6.49	107.83	24.39	249.12	1365.00	31.57	0.00	18.60	5.65	51.68	51.68
3	Kunnamangalam	12.95	296.74	84.17	1049.29	3068.00	59.84	125.28	98.51	17.65	83.82	83.82
4	Koduvally	24.61	226.09	7.02	1904.43	1654.00	56.81	47.04	72.33	52.84	97.24	97.24
5	Balusseri	3.00	329.16	3.21	1743.91	1528.00	112.51	45.50	93.65	23.22	174.82	174.82
6	Perambra	17.85	490.27	482.71	1173.84	1189.00	137.36	201.78	130.61	16.61	108.08	108.08
7	Melady	16.16	77.64	183.66	148.62	163.00	27.49	22.32	24.06	2.81	14.88	14.88
8	Panthalayani	7.44	146.06	38.70	251.40	81.00	23.40	14.43	46.46	0.69	16.17	16.17
9	Vadakara	2.60	35.58	0.28	126.16	96.00	34.29	0.22	21.00	0.05	3.70	3.70
10	Thodannur	1.69	218.70	479.61	264.51	349.00	60.82	2.8	89.59	3.43	12.24	12.24
11	Thuneri	21.20	93.72	0	545.13	724.00	123.28	170.34	135.82	3.61	70.65	70.65
12	Kunnummel	0.84	178.06	100.38	947.14	1123.00	119.81	35.51	188.80	26.83	83.89	83.89
	<b>Blocks Total</b>	<b>115.16</b>	<b>2234.88</b>	<b>1409.01</b>	<b>8540.28</b>	<b>11596.00</b>	<b>796.71</b>	<b>665.78</b>	<b>927.63</b>	<b>153.89</b>	<b>722.84</b>	<b>722.84</b>
	Municipalities	4.45	50.70	28.27	71.03	37.00	9.46	0.99	6.49	0	3.54	3.54
	Corporation	0.00	7.01	0.04	264.02	9.00	18.06	0.33	3.01	0.06	2.09	2.09
	<b>District Total</b>	<b>119.51</b>	<b>2292.59</b>	<b>1437.32</b>	<b>8875.33</b>	<b>11642.00</b>	<b>824.23</b>	<b>667.10</b>	<b>937.13</b>	<b>153.95</b>	<b>728.47</b>	<b>728.47</b>

Table: 14.4 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	Cocoa	Coconut (Million No.)	Jack (Million No.)	Mango	Nut meg	Plantain	Pine apple	Tamarind	Tapioca	(Production in Tonnes)			
											18	19	20	21
<b>1</b>	<b>2</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>				
1	Kozhikode	0.00	32.00	0.98	3001.81	2.53	904.32	3.20	37.39	571.00				
2	Chelannur	0.53	48.00	1.49	3859.30	1.52	558.98	18.72	54.40	2128.69				
3	Kunnamangalam	9.35	90.00	2.11	2394.60	16.71	1799.05	60.84	122.20	4938.69				
4	Koduvally	227.98	104.00	2.90	2469.45	83.44	2220.26	82.81	80.77	10175.85				
5	Balusseri	125.90	136.00	2.11	9961.93	59.55	1534.74	83.43	458.40	7459.44				
6	Perambra	18.64	90.00	2.28	5879.94	11.71	733.33	80.80	142.10	6042.50				
7	Melady	0.00	39.00	1.06	2767.58	2.70	458.46	24.45	54.59	552.64				
8	Panthalayani	0.66	51.00	0.64	1312.82	2.62	734.34	31.86	143.39	271.02				
9	Vadakara	0.00	31.00	0.51	1809.04	2.61	314.19	13.18	36.72	592.97				
10	Thodannur	0.00	50.00	0.84	2835.74	2.66	700.01	35.36	105.97	1293.04				
11	Thuneri	1.55	103.00	3.36	6362.32	5.52	977.48	60.43	131.88	1904.22				
12	Kunnummel	11.35	94.00	3.67	6579.33	21.51	1251.86	158.54	97.49	3675.87				
	<b>Blocks Total</b>	<b>395.96</b>	<b>868.00</b>	<b>21.95</b>	<b>49233.86</b>	<b>213.08</b>	<b>12187.02</b>	<b>653.62</b>	<b>1465.30</b>	<b>39605.93</b>				
	Municipalities	0.00	24.00	0.32	876.14	3.45	338.91	7.30	28.67	133.74				
	Corporation	0.00	56.00	0.81	1479.70	3.37	483.97	8.56	36.42	194.16				
	<b>District Total</b>	<b>395.96</b>	<b>948.00</b>	<b>23.08</b>	<b>51589.70</b>	<b>219.90</b>	<b>13009.90</b>	<b>669.48</b>	<b>1530.39</b>	<b>39933.83</b>				

Table: 14.5

**BLOCK WISE PRODUCTION OF CROPS 2012-13**

Sl. No.	Name of Blocks/ Municipalities/ Corporation	Rice			Arecanut	Banana	Black Pepper	Betel leaves	Cashew	Cured Ginger	Cured Turmeric	(Production in Tonnes)								
		Autumn	Winter	Summer								7	8	9	10	11	12			
		3	4	5								6	7	8	9	10	11	12		
1	Kozhikode	2.64	72.28	3.77	154.76	182.72	19.50	1.00	10.71	0.36	8.97									
2	Chelannur	5.64	293.90	78.33	323.62	1076.66	33.97	0.08	11.00	6.69	61.40									
3	Kunnamangalam	19.50	481.04	49.66	1215.20	4303.44	60.32	13.80	82.49	17.26	72.24									
4	Koduvally	59.22	524.93	3.91	2365.68	3068.09	74.27	45.87	77.09	71.05	103.68									
5	Balusseri	5.43	309.95	3.07	1444.34	1011.40	108.86	17.19	63.62	19.14	233.07									
6	Perambra	25.24	891.26	394.96	1192.60	796.14	89.61	338.93	101.60	27.79	139.89									
7	Melady	12.84	78.34	202.33	163.66	274.92	35.60	29.71	45.16	7.84	21.84									
8	Panthalayani	17.40	221.94	45.20	270.68	131.37	19.25	262.42	39.70	1.37	23.13									
9	Vadakara	6.18	40.75		206.49	168.99	44.96	0.63	27.26	0.72	4.37									
10	Thodannur	8.27	226.74	458.38	263.47	423.60	82.20	1.01	100.69	4.24	13.98									
11	Thuneri	23.79	92.38		465.06	672.66	263.13	3.19	124.96	4.87	69.89									
12	Kunnummel	1.05	354.30	186.83	1478.50	1361.47	244.89	3.00	143.77	18.38	108.47									
	<b>Blocks Total</b>	<b>187.20</b>	<b>3587.81</b>	<b>1426.44</b>	<b>9544.06</b>	<b>13471.46</b>	<b>1076.56</b>	<b>716.83</b>	<b>828.05</b>	<b>179.71</b>	<b>860.93</b>									
	Municipalities	16.31	64.50	16.35	220.07	108.33	13.06	0.21	3.85	0.08	0.50									
	Corporation		26.28	0.14	118.65	35.96	8.50	0.21	2.18	0.70	5.48									
	<b>District Total</b>	<b>203.51</b>	<b>3678.59</b>	<b>1442.93</b>	<b>9882.78</b>	<b>13615.75</b>	<b>1098.12</b>	<b>717.25</b>	<b>834.08</b>	<b>180.49</b>	<b>866.91</b>									

Table: 14.5 Continued.....

Sl. No.	Name of Blocks/ Municipalities/ Corporation	(Production in Tonnes)									
		Cocoa	Coconut (Million No.)	Jack	Mango	Nut meg	Plantain	Pine apple	Sesa mum	Tamarind	Tapioca
<b>1</b>	<b>2</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>
1	Kozhikode		39.27	1.00	1238.30	1.98	278.78	10.62		21.81	886.70
2	Chelannur	1.04	41.38	1.34	540.77	3.18	867.37	41.66		9.05	1778.03
3	Kunnamangalam	9.82	65.99	2.28	1722.55	8.73	1884.40	60.12	0.54	41.65	4368.17
4	Koduvally	226.34	96.82	3.14	3578.32	84.65	2140.41	103.62		27.28	8682.22
5	Balussery	170.41	124.11	2.80	4165.29	36.64	1246.02	122.27		78.49	8119.37
6	Perambra	15.94	109.68	2.90	3591.22	21.67	1508.41	169.64		38.09	7773.29
7	Melady		50.44	1.47	1638.10	1.12	272.25	18.52		18.53	932.67
8	Panthalayani		43.80	0.81	1911.16	1.57	299.65	39.53		17.71	428.26
9	Vadakara	0.06	22.50	0.83	3997.63	2.23	482.93	15.05		17.70	396.29
10	Thodannur		54.80	1.48	3430.37	3.75	928.70	31.32		30.85	1540.32
11	Thuneri	1.45	90.08	2.32	6515.35	7.49	1065.26	104.30		60.48	2320.16
12	Kunnummel	10.42	75.19	2.37	4564.12	20.11	1600.86	94.95		29.21	5677.13
	<b>Blocks Total</b>	<b>435.48</b>	<b>814.06</b>	<b>22.74</b>	<b>36893.18</b>	<b>193.12</b>	<b>12575.04</b>	<b>811.60</b>	<b>0.54</b>	<b>390.85</b>	<b>42902.61</b>
	Municipalities	0.18	67.60	0.42	986.40	1.15	341.21	15.46		8.54	204.36
	Corporation	0.18		1.11	393.65	1.52	595.11	6.80		1.94	101.37
	<b>District Total</b>	<b>435.84</b>	<b>881.73</b>	<b>24.27</b>	<b>38273.23</b>	<b>195.79</b>	<b>13511.36</b>	<b>833.86</b>	<b>0.54</b>	<b>401.33</b>	<b>43208.34</b>

Table: 14.6

**PRODUCTION OF IMPORTANT CROPS**

Year	Rice		Raw cashew nuts	Black pepper	Green chillies	Pulses	Cured Ginger	Cured Turmeric	
	Autumn	Winter							Summer
	<b>1</b>	<b>2</b>							<b>3</b>
2013-14	120	2293	1437	937	824	88	11	154	729
2012-13	204	3679	1443	834	1098	107	13	181	867
2011-12	182	2884	1208	703	615	100		246	732

Year	Arecanut	Tamarind	Mango	Jack (Million Nos)	Banana	Other plantain	Pineapple	Tapioca	Sweet potato
<b>1</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>
2013-14	8875	1530	51590	23	11642	13010	669	39934	192
2012-13	9883	401	38273	24	13616	13511	834	43208	225
2011-12	11177	535	27776	20	12477	11698	1042	40117	177

Year	Pappaya	Drumstick	Coconut (Million Nos)	Nutmeg	Rubber	Cocoa	Processed Cardamom	Betel leaves	Clove (dry)	Tur
<b>1</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>
2013-14	7104	471	948	220	24950	396	5	667	2	0
2012-13	7001	427	882	196	31020	436	4	717	2	
2011-12	7628	717	852	143	30800	386	4	651	2	37

Source: Agricultural Statistics

## SEED RATE FOR IMPORTANT CROPS OF KERALA

1. Rice	Transplanting	-	60-85kg/ha
	Broadcasting	-	80-100kg/ha
	Dibbling	-	80-90kg/ha
2. Maize		-	20kg/ha
3. Ragi	Direct sown	-	5kg/ha
	Transplanted crop	-	4-5kg/ha
4. Sorghum		-	12-15kg/ha
5. Black gram	Pure crop	-	20kg/ha
	Mixed crop	-	6kg/ha
6. Cowpea			
1. For vegetable type			
	a. Bush	-	20-25kg/ha
	b. Trailing	-	4-5kg/ha
2. For grain and dual purpose			
	a. Broadcasting	-	60-65kg/ha
	b. Dibbling	-	50-60kg/ha
7. Green gram			
	Pure crop	-	20-25kg/ha
	Mixed crop	-	6kg/ha
8. Green pea		-	60kg/ha
9. Horse gram		-	25-30kg/ha
10. Red gram			
	Pure crop	-	15-20kg/ha
	Mixed crop	-	6-7kg/ha
11. Amorphophallus		-	9-12tonnes/ha
12. Colocasia		-	800-1200kg/ha
13. Greater yam (Kachil)		-	3000-3700kg/ha
14. Lesser yam (Nanakizhangu)		-	1800-2700kg/ha
15. Sweet potato		-	80kg tubers/ha
16. Tapioca		-	2000 stems/ha
17. Rubber		-	450-500plants/ha
18. Ground nut			
	Pure crop	-	100kg kernels/ha
	Inter crop in coconut	-	80kg kernel/ha
	Inter crop in Tapioca	-	40-50kg kernel/ha
19. Sesamum		-	4-5kg/ha
20. Mango ginger		-	1500kg/ha
21. Ginger		-	1500kg/ha
22. Turmeric		-	2000-2500kg/ha
23. Betel vine		-	<b>20000to25000cuttings/ha</b>
24. Okra		-	7-8.5kg/ha
25. Bitter gourd		-	5-6kg/ha
26. Coleus		-	75 -100kg/tubers/ha
27. Snake gourd		-	3-4kg/ha



28. Cucumber	-	0.5-0.75kg/ha
29. Watermelon	-	1 -1.5kg/ha
30. Bottle gourd	-	3-4kg/ha
31. Pumpkin	-	1 -1.5kg/ha
32. Ash gourd	-	0.75 -1kg/ha
33. Brinjal	-	370-500g/ha
34. Chilli	-	1kg/ha
35. Tomato	-	400g/ha
36. Cabbage	-	500 -750g/ha
37. Cauliflower	-	600 -750g/ha
38. Carrot	-	5-6kg/ha
39. Beetroot	-	7-8kg/ha
40. Radish	-	7-8kg/ha
41. Potato	-	1000-2000kg seed tuber/ha
42. Garlic	-	500kg of cloves/ha
43. Winged bean	-	15-20kg/ha
44. Cluster bean	-	10-12kg/ha
45. Clove bean	-	6-7kg/ha
46. Smooth gourd	-	2.5-3kg/ha
47. Ridge gourd	-	2.5-3kg/ha
48. Bell pepper	-	400-600g/ha

#### CONVERSION RATES BETWEEN RAW MATERIALS AND PROCESSED PRODUCTS

Paddy	Rice	Cleaned 2/3 by weight of paddy
Groundnut	Kernels to nuts in shell	70 percent
	Oil to nuts in shell	28 percent
	Oil to Kernels crushed	40 percent
	Cake to Kernels crushed	60 percent
Sesamum	Oil to seeds crushed	40 percent
	Cake to seeds crushed	60 percent
Coconut	Copra to nuts	6,773 nuts gives one tonne of copra (average), presently it is 7250-7500 nuts due to mite attack
	Cake to copra	38 percent
Pepper	Green to dry	21-39 percent by weight
Sugarcane	Gur from cane	10 percent
	Crystal sugar from gur	62.4 percent
	Crystal sugar from cane	9.9 percent
	Molasses from cane	3.5 percent
Cashew	Cashew Kernel	25 percent of nuts
Areca nut	Husked Champan to unhusked	35 percent by weight
Supari	(Processed tender nut to unhusked champan)	
	Unhusked champan)	12 percent
Tapioca	Starch	28-30 percent on the weight of fresh tubers

Turmeric	Cured to raw (Dry 17-25% of the raw stuff)	16-20 percent of the weight
Ginger	Dry Ginger	21-30 percent by weight
Cocoa	Pod to wet beans	40 percent by weight
	Wet beans to dried beans	35-40 percent by weight
Coffee	Robusta-Berried to clean coffee	4.5 to 3.6:1
	Wet beans to dried beans	5.0 to 3.3:1
Cardamom	Green to dry	25-35 percent
Oil Palm	Palm Oil	20% by weight of Bunch
Soyabean seed	Oil to soyabean seed crushed	18 percent
	Meal to soyabean seed crushed	73 percent
	Hull from soyabean seed crushed	8 percent
Neem seed	Oil to kernel crushed	45-50 percent
	Cake to kernel crushed	50-55 percent

### CONVERSION FACTORS FOR COCONUT

#### A. Number of Coconuts to a tonne of Copra:

Kerala	6,250 to 6,850 (at present it is 7250 - 7500 nuts due to mite attack)
Andhrapradesh	8,820
Tamilnadu	7,000
Laccadives	12,000

#### B. Copra yield from coconut in different months in Kerala at 6% moisture level/1000 nuts

January	163kg
February	181kg
March	178kg
April	176kg
May	179kg
June	165kg
July	152kg
August	139kg
September	147kg
October	148kg
November	155kg
December	158kg

#### C. Nuts to shell, Coconut water etc.

1000 nuts	114kg shell
1000 nuts	100 litres of coconut water
1000 nuts	35kg of charcoal

#### D. Coconut Oil from Copra

Chekkus	58-60%
Rotories	62-63%
Expellers	63-65%

#### E. Ball copra from coconut (per 1000 nuts)

1.5 tonne (grade 1)
1.3 tonne (average)

#### F. Desiccated coconut (per 1000 nuts)

1 tonne of DC
---------------

**G. Cake yield as percentage of copra crushed**

Chekkus	38%
Rottories	36%
Expellers	34%

**H. Coconut to Fibre (per 1000 nuts)**

81.8kg - Kerala
68.3kg - Andhrapradesh
90.0kg - Tamilnadu
81.9kg - Karnataka
56.9kg - Others

**I. Composition of Coconut (Husked)**

Shell	27.9% (23.5 to 32.8)
Kernel	55.2% (48.2 to 62.0)
Water	17.0% (8.2 to 25.1)

**J. Composition of Standard Copra**

Moisture	6%
Oil	68% to 71%
Free Fatty Acids	2%

<u>Composition</u>	<u>Kernel (%)</u>	<u>Copra (%)</u>	<u>Cake (%)</u>
Moisture	46.3	5.8	10.7
Protein	4.1	8.9	19.1
Fat	37.3	67.0	11.1
Carbohydrates	7.9	12.4	40.9
Crude Fibre	3.4	4.1	14.1
Ash	1.0	1.8	4.1

**K. Fatty Acid Composition of Coconut Oil**

Saturated Fatty Acids	Un-Saturated Fatty Acids
Lauric Acid	Palmitoleic Acid
Caprylic Acid	Oleic Acid
Myristic Acid	Linoleic Acid
Straric Acid	Arachidonic Acid

**L. Coir pith per 10000 husk**

2 tonnes

**M. Charcoal yield from shell (per 3 tonnes of shell)**

1 tonne

**N. Processed coconut cream/1000 coconut**

200kg cream

**O. Coconut Vinegar (per 100 litres coconut water)**

110 litre vinegar

Source:- Farm Guide.



## PLANTATION CROPS

Plantation crops are perennial crops which are grown in larger areas and commercially important. These crops form the backbone of the agricultural sector. The major plantation crops cultivated in Kerala are natural rubber, tea, coffee and cocoa.

**Rubber:** - Natural Rubber is the most commonly cultivated plantation crop in Kerala. More than 90% of natural rubber in India is produced in Kerala. Natural rubber is the only plantation crop in Kerala, which shows an increasing trend in area, production and productivity. Area under rubber plantation in Kerala was 548225 ha. and in Kozhikode it was 21800 ha. during 2013-14 agricultural year.

**Tea:** - Tea is cultivated mainly in the mountain ranges of Kerala. The production of tea plantation in Kerala is concentrated in the high ranges. Tea is greater significant of Kerala because of high land productivity relative to other crops, exports earnings and employment in rural and backward areas. Total area under tea plantation in Kerala is recorded as 30205 ha. and district is having no area under tea plantation.

**Coffee:** - Coffee is grown in almost all regions in Kerala. Total area under coffee plantation in Kerala was 85359 ha. during 2013-14 agricultural year and Kozhikode is having no area under coffee plantation.

**Cocoa:** - Cocoa plantation was estimated as 13257 ha. in all over Kerala and 610 ha. in Kozhikode district during 2013-14 agricultural year.

Table: 15.1

**RUBBER STOCK AT THE END OF DECEMBER 2013****(Metric tonnes)**

<b>Natural Rubber</b>			
With Growers	98000	Ribbed smoked sheet	177110
With Dealers & Processors	90000	Solid Block Rubber	42625
With Auto Tyre Units	65725	Latex (drc)	19195
With other manufacturing units	18275	Others	33070
<b>Total</b>	<b>272000</b>	<b>Total</b>	<b>272000</b>
<b>Synthetic Rubber</b>			
With Producers	6975		
With Auto Tyre Units	32295	SBR	23650
With other manufacturing units	8785	Others	24405
<b>Total</b>	<b>48055</b>	<b>Total</b>	<b>48055</b>

Table: 15.2

### PERFORMANCE OF NATURAL RUBBER 2012-13

Area	758,000 Hectares (3.2% Growth)
Production	913,700 Tonnes (1.1% Growth)
Consumption	972,705 Tonnes
Import	217,364 Tonnes
Export	30,594 Tonnes
Average Market Price for RSS 4 grade	Rs.176.82/kg
Stock at the end of the year	253,000 Tonnes
Number of small holdings	1.25 Million
Number of estates	537
Average yield per hectare	1,813 kg
<b>Customs duty on natural rubber</b>	
Solid form	20% or Rs.20/kg whichever is lower
Latex	70% or Rs.49/kg whichever is lower
Value of Natural rubber imported	Rs.3,887.9 Crore
Value of Natural rubber exported	Rs.468.5 Crore
Value of rubber products imported	Rs.6,206.3 Crore (2011-12)
Value of rubber products exported	Rs.15,532.2 Crore
Income from NR to the growers	Rs.16,150 Crore
Cess on Natural Rubber	Rs.128.28 Crore
Number of licensed dealers	9,533
Number of licensed manufacturers	4,334
Tyre and Non-tyre NR consumption ratio	65:35
NR and SR consumption ratio	69:31
Per capita consumption of elastomer	1.16kg
Tyre industry turnover	Rs.46,000 Crore
Tyre production	122.78 Million Numbers
Value of tyre exports	Rs.4,775 Crore
World production	11.327 Million Tonne (2012)
World consumption	11.005 Million Tonne (2012)
World NR & SR consumption ratio	42:58
International price of RSS 3 grade	Rs.175.76/kg

Table: 15.3

## RUBBER STATISTICS

Type-wise Production & Consumption of NR & SR	(Metric Tonnes)					
	December 2013 1	December 2012 2	April to Dec 2013 3	April to Dec 2012 4	April 2012 to March 2013 5	Percentage increase (+)/ decrease (-) of (3) & (4) 6
<b>PRODUCTION</b>						
<b>Natural Rubber (NR)</b>						
Ribbed Smoked Sheet (RSS)	83925	86115	465895	514230	667225	
Solid Block Rubber	10475	12340	80135	88350	122125	
Latex Concentrates (drc)	7300	8460	49280	53975	73150	
Others	6300	7085	36690	40645	51200	
<b>Total</b>	<b>108000</b>	<b>114000</b>	<b>632000</b>	<b>697200</b>	<b>913700</b>	<b>-9.4</b>
<b>Synthetic Rubber (SR)</b>						
Styrene Butadiene (SBR)	1923	1764	16401	13931	19296	
Poly Butadiene (BR)	7510	6333	59785	58378	77038	
Others	560	781	7873	9230	12358	
<b>Total</b>	<b>9993</b>	<b>8878</b>	<b>84059</b>	<b>81539</b>	<b>108692</b>	<b>3.1</b>
<b>Total NR &amp; SR</b>	<b>117993</b>	<b>122878</b>	<b>716059</b>	<b>778739</b>	<b>1022392</b>	<b>-8.0</b>



<b>CONSUMPTION</b>									
<b>Natural Rubber (NR)</b>									
Ribbed Smoked Sheet (RSS)	42180	46270	422375	439125	578050				
Solid Block Rubber	31280	23210	234680	225960	292210				
Latex Concentrates (drc)	6980	6890	58235	57150	76705				
Others	1940	2050	16110	20245	25740				
<b>Total</b>	<b>82380</b>	<b>78420</b>	<b>731400</b>	<b>742480</b>	<b>972705</b>				<b>-1.5</b>
Out of which Auto Tyre Manufacturers	54498	49210	485659	490142	635539				-0.9
<b>Synthetic Rubber (SR)</b>									
Styrene Butadiene (SBR)	18510	16170	169840	147140	196530				
Poly Butadiene (BR)	13810	12060	117055	110235	145695				
Others	10020	8715	74400	76560	101935				
<b>Total</b>	<b>42340</b>	<b>36945</b>	<b>361295</b>	<b>333935</b>	<b>444160</b>				<b>8.2</b>
Out of which Auto Tyre Manufacturers	30744	26138	259549	244228	323412				6.3
<b>Total NR &amp; SR</b>	<b>124720</b>	<b>115365</b>	<b>1092695</b>	<b>1076415</b>	<b>1416865</b>				<b>1.5</b>
Out of which Auto Tyre Manufacturers	85242	75348	745208	734370	958951				1.5

Production Consumption and Stock of RR		(Metric Tonnes)				
		December 2013	December 2012	April to Dec 2013	April to Dec 2012	April 2012 to March 2013
		1	2	3	4	5
<b>Reclaimed Rubber (RR)</b>						
Production		11030	9745	92130	87470	115670
Consumption		11125	9670	91475	86870	114595
Out of which Auto Tyre Manufacturers		4453	3650	36870	35025	45879
Stock with Manufacturers (end of month/year)		7810	6680			
<b>IMPORT/EXPORT &amp; STOCK NR &amp; SR</b>						
<b>Import (p)</b>						
Natural Rubber		24307	18366	260133	173441	217364
Synthetic Rubber		27582	26370	280852	251967	329585
<b>Total NR &amp; SR</b>		51889	44736	540985	425408	546949
<b>Export (p)</b>						
Natural Rubber		695	1603	5224	10782	30594

Source:- Rubber Board

## ANIMAL HUSBANDRY

Animal husbandry plays an important role in generating employment and income to the weaker sections of the population. Extensive pasture, grazing lands and the favourable climate make the district suitable for rearing. Live stock wealth has great significance in the agricultural economy of the district. As per the latest survey, there is a total cattle population of 133494 animals in the district.

Table: 16.1

### ANTI RABIES VACCINATION DONE IN 2010-11

Prophylactic in dogs	Post Exposure Vaccinations					Number of deaths due to rabies				
	Cattle	Buffalo	Goat	Canine	Other Animals	Cattle	Buffalo	Goat	Canine	Other Animals
5,717	82	14	186	67	0	4	0	1	0	0

Table: 16.2

### DAIRY CO-OPERATIVE SOCIETIES AS ON 31-03-2011

Primary Societies	243
Regional Unions	1
Total	244
Anand Mode (APCOS)	211
Traditional	32
Total	243

Table: 16.3

**OUTBREAKS, ATTACKS, DEATHS ETC. DUE TO CONTAGIOUS DISEASES AND  
NUMBER OF ANIMALS PROTECTED/VACCINATED DURING THE YEAR 2010-11**

<b>Foot and Mouth</b>				<b>Anthrax</b>				<b>Black Quarter</b>			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
3	8	0	114305	0	0	0	1339	0	0	0	2234
<b>Hemorrhagic Septicemia</b>				<b>Canine Distemper</b>				<b>Parvo Virus</b>			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
0	0	0	5348	0	0	0	106	0	0	0	190
<b>Ranikhet</b>				<b>Fowl Pox</b>				<b>Infectious Bursal Disease</b>			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
0	0	0	625898	0	0	0	0	0	0	0	0
<b>Duck Plague</b>				<b>Others</b>				<b>Total</b>			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
0	0	0	13000	0	0	0	24	3	8	0	762444

Source: Bulletin 2011, AHD.

## FISHERIES

In Kerala fishing industry occupies an important position in its economy. With a coastal line of 590 Km in length, Kerala offers immense possibilities for fishing both marine and inland. Fisheries in Kozhikode district occupy a very important position in the industrial sector in Kerala. District has the benefit with the immense wealth of marine and inland fishing. The activities covered in this sector are (i) fishing in ocean, coastal, offshore and inland waters for commercial purposes ii) Subsistence fishing in inland waters (iii) Gathering of sea weeds, seashells and other ocean and coastal water products (iv) Fish curing. The coastal line of 71 km from Chaliyar to Azhiyoor offers enormous natural resources for the development fisheries. Kozhikode is abundant in brackish water therefore there is good scope for shrimp farming. District is having the distinction as the district with the highest percentage of non-mechanised craft for fishing. There are 42 fishing villages consisting 34 marine and 8 inland villages. Based on 2013-14 report fisherfolk population was 109381 with breakup of 97520 marine and 11861 from inland. Annual fish production was 80050 MT from marine and 4561 MT from inland sector during same year.

Table: 17.1

### FRESH WATER RESOURCES IN KOZHIKODE DISTRICT

Year	Panchayat ponds		Holy ponds and streams		Village ponds and other water holds		Irrigation tanks	
	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)
2013	96	13.53	264	17.64	11	2.10	24	1.11

Table: 17.2

**DETAILS OF DISTRICT WISE PADASEKHARAMS IN KERALA**

SI. No.	Name of Districts	No. of Panchayats	No. of Padasekharams	Area in	
				Acre	Cent
1	Kollam	17	104	6837	31.5
2	Alappuzha	52	557	68173	67
3	Kottayam	18	206	15810	40
4	Ernakulam	40	257	10432	20
5	Thrissur	10	92	6002	30
6	Palakkad	11	44	1638	16
7	Malappuram	15	85	580	34
<b>8</b>	<b>Kozhikode</b>	<b>3</b>	<b>8</b>	<b>173</b>	
9	Kannur	41	117	3381	69
10	Kasaragod	11	80	2479	78
	<b>Total</b>	<b>218</b>	<b>1550</b>	<b>115505</b>	<b>385.5</b>

Table: 17.3

**LIST OF INLAND FISHING VILLAGES IN KOZHIKODE DISTRICT**

SI.No.	Name of Villages
1	Karuvanthuruthy
2	Cheruvannoor
3	Eranjikal
4	Vengalam
5	Vellur
6	Teragi
7	Ullookadavu
8	Akalappuzha

Total: 17.4

**SPECIES WISE INLAND FISH LANDINGS IN KOZHIKODE (QTY in MT)**

2011-12		
Sl. No.	Name of Fish	Quantity
1	Prawn	184
2	Etroplus	125
3	Murrels	294
4	Mulletts	245
5	Cat fish	366
6	Jew fish	141
7	Tilapia	324
8	Labeo fimbriatus	0
9	Barbus	41
10	Mrigal	0
11	Crabs	0
12	Common carps	464
13	Catla	0
14	Chamos	27
15	Eels	4
16	Labeo Rohitha	0
17	Mussel	777
18	Edible Oyster	410
19	Miscellaneous	274
	<b>Total</b>	<b>3676</b>

2012-13		
Sl. No.	Name of Fish	Quantity
1	Prawn	206
2	Etroplus	142
3	Murrels	323
4	Mulletts	271
5	Cat fish	410
6	Jew fish	154
7	Tilapia	368
8	Labeo fimbriatus	0
9	Barbus	46
10	Mrigal	0
11	Crabs	0
12	Common carps	434
13	Catla	0
14	Chamos	30
15	Eels	4
16	Labeo Rohitha	0
17	Mussel	709
18	Edible Oyster	464
19	Miscellaneous	344
	<b>Total</b>	<b>3905</b>

Source: Inland Fisheries Statistics, Dept of Fisheries





## **WETLAND**

Wetlands play a vital role in maintaining the environmental balance. Wetlands serve as sinks, sources and transformers of innumerable chemical, biological and genetic materials. They offer a unique habitat for a wide variety of flora and fauna as well. Wetlands are lands transitional between terrestrial and aquatic ecosystem where the water table is usually at or near the surface or the land is covered by shallow water. This definition, given by Cowardin et al (1979), is widely accepted by wetland scientists of the United States and is also used in India (Mitsch and Gosselink, 1989). Wetlands include the swamps, bogs, marshes, mires, fens and other wet ecosystems found throughout the world under different names. Wetland is an area of ground that is saturated with water either permanently or seasonally. Wetlands are categorized by their characteristic vegetation, which is adapted to these unique soil conditions.

Wetlands are found on every continent except Antarctica. The main functions of wetlands are as water purification systems flood control, shoreline stability and as reservoirs of biodiversity. Wetlands may be converted to agriculture or development or constructed as a water management tool as in the recent developing field of water sensitive urban design.

Wetlands have been categorized both biomes and ecosystem. A patch of land that develops pools of water after a rain storm would not be considered as a 'wetland' though the land is wet. Wetlands have unique characteristics. They are generally distinguished from other water bodies or landforms based on their water level and on the types of plants that thrive within their specifically wetlands are characterized as having a water table that stands at or near the land surface either permanently or seasonally for a large enough period each year to support aquatic plants.

Wetlands vary widely due to local and regional differences in topography, hydrology, vegetation and other factors including human

interference. Wetlands can be divided into two main classes, tidal and non-tidal areas.

Wetland hydrology is associated with the spatial and dispersion, flow, and physio chemical attributes of surface and ground water in its reservoirs. Based on hydrology wetlands can be categorized as riverine (associated with streams) lacustrine (associated with lakes and reservoirs) and palustrine (isolated). Salinity has a very strong influence on wetland water chemistry. In non-riverine wetlands natural salinity is regulated by interaction between ground and surface water, which may be influenced by human activity.

Carbon is the major nutrient cycled within wetlands. Most nutrients such as carbon, sulfur, phosphorus and nitrogen are found within the soil of wetlands. The biota of a wetland system includes its vegetation zones and structure as well as animal population and distribution which are highly dependent of water chemistry. The chemistry of water flowing into wetlands depends on the source of water and the geological material in which it flows through as well as the nutrients discharged from organic matter in the soils and plants at higher elevation as the slope wetlands.

There are four main groups of hydrophytes that found in wetland systems. Submerged water plants - found completely underwater, floating water plants usually small although it may take up a large surface area in wetland systems, emergent water plants seen above the surface of water but whose roots are completely submerged.

Fish are more dependent on wetland ecosystems than any other type of habitant. Frogs are the most crucial amphibian species in wetland systems.

Temperatures vary greatly depending on the location of the wetland. Rainfall also varies according its location.

Wetland reservoirs are very rich in our country which exhibit significant ecological diversity because of variability in climate conditions and topography.

Though small in size Kerala is land of affluent in water sources. 44 rivers drain the land of, which are west flowing and 3 flows east. Apart from these 44 rivers their tributaries and a countless number of streams and rivulets crisscross the land making it green and fertile and also serve as inland waterways.

Besides these rivers Kerala is bestowed with a number of lakes and backwater lagoon which add to the beauty of the land. The important wetlands of Kerala are Ashtamudi Lake, Vembanadu Lake and Sasthamkotta Lake. In the State of Kerala 1762 wetlands have been delineated. Total wetlands area estimated to 160590ha. The major wetland types are River/stream (65162ha) Lagoons (38442 ha) Reservoirs (26167 ha) and Waterlogged (20305 ha). Analysis of wetland status in terms of open water and aquatic vegetation showed that around 88 and 83% of wetland area is under open water category during post monsoon and pre monsoon respectively. Aquatic vegetation (floating/emergent) occupies around 8 and 6% of wetland area during post and pre monsoon respectively.

The wetlands can be broadly classified into inland fresh and saline as well as coastal fresh and saline areas. The coastal wetland ecosystems are often classified as tidal salt marshes, tidal freshwater marshes and mangrove wetlands; the inland wetland ecosystems, as inland fresh water marshes, peatlands, deepwater swamps and riparian wetlands. Examples of artificial wetlands are those of wild-life sanctuaries of Bharathpur and Kaziranga in India and the extensive man-managed rice fields in different parts of Asia.

The wetlands are among the most important ecosystems of the Earth. On a short-time scale, wetlands are useful as sources, sinks and transformers of a multitude of chemical, biological and genetic materials. They have been found to cleanse polluted waters, prevent floods, protect shorelines and recharge groundwater aquifers; further more wetlands provide unique habitats for a wide variety of flora and fauna. In a long-time scale, the swampy environment of the carboniferous Period produced and preserved many of the

fossil fuels on which we depend now. Some scientists have rightly called the wetlands as 'nature's kidneys' because of the natural functions they perform.

Wetlands are the most productive life-supports system in the world and are of immense socio-economic and ecological importance to mankind. The management of these wetlands has become the most important concern of mankind today. The paddy wetlands are a potential source for the food security of the state. The area of these wetlands is shrinking at an alarming rate due to the shift from rice to cash crops and non-agricultural use. Scientific Management coupled with socioeconomic considerations will provide an effective tool to the planner for recognizing wetlands as one of the prime life-sustaining ecosystems. To save this unique inter-tidal ecosystem from being endangered its conservation and management as well as in river basin management policies/programmes.

Table: 18.1

## BALUSSERI BLOCK

SI.No.	Rock Type	Balusseri	Koorachundu	Kottoor	Naduvannoor	Panangad	Uliiyeri	Unnikulam
1	Marshy land							
2	Mud							
3	Mundakan		1.72					
4	Mundakan/Puncha							1.09
5	Other land uses	2021.42	12042.45	2780.86	1699.71	3196.26	1953.78	3365.62
6	Paddy converted to Arecanut	2.87	3.01	10.76	1.27	2.39		6.81
7	Paddy converted to Banana/Tapioca	28.56	22.93	42.94	92.68	41.09	77.85	53.48
8	Paddy converted to Built-up land	1.38		3.44	7.89	1.97	24.62	4.10
9	Paddy converted to Coconut	5.27	4.83	5.59	44.51	17.09	84.59	42.30
10	Paddy converted to Coconut/Arecanut					14.20	3.18	6.54
11	Paddy converted to Cultivable wasteland	1.49	8.43	2.01	7.00	8.75	38.79	5.22
12	Paddy converted to Fallow land			6.47		3.53		
13	Paddy converted to Mixed crops	77.09	72.09	63.49	90.08	96.12	107.67	85.61
14	Paddy converted to Plantation crops							
15	River	14.03	400.30	11.78	42.58	8.98	141.98	9.24
16	Swampy land				7.27			
17	Virippu							
18	Virippu/Mundakan	105.48		13.83	150.83	66.70		52.02
19	Virippu/Mundakan/Puncha			192.33	7.65		163.43	
20	Waterbody							
	<b>Panchayat Total</b>	<b>2257.59</b>	<b>12555.76</b>	<b>3133.50</b>	<b>2151.47</b>	<b>3457.08</b>	<b>2595.89</b>	<b>3632.03</b>
	<b>Block Total</b>				<b>29783.33</b>			

Table: 18.2

## CHELANNUR BLOCK

Sl.No.	Rock Type	Chelannur	Kakkodi	Kakkoor	Nanmanda	Narikkuni	Thalakulathur
1	Marshy land		5.37				
2	Mud						
3	Mundakan						
4	Mundakan/Puncha				16.34		
5	Other land uses	1894.96	1431.67		2033.47	1604.20	1438.26
6	Paddy converted to Arecanut			6.19	2.38	3.73	1.49
7	Paddy converted to Banana/Tapioca	38.95	31.91	26.18	30.97	18.67	32.32
8	Paddy converted to Built-up land	2.25	1.90	2.08	5.47	2.64	
9	Paddy converted to Coconut	23.77	19.66	3.41	2.71	5.74	38.35
10	Paddy converted to Coconut/Arecanut						
11	Paddy converted to Cultivable wasteland	10.38	7.69	1.51	12.35	5.84	12.47
12	Paddy converted to Fallow land	6.74	16.91	27.15	11.54	24.84	13.13
13	Paddy converted to Mixed crops	63.04	48.05	26.55	61.88	17.45	59.35
14	Paddy converted to Plantation crops						
15	River	73.58	98.05				173.05
16	Swampy land						4.00
17	Virippu						
18	Virippu/Mundakan				97.45		
19	Virippu/Mundakan/Puncha	112.11	81.71	160.81	1.85	67.58	68.60
20	Waterbody			2.10			
	<b>Panchayat Total</b>	<b>2225.78</b>	<b>1742.92</b>	<b>255.98</b>	<b>2276.41</b>	<b>1750.69</b>	<b>1841.02</b>
	<b>Block Total</b>			<b>10092.80</b>			

Table: 18.3

## KODUVALLI BLOCK

Sl. No.	Rock Type	Katti ppara	Kizha kkoth	Koden cherri	Kodu valli	Kooda ranji	Mada voor	Oma ssery	Puthu ppadi	Thamara ssery	Thiru vambadi
1	Marshy land										
2	Mud										
3	Mundakan										
4	Mundakan/Puncha										
5	Other land uses	4519.05	1912.93	11909.83	2041.46	7261.12	1811.50	2630.02	5593.66	2382.72	6633.45
6	Paddy converted to Arecanut			81.51				3.07		1.22	1.05
7	Paddy converted to Banana/Tapioca	30.88	4.59		14.52		10.40	11.00	155.48	58.66	2.63
8	Paddy converted to Built-up land			3.34	5.16			14.21	3.09	16.16	1.91
9	Paddy converted to Coconut	25.94	4.54	87.14	4.05	3.70	4.81	40.60	10.71	10.23	21.58
10	Paddy converted to Coconut/Arecanut	27.54		7.26	12.65			3.08	21.13	22.30	
11	Paddy converted to Cultivable wasteland		3.88		2.61		11.47	5.94		5.53	3.58
12	Paddy converted to Fallow land		7.35				15.39	2.88	49.75		
13	Paddy converted to Mixed crops	48.47	3.38	81.82	8.96		8.49	41.60	144.96	18.80	37.00
14	Paddy converted to Plantation crops					3.41		99.31			23.11
15	River	28.70	10.98	43.92	33.19		2.04	60.37	44.40	15.21	23.47
16	Swampy land										
17	Virippu										
18	Virippu/Mundakan	16.55		87.98	51.28			65.52	68.99	27.06	13.67
19	Virippu/Mundakan/Puncha		78.45				98.84				
20	Waterbody										
	<b>Panchayat Total</b>	<b>4697.13</b>	<b>2026.10</b>	<b>12302.80</b>	<b>2173.88</b>	<b>7268.23</b>	<b>1962.94</b>	<b>2977.60</b>	<b>6092.17</b>	<b>2557.89</b>	<b>6761.45</b>
	<b>Block Total</b>					<b>48820.19</b>					

Table: 18.4

## KOZHIKODE BLOCK

Sl.No.	Rock Type	Feroke	Kadalundi	Olavanna	Ramanattukara	(Area in Ha)
1	Marshy land					
2	Mud					
3	Mundakan					
4	Mundakan/Puncha			137.14		
5	Other land uses	1057.08	940.38	1608.99		704.47
6	Paddy converted to Arecanut			6.07		
7	Paddy converted to Banana/Tapioca	2.57	2.49	12.48		18.74
8	Paddy converted to Built-up land	12.93		14.53		32.03
9	Paddy converted to Coconut	9.40	14.90	16.41		17.19
10	Paddy converted to Coconut/Arecanut	50.21	8.41			11.23
11	Paddy converted to Cultivable wasteland	14.44	16.08	3.42		15.97
12	Paddy converted to Fallow land	4.04	4.14	24.72		
13	Paddy converted to Mixed crops	73.27	15.11	37.17		126.13
14	Paddy converted to Plantation crops					
15	River	191.98	116.06	114.36		71.89
16	Swampy land					
17	Virippu					
18	Virippu/Mundakan	32.40				91.18
19	Virippu/Mundakan/Puncha		21.01			
20	Waterbody					102.18
	<b>Panchayat Total</b>	<b>1448.32</b>	<b>1138.58</b>	<b>1975.29</b>		<b>1191.01</b>
	<b>Block Total</b>			<b>5753.20</b>		



Table: 18.5

## KUNNAMANGALAM BLOCK

Sl. No.	Rock Type	Chatha mangalam	Kara sseri	Kodi yathur	Kunna mangalam	Kuru vattur	Mavoor	Mukkam	Peru manna	Peruvayal
1	Marshy land									
2	Mud									
3	Mundakan	186.78	31.63	67.97				2.29	98.49	4.53
4	Mundakan/Puncha									
5	Other land uses	3602.65	3427.82	2577.81	2424.73	1540.51	1577.18	2756.20	1334.46	1851.67
6	Paddy converted to Arecanut	5.28	3.52	2.98	2.55			6.90		
7	Paddy converted to Banana/Tapioca	48.34	25.58	13.76	31.08	17.28	38.95	65.76	9.61	16.56
8	Paddy converted to Built-up land	8.84	5.98	7.95	11.15	1.34	3.25	10.35	1.64	6.56
9	Paddy converted to Coconut	30.69	90.54	23.57	23.25	56.75	20.05	67.17	42.59	11.06
10	Paddy converted to Coconut/Arecanut			22.41	4.85			41.14		3.44
11	Paddy converted to Cultivable wasteland	20.43		3.21	2.25	3.19	7.53	12.33	3.18	
12	Paddy converted to Fallow land	2.90		28.13		8.15	28.41		37.38	122.77
13	Paddy converted to Mixed crops	54.53	55.60	56.70	44.70	88.27	39.91	47.53	51.74	70.36
14	Paddy converted to Plantation crops		99.81	19.52						
15	River	63.34	30.66	70.16	48.29	4.85	133.86	28.76	72.73	64.15
16	Swampy land									
17	Virippu									
18	Virippu/Mundakan	11.92	1.09					76.11		
19	Virippu/Mundakan/Puncha				102.06	18.74	263.09		5.03	247.93
20	Waterbody						7.62			
	<b>Panchayat Total</b>	<b>4035.70</b>	<b>3772.23</b>	<b>2894.17</b>	<b>2694.91</b>	<b>1739.08</b>	<b>2119.85</b>	<b>3114.54</b>	<b>1656.85</b>	<b>2399.03</b>
	<b>Block Total</b>					<b>24426.36</b>				

Table: 18.6

## KUNNUMMAL BLOCK

Sl.No.	Rock Type	Kavilumpara	Kayakkodi	Kunnummal	Kutyadi	Maruthonkara	Narippatta	Velom
1	Marshy land							
2	Mud							
3	Mundakan	6.64				8.84		
4	Mundakan/Puncha							
5	Other land uses	9222.61	2526.13	1118.23	1308.66	2124.19	4636.55	2140.02
6	Paddy converted to Arecanut		1.07		2.04		6.31	6.96
7	Paddy converted to Banana/Tapioca		50.18	3.61	10.91			19.40
8	Paddy converted to Built-up land			1.95	2.18			4.55
9	Paddy converted to Coconut		2.55	2.65			18.85	2.73
10	Paddy converted to Coconut/Arecanut							
11	Paddy converted to Cultivable wasteland	1.37				1.18		
12	Paddy converted to Fallow land							
13	Paddy converted to Mixed crops		63.75	26.92	68.55	14.68	21.65	68.57
14	Paddy converted to Plantation crops							
15	River	71.77	29.97		23.81	77.21	70.38	35.97
16	Swampy land							
17	Virippu							
18	Virippu/Mundakan		46.90					
19	Virippu/Mundakan/Puncha			18.39	91.35			334.27
20	Waterbody							1.43
	<b>Panchayat Total</b>	<b>9302.39</b>	<b>2720.55</b>	<b>1171.75</b>	<b>1507.50</b>	<b>2226.10</b>	<b>4753.74</b>	<b>2613.90</b>
	<b>Block Total</b>				<b>24295.93</b>			

Table: 18.7

## MELADI BLOCK

Sl.No.	Rock Type	Keezhariyoor	Meppayoor	Payyoli	Thikkodi	Thurayoor
1	Marshy land	33.55				24.43
2	Mud					
3	Mundakan					
4	Mundakan/Puncha					
5	Other land uses	980.67	2103.16	1835.62	979.83	661.35
6	Paddy converted to Arecanut	4.87	1.47			1.33
7	Paddy converted to Banana/Tapioca	34.90	15.72	28.92	62.09	14.00
8	Paddy converted to Built-up land		2.68			
9	Paddy converted to Coconut	24.53			3.55	8.83
10	Paddy converted to Coconut/Arecanut				13.18	
11	Paddy converted to Cultivable wasteland	11.00	14.09		51.31	21.55
12	Paddy converted to Fallow land		32.09	37.36	8.73	4.15
13	Paddy converted to Mixed crops	57.84	80.82	10.63	76.84	71.93
14	Paddy converted to Plantation crops					
15	River	125.66		229.74	142.69	91.56
16	Swampy land					
17	Virippu					
18	Virippu/Mundakan					
19	Virippu/Mundakan/Puncha	34.55	111.00	28.12	173.90	80.99
20	Waterbody					
	<b>Panchayat Total</b>	<b>1307.57</b>	<b>2361.03</b>	<b>2170.39</b>	<b>1512.12</b>	<b>980.12</b>
	<b>Block Total</b>			<b>8331.23</b>		

Table: 18.8

## PANTHALAYANI BLOCK

Sl.No.	Rock Type	Arikkulam	Atholi	Chemancheri	Chengottukavu	Moodadi	(Area in Ha)
1	Marshy land						
2	Mud						
3	Mundakan						
4	Mundakan/Puncha						
5	Other land uses	1303.59	1705.52	1274.07	1081.38	1229.41	
6	Paddy converted to Arecanut			8.11	5.78		
7	Paddy converted to Banana/Tapioca	34.95	106.12	57.94	46.48	14.60	
8	Paddy converted to Built-up land	4.51	8.18	6.20			
9	Paddy converted to Coconut	5.85	27.55	13.24	4.23	1.49	
10	Paddy converted to Coconut/Arecanut						
11	Paddy converted to Cultivable wasteland	9.84	6.14	2.25	12.29		
12	Paddy converted to Fallow land	14.57	3.82	28.08	16.16	48.70	
13	Paddy converted to Mixed crops	34.91	94.25	81.94	76.57	88.96	
14	Paddy converted to Plantation crops						
15	River	2.10	157.36	162.72	116.96	101.91	
16	Swampy land	60.05		11.05			
17	Virippu						
18	Virippu/Mundakan	3.40	3.93				
19	Virippu/Mundakan/Puncha	167.51	43.51	63.93	82.30	122.22	
20	Waterbody					2.31	
	<b>Panchayat Total</b>	<b>1641.28</b>	<b>2156.38</b>	<b>1709.53</b>	<b>1442.15</b>	<b>1609.60</b>	
	<b>Block Total</b>			<b>8558.94</b>			

Table: 18.9

## THODANNUR BLOCK

Sl.No.	Rock Type	Ayancherri	Maniyoor	Thiruvallur	Villiyapally	(Area in Ha)
1	Marshy land					
2	Mud					
3	Mundakan					
4	Mundakan/Puncha					
5	Other land uses	1630.23	2538.88	2339.61		1692.86
6	Paddy converted to Arecanut		3.56	3.50		
7	Paddy converted to Banana/Tapioca	28.71	10.35	36.50		
8	Paddy converted to Built-up land					6.25
9	Paddy converted to Coconut	5.68				22.95
10	Paddy converted to Coconut/Arecanut					
11	Paddy converted to Cultivable wasteland	13.55	14.84	11.77		2.87
12	Paddy converted to Fallow land	22.69	73.25	15.42		
13	Paddy converted to Mixed crops	5.68	68.16	9.01		16.10
14	Paddy converted to Plantation crops					
15	River	5.27	215.65	61.00		8.42
16	Swampy land					
17	Virippu					
18	Virippu/Mundakan					14.35
19	Virippu/Mundakan/Puncha	244.10	220.34	274.78		
20	Waterbody		2.41	22.49		
	<b>Panchayat Total</b>	<b>1955.91</b>	<b>3147.44</b>	<b>2774.08</b>		<b>1763.80</b>
	<b>Block Total</b>			<b>9641.23</b>		

Table: 18.10

## PERAMBRA BLOCK

Sl.No.	Rock Type	Changaroath	Cheruvannoor	Kayanna	Koothali	Nochad	Perambra	Chakkittapara
1	Marshy land							
2	Mud							
3	Mundakan							
4	Mundakan/Puncha							
5	Other land uses	2526.64	1601.06	1946.09	1510.23	2121.56	2214.81	9641.42
6	Paddy converted to Arecanut			6.79	1.50		5.30	5.59
7	Paddy converted to Banana/Tapioca	25.18	17.17	68.52	28.62	28.49	27.07	13.92
8	Paddy converted to Built-up land		5.96		2.96	4.37	10.06	1.62
9	Paddy converted to Coconut	22.43	5.05	16.00	26.23	12.87	4.47	1.92
10	Paddy converted to Coconut/Arecanut	25.92						
11	Paddy converted to Cultivable wasteland	2.28		2.38	4.14	5.88	3.90	
12	Paddy converted to Fallow land	7.81	2.42			8.96	29.06	
13	Paddy converted to Mixed crops	127.10	41.81	25.63	44.20	49.11	73.72	75.24
14	Paddy converted to Plantation crops							
15	River	81.84	40.54	3.95	22.16		25.55	544.10
16	Swampy land							
17	Virippu	240.74						4.10
18	Virippu/Mundakan							
19	Virippu/Mundakan/Puncha	20.28	403.93	34.58	66.59	204.57	266.97	
20	Waterbody							
	<b>Panchayat Total</b>	<b>3080.22</b>	<b>2117.94</b>	<b>2103.94</b>	<b>1706.63</b>	<b>2435.81</b>	<b>2660.91</b>	<b>10287.91</b>
	<b>Block Total</b>				<b>24393.36</b>			

Table: 18.11

## THUNERI BLOCK

Sl.No.	Rock Type	Chekyad	Edacherri	Nadapuram	Purameri	Thuneri	Valayam	Vanimel
1	Marshy land							
2	Mud							
3	Mundakan							
4	Mundakan/Puncha							
5	Other land uses	2398.39	1281.39	1850.27	1820.69	1331.92	2347.67	4197.72
6	Paddy converted to Arecanut							
7	Paddy converted to Banana/Tapioca	11.30	20.93	62.78	5.78	16.72	47.87	
8	Paddy converted to Built-up land	2.39	1.51	10.77	2.42	2.12		
9	Paddy converted to Coconut	26.60	38.41	12.03	36.39	40.28	15.69	
10	Paddy converted to Coconut/Arecanut	23.26	47.04		23.73	26.03		
11	Paddy converted to Cultivable wasteland							1.49
12	Paddy converted to Fallow land		16.55		3.63	10.89		
13	Paddy converted to Mixed crops	22.84	199.26	23.44	86.55	66.32	16.28	
14	Paddy converted to Plantation crops							
15	River	51.74	13.30	21.56		15.42	3.24	54.07
16	Swampy land							
17	Virippu			9.88				
18	Virippu/Mundakan	4.62	65.76		33.02	8.81	1.38	
19	Virippu/Mundakan/Puncha				11.00			
20	Waterbody							
	<b>Panchayat Total</b>	<b>2541.14</b>	<b>1684.15</b>	<b>1990.73</b>	<b>2023.21</b>	<b>1518.51</b>	<b>2432.13</b>	<b>4253.28</b>
	<b>Block Total</b>				<b>16443.15</b>			

Table: 18.12

## VADAKARA BLOCK

SI.No.	Rock Type	Azhiyoor	Cherod	Eramala	Onchiyam	(Area in Ha)
1	Marshy land					
2	Mud					
3	Mundakan					
4	Mundakan/Puncha					
5	Other land uses	963.52	1201.49	1361.89	846.13	
6	Paddy converted to Arecanut		1.23	10.80		
7	Paddy converted to Banana/Tapioca	22.89		1.20		
8	Paddy converted to Built-up land	9.40	8.39	34.65	10.33	
9	Paddy converted to Coconut	78.98	17.40	53.45	63.59	
10	Paddy converted to Coconut/Arecanut		2.62	156.83		
11	Paddy converted to Cultivable wasteland					
12	Paddy converted to Fallow land					
13	Paddy converted to Mixed crops	11.51	117.45	143.59	21.97	
14	Paddy converted to Plantation crops					
15	River	53.43	2.40	68.16		
16	Swampy land					
17	Virippu					
18	Virippu/Mundakan					
19	Virippu/Mundakan/Puncha					
20	Waterbody					
	<b>Panchayat Total</b>	<b>1139.73</b>	<b>1350.98</b>	<b>1830.57</b>	<b>942.02</b>	
	<b>Block Total</b>	<b>5263.30</b>				

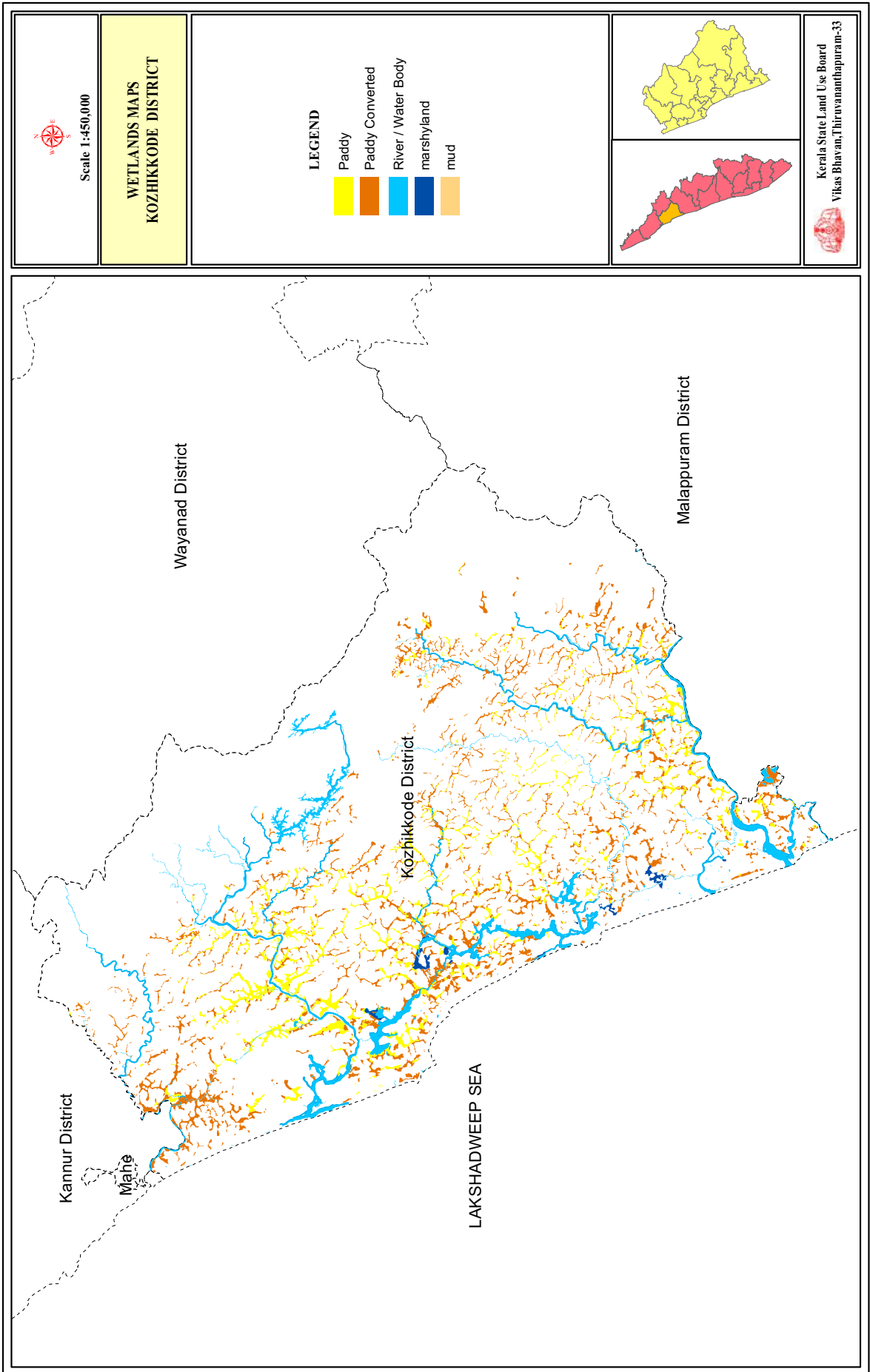


Table: 18.13

## MUNICIPALITY/CORPORATION

SI.No.	Rock Type	Koyilandy Municipality	Vadakara Municipality	Kozhikode Corporation	(Area in Ha)
1	Marshy land	8.01			174.52
2	Mud				23.01
3	Mundakan				4.16
4	Mundakan/Puncha				41.92
5	Other land uses	2044.99	1890.94		10438.79
6	Paddy converted to Arecanut	19.40			12.45
7	Paddy converted to Banana/Tapioca	193.54			170.22
8	Paddy converted to Built-up land	7.49	1.68		76.53
9	Paddy converted to Coconut	5.09	7.46		77.60
10	Paddy converted to Coconut/Arecanut				31.65
11	Paddy converted to Cultivable wasteland	19.61			65.54
12	Paddy converted to Fallow land	40.27	31.86		10.77
13	Paddy converted to Mixed crops	154.58	1.56		261.89
14	Paddy converted to Plantation crops				
15	River	115.63	104.79		519.46
16	Swampy land	113.26			
17	Virippu				
18	Virippu/Mundakan		144.17		
19	Virippu/Mundakan/Puncha	176.66			8.61
20	Waterbody	6.79			18.41
	<b>Municipality Total</b>	<b>2905.32</b>	<b>2182.46</b>		<b>11935.53</b>







## **WASTELAND**

### **Land is a critical natural resource**

Land is one of the most important critical resources which determine the success of development planning of any region. Promoting optimum land use is an essential purpose in achieving the planned goals of economic efficiency and ecological activity. Identification of prime and unique lands for agriculture and prevention of its misuse, assume utmost importance for food, security and self-reliance. It is therefore imperative that for sustainable development, effort should be made to ensure that the available land in the state is put to wise and optimum use.

### **Wasteland in Kerala**

It is not an exaggeration to say that wasteland exist in Kerala, where the per capita availability of land is only 0.13 hectare and the average size of holding is 0.33 hectare. The studies by National Remote Sensing Agency (1985) using satellite imageries has revealed that cultivable and uncultivable wasteland exists in Kerala, and it amounts to 5.2 percent of the total geographical area. The State Land Use Board made an attempt to estimate the extent of wasteland in the State utilizing the primary data available from the Department of Economics and Statistics; the only source on land utilization statistics in the State (Extent of Wasteland in Kerala State Land Use Board, 1986). This study has shown that 8.15 percent of the geographical area or 11.09 percent of the non-forest area of the State is categorized as wasteland. Though the two figures are from two different methodologies and classifications, the area involved is much significant in the small State like ours, where the density of population and pressure on land are so high.

The National Wasteland Development Board has undertaken the mapping of wasteland in India on 1:50,000 scale during 1987-88. They have identified six districts having maximum area of wastelands, viz, Kasargod, Kannur, Wayanad, Malappuram, Palakkad and Idukki under Wasteland mapping Project Phase II at national level. Kerala State Land use Board

undertook the task of identifying and mapping and completed the project, Later the remaining eight districts, viz. Alappuzha, Ernakulam, Kollam, Kottayam, Kozhikode, Pathanamthitta, Thiruvananthapuram and Thrissur were taken up under the project, Wasteland Mapping Phase V. The study revealed that there is a total area of 1457 sq.km (3.73 percent) under wasteland in the State.

Presently under this project, the updation of the wastelands was done using the LISS III satellite imagery of 2003. The data gathered by this task is presented for the use of various departments/agencies in the State engaged in the programme of reclamation of wastelands in the State.

### **Wasteland defined**

Wasteland is defined as "degraded land which can be brought under vegetative cover with reasonable effort and which is currently under utilized and land which is deteriorating for lack of appropriate water and soil management or on account of natural causes." Wastelands can result from inherent/imposed disabilities such as by location, environment, chemical and physical properties of the soil or financial or management constraints. These lands could fall under Government occupation, private occupation or forest lands. 13 categories of wasteland have been standardized and State and Central Government departments are using the same.

### **Wasteland classification**

The wasteland categories standardized by National Remote Sensing Centre, Hyderabad for Kerala for this project is as follows:

1. Land with scrub
2. Land without scrub
3. Waterlogged - permanent
4. Waterlogged - seasonal
5. Under utilized/degraded notified forest land - scrub dominated
6. Degraded pastures/grazing land
7. Degraded land under plantation crop

8. Sands (riverine/coastal/desertic) - flood plain
9. Coastal sand
10. Mining/Industrial - Mining
11. Mining/Industrial - Industrial
12. Barren Rocky/Stony waste/Sheet rock
13. Steep slopping area

**Brief description on spatial distribution and physical condition of wastelands in Kozhikode district**

Area and percentage to total of major categories of wasteland in the district are given below:-

Table: 19.1

Sl. No.	Wasteland categories	Area (Ha.)	Percentage to total Geographical area
1	Land with open scrub	3883.52	1.65
2	Scrub dominated forest	3321.05	1.41
3	Barren rocky area	1432.74	0.61
4	Waterlogged - Permanent	147.97	0.06

1. Land with open scrub:- It is the major category of wasteland mapped in an area of 3883.52 ha. covering 1.65% of total geographical area of the district. It is mostly located in Kattipura (681.84 ha.), Kodencherry (243.49 ha.) and Peruvayal (180.27 ha) Panchayats.
2. Scrub dominated forest:- This category of wasteland identified 3321.05 ha. comes to 1.41% of the total geographical area of the district. It is mainly located in Nanmanda (527.89 ha), Koorachund (439.47 ha.), and Chakkittapara (338.59 ha.) Panchayats.
3. Barren rocky area:- This category of wasteland occurs in an area of 1432.74 ha. comes to 0.61% of the total geographical area of the district. It is mostly located in Kavilumpara (355.13 ha.), Narippata (354.32 ha.) and Thiruvambadi (136.03 ha.) Panchayats.

Table: 19.2

**BALUSSERI BLOCK**

Sl.No.	Rock Type	Balusseri	Koorachundu	Kottoor	Naduvannoor	Panangad	Uliyeri	Unnikulam
1	Barren rocky area		61.87	8.16				
2	Coastal sands							
3	Land with dense scrub		14.37			42.20		
4	Land with open scrub	2.44	152.90	18.13	43.50	20.71	75.48	13.10
5	Mining wastelands							
6	Scrub dominated forest	212.15	439.47	27.64		179.90		128.40
7	Waterlogged - permanent							
8	Waterlogged - seasonal		16.25					
	<b>Panchayat Total</b>	<b>214.59</b>	<b>684.86</b>	<b>53.93</b>	<b>43.50</b>	<b>242.81</b>	<b>75.48</b>	<b>141.50</b>
	<b>Block Total</b>				<b>1456.67</b>			

Table: 19.3

**KUNNUMMAL BLOCK**

Sl.No.	Rock Type	Kavilum para	Kayakkodi	Kunnummal	Kutyadi	Maruthon kara	Narippatta	Velom
1	Barren rocky area	355.13					354.32	
2	Coastal sands							
3	Land with dense scrub							
4	Land with open scrub	56.73		18.35	0.75	6.96	7.56	21.39
5	Mining wastelands							
6	Scrub dominated forest	228.18	44.60				94.91	
7	Waterlogged - permanent							
8	Waterlogged - seasonal							
	<b>Panchayat Total</b>	<b>640.04</b>	<b>44.6</b>	<b>18.35</b>	<b>0.75</b>	<b>6.96</b>	<b>456.79</b>	<b>21.39</b>
	<b>Block Total</b>				<b>1188.88</b>			



Table: 19.4

## THUNERI BLOCK

Sl. No.	Rock Type	Chekyad	Edacherri	Nadapuram	Purameri	Thuneri	Valayam	Vanimel
1	Barren rocky area		1.31			8.43		45.50
2	Coastal sands							
3	Land with dense scrub							3.13
4	Land with open scrub	43.78			33.89			29.65
5	Mining wastelands							
6	Scrub dominated forest	2.95						172.87
7	Waterlogged - permanent							
8	Waterlogged - seasonal							
	<b>Panchayat Total</b>	<b>46.73</b>	<b>1.31</b>	<b>0</b>	<b>33.89</b>	<b>8.43</b>	<b>0</b>	<b>251.15</b>
	<b>Block Total</b>				<b>341.51</b>			

Table: 19.5

## CHELANNUR BLOCK

Sl. No.	Rock Type	Chelannur	Kakkodi	Kakkoor	Nanmanda	Narikkuni	Thalakulathur
1	Barren rocky area	4.39		2.87			
2	Coastal sands						
3	Land with dense scrub						
4	Land with open scrub	129.30	36.15	130.20	31.39		88.28
5	Mining wastelands						
6	Scrub dominated forest			19.00	527.89		
7	Waterlogged - permanent						
8	Waterlogged - seasonal						
	<b>Panchayat Total</b>	<b>133.69</b>	<b>36.15</b>	<b>152.07</b>	<b>559.28</b>	<b>0.00</b>	<b>88.28</b>
	<b>Block Total</b>			<b>969.47</b>			

Table: 19.6

## KODUVALLI BLOCK

Sl. No.	Rock Type	Katti ppara	Kizhakkoth	Kodencherri	Koduvalli	Kooda ranji	Mada voor	Oma ssery	Puthu ppadi	Thamara ssery	Thiru vambadi
1	Barren rocky area			45.63	6.37			9.31			136.03
2	Coastal sands										
3	Land with dense scrub	1.93				29.74			2.13		7.92
4	Land with open scrub	681.84	3.49	243.49	8.66	88.17	25.97	18.49	128.01	128.32	25.83
5	Mining wastelands										
6	Scrub dominated forest	154.50		103.75		255.29			271.74		99.78
7	Waterlogged - permanent										
8	Waterlogged - seasonal										
	<b>Panchayat Total</b>	<b>838.27</b>	<b>3.49</b>	<b>392.87</b>	<b>15.03</b>	<b>373.20</b>	<b>25.97</b>	<b>27.80</b>	<b>401.88</b>	<b>128.32</b>	<b>269.56</b>
	<b>Block Total</b>					<b>2476.39</b>					

Table: 19.7

## KUNNAMANGALAM BLOCK

Sl. No.	Rock Type	Chatha mangalam	Karasseri	Kodiyathur	Kunnaman galam	Kuru vattur	Mavoor	Mukkam	Peru manna	Peruvayal
1	Barren rocky area		73.27	6.74				33.66		
2	Coastal sands									
3	Land with dense scrub		1.29							
4	Land with open scrub	125.39	47.03	128.44	71.68	28.67	172.34	64.98	122.24	180.27
5	Mining wastelands			12.29						
6	Scrub dominated forest									
7	Waterlogged - permanent									
8	Waterlogged - seasonal									
	<b>Panchayat Total</b>	<b>125.39</b>	<b>121.59</b>	<b>147.47</b>	<b>71.68</b>	<b>28.67</b>	<b>172.34</b>	<b>98.64</b>	<b>122.24</b>	<b>180.27</b>
	<b>Block Total</b>				<b>1068.29</b>					

Table: 19.8

## PERAMBRA BLOCK

Sl.No.	Rock Type	Changaroath	Cheruvannoor	Kayanna	Koothali	Nochad	Perambra	Chakkittapara
1	Barren rocky area		2.98	73.49		2.78		73.01
2	Coastal sands							
3	Land with dense scrub			1.87				
4	Land with open scrub	8.97	28.72	14.48		28.03	18.89	95.54
5	Mining wastelands							
6	Scrub dominated forest			19.44				338.59
7	Waterlogged - permanent							
8	Waterlogged - seasonal							
	<b>Panchayat Total</b>	<b>8.97</b>	<b>31.70</b>	<b>109.28</b>	<b>0</b>	<b>30.81</b>	<b>18.89</b>	<b>507.14</b>
	<b>Block Total</b>				<b>706.79</b>			

Table: 19.9

## MELADI BLOCK

Sl.No.	Rock Type	Keezhariyoor	Meppayoor	Payyoli	Thikkodi	Thurayoor
1	Barren rocky area	50.04	52.87	11.82		6.10
2	Coastal sands					
3	Land with dense scrub					
4	Land with open scrub	10.17	6.37			
5	Mining wastelands					
6	Scrub dominated forest					
7	Waterlogged - permanent			1.92	143.62	2.43
8	Waterlogged - seasonal					

Table: 19.10

## THODANNUR BLOCK

Sl.No.	Rock Type	Ayancherri	Maniyoor	Thiruvallur	Villiyapally
1	Barren rocky area			2.55	
2	Coastal sands				
3	Land with dense scrub		23.03		
4	Land with open scrub			28.86	
5	Mining wastelands				
6	Scrub dominated forest				
7	Waterlogged - permanent				
8	Waterlogged - seasonal				
	<b>Panchayat Total</b>	0.00	23.03	31.41	0.00
	<b>Block Total</b>		54.44		

Table: 19.11

## VADAKARA BLOCK

Sl.No.	Rock Type	Azhiyoor	Cherkkod	Eramala	Onchiyam
1	Barren rocky area				
2	Coastal sands				
3	Land with dense scrub				
4	Land with open scrub				
5	Mining wastelands				
6	Scrub dominated forest				
7	Waterlogged - permanent				
8	Waterlogged - seasonal				
	<b>Panchayat Total</b>				
	<b>Block Total</b>				

Table: 19.12

## PANTHALAYANI BLOCK

Sl.No.	Rock Type	Arikkulam	Atholi	Chemancheri	Chengottukavu	Moodadi
1	Barren rocky area	3.82				
2	Coastal sands					
3	Land with dense scrub					
4	Land with open scrub	58.30	88.36	8.56		
5	Mining wastelands					
6	Scrub dominated forest					
7	Waterlogged - permanent					
8	Waterlogged - seasonal					
	<b>Panchayat Total</b>	<b>62.12</b>	<b>88.36</b>	<b>8.56</b>	<b>0.00</b>	<b>0.00</b>
	<b>Block Total</b>		<b>159.04</b>			

Table: 19.13

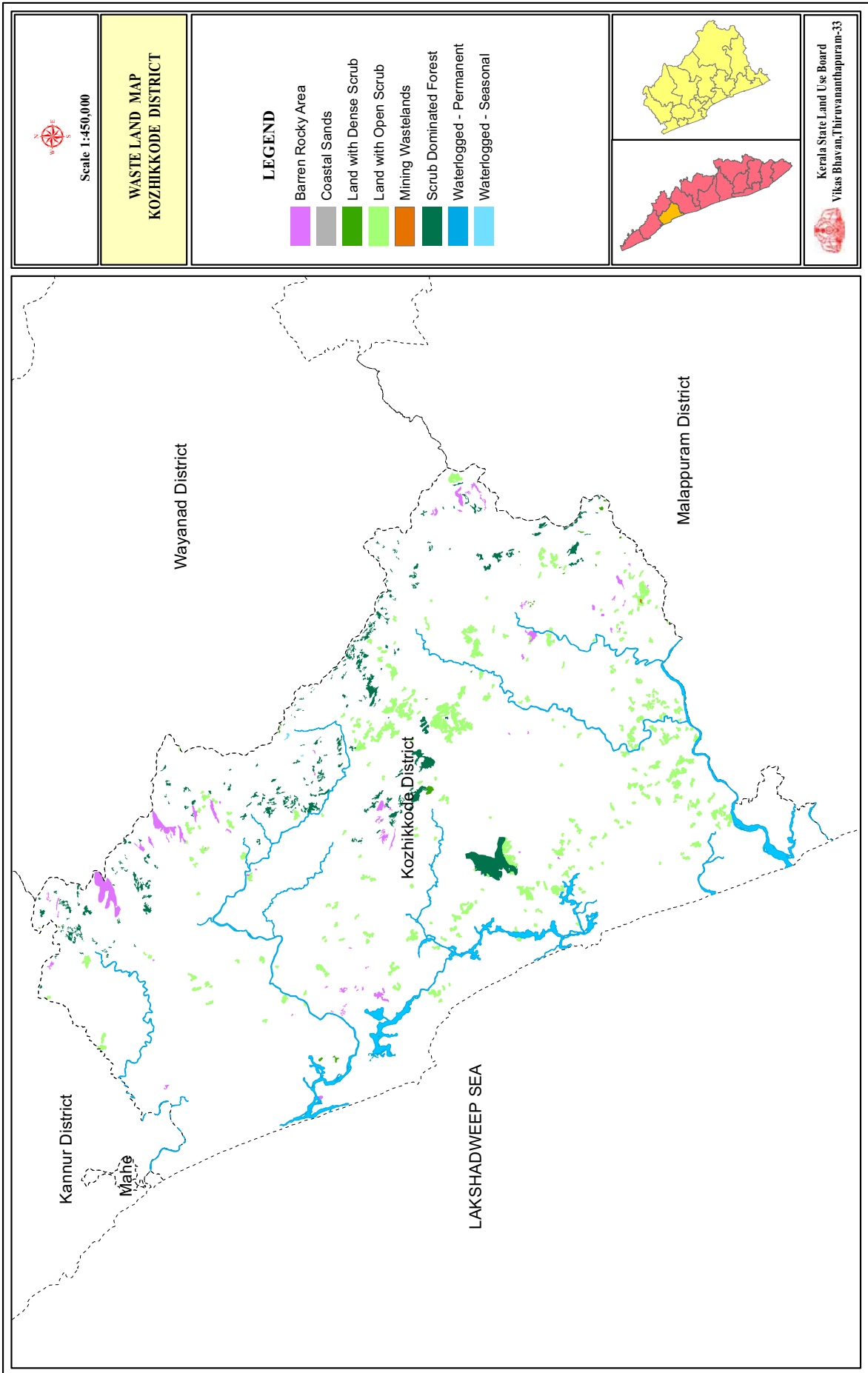
## KOZHIKODE BLOCK

Sl.No.	Rock Type	Feroke	Kadalundi	Olavanna	Ramanattukara
1	Barren rocky area				
2	Coastal sands				
3	Land with dense scrub				
4	Land with open scrub			121.09	
5	Mining wastelands				
6	Scrub dominated forest				
7	Waterlogged - permanent				
8	Waterlogged - seasonal				
	<b>Panchayat Total</b>	<b>0</b>	<b>0</b>	<b>121.09</b>	<b>0</b>
	<b>Block Total</b>		<b>121.09</b>		

Table: 19.14

**MUNICIPALITY/CORPORATION****(Area in Ha)**

<b>Sl. No.</b>	<b>Rock Type</b>	<b>Koyilandy Municipality</b>	<b>Vadakara Municipality</b>	<b>Kozhikode Corporation</b>
1	Barren rocky area			
2	Coastal sands		4.22	1.91
3	Land with dense scrub			
4	Land with open scrub	59.39		66.58
5	Mining wastelands			
6	Scrub dominated forest			
7	Waterlogged - permanent			
8	Waterlogged - seasonal			
	<b>Total</b>	<b>59.39</b>	<b>4.22</b>	<b>68.49</b>







## **WATERSHED**

Watershed development and management is an integration of technology within the natural boundary of a drainage area for optimum development of land, water and plant resources to meet the basic minimum needs of the people in a sustained manner. The poor in the rural areas who are struggling for survival cannot be expected to pay heed to the conservation strategy unless their daily needs of food, fiber and fuel are met with. A still more urgent need is for assured and full employment for all. Integrated watershed development and management is not only the most effective solutions to many of the problems mentioned above, but also effective solution to many other common problems like drought, floods etc. It includes the integration of many scattered programs of soil conservation, afforestation, minor irrigation, crop production, tree plantation, fodder development and other development activities into a well prepared micro watershed project based on study of climate, land, water & plant resources on the one hand and man, animal resources on the other, offers hope for bringing about sustained natural resources development.

It also provides solution to many environmental problems like soil erosion, siltation, improper land use, lowering ground water table etc. Once these are solved the overall productivity, income of the family and employment opportunity in the villages could be increased and thereby the living conditions of the rural population can be enhanced.

The rain water after absorbed by the soil, flows as runoff in small gullies, rivulets and joins the stream and form river system. This represents a natural drainage system. The river basin at macro level and watershed /sub watershed at microlevel represent the Natural Drainage System.

A watershed is an area from which runoff, resulting from precipitation flows past a single point into a large stream, river, lake or an ocean. In other words a watershed is that area in which all the precipitation converges and

drains past a particular point. The term watershed, catchment area of drainage basin can be used interchangeably. A watershed may be only a few hectares as in the case of small ponds, or hundreds of square kilometers as in the case of rivers or big reservoirs. For convenience watershed are classified in terms of size into: Basins, Catchments, Sub catchments, Watershed, Sub watershed, Mini & Micro watersheds. Each watershed is an independent hydrological unit; any modification of the land use in the watershed will be reflected on the water as well as in the sediment yield of the watershed.

The watershed can be demarcated from the topo sheet. But for a small (micro) watershed a detailed topographical survey has to be made and a contour map may have to be prepared. The ridge points are marked and the area below the ridge line is known as the watershed area. This contour map can be imposed with the village map. In case of small watershed, it could be demarcated by walking over the ridge point.

Watershed has become an acceptable unit of planning for optimum use and conservation of soil and water resources. A watershed is hydrological units which produce water as an end product by interaction of rainfall and watershed factor.

Table: 20.1

**WATERSHED DETAILS**

<b>Block/Municipality/ Corporation</b>	<b>Panchayat</b>	<b>WS Code</b>	<b>Area(ha)</b>
Balusseri	Balusseri	26K18a	2.48
		26K19a	93.70
		26K20a	1424.26
		26K21a	149.99
		26K24a	579.46
		26K24d	6.74
	<b>Panchayat Total</b>		<b>2256.64</b>
	Koorachundu	24C7m	267.29
		24C7n	44.83
		24C7q	2.02
		26K18b	523.50
		26K26j	266.55
		26K26k	950.35
		27K32i	127.89
		28K18d	91.95
		28K18e	361.69
		28K21a	166.72
		28K21b	70.67
		28K21c	654.93
		28K21d	71.73
		28K22a	966.05
		28K23a	444.23
		28K24a	260.60
		28K25a	435.30
		28K26a	313.13
		28K27a	132.40
		28K27b	320.45
		28K27c	450.29
		28K27d	274.66
		28K28a	199.21
		28K28b	493.34
		28K28c	557.62
		28K28d	262.27
		28K29a	514.48
		28K30a	525.72
		28K31a	656.80
		28K32a	75.66
		28K39d	178.53
		28K39e	50.96
		28K39f	480.54

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		28K39g	143.04
		28K39h	857.85
		28K39i	357.99
	<b>Panchayat Total</b>		<b>12551.22</b>
	Kottoor	26K15a	538.84
		26K16a	364.65
		26K17a	834.98
		26K17b	881.36
		26K17c	85.69
		26K18a	79.14
		26K18b	107.31
		26K20a	3.80
		28K39j	236.41
	<b>Panchayat Total</b>		<b>3132.19</b>
	Naduvannoor	26K14a	15.49
		26K14c	633.34
		26K15a	1086.70
		26K16a	386.16
		26K21a	28.81
	<b>Panchayat Total</b>		<b>2150.51</b>
	Panangad	26K17b	4.87
		26K17c	101.23
		26K18a	770.98
		26K18b	130.32
		26K18c	393.60
		26K19a	580.39
		26K20a	2.27
		26K26g	24.70
		26K26h	961.49
		26K26i	253.23
		26K26j	232.66
	<b>Panchayat Total</b>		<b>3455.74</b>
	Ulliyeri	26K12a	6.77
		26K15a	6.39
		26K16a	1.68
		26K20a	34.19
		26K21a	1397.82
		26K22a	1147.86
	<b>Panchayat Total</b>		<b>2594.72</b>
	Unnikulam	26K18c	63.24
		26K19a	690.37
		26K24d	142.84

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		26K26f	878.76
		26K26g	1153.16
		26K26h	651.63
		26K26i	50.68
	<b>Panchayat Total</b>		<b>3630.67</b>
	<b>Block Total</b>		<b>29771.71</b>
Chelannur	Chelannur	26K24a	56.09
		26K24b	3.35
		26K24c	4.44
		26K24f	69.55
		26K24g	1070.04
		26K25a	1008.52
		26K26b	12.87
	<b>Panchayat Total</b>		<b>2224.85</b>
	Kakkodi	26K24a	297.19
		26K25a	434.32
		26K26a	578.52
		26K26b	417.85
		26K26c	11.04
		26K26w	3.26
	<b>Panchayat Total</b>		<b>1742.17</b>
	Kakkoor	26K24a	4.85
		26K24b	325.92
		26K24c	562.95
		26K24d	294.25
		26K24e	390.73
		26K24f	507.07
		26K24g	2.93
	<b>Panchayat Total</b>		<b>2088.71</b>
	Nanmanda	26K19a	493.74
		26K20a	18.86
		26K24a	859.60
		26K24c	1.97
		26K24d	901.18
	<b>Panchayat Total</b>		<b>2275.35</b>
	Narikkuni	26K24d	40.26
		26K24e	32.49
		26K24f	342.66
		26K25a	175.96
		26K26d	968.44
		26K26f	190.22
	<b>Panchayat Total</b>		<b>1750.03</b>

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
	Thalakuathur	26K23a	553.15
		26K24a	711.35
		26K24b	445.47
		26K24g	130.23
	<b>Panchayat Total</b>		<b>1840.19</b>
	<b>Block Total</b>		<b>11921.42</b>
Koduvalli	Kattippara	24C7i	229.65
		24C7k	528.00
		24C7l	557.61
		24C7m	421.82
		24C7n	262.25
		24C7q	30.43
		26K26g	2.99
		26K26h	8.29
		26K26i	14.23
		26K26j	1.78
		26K26l	628.40
		26K26m	716.24
		26K26n	283.13
		26K26o	712.99
		26K26p	297.70
	<b>Panchayat Total</b>		<b>4695.51</b>
	Kizhakkoth	26K26d	64.61
		26K26e	749.25
		26K26f	930.55
		26K26g	279.03
		26K26r	1.93
	<b>Panchayat Total</b>		<b>2025.37</b>
	Kodencherri	24C7j	19.58
		24C7k	21.95
		24C7q	5.68
		24C7s	636.47
		24C7t	873.00
		24C7u	279.88
		24C7v	276.08
		24C7w	529.97
		24C9ac	1.06
		24C9ad	1.80
		24C9d	2.28
		24C9e	596.23
		24C9f	1281.29
		24C9g	248.59

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		24C9h	165.00
		24C9i	293.27
		24C9j	1102.18
		24C9k	390.92
		24C9l	398.46
		24C9m	428.02
		24C9n	512.81
		24C9o	718.47
		24C9p	557.78
		24C9q	797.24
		24C9r	968.76
		24C9s	994.32
		24C9t	1.14
		24C9v	10.53
		24C9x	50.14
		24C9y	136.62
	<b>Panchayat Total</b>		<b>12299.50</b>
	Koduvalli	24C7e	539.98
		24C7g	262.57
		24C7h	243.80
		26K26e	18.66
		26K26f	1.69
		26K26g	11.53
		26K26p	75.29
		26K26q	417.79
		26K26r	310.49
	<b>Panchayat Total</b>		<b>1881.78</b>
	Koodaranji	24C12d	159.57
		24C12e	277.72
		24C9aa	1394.22
		24C9ac	26.89
		24C9ad	289.29
		24C9ae	17.90
		24C9af	106.68
		24C9ag	333.62
		24C9ah	320.42
		24C9ai	858.37
		24C9ab	287.88
		24C9aj	412.35
		24C9ak	746.38
		24C9al	862.28
		24C9am	157.15

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		24C9an	430.05
		24C9ao	3.71
		24C9u	19.03
		24C9w	496.93
		24C9z	66.00
	<b>Panchayat Total</b>		<b>7266.44</b>
	Madavoor	26K24g	109.78
		26K25a	323.15
		26K26b	147.07
		26K26c	332.96
		26K26d	942.38
		26K26e	106.86
	<b>Panchayat Total</b>		<b>1962.20</b>
	Omassery	24C7f	160.15
		24C7g	3.59
		24C7h	21.66
		24C7i	11.88
		24C7j	5.65
		24C7w	1002.75
		24C7x	601.62
		24C7y	705.33
		24C7z	138.08
		24C9c	131.58
		24C9d	169.22
		24C9e	25.13
	<b>Panchayat Total</b>		<b>2976.62</b>
	Puthuppadi	24C7i	93.26
		24C7j	108.63
		24C7k	543.27
		24C7m	292.11
		24C7n	446.37
		24C7o	328.89
		24C7p	650.22
		24C7q	1627.03
		24C7r	889.06
		24C7s	441.66
		24C7t	79.29
		24C7u	278.53
	<b>Panchayat Total</b>		<b>5778.33</b>
	Thamarassery	24C7h	738.05
		24C7i	1028.97
		24C7j	334.81



Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		24C7x	2.04
		26K26g	6.32
		26K26o	116.31
		26K26p	328.25
		26K26q	1.49
	<b>Panchayat Total</b>		<b>2556.23</b>
	Thiruvambadi	24C9aa	2.49
		24C9ab	10.30
		24C9ac	308.64
		24C9ad	488.26
		24C9ae	650.90
		24C9af	23.29
		24C9b	1.47
		24C9c	10.35
		24C9d	27.90
		24C9p	3.87
		24C9q	1.28
		24C9r	3.87
		24C9s	761.46
		24C9t	846.86
		24C9u	1181.96
		24C9v	756.37
		24C9w	885.14
		24C9x	202.76
		24C9y	201.71
		24C9z	390.87
	<b>Panchayat Total</b>		<b>6759.73</b>
	<b>Block Total</b>		<b>48805.80</b>
Koyilandy(M)	Koyilandy(M)	26K12a	334.11
		26K13a	413.33
		26K21a	19.31
		26K22a	11.68
		26K3a	1.30
		26K4a	1694.23
		26K5a	312.33
		26K6a	81.01
		Waterbody	36.62
	<b>Municipality Total</b>		<b>2903.92</b>
Kozhikode(C)	Kozhikode(C)	24C1a	740.65
		24C2a	477.29
		24C76a	10.49
		25K1a	340.92

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		25K2a	990.94
		25K3a	643.27
		25K5a	588.65
		25K7a	4.58
		25K8a	959.64
		25K9a	725.34
		26K23a	168.32
		26K24a	2.39
		26K26a	29.43
		26K26b	3.11
		26K26c	28.91
		26K26t	142.95
		26K26u	412.07
		26K26v	561.88
		26K26w	293.24
		26K27a	2238.39
		26K28a	1142.74
		26K29a	1406.74
		26K2a	18.53
	<b>Corporation Total</b>		<b>11930.47</b>
Kozhikode	Feroke	24C1a	90.93
		24C76a	287.28
		24C77a	726.92
		24C78a	340.49
		24C80a	2.13
	<b>Panchayat Total</b>		<b>1447.75</b>
	Kadalundi	23K1a	527.27
		23K2a	101.90
		24C77a	7.87
		24C79a	172.56
		24C80a	328.54
	<b>Panchayat Total</b>		<b>1138.12</b>
	Olavanna	24C2a	158.78
		24C3a	213.16
		24C4a	216.12
		25K2a	2.69
		25K3a	351.30
		25K4a	208.12
		25K6a	4.74
		25K7a	685.19
		25K8a	134.42
	<b>Panchayat Total</b>		<b>1974.51</b>

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
	Ramanattukara	24C76a	336.27
		24C78a	467.00
		24C78b	259.59
		24C78d	127.69
	<b>Panchayat Total</b>		<b>1190.55</b>
	<b>Block Total</b>		<b>5750.93</b>
Kunnamangalam	Chathamangalam	24C7aa	762.81
		24C7ab	1713.73
		24C7ac	155.64
		24C7b	1.36
		24C7c	1.30
		24C7d	10.45
		24C7e	30.87
		24C7y	19.34
		24C7z	838.66
		24C8a	257.53
		24C9a	242.66
	<b>Panchayat Total</b>		<b>4034.37</b>
	Karasseri	24C12b	15.29
		24C12c	121.47
		24C12d	401.76
		24C9a	2.99
		24C9ae	39.17
		24C9af	284.25
		24C9an	100.35
		24C9ao	324.84
		24C9ap	716.07
		24C9aq	442.39
		24C9ar	401.36
		24C9as	528.29
		24C9at	351.15
		24C9b	41.82
	<b>Panchayat Total</b>		<b>3771.19</b>
	Kodiyathur	24C12b	874.46
		24C12c	376.27
		24C12d	68.86
		24C9a	34.26
		24C9aq	47.56
		24C9ar	48.16
		24C9at	508.19
		24C9au	935.59
	<b>Panchayat Total</b>		<b>2893.36</b>

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
	Kunnamangalam	24C7aa	1.27
		24C7c	330.45
		24C7d	498.24
		24C7e	215.36
		25K5a	328.97
		25K5b	191.98
		26K26c	26.42
		26K26d	19.27
		26K26r	280.50
		26K26s	389.58
		26K26t	411.87
	<b>Panchayat Total</b>		<b>2693.90</b>
	Kuruvattur	26K25a	86.27
		26K26b	674.61
		26K26c	966.69
		26K26s	3.03
		26K26t	2.85
		26K26u	1.75
		26K26v	3.18
	<b>Panchayat Total</b>		<b>1738.37</b>
	Mavoor	24C6a	94.94
		24C7a	301.31
		24C7ab	99.58
		24C7ac	977.31
		24C7b	325.63
		24C8a	279.16
		25K5b	41.19
	<b>Panchayat Total</b>		<b>2119.12</b>
	Mukkam	24C7y	128.64
		24C7z	15.67
		24C9a	1007.27
		24C9ae	2.17
		24C9af	4.40
		24C9b	675.29
		24C9c	740.17
		24C9d	539.94
	<b>Panchayat Total</b>		<b>3113.55</b>
	Perumanna	24C4a	249.25
		24C5a	394.42
		24C6a	146.94
		25K4a	7.82
		25K5b	113.63

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		25K6a	744.17
	<b>Panchayat Total</b>		<b>1656.23</b>
	Peruvayal	24C6a	466.09
		24C7aa	3.49
		24C7ab	2.39
		24C7b	176.06
		24C7c	64.07
		25K3a	51.74
		25K4a	162.59
		25K5a	313.50
		25K5b	902.97
		25K5c	206.94
		25K6a	41.47
		26K26t	6.84
	<b>Panchayat Total</b>		<b>2398.15</b>
	<b>Block Total</b>		<b>24418.24</b>
Kunnummal	Kavilumpara	28K13a	183.40
		28K13c	163.65
		28K13d	1062.40
		28K13e	377.16
		28K13f	686.09
		28K13g	512.68
		28K13h	1298.42
		28K13i	236.44
		28K13j	172.26
		28K13k	852.43
		28K13l	307.57
		28K15b	19.49
		28K15c	483.29
		28K15d	264.01
		28K15e	91.69
		28K15f	762.25
		28K15g	324.55
		28K16a	196.86
		28K16b	132.42
		28K16c	1108.22
		28K16d	55.23
		29M17k	4.58
		29M17l	3.49
	<b>Panchayat Total</b>		<b>9298.58</b>
	Kayakkodi	28K12a	51.25
		28K13a	1380.89

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		28K13b	651.26
		28K13c	431.66
		28K13d	79.62
		28K13i	30.20
		28K13j	50.41
		28K13m	5.30
		29M23a	38.74
	<b>Panchayat Total</b>		<b>2719.33</b>
	Kunnummal	28K11a	14.83
		28K12a	49.83
		28K13a	280.79
		29M23b	167.12
		29M24a	59.81
		29M28c	598.82
	<b>Panchayat Total</b>		<b>1171.18</b>
	Kutyadi	28K11a	509.54
		28K12a	963.72
		28K13a	33.54
	<b>Panchayat Total</b>		<b>1506.80</b>
	Maruthonkara	28K13a	1.67
		28K13l	291.26
		28K13m	321.32
		28K14a	594.22
		28K15a	273.30
		28K15b	316.44
		28K15c	10.18
		28K15d	1.03
		28K15g	201.78
		28K15h	103.52
		28K16a	105.53
		28K36a	4.92
	<b>Panchayat Total</b>		<b>2225.17</b>
	Narippatta	28K13a	207.52
		28K13d	49.08
		29M12a	2.43
		29M13a	11.95
		29M17b	2.27
		29M17f	244.07
		29M17g	173.63
		29M17k	359.84
		29M17l	516.09
		29M18a	637.45

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		29M19a	471.87
		29M20a	109.46
		29M21a	201.22
		29M21b	281.19
		29M21c	144.59
		29M22a	331.06
		29M23a	387.03
		29M23b	93.23
		29M23c	128.31
		29M24a	380.35
		29M28c	18.92
	<b>Panchayat Total</b>		<b>4751.57</b>
	Velom	28K10a	1178.10
		28K11a	155.45
		28K9b	893.04
		28K9c	386.06
	<b>Panchayat Total</b>		<b>2612.65</b>
	<b>Block Total</b>		<b>24285.27</b>
Meladi	Keezhariyoor	26K10a	654.83
		26K11a	276.88
		26K12a	51.78
		26K13a	86.10
		26K4a	15.61
		26K8a	31.44
		26K9a	4.99
		Waterbody	185.30
	<b>Panchayat Total</b>		<b>1306.93</b>
	Meppayoor	26K10a	18.19
		26K11a	884.43
		26K14b	123.69
		26K9a	61.68
		28K42b	14.61
		28K43a	172.01
		28K44a	1085.30
	<b>Panchayat Total</b>		<b>2359.91</b>
	Payyoli	26K7a	458.53
		28K1a	5.24
		28K2a	1.39
		28K3a	5.22
		28K45a	717.48
		28K46a	667.28
		28K47a	286.89

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		28K5a	20.70
		28K6a	2.39
		Waterbody	4.12
	<b>Panchayat Total</b>		<b>2169.23</b>
	Thikkodi	26K6a	269.74
		26K7a	1088.75
		Waterbody	152.86
	<b>Panchayat Total</b>		<b>1511.35</b>
	Thurayoor	26K7a	109.65
		26K8a	317.33
		26K9a	159.87
		28K44a	275.43
		28K45a	14.12
		28K6a	1.25
		28K7a	3.82
		Waterbody	98.16
	<b>Panchayat Total</b>		<b>979.62</b>
	<b>Block Total</b>		<b>8327.05</b>
Panthalayani	Arikkulam	26K11a	300.90
		26K13a	476.54
		26K14a	236.96
		26K14b	418.25
		26K14c	207.84
	<b>Panchayat Total</b>		<b>1640.49</b>
	Atholi	26K22a	597.34
		26K23a	719.22
		26K24a	837.72
		26K24b	1.14
	<b>Panchayat Total</b>		<b>2155.41</b>
	Chemancheri	26K1a	550.14
		26K22a	7.61
		26K23a	117.93
		26K2a	739.73
		26K3a	293.33
	<b>Panchayat Total</b>		<b>1708.74</b>
	Chengottukavu	26K22a	96.89
		26K2a	97.87
		26K3a	725.90
		26K4a	520.81
	<b>Panchayat Total</b>		<b>1441.47</b>
	Moodadi	26K4a	23.30
		26K5a	85.01



Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		26K6a	996.55
		26K7a	408.77
		Waterbody	95.15
	<b>Panchayat Total</b>		<b>1608.78</b>
	<b>Block Total</b>		<b>8554.91</b>
Perambra	Changaroath	28K12a	2.12
		28K35a	14.37
		28K36a	252.71
		28K37a	574.79
		28K38a	418.67
		28K39a	272.21
		28K39b	672.52
		28K39c	345.12
		28K39k	93.95
		28K39l	265.66
		28K40a	166.75
	<b>Panchayat Total</b>		<b>3078.87</b>
	Cheruvannoor	28K41a	208.07
		28K42a	532.31
		28K42b	24.31
		28K42c	265.58
		28K43a	589.08
		28K44a	496.14
		28K9c	1.54
	<b>Panchayat Total</b>		<b>2117.04</b>
	Kayanna	26K15a	130.59
		26K17b	96.95
		28K39d	23.39
		28K39h	308.50
		28K39i	111.78
		28K39j	1431.85
	<b>Panchayat Total</b>		<b>2103.07</b>
	Koothali	28K34a	14.54
		28K39c	683.77
		28K39d	99.66
		28K39i	23.41
		28K39j	92.89
		28K39k	365.72
		28K39l	361.39
		28K40a	64.52
	<b>Panchayat Total</b>		<b>1705.91</b>
	Nochad	26K14c	388.44

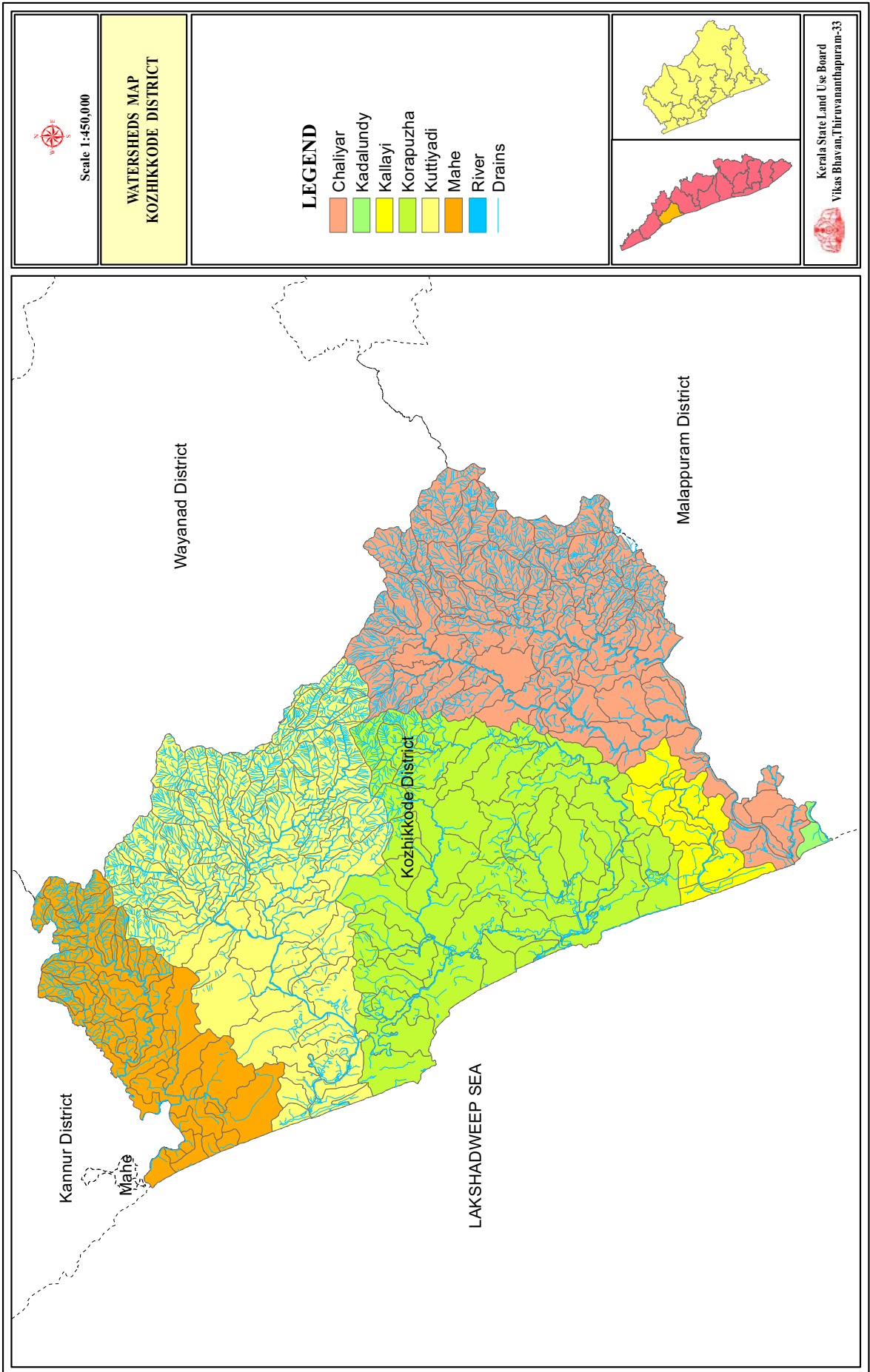
Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		26K15a	941.21
		28K40a	7.49
		28K42b	1097.57
	<b>Panchayat Total</b>		<b>2434.71</b>
	Perambra	26K15a	4.45
		28K10a	2.16
		28K39k	124.58
		28K39l	167.17
		28K40a	1116.11
		28K41a	467.41
		28K42a	110.04
		28K42b	229.32
	<b>Panchayat Total</b>		<b>2221.23</b>
	Chakkittapara	28K15g	1.27
		28K15h	132.16
		28K16a	384.92
		28K16b	225.66
		28K16c	25.80
		28K16d	662.83
		28K16e	468.65
		28K16f	549.41
		28K16g	424.68
		28K16h	763.21
		28K16i	375.60
		28K17a	358.50
		28K18a	292.49
		28K18b	397.67
		28K18c	202.55
		28K18d	179.05
		28K18e	159.54
		28K18f	337.35
		28K18g	307.42
		28K19a	837.57
		28K20a	274.75
		28K21a	573.10
		28K21b	187.70
		28K21d	202.82
		28K32a	136.19
		28K33a	230.73
		28K34a	556.83
		28K35a	298.93
		28K36a	16.54

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		28K39b	5.29
		28K39c	10.04
		28K39d	92.59
		28K39e	568.84
		28K39f	43.17
	<b>Panchayat Total</b>		<b>10283.87</b>
	<b>Block Total</b>		<b>23944.70</b>
Thodannur	Ayancheri	28K8a	11.62
		28K9a	273.64
		28K9b	915.94
		28K9c	2.96
		29M28d	114.55
		29M28f	636.22
	<b>Panchayat Total</b>		<b>1954.92</b>
	Maniyoor	28K3a	260.82
		28K44a	2.40
		28K45a	2.07
		28K4a	597.81
		28K5a	661.38
		28K6a	493.66
		28K7a	864.67
		28K8a	263.02
	<b>Panchayat Total</b>		<b>3145.84</b>
	Thiruvallur	28K42a	1.17
		28K43a	2.11
		28K4a	80.18
		28K8a	2047.90
		28K9a	549.86
		28K9b	88.88
		28K9c	1.06
		29M28g	1.56
	<b>Panchayat Total</b>		<b>2772.71</b>
	Villiyapally	28K2a	125.21
		28K3a	63.36
		28K4a	214.41
		28K8a	473.96
		29M28f	302.56
		29M28g	583.37
	<b>Panchayat Total</b>		<b>1762.88</b>
	<b>Block Total</b>		<b>9636.35</b>
Thuneri	Chekyad	29M10a	345.92
		29M10b	77.36

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		29M10c	93.49
		29M10d	266.12
		29M11a	370.41
		29M25a	1.54
		29M9c	247.88
		29M9d	402.75
		29M9e	3.43
		29M9i	113.07
		29M9j	617.90
	<b>Panchayat Total</b>		<b>2539.86</b>
	Edacherri	29M27a	401.69
		29M28a	485.86
		29M28b	5.98
		29M28d	252.18
		29M28e	356.66
		29M28f	177.23
		29M28h	3.65
	<b>Panchayat Total</b>		<b>1683.25</b>
	Nadapuram	28K9b	24.78
		29M11a	8.65
		29M24a	163.32
		29M25a	346.89
		29M26a	206.80
		29M28b	1.12
		29M28c	1147.27
		29M28d	90.92
	<b>Panchayat Total</b>		<b>1989.74</b>
	Purameri	28K11a	82.30
		28K9b	967.78
		29M28b	11.49
		29M28c	18.87
		29M28d	567.00
		29M28e	17.80
		29M28f	356.98
	<b>Panchayat Total</b>		<b>2022.21</b>
	Thuneri	29M11a	6.59
		29M25a	103.08
		29M26a	682.96
		29M27a	14.45
		29M28a	410.62
		29M28b	278.57
		29M28c	18.40

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
		29M9j	3.07
	<b>Panchayat Total</b>		<b>1517.74</b>
	Valayam	29M10a	95.31
		29M10b	386.64
		29M10c	192.87
		29M11a	245.79
		29M12a	751.89
		29M13a	1.08
		29M9d	82.66
		29M9e	363.05
		29M9f	161.96
		29M9h	20.94
		29M9i	128.77
	<b>Panchayat Total</b>		<b>2430.95</b>
	Vanimel	29M11a	32.47
		29M12a	309.99
		29M13a	551.53
		29M14a	436.56
		29M16a	203.69
		29M16b	365.66
		29M16c	305.37
		29M17a	200.89
		29M17b	497.44
		29M17c	76.42
		29M17f	1.36
		29M18a	1.37
		29M9d	209.30
		29M9f	191.20
		29M9g	359.97
		29M9h	154.22
	<b>Panchayat Total</b>		<b>3897.44</b>
	<b>Block Total</b>		<b>16435.07</b>
Vadakara	Azhiyoor	29M30a	98.40
		29M31a	174.51
		29M32a	540.12
		29M33a	326.06
	<b>Panchayat Total</b>		<b>1139.09</b>
	Cherod	29M28f	125.38
		29M28g	1098.71
		29M28h	3.98
		29M35a	122.20
	<b>Panchayat Total</b>		<b>1350.27</b>

Block/Municipality/ Corporation	Panchayat	WS Code	Area(ha)
	Eramala	29M28a	4.83
		29M28f	553.81
		29M28g	127.59
		29M28h	588.86
		29M29a	386.59
		29M30a	131.07
		29M33a	36.81
	<b>Panchayat Total</b>		<b>1829.58</b>
	Onchiyam	29M28g	48.74
		29M28h	380.47
		29M33a	92.41
		29M35a	171.17
	<b>Panchayat Total</b>		<b>692.79</b>
	<b>Block Total</b>		<b>5260.44</b>
Vadakara(M)	Vadakara(M)	28K1a	541.92
		28K2a	470.40
		28K3a	212.63
		28K45a	1.04
		28K46a	17.08
		29M28g	938.23
	<b>Municipality Total</b>		<b>2181.29</b>







## **IRRIGATION**

Development patterns, increasing population pressure and the demand for better livelihoods across the globe are contributing to a looming global water crisis. Addressing this crisis it is required to maintain a sustainable relationship between water and development that balances current need and the prospects for future generations. Only 3% of the worlds water supply is fresh water and two-third of that is locked in glacier ice or buried in deep underground aquifers, leaving only 1% readily available for human use.

In most developing countries, agriculture is the dominant user of water, accounting for more than 85% of all kinds water uses. Agriculture water use rises significant issues for water resource management like water scarcity, competing demands from other sectors, irrigation service delivery and system management, water use efficiencies are so forth. The primary objectives in coming years will be to balance supply and demand of water among users to ensure adequate water for agriculture and sustainable irrigation management while satisfying other needs.

### **KUTTIADI IRRIGATION PROJECT**

Kuttiadi Project is the only major irrigation project in Kozhikode district. The project consists of masonry solid gravity dam across Kuttiadi River and 13 earth dams on either side of main dam to impound a maximum storage of 120.52 mm<sup>3</sup> of water so as to irrigate an area of 14569 hectares spread in Vatakara, Koyilandy and Kozhikode taluks. The river lies between longitudes 75<sup>0</sup>49'27" and latitude between 11<sup>0</sup>36'45". Kuttiadi river originates from Alampara ranges of South Wayanad having an elevation of 1220m from MSL and flows in a north west direction. The work of this project was commenced in 1962 and commissioned in 1973. The dam and reservoir are located at Peruvannamuzhi

which is 54 km east of Kozhikode Railway station. In addition to masonry solid gravity main dam, this project comprises of 13 earth dams on either side of main dam.

### **Basic Information**

District	:	Kozhikode
Ayacut Area ha. (Potential)	:	Net 14570, Gross 31160
(Achieved)	:	Net 14151, Gross 35850
River	:	Kuttiadi River
Benefited District	:	Kozhikode
Year of Starting	:	1962
Year of Completion	:	1994

### **Project Details**

The main dam has got four spillway shutters of size 12.2 x 7.62 m. These are of a radial type. There is one canal sluice for letting water through canals and is having a size of 1.2 m dia.

This project was almost commissioned in 1973 and Government has declared as fully commissioned in 1993. Entire network of canals to irrigate an area of 14569 hectares for the first crop, same area for the second crop and 4100 hectares for third crop, making gross of 33038 ha.

The project have two system of main canal, one the left bank and the other right bank. The length of LBC is 40.22 Km. and that of RBC is 34.27 Km. There are six branch canals in LB Main canal and four in RB Main canal. Total length of branch canal is 136 Km. 50 distributaries and several minors and field boothies are there for efficient distribution of water.

FRL of the reservoir is 44.41 m, gross and live storage capacities are 120.252 mm<sup>3</sup> and 113.44 mm<sup>3</sup> respectively. Length of the main dam is 170.69 m and total length of earth dam is 1844 m. Crest level of spillway is 38.44 m and

maximum height of masonry dam is 35.36 m. Size and radial type spillway shutters are 12.20x7.62 m.

### **Details of Construction**

Main dam is of random rubble masonry in cement mortar. For the spillway portion, the partitions piers are constructed with R.C.C. Spillway are geometrically Ogee curved type.

### **Hydraulic Particulars**

Mean annual rainfall at this locality is near to 5173 mm. Water spread area of the reservoir is 1052 hectares. Gross and live storage capacity of the reservoir is 120.52 mm<sup>3</sup> and 113.44 mm<sup>3</sup> respectively. Dead storage is 7.08 m<sup>3</sup>. Because of some handicap, water is storing upto a level of 41.50 m above MSL.

Corresponding storage is 92.50 mm<sup>3</sup>. During monsoon period (between June and September) about 280 to 450 mm<sup>3</sup> of flood water is surplusing through the spillways.

### **Cropping Pattern**

Following are the major crops in this ayacut.

Paddy	:	4806 Ha
Coconut	:	3505 Ha
Tapioca	:	451 Ha
Banana	:	508 Ha
Pulses	:	962 Ha

This project supplements for a major share in the production. The total ayacut has not been achieved so far.

Water project, the estimated requirement from Kuttiadi project is for drinking water purpose, one fourth of the area of Kozhikode Corporation is fed

from Poolakadavu. In summer months, water is supplied through our canals at Poolakadavu. For the Japanese aided drinking 50 mm<sup>3</sup>. This further worsens the situation.

### **Conclusion**

The system has to be improved with immediate effect. This is the only major irrigation system of Kozhikode district. This serves drinking water for Kozhikode Corporation, 25 Panchayats and Koyilandy Municipality. This shows the importance of renovation.

### **Salient Features**

Name of River : Kuttiadi

#### **Location**

Longitude : 75<sup>0</sup> 49' 27" E  
 Latitude : 11<sup>0</sup> 36' 45" N  
 At Peruvannamuzhi,  
 Kozhikode District,  
 Kerala State

#### **Hydrology**

Catchment Area : 108.78 Sq.Km.  
 Mean Annual Rainfall : 5173 mm.  
 Yield : 8.532 TMC

#### **Reservoir**

Full Reservoir Level : 44.41 M  
 Water Spread Area : 1052 Ha.  
 Gross Storage Capacity : 120.52Mm<sup>3</sup>  
 Live Storage : 113.44 Mm<sup>3</sup>  
 Dead Storage : 7.08 Mm<sup>3</sup>

#### **Spillway**

Crest Level : 38.44 m  
 Type of Crest Gate : Radial Gate

	Size of Radial Gate	:	12.17 m x 7.62 m
	Screwing & Sluice	:	Plugged
<b>Dam</b>	Type of Dam	:	Stone Masonry
	Length of Masonry Dam	:	170.69 M
	Maximum height of Masonry Dam	:	35.36 M
	Total length of Earth Dam	:	1844 M
	Maximum Height	:	23.77 M
<b>Canal</b>	Length of Canal	:	
	Main Canal (LBC)	:	3.08 Km + 37.14=40.22 Km
	RBMC	:	34.27 Km.
<b>Irrigation Aspects</b>			
	GCA	:	36422 Ha.
	CCA	:	25495 Ha.
	Irrigated area	:	14568.7 Ha.
<b>Crops</b>			
	Important Crops	:	Paddy, Arecanut, Coconut Banana, Tapioca, Pulses.

**MINOR IRRIGATION CENSUS (2006-07)**

**MINOR IRRIGATION SCHEMES AT A GLANCE**

Table: 21.1

Sl. No.	Name of Block/ Municipality/ Corporation	No. of Villages	Total Number of Schemes										Grand Total (7+10)	No. of Village Schedules
			Ground Water				Surface Water							
			Dugwell	Shallow Tubewell	Deep Tubewell	Total (4+5+6)	S. Flow Scheme	S. Lift Scheme	Total (8+9)					
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>			
1	Balusseri	8	1457	3	2	1462	24	88	112	1574	8			
2	Chelannur	7	1010	0	0	1010	17	56	73	1083	7			
3	Koduvally	9	937	0	0	937	28	101	129	1066	9			
4	Kozhikode	6	694	1	0	695	3	16	19	714	6			
5	Kozhikode Corporation	1	98	0	0	98	0	2	2	100	1			
6	Kunnamangalam	10	1457	0	1	1458	84	98	182	1640	10			
7	Kunnumel	8	579	0	0	579	12	2	14	593	8			
8	Meladi	5	518	0	0	518	1	2	3	521	5			
9	Panthalayani	4	418	0	0	418	2	1	3	421	4			
10	Perambra	7	742	0	0	742	5	11	16	758	7			
11	Quilandy	1	104	0	0	104	5	0	5	109	1			
12	Thodannur	4	207	0	0	207	4	4	8	215	4			
13	Thuneri	6	473	0	0	473	8	9	17	490	6			
14	Vadakara	4	268	2	0	270	4	10	14	284	4			
15	Vadakara Municipality	1	32	0	0	32	3	1	4	36	1			
	<b>District Total</b>	<b>81</b>	<b>8994</b>	<b>6</b>	<b>3</b>	<b>9003</b>	<b>200</b>	<b>401</b>	<b>601</b>	<b>9604</b>	<b>81</b>			

Table: 21.2

**NUMBER OF GROUND WATER SCHEMES AND IRRIGATION POTENTIAL CREATED AND POTENTIAL UTILISED**

Sl. No.	Name of Block/ Municipality/ Corporation	Dugwell			Shallow Tubewell			Deep Tubewell			Total Ground Water		
		Nos.	Potential Created	Potential Utilised	Nos.	Potential Created	Potential Utilised	Nos.	Potential Created	Potential Utilised	Nos.	Potential Created	Potential Utilised
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Balusseri	1457	772	727	3	1	1	2	0	0	1462	773	728
2	Chelannur	1010	554	507	0	0	0	0	0	0	1010	554	507
3	Koduvally	937	427	403	0	0	0	0	0	0	937	427	403
4	Kozhikode	694	186	182	1	1	1	0	0	0	695	187	182
5	Kozhikode Corporation	98	36	33	0	0	0	0	0	0	98	36	33
6	Kunnamangalam	1457	704	676	0	0	0	1	1	1	1458	705	677
7	Kunnumel	579	345	303	0	0	0	0	0	0	579	345	303
8	Meladi	518	204	189	0	0	0	0	0	0	518	204	189
9	Panthayani	418	171	158	0	0	0	0	0	0	418	171	158
10	Perambra	742	370	314	0	0	0	0	0	0	742	370	314
11	Quilandy	104	36	32	0	0	0	0	0	0	104	36	32
12	Thodannur	207	115	101	0	0	0	0	0	0	207	115	101
13	Thuneri	473	206	176	0	0	0	0	0	0	473	206	176
14	Vadakara	268	116	97	2	1	1	0	0	0	270	116	98
15	Vadakara Municipality	32	13	12	0	0	0	0	0	0	32	13	12
	<b>District Total</b>	<b>8994</b>	<b>4255</b>	<b>3910</b>	<b>6</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>9003</b>	<b>4258</b>	<b>3913</b>

Table: 21.3

**NUMBER OF SURFACE WATER SCHEMES AND IRRIGATION POTENTIAL CREATED AND POTENTIAL UTILISED**

SI.No.	Name of Block/ Municipality/ Corporation	Surface Flow Schemes			Surface Lift Schemes			Total Surface Water		
		Nos.	Potential Created	Potential Utilised	Nos.	Potential Created	Potential Utilised	Nos.	Potential Created	Potential Utilised
1	2	3	4	5	6	7	8	9	10	11
1	Balussery	24	516	479	88	363	322	112	879	801
2	Chelannur	17	433	352	56	38	35	73	471	387
3	Koduvally	28	255	157	101	168	142	129	422	299
4	Kozhikode	3	2	2	16	26	15	19	28	17
5	Kozhikode Corporation	0	0	0	2	1	1	2	1	1
6	Kunnamangalam	84	834	807	98	175	174	182	1009	981
7	Kunnumel	12	136	80	2	4	4	14	140	84
8	Meladi	1	70	70	2	2	2	3	72	72
9	Panthalayani	2	220	167	1	4	2	3	223	169
10	Perambra	5	164	0	11	9	8	16	173	8
11	Quilandy	5	118	98	0	0	0	5	118	98
12	Thodannur	4	54	54	4	21	21	8	75	75
13	Thuneri	8	169	160	9	8	7	17	177	167
14	Vadakara	4	13	12	10	5	5	14	18	17
15	Vadakara Municipality	3	64	64	1	8	8	4	72	72
	<b>District Total</b>	<b>200</b>	<b>3048</b>	<b>2502</b>	<b>401</b>	<b>832</b>	<b>746</b>	<b>601</b>	<b>3878</b>	<b>3248</b>



Table: 21.4

## MINOR IRRIGATION SCHEMES ACCORDING TO SOURCE OF ENERGY

Sl. No.	Name of Block/ Municipality/ Corporation	Ground Water Schemes						Surface Water Schemes (Surface Lift Scheme Only)							
		Electric Pump	Diesel Pump	Wind Mills	Solar Pumps	Manual/ Annual	Others	Total (3 to 8)	Electric Pump	Diesel Pump	Wind Mills	Solar Pumps	Manual/ Annual	Others	Total (10 to 15)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Balusseri	1397	48	0	0	0	17	1462	79	1	0	0	0	8	88
2	Chelannur	955	1	0	0	26	28	1010	39	4	0	0	0	13	56
3	Koduvally	917	2	0	1	5	12	937	66	35	0	0	0	0	101
4	Kozhikode	662	1	0	0	26	6	695	9	3	0	0	0	4	16
5	Kunnamangalam	1402	25	0	0	19	12	1458	73	22	0	0	0	3	98
6	Kunnumel	479	12	0	0	65	23	579	2	0	0	0	0	0	2
7	Meladi	512	5	0	0	0	1	518	2	0	0	0	0	0	2
8	Panthalayani	416	2	0	0	0	0	418	1	0	0	0	0	0	1
9	Perambra	634	37	1	1	26	43	742	4	4	0	0	0	3	11
10	Thodannur	191	0	0	0	10	6	207	1	0	0	0	2	1	4
11	Thuneri	416	0	0	0	5	52	473	4	5	0	0	0	0	9
12	Vadakara	233	3	0	0	2	32	270	7	3	0	0	0	0	10
13	Quilandy	104	0	0	0	0	0	104							
14	Vadakara Municipality	32	0	0	0	0	0	32	1	0	0	0	0	0	1
15	Kozhikode Corporation	98	0	0	0	0	0	98	2	0	0	0	0	0	2
	<b>District Total</b>	<b>8448</b>	<b>136</b>	<b>1</b>	<b>2</b>	<b>184</b>	<b>232</b>	<b>9003</b>	<b>290</b>	<b>77</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>32</b>	<b>401</b>

Table: 21.5

**NUMBER OF MINOR IRRIGATION SCHEMES AND IRRIGATION POTENTIAL CREATED AND POTENTIAL UTILISED**

Sl.No.	Name of Block/ Municipality/ Corporation	Ground Water Schemes			Surface Water Schemes			Total		
		Nos.	Potential Created	Potential Utilised	Nos.	Potential Created	Potential Utilised	Nos.	Potential Created	Potential Utilised
1	2	3	4	5	6	7	8	9	10	11
1	Balussery	1462	773	728	112	879	801	1574	1652	1529
2	Chelannur	1010	554	507	73	471	387	1083	1026	894
3	Koduvally	937	427	403	129	422	299	1066	850	702
4	Kozhikode	695	187	182	19	28	17	714	215	200
5	Kozhikode Corporation	98	36	33	2	1	1	100	37	35
6	Kunnamangalam	1458	705	677	182	1009	981	1640	1713	1658
7	Kunnumel	579	345	303	14	140	84	593	486	387
8	Meladi	518	204	189	3	72	72	521	276	261
9	Panthalayani	418	171	158	3	223	169	421	394	326
10	Perambra	742	370	314	16	173	8	758	542	322
11	Quilandy	104	36	32	5	118	98	109	155	129
12	Thodannur	207	115	101	8	75	75	215	191	176
13	Thuneri	473	206	176	17	177	167	490	384	343
14	Vadakara	270	116	98	14	18	17	284	135	114
15	Vadakara Municipality	32	13	12	4	72	72	36	85	84
	<b>District Total</b>	<b>9003</b>	<b>4258</b>	<b>3913</b>	<b>601</b>	<b>3878</b>	<b>3248</b>	<b>9604</b>	<b>8141</b>	<b>7160</b>

Table: 21.6

## MINOR IRRIGATION SCHEMES IN TRIBAL &amp; NON TRIBAL VILLAGES

Sl. No.	Name of Block/ Municipality/ Corporation	Dugwell			Shallow Tubewell			Deep Tubewell			Surface Flow Schemes			Surface Lift Schemes			Total Minor Irrigation Schemes		
		Tribal	Non Tribal	Total	Tribal	Non Tribal	Total	Tribal	Non Tribal	Total	Tribal	Non Tribal	Total	Tribal	Non Tribal	Total	Tribal	Non Tribal	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Balusseri	0	1457	1457	0	3	3	0	2	2	0	24	24	0	88	88	0	1574	1574
2	Chelannur	274	736	1010	0	0	0	0	0	0	1	16	17	17	39	56	292	791	1083
3	Koduvally	0	937	937	0	0	0	0	0	0	0	28	28	0	101	101	0	1066	1066
4	Kozhikode	0	694	694	0	1	1	0	0	0	0	3	3	0	16	16	0	714	714
5	Kunnamangalam	0	1457	1457	0	0	0	0	1	1	0	84	84	0	98	98	0	1640	1640
6	Kunnumel	0	579	579	0	0	0	0	0	0	0	12	12	0	2	2	0	593	593
7	Meladi	0	518	518	0	0	0	0	0	0	0	1	1	0	2	2	0	521	521
8	Panthalayani	0	418	418	0	0	0	0	0	0	0	2	2	0	1	1	0	421	421
9	Perambra	0	742	742	0	0	0	0	0	0	0	5	5	0	11	11	0	758	758
10	Thodannur	0	207	207	0	0	0	0	0	0	0	4	4	0	4	4	0	215	215
11	Thuneri	0	473	473	0	0	0	0	0	0	0	8	8	0	9	9	0	490	490
12	Vadakara	0	268	268	0	2	2	0	0	0	0	4	4	0	10	10	0	284	284
13	Quilandy	0	104	104	0	0	0	0	0	0	0	5	5	0	0	0	0	109	109
14	Vadakara Municipality	0	32	32	0	0	0	0	0	0	0	3	3	0	1	1	0	36	36
15	Kozhikode Corporation	0	98	98	0	0	0	0	0	0	0	0	0	0	2	2	0	100	100
	<b>District Total</b>	<b>274</b>	<b>8720</b>	<b>8994</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>199</b>	<b>200</b>	<b>17</b>	<b>384</b>	<b>401</b>	<b>292</b>	<b>9312</b>	<b>9604</b>

Table: 21.7

## SEASON WISE AREA IRRIGATED BY MINOR IRRIGATION SCHEMES

Sl. No.	Name of Block/ Municipality/ Corporation	Area irrigated by Ground water schemes					Area irrigated by Surface water schemes					Area irrigated by Total minor irrigation schemes				
		Kharif	Rabi	Perennial	Others	Total (3 to 7)	Kharif	Rabi	Perennial	Others	Total (8 to 11)	Kharif	Rabi	Perennial	Others	Total (13 to 16)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Balusseri	22	85	469	153	729	50	150	478	123	801	72	235	946	276	1529
2	Chelannur	3	40	325	139	507	0	46	299	43	388	3	85	624	182	894
3	Koduvally	44	36	235	88	403	35	57	161	45	298	79	93	397	133	702
4	Kozhikode	12	22	102	47	183	1	8	6	3	18	13	30	108	49	200
5	Kunnamangalam	23	68	425	160	676	12	19	455	495	981	35	88	880	655	1658
6	Kunnumel	48	75	139	42	304	1	2	80	1	84	48	77	219	42	386
7	Meladi	10	27	115	38	190	0	20	31	20	71	10	47	146	58	261
8	Panthalayani	6	25	86	41	158	66	66	21	15	168	72	91	107	56	326
9	Perambra	20	45	191	58	314	0	2	5	1	8	20	47	196	59	322
10	Thodannur	0	11	55	34	100	9	14	51	0	74	10	25	106	35	176
11	Thuneri	3	25	118	29	175	14	28	110	15	167	18	54	228	44	344
12	Vadakara	5	18	57	17	97	3	7	6	1	17	8	26	63	18	115
13	Quilandy	0	5	17	9	31	0	16	67	15	98	0	22	83	24	129
14	Vadakara Municipality	1	0	11	0	12	0	0	71	1	72	1	0	82	1	84
15	Kozhikode Corporation	0	4	20	10	34	0	0	1	0	1	0	4	20	11	35
	<b>District Total</b>	<b>197</b>	<b>486</b>	<b>2365</b>	<b>865</b>	<b>3913</b>	<b>191</b>	<b>435</b>	<b>1842</b>	<b>778</b>	<b>3246</b>	<b>389</b>	<b>924</b>	<b>4205</b>	<b>1643</b>	<b>7161</b>

Table: 21.8

## MINOR IRRIGATION SCHEMES ACCORDING TO WATER LIFTING DEVICES

Sl. No.	Name of Block/ Municipality/ Corporation	Ground Water Schemes						Surface Water Schemes (Surface Lift Schemes only)					
		Submersible Pump	Centrifugal Pump	Turbine	Manual/ Annual	Others	Total (3 to 7)	submersible Pump	Centrifugal Pump	Turbine	Manual/ Annual	Others	Total (9 to 13)
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Balusseri	86	1372	2	0	2	1462	0	86	0	0	2	88
2	Chelannur	91	884	1	26	8	1010	21	35	0	0	0	56
3	Koduvally	5	817	1	5	109	937	0	101	0	0	0	101
4	Kozhikode	8	655	2	26	4	695	0	14	0	0	2	16
5	Kunnamangalam	64	1346	11	19	18	1458	1	96	0	0	1	98
6	Kunnumel	64	434	1	65	15	579	0	2	0	0	0	2
7	Meladi	19	499	0	0	0	518	0	2	0	0	0	2
8	Panthalayani	0	418	0	0	0	418	0	1	0	0	0	1
9	Perambra	57	613	0	26	46	742	0	9	0	0	2	11
10	Thodannur	23	172	0	10	2	207	1	0	0	2	1	4
11	Thuneri	21	399	1	5	47	473	1	8	0	0	0	9
12	Vadakara	88	150	1	2	29	270	3	7	0	0	0	10
13	Quilandy	0	104	0	0	0	104						
14	Vadakara Municipality	0	32	0	0	0	32	0	1	0	0	0	1
15	Kozhikode Corporation	13	85	0	0	0	98	0	2	0	0	0	2
	<b>District Total</b>	<b>539</b>	<b>7980</b>	<b>20</b>	<b>184</b>	<b>280</b>	<b>9003</b>	<b>27</b>	<b>364</b>	<b>0</b>	<b>2</b>	<b>8</b>	<b>401</b>

Table: 21.9

**NUMBER OF GROUND WATER SCHEMES AND POTENTIAL UTILISED BY WATER DISTRIBUTION DEVICE**

SI. No.	Name of Block/ Municipality/ Corporation	Ground Water Schemes According to Water Distribution System																	
		Open Water Channel						Underground pipe		Surface pipe		Drip		Sprinkler		Others		Total	
		Lined/Pucca		Unlined/Kuchha		No.	PU	No.	PU	No.	PU	No.	PU	No.	PU	No.	PU	No.	PU
		No.	PU	No.	PU														
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1	2																		
1	Balussery	3	2	252	111	4	37	1163	527	0	0	0	0	38	51	1460	728		
2	Chelannur	17	6	116	44	39	19	701	391	0	0	0	129	47	1002	507			
3	Koduvally	44	22	134	77	9	3	711	273	3	2	0	0	35	26	936	403		
4	Kozhikode	6	2	48	19	1	0	618	156	5	2	0	0	17	3	695	182		
5	Kunnamangalam	198	75	251	80	1	13	999	505	0	0	0	0	9	4	1458	677		
6	Kunnumel	1	0	30	22	146	89	260	148	4	4	0	0	124	39	565	303		
7	Meladi	0	0	0	0	0	0	427	159	0	0	0	0	91	30	518	189		
8	Panthalayani	0	0	0	0	83	26	310	122	0	0	1	1	24	8	418	158		
9	Perambra	16	6	35	15	4	3	528	232	0	0	0	0	153	58	736	314		
10	Thodannur	0	0	0	0	32	29	164	66	0	0	0	0	11	6	207	101		
11	Thuneri	0	0	0	0	44	13	378	161	0	0	0	0	4	2	426	176		
12	Vadakara	0	0	0	0	63	18	173	78	2	1	1	0	2	1	241	98		
13	Quilandy	0	0	0	0	54	17	50	15	0	0	0	0	0	0	104	32		
14	Vadakara Municipality	0	0	0	0	0	0	32	12	0	0	0	0	0	0	32	12		
15	Kozhikode Corporation	0	0	0	0	0	0	98	33	0	0	0	0	0	0	98	33		
	<b>District Total</b>	<b>285</b>	<b>113</b>	<b>866</b>	<b>368</b>	<b>480</b>	<b>267</b>	<b>6612</b>	<b>2878</b>	<b>14</b>	<b>9</b>	<b>2</b>	<b>1</b>	<b>637</b>	<b>275</b>	<b>8896</b>	<b>3913</b>		

Table: 21.10

**NUMBER OF SURFACE WATER SCHEMES AND POTENTIAL UTILISED BY WATER DISTRIBUTION DEVICE**

SI. No.	Name of Block/ Municipality/ Corporation	Surface Water Schemes According to Water Distribution System																	
		Open Water Channel						Underground pipe		Surface pipe		Drip		Sprinkler		Others		Total	
		Lined/Pucca		Unlined/Kuchha		No.	PU	No.	PU	No.	PU	No.	PU	No.	PU	No.	PU	No.	PU
		No.	PU	No.	PU														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1	Balussery	19	369	4	86	0	0	43	44	0	0	0	0	44	301	110	801		
2	Chelannur	6	50	13	8	2	0	42	28	0	0	1	8	8	294	72	387		
3	Koduvally	2	1	74	221	0	0	44	22	0	0	0	0	2	55	122	299		
4	Kozhikode	3	3	4	3	0	0	9	11	0	0	0	0	1	0	17	17		
5	Kunnamangalam	48	303	2	63	0	0	131	615	0	0	0	0	0	0	181	981		
6	Kunnumel	0	0	0	0	0	0	2	4	0	0	5	4	4	76	11	84		
7	Meladi	0	0	1	70	0	0	2	2	0	0	0	0	0	0	3	72		
8	Panthalayani	2	167	0	0	0	0	1	2	0	0	0	0	0	0	3	169		
9	Perambra	0	0	6	5	0	0	2	2	0	0	0	0	3	1	11	8		
10	Thodannur	5	72	0	0	0	0	1	1	0	0	0	0	2	2	8	75		
11	Thuneri	6	140	0	0	2	1	6	5	0	0	0	0	3	22	17	167		
12	Vadakara	3	12	0	0	1	1	10	4	0	0	0	0	0	0	14	17		
13	Quilandy	5	98	0	0	0	0	0	0	0	0	0	0	0	0	5	98		
14	Vadakara Municipality	0	0	0	0	1	8	0	0	0	0	0	0	3	64	4	72		
15	Kozhikode Corporation	0	0	0	0	0	0	2	1	0	0	0	0	0	0	2	1		
	<b>District Total</b>	<b>99</b>	<b>1215</b>	<b>104</b>	<b>456</b>	<b>6</b>	<b>10</b>	<b>295</b>	<b>741</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>12</b>	<b>70</b>	<b>815</b>	<b>580</b>	<b>3248</b>		

Table: 21.11

**NUMBER OF GROUND WATER SCHEMES AND POTENTIAL UTILISED BY WATER DISTRIBUTION DEVICE**

Sl. No.	Name of Block/ Municipality/ Corporation	Minor Irrigation Schemes According to Water Distribution System																	
		Open Water Channel						Underground pipe		Surface pipe		Drip		Sprinkler		Others		Total	
		Lined/Pucca		Unlined/Kuchha				No.	PU	No.	PU	No.	PU	No.	PU	No.	PU	No.	PU
		No.	PU	No.	PU	No.	PU												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1	Balusseri	22	371	256	198	4	37	1206	571	0	0	0	0	82	352	1570	1529		
2	Chelannur	23	56	129	51	41	19	743	419	0	0	1	8	137	341	1074	894		
3	Koduvely	46	23	208	298	9	3	755	296	3	2	0	0	37	81	1058	702		
4	Kozhikode	9	5	52	22	1	0	627	167	5	2	0	0	18	3	712	200		
5	Kunnamangalam	246	378	253	143	1	13	1130	1120	0	0	0	0	9	4	1639	1658		
6	Kunnumel	1	0	30	22	146	89	262	152	4	4	5	4	128	114	576	387		
7	Meladi	0	0	1	70	0	0	429	161	0	0	0	0	91	30	521	261		
8	Panthalayani	2	167	0	0	83	26	311	124	0	0	1	1	24	8	421	326		
9	Perambra	16	6	41	20	4	3	530	234	0	0	0	0	156	60	747	322		
10	Thodannur	5	72	0	0	32	29	165	67	0	0	0	0	13	8	215	176		
11	Thuneri	6	140	0	0	46	14	384	166	0	0	0	0	7	23	443	343		
12	Vadakara	3	12	0	0	64	18	183	83	2	1	1	0	2	1	255	114		
13	Quilandy	5	98	0	0	54	17	50	15	0	0	0	0	0	0	109	129		
14	Vadakara Municipality	0	0	0	0	1	8	32	12	0	0	0	0	3	64	36	84		
15	Kozhikode Corporation	0	0	0	0	0	0	100	35	0	0	0	0	0	0	100	35		
	<b>District Total</b>	<b>384</b>	<b>1328</b>	<b>970</b>	<b>824</b>	<b>486</b>	<b>276</b>	<b>6907</b>	<b>3622</b>	<b>14</b>	<b>9</b>	<b>8</b>	<b>13</b>	<b>707</b>	<b>1089</b>	<b>9476</b>	<b>7160</b>		

Source: Irrigation Department



## **POWER**

Power Sector in Kerala plays a vital role in all developmental activities in Kerala. Obviously power crisis is the prime obstacle to start new initiatives in the industrial field. The need for power is increasing and the production of power should also be increased accordingly. Monsoon is essential to sustain the hydropower base in the State and the shortage in rainfall usually creates power crisis. Kerala received abundant monsoon during the current year and increased the inflow in to KSEB reservoirs; the KSEB could manage the power supply situation with higher quantum of cheaper hydel power. Kerala is one among the very few states in the country where there was no load shedding and power out during 2010-11. KSEB has been responsible for the generation, transmission and supply of electricity in the State, with particular emphasis to provide electricity at affordable cost to the domestic as well as for agricultural purposes. The Board has been passing through a transitional phase of reforms in the electricity sector. The Electricity Act 2003 envisages separate organizations for Transmission and Distribution. Hydel and Thermal Projects, which form the backbone of the power sector of Kerala State, cater to needs of the various industries, which are augmented by the supply from National grids. High rainfall and terrain conditions have endowed the State with a vast potential of hydro-electricity, which is about 6% of India's total hydroelectric potential. The Small Hydro Power (SHP) units have spurred the momentum of development of wind, solar and biomass energy systems, paving the way for integrated renewable energy systems in all potential development blocks/taluks.

### **Kerala's power sector projections**

In the past, the energy demand was presumed to be basis with load factor being used to convert the projected energy demand to peak MW demand. The projected energy demand was worked out by a combination of end use and time

series analysis. This was the methodology used in the Electric Power Surveys (EPS) conducted by CEA in conjunction with the State Electricity Boards.

One of the problems with the above approach has been consistent over projection of peak demand. The annual growth of peak power demand has been assumed to be the order of 7-8% and this has resulted in projections well beyond actual demand realized.

Some of these anomalies have been corrected in the current Electric Power Surveys conducted and the projections for Kerala as continued in the 17<sup>th</sup> Survey. The figures for Kerala in terms of demand projection in the Draft 17<sup>th</sup> EPS are given below.

Table: 22.1

**17<sup>th</sup> EPS ESTIMATES FOR 11<sup>th</sup> PLAN PERIOD**

Year	Energy Consumption	Peak Demanded	Annual Load Factor (%)
2006-07	11147	2699	60.75
2007-08	12037	2823	61.54
2008-09	12973	2947	62.34
2009-10	13977	3078	63.14
2010-11	15112	3227	63.94
2011-12	16345	3391	64.74

It is evident from the 17<sup>th</sup> EPS Draft Report that a number of assumptions made for projections which may result in the actual demand being more than what is projected in the EPS or less. KSEB's own projections taking into account a higher growth rate and a slightly lower load factor projects the following demands for the 11<sup>th</sup> plan period.

Table: 22.2

Year	Energy Consumption	Peak Demand	Annual Load Factor (%)
2007-08	15217	2856	60.82
2008-09	16096	3004	61.17
2009-10	17025	3159	61.52
2010-11	18077	3335	61.87
2011-12	19230	3528	62.22

Source: EPA Draft Report

Table: 22.3

**GROWTH OF KERALA POWER SYSTEM AT A GLANCE 2010-2013**

Sl. No.	Particulars	Position as on 11/2013		
		2010-11	2011-12	2012-13
1	2	3	4	5
1	Installed capacity - MW	2857.59	2872.79	2881.04
2	Maximum demand (system) - MW	3119	3348	3268
3	Generation per annum - (KSEB own) - MU	7412.59	8350.74	5333.40
4	Import per annum - MU	10512.29	11270.71	12771.64
5	Export per annum - MU	130.24	201.1	0
6	Energy sales within state per annum - MU	14547.90	15980.53	16838.24
7	Percentage of energy losses to energy available for sales	17.99	17.45	16.83
8	Per capita consumption - KWH	519	567	595
9	220 KV lines - CT Kms	2701	2713	2719.55
10	110 KV lines - CT Kms	4004	4005	4044.30
11	66 KV lines - CT Kms	2387	2387	2386.76
12	33 KV lines - CT Kms	1421	1497	1561.63
13	11 KV lines - CT Kms	49232	51392	52971
14	LT lines - CT Kms	266856	270718	273274
15	Step up transformer capacity - MVA	2684	2689	2691
16	<b>No. of EHT substations</b>			
A	400 KV	2*	2*	2*
B	220 KV	17	18	18
C	110 KV	128	131	132
D	66 KV	80	80	81
E	33 KV	113	120	128
17	Step down transformer capacity - MVA	16222.10	16556.30	16965.30

18	<b>Distribution transformers</b>			
A	Numbers	58427	62726	65138
B	Capacity - MVA	7320	7674	7940
19	No. of villages electrified	1467	1467	1467
20	No. of consumers (Lakhs)	101.28	104.58	108.07
21	Connected load - MW	16681.30	17518.42	18539.34
22	No. of street lights	1196503	1218610	1257285
23	No. of irrigation pumps	446460	455078	466289
24	Total revenue per annum (Lakhs)	641138	797804.89	1165810
25	Revenue from sale of power per annum (Lakhs)	495060	581781.92	722339.35

\* Pallipuram 400 KV substation owned by PGCIL

Table: 22.4

### ENERGY SOURCE IN KERALA (2011-2014)

Sl. No.	Source of Energy	Installed Capacity (MW)		
		2011-12	2012-13	2013-14
1	Hydel: KSEBL	2008.80	2007.40	2008.65
2	Thermal: KSEBL	234.60	234.60	234.60
3	Wind: KSEBL	2.03	2.03	2.03
4	NTPC	359.58	359.58	359.58
5	Thermal: IPP	198.93	198.93	198.93
6	Hydel: Captive	33.00	33.00	33.00
7	Hydel: IPP	10.00	10.00	22.11
8	Wind: IPP	32.85	32.85	32.85
	<b>Total</b>	<b>2879.79</b>	<b>2878.39</b>	<b>2891.75</b>

Source: Economic Review

Table: 22.5

**ALL INDIA GENERATING INSTALLED ELECTRICITY GENERATION  
CAPACITY AS ON 31-03-11**

Name of State/U.Ts	Hydro	Coal	Diesel	Gas
1	2	3	4	5
Northern Region	13822.75	24232.5	12.99	4134.76
Western Region	7447.5	30995.5	17.48	7903.81
Southern Region	11299.03	19882.5	939.32	4690.78
Eastern Region	3882.12	18747.88	17.2	190
North Eastern Region	1116	60	142.74	787
Islands	0	0	70.02	0
<b>Total (All India)</b>	<b>37567.4</b>	<b>93918.38</b>	<b>1199.75</b>	<b>17706.35</b>

Name of State/U.Ts	Nuclear	RES	Total
1	6	7	8
Northern Region	1620	3165.55	46988.55
Western Region	1840	5357.96	53562.25
Southern Region	1320	9341.67	47473.3
Eastern Region	0	359.64	23196.84
North Eastern Region	0	223.6	2329.34
Islands	0	6.1	76.12
<b>Total (All India)</b>	<b>4780</b>	<b>18454.52</b>	<b>173626.4</b>

Source: Kerala State Electricity Board



## MISCELLANEOUS

Table: 23.1

### NEWLY REGISTERED VEHICLES IN KOZHIKODE DISTRICT FOR THE YEAR 2013-14

Sl.No.	Classification of Vehicles	Vehicle No.
<b>Transport Vehicles</b>		
1	Multiaxied Articulated Vehicles	0
2	Trucks and Lorries	36
3	Four Wheelers	3756
4	Three Wheelers	1256
<b>Total</b>		<b>5048</b>
5	Stage Carriage	1614
6	Contract Carriage	112
7	Private Service Vehicles	14
8	Other Buses	36
<b>Total</b>		<b>1776</b>
9	Motor Cabs	369
10	Maxi Cabs/Taxi	0
11	Other Taxis	15
12	LMV 3 Seater	5312
13	LMV 4 to 6 Seater	0
14	Motor Cycle Hire	0
<b>Total</b>		<b>5696</b>
15	Other TVs	120
<b>Total Transport</b>		<b>12640</b>
16	Scooters	2113
17	Mopads	2369
18	Motor Cycles including above & below 95cc	47365
<b>Total</b>		<b>51847</b>
19	Cars	15456
20	Jeeps	56
21	Omni Buses	78
22	Tractors	13
23	Trailors	0
24	Others	1123
<b>Total</b>		<b>16726</b>
<b>Total Non Transport</b>		<b>68573</b>
<b>Grand Total</b>		<b>81213</b>

Table: 23.2

**NUMBER OF MOTOR VEHICLE HAVING VALID REGISTRATION IN KOZHIKODE DISTRICT AS ON 2014**

<b>Goods Vehicle</b>	Four Wheelers and above	31315
	Three Wheelers including tempos	8815
<b>Buses</b>	Stage carriages	1816
	Contract Carriages/Omni Buses	4602
<b>Four Wheelers</b>	Cars	189285
	Taxis	3533
	Jeeps	5015
<b>Three Wheelers</b>	Autorickshaws	47018
	Motorized Cycle Rickshaws	0
<b>Two Wheelers</b>	Motorized Cycles	0
	Scooter/Motor Cycles	462986
<b>Tractors/Trailors</b>	Tractors/Trailors	1316
	Tillers	16
	Trailors	111
	Others	1275
<b>Grand Total</b>		<b>757103</b>

Table: 23.3

**LENGTH OF ROADS MAINTAINED BY PWD (R & B) AS ON 31-03-2014**

(in Kms)			
<b>District/State</b>	<b>State Highways</b>	<b>Major District Roads</b>	<b>Total</b>
Kozhikode	377.17	2063.93	2441.10
<b>State</b>	<b>4341.65</b>	<b>27469.95</b>	<b>31811.60</b>

Source: Economic Review



Table: 23.4

**STANDARDISED LIST OF INSTITUTIONS IN KOZHIKODE DISTRICT**

<b>Sl. No.</b>	<b>Institutions</b>	<b>Location</b>	<b>No. of Beds</b>	<b>Health Block</b>
1	CHC	Koduvally	30	CHC Narikkuni
2	CHC	Koorachundu	24	CHC Balussery
3	CHC	Ulliyeri	16	CHC Ulliyeri
4	CHC	Orkatteri	12	CHC Orkatteri
5	CHC	Kunmmel	24	CHC Kuttiyadi
6	CHC	Mukkam	18	CHC Mukkam
7	CHC	Cheruvady	0	CHC Cheruvady
8	CHC	Narikkuni	30	CHC Narikkuni
9	CHC	Thalakkulathoor	18	CHC Thalakkulathoor
10	CHC	Thiruvallloor	24	CHC Thiruvallloor
11	CHC	Meladi	35	CHC Meladi
12	CHC	Thiruvangoor	12	PHC Thiruvangoor
13	CHC	Valayam	16	CHC Valayam
14	CHC	Olavanna	18	CHC Olavanna
15	CHC	Cheruvannoor	0	CHC Cheruvannoor
16	CHC	Kodenchery	6	Kodenchery
17	24X7 PHC	Meppayoor	24	CHC Perambra
18	24X7 PHC	Kunnamangalam	18	CHC Cheruvady
19	24X7 PHC	Cherupa	16	PHC Cherupa MCH Unit
20	24X7 PHC	Puthupady	0	CHC Narikkuni
21	24X7 PHC	Ramanattukara	24	CHC Olavanna
22	24X7 PHC	Bey pore	6	CHC Cheruvannoor
23	PHC	Vadakara	0	Vadakara Municipality
24	PHC	Eramangalam	0	CHC Balussery
25	PHC	Panangad	0	CHC Balussery
26	PHC	Mangad	0	CHC Balussery
27	PHC	Kakayam	12	CHC Balussery
28	PHC	Vayalada	0	CHC Balussery
29	PHC	Kayanna	0	CHC Ulliyeri

<b>Sl. No.</b>	<b>Institutions</b>	<b>Location</b>	<b>No. of Beds</b>	<b>Health Block</b>
30	PHC	Atholy	6	CHC Ulliyeri
31	PHC	Naduvennur	0	CHC Ulliyeri
32	PHC	Kottoor	0	CHC Ulliyeri
33	PHC	Azhiyoor	0	CHC Orkatteri
34	PHC	Madappally	0	CHC Orkatteri
35	PHC	Chorode	0	CHC Orkatteri
36	PHC	Peruvannamoozhy	6	CHC Perambra
37	PHC	Pannikottur Colony	0	CHC Perambra
38	PHC	Koothali	0	CHC Perambra
39	PHC	Changaroth	0	CHC Perambra
40	PHC	Avala	0	CHC Perambra
41	PHC	Nochad	0	CHC Perambra
42	PHC	Naripatta	4	CHC Kuttiyadi
43	PHC	Kayakodi	0	CHC Kuttiyadi
44	PHC	Purameri	0	CHC Kuttiyadi
45	PHC	Velom	0	CHC Kuttiyadi
46	PHC	Kunduthodu	0	CHC Kuttiyadi
47	PHC	Maruthankara	0	CHC Kuttiyadi
48	PHC	Thiruvambady	0	CHC Mukkam
49	PHC	Koodaranhi	0	CHC Mukkam
50	PHC	Kuruvattoor	0	CHC Mukkam
51	PHC	Kodiyathoor	24	CHC Cheruvady
52	PHC	Karassery	0	CHC Cheruvady
53	PHC	Choolur	0	CHC Cheruvady
54	PHC	Perumanna	0	PHC Cherupa MCH Unit
55	PHC	Madavoor	0	CHC Narikkuni
56	PHC	Kakoor	0	CHC Narikkuni
57	PHC	Kizhakothe	0	CHC Narikkuni
58	PHC	Kolathur	0	CHC Narikkuni
59	PHC	Omassery	0	CHC Narikkuni
60	PHC	Kakkodi	12	CHC Thalakkulathoor
61	PHC	Puthiyappa	0	CHC Thalakkulathoor
62	PHC	Irivalloor	0	CHC Thalakkulathoor
63	PHC	Ayanchery	0	CHC Thiruvallloor

<b>Sl. No.</b>	<b>Institutions</b>	<b>Location</b>	<b>No. of Beds</b>	<b>Health Block</b>
64	PHC	Maniyoor	0	CHC Thiruvalloor
65	PHC	Villiappaly	0	CHC Thiruvalloor
66	PHC	Thurayur	0	CHC Meladi
67	PHC	Anikulam	0	CHC Meladi
68	PHC	Kottakkal Iringal	0	CHC Meladi
69	PHC	Keezhriyur	0	CHC Meladi
70	PHC	Moodadi	0	CHC Meladi
71	PHC	Chengottukavu	0	CHC Thiruvangoor
72	PHC	Vanimel	0	CHC Valayam
73	PHC	Chekkyadu	0	CHC Valayam
74	PHC	Thuneri	16	CHC Valayam
75	PHC	Edachery	0	CHC Valayam
76	PHC	Chaliyam	0	CHC Cheruvannoor
77	PHC	Cheryvannur Nallalam	0	CHC Cheruvannoor
78	PHC	Kattipara	0	
79	PHC	Peruvayal	0	

Source: DHS



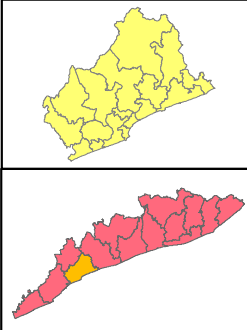


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### TRANSPORT NETWORK MAP KOZHICKODE DISTRICT

#### LEGENDS

- Places
- Cart track in plains
- District Roads
- Foot Path
- National highway
- Pack Track in Plains
- Village roads
- ++ Railway
- Waterbodies



Kerala State Land Use Board  
Vikas Bhavan, Thiruvananthapuram-33

