GENERAL INFORMATION

Kasaragod district came into existence on 24th May 1984. District is bound in the East by Kodagu and Dashkin Kannada districts of Karnataka State, in the West by the Lakshadweep Sea, in the North by Manglore taluk and Dashkin Kannada district of Karnataka and in the South by Kannur district of Kerala. Kasaragod covers an area of 199077 ha. consisting 6 blocks, 3 municipalities and 4 taluks. Lying at the Northern tip of Kerala, district lies between $12^0 02' 35"$ to $12^0 47' 38"$ North latitudes and between $74^0 51' 54"$ to $75^0 25' 59"$ East longitude. Based on physiographic features district falls under three sub micro regions namely Cannanore coast; Kasaragod table land; Peringom muttannur undulating upland. Diversity of physical features results in corresponding diversity of climate in this district. Forest is classified as Southern tropical moist deciduous, Western tropical wet evergreen and semi evergreen and covers an area of 119.73 Sq.km. Kasaragod covers sandy, sandy loam, laterite and hill or forest soil. Mineral reserves are not abundantly rich except china clay and bauxite. Nine rivers are flow through this district. Agriculture plays a vital role in the district with a total cropped area of 151871 ha. District contributes major part of tobacco, arecanut and cashew nut etc. coastal area extends 70 km consisting 18 fishing villages. District holds immense potential for animal husbandry and related dairy development activities. Animal husbandry activities are the major subsidiary occupation of the district and total live stock population was 1.34 lakh during 2010-11. Besides the conventional sources for irrigation like tanks, wells, private canals district has 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 district are built-up land, forest, water bodies, agriculture land, wasteland and wetlands. Major categories of wastelands land with dense scrub, land with open scrub and barren rocky etc… District is having an enchanting beauty and is of historical by importance.

Kasaragod offers diverse attraction like beautiful hills, lengthy sandy beaches, forts and historical places.

History

Kasaragod is the northern most district of the State and was formed on the 24th May, 1984. The Ancient Tamil Works of Sangam Age records that the area covering the district was part of Poozhinad which comprises of the coastal belt from Calicut to Mangalore. Politically the area was part of the Ezhimala Kingdom with its Capital of Ezhimala. The most famous King of Ezhimala was Nannan whose Kingdom extended up to Gudalur and northern parts of Coimbatore. The Mooshaka Kings were considered descendants of Nannan. By the 14th century, Mooshaka Kingdom was known as Kolathirinad and the Rulers as Kolathiris. The Kolathunad Kingdom at the peak of its power reportedly extended from Kasaragod in the north to Korapuzha in the south with Arabian Sea on the west and Kutakumala on the eastern boundary.

It covered the principalities of Kumbla, Nileswaram, Kottayam (Malabar) and Kadathanad. Of these Kumbla and Nileswaram are in Kasaragod district. At the end of Mysore War (1799), the area along with other parts on the West Coast came under British control. In February 1800, Lord Wellesley deputed Dr.Francis Buchanan, a Medical Officer of the English East India Company to undertake a journey and report the conditions prevailing in Mysore and other neighbouring countries which were ceded to them by the Sreerangapattanam Treaty.

The British Government pensioned off the Kumbla and Nileswaram Rajas in 1804 and consolidated their position. On the 16th April, 1862 South Canara district was made part of Madras Presidency for administrative convenience and Kasaragod taluk, comprising the areas now falling under Kasaragod district, was formed in place of Bekal taluk. This set up continued even after independence till the Reorganisation of State in 1956 when Kasaragod taluk was added to Malabar district and included in Kerala State.

In 1921 a branch of the Home Rule League was established at Hosdurg, though it was short lived. In the last week of October 1927, Mahatma Gandhi passed through the area on his way to Mangalore. Swaraj day was celebrated at Kasaragod and Kanhangad on 26th January, 1930. The Quit India Movement also had its repercussions in the district. When Kerala State was formed in 1956, Kasaragod taluk was included in the State attach in it with Malabar district. Later, Kasaragod taluk was split into Kasaragod and Hosdurg taluks and included in Kannur district when Malabar district was divided into Kannur, Kozhikode and Palakkad districts on the 1stn January 1957. This position continued till the 24th May 1984 when the present Kasaragod district was formed.

KASARAGOD AT A GLANCE

Table: 1.1

ADMINISTRATIVE SET UP

Sl. No.	Particulars	Kasaragod	Kerala
1	No. of Revenue Divisions	1	21
2	No. of Taluks	2	63
3	No. of Revenue Villages	127	1453
4	No. of Corporations	0	5
5	No. of Corporation Wards	0	359
6	No. of Municipalities	3	60
7	No. of Municipality Wards	113	2216
8	No. of Block Panchayat	6	152
9	No. of Block Panchayat Wards	83	2095
10	No. of Grama Panchayat	38	978
11	No. of Grama Panchayat Wards	663	16680
12	No. of Assembly Constituencies	5	140
13	No. of Parliament Constituencies	1	20
14	No. of District Panchayat Wards	16	332

Table: 1.2

DEMOGRAPHY

Sl. No.	Particulars	Kasaragod	Kerala
1	Total Population	1302600	33387677
2	No. of Literates	1036289	28234227
3	No. of Migrant	65209	1625653

Table: 1.3

GEOGRAPHICAL PARTICULARS

Sl. No.	Area Categorization	Kasaragod	Kerala
1	Total Area (Ha)	199077	3886287
2	Forest Area (Sq.Km.)	119.73	11309.41
3	Length of Coastal Line (Kms)	70	590

Table: 1.4

AGRICULTURE

Sl. No.	Land Utilization Pattern	Kasaragod (Ha.)	Kerala (Ha.)
1	Total geographical area	199166	3886287
2	Forest area	5625	1081509
3	Land put to non agricultural use	24185	405826
4	Barren & uncultivable land	3700	13655
5	Permanent pastures and other grazing land	0	8
6	Land under misc. tree crops	344	2521
7	Cultivable waste	8560	97069
8	Fallow other than current fallow	2138	57346
9	Current fallow	2129	70976
10	Net area sown	148064	2050994
11	Area sown more than once	3807	565676
12	Total cropped area	151871	2616670

Table: 1.5

ANIMAL HUSBANDRY

Sl. No.	Livestock Population	Kasaragod	Kerala
1	Cattle	82604	1740117
2	Buffaloes	3631	58145
3	Goats	46026	1729127
4	Pigs	1740	59017
5	Sheep	361	965
6	Ducks	2126	865331
7	Fowls	448236	11820376

Table: 1.6

FISHERIES

Sl. No.	Particulars	Kasaragod	Kerala
1	Length of coastal line	70	590
2	No. of fishing villages		
a)	Marine	16	222
b)	Inland	2	113
3	Fisher folk population		
a)	Marine	42909	78156
b)	Inland	981	233034

Table: 1.7

INDUSTRIES

Sl. No.	Industrial Units	Kasaragod	Kerala
1	Number of SSI units registered	6731	234251
2	Number of Women SSI units registered	1535	58774
3	Number of Industrial Co-operative Societies Registered	2	13

Table: 1.8

COMMUNICATION

Sl. No.	Communication Divisions	Kasaragod	Kerala
1	Total Number of Post Offices	229	5067
a)	Number of Head Office	2	51
b)	Number of Sub Office	29	1457
c)	Number of ED Branch Office	198	3559
2	Total Number of Telephone Exchanges	62	1266

Table: 1.9

HEALTH

Sl. No.	Institutions	Kasaragod	Kerala
1	General Hospital	1	18
2	Women & Children Hospital	0	8
3	District Hospital	1	16
4	Taluk Hospital	2	79
5	Primary Health Centre	30	682
6	Leprosy Control Unit/Hospitals	0	3
7	TB Centre/Clinic	0	20
8	Mental Health Centre	0	3

Table: 1.10

EDUCATION

Sl. No.	Institutions	Kasaragod	Kerala
1	Government Lower Primary Schools	143	2602
2	Government Upper Primary Schools	56	858
3	Government High Schools	97	1159
4	Government Higher Secondary Schools	65	831
5	Government Vocational Higher Secondary Schools	19	261
6	Teachers Training Institute	4	222
7	Kendriya Vidyalaya	2	30
8	Jawahar Navodaya Vidyalaya	1	14
9	CBSE School	29	978
10	ICSE School	3	139
11	Government Engineering Colleges	0	9
12	Government Medical Colleges	0	5
13	Government Polytechnic Colleges	2	49

Table: 1.11

WATER SUPPLY CONNECTIONS AND STREET TAPS

Sl. No.	Particulars	Kasaragod	Kerala
1	**Water supply connection**		
a)	Domestic	15867	1407778
b)	Non-Domestic	970	108185
c)	Industrial	10	1094
2	**Street taps**		
a)	Panchayat	2915	160415
b)	Corporation/Municipality	556	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

MAJOR TOURIST SPOTS

Sl.No.	Tourist Centre	Focus
1	Bekal	Fort
2	Chandragiri	
3	Kasaragod	
4	Valiyaparamba	Back water
5	Parappa	Wild life sanctuary
6	Malom	

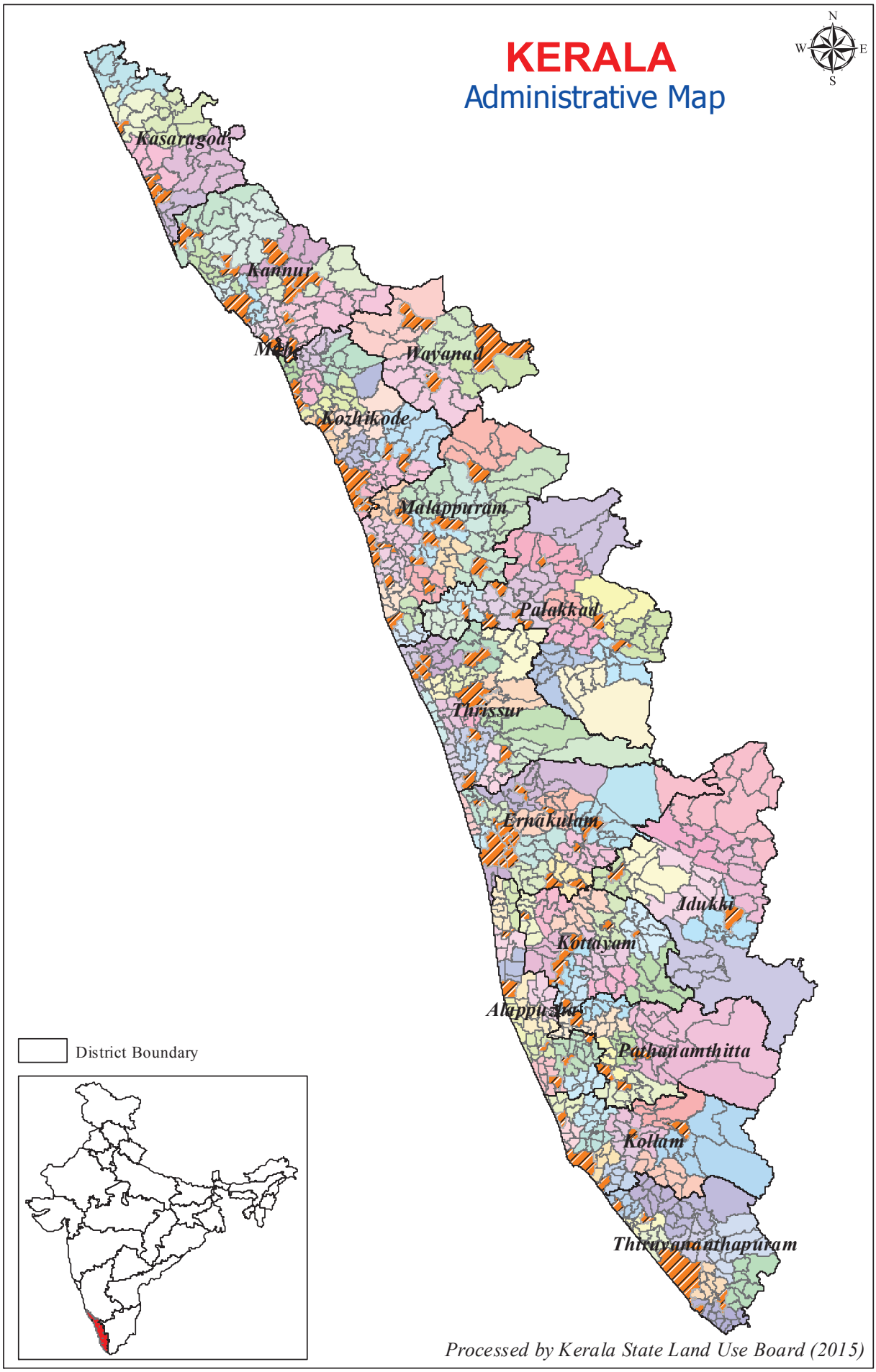
Table: 1.14

WATER RESOURCES

River	Chandragiri
	Chittari
	Kariangode
	Kavvayi
	Manjeswar
	Mogral
	Nileswaram
	Shriya
	Uppala
Back Waters	Cheruvathur
	Nileswar
	Chittari Kayal
	Bekal Kayal
	Kappil pozhi
	Neembil Kayal
	Chandragiri
	Mogral Puthur
	Kumbala
	Suvarnagiri
	Manjeswar
	Thalappady

Source: Various

NB: Data based on 2015 statistics


KERALA
Administrative Map
N
W
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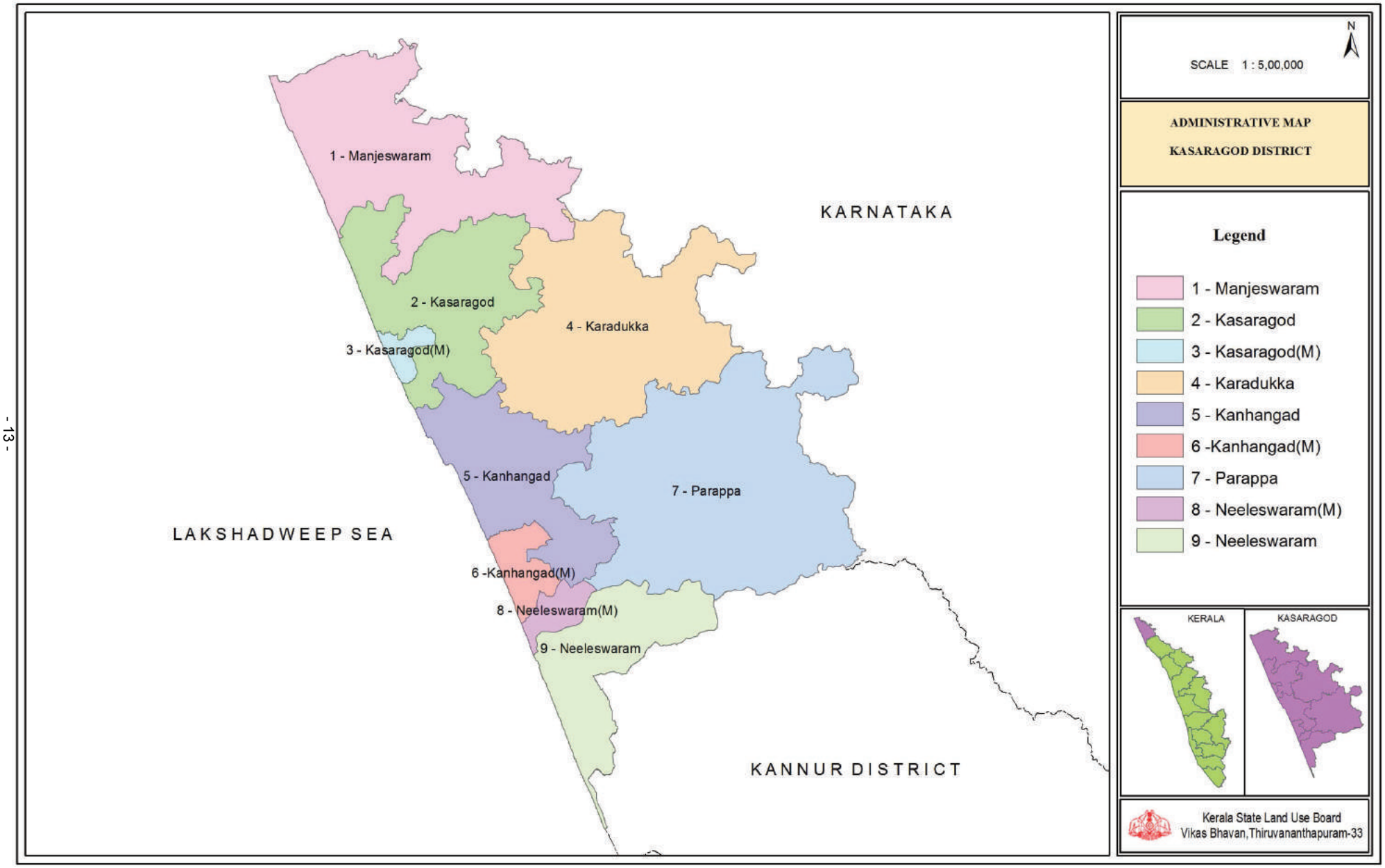
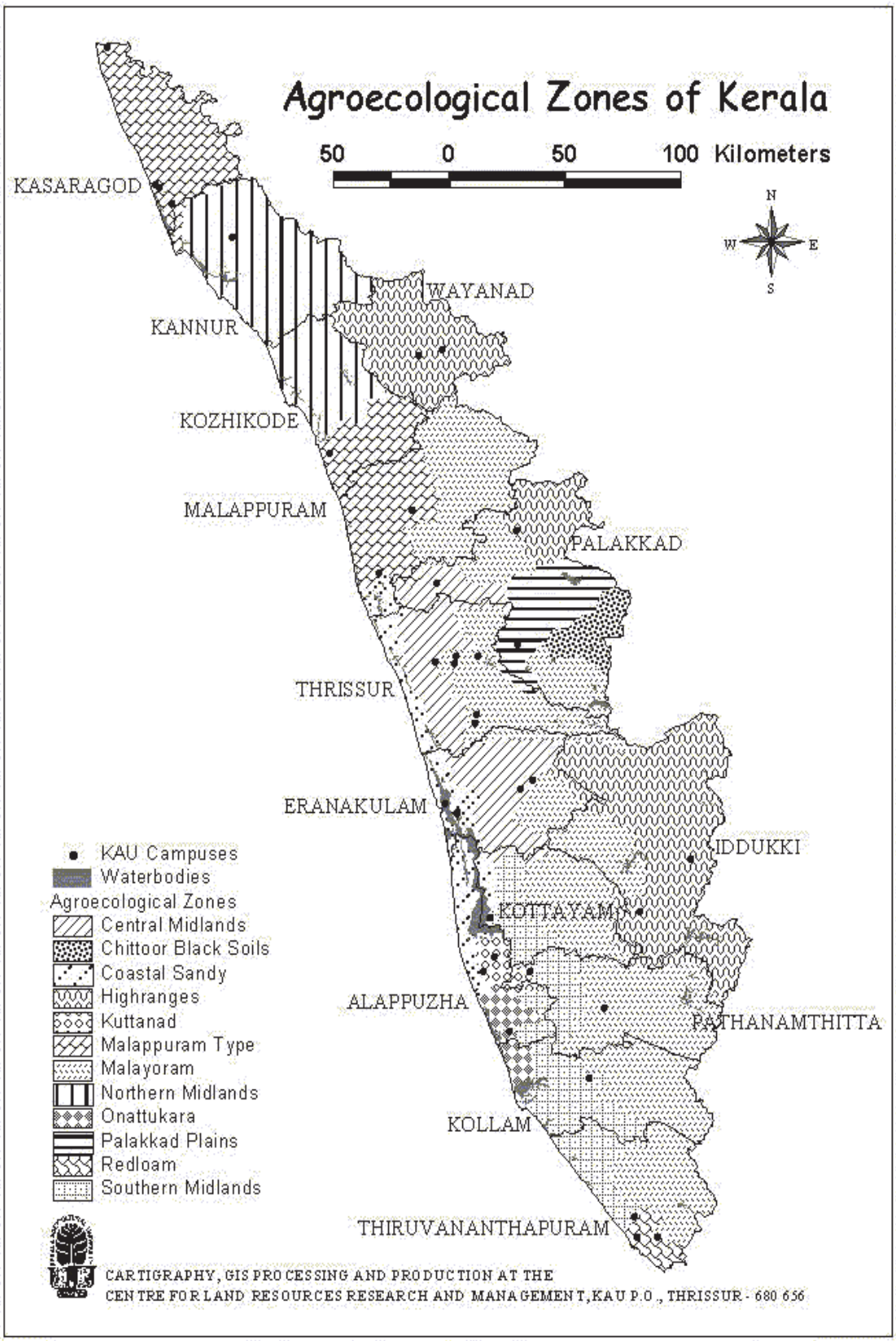
S
Kasaragod
Kannur
Mahe
Wayanad
Kozhikode
Malappuram
Palakkad
Thrissur
Ernakulam
Idukki
Kottayam
Alappuzha
Pathanamthitta
Kollam
Thiruvananthapuram
District Boundary
Processed by Kerala State Land Use Board (2015)


1 - Manjeswaram
2 - Kasaragod
3 - Kasaragod(M)
4 - Karadukka
5 - Kanhangad
6 -Kanhangad(M)
7 - Parappa
8 - Neeleswaram(M)
9 - Neeleswaram
KARNATAKA
LAKSHADWEEP SEA
KANNUR DISTRICT
N
SCALE 1 : 5,00,000
ADMINISTRATIVE MAP
KASARAGOD DISTRICT
Legend
1 - Manjeswaram
2 - Kasaragod
3 - Kasaragod(M)
4 - Karadukka
5 - Kanhangad
6 -Kanhangad(M)
7 - Parappa
8 - Neeleswaram(M)
9 - Neeleswaram
KERALA
KASARAGOD
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33


Agroecological Zones of Kerala
50 0 50 100 Kilometers
N
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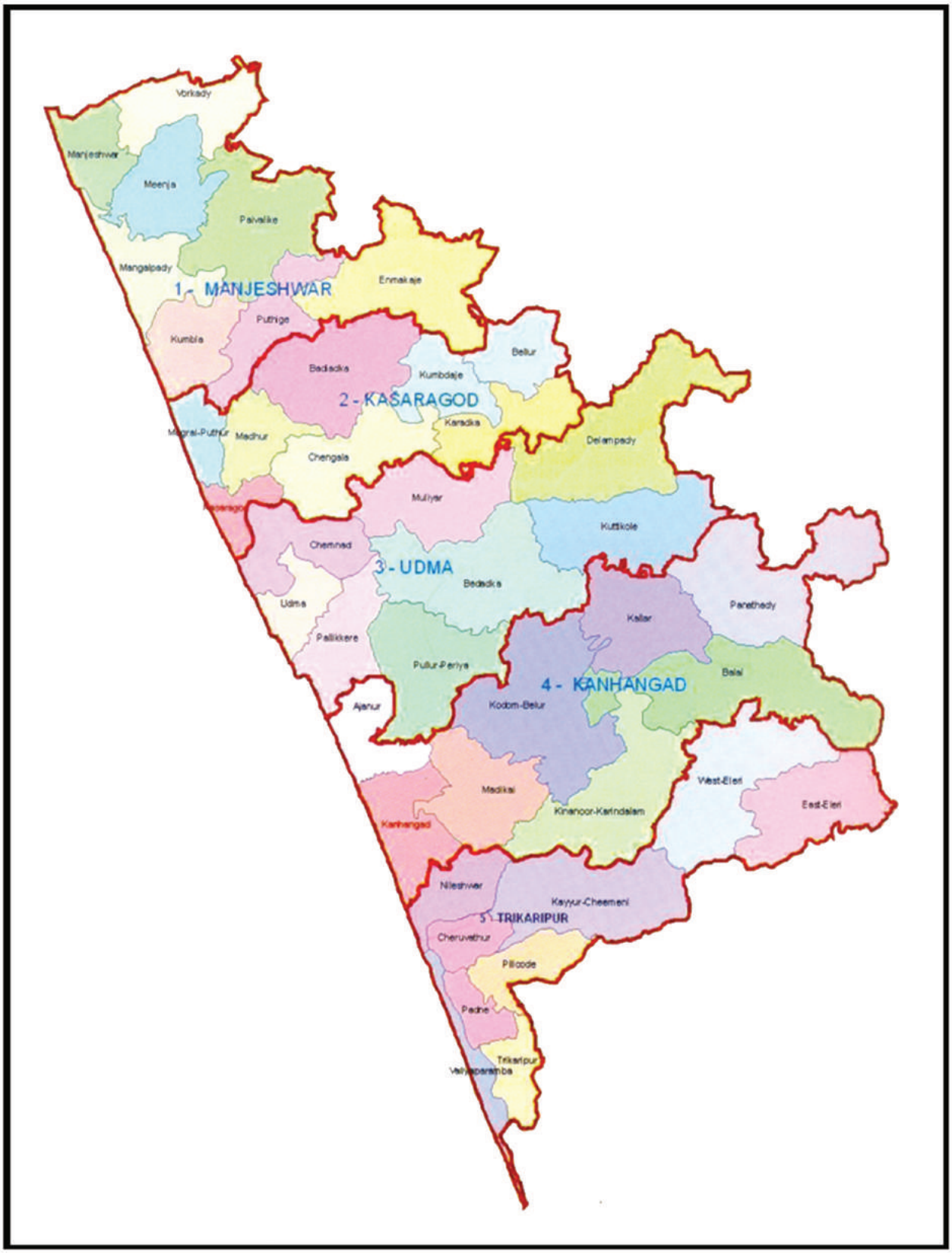
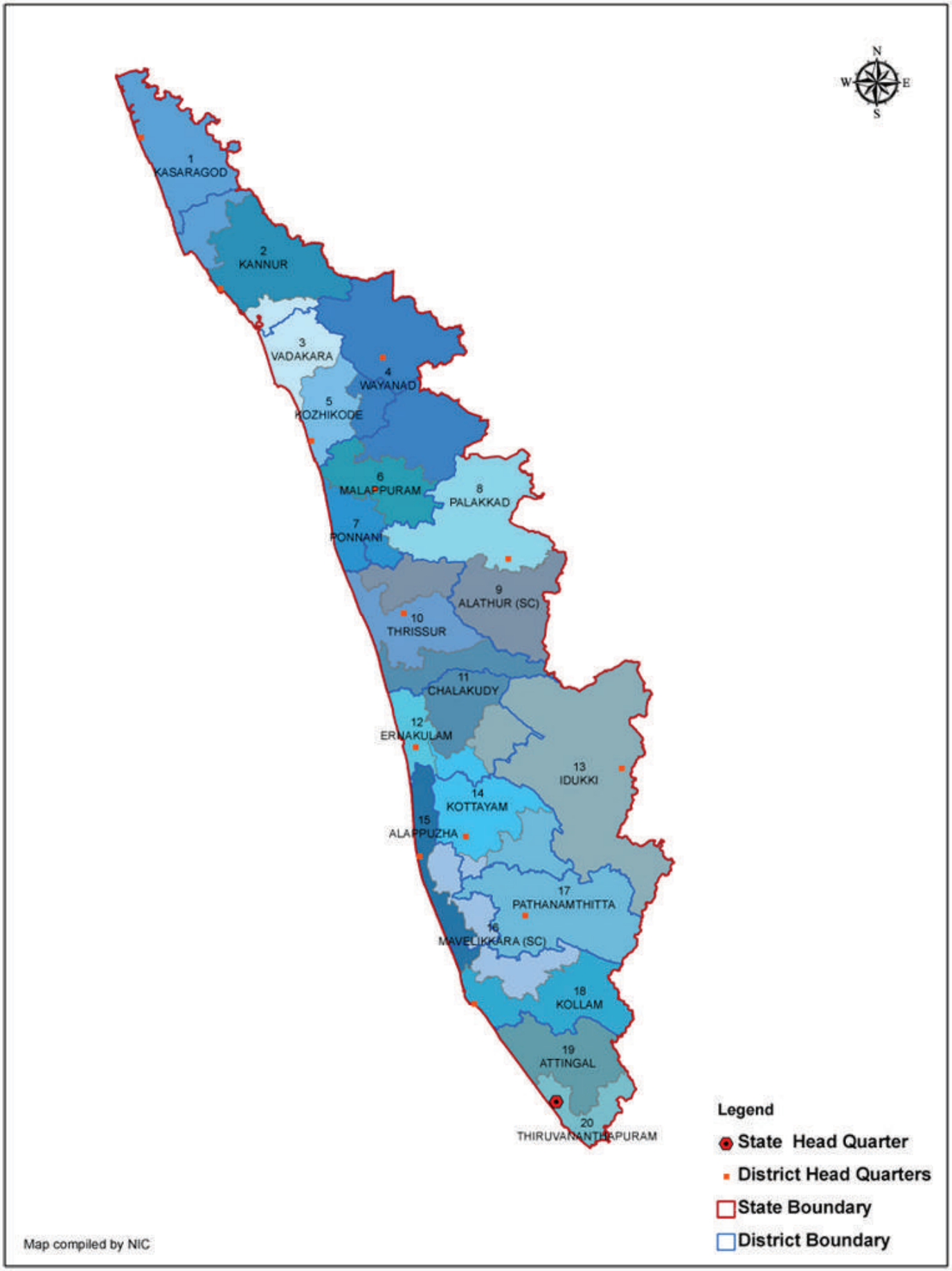
S
KASARAGOD
KANNUR
WAYANAD
KOZHIKODE
MALAPPURAM
PALAKKAD
THRISSUR
ERANAKULAM
IDDUKKI
KOTTAYAM
ALAPPUZHA
PATHANAMTHITTA
KOLLAM
THIRUVANANTHAPURAM
KAU Campuses
Waterbodies
Agroecological Zones
Central Midlands
Chittoor Black Soils
Coastal Sandy
Highranges
Kuttanad
Malappuram Type
Malayoram
Northern Midlands
Onattukara
Palakkad Plains
Redloam
Southern Midlands
CARTIGRAPHY, GIS PROCESSING AND PRODUCTION AT THE
CENTRE FOR LAND RESOURCES RESEARCH AND MANAGEMENT, KAU P.O., THRISSUR - 680 656

Assembly Constituencies
State :Kerala
District :Kasaragod



Parliamentary Constituencies
Kerala



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

Population	1991 Census	2001 Census	2011 Census
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
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
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
Kozhikode	2,344	30,89,543	14,73,028	16,16,515	3,23,511	1,64,800	1,58,711
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
	Persons	Males	Females	Persons	Males	Females	2001-11	2011	2011
1	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
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
Kozhikode	26,34,493	12,76,384	13,58,109	95.24	97.57	93.16	7.31	1097	963
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

POPULATION - 2011 CENSUS

Sl. No.	Category		Kasaragod			Kerala		
			Total	Male	Female	Total	Male	Female
1	Total Population	Total	1307375	628613	678762	33406061	16027412	17378649
		Rural	798328	387716	410612	17471135	8408054	9063081
		Urban	509047	240897	268150	15934926	7619358	8315568
2	Population in the age group 0-6 Years	Total	155807	79460	76347	3472955	1768244	1704711
		Rural	91832	46719	45113	1823664	927888	895776
		Urban	63975	32741	31234	1649291	840356	808935
3	Scheduled Caste Population	Total	53283	26385	26898	3039573	1477808	1561765
		Rural	34522	17207	17315	1818281	883819	934462
		Urban	18761	9178	9583	1221292	593989	627303
4	Scheduled Tribe Population	Total	48857	23950	24907	484839	238203	246636
		Rural	46094	22674	23420	433092	213208	219884
		Urban	2763	1276	1487	51747	24995	26752
5	Literates	Total	1037492	516476	521016	28135824	13704903	14430921
		Rural	628032	317690	310342	14549320	7132430	7416890
		Urban	409460	198786	210674	13586504	6572473	7014031
6	Illiterates	Total	269883	112137	157746	5270237	2322509	2947728
		Rural	170296	70026	100270	2921815	1275624	1646191
		Urban	99587	42111	57476	2348422	1046885	1301537

Table: 4.4 Continued…….

7	Total Workers	Total	462998	325095	137903	11619063	8451569	3167494
		Rural	300809	208082	92727	6341957	4507501	1834456
		Urban	162189	117013	45176	5277106	3944068	1333038
	Main Workers							
8	Workers	Total	372700	275680	97020	9329747	7179828	2149919
		Rural	236103	173781	62322	4930191	3743078	1187113
		Urban	136597	101899	34698	4399556	3436750	962806
9	Cultivators	Total	20569	16271	4298	544932	465546	79386
		Rural	18112	14290	3822	481651	410532	71119
		Urban	2457	1981	476	63281	55014	8267
10	Agricultural Labourers	Total	27722	19324	8398	919136	629092	290044
		Rural	21309	15020	6289	760632	510300	250332
		Urban	6413	4304	2109	158504	118792	39712
11	House hold Industry Workers	Total	17951	4916	13035	198281	132111	66170
		Rural	12224	2758	9466	104642	68889	35753
		Urban	5727	2158	3569	93639	63222	30417
12	Other Workers	Total	306458	235169	71289	7667398	5953079	1714319
		Rural	184458	141713	42745	3583266	2753357	829909
		Urban	122000	93456	28544	4084132	3199722	884410

Table: 4.4 Continued……

	Marginal Workers							
13	Workers	Total	90298	49415	40883	2289316	1271741	1017575
		Rural	64706	34301	30405	1411766	764423	647343
		Urban	25592	15114	10478	877550	507318	370232
14	Cultivators	Total	3163	1953	1210	125321	81360	43961
		Rural	2662	1649	1013	105378	68349	37029
		Urban	501	304	197	19943	13011	6932
15	Agricultural Labourers	Total	11052	6352	4700	403714	228903	174811
		Rural	8679	5018	3661	322371	179994	142377
		Urban	2373	1334	1039	81343	48909	32434
16	Household Industry Workers	Total	6545	1134	5411	74741	32504	42237
		Rural	5279	878	4401	46285	20508	25777
		Urban	1266	256	1010	28456	11996	16460
17	Other Workers	Total	69538	39976	29562	1685540	928974	756566
		Rural	48086	26756	21330	937732	495572	442160
		Urban	21452	13220	8232	747808	433402	314406
18	Non Workers	Total	844377	303518	540859	21786998	7575843	14211155
		Rural	497519	179634	317885	11129178	3900553	7228625
		Urban	346858	123884	222974	10657820	3675290	6982530

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					
I	**Manjeswar**	**61804**	**327862**	**161130**	**166732**	**21889**	**10900**	**10989**	**2798**	**1390**	**1408**	**255527**	**131920**	**123607**	**122908**	**97659**	**5559**	**25249**	**1890**
1	Vorkady	4751	25756	12767	12989	733	369	364	249	125	124	19442	10325	9117	11774	9403	505	2371	196
2	Meenja	4527	23318	11406	11912	1356	690	666	152	79	73	18057	9384	8673	10405	8947	298	1458	62
3	Manjeswar	7762	41515	20320	21195	1784	850	934	361	167	194	32771	16776	15995	14654	12271	203	2383	42
4	Mangalpady	9218	48441	23036	25405	2679	1359	1320	164	81	83	37452	18551	18901	13946	11224	428	2722	156
5	Paivalike	6212	34274	17259	17015	2236	1126	1110	562	274	288	27105	14369	12736	13973	10463	721	3510	238
6	Puthige	3920	21823	10797	11026	1320	644	676	306	144	162	17378	8933	8445	7545	5715	810	1830	169
7	Enmakaje	5135	26824	13446	13378	2150	1111	1039	243	126	117	21037	11175	9862	11283	9055	670	2228	391
8	Badiyadka	6744	34207	16988	17219	3922	1937	1985	363	193	170	26921	14021	12900	13262	9715	505	3547	264
9	Kumbala	8674	46691	22629	24062	2510	1229	1281	305	159	146	36319	18293	18026	15051	12195	708	2856	240
10	Kumbadaje	2787	14772	7370	7402	1491	751	740	38	20	18	11300	5987	5313	6208	5019	370	1189	34
11	Bellur	2074	10241	5112	5129	1708	834	874	55	22	33	7745	4106	3639	4807	3652	341	1155	98
II	**Kasaragod**	**60051**	**299700**	**145305**	**154395**	**13179**	**6585**	**6594**	**9720**	**4762**	**4958**	**233564**	**117149**	**116415**	**101110**	**79988**	**3854**	**21122**	**1406**
1	Madhur	8388	41463	20249	21214	2027	1047	980	182	81	101	33227	16617	16610	14134	11692	406	2442	162
2	Chemnad	10597	54747	25689	29058	1276	588	688	273	44	229	42751	20605	22146	15250	12517	515	2733	211
3	Chengala	10629	56781	27793	28988	2298	1170	1128	108	59	49	43646	22083	21563	16723	13978	457	2745	216
4	Karadka	4265	21211	10535	10676	1950	997	953	164	80	84	16832	8769	8063	8472	5423	192	3049	141
5	Muliyar	4980	25095	12248	12847	2022	1003	1019	84	36	48	19507	9890	9617	8390	5839	149	2551	50
6	Bedadka	6305	27868	13281	14587	402	186	216	3348	1696	1652	21441	10620	10821	11490	9350	958	2140	149
7	Kuttikole	5743	24923	12333	12590	165	85	80	4502	2235	2267	19571	10042	9529	10055	7183	530	2872	348
8	Delampady	4371	22773	11360	11413	1817	882	935	1007	503	504	16981	8915	8066	9387	7823	453	1564	85
9	Mogral Puthur	4773	24839	11817	13022	1222	627	595	52	28	24	19608	9608	10000	7209	6183	194	1026	44

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					
III	**Kanhangad**	**63068**	**280908**	**133313**	**147595**	**4614**	**2293**	**2321**	**24349**	**11827**	**12522**	**219922**	**108238**	**111684**	**100296**	**79491**	**7929**	**20805**	**3729**
1	Udma	7519	37537	17319	20218	1268	637	631	86	33	53	29835	14061	15774	11077	9366	427	1711	182
2	Pallikkara	8856	43255	20099	23156	966	486	480	970	500	470	33233	15942	17291	12286	10391	684	1895	224
3	Ajanur	10335	49153	22952	26201	920	449	471	547	273	274	38545	18657	19888	16448	14246	894	2202	138
4	Pullur-Periya	6767	29642	14154	15488	449	223	226	2989	1466	1523	23517	11643	11874	11847	9646	1206	2201	327
5	Kodom-Bellur	8024	33211	15915	17296	191	91	100	6480	3069	3411	25596	12840	12756	13522	9773	1527	3749	979
6	Kallar	4691	19414	9493	9921	121	54	67	3619	1757	1862	15038	7706	7332	7324	5399	491	1925	342
7	Panathady	5563	22976	11319	11657	280	140	140	2277	1104	1173	17962	9227	8735	8749	6170	689	2579	542
8	Balal	5786	23670	11695	11975	94	46	48	6117	3007	3110	18770	9524	9246	9670	7989	1024	1681	304
9	Madikai	5527	22050	10367	11683	325	167	158	1264	618	646	17426	8638	8788	9373	6511	987	2862	691
IV	**Nileswar**	**62111**	**271391**	**128028**	**143363**	**10351**	**5066**	**5285**	**11070**	**5515**	**5555**	**223687**	**108392**	**115295**	**96017**	**78324**	**9040**	**17693**	**3421**
1	West Eleri	6974	29316	14355	14961	100	46	54	4707	2304	2403	23828	11973	11855	11008	9142	1576	1866	207
2	East Eleri	6097	25075	12344	12731	170	83	87	2223	1103	1120	21493	10706	10787	9329	7881	657	1448	427
3	Kinanoor-Karindalam	6999	27585	13419	14166	308	144	164	3224	1605	1619	22282	11261	11021	11258	8219	873	3039	565
4	Kayyur-Cheemeni	6000	23495	11136	12359	884	430	454	346	163	183	19560	9619	9941	9657	8421	1590	1236	486
5	Pilicode	6142	25122	11984	13138	1398	722	676	272	182	90	21074	10353	10721	9950	7685	1315	2265	719
6	Padne	4335	22134	10222	11912	1741	864	877	43	21	22	18085	8537	9548	6671	5898	712	773	168
7	Valiyaparamba	2561	12790	5758	7032	614	293	321	24	16	8	10353	4794	5559	4290	3656	382	634	58
8	Nileswar	9124	39752	18503	21249	1493	723	770	89	48	41	32860	15773	17087	13524	10828	476	2696	297
9	Thrikkaripur	7850	38687	17639	21048	2342	1132	1210	57	33	24	31969	14763	17206	10747	8852	593	1895	170
10	Cheruvathur	6029	27435	12668	14767	1301	629	672	85	40	45	22183	10613	11570	9583	7742	866	1841	324
	Total	**247034**	**1179861**	**567776**	**612085**	**50033**	**24844**	**25189**	**47937**	**23494**	**24443**	**932700**	**465699**	**467001**	**420331**	**335462**	**26382**	**84869**	**10446**

Source : Census Report 2011

CENSUS OF INDIA 2011-PROVISIONAL POPULATION TOTALS- RURAL AND URBAN DISTRIBUTION (INDIA, KERALA, DISTRICTS)

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 total population	Sex ratio of child population in the age-group 0-6	Percentage share of urban population
		Persons	Males#	Females		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	
	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	31.16
	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	
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	
	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	47.72
	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	
	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	38.78
	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	
	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	65.05
	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	
	R	7,84,981	3,85,922	3,99,059	4.52	10.99	11.40	10.59	89.22	92.77	85.82	1034	960	3.87
	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	
	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	67.15
	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	
	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	44.19
	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	
	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	24.09
	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	
Thrissur 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	
	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	67.19
	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	
	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	68.07
	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	958	
	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	4.70
	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	
	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	28.58
	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	
	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	54.06
	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	7.65	8.29	7.09	96.93	97.70	96.26	1129	964	
	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	11.00
	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	
	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	45.11
	U	11,86,340	5,65,846	6,20,494	154.59	9.09	9.73	8.50	93.38	95.46	91.52	1097	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	
	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	53.80
	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

	2001	2011	Percentage of urban population	
No. of Districts	14	14	2001	2011
No. of Sub-Districts (Taluks)	63	63	25.96	47.72
No. of Towns	159	520		
No. of Villages	1,364	1,018		

NUMBER OF TOWNS AND URBAN POPULATION IN KERALA

Census Year	No. of towns	Urban population
1901	21	4,54,499
1911	27	5,24,661
1921	44	6,80,900
1931	53	9,16,330
1941	62	11,95,550
1951	94	18,25,832
1961	92	25,54,141
1971	88	34,66,449
1981	106	47,71,275
1991	197	76,80,294
2001	159	82,66,925
2011	520	1,59,32,171

GROWTH IN NO. OF TOWNS (KERALA)

Towns	2001	2011	% Growth (Rounded to next digit)
STs	60	59	-2%
CTs	99	461	366%
Total	159	520	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 countryÑ 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*

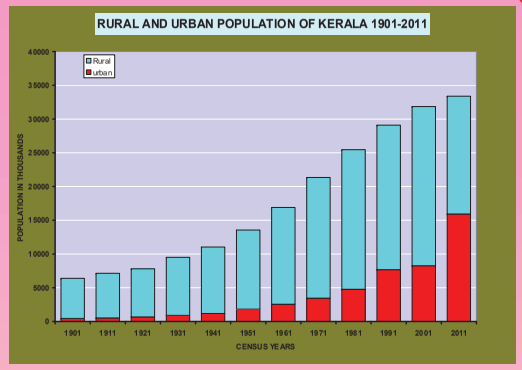
Census Town (CT): Places that satisfy the following criteria are termed as Census Towns (CTs). (a) A minimum population of 5000 (b) At least 75% of the male main working population engaged in non-agricultural pursuits (c) A density of population of at least 400 per sq.km No. of CTs in Kerala: 461 *

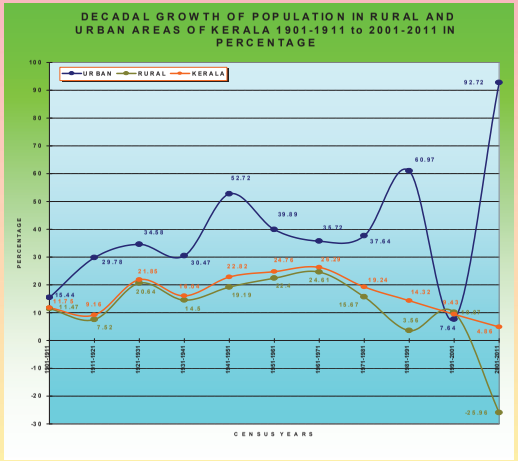
Out Growth (OG): Out Growth should be a viable unit such as a village or part of a village contiguous to a statutory town and possess the urban features in terms of infrastructure and amenities such as pucca roads, electricity, taps, drainage system, education institutions, post offices, medical facilities, 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 *

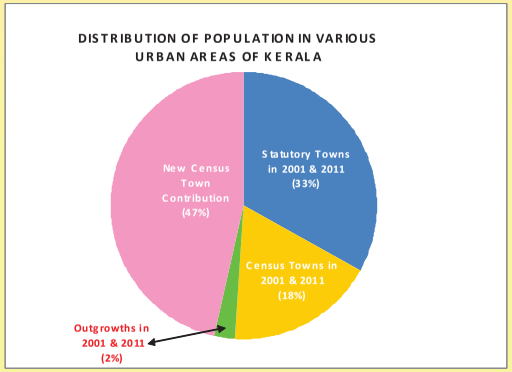
Urban Agglomeration (UA): It is a continuous urban spread constituting a town and its adjoining urban outgrowths (OGs) or two or more physically contiguous towns together and any adjoining urban out- growths of such towns.
No. of UAs in Kerala: 19 *

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 21st century and 7th Census after Independence. The provisional results of 2011 show that Population of Kerala as on 1st 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.

Diversity of physical features results in corresponding diversity of climate in this district. District experiences South-West monsoon from June to September and North-East monsoon from October to November. The South-West monsoon starts towards the end of May or the beginning of June, heralded by thunder storms and stays till September when the rain fed out. Actual rainfall of the district is 2721.3 mm and Normal rainfall is 3007.5 mm during South-West monsoon rainfall. There will be some rainfall in North-East monsoon during October and November. Actual rainfall of the district is 363.4 mm and Normal rainfall is 334.3 mm during North-East monsoon rainfall. Relative humidity is more during the month of March to May and is less during December and January. Generally March, April months are hottest and December, January are coldest. The average maximum temperature is 31.2^0C and minimum 23.6^0C.

Table: 5.1

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

Pre-Monsoon Rainfall (March to May)			
District/State	**Actual Rainfall (mm)**	**Normal Rainfall (mm)**	**Percentage departure**
Kasaragod	258.7	272.9	-5
Kerala	**364.4**	**379.9**	**-4**

South West Monsoon Rainfall (June to September)			
District/State	**Actual Rainfall (mm)**	**Normal Rainfall (mm)**	**Percentage departure**
Kasaragod	2721.3	3007.5	-10
Kerala	**2163.3**	**2039.7**	**6**

North East Monsoon Rainfall (October to till 17th December 2014)			
District/State	**Actual Rainfall (mm)**	**Normal Rainfall (mm)**	**Percentage departure**
Kasaragod	363.4	334.3	9
Kerala	**496.8**	**472.2**	**5**

Source: Economic Review

Table: 5.2

RAINFALL DISTRIBUTION OF DISTRICT FOR THE YEAR 2013-14

(Rainfall in mm)

2013						
District/State	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Kasaragod	1001.2	435	255.2	182.1	34.1	5.1
Kerala (Average)	**833.2**	**374.2**	**321.9**	**259.1**	**155**	**16.6**

2014						
District/State	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**
Kasaragod	0	0	0	15.4	243.4	595.2
Kerala (Average)	**4.70**	**10.3**	**17.9**	**156.1**	**250.7**	**454.4**

2013-14			
District/State	**Actual**	**Normal**	**Departure (%)**
Kasaragod	2766.7	3620.4	-23.6
Kerala (Average)	**2819.2**	**2946.1**	**-4.3**

Source: Agricultural Statistics, DES

GEOLOGY & GEOMORPHOLOGY

Kasaragod is the northern most districts of Kerala. Lying at the Northern tip of Kerala, district lies between $12^0 02' 35"$ to $12^0 47' 38"$ North latitudes and between $74^0 51' 54"$ to $75^0 25' 59"$ East longitude. To its North and East lies the State of Karnataka while to the South is Kannur distict of Kerala and to the West is Lakshadweep Sea. Ariyakaduva, Chandragiri, Payaswami and Shiriya rivers are West flowing and form the main drainage system. The drainage pattern is dendritic to subdendritic.

GEOLOGY

The district is broadly divisible into five geological belts: 1) Southern charnockitic rocks which extends further South 2) Northern gneiss 3) A syenite pluton in the central part 4) Isolated cappings of sedimentary rocks (Warkalli Formation) confined to the coastal tract and 5) Quaternary sediments of the coastal plain.

The district forms a part of the Precambrian metamorphic shield, major part of which is occupied by Archaean rocks. Along the western margin, patches and isolated cappings of Warkalli Formation and low-lying Quarternary alluvial deposits are seen. Both the Archaean and the tertiary rocks have been intensly lateritised. The important basement rocks in the area belong to Khondalite Group, Charnockite Group, Wyanad Schist Complex and Peninsular Gneissic Complex. The Khondalite Group, comprises quartz-graphite schist, quartz-feldspar-garnet-sillimanite schist and associated amphibolite with abundant flakes of graphite and it occurs as bands and lenses within hornblende-biotite gneiss. The predominant rock in the South is charnockite. The other member of Charnockite Group, namely hornblende granulite, has limited outcrops near Mullaria. Quartzo feldspathic gneiss of Peninsular Gneissic Complex is the major

rock in the North and it is foliated. Along the East, rocks of the Wyanad Group, comprising fuchsite quartzite, garnetiferous quartzite and quartzite are exposed. They occur as vestiges within high-grade gneiss and charnockite. An anorthosite massif occurs along the southern border of the district, a major part of the massif is in the adjacent Kannur district. It is emplaced into pyroxene granulite/ charnockite. Around Angadimogar, a large syenite pluton is emplaced, which varies in colour from pink to grey. Both varieties are medium to coarse grained and lack foliation. There is a granite body east of Badiaduka which is in the form of perched blocks and tors. Numerous dolerite dykes trending, NNW-SSE traverse the older rocks. In the West the basement rocks are unconformably overlain by Late Tertiary (Neogene) sedimentary rocks, the Warkalli Formation, which is sporadically distributed. It comprises impersistent and alternating beds of grit, sandstone, clay and carbonaceous clay with or without lignite. Occasionally a pebble bed is also noticed. Laterite is a major lithounit of the district, covering all the rock formations except the Quarternary. It is hard, ferruginous and bauxitic at places. Its thickness varies from 5 to 15 m. Unconsolidated Quaternary sediments, mostly comprising sand or admixture of sand, silt or clay occupy the coastal plain and valley floors. They have been classified into different units based on their environment of formation, morphological character and lithic content. They are palaeo-marine deposits (Guruvayur Fromation), fluvial deposits (Periyar Formation), fluvio-marine deposits (Viyyam Formation) and beach and barrier beach deposits (Kadappuram Formation).

GEOMORPHOLOGY AND GEOHYDROLOGY

Broadly the district is divisible into three physiographic zones; the coastal plain to the West, the midland region and the high hills forming foothills of the Western Ghats to the East. A number of palaeo-beach ridges are suggestive of

marine regression. The coast at Bekal is rocky, whereas West of Uduma and Melparamba it is cliffed, exposing the Warkalli Formation. At Kasaragod, there is a well developed beach. The midland region is being denuded. The terrain is characterized by flat topped or gently rolling laterite-capped upland, laterite mesas and laterite interfluves, dissection of which has led to the development of narrow flat-bottomed valleys. The mesas and laterite flats are remnants of a former extensive pediplain. The high hills in the East are structural and denudational, with steep hills and narrow summits. The terrain in general is rugged. The high peaks in the area are situated South of Perathodi and at Mozhakkavalli. Chandragiri is the major river draining the district. Karymkote River drains the southern part of the district. The area receives good rainfall, 300-350 cm annually. Because of the sloping terrain and impermeable basement rocks, major part of the rainwater goes as runoff. From the point of view of yield of groundwater, the area can be divided into four zones; a) the coastal tract with alluvium is a highly potential aquifer. Depth to water is 0.5 to 3 m and the yield is upto 50 lp s. The area is suitable for filter point wells and dug wells. b) The midlands with laterite cover are suitable for dug wells. Depth to water is between 5 and 20 m below the ground level. The valleys are potential aquifers. c) Areas underlain by thin laterite cover or weathered zone. The valleys and topo-lows are good for open wells. Bore wells are feasible along fractures but are site specific. d) Foot hills and highly undulating terrain exposing basement rocks or with thin soil cover. The terrain can rarely sustain domestic wells. Fractures are potential zones and bore wells are site specific.

Table: 6.1

GEOLOGY DETAILS

MANJESWARAM BLOCK

(Area in Ha)

Sl.No.	Category	Enmakaje	Mangalppady	Manjeswaram	Meenja	Paivalike	Puthige	Vorkady
1	Acidic rocks				26.28			
2	Alkaline rocks	186.87	1786.34			317.83	1682.88	
3	Basic rocks		16.86	50.20	16.84			
4	Charnockite group of rocks	391.27						
5	High grade meta sedimentary rocks							
6	Khondalite groups of rocks	1104.09				1221.14		
7	Laterite		93.98		1077.51	705.07	222.32	694.84
8	Peninsular gneissic complex	6151.96	1190.01	2153.83	3361.47	4893.03	1947.72	3507.45
9	Sand and silt		617.52	377.19				
10	Sandstone and clay with lignite interc		50.38	282.12	27.45			
11	Ultra basic rocks							
	Panchayat Total	**7834.19**	**3755.09**	**2863.34**	**4509.55**	**7137.07**	**3852.92**	**4202.29**
	Block Total	**34154.45**						

Table: 6.2

KARADUKKA BLOCK

(Area in Ha)

Sl.No.	Category	Bedaduka	Belloor	Delampady	Karadukka	Kumbadaje	Kuttikol	Muliyar
1	Acidic rocks					232.39		
2	Alkaline rocks							
3	Basic rocks	80.27		120.93	65.84	125.55	61.23	
4	Charnockite group of rocks	26.34		398.19				123.91
5	High grade meta sedimentary rocks			189.33				
6	Khondalite groups of rocks		604.77	450.97	268.22		147.01	909.16
7	Laterite							
8	Peninsular gneissic complex	8345.96	2412.94	7947.77	3463.27	2701.42	6436.12	4466.97
9	Sand and silt							
10	Sandstone and clay with lignite interc							
11	Ultra basic rocks							
	Panchayat Total	**8452.57**	**3017.71**	**9107.19**	**3797.33**	**3059.36**	**6644.36**	**5500.04**
	Block Total	**39578.56**						

Table: 6.3

PARAPPA BLOCK

(Area in Ha)

Sl. No.	Category	Balal	East-Eleri	Kallar	Kinanoor-Karindalam	Kodom-Beloor	Panathadi	West-Eleri
1	Acidic rocks							
2	Alkaline rocks							
3	Basic rocks	310.59	281.34	215.87	14.16	46.32		290.68
4	Charnockite group of rocks	8496.70	4720.41	2839.06	6199.31	6748.14	3927.52	6927.35
5	High grade meta sedimentary rocks	555.38	1023.63			522.58		576.08
6	Khondalite groups of rocks						1943.71	
7	Laterite				1354.29	707.56		
8	Peninsular gneissic complex	75.53		2276.55	9.47	1365.84	2934.40	
9	Sand and silt				131.15			
10	Sandstone and clay with lignite interc							
11	Ultra basic rocks							
	Panchayat Total	**9438.20**	**6025.38**	**5331.48**	**7708.38**	**9390.44**	**8805.63**	**7794.11**
	Block Total	**54493.62**						

Table: 6.4

KASARAGOD BLOCK

(Area in Ha)

Sl. No.	Category	Badiyaduka	Chemmanad	Chengala	Kumbala	Madhur	Mogral-Puthur
1	Acidic rocks			72.41		107.63	87.48
2	Alkaline rocks	52.19			2379.15	229.70	274.58
3	Basic rocks		39.18		29.44		
4	Charnockite group of rocks						
5	High grade meta sedimentary rocks						
6	Khondalite groups of rocks	254.47	2.34	566.06		362.59	
7	Laterite				765.56		
8	Peninsular gneissic complex	6425.68	2206.34	4875.47	35.14	1751.41	515.37
9	Sand and silt		1655.24		320.36	2.96	539.76
10	Sandstone and clay with lignite interc				227.82	265.92	411.19
11	Ultra basic rocks						
	Panchayat Total	**6732.34**	**3903.10**	**5513.94**	**3757.47**	**2720.21**	**1828.38**
	Block Total	**24455.44**					

Table: 6.5

NEELESWARAM BLOCK

(Area in Ha)

Sl. No.	Category	Cheruvathur	Kayyur-Cheemeni	Padanna	Pilicode	Thrikkarippur	Valiyaparamba
1	Acidic rocks						
2	Alkaline rocks						
3	Basic rocks						11.43
4	Charnockite group of rocks		5357.96		158.92		
5	High grade meta sedimentary rocks						
6	Khondalite groups of rocks						
7	Laterite		738.85				
8	Peninsular gneissic complex						
9	Sand and silt	1744.85	1209.85	1491.50	2595.85	2096.59	1743.61
10	Sandstone and clay with lignite interc						
11	Ultra basic rocks				44.07		
	Panchayat Total	**1744.85**	**7306.66**	**1491.50**	**2798.84**	**2096.59**	**1755.04**
	Block Total	**17193.48**					

Table: 6.6

KANHANGAD BLOCK

(Area in Ha)

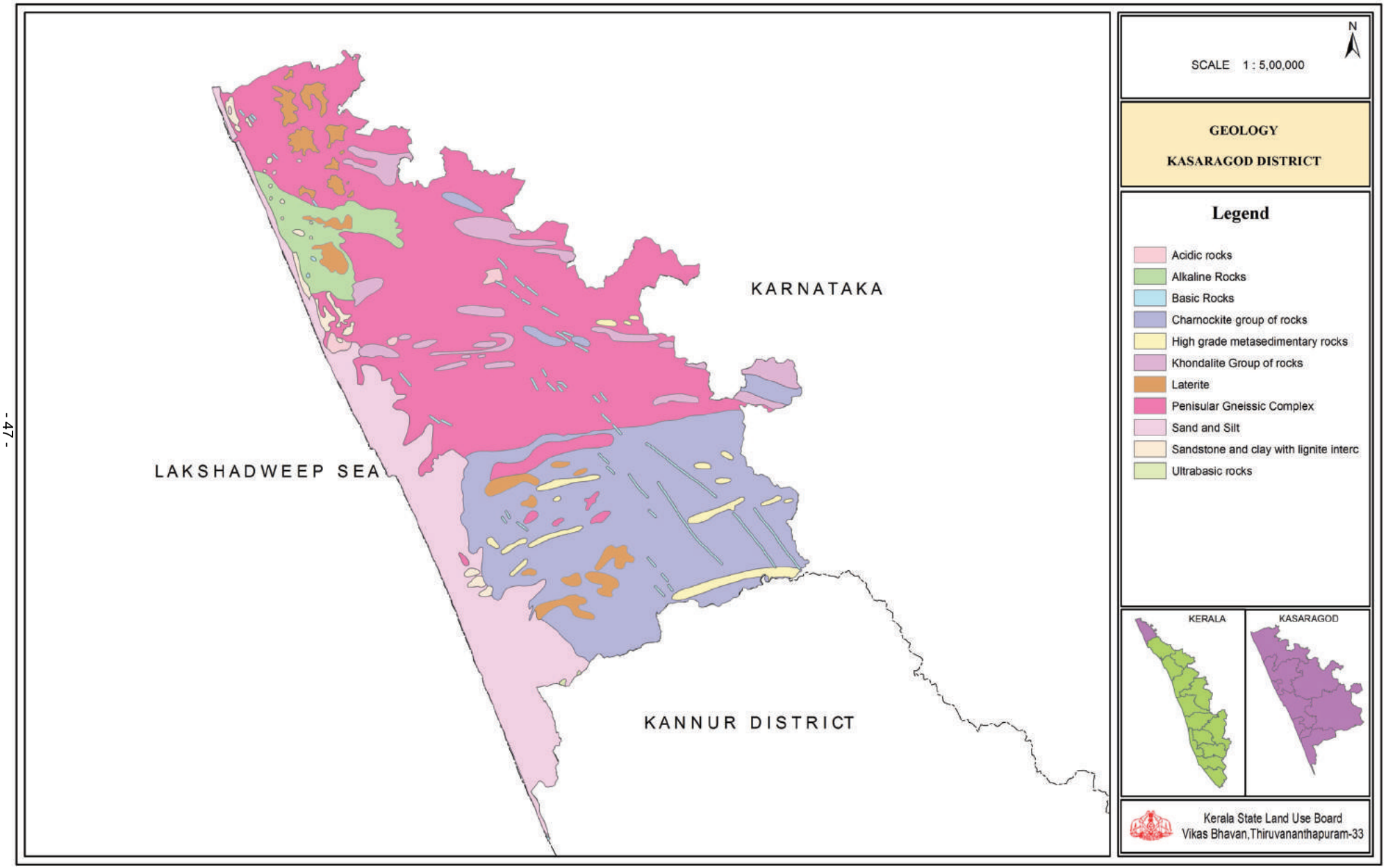
Sl. No.	Category	Ajanoor	Madikkai	Pallikkara	Pulloor-Periya	Uduma
1	Acidic rocks					
2	Alkaline rocks					
3	Basic rocks		25.04	49.75	5.57	
4	Charnockite group of rocks	261.75	4086.24		2564.29	
5	High grade meta sedimentary rocks		506.79			
6	Khondalite groups of rocks					
7	Laterite		86.41		287.91	
8	Peninsular gneissic complex			1486.53	2299.50	335.65
9	Sand and silt	2752.18	361.43	2366.38	1042.86	2112.38
10	Sandstone and clay with lignite interc		24.51			
11	Ultra basic rocks					
	Panchayat Total	**3013.93**	**5090.42**	**3902.66**	**6200.13**	**2448.03**
	Block Total	**20655.17**				

Table: 6.7

MUNICIPALITY

(Area in Ha)

Sl. No.	Category	Kanhangad Municipality	Kasaragod Municipality	Neeleswaram Municipality
1	Acidic rocks		115.54	
2	Alkaline rocks			
3	Basic rocks			
4	Charnockite group of rocks	660.64		77.18
5	High grade meta sedimentary rocks	7.69		
6	Khondalite groups of rocks		234.98	
7	Laterite			
8	Peninsular gneissic complex	73.59	180.94	
9	Sand and silt	3036.27	1214.20	2653.44
10	Sandstone and clay with lignite interc	339.08		
11	Ultra basic rocks			
	Municipality Total	**4117.27**	**1745.66**	**2730.62**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GEOLOGY
KASARAGOD DISTRICT
Legend
Acidic rocks
Alkaline Rocks
Basic Rocks
Charnockite group of rocks
High grade metasedimentary rocks
Khondalite Group of rocks
Laterite
Penisular Gneissic Complex
Sand and Silt
Sandstone and clay with lignite interc
Ultrabasic rocks
KARNATAKA
LAKSHADWEEP SEA
KANNUR DISTRICT
KERALA
KASARAGOD
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33

Table: 6.8

GEOMORPHOLOGY DETAILS

KANHANGAD BLOCK

(Area in Ha)

Sl. No.	Category	Ajanoor	Madikkai	Pallikkara	Pulloor-Periya	Uduma
1	Beach (Coastal plain)					
2	Channel bar (Flood plain)					
3	Coastal plain	324.39		408.00	5.25	
4	Denudational hills					
5	Denudational structural hills					
6	Linear ridge (Lower plateau)		27.21		97.51	
7	Linear ridge (Piedmont zone)					
8	Lower plateau (Lateritic) - dissected	1640.17	3714.00	3182.94	4467.65	1940.75
9	Mud flat (Coastal plain)	410.35		51.58		
10	Piedmont zone					
11	Point bar (Flood plain)					
12	Residual mount		224.63	76.60	650.29	27.08
13	Residual mount (Pediment)					
14	Residual hill	43.91	342.28		89.20	
15	Rock exposure					
16	Stabilized channel bar (Flood plain)					
17	Swale (Coastal plain)	6.69				
18	Valley		93.34		135.47	
19	Valley fill	482.12	684.19	164.71	726.35	419.79
20	Water body	106.32	4.78	18.83	28.41	60.41
	Panchayat Total	**3013.95**	**5090.43**	**3902.66**	**6200.13**	**2448.03**
	Block Total	**20655.20**				

Table: 6.9

KARADUKKA BLOCK

(Area in Ha)

Sl. No.	Category	Bedaduka	Belloor	Delampady	Karadukka	Kumbadaje	Kuttikol	Muliyar
1	Beach (Coastal plain)							
2	Channel bar (Flood plain)	8.24		6.85	6.75			5.58
3	Coastal plain							
4	Denudational hills		374.78	919.98	870.89	345.88	370.36	783.12
5	Denudational structural hills			3116.39			1010.56	
6	Linear ridge (Lower plateau)	104.70						38.97
7	Linear ridge (Piedmont zone)						37.55	
8	Lower plateau (Lateritic) - dissected	5821.35		14.27	381.60		1017.52	2171.79
9	Mud flat (Coastal plain)							
10	Piedmont zone		1620.86	3629.74	1323.34	1507.04	2681.75	700.91
11	Point bar (Flood plain)	11.36						14.30
12	Residual mount	633.05			263.51	9.22	41.07	322.56
13	Residual mount (Pediment)		90.30	163.92	42.40	130.14		97.22
14	Residual hill	829.27	198.87	149.40	267.72	347.54	806.21	590.74
15	Rock exposure							
16	Stabilized channel bar (Flood plain)							
17	Swale (Coastal plain)							
18	Valley	189.85		206.58			423.84	
19	Valley fill	702.75	732.89	717.97	593.40	711.48	255.50	663.43
20	Water body	152.00		182.11	47.72	8.08		111.43
	Panchayat Total	**8452.57**	**3017.70**	**9107.21**	**3797.33**	**3059.38**	**6644.36**	**5500.05**
	Block Total	**39578.60**						

Table: 6.10

KASARAGOD BLOCK

(Area in Ha)

Sl. No.	Category	Badiyaduka	Chemmanad	Chengala	Kumbala	Madhur	Mogral-Puthur
1	Beach (Coastal plain)				39.05		23.55
2	Channel bar (Flood plain)		18.02	3.04	4.19		11.27
3	Coastal plain						
4	Denudational hills	213.10					
5	Denudational structural hills						
6	Linear ridge (Lower plateau)						
7	Linear ridge (Piedmont zone)						
8	Lower plateau (Lateritic) - dissected	2407.83	3049.23	2779.72	2707.25	1687.90	1138.74
9	Mud flat (Coastal plain)				3.06		
10	Piedmont zone	1497.87		403.79			
11	Point bar (Flood plain)			4.81	5.47		17.99
12	Residual mount	1109.68	176.88	675.76	397.07	378.46	63.14
13	Residual mount (Pediment)			139.43			
14	Residual hill	880.22		620.83			
15	Rock exposure						
16	Stabilized channel bar (Flood plain)						
17	Swale (Coastal plain)						
18	Valley	178.97				1.77	
19	Valley fill	412.70	523.35	799.20	417.67	626.94	467.89
20	Water body	31.98	135.61	87.36	183.71	25.16	105.81
	Panchayat Total	**6732.35**	**3903.09**	**5513.94**	**3757.47**	**2720.23**	**1828.39**
	Block Total	**24455.46**					

Table: 6.11

MANJESWARAM BLOCK

(Area in Ha)

Sl. No.	Category	Enmakaje	Mangal ppady	Manje swaram	Meenja	Paivalike	Puthige	Vorkady
1	Beach (Coastal plain)		320.40	131.22				
2	Channel bar (Flood plain)		4.80	6.35				
3	Coastal plain							
4	Denudational hills	468.60						
5	Denudational structural hills							
6	Linear ridge (Lower plateau)							
7	Linear ridge (Piedmont zone)	186.53						
8	Lower plateau (Lateritic) - dissected	233.35	1915.87	2037.95	2428.00	3355.35	2207.79	2359.38
9	Mud flat (Coastal plain)							
10	Piedmont zone	3915.62			60.23	886.14	485.14	
11	Point bar (Flood plain)	5.09					13.50	
12	Residual mount	50.85	221.00		734.10	650.92	252.50	474.12
13	Residual mount (Pediment)	460.27				82.61	14.97	
14	Residual hill	1354.52			151.05	1008.75	352.40	140.56
15	Rock exposure							
16	Stabilized channel bar (Flood plain)							
17	Swale (Coastal plain)							
18	Valley					116.03	48.94	
19	Valley fill	1079.37	1143.24	606.87	1062.11	981.98	400.41	1194.18
20	Water body	79.98	149.81	80.95	74.05	55.28	77.27	34.06
	Panchayat Total	**7834.18**	**3755.12**	**2863.34**	**4509.54**	**7137.06**	**3852.92**	**4202.30**
	Block Total	**34154.46**						

Table: 6.12

NEELESWARAM BLOCK

(Area in Ha)

Sl. No.	Category	Cheruvathur	Kayyur-Cheemeni	Padanna	Pilicode	Thrikkarippur	Valiyaparamba
1	Beach (Coastal plain)						1.10
2	Channel bar (Flood plain)		3.03			9.36	
3	Coastal plain	177.57		702.49	66.67	572.65	945.50
4	Denudational hills						
5	Denudational structural hills						
6	Linear ridge (Lower plateau)		120.43				
7	Linear ridge (Piedmont zone)						
8	Lower plateau (Lateritic) - dissected	697.12	5402.29	148.52	1841.57	679.51	
9	Mud flat (Coastal plain)			321.60	362.10	577.85	
10	Piedmont zone						
11	Point bar (Flood plain)					2.14	
12	Residual mount	148.93	852.42		162.16		
13	Residual mount (Pediment)						
14	Residual hill		306.53		142.05		
15	Rock exposure						
16	Stabilized channel bar (Flood plain)						
17	Swale (Coastal plain)						
18	Valley		126.01		9.23		
19	Valley fill	535.22	360.35		210.10		
20	Water body	186.01	135.60	318.89	4.97	255.08	808.44
	Panchayat Total	**1744.85**	**7306.66**	**1491.50**	**2798.85**	**2096.59**	**1755.04**
	Block Total	**17193.49**					

Table: 6.13

PARAPPA BLOCK

(Area in Ha)

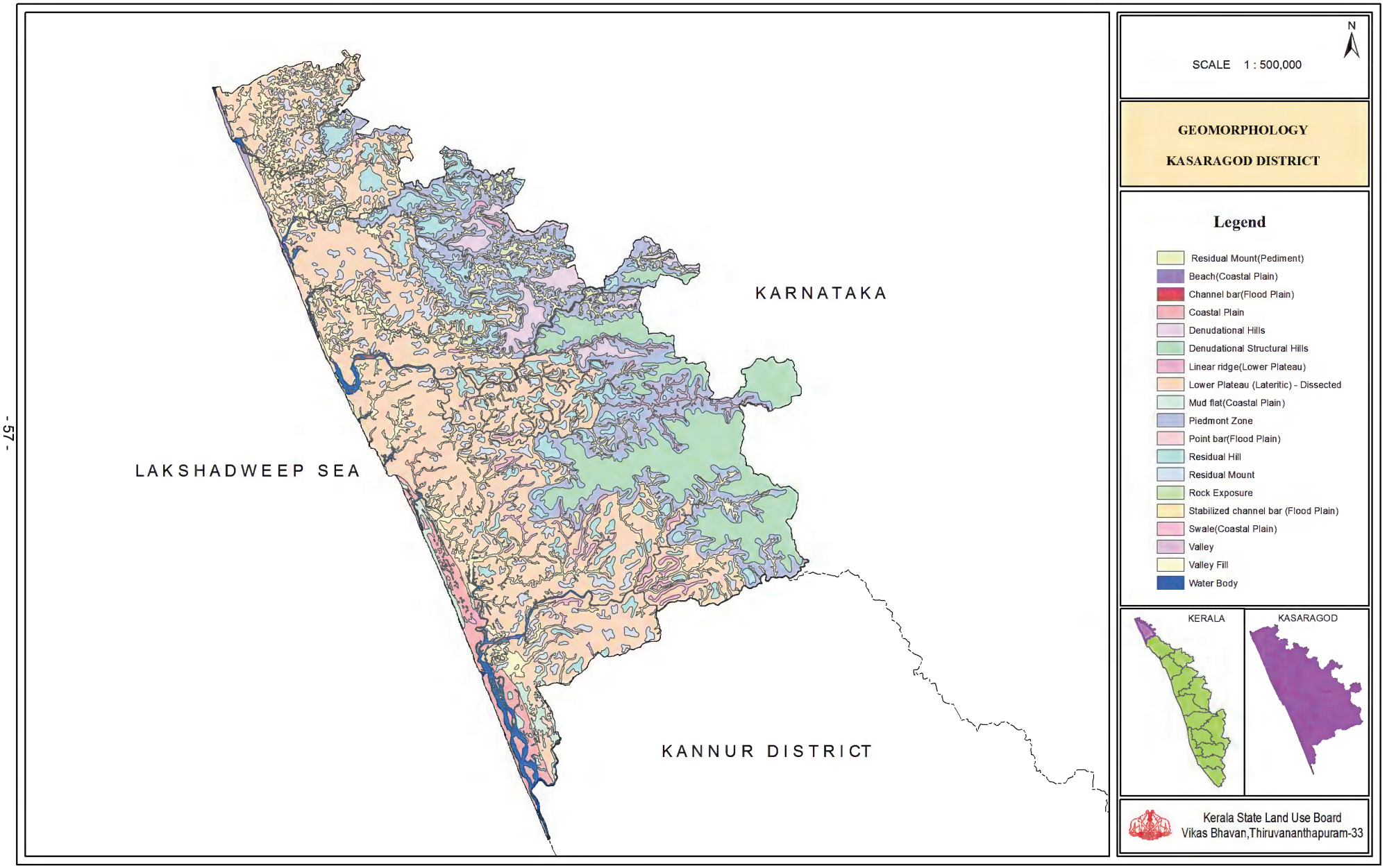
Sl. No.	Category	Balal	East-Eleri	Kallar	Kinanoor-Karindalam	Kodom-Beloor	Panathadi	West-Eleri
1	Beach (Coastal plain)							
2	Channel bar (Flood plain)				2.89			
3	Coastal plain							
4	Denudational hills							
5	Denudational structural hills	6120.95	1735.35	1467.40	178.48	1591.47	5395.38	1599.85
6	Linear ridge (Lower plateau)				52.19	95.08		762.75
7	Linear ridge (Piedmont zone)	36.54			1.08	17.94		
8	Lower plateau (Lateritic) - dissected	363.02	1476.89	202.27	5180.79	3421.51		2625.77
9	Mud flat (Coastal plain)							
10	Piedmont zone	2131.22	1743.95	2546.01	201.91	2035.72	2625.62	1386.61
11	Point bar (Flood plain)							
12	Residual mount	24.57	79.53		589.14	375.07		55.51
13	Residual mount (Pediment)	12.14		58.55		108.47		
14	Residual hill	81.96	264.17	523.55	582.41	932.48	35.23	303.42
15	Rock exposure							
16	Stabilized channel bar (Flood plain)							
17	Swale (Coastal plain)							
18	Valley	18.02		130.84	172.39	558.24	749.39	
19	Valley fill	648.50	700.43	386.63	664.41	234.80		958.90
20	Water body	1.28	25.06	16.24	82.70	19.64		101.30
	Panchayat Total	**9438.20**	**6025.38**	**5331.49**	**7708.39**	**9390.42**	**8805.62**	**7794.11**
	Block Total	**54493.61**						

Table: 6.14

MUNICIPALITY

(Area in Ha)

Sl. No.	Category	Kanhangad Municipality	Kasaragod Municipality	Neeleswaram Municipality
1	Beach (Coastal plain)			
2	Channel bar (Flood plain)		34.75	32.17
3	Coastal plain	1187.47		487.05
4	Denudational hills			
5	Denudational structural hills			
6	Linear ridge (Lower plateau)			
7	Linear ridge (Piedmont zone)			
8	Lower plateau (Lateritic) - dissected	1550.78	1020.12	1493.38
9	Mud flat (Coastal plain)	434.13		
10	Piedmont zone			
11	Point bar (Flood plain)			
12	Residual mount	15.54	101.41	209.63
13	Residual mount (Pediment)			
14	Residual hill	66.93		
15	Rock exposure			
16	Stabilized channel bar (Flood plain)			
17	Swale (Coastal plain)	212.42		8.64
18	Valley			
19	Valley fill	549.76	215.04	277.47
20	Water body	100.25	374.34	222.27
	Municipality Total	**4117.28**	**1745.66**	**2730.61**


N
SCALE 1 : 500,000
GEOMORPHOLOGY
KASARAGOD DISTRICT
Legend
Residual Mount(Pediment)
Beach(Coastal Plain)
Channel bar(Flood Plain)
Coastal Plain
Denudational Hills
Denudational Structural Hills
Linear ridge(Lower Plateau)
Lower Plateau (Lateritic) - Dissected
Mud flat(Coastal Plain)
Piedmont Zone
Point bar(Flood Plain)
Residual Hill
Residual Mount
Rock Exposure
Stabilized channel bar (Flood Plain)
Swale(Coastal Plain)
Valley
Valley Fill
Water Body
KERALA
KASARAGOD
KARNATAKA
LAKSHADWEEP SEA
KANNUR DISTRICT
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**. Kasaragod district falls under three sub micro regions viz. i) Cannanore coast, ii) Kasaragod table land, iii) Peringom-Muttannur Undulating Upland. Cannanore coast region lies as a narrow coastal strip on the western side of the district, cutting longitudinally both the taluks of the district. Based on relief, the region has a maximum height of 87m. in its northern portion at Perumbala village of Kasaragod taluk. There are 12 west flowing rivers besides backwaters and canals in this coastal tract, of which Chandragiri and Karingote are the major rivers. Kasaragod table land region comprises the whole of Kasaragod taluk (except its western coastal area) and North-Eastern part of Hosdurg taluk. This region has as its boundaries, Karnataka State in north and east, Peringom-Mattannur Undulating Upland in south and Cannanore Coastal Plain in the west. The average height of this region is between 250 m and 300 m. The maximum height (1,046 m) is recorded in the southern tip of the region in Panathady village of Hosdurg taluk. The region has minimum height over 100 m as per the contours. Peringom-Mattannur Undulating Upland region is bound by the Kasaragod table land in the north, Karnataka State in the east, Kannoth Forested Hills in the south and Taliparamba-Kuthuparamba Plain and Cannanore Coast in the west. This region has undulating terrain with number of isolated hills. The differentiation of heights and its recurring character explain for the plantation surfaces of different ages. Major upland area of Hosdurg taluk is highly dissected. This region lies in the catchment area of Nileswar and Kariangode rivers which are of dendritic type. The 100 m contour which reveals the minimum height occurs mostly over the western portion. The terrain slopes towards west.

Table: 7.1

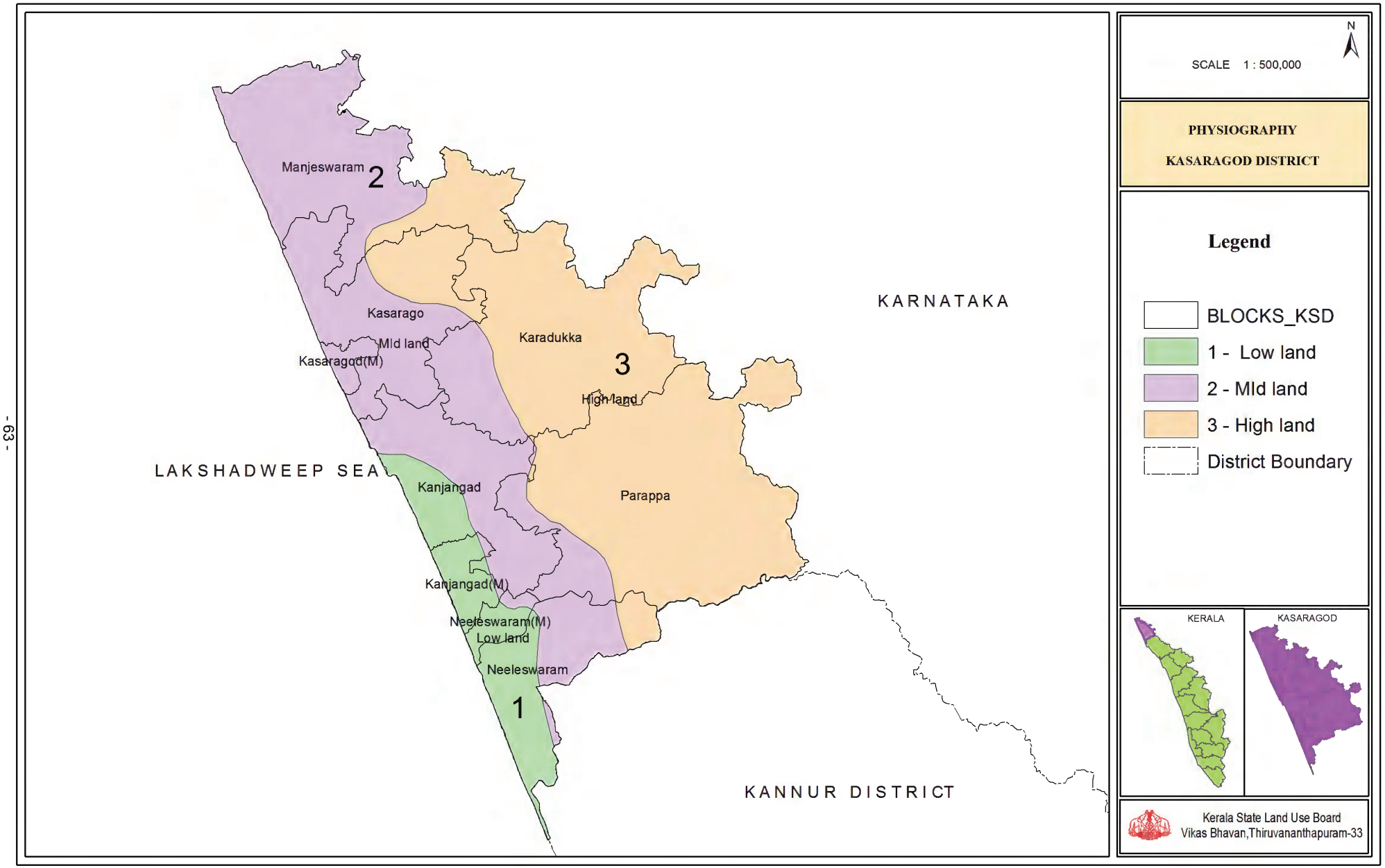
NATURAL REGIONS OF KASARAGOD - DETAILS OF TALUKS/VILLAGES AND WITH AREA BY REGIONS

(Area in ha)

Sl.No.	Taluks/Villages	Low land	Mid land	High land
Hosdurg Taluk				
1	Ajanur	1515.73	153.50	
2	Ambalathara		2688.89	
3	Balal			5645.71
4	Balla	737.53	200.68	
5	Bara		1209.03	
6	Bheemandi			3440.22
7	Belur		1214.37	2129.52
8	Chittarikkal			2450.87
9	Cheemeni-I		1692.98	1982.66
10	Cheemeni-II		177.13	204.94
11	Cheruvathur	1758.06	10.88	
12	Chittari	1369.38	34.06	
13	Hosdurg	647.70		
14	Kallar			5322.33
15	Kanhangad	1653.66		
16	Karindalam		1080.42	1002.84
17	Kayyur	8.30	2056.40	
18	Keekan	454.12		
19	Klayikode	391.49	352.61	
20	Kinanur		1850.86	656.68
21	Kodakkad	112.52	1654.32	
22	Kodoth		66.18	1817.46
23	Madikkai	214.14	2193.26	
24	Maloth			3781.59
25	Maniyat	250.98	30.84	
26	Nileshwar	1319.75		
27	Padanna	2381.21		
28	Palavayal			3498.52
29	Pallikkara-I	563.60	8.70	
30	Pallikkara-II	104.09	660.35	
31	Panathady			8794.48
32	Panayal	482.06	2378.89	
33	Parappa			2751.35
34	Periya		3377.30	34.42

Sl.No.	Taluks/Villages	Low land	Mid land	High land
35	Perol	877.32	511.98	
36	Pilicode	679.35	43.94	
37	Pudukai	651.87	85.19	
38	Pullur	479.40	2240.20	83.39
39	Thayannur		1452.87	2609.99
40	Thimiri	51.96	740.69	
41	Trikaripur North	578.98	218.03	
42	Trikaripur South	1779.54	53.32	
43	Udinoor	726.26		
44	Uduma		410.40	
45	West Eleri			4327.61
	Total	**19789.00**	**28848.27**	**50534.58**
Kasaragod Taluk				
1	Adhur	-		3875.19
2	Adoor	-		6391.09
3	Badiadka	-		2384.45
4	Bandadka	-		1693.32
5	Bayar	-	2345.11	
6	Bedadka	-	1810.85	1145.15
7	Bela	-	806.57	1418.06
8	Bombrana	-	1649.29	
9	Chengala	-	2191.82	
10	Delampady	-		2676.97
11	Edanad	-	1674.68	206.94
12	Hosbettu	-	1324.21	
13	Ichilangod	-	1843.82	
14	Kadambar	-	2007.49	
15	Kalanad	-	1610.89	
16	Karivedakam	-		2850.6
17	Kayyar	-	2203.63	
18	Enmakaje	-	162.88	3162.43
19	Kodlamogru	-	2256.76	
20	Koipady	-	2489.93	
21	Kolathur	-	1761.39	
22	Kudlu	-	2612.1	
23	Kunjathur	-	1189.86	
24	Kumbadaje	-		3035.32
25	Kuttikole	-		2114.59
26	Madhur	-	1637.27	
27	Maire	-	488.12	880.00
28	Muliyar	-	3319.76	2094.19

Sl.No.	Taluks/Villages	Low land	Mid land	High land
29	Meenja	-	2475.45	
30	Munnad	-	367.59	3480.88
31	Neerchal	-		2134.3
32	Nettanige	-		2993.94
33	Obadoor	-	1479.20	465.41
34	Padre	-		3117.09
35	Pady	-	2096.36	1267.03
36	Paivalike	-	2576.5	
37	Vorkady	-	2251.59	
38	Talangare	-	1658.54	
39	Thekkil	-	2378.77	
40	Uppala	-	1895.51	
	Total	**-**	**52565.94**	**47386.95**


Manjeswaram
2
Kasarago
Mld land
Kasaragod(M)
Karadukka
3
High land
KARNATAKA
LAKSHADWEEP SEA
Kanjangad
Parappa
Kanjangad(M)
Neeleswaram(M)
Low land
Neeleswaram
1
KANNUR DISTRICT
N
SCALE 1 : 500,000
PHYSIOGRAPHY
KASARAGOD DISTRICT
Legend
BLOCKS_KSD
1 - Low land
2 - Mld land
3 - High land
District Boundary
KERALA
KASARAGOD
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33

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 lowland are very deep moderately to imperfectly drained sandy soils developed on recent coastal sediments. The midup land soils are very well drained laterite soils with texture predominantly gravelly clay. The highland soils are deep excessively drained forest soil with gravelly clay loam to silly clay texture. The upland soils are very deep excessively drained foothill soils developed from gneissic material with gravelly clay loam to gravelly clay texture.

Table: 8.1

SOILS IN KASARAGOD DISTRICT (COMPREHENSIVE LEGEND)

Soil Mapping Unit	Description Major Soil	Classification	
		Major Soils	Inclusions
K01	Very deep, moderately well drained, sandy soils with moderately shallow water table on very gently sloping subdued sand dunes with slight erosion: Associated with very deep, moderately well drained, sandy soils.	Mixed, Aquic Ustipsamments Mixed Typic Ustipsamments	Fine-loamy, Mixed, Typic Dystropepts Coarse-loamy, Mixed Aquic Ustorthents
K02	Very deep, somewhat excessively drained sandy soils with moderately deep water table on very gently sloping beaches with slight erosion: Associated with very deep, moderately well drained, sandy soils with moderately shallow water table.	Mixed, Typic Ustipsamments Mixed, Aquic Ustipsamments	Coarse-loamy, Mixed Aquic Utorthents Fine, Mixed Aeric Tropaquepts
K05	Very deep, imperfectly drained, clayey soils with shallow water table on level lands with valleys with slight erosion.	Fine, Mixed Typic Dystropepts Fine, Mixed Aeric Tropaquepts	Fine, Mixed Typic Tropaquepts Fine-loamy, Mixed Ustic Kanhaplohumults
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 Kandiustults

Soil Mapping Unit	Description Major Soil	Classification	
		Major Soils	Inclusions
K13	Deep, well drained gravelly clay soils with moderate surface gravellines and ironstone layer at 100 to 150 cm on gently sloping midland laterites with moderate erosion; Associated with laterite outcrops.	Clayey, kaolinitic, Ustic Haplohumults Ironstone	Fine Kaolinitic, Petroferric Dystropepts Loamy-skeletal, mixed Ustic Humitropepts
K20	Deep, some what 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
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

Soil Mapping Unit	Description Major Soil	Classification	
		Major Soils	**Inclusions**
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 Dystropepts	Clayey-skeletal, kaolinitic, Petroferric Dystropepts 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

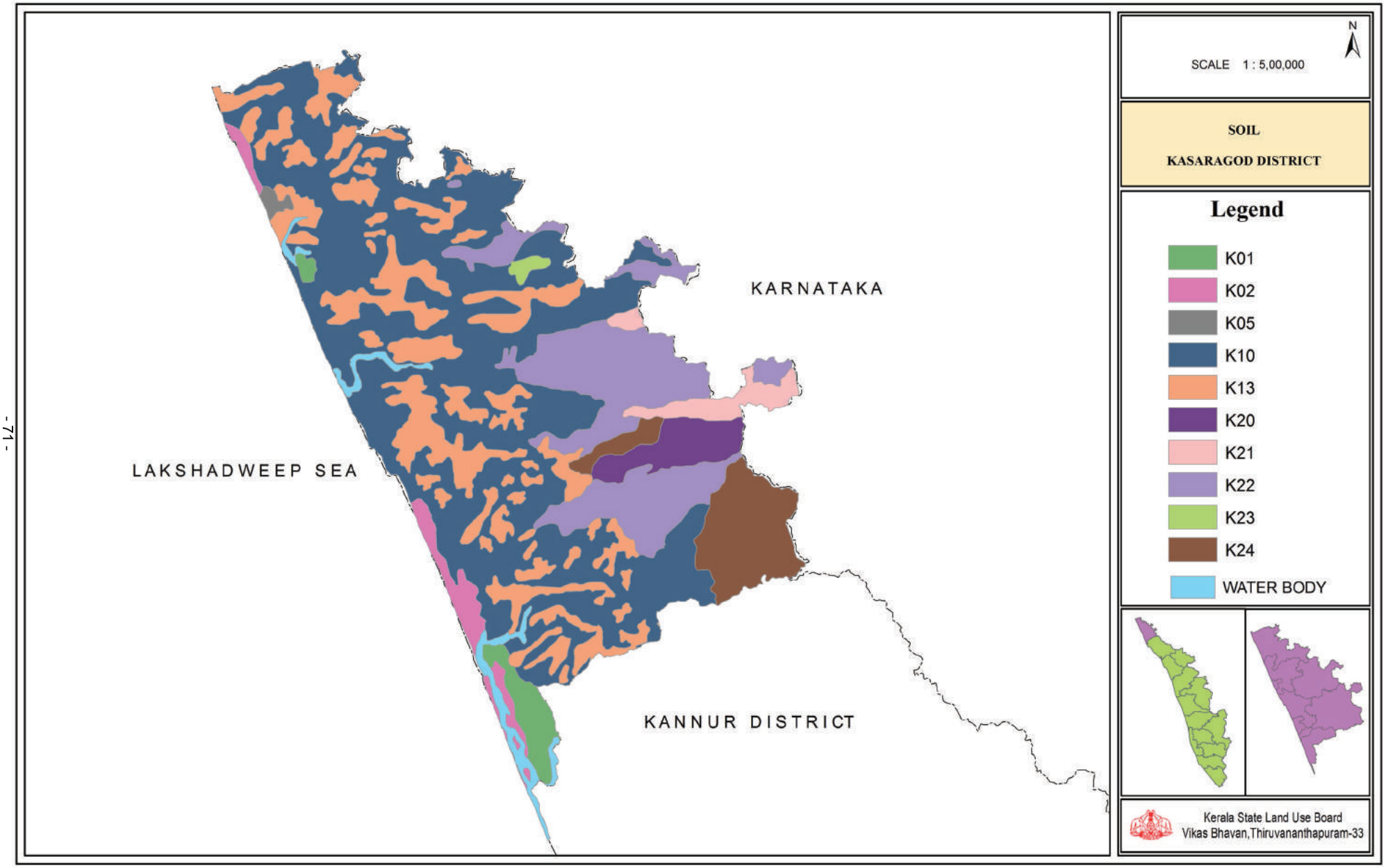
Soils of the Lowland - K01, K02, K05
Soils of the Midland - K10, K13
Soils of the Central Sahyadri - K20, K21, K22, K23, K24

Table: 8.2

LEGEND FOR THE SOIL MAP OF KASARAGOD 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	K10	vd	gc	g	w
5	K13	d	gc	g	w
6	K20	d	gc	s	e
7	K21	md	gc	m	e
8	K22	vd	c	g	w
9	K23	ms	gc	vg	w
10	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	gl	gravelly loam
Drainage		
1	mw	moderately well drained
2	w	well
3	e	excessive
4	i	imperfectly


KARNATAKA
LAKSHADWEEP SEA
KANNUR DISTRICT
N
SCALE 1 : 5,00,000
SOIL
KASARAGOD DISTRICT
Legend
K01
K02
K05
K10
K13
K20
K21
K22
K23
K24
WATER BODY
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33

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
Live storage position (Average for 10 years)				
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 IN KASARAGOD

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 Chandragiri, Kariangode, Shriya, Uppala, Chittari, Nileswaram, Kavvayi, Mogral and Manjeswar.

Chandragiri River

Chandragiri River originates from Pattimala Reserve Forest in coorg and embraces the sea at Thalangara. It has several tributaries of which Payaswini and Chandragiri hole are the main one.

Kariangode River

Kariangode River originates from Pandinallkad ghat Reserve Forest of Codage in Karnataka. Its two main tributaries are the Mundore and the

Pandimala. Almost all the main streams of the river flow in a South westerly direction.

Shiriya River

This river originates from Anekudu Reserve Forest in Karnataka. The Pallatadka tributary of Shiriya River originates from Karnataka Reserve Forest and joins the main river from the left in Angadimoragu village.

Uppala River

The Uppala River rises from the Virakamba hills in Karnataka State enter Kerala in Kasaragod taluk. It flows through the villages Minja, Kuluru, Bekuru and Koodibal. The upper reaches of the river falling in Karnataka are known as Vittal hole near Padanuru and Anekal hole near Kolnad.

Chittari River

The Chittari basin includes the watersheds of the river the Kalnad, the Bakel and the Chittari. The Kalnad originates from Chettianchal hillocks. The Bakel River formed by the confluence of its two main tributaries originating from Kaniyadka and Maladka. The Bakel River is formed by the confluence of its two main tributaries originating from Kaniyadka and Maladka. In the initial reaches the river is known as Bare Hole. The Chittari River is formed by a number of rivulets originating from Cherambe, Tayakolam and Pullur which flow down to form a backwater before emptying into the Arabian Sea. Hosdurg is the only important town in the basin.

Nileswaram River

Rising from Kinanur in Hosdurg taluk, the Nileswar River is known as Kubal Pallichal in its initial reaches. Its two main tributaries are the Aryangal thodu and the Baigote. It joins the Kariangode River at a place called Kottapuram near Achanthuruthu situated south-west of Nileswar town.

Kavvayi River

This is a small river which originates in Cheemeni Village and flows past Alpadamba and Vadasseri, before emptying into the Kavvayi backwaters.

Mogral River

This river originates from Kanathur in Karadka Reserve Forest, in Kasargod taluk. The river has a length of 34 km. of which a distance of 20km. from the sea mouth is tidal. It has a drainage area of 132 sq.km.

Manjeswar River

Manjeswar River is the northern most river of the State, originates from Balepuni Hills lying along the northern border of Kerala State Karnataka at about +60m above M.S.L. The river flows through the villages of Vorkadi, Paruvi and Badaje. Manjeswar is the only important town in the basin situated near the coast.

RIVERS OF KERALA

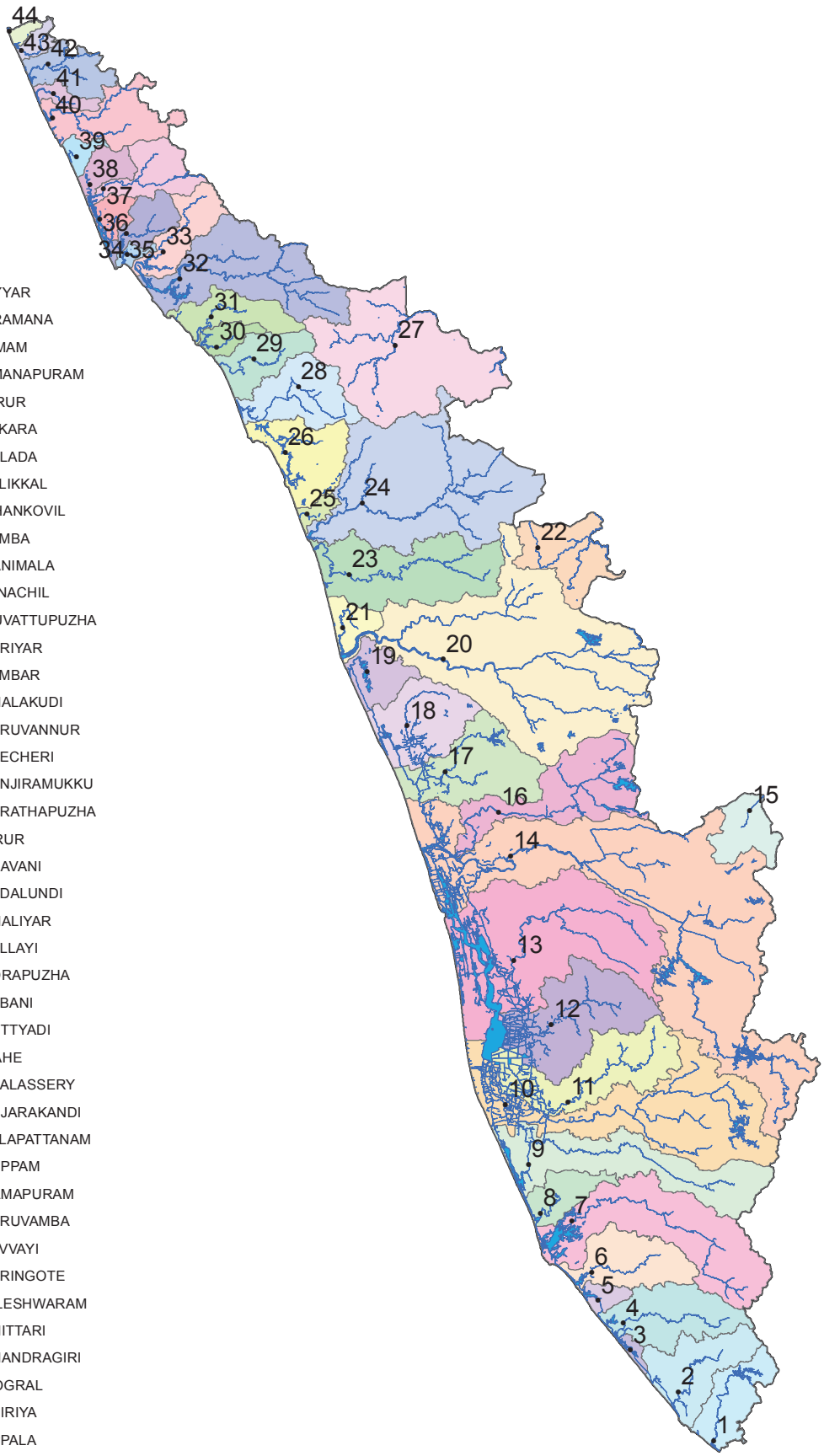


Table: 9.2

GROUND WATER STATISTICS KASARAGOD (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	Kanhangad	Non-Command	3507.66	67.18	0.00	395.77	3970.60	397.06
2	Karaduka	Non-Command	5872.68	205.43	0.00	1172.88	7250.98	725.10
3	Kasaragod	Non-Command	4219.93	131.55	0.00	762.71	5114.18	511.42
4	Manjeswar	Non-Command	5898.00	176.22	0.00	990.91	7065.13	706.51
5	Nileswaram	Non-Command	3428.86	53.01	0.00	322.26	3804.12	380.41
6	Parappa	Non-Command	8111.70	181.59	0.00	1045.30	9338.59	933.86
Total (Ha.m)		**Non-Command**	**31038.83**	**814.96**	**0.00**	**4689.82**	**36543.61**	**3654.36**
Total (MCM)		**Non-Command**	**310.39**	**8.15**	**0.00**	**46.90**	**365.44**	**36.54**

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	Kanhangad	3573.54	1404.90	1291.98	2696.88	1488.11	680.53	75.47
2	Karaduka	6525.89	4160.24	819.09	4979.34	940.68	1424.96	76.30
3	Kasaragod	4602.77	2704.90	1527.90	4234.80	1760.48	135.39	91.01
4	Manjeswar	6358.62	3592.94	1116.39	4709.33	1285.59	1480.09	74.06
5	Nileswaram	3423.71	1129.31	981.86	2111.17	1128.04	1166.36	61.66
6	Parappa	8404.73	3710.54	1037.49	4748.03	1194.61	3499.58	56.49
Total (Ha.m)		**32889.25**	**16704.82**	**6774.71**	**23479.53**	**7797.51**	**8386.91**	**71.39**
Total (MCM)		**328.89**	**167.05**	**67.75**	**234.80**	**77.98**	**83.87**	**71.39**

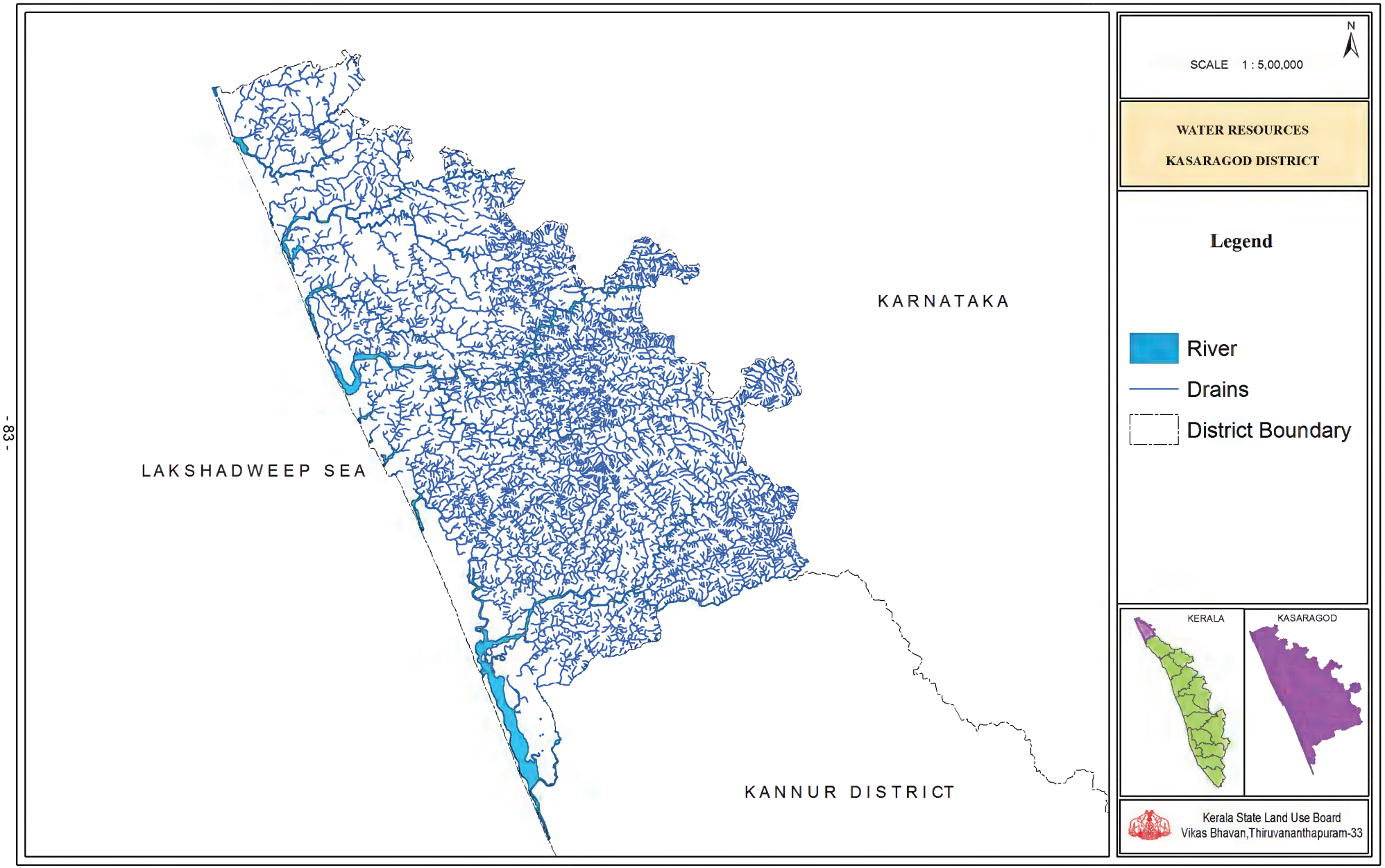
Table: 9.3

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	Kanhangad	75.47	-6.79	No	-1.65	No	*Semi Critical
2	Karaduka	76.30	-8.36	No	5.64	No	*Semi Critical
3	Kasaragod	92.01	-29.14	No	-2.94	No	* Critical
4	Manjeswar	74.06	-7.15	No	-8.89	No	*Semi Critical
5	Nileswaram	61.66	-1.86	No	-3.97	No	Safe
6	Parappa	56.49	1.93	No	3.86	No	Safe

*Water levels not representative

Source: Central Ground Water Board


KARNATAKA
LAKSHADWEEP SEA
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N
SCALE 1 : 5,00,000
WATER RESOURCES
KASARAGOD DISTRICT
Legend
River
Drains
District Boundary
KERALA
KASARAGOD
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.

The important mineral deposits in Kasaragod district are china clay and bauxite. Good deposits of china clay have been identified around Nileswar, Uppala, Periyar and Meeyapadavu areas of the district. Good quality bauxite deposits have been identified near Kumbla and Nileswar areas. Minor minerals like laterite, granite, river sand and ordinary clay are also quarried in this district.

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, Kanjirottussery, 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, saggers, 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.

Sl. No.	Name of Minerals	Occurrence	Reserves (Million Tonnes)	Uses
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 2009-10

Sl. No.	Districts	Name of Mineral						
		Granite building stone	Laterite	Brick clay	Ordinary sand	Sea shell	Lime shell	Total
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
11	Kozhikode	260	106	31	3	0	0	400
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**
	Total	**2389**	**1643**	**105**	**492**	**0**	**0**	**4629**

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	Kozhikode				1						1
12	Wayanad										
13	Kannur			5							
14	**Kasaragod**			**1**							
	Total	**1**	**30**	**7**	**1**		**6**	**4**	**1**	**30**	**1**

Table: 10.4

PRODUCTION OF MAJOR MINERALS IN KERALA

(Production in tonnes)

Sl. 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

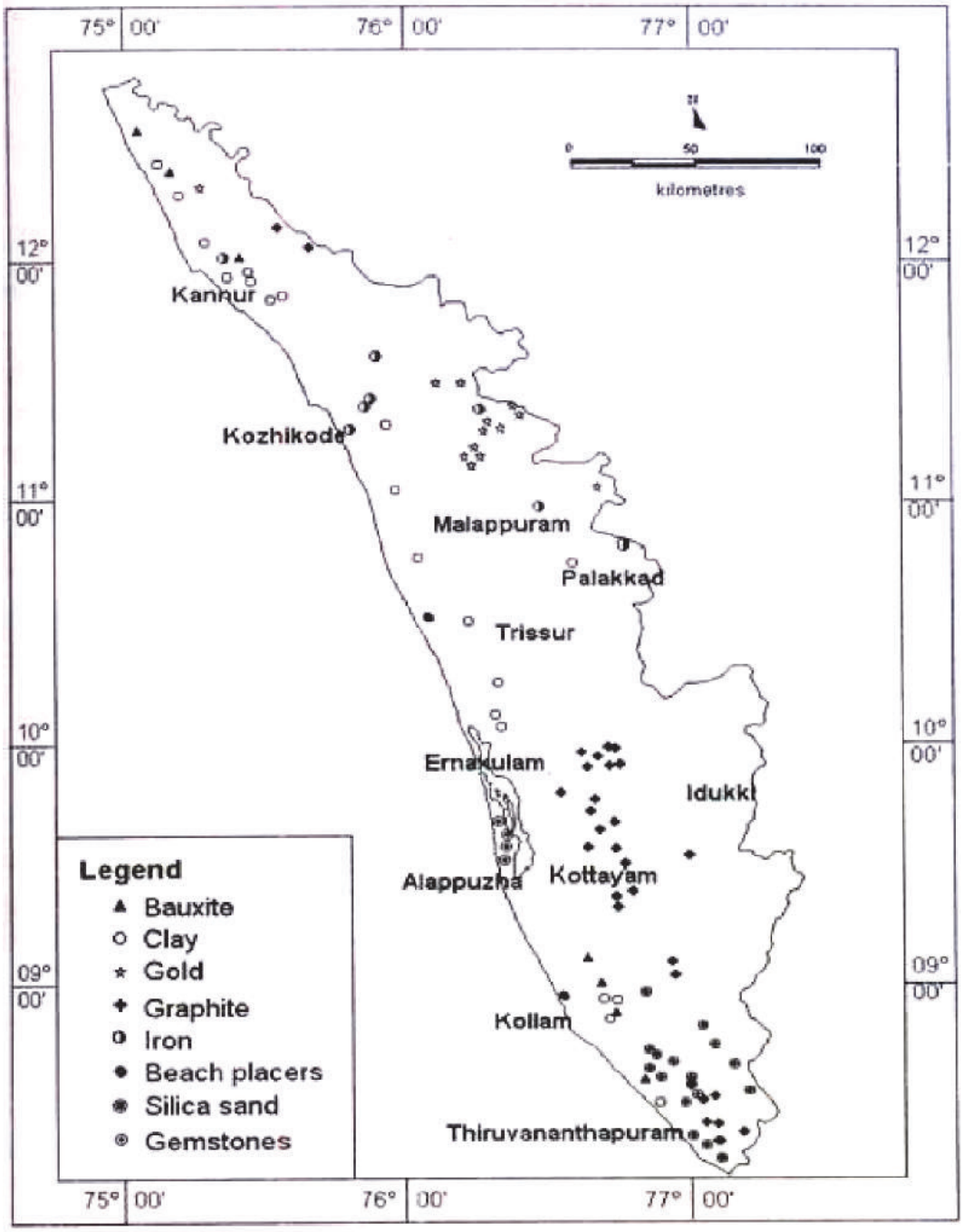
PRODUCTION OF MINOR MINERALS IN KERALA

(Production in tonnes)

Sl. 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 2011, DES

Mineral reserves (2000-01)



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

Source: 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

Kasaragod

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 Kasaragod 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 142666.75 ha accounting for 71.66% 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 11143.92 ha, which is 5.59% 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 30363.87 ha. accounting for 15.25% of the total geographical area.

iv) Water bodies

It is an area of impounded water, area in extent and often with a regulated flow of water. It includes manmade reservoirs/lakes/tanks/canals, besides natural lakes, rivers/streams and creeks. The water bodies mapped occupy an area of 4911.03 ha. accounting for 2.46% of the total geographical area.

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 - KASARAGOD

Sl. No.	Category	Area (Ha.)
1	Agriculture plantation (Banana)	81.22
2	Agriculture plantation (Cardamom)	735.13
3	Agriculture Plantation (Cashew)	26228.22
4	Agriculture Plantation (Coconut)	3511.33
5	Agriculture Plantation (Coffee & Cardamom)	87.25
6	Agriculture Plantation (Pepper)	2820.64
7	Agriculture Plantation (Rubber)	9904.43
8	Agriculture Plantation (Teak)	1064.94
9	Agriculture plantation Mixed crops	40043.15

Sl. No.	Category	Area in ha.
10	Agriculture plantation Mixed trees	10041.74
11	Barren Rocky/Stony Waste/Sheet Rock	1798.03
12	Beaches	526.88
13	Built-up land (Commercial)	1009.33
14	Built-up land (Rural)	7161.73
15	Coconut dominant mixed crop	39914.85
16	Crop land - Paddy (Virippu + Mundakan)	4499.94
17	Cultivable waste land	213.83
18	Dense mixed forest	6833.61
19	Dense mixed forest(R.F)	3763.50
20	Forest Plantation - Teak (R.F)	538.12
21	Land with scrub	29221.01
22	Land without scrub	61.04
23	Mining	22.59
24	Open mixed forest	8.69
25	Paddy converted to Banana	88.22
26	Paddy converted to Coconut	3645.69
27	River/stream/waterbodies	4911.03
28	Sands/riverine	9.26
29	Underutilized/degraded notified forest	331.85
	Total	**199077.25**

Table: 11.2

KANHANGAD BLOCK

(Area in Ha)

Sl.No.	Land Use	Ajanoor	Madikkai	Pallikkara	Pulloor-Periya	Uduma
1	Agriculture plantation (Banana)					
2	Agriculture plantation (Cardamom)					
3	Agriculture plantation (Cashew)	277.15	1466.06	526.11	2619.09	
4	Agriculture plantation (Coconut)	28.91			4.28	71.40
5	Agriculture plantation (Coffee & Cardamom)					
6	Agriculture plantation (Mixed crops)	103.98	67.52	521.62	279.93	295.01
7	Agriculture plantation (Mixed trees)		107.34			
8	Agriculture plantation (Pepper)		20.20			
9	Agriculture plantation (Rubber)		1.92			
10	Agriculture plantation (Teak)					
11	Barren rocky/Stony waste/Sheet rock		200.59	117.09	255.30	
12	Beaches	35.90		12.97		45.50
13	Built-up land (Commercial)	29.96	19.13	8.87	19.74	6.43
14	Built-up land (Rural)	118.23	215.25	230.56	175.08	119.18
15	Coconut dominant mixed crop	1335.39	1156.23	914.08	279.97	1295.98
16	Crop land - Paddy (Virippu+Mundakan)	256.08	72.74	200.14	61.80	84.65
17	Cultivable wasteland	82.14	4.55	1.70		
18	Dense mixed forest					
19	Dense mixed forest (R.F)					
20	Forest plantation - Teak (R.F)					
21	Land with scrub	338.25	1710.68	1160.51	2352.29	393.77
22	Land without scrub		2.68	25.59	10.95	
23	Mining		11.41			
24	Open mixed forest					
25	Paddy converted to banana					
26	Paddy converted to coconut	235.95	2.67	21.00	80.69	81.74
27	River/Stream/Waterbodies	171.99	31.46	162.40	61.01	54.39
28	Sands/riverine					
29	Under utilized/degraded notified forest					
	Panchayat Total	**3013.93**	**5090.43**	**3902.64**	**6200.13**	**2448.05**
	Block Total			**20655.18**		

Table: 11.3

KARADUKKA BLOCK

(Area in Ha)

Sl. No.	Land Use	Bedaduka	Belloor	Delampady	Karadukka	Kumbadaje	Kuttikol	Muliyar
1	Agriculture plantation (Banana)			12.40				
2	Agriculture plantation (Cardamom)							
3	Agriculture plantation (Cashew)	4438.14	370.95	1084.46	1466.02	416.80	1753.37	3157.37
4	Agriculture plantation (Coconut)			17.27	62.34	69.95		
5	Agriculture plantation (Coffee & Cardamom)			3.77		25.85		
6	Agriculture plantation (Mixed crops)	209.69	614.57	554.77	547.29	591.99	2101.76	333.74
7	Agriculture plantation (Mixed trees)	100.22		6.71		2.68	353.43	
8	Agriculture plantation (Pepper)	30.66					88.67	
9	Agriculture plantation (Rubber)	6.95	2.99				272.46	
10	Agriculture plantation (Teak)			199.60	214.12	369.62	20.98	139.60
11	Barren rocky/Stony waste/Sheet rock	35.35			10.03	17.03		50.58
12	Beaches							
13	Built-up land (Commercial)							
14	Built-up land (Rural)	90.74	173.40	174.57	80.10	126.01	148.53	248.71
15	Coconut dominant mixed crop	68.06	851.01	227.23	786.90	1086.69	25.46	529.44
16	Crop land - Paddy (Virippu+Mundakan)	13.03	82.88	88.30	27.36	115.44	16.28	77.23
17	Cultivable wasteland							
18	Dense mixed forest		753.68	3443.04	57.61		740.82	
19	Dense mixed forest (R.F)			1313.82				
20	Forest plantation - Teak (R.F)			538.12				
21	Land with scrub	3251.96	145.12	1120.47	391.26	188.07	1086.31	791.69
22	Land without scrub	1.17			1.86	3.73		
23	Mining	11.18						
24	Open mixed forest			8.69				
25	Paddy converted to banana							
26	Paddy converted to coconut			77.01	92.74	4.69	3.00	1.68
27	River/Stream/Waterbodies	188.04	11.10	189.62	47.64	22.06	25.33	170.02
28	Sands/riverine							
29	Under utilized/degraded notified forest	7.37	12.01	47.36	12.05	18.77	7.95	
	Panchayat Total	**8452.56**	**3017.71**	**9107.21**	**3797.32**	**3059.38**	**6644.35**	**5500.06**
	Block Total	**39578.59**						

Table: 11.4

KASARAGOD BLOCK

(Area in Ha)

Sl.No.	Land Use	Badiyaduka	Chemmanad	Chengala	Kumbala	Madhur	Mogral-Puthur
1	Agriculture plantation (Banana)		6.77				1.30
2	Agriculture plantation (Cardamom)						
3	Agriculture plantation (Cashew)	611.72	251.60	338.93			
4	Agriculture plantation (Coconut)	345.19	118.96	115.36	35.84	162.36	307.71
5	Agriculture plantation (Coffee & Cardamom)	48.82					
6	Agriculture plantation (Mixed crops)	970.14	415.15	460.50	1589.16	449.64	99.74
7	Agriculture plantation (Mixed trees)	20.21					
8	Agriculture plantation (Pepper)						
9	Agriculture plantation (Rubber)						
10	Agriculture plantation (Teak)	66.95		36.91			
11	Barren rocky/Stony waste/Sheet rock	57.38	9.17	14.16			
12	Beaches		32.36		61.67		63.61
13	Built-up land (Commercial)		60.01		25.68	2.97	25.01
14	Built-up land (Rural)	201.00	241.98	938.82	65.25	348.49	209.82
15	Coconut dominant mixed crop	2703.60	1651.13	2305.53	998.49	1154.36	597.42
16	Crop land - Paddy (Virippu+Mundakan)	173.55	27.33	143.04	356.19	233.40	213.08
17	Cultivable wasteland				1.65		2.35
18	Dense mixed forest	34.57					
19	Dense mixed forest (R.F)						
20	Forest plantation - Teak (R.F)						
21	Land with scrub	1449.76	852.32	980.21	138.73	183.57	26.25
22	Land without scrub						
23	Mining						
24	Open mixed forest						
25	Paddy converted to banana		3.05			1.04	23.23
26	Paddy converted to coconut	10.20	129.96	81.79	272.55	169.42	169.71
27	River/Stream/Waterbodies	37.24	103.30	98.69	208.27	14.97	89.15
28	Sands/riverine	2.00			3.99		
29	Under utilized/degraded notified forest						
	Panchayat Total	**6732.33**	**3903.09**	**5513.94**	**3757.47**	**2720.22**	**1828.38**
	Block Total	**24455.43**					

Table: 11.5

MANJESWARAM BLOCK

(Area in Ha)

Sl. No	Land Use	Enmakaje	Mangal ppady	Manje swaram	Meenja	Paivalike	Puthige	Vorkady
1	Agriculture plantation (Banana)		1.41			5.22	8.09	26.82
2	Agriculture plantation (Cardamom)							
3	Agriculture plantation (Cashew)	1276.56				89.23	30.31	
4	Agriculture plantation (Coconut)	253.01	98.06			68.74	208.49	
5	Agriculture plantation (Coffee & Cardamom)	8.75						
6	Agriculture plantation (Mixed crops)	1057.21	1202.89	1254.33	608.18	1858.40	1295.16	849.47
7	Agriculture plantation (Mixed trees)	503.07			4.20		8.62	
8	Agriculture plantation (Pepper)							
9	Agriculture plantation (Rubber)							
10	Agriculture plantation (Teak)							
11	Barren rocky/Stony waste/Sheet rock	130.76				248.38	85.86	5.92
12	Beaches		124.60	86.46				
13	Built-up land (Commercial)	10.73					2.42	
14	Built-up land (Rural)	212.19	119.69	49.97	31.44	379.74	185.56	173.02
15	Coconut dominant mixed crop	2222.69	1424.07	1279.96	2442.46	2753.71	1508.97	2243.52
16	Crop land - Paddy (Virippu+Mundakan)	22.08	157.53	101.82	108.21	66.25	70.37	63.93
17	Cultivable wasteland							
18	Dense mixed forest	150.85						
19	Dense mixed forest (R.F)							
20	Forest plantation - Teak (R.F)							
21	Land with scrub	1763.38	142.46	16.83	1242.62	1537.40	258.89	763.11
22	Land without scrub	2.08				2.07		
23	Mining							
24	Open mixed forest							
25	Paddy converted to banana							
26	Paddy converted to coconut	107.25	327.61	6.64	19.64	56.76	96.66	41.45
27	River/Stream/Waterbodies	100.46	156.76	67.33	52.79	71.15	85.06	35.05
28	Sands/riverine							
29	Under utilized/degraded notified forest	13.13					8.45	
	Panchayat Total	**7834.20**	**3755.08**	**2863.34**	**4509.54**	**7137.05**	**3852.91**	**4202.29**
	Block Total	**34154.41**						

Table: 11.6

NEELESWARAM BLOCK

(Area in Ha)

Sl. No.	Land Use	Cheruvathur	Kayyur-Cheemeni	Padanna	Pilicode	Thrikkarippur	Valiya paramba
1	Agriculture plantation (Banana)						
2	Agriculture plantation (Cardamom)						
3	Agriculture plantation (Cashew)		909.07	10.80	1596.22	1134.61	
4	Agriculture plantation (Coconut)	358.92	60.24	78.44	82.68	13.38	736.31
5	Agriculture plantation (Coffee & Cardamom)						
6	Agriculture plantation (Mixed crops)	11.52	142.59				
7	Agriculture plantation (Mixed trees)		1.21				
8	Agriculture plantation (Pepper)		169.88				
9	Agriculture plantation (Rubber)	207.91	4017.18		27.25		
10	Agriculture plantation (Teak)						
11	Barren rocky/Stony waste/Sheet rock	6.70	3.89		84.27		
12	Beaches			5.29			46.21
13	Built-up land (Commercial)	6.01		212.16	70.43	242.39	22.19
14	Built-up land (Rural)	147.51	114.25	22.81	109.87	56.90	12.84
15	Coconut dominant mixed crop	540.16	7.00	435.43	107.81	98.92	123.16
16	Crop land - Paddy (Virippu+Mundakan)	56.45	113.95	193.83	156.56	169.46	41.53
17	Cultivable wasteland					4.48	
18	Dense mixed forest						
19	Dense mixed forest (R.F)						
20	Forest plantation - Teak (R.F)						
21	Land with scrub	57.96	1451.81		274.59	2.96	
22	Land without scrub						
23	Mining						
24	Open mixed forest						
25	Paddy converted to banana						
26	Paddy converted to coconut	168.58	156.70	240.00	282.12	180.49	
27	River/Stream/Waterbodies	183.13	158.90	290.51	7.04	193.00	772.82
28	Sands/riverine			2.23			
29	Under utilized/degraded notified forest						
	Panchayat Total	**1744.85**	**7306.67**	**1491.50**	**2798.84**	**2096.59**	**1755.06**
	Block Total			**17193.51**			

Table: 11.7

PARAPPA BLOCK

(Area in Ha)

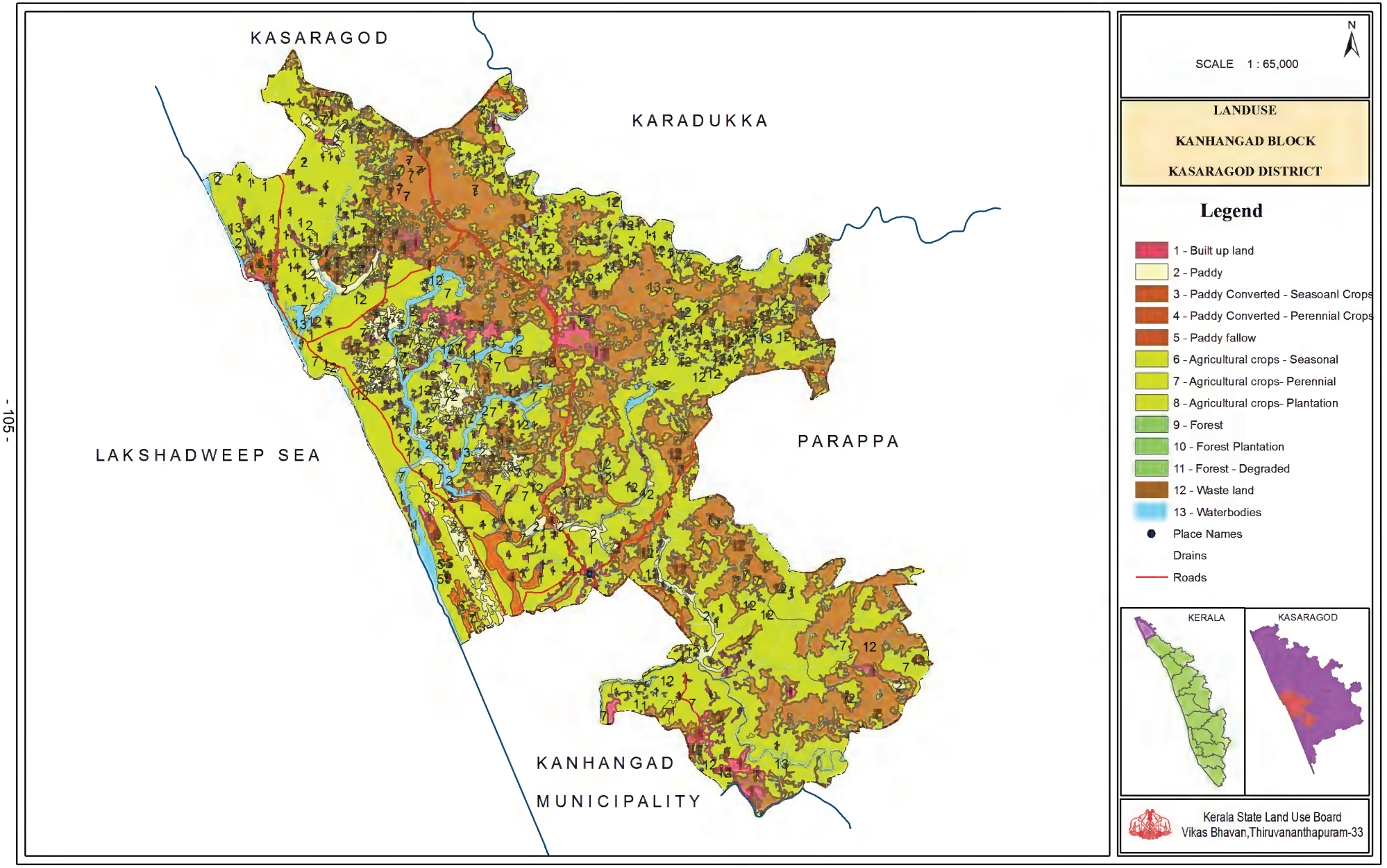
Sl. No.	Land Use	Balal	East-Eleri	Kallar	Kinanoor-Karindalam	Kodom-Beloor	Panathadi	West-Eleri
1	Agriculture plantation (Banana)							
2	Agriculture plantation (Cardamom)	720.08	19.95					
3	Agriculture plantation (Cashew)	137.56		411.21	564.25	1026.98		85.22
4	Agriculture plantation (Coconut)				78.53			1.98
5	Agriculture plantation (Coffee & Cardamom)							
6	Agriculture plantation (Mixed crops)	3206.89	5139.22	605.86	1766.30	777.47	4228.99	5505.24
7	Agriculture plantation (Mixed trees)	580.88		2509.42	1254.58	4501.12	23.85	70.50
8	Agriculture plantation (Pepper)	1016.09	162.41	247.84	349.28	223.19	119.78	384.93
9	Agriculture plantation (Rubber)	2039.34	123.00	144.61	349.17	365.31	1923.65	425.08
10	Agriculture plantation (Teak)			17.16				
11	Barren rocky/Stony waste/Sheet rock	2.83			71.40	352.97		
12	Beaches							
13	Built-up land (Commercial)	27.43			24.99	70.21		
14	Built-up land (Rural)	104.60	45.63	191.43	277.03	146.88	91.16	63.83
15	Coconut dominant mixed crop		164.68	2.47	1738.10	431.70	13.42	322.11
16	Crop land - Paddy (Virippu+Mundakan)	16.14		40.08	28.94	59.52	3.43	
17	Cultivable wasteland							
18	Dense mixed forest	803.23		800.01	2.86	1.10	13.45	
19	Dense mixed forest (R.F)		1.22				2119.42	285.79
20	Forest plantation - Teak (R.F)							
21	Land with scrub	761.99	254.28	267.40	1121.09	1368.79	96.43	557.14
22	Land without scrub		8.84					
23	Mining							
24	Open mixed forest							
25	Paddy converted to banana							
26	Paddy converted to coconut							
27	River/Stream/Waterbodies	18.60	74.42	91.45	81.87	32.11	38.32	92.30
28	Sands/riverine							
29	Under utilized/degraded notified forest	2.53	31.74	2.55		33.09	133.73	
	Panchayat Total	**9438.19**	**6025.39**	**5331.49**	**7708.39**	**9390.44**	**8805.63**	**7794.12**
	Block Total	**54493.65**						

Table: 11.8

MUNICIPALITY

(Area in Ha)

Sl. No.	Land Use	Kanhangad Municipality	Kasaragod Municipality	Neeleswaram Municipality
1	Agriculture plantation (Banana)	14.47	2.00	1.75
2	Agriculture plantation (Cardamom)			
3	Agriculture plantation (Cashew)	164.46		5.87
4	Agriculture plantation (Coconut)	39.65	53.44	123.46
5	Agriculture plantation (Coffee & Cardamom)			
6	Agriculture plantation (Mixed crops)	30.76	242.45	5.95
7	Agriculture plantation (Mixed trees)			
8	Agriculture plantation (Pepper)			
9	Agriculture plantation (Rubber)			
10	Agriculture plantation (Teak)			
11	Barren rocky/Stony waste/Sheet rock	22.00		11.80
12	Beaches	70.90	45.46	32.43
13	Built-up land (Commercial)	76.40		45.43
14	Built-up land (Rural)	327.50	214.34	172.17
15	Coconut dominant mixed crop	1768.46	727.28	1581.72
16	Crop land - Paddy (Virippu+Mundakan)	616.53	64.53	105.28
17	Cultivable wasteland	116.96		
18	Dense mixed forest			
19	Dense mixed forest (R.F)			
20	Forest plantation - Teak (R.F)			
21	Land with scrub	347.86	2.33	345.15
22	Land without scrub			
23	Mining			
24	Open mixed forest			
25	Paddy converted to banana	58.62	1.35	
26	Paddy converted to coconut	377.85	62.52	76.05
27	River/Stream/Waterbodies	84.85	329.96	223.54
28	Sands/riverine			
29	Under utilized/degraded notified forest			
	Municipality Total	**4117.27**	**1745.66**	**2730.60**


KASARAGOD
KARADUKKA
PARAPPA
LAKSHADWEEP SEA
KANHANGAD
MUNICIPALITY
N
SCALE 1 : 65,000
LANDUSE
KANHANGAD BLOCK
KASARAGOD DISTRICT
Legend
1 - Built up land
2 - Paddy
3 - Paddy Converted - Seasoanl Crops
4 - Paddy Converted - Perennial Crops
5 - Paddy fallow
6 - Agricultural crops - Seasonal
7 - Agricultural crops- Perennial
8 - Agricultural crops- Plantation
9 - Forest
10 - Forest Plantation
11 - Forest - Degraded
12 - Waste land
13 - Waterbodies
Place Names
Drains
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KASARAGOD
Kerala State Land Use Board
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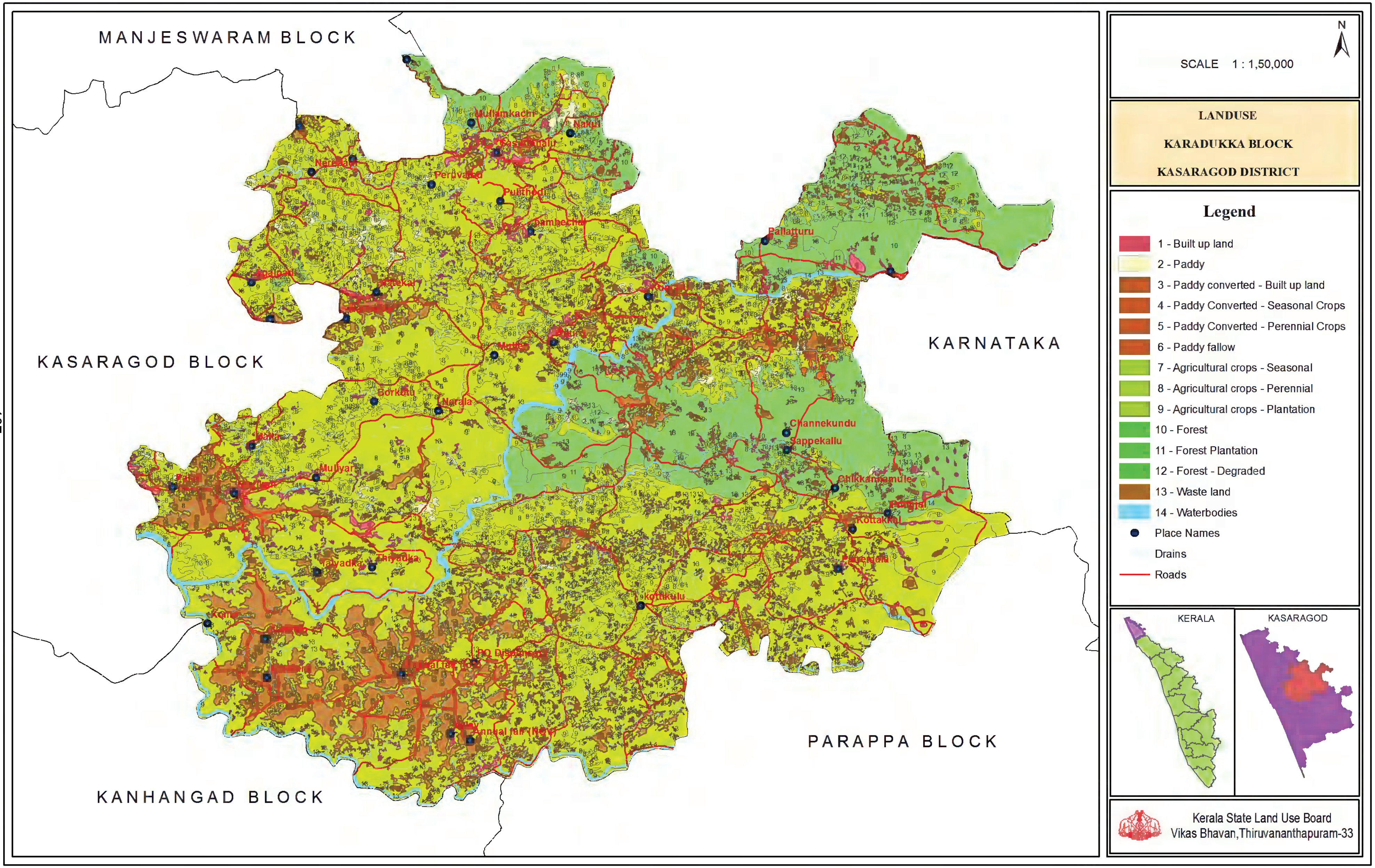
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KASARAGOD BLOCK
KANHANGAD BLOCK
KARNATAKA
PARAPPA BLOCK
Pallatturu
Channekundu
Sappekallu
Narala
Muliyar
N
SCALE 1 : 1,50,000
LANDUSE
KARADUKKA BLOCK
KASARAGOD DISTRICT
Legend
1 - Built up land
2 - Paddy
3 - Paddy converted - Built up land
4 - Paddy 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
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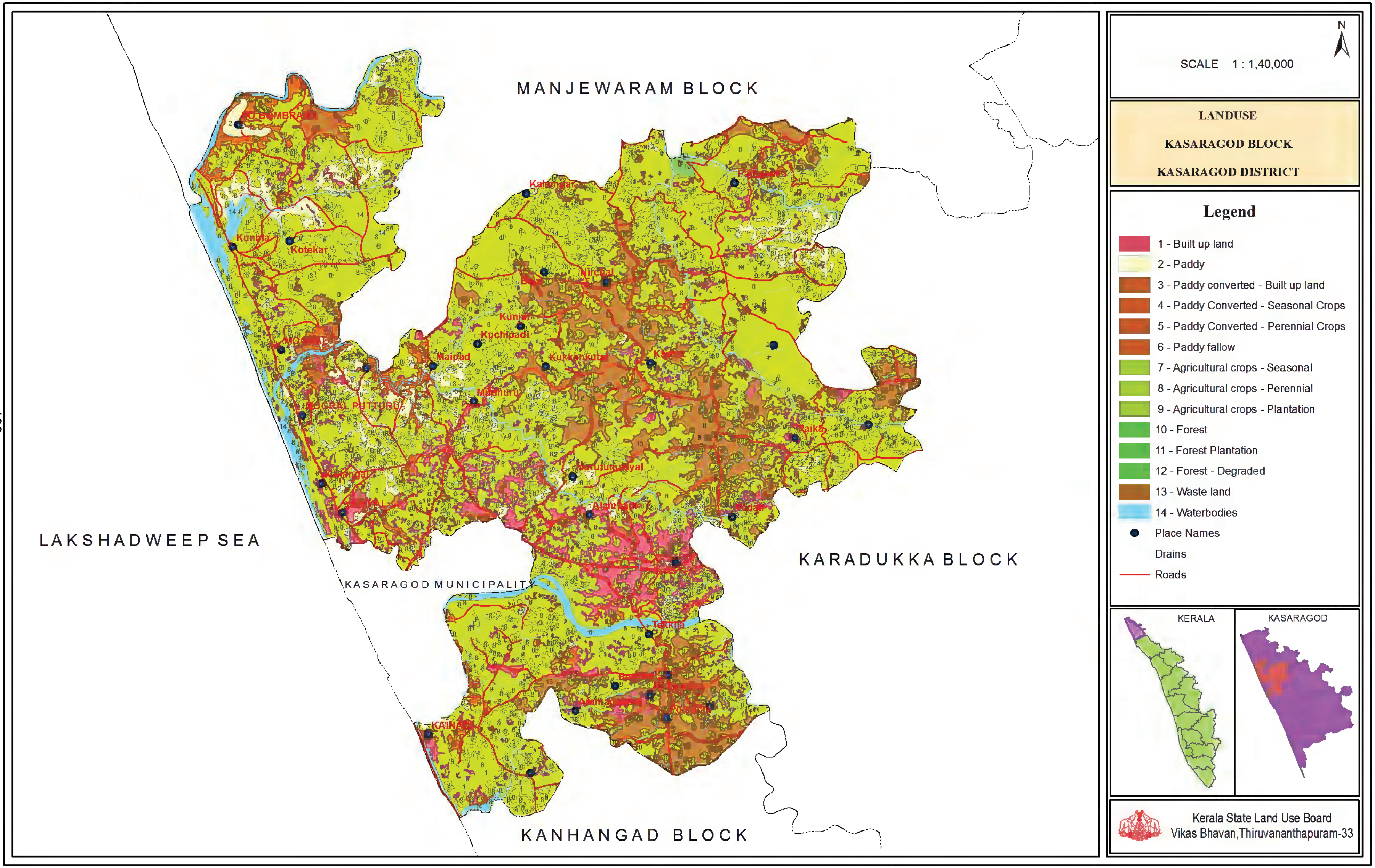
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KASARAGOD DISTRICT
Legend
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4 - Paddy Converted - Seasonal Crops
5 - Paddy Converted - Perennial Crops
6 - Paddy fallow
7 - Agricultural crops - Seasonal
8 - Agricultural crops - Perennial
9 - Agricultural crops - Plantation
10 - Forest
11 - Forest Plantation
12 - Forest - Degraded
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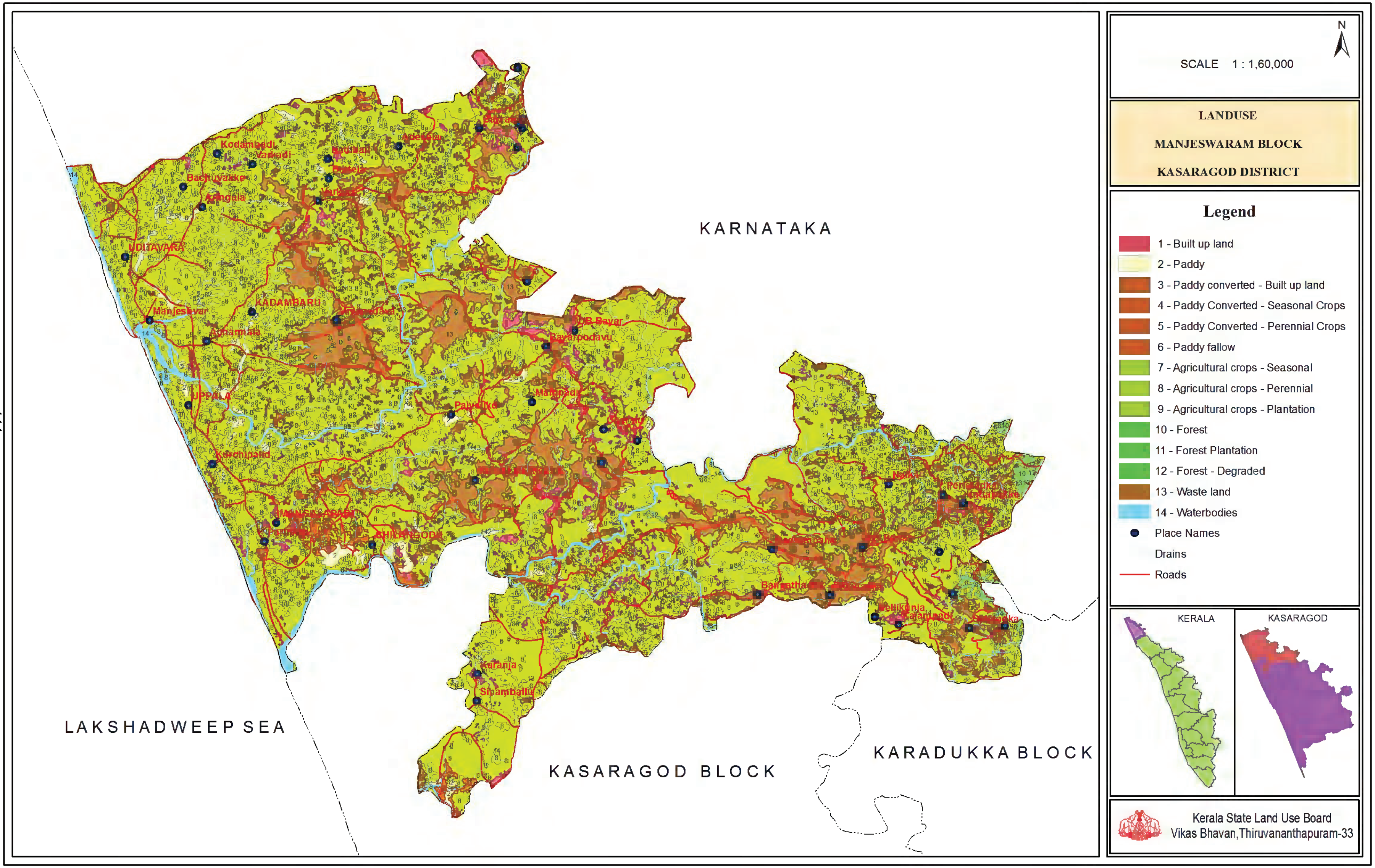
MANJEWARAM BLOCK
KARADUKKA BLOCK
KANHANGAD BLOCK
LAKSHADWEEP SEA
KASARAGOD MUNICIPALITY
Kumbla
Kotekar
Maipad
MOGRAL PUTTURU
Kuchipadi
Marutumvayal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LANDUSE
MANJESWARAM BLOCK
KASARAGOD DISTRICT
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3 - 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
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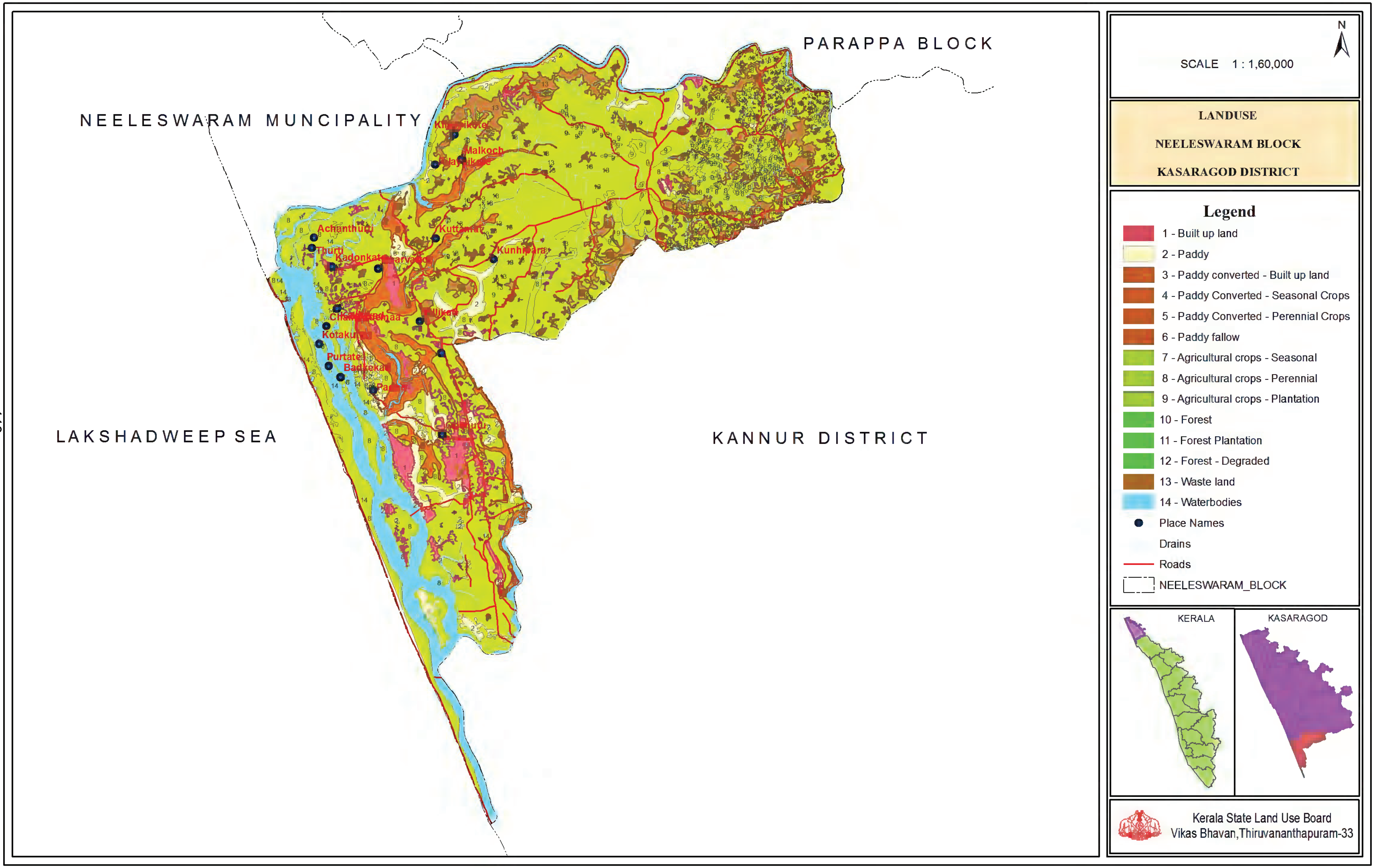
KARNATAKA
LAKSHADWEEP SEA
KASARAGOD BLOCK
KARADUKKA BLOCK
KADAMBARU
UPPALA



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LANDUSE
NEELESWARAM BLOCK
KASARAGOD 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
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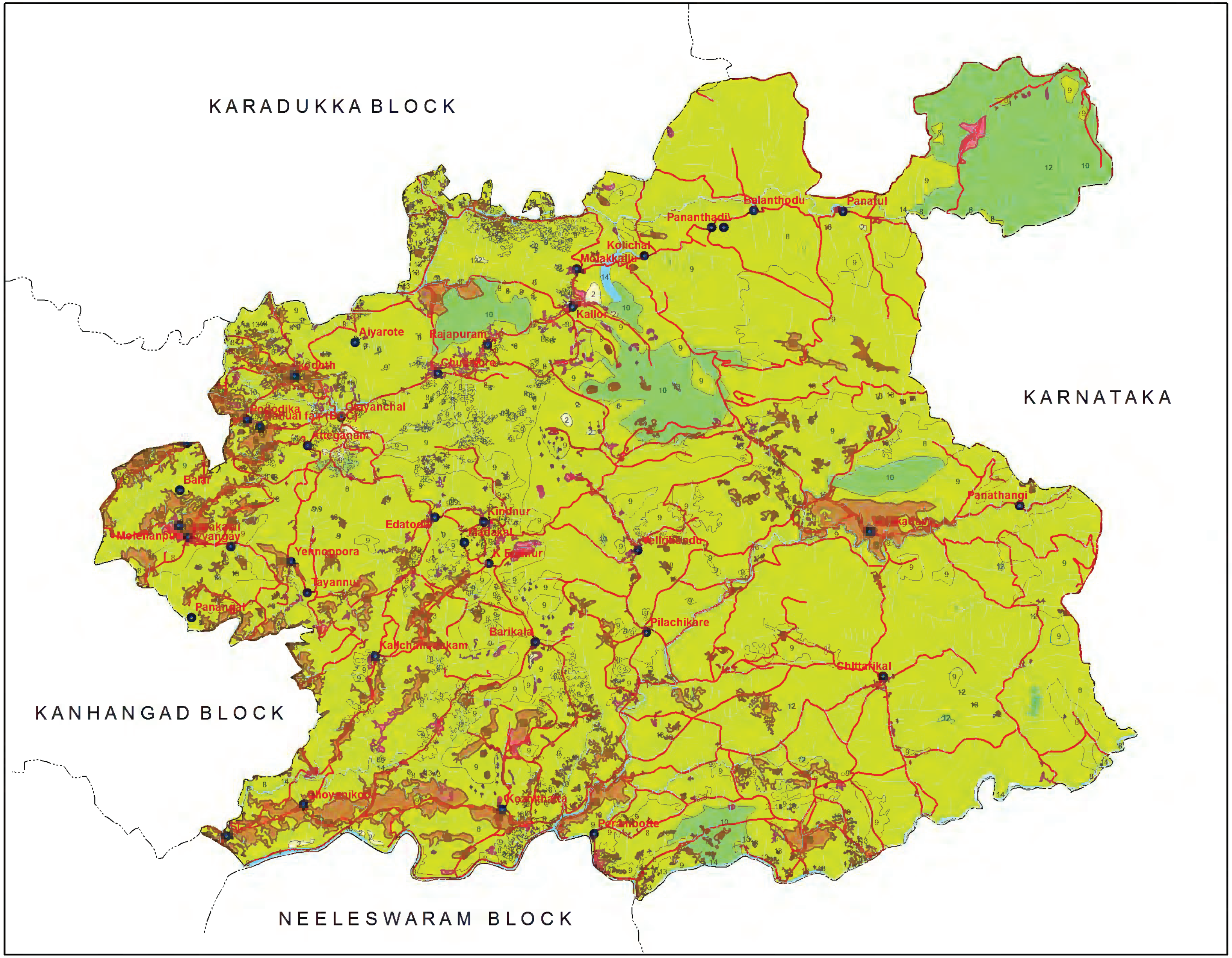
NEELESWARAM_BLOCK
KERALA
KASARAGOD
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33
PARAPPA BLOCK
NEELESWARAM MUNCIPALITY
LAKSHADWEEP SEA
KANNUR DISTRICT



SCALE 1 : 1,70,000

N

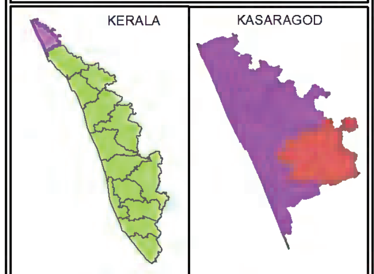
LANDUSE

PARAPPA BLOCK

KASARAGOD 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
- Place Names
- Drains
- Roads



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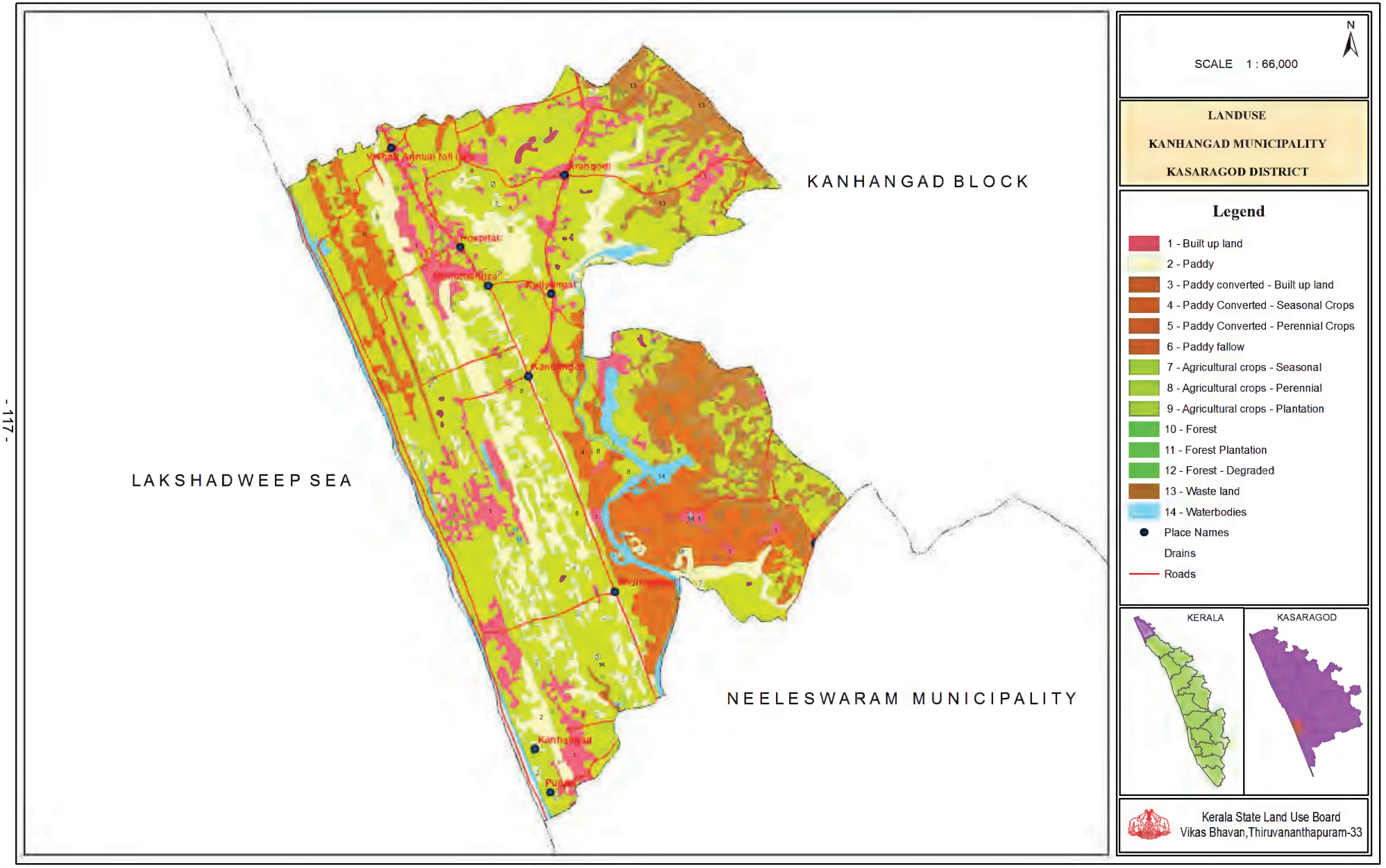
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LAKSHADWEEP SEA
NEELESWARAM MUNICIPALITY
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LANDUSE
KANHANGAD MUNICIPALITY
KASARAGOD DISTRICT
Legend
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2 - Paddy
3 - Paddy converted - Built up land
4 - Paddy Converted - Seasonal Crops
5 - Paddy Converted - Perennial Crops
6 - Paddy fallow
7 - Agricultural crops - Seasonal
8 - Agricultural crops - Perennial
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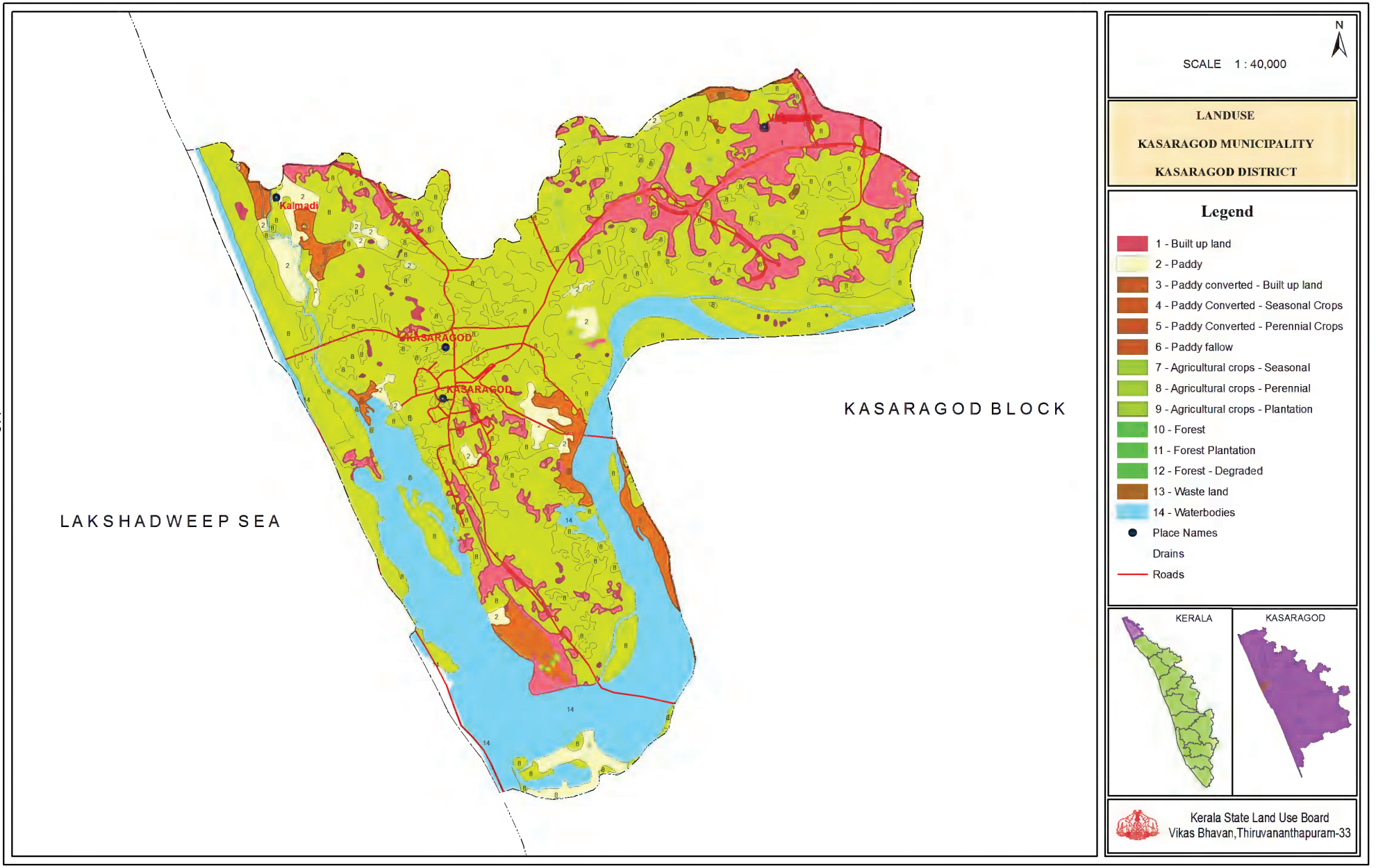
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KASARAGOD BLOCK
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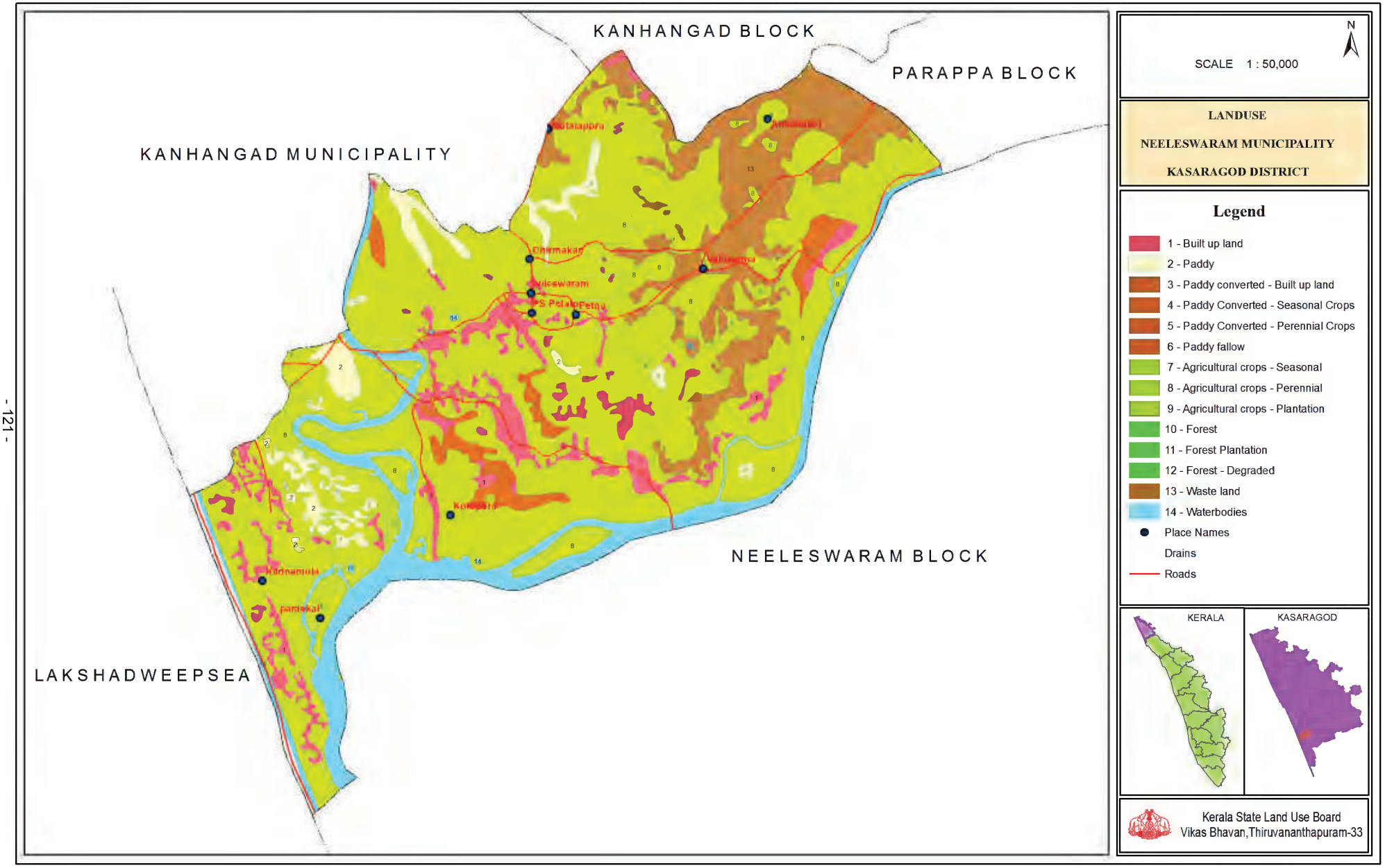
KANHANGAD BLOCK
PARAPPA BLOCK
KANHANGAD MUNICIPALITY
NEELESWARAM BLOCK
LAKSHADWEEPSEA
N
SCALE 1 : 50,000
LANDUSE
NEELESWARAM MUNICIPALITY
KASARAGOD DISTRICT
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BIODIVERSITY

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 10000 plant species are found in the State. Among the 4000 flowering plant species (1272 of which are endemic to Kerala and 159 threatened) almost 900 species are of medicinal plants. Its 9400 km² of forests include tropical wet evergreen and semi-evergreen forests (lower and middle elevations - 3470 km²), tropical moist and dry deciduous forests (mid-elevations - 4100 km² and 100 km² respectively), montane subtropical and temperate (shola) forests (highest elevations- 100 km²). Altogether, 29% of Kerala is forested.

Table: 12.1

PLANT DIVERSITY

Sl. No.	Items	Nos.
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

Sl. No.	Items	Nos.
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 KASARAGOD DISTRICT

Block	Panchayat
Kanhangad	Balal
	Kallar
	Kodom-Belur
	Madikai
	Panathady
	Pullur-Peria
Neeleswar	East Eleri
	Kayyur-Cheemeni
	Kinanur-Karindalam
	Pilicode
	Valiaparamba
	West Eleri

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 Kasaragod district is estimated as 119.73 Sq.km. which is 31.17% of the total area of the district. Kasaragod forest division comprises of two forest division viz. Kanhangad (59.37 Sq.km.) and Kasaragod (60.35 Sq.km.).

Table: 13.1

CLASSIFICATION OF FOREST TYPES AS ON 31-03-2013

Sl.No.	Type	Area (km^2)	% 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
	Total	**11309.47**	**100.00**

Table: 13.2

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

Sl.No.	Mode of Utilisation	Area (km^2)	% 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
	Total	**11309.47**	**100.00**

Table: 13.3

DISTRICT WISE FOREST AREA AS ON 31-03-2013

Sl.No.	District	Area (Km^2)
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
10	Kozhikode	290.45
11	Wayanad	907.04
12	Kannur	241.57
13	**Kasaragod**	**119.73**
	Total	**11309.41**

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
7	Kozhikode	1544.99
8	Wayanad	2814.80
9	Kannur	498.42
10	**Kasaragod**	**396.41**
	Total	**14156.49**

Table: 13.5

DISTRIBUTION OF FOREST AREA ACCORDING TO LEGAL STATUS (KERALA)

(Km^2)

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^2)
1	Kanhangad	59.37
2	Kasaragod	60.35
	Total	**119.73**

Table: 13.7

FOREST AREA (APPROX) BY LEGAL STATUS AS ON 31.03.2013

Sl.No.	Division	Reserve Forest/ Proposed Reserve	Vested Forest + EFL	Total (Km^2)
1	Kasaragod	86.02	33.70	119.73
	Total	**86.02**	**33.70**	**119.73**

Table: 13.8

DISTRICT WISE FOREST COVER IN KERALA (Area in Km^2)

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
11	Kozhikode	2344	31	313	346	690	29.44
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**
	State Total	**38863**	**1529**	**9401**	**6992**	**17922**	**46.12**

Source: Forest Statistics, Forest Department

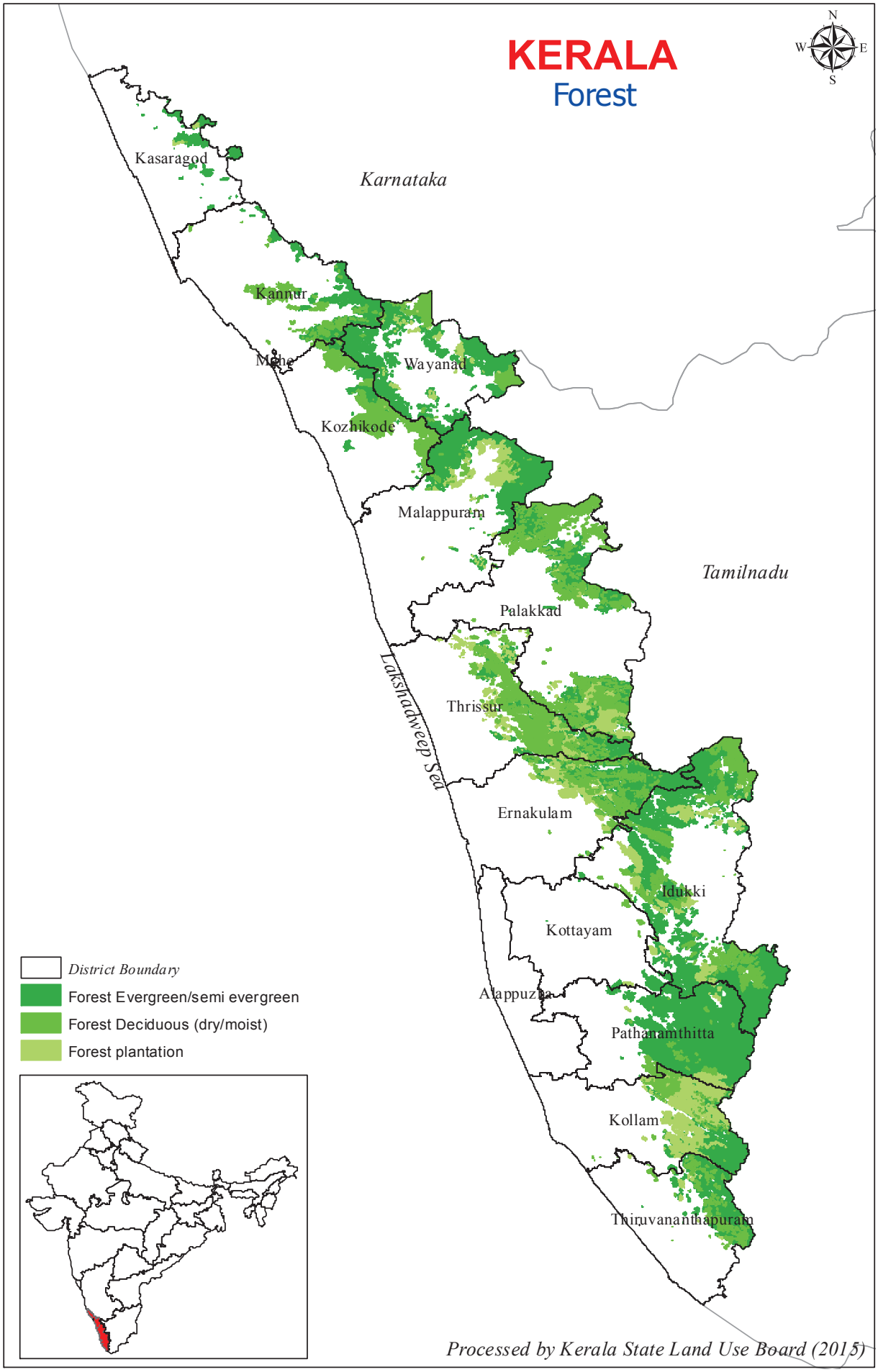
Table: 13.9

TYPES OF FORESTRY

Sl. No.	Type of Forestry	Characteristics
1	**Agroforestry**	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	**Analog Forestry**	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	**Arboriculture**	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	**Close to Nature Forestry**	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	**Community Forestry**	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	**Ecoforestry**	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	**Energy Forestry**	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. The two forms of energy forestry are short rotation coppice and short rotation forestry: • Short rotation coppice is crops of Poplar or Willow, grown for 2 to 5 years before harvest. • Short rotation forestry are crops of Alder, Ash, Birch, Eucalyptus, Poplar, and Sycamore, grown for 8 to 20 years before harvest.
8	**Mycoforestry**	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	**Permaforestry**	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	**Plantation Forestry**	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	**Social Forestry**	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	**Sustainable Forestry**	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	**Urban Forestry**	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	**Silviculture**	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
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Malappuram
Tamilnadu
Palakkad
Lakshadweep Sea
Thrissur
Ernakulam
Idukki
Kottayam
Alappuzha
Pathanamthitta
Kollam
Thiruvananthapuram
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 mass. 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 into 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.

Out of the total geographical area 199077 ha, the total cropped area covers 151871 ha. in the district. The production of paddy in the district during 2000-01 was 9161 ha. while it had decreased to 4205 ha. in the agricultural year 2013-14. In the case of tobacco, 100% of the States production is from Kasaragod. During the period 2000-01 the district produced 1186 tonnes of tobacco. During 2013-14 there is only 9 ha. of tobacco cultivation is take place. Coconut cultivation is the largest cultivation area in the district that is 61836 ha. The second largest cultivation is of rubber, which is cultivated nearly 33705 ha. and production was 38160 tonnes during 2013-14 agricultural period. Cashew is cultivated in an extent of 7811 ha. of land with the production of 6193 tonnes in the same period. District contributes major part of tobacco, arecanut, pepper and fresh fruits.

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
1	**2**	**3**	**4**	**5**	**6**
2013-14	199166	5625	24185	3700	0
2012-13	199166	5625	27655	6217	0
2011-12	199166	5625	27397	6813	0

Year	Land under misc. tree crops	Cultivable waste	Fallow other than current fallow	Current fallow	Marshy land
1	**7**	**8**	**9**	**10**	**11**
2013-14	344	8560	2138	2129	0
2012-13	373	8535	2188	2298	0
2011-12	528	9405	2009	2266	0

Year	Still water	Water logged area	Social forestry	Net area sown	Area sown more than once	Total cropped area
1	**12**	**13**	**14**	**15**	**16**	**17**
2013-14	4292	18	111	148064	3807	151871
2012-13	4291	18	108	141858	6410	148268
2011-12	4202	18	115	140788	9985	150773

Table: 14.2

BLOCK WISE AREA OF CROPS 2013-14

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Paddy			Tapioca			Drumstick	Amaranthus	Brinjal
		Autumn	Winter	Summer	Autumn	Winter	Summer			
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1	Kasaragod	277.15	150.23	50.14	0.04	0.54	1.79	50.43	4.95	3.86
2	Karaduka	318.86	98.10	3.62	10.18	19.16	17.86	42.59	4.19	5.78
3	Manjeswaram	546.86	316.29	84.44	0	0.04	5.29	76.39	3.21	2.52
4	Parappa	207.57	31.33	19.98	37.17	148.48	41.41	191.92	6.98	5.95
5	Kanhangad	302.07	164.73	52.06	2.24	10.75	7.29	91.04	7.46	3.99
6	Nileswaram	320.53	827.18	140.27	0.43	8.42	8.12	60.71	7.13	2.86
	Blocks Total	**1973.04**	**1587.86**	**350.51**	**50.06**	**187.39**	**81.76**	**513.08**	**33.92**	**24.96**
	Municipalities	117.79	119.41	56.86	0.63	4.93	5.92	34.62	15.97	1.18
	District Total	**2090.83**	**1707.27**	**407.37**	**50.69**	**192.32**	**87.68**	**547.70**	**49.89**	**26.14**

Table: 14.2 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	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	Kasaragod	5.33	2.18	0.62	13.16	2.27	13.90	1.67	18.77	0.16
2	Karaduka	6.49	6.00	3.71	13.70	3.09	14.97	5.35	8.83	0
3	Manjeswaram	11.46	0.88	0.63	15.51	1.00	11.48	1.17	6.94	4.14
4	Parappa	7.01	9.65	2.28	10.12	3.36	27.47	4.48	11.90	0
5	Kanhangad	4.62	8.62	1.16	5.86	3.23	15.59	3.18	23.88	0.18
6	Nileswaram	7.25	2.66	0.26	4.15	5.40	8.80	4.33	17.13	0
	Blocks Total	**42.16**	**29.99**	**8.66**	**62.50**	**18.35**	**92.21**	**20.18**	**87.45**	**4.48**
	Municipalities	2.27	2.66	0.15	3.36	1.39	5.15	1.04	14.23	0.08
	District Total	**44.43**	**32.65**	**8.81**	**65.86**	**19.74**	**97.36**	**21.22**	**101.68**	**4.56**

Table: 14.2 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Green chilli	Cabbage	Tomato	Cauli flower	Other vegetables	Elephant foot yam	Colocasia	Yam	Koorka
1	**2**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**
1	Kasaragod	11.63	0	0	0	11.31	0.48	0.81	0	0
2	Karaduka	18.17	0	0.12	0	21.73	3.91	9.55	0.62	0
3	Manjeswaram	7.15	0	0	0	22.26	0.63	5.42	0	0
4	Parappa	8.34	0.04	0.08	0	6.91	23.47	47.23	2.96	0.70
5	Kanhangad	7.24	0.06	0.06	0	3.88	3.22	5.85	0.15	0
6	Nileswaram	4.38	0	0.48	0	3.72	4.10	6.63	0	0
	Blocks Total	**56.91**	**0.10**	**0.74**	**0**	**69.81**	**35.81**	**75.49**	**3.73**	**0.70**
	Municipalities	0.93	0.03	0.03	0.03	3.43	1.38	5.39	0.03	0
	District Total	**57.84**	**0.13**	**0.77**	**0.03**	**73.24**	**37.19**	**80.88**	**3.76**	**0.70**

Table: 14.2 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Sweet potato	Nana kizhangu	Other tubers	Pulses	Ginger	Turmeric	Coconut	Arecanut	Cashew
1	**2**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
1	Kasaragod	3.25	0	0	0.86	0	0.21	9095.39	3081.68	937.73
2	Karaduka	11.34	0	0	3.43	0	0.17	9075.11	5016.57	1742.80
3	Manjeswaram	2.31	0	0.23	9.68	0	0	9832.37	5787.84	2266.30
4	Parappa	7.67	0.34	1.79	9.20	27.00	29.41	10471.32	3641.47	1403.96
5	Kanhangad	8.27	0	2.27	6.90	1.74	2.34	11274.43	1125.52	887.33
6	Nileswaram	11.58	0	0.30	12.25	0.32	1.53	8025.88	519.49	397.39
	Blocks Total	**44.42**	**0.34**	**4.59**	**42.32**	**29.06**	**33.66**	**57774.50**	**19172.57**	**7635.51**
	Municipalities	4.57	0	0.42	0.77	0.07	0.15	4061.50	315.77	175.56
	District Total	**48.99**	**0.34**	**5.01**	**43.09**	**29.13**	**33.81**	**61836.00**	**19488.34**	**7811.07**

Table: 14.2 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Pepper	Jack	Mango tree	Tamarind	Clove	Nutmeg	Cocoa	Pappaya	Banana
1	**2**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**
1	Kasaragod	325.34	320.62	297.73	22.46	14.45	17.84	84.35	106.53	24.83
2	Karaduka	1242.36	345.41	294.84	53.56	5.21	20.34	67.49	85.83	56.72
3	Manjeswaram	500.46	400.09	355.22	37.72	8.68	19.24	116.31	123.00	10.15
4	Parappa	498.67	575.57	497.10	34.02	6.65	64.86	52.87	142.89	376.89
5	Kanhangad	222.31	268.96	222.40	41.12	0	2.78	0.26	90.83	162.84
6	Nileswaram	96.77	304.30	376.88	20.68	0.04	1.16	0	82.13	31.50
	Blocks Total	**2885.91**	**2214.95**	**2044.17**	**209.56**	**35.03**	**126.22**	**321.28**	**631.21**	**462.93**
	Municipalities	41.10	156.84	125.99	6.55	0.06	0.22	0.13	35.69	23.79
	District Total	**2927.01**	**2371.79**	**2170.16**	**216.11**	**35.09**	**126.44**	**321.41**	**666.90**	**486.72**

Table: 14.2 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Betel leaves	Pineapple	Plantain	Sugar cane	Fodder grass	Green Manure Plants	Teak	Medicinal Plants
1	**2**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**
1	Kasaragod	3.93	3.16	398.90	0.08	20.52	368.03	73.83	5.37
2	Karaduka	2.64	7.01	375.61	0.16	16.71	431.96	97.15	4.48
3	Manjeswaram	0.25	3.71	529.37	0	17.01	1005.80	112.13	3.48
4	Parappa	9.14	22.98	331.66	0.47	32.13	252.12	181.26	5.91
5	Kanhangad	0.93	4.57	157.99	0.20	7.27	36.12	30.02	1.36
6	Nileswaram	0.31	2.75	141.90	0.08	3.63	53.95	36.92	0.81
	Blocks Total	**17.20**	**44.18**	**1935.43**	**0.99**	**97.27**	**2147.98**	**531.31**	**21.41**
	Municipalities	0.04	0.49	81.46	0	4.32	34.84	26.86	0.47
	District Total	**17.24**	**44.67**	**2016.89**	**0.99**	**101.59**	**2182.82**	**558.17**	**21.88**

Table: 14.3

BLOCK WISE AREA OF CROPS 2012-13

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Paddy			Tapioca			Drumstick	Amaranthus	Brinjal
		Autumn	Winter	Summer	Autumn	Winter	Summer			
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1	Kasaragod	267.99	311.07	19.61	0.08	1.52	2.69	42.9	11.36	8.95
2	Karaduka	368.20	93.43	12.35	7.08	9.68	13.48	36.26	4.82	6.32
3	Manjeswaram	351.59	243.99	29.29		0.02	0.15	51.56	3.76	3.73
4	Parappa	228.40	7.16	5.92	24.1	140.27	47.03	193.21	5.41	5.97
5	Kanhangad	389.51	149.77	63.88	2.25	7.06	1.48	83.77	4.26	1.92
6	Nileswaram	204.96	447.10	92.53	1.01	7.57	0.56	148.12	3.89	1.45
	Blocks Total	**1810.65**	**1252.52**	**223.58**	**34.52**	**166.12**	**65.39**	**555.82**	**33.5**	**28.34**
	Municipalities	72.58	110.29	44.71	1.94	3.40	2.11	38.06	28.61	0.55
	District Total	**1883.23**	**1362.81**	**268.29**	**36.46**	**169.52**	**67.50**	**593.88**	**62.11**	**28.89**

Table: 14.3 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	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	Kasaragod	11.06	5.98	1.47	27.27	4.32	21.02	7.03	21.33	2.15
2	Karaduka	5.96	4.55	2.89	12.9	2.57	13.39	3.71	16.92	
3	Manjeswaram	31.36	1.66	0.52	13.94	1.34	12.91	3.49	8.08	0.04
4	Parappa	5.28	9.37	1.44	8.81	4.58	16.12	6.77	45.50	0.04
5	Kanhangad	5.94	5.54	1.45	4.38	2.97	20.68	2.95	18.93	0.30
6	Nileswaram	2.46	2.27	0.70	1.89	3.74	6.27	2.88	14.08	
	Blocks Total	**62.06**	**29.37**	**8.47**	**69.19**	**19.52**	**90.39**	**26.83**	**124.84**	**2.53**
	Municipalities	1.61	1.53	0.03	4.27	1.96	17.33	1.62	25.40	
	District Total	**63.67**	**30.90**	**8.500**	**73.46**	**21.48**	**107.72**	**28.45**	**150.24**	**2.53**

Table: 14.3 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Green chilli	Cabbage	Tomato	Cauli flower	Other vegetables	Elephant foot yam	Colocasia	Yam	Koorka
1	**2**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**
1	Kasaragod	10.14		0.04	0.01	22.71	2.35	2.71	0.13	
2	Karaduka	21.01	0.03	0.04		13.70	3.57	10.93	0.40	
3	Manjeswaram	9.72			0.04	14.34	1.23	2.11		0.04
4	Parappa	9.67		0.39	0	6.97	24.65	38.05	2.61	0.07
5	Kanhangad	12.20	0.24	0.38	0.05	1.61	2.00	3.35	0.20	0.04
6	Nileswaram	3.43			0.03	2.18	4.15	9.40		
	Blocks Total	**66.17**	**0.27**	**0.85**	**0.13**	**61.51**	**37.95**	**66.55**	**3.34**	**0.15**
	Municipalities	0.70				4.99	0.57	4.74	0.04	
	District Total	**66.87**	**0.27**	**0.85**	**0.13**	**66.50**	**38.52**	**71.29**	**3.38**	**0.15**

Table: 14.3 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Sweet potato	Other tubers	Pulses	Ginger	Turmeric	Coconut	Arecanut	Cashew
1	**2**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**
1	Kasaragod	5.68		0.36	0.27	0.20	9566.04	3263.64	906.35
2	Karaduka	11.85	0.21	1.00	0.08	0.18	7800.09	5329.43	1739.04
3	Manjeswaram	3.50	0.20	8.40			9570.91	5167.32	2138.89
4	Parappa	8.35	0.69	12.49	18.79	18.26	10181.03	3230.77	1513.13
5	Kanhangad	5.15	0.48	12.30	0.5	1.38	10385.45	1077	987.18
6	Nileswaram	9.03		34.92	0.69	1.09	7474.24	651.89	440.97
	Blocks Total	**43.56**	**1.58**	**69.47**	**20.33**	**21.11**	**54977.76**	**18720.05**	**7725.56**
	Municipalities	9.27	1.71	1.94	0.05	0.74	3858.59	217.40	255.52
	District Total	**52.83**	**3.29**	**71.41**	**20.38**	**21.85**	**58836.35**	**18937.45**	**7981.08**

Table: 14.3 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Pepper	Jack	Mango tree	Tamarind	Clove	Nutmeg	Cocoa	Pappaya
1	**2**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
1	Kasaragod	174.72	300.53	305.64	40.08	0.04	8.16	24.43	104.60
2	Karaduka	842.38	289.36	243.06	53.77	6.93	22.16	83.12	75.23
3	Manjeswaram	502.9	387.22	327.42	34.03	13.82	34.6	150.05	105.08
4	Parappa	635.04	573.72	439.38	37.23	7.68	50.63	49.08	157.25
5	Kanhangad	318.01	258.6	219.46	18.5	0.54	3.6	0.95	94.43
6	Nileswaram	182.28	502.43	513.68	25.22	0.24	1.6	0.03	167.13
	Blocks Total	**2655.33**	**2311.86**	**2048.64**	**208.83**	**29.25**	**120.75**	**307.66**	**703.72**
	Municipalities	52.06	121.03	114.83	8.49		0.25	0.81	34.29
	District Total	**2707.39**	**2432.89**	**2163.47**	**217.32**	**29.25**	**121.00**	**308.47**	**738.01**

Table: 14.3 Continued…….

(Area in Ha)

Sl. No.	Name of Blocks/ Municipalities	Banana	Betel leaves	Pine apple	Plantain	Sugar cane	Fodder grass	Green Manure Plants	Teak	Medicinal Plants
1	**2**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**
1	Kasaragod	52.80	2.55	16.98	457.49	0.80	3.13	525.35	48.48	5.64
2	Karaduka	87.11	2.80	5.69	392.16		15.76	468.47	94.70	4.01
3	Manjeswaram	3.56	0.78	3.73	451.01	0.07	26.36	1143.84	147.76	3.09
4	Parappa	232.60	8.02	18.90	261.69	0.98	50.29	334.18	146.99	2.06
5	Kanhangad	112.99	1.03	3.74	125.49	0.08	4.63	24.13	16.07	1.02
6	Nileswaram	24.51	0.30	1.47	213.30		1.83	69.09	53.93	1.00
	Blocks Total	**513.57**	**15.48**	**50.51**	**1901.14**	**1.93**	**102.00**	**2565.06**	**507.93**	**16.82**
	Municipalities	15.03	0.12	1.40	63.36		1.58	33.00	37.56	0.18
	District Total	**528.60**	**15.60**	**51.91**	**1964.50**	**1.93**	**103.58**	**2598.06**	**545.49**	**17.00**

Table: 14.4

BLOCK WISE PRODUCTION OF CROPS 2013-14

(Production in Tonnes)

Sl. No.	Name of Blocks/ Municipalities	Rice			Arecanut	Banana	Black Pepper	Betel leaves	Raw cashew	Cured Ginger	Cured Turmeric
		Autumn	Winter	Summer							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1	Kasaragod	700.76	317.37	125.88	5642.71	107	132.69	263.31	853.33	0	0.78
2	Karaduka	844.45	232.31	8.57	9575.68	583	1042.34	234.96	1735.82	0	0.70
3	Manjeswaram	1352.34	647.75	220.52	8526.30	121	272.75	18.50	1971.68	0	0
4	Parappa	556.06	56.15	29.68	7447.45	1216	219.41	493.56	999.62	60.21	46.21
5	Kanhangad	696.02	322.79	138.78	1429.20	1043	98.21	49.29	331.86	2.24	4.46
6	Nileswaram	704.79	1609.59	329.14	558.15	193	36.96	15.81	147.03	0.56	2.52
	Blocks Total	**4854.42**	**3185.96**	**852.57**	**33179.49**	**3263**	**1802.36**	**1075.43**	**6039.34**	**63.01**	**54.67**
	Municipalities	238.80	233.96	73.65	472.64	157	6.53	3.44	153.17	0	0.19
	District Total	**5093.22**	**3419.92**	**926.22**	**33652.13**	**3420**	**1808.89**	**1078.87**	**6192.51**	**63.01**	**54.86**

Table: 14.4 Continued…….

(Production in Tonnes)

Sl. No.	Name of Blocks/ Municipalities	Cocoa	Coconut (Million No.)	Jack (Million No.)	Mango	Nut meg	Plantain	Pine apple	Tamarind	Tapioca
1	**2**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
1	Kasaragod	57.32	105	1.45	1710.75	11.20	2428.10	20.69	101.49	68.73
2	Karaduka	59.18	95	1.73	1743.97	39.19	1819.07	61.16	231.80	1629.77
3	Manjeswaram	120.85	91	1.87	2026.47	19.31	1798.79	27.15	176.34	220.92
4	Parappa	43.11	101	1.49	1049.37	60.51	1519.00	163.31	69.97	6906.82
5	Kanhangad	0	111	1.24	289.34	2.01	551.22	25.13	58.30	407.47
6	Nileswaram	0	65	0.89	521.97	0.46	450.24	10.71	18.96	303.76
	Blocks Total	**280.46**	**568**	**8.67**	**7341.87**	**132.68**	**8566.42**	**308.15**	**656.86**	**9537.47**
	Municipalities	0	34	0.50	167.87	0.04	256.38	3.19	14.39	288.47
	District Total	**280.46**	**602**	**9.17**	**7509.74**	**132.72**	**8822.80**	**311.34**	**671.25**	**9825.94**

Table: 14.5

BLOCK WISE PRODUCTION OF CROPS 2012-13

(Production in Tonnes)

Sl. No.	Name of Blocks/ Municipalities	Rice			Arecanut	Banana	Black Pepper	Betel leaves	Cashew	Cured Ginger	Cured Turmeric
		Autumn	Winter	Summer							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1	Kasaragod	758.49	583.27	54.94	6970.12	442.85	112.34	173.63	793.96		0.68
2	Karaduka	973.21	205.54	26.89	11179.71	821.02	662.11	200.45	1022.56	0.49	0.73
3	Manjeswaram	955.15	491.40	69.28	9878.69	17.27	248.93	51.14	1159.28		
4	Parappa	567.85	14.66	12.77	6112.42	2281.19	332.12	346.09	909.39	53.307	37.65
5	Kanhangad	930.51	359.76	146.48	1424.35	837.81	146.92	64.85	710.77	1.45	3.05
6	Nileswaram	472.22	885.64	218.81	934.50	169.54	67.99	13.71	387.17	0.79	2.63
	Blocks Total	**4657.43**	**2540.27**	**529.17**	**36499.79**	**4569.68**	**1570.41**	**849.87**	**4983.13**	**56.03**	**44.74**
	Municipalities	173.76	116.44	98.39	297.09	101.45	25.73	5.22	160.77	0.07	0.33
	District Total	**4831.19**	**2656.71**	**627.56**	**36796.88**	**4671.13**	**1596.14**	**855.09**	**5143.90**	**56.10**	**45.07**

Table: 14.5 Continued…….

(Production in Tonnes)

Sl. No.	Name of Blocks/ Municipalities	Cocoa	Coconut (Million No.)	Jack	Mango	Nut meg	Plantain	Pineapple	Sugar cane	Tamarind	Tapioca
1	**2**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
1	Kasaragod	15.46	75.68	0.82	1023.58	9.27	2329.54	80.89	6.34	47.00	125.83
2	Karaduka	61.34	68.21	1.00	894.46	25.75	2876.89	40.69		61.04	1015.91
3	Manjeswaram	81.62	74.40	1.34	876.50	18.20	1137	20.29		26.16	5.41
4	Parappa	33.27	77.05	1.75	1464.89	28.70	997.03	125.76		14.61	4330.31
5	Kanhangad		79.38	0.93	520.99	2.99	669.74	19.01		10.27	213.75
6	Nileswaram		65.68	1.74	1225.71	1.62	1298.56	11.13		11.14	181.96
	Blocks Total	**191.69**	**440.40**	**7.58**	**6006.13**	**86.53**	**9308.76**	**297.77**	**6.34**	**170.22**	**5873.17**
	Municipalities	0.03	28.32	0.33	255.20	0.20	265.19	11.99		4.44	174.67
	District Total	**191.72**	**468.72**	**7.91**	**6261.33**	**86.73**	**9573.95**	**309.76**	**6.34**	**174.66**	**6047.84**

Table: 14.6

PRODUCTION OF IMPORTANT CROPS

(Production in Tonnes)

Year	Rice			Sugar cane	Canegur	Black pepper	Green chillies	Pulses	Cured Ginger	Cured Turmeric
	Autumn	Winter	Summer							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
2013-14	5093	3420	926			1809	55	27	63	55
2012-13	4831	2657	628	6		1596	63	44	56	45
2011-12	4751	2932	872		1	2193	55		75	54

Year	Arecanut	Tamarind	Mango	Jack (Million Nos)	Banana	Other plantain	Pineapple	Tapioca	Betel leaves	Sweet potato
1	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
2013-14	33652	671	7509	9	3420	8823	311	9826	1079	1421
2012-13	36797	175	6261	8	4671	9574	310	6048	855	1533
2011-12	38143	297	12840	9	3189	10035	524	7256	1095	1157

Year	Pappaya	Drumstick	Jowar	Coconut (Million Nos)	Nutmeg	Rubber	Cocoa	Raw cashew nuts	Tobacco	Clove (dry)	Tur
1	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**
2013-14	4655	528	1	602	133	38160	280	6193	17	4	14
2012-13	5151	572	1	469	87	45900	192	5144	23	3	24
2011-12	4752	955		508	78	44560	178	5684	37	2	61

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		-	**20000to25000cuttings/ha**
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
Arecanut	Husked Champan to unhusked	35 percent by weight
Supari	(Processed tender nut to 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.	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%

Composition	Kernel (%)	Copra (%)	Cake (%)
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. Plantation crops are cultivated in different parts of Kerala. 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 is 548225 ha. and 33705 ha. in the district 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. and Kasaragod is having no area under coffee plantation.

Cocoa: - Cocoa plantation is estimated as 13257 ha. all over Kerala and 321 ha. in Kasaragod district during 2013-14 agricultural year.

Table: 15.1

RUBBER STOCK AT THE END OF DECEMBER 2013

(Metric tonnes)

Natural Rubber			
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
Total	**272000**	**Total**	**272000**
Synthetic Rubber			
With Producers	6975		
With Auto Tyre Units	32295	SBR	23650
With other manufacturing units	8785	Others	24405
Total	**48055**	**Total**	**48055**

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
Customs duty on natural rubber	
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

(Metric Tonnes)

Type- wise Production & Consumption of NR & SR	December 2013	December 2012	April to Dec 2013	April to Dec 2012	April 2012 to March 2013	Percentage increase (+)/ decrease (-) of (3) & (4)
	1	2	3	4	5	6
PRODUCTION						
Natural Rubber (NR)						
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	
Total	**108000**	**114000**	**632000**	**697200**	**913700**	**-9.4**
Synthetic Rubber (SR)						
Styrene Butadiene (SBR)	1923	1764	16401	13931	19296	
Poly Butadiene (BR)	7510	6333	59785	58378	77038	
Others	560	781	7873	9230	12358	
Total	**9993**	**8878**	**84059**	**81539**	**108692**	**3.1**
Total NR & SR	**117993**	**122878**	**716059**	**778739**	**1022392**	**-8.0**

CONSUMPTION						
Natural Rubber (NR)						
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	
Total	**82380**	**78420**	**731400**	**742480**	**972705**	**-1.5**
Out of which Auto Tyre Manufacturers	54498	49210	485659	490142	635539	-0.9
Synthetic Rubber (SR)						
Styrene Butadiene (SBR)	18510	16170	169840	147140	196530	
Poly Butadiene (BR)	13810	12060	117055	110235	145695	
Others	10020	8715	74400	76560	101935	
Total	**42340**	**36945**	**361295**	**333935**	**444160**	**8.2**
Out of which Auto Tyre Manufacturers	30744	26138	259549	244228	323412	6.3
Total NR & SR	**124720**	**115365**	**1092695**	**1076415**	**1416865**	**1.5**
Out of which Auto Tyre Manufacturers	85242	75348	745208	734370	958951	1.5

(Metric Tonnes)

Production Consumption and Stock of RR	December 2013	December 2012	April to Dec 2013	April to Dec 2012	April 2012 to March 2013
	1	2	3	4	5
Reclaimed Rubber (RR)					
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			
IMPORT/EXPORT & STOCK NR & SR					
Import (p)					
Natural Rubber	24307	18366	260133	173441	217364
Synthetic Rubber	27582	26370	280852	251967	329585
Total NR & SR	51889	44736	540985	425408	546949
Export (p)					
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 livestock 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 82604 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
4,959	259	0	219	316	12	25	0	7	77	0

Table: 16.2

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

Primary Societies	126
Regional Unions	
Total	126
Anand Mode (APCOS)	118
Traditional	8
Total	126

Table: 16.3

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

Foot and Mouth				Anthrax				Black Quarter			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
0	0	0	93956	0	0	0	1446	0	0	0	393
Hemorhagic Septicemia				**Canine Distember**				**Parvo Virus**			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
0	0	0	205	1	12	3	11	0	0	0	0
Ranikhet				**Fowl Pox**				**Infectious Bursal Disease**			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
0	0	0	349300	0	0	0	1425	0	0	0	1040
Duck Plague				**Others**				**Total**			
Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated	Out Break	Attack	Death	Protected/ Vaccinated
0	0	0	1942	0	0	0	60	1	12	3	449778

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. 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. Kasaragod district has 70 km long sea coast consisting 18 fishing villages. This stretched between Thrikaripur to Bangramanjeswar. Based on 2013-14 report annual fish production was 15877 MT from marine and 22505 MT from inland sector. Fisher folk population was 43890 with a breakup of 42909 from marine and 981 from inland during the same year.

Table: 17.1

FRESH WATER RESOURCES IN KASARAGOD 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	264	11.43	137	4.71	50	25.94	145	1244.28

Table: 17.2

DETAILS OF DISTRICT WISE PADASEKHARAMS IN KERALA

Sl. 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
8	Kozhikode	3	8	173	
9	Kannur	41	117	3381	69
10	**Kasaragod**	**11**	**80**	**2479**	**78**
	Total	**218**	**1550**	**115505**	**385.5**

Table: 17.3

LIST OF INLAND FISHING VILLAGES IN KASARAGOD DISTRICT

Sl.No.	Name of Villages
1	Peelikode
2	Thrikkaripur

Table: 17.4

SPECIES WISE INLAND FISH LANDINGS IN KASARAGOD
(QTY in MT)

2011-12		
Sl. No.	**Name of Fish**	**Quantity**
1	Prawn	8
2	Etroplus	0
3	Murrels	0
4	Mullets	3
5	Cat fish	9
6	Jew fish	4
7	Tilapia	18
8	Labeo fimbriatus	0
9	Barbus	0
10	Mrigal	0
11	Crabs	0
12	Common carps	0
13	Catla	0
14	Chamos	0
15	Eels	0
16	Labeo Rohitha	0
17	Mussel	21098
18	Edible Oyster	468
19	Miscellaneous	62
	Total	**21670**

2012-13		
Sl. No.	**Name of Fish**	**Quantity**
1	Prawn	9
2	Etroplus	0
3	Murrels	0
4	Mullets	3
5	Cat fish	10
6	Jew fish	4
7	Tilapia	20
8	Labeo fimbriatus	0
9	Barbus	0
10	Mrigal	0
11	Crabs	0
12	Common carps	0
13	Catla	0
14	Chamos	0
15	Eels	0
16	Labeo Rohitha	0
17	Mussel	19250
18	Edible Oyster	531
19	Miscellaneous	78
	Total	**19905**

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 Antartica. 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 spartial and dispersion, flow, and physio chemical attributes of surface and ground water in its reservoirs. Based on hydrology wetlands can be categorized as reveries (associated with streams) lacustrine (associated with lakes and reservoirs) and palustrine (isolated). Salinity has a very strong influence on wetland water chemistry. In non-reverine 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

MANJESWARAM BLOCK

(Area in Ha)

Sl. No.	Rock Type	Enmakaje	Mangalppady	Manjeswaram	Meenja	Paivalike	Puthige	Vorkady
1	Crop land - Paddy (Virippu + Mundakan)	22.09	157.53	101.82	108.21	66.25	70.37	63.93
2	Cultivable wasteland							
3	Other land use	7604.38	3113.20	2687.55	4328.90	6942.88	3600.83	4078.76
4	Paddy converted to banana							
5	Paddy converted to coconut	107.25	327.61	6.64	19.64	56.76	96.66	41.45
6	River/Stream/Waterbodies	100.49	156.76	67.33	52.79	71.17	85.06	18.16
7	Sands/Riverine							
	Panchayat Total	**7834.21**	**3755.1**	**2863.34**	**4509.54**	**7137.06**	**3852.92**	**4202.30**
	Block Total	**34154.47**						

Table: 18.2

KARADUKKA BLOCK

(Area in Ha)

Sl. No.	Rock Type	Bedaduka	Belloor	Delampady	Karadukka	Kumbadaje	Kuttikol	Muliyar
1	Crop land - Paddy (Virippu + Mundakan)	13.03	82.88	88.30	27.36	115.44	16.28	77.23
2	Cultivable wasteland							
3	Other land use	8251.49	2923.72	8752.09	3629.58	2917.18	6599.75	5251.12
4	Paddy converted to banana							
5	Paddy converted to coconut			77.01	92.74	4.69	3.00	1.68
6	River/Stream/Waterbodies	188.04	11.10	189.80	47.64	22.06	25.33	170.02
7	Sands/Riverine							
	Panchayat Total	**8452.56**	**3017.70**	**9107.20**	**3797.32**	**3059.37**	**6644.36**	**5500.05**
	Block Total	**39578.56**						

Table: 18.3

PARAPPA BLOCK

(Area in Ha)

Sl. No.	Rock Type	Balal	East-Eleri	Kallar	Kinanoor-Karindalam	Kodom-Beloor	Panathadi	West-Eleri
1	Crop land - Paddy (Virippu + Mundakan)	16.14		40.08	28.94	59.52	3.43	
2	Cultivable wasteland							
3	Other land use	9403.46	5993.47	5199.96	7597.57	9298.80	8763.87	7713.46
4	Paddy converted to banana							
5	Paddy converted to coconut							
6	River/Stream/Waterbodies	18.60	31.91	91.45	81.87	32.11	38.32	80.65
7	Sands/Riverine							
	Panchayat Total	**9438.2**	**6025.38**	**5331.49**	**7708.38**	**9390.43**	**8805.62**	**7794.11**
	Block Total	**54493.61**						

Table: 18.4

KASARAGOD BLOCK

(Area in Ha)

Sl. No.	Rock Type	Badiyaduka	Chemmanad	Chengala	Kumbala	Madhur	Mogral-Puthur
1	Crop land - Paddy (Virippu + Mundakan)	173.55	27.33	143.04	356.19	233.40	213.08
2	Cultivable wasteland				1.65		2.35
3	Other land use	6509.34	3639.45	5190.42	2914.82	2301.40	1330.86
4	Paddy converted to banana		3.05			1.04	23.23
5	Paddy converted to coconut	10.20	129.96	81.79	272.55	169.42	169.71
6	River/Stream/Waterbodies	37.24	103.30	98.69	208.27	14.97	89.15
7	Sands/Riverine	2.00			3.99		
	Panchayat Total	**6732.33**	**3903.09**	**5513.94**	**3757.47**	**2720.23**	**1828.38**
	Block Total	**24455.44**					

Table: 18.5

NEELESWARAM BLOCK

(Area in Ha)

Sl. No.	Rock Type	Cheruvathur	Kayyur-Cheemeni	Padanna	Pilicode	Thrikkarippur	Valiyaparamba
1	Crop land - Paddy (Virippu + Mundakan)	56.45	113.95	193.83	156.56	169.46	41.53
2	Cultivable wasteland					4.48	
3	Other land use	1336.70	6877.19	765.07	2353.13	1553.36	940.87
4	Paddy converted to banana						
5	Paddy converted to coconut	168.58	156.70	240.00	282.11	180.61	
6	River/Stream/Waterbodies	183.13	158.83	290.38	7.04	188.69	772.65
7	Sands/Riverine			2.23			
	Panchayat Total	**1744.86**	**7306.67**	**1491.51**	**2798.84**	**2096.60**	**1755.05**
	Block Total	**17193.53**					

Table: 18.6

KANHANGAD BLOCK

(Area in Ha)

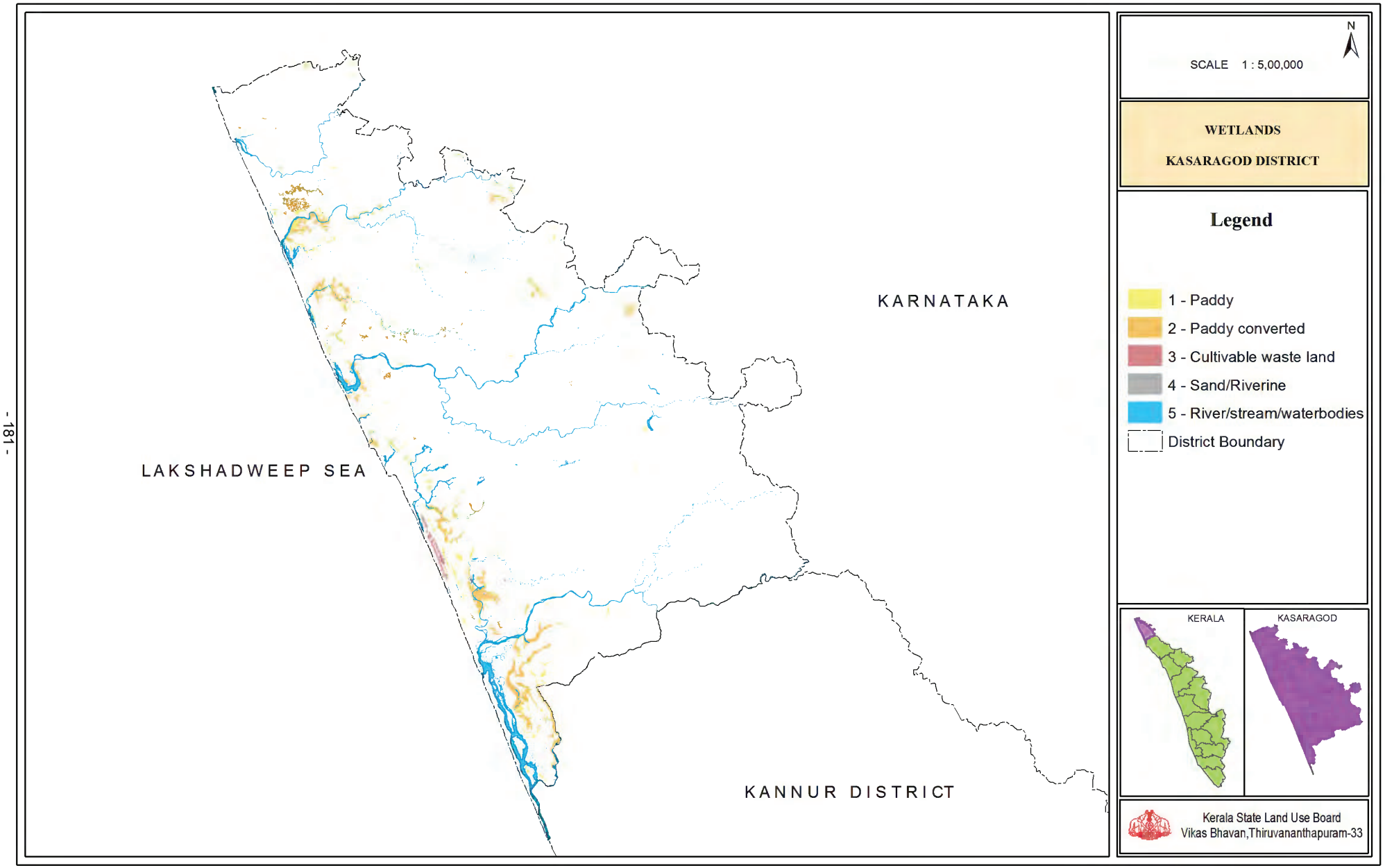
Sl. No.	Rock Type	Ajanoor	Madikkai	Pallikkara	Pulloor-Periya	Uduma
1	Crop land - Paddy (Virippu + Mundakan)	256.08	72.74	200.14	61.80	84.65
2	Cultivable wasteland	82.14	4.55	1.70		
3	Other land use	2267.77	4979.01	3517.42	5996.63	2227.35
4	Paddy converted to banana					
5	Paddy converted to coconut	235.95	2.67	21.00	80.69	81.74
6	River/Stream/Waterbodies	171.99	31.46	162.40	61.01	54.30
7	Sands/Riverine					
	Panchayat Total	**3013.93**	**5090.43**	**3902.66**	**6200.13**	**2448.04**
	Block Total	**20655.19**				

Table: 18.7

MUNICIPALITY

(Area in Ha)

Sl. No.	Rock Type	Kanhangad Municipality	Kasaragod Municipality	Neeleswaram Municipality
1	Crop land - Paddy (Virippu + Mundakan)	616.53	64.53	105.28
2	Cultivable wasteland	116.96		
3	Other land use	2862.46	1287.30	2325.74
4	Paddy converted to banana	58.62	1.35	
5	Paddy converted to coconut	377.85	62.52	76.05
6	River/Stream/Waterbodies	84.85	329.96	223.54
7	Sands/Riverine			
	Municipality Total	**4117.27**	**1745.66**	**2730.61**


N
SCALE 1 : 5,00,000
WETLANDS
KASARAGOD DISTRICT
Legend
1 - Paddy
2 - Paddy converted
3 - Cultivable waste land
4 - Sand/Riverine
5 - River/stream/waterbodies
District Boundary
KERALA
KASARAGOD
KARNATAKA
LAKSHADWEEP SEA
KANNUR DISTRICT
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33

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 a 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 Kasaragod 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	29021.94	14.57
2	Barren rocky area	1583.90	0.79
3	Land with dense scrub	1013.53	0.50
4	Coastal sands	31.64	0.01
5	Scrub dominated forest	31.24	0.15

1. Land with open scrub:- It is the major category of wasteland mapped in an area of 29021.94 ha. covering 14.57% of total geographical area of the district. It is mostly located in Bedaduka (2817.76 ha.), Pulloor-Periya (2147.23 ha.), Badiyaduka (1766.06 ha.) and Kinanoor-Karindalam (1663.55 ha) Panchayats.
2. Barren rocky area:- This category of wasteland occurs in an area of 1583.90 ha. covering 0.79% of the total geographical area of the district. It is mostly located in Kodom belur (261.70 ha),

Madikkai (230.70 ha.), Pulloor-Periya (193.80 ha.) and Pallikkara (180.02 ha.) Panchayats.

3. Land with dense scrub:- This category of wasteland occurs in an area of 1013.53 ha. comes to 0.50% of the total geographical area of the district. It is mostly distributed in Mangalppady (136.40 ha.), Manjeswaram (120.43 ha.) and Pulloor-Periya (108.76 ha.) Panchayats.

Table: 19.2

MANJESWARAM BLOCK

(Area in Ha)

Sl. No.	Rock Type	Enmakaje	Mangalppady	Manjeswaram	Meenja	Paivalike	Puthige	Vorkady
1	Barren rocky area	133.03			3.03	154.72	77.65	5.37
2	Coastal sand			11.65				
3	Land with dense scrub	37.79	137.39	120.43		24.29	13.51	86.53
4	Land with open scrub	815.58	79.99	102.07	1301.64	1470.94	1200.29	405.35
5	Scrub dominated forest					8.52		
	Panchayat Total	**986.40**	**217.38**	**234.15**	**1304.67**	**1658.47**	**1291.45**	**497.25**
	Block Total	**6189.77**						

Table: 19.3

KARADUKKA BLOCK

(Area in Ha)

Sl. No.	Rock Type	Bedaduka	Belloor	Delampady	Karadukka	Kumbadaje	Kuttikol	Muliyar
1	Barren rocky area	73.53			9.78	16.74		23.63
2	Coastal sand							
3	Land with dense scrub			41.47	34.82	20.92		28.31
4	Land with open scrub	2817.76	432.38	1051.62	535.29	472.08	993.45	960.09
5	Scrub dominated forest							
	Panchayat Total	**2891.29**	**432.38**	**1093.09**	**579.89**	**509.74**	**993.45**	**1012.03**
	Block Total	**7511.87**						

Table: 19.4

PARAPPA BLOCK

(Area in Ha)

Sl. No.	Rock Type	Balal	East-Eleri	Kallar	Kinanoor-Karindalam	Kodom-Beloor	Panathadi	West-Eleri
1	Barren rocky area				36.90	261.79		
2	Coastal sand							
3	Land with dense scrub				32.75	95.05		
4	Land with open scrub	457.48	12.80	142.16	1663.55	1233.21	129.98	93.54
5	Scrub dominated forest							
	Panchayat Total							
	Block Total	**457.48**	**12.80**	**142.16**	**1733.20**	**1590.05**	**129.98**	**93.54**
		4159.21						

Table: 19.5

KASARAGOD BLOCK

(Area in Ha)

Sl. No.	Rock Type	Badiyadukka	Chemmanad	Chengala	Kumbala	Madhur	Mogral-Puthur
1	Barren rocky area	111.96	9.11	37.97			
2	Coastal sand				5.58		5.34
3	Land with dense scrub	91.13		54.24		19.61	
4	Land with open scrub	1766.06	798.97	1045.71	1047.20	268.12	100.07
5	Scrub dominated forest						
	Panchayat Total	**1969.15**	**808.08**	**1137.92**	**1052.78**	**287.73**	**105.41**
	Block Total	**5361.07**					

Table: 19.6

NEELESWARAM BLOCK

(Area in Ha)

Sl. No.	Rock Type	Cheruvathur	Kayyur-Cheemeni	Padanna	Pilicode	Thrikkarippur	Valiyaparamba
1	Barren rocky area						
2	Coastal sand			1.16			3.19
3	Land with dense scrub		32.24		17.34		
4	Land with open scrub	52.19	895.66	8.00	149.07	6.91	
5	Scrub dominated forest		31.24				
	Panchayat Total	**52.19**	**959.14**	**9.16**	**166.41**	**6.91**	**3.19**
	Block Total	**1197.00**					

Table: 19.7

KANHANGAD BLOCK

(Area in Ha)

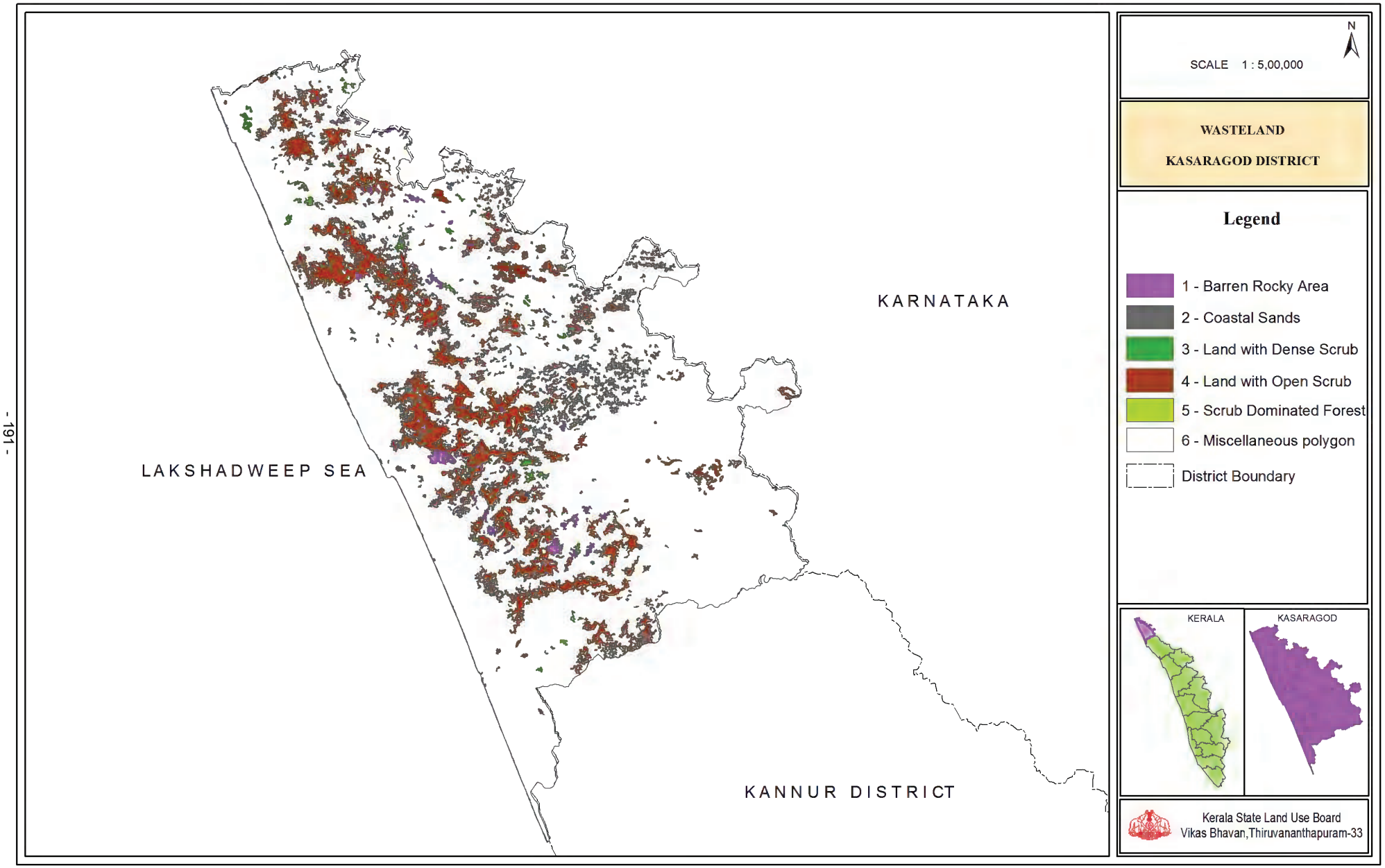
Sl. No.	Rock Type	Ajanoor	Madikkai	Pallikkara	Pulloor-Periya	Uduma
1	Barren rocky area		230.70	182.02	193.89	8.31
2	Coastal sand					1.27
3	Land with dense scrub				108.76	
4	Land with open scrub	324.63	1628.22	1177.71	2147.43	466.48
5	Scrub dominated forest					
	Panchayat Total	**324.63**	**1858.92**	**1359.73**	**2450.08**	**476.06**
	Block Total	**6489.42**				

Table: 19.8

MUNICIPALITY

(Area in Ha)

Sl. No.	Rock Type	Kanhangad Municipality	Kasaragod Municipality	Neeleswaram Municipality
1	Barren rocky area			13.21
2	Coastal sand	2.00	2.04	
3	Land with dense scrub	17.92		
4	Land with open scrub	400.97		368.47
5	Scrub dominated forest			
	Municipality Total	**420.89**	**2.04**	**381.68**


N
SCALE 1 : 5,00,000
WASTELAND
KASARAGOD DISTRICT
Legend
1 - Barren Rocky Area
2 - Coastal Sands
3 - Land with Dense Scrub
4 - Land with Open Scrub
5 - Scrub Dominated Forest
6 - Miscellaneous polygon
District Boundary
KARNATAKA
LAKSHADWEEP SEA
KANNUR DISTRICT
KERALA
KASARAGOD
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33

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

Block/Municipality	Panchayat	WS Code	Area (Ha.)
Kanhangad	Ajanoor	39C10a	322.75
		39C11a	257.95
		39C11b	147.35
		39C11d	167.39
		39C12a	157.22
		39C13a	381.99
		39C14a	330.83
		39C1a	83.44
		39C2a	7.02
		39C2e	3.17
		39C2f	93.93
		39C3a	256.29
		39C3b	255.01
		39C3c	196.05
		39C4a	284.07
		39C5a	66.00
		39C9a	3.48
	Panchayat Total		**3013.94**
	Madikkai	38N14a	75.86
		38N15a	230.30
		38N16a	301.77
		38N17a	270.10
		38N18a	265.42
		38N3a	328.49
		38N3b	26.47
		38N3c	8.04
		38N3g	20.62
		38N3h	173.06
		38N3i	247.77
		38N3j	181.40
		38N4a	346.07
		38N4b	341.70
		38N4f	65.82
		38N4g	281.45
		38N4h	919.18
		38N5a	360.63
		38N6a	134.19
		38N7a	90.93
		38N8a	154.34
		38N9a	198.12
		38N9c	38.07
		39C10a	1.47
		39C9a	29.16

Block/Municipality	Panchayat	WS Code	Area (Ha.)
	Panchayat Total		**5090.42**
	Pallikkara	39C1a	438.80
		39C2a	189.47
		39C2b	257.61
		39C2c	345.98
		39C2d	169.57
		39C2e	525.61
		39C2f	87.91
		39C3a	27.70
		39C3c	1.45
		40C40b	42.00
		40C40c	45.91
		40C41a	489.48
		40C42a	229.93
		40C49d	118.31
		40C49e	94.31
		40C50a	116.22
		40C50b	299.57
		40C50c	418.61
		40C6a	1.96
		40C7a	2.25
	Panchayat Total		**3902.66**
	Pulloor-Periya	38N3b	105.32
		38N3c	25.08
		38N3e	53.71
		39C10a	60.03
		39C2c	32.48
		39C2e	261.46
		39C3c	193.77
		39C4a	4.97
		39C5a	514.18
		39C6a	334.82
		39C7a	170.00
		39C8a	309.69
		39C8b	548.33
		39C8c	114.22
		39C8d	407.49
		39C8e	261.82
		39C8f	217.20
		39C9a	233.84
		40C11a	6.01
		40C36a	2.47
		40C36g	90.01
		40C37a	219.43
		40C38a	314.70
		40C39a	245.31

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		40C39b	124.85
		40C39c	351.81
		40C39d	275.24
		40C40a	251.58
		40C40b	324.51
		40C40c	136.64
		40C41a	8.15
		40C8a	1.01
	Panchayat Total		**6200.13**
	Uduma	40C47b	72.74
		40C47c	11.98
		40C47d	114.58
		40C47e	181.93
		40C48a	317.06
		40C49a	571.70
		40C49b	319.69
		40C49c	244.45
		40C49d	344.37
		40C49e	228.37
		40C50a	26.52
		40C50c	14.65
	Panchayat Total		**2448.04**
	Block Total		**20655.18**
Kanhangad(M)	Kanhangad(M)	38N16a	63.37
		38N18a	44.64
		38N19a	553.68
		38N1a	1490.13
		38N20a	144.96
		38N20b	5.33
		38N20c	64.93
		38N2a	564.47
		38N3a	86.18
		39C11b	3.41
		39C11c	376.85
		39C11d	57.74
		39C14a	62.15
		39C15a	599.46
	Municipality Total		**4117.28**
Karadukka	Bedaduka	40C10a	666.05
		40C11a	343.72
		40C12a	688.88
		40C13a	211.83
		40C13b	401.23
		40C13c	394.28
		40C13d	111.56
		40C14a	661.22

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		40C15a	87.59
		40C15b	6.51
		40C35a	3.17
		40C37a	3.27
		40C38a	8.43
		40C38a	8.43
		40C39a	1.40
		40C40a	2.49
		40C40c	1.29
		40C41a	2.49
		40C42a	5.73
		40C5a	1.13
		40C5ar	283.46
		40C5as	160.21
		40C5at	249.70
		40C5au	19.11
		40C5av	22.67
		40C5aw	444.88
		40C5ax	287.95
		40C5ay	568.71
		40C5az	911.68
		40C5ba	202.84
		40C5bb	215.74
		40C5c	1.63
		40C6a	399.57
		40C7a	262.06
		40C8a	235.23
		40C9a	584.85
	Panchayat Total		**8460.98**
	Belloor	40C5j	21.96
		42S17g	70.39
		42S17h	212.43
		42S17i	408.17
		42S17j	428.14
		42S17k	283.12
		42S17l	15.48
		42S17m	194.11
		42S17n	1268.21
		42S17o	115.70
	Panchayat Total		**3017.71**
	Delampady	40C5aa	402.39
		40C5ab	485.10
		40C5ac	426.00
		40C5ad	321.19
		40C5ae	245.16
		40C5af	454.45

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		40C5ag	508.05
		40C5ah	333.58
		40C5ai	152.85
		40C5aj	76.91
		40C5ak	192.61
		40C5al	334.48
		40C5am	72.20
		40C5ao	1.87
		40C5aq	18.32
		40C5ar	7.04
		40C5f	3.56
		40C5g	75.09
		40C5h	170.15
		40C5i	50.38
		40C5k	2.42
		40C5l	6.84
		40C5m	230.94
		40C5n	968.63
		40C5o	476.26
		40C5p	438.83
		40C5q	173.93
		40C5r	557.90
		40C5w	419.76
		40C5x	236.27
		40C5y	256.36
		40C5z	989.53
		42S17v	18.18
	Panchayat Total		**9107.20**
	Karadukka	40C5ac	1.16
		40C5g	3.28
		40C5h	85.81
		40C5i	238.22
		40C5j	465.32
		40C5k	421.86
		40C5l	717.36
		40C5y	1.50
		41M10b	463.05
		41M10d	116.19
		42S17n	205.29
		42S17o	3.41
		42S17p	32.45
		42S17r	2.44
		42S17u	37.28
		42S17v	920.67
		42S17w	82.04
	Panchayat Total		**3797.33**

Block/Municipality	Panchayat	WS Code	Area (Ha.)
	Kumbadaje	40C5j	15.44
		42S17f	424.55
		42S17l	32.91
		42S17m	71.79
		42S17o	230.92
		42S17p	1827.57
		42S17r	431.31
		42S17t	4.22
		42S17v	20.66
	Panchayat Total		**3059.36**
	Kuttikol	40C13c	3.19
		40C14a	5.70
		40C15a	7.73
		40C15b	295.97
		40C15c	269.47
		40C15d	839.39
		40C15e	499.77
		40C15f	78.57
		40C16a	364.03
		40C17a	282.14
		40C17b	223.17
		40C5ae	1.51
		40C5ai	2.79
		40C5aj	1153.49
		40C5ak	259.10
		40C5al	50.33
		40C5am	189.46
		40C5an	99.66
		40C5ao	407.09
		40C5ap	425.66
		40C5aq	259.23
		40C5ar	246.06
		40C5at	139.07
		40C5au	180.40
		40C5av	350.70
		40C5aw	10.69
	Panchayat Total		**6644.36**
	Muliyar	40C42a	1.44
		40C4a	427.53
		40C5a	467.18
		40C5ad	1.96
		40C5ar	4.81
		40C5ay	4.34
		40C5az	3.37
		40C5b	468.58
		40C5ba	3.91

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		40C5bb	2.82
		40C5c	358.15
		40C5d	361.50
		40C5e	175.85
		40C5f	403.74
		40C5g	197.68
		40C5h	2.50
		41M10a	30.92
		41M10b	616.20
		41M10c	211.00
		41M10d	776.06
		41M10e	262.52
		41M10f	223.11
		41M10g	255.19
		41M11a	165.52
		42S17v	74.17
	Panchayat Total		**5500.05**
	Block Total		**39578.57**
Kasaragod	Badiyadukka	41M4a	195.97
		41M4b	646.18
		41M4c	522.72
		41M4d	96.80
		41M6a	1.70
		41M7a	131.07
		41M8a	79.75
		42S17aa	421.16
		42S17ab	849.85
		42S17c	11.16
		42S17d	378.05
		42S17e	389.35
		42S17f	191.47
		42S17p	177.97
		42S17q	430.09
		42S17r	855.10
		42S17s	374.16
		42S17t	40.03
		42S17y	109.17
		42S17z	691.44
		42S20c	139.15
	Panchayat Total		**6732.34**
	Chemmanad	40C1a	6.96
		40C3a	3.45
		40C41a	2.20
		40C42a	559.48
		40C43a	607.05
		40C44a	412.40

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		40C45a	316.80
		40C46a	460.44
		40C47a	424.83
		40C47b	120.18
		40C47c	353.31
		40C47d	75.73
		40C47e	213.27
		40C49c	238.53
		40C49d	104.49
		40C4a	2.33
		40C6a	1.66
	Panchayat Total		**3903.10**
	Chengala	40C2a	41.96
		40C3a	494.42
		40C43a	3.26
		40C44a	20.09
		40C4a	328.50
		41M10a	406.41
		41M10b	126.19
		41M10f	43.69
		41M10g	67.90
		41M11a	260.86
		41M12a	484.78
		41M13a	278.88
		41M14a	16.82
		41M6a	112.49
		41M7a	361.97
		41M8a	603.52
		41M9a	212.12
		42S17p	4.13
		42S17r	206.33
		42S17s	38.60
		42S17t	354.45
		42S17u	272.69
		42S17w	212.70
		42S17x	250.62
		42S17y	310.56
	Panchayat Total		**5513.93**
	Kumbala	41M1a	196.46
		41M2a	16.52
		42S17ac	46.12
		42S18a	615.30
		42S19a	578.24
		42S20a	340.58
		42S20b	471.22
		42S20c	45.61

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		42S20d	249.48
		42S21a	794.20
		42S22a	372.05
		42S2a	10.87
		42S3a	7.58
		42S4a	9.69
		42S5a	1.86
		42S5c	1.69
	Panchayat Total		**3757.48**
	Madhur	40C1b	380.11
		40C1c	224.00
		40C1d	54.48
		41M13a	1.69
		41M14a	285.44
		41M15a	309.53
		41M16a	346.13
		41M17a	38.81
		41M3a	33.51
		41M4a	212.92
		41M4c	21.88
		41M4d	156.40
		41M5a	282.96
		41M6a	295.07
		41M7a	77.30
	Panchayat Total		**2720.22**
	Mogral-Puthur	40C1a	274.10
		40C1b	9.45
		40C1d	81.87
		41M16a	183.38
		41M17a	338.71
		41M18a	531.66
		41M1a	289.95
		41M2a	110.47
		41M3a	8.82
	Panchayat Total		**1828.40**
	Block Total		**24455.46**
Kasaragod(M)	Kasaragod(M)	40C1a	386.51
		40C1c	164.90
		40C1d	606.72
		40C2a	374.96
		40C44a	157.24
		40C45a	21.22
		40C46a	31.92
		41M13a	2.20
	Municipality Total		**1745.67**
Manjeswaram	Enmakaje	42S10a	197.47

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		42S11a	515.81
		42S12a	722.48
		42S13a	116.51
		42S13b	449.49
		42S13c	607.58
		42S14a	824.41
		42S15a	704.46
		42S16a	16.19
		42S17a	99.12
		42S17aa	373.34
		42S17ab	5.50
		42S17b	141.61
		42S17c	1099.04
		42S17d	186.95
		42S17e	377.86
		42S17f	62.56
		42S17g	862.17
		42S17h	114.10
		42S17k	7.32
		42S17l	190.11
		42S17m	3.90
		42S9a	156.24
	Panchayat Total		**7834.20**
	Mangalppady	42S18a	2.41
		42S19a	4.93
		42S1a	607.27
		42S1b	77.81
		42S1g	144.77
		42S1h	420.09
		42S20a	1.68
		42S2a	297.74
		42S3a	482.13
		42S4a	475.90
		42S5a	24.52
		43U14a	47.69
		43U15a	233.88
		43U16a	432.88
		43U17a	433.69
		43U2a	19.50
		43U3c	21.29
		43U4a	16.79
		43U5a	10.13
	Panchayat Total		**3755.10**
	Manjeswaram	43U17a	23.62
		43U1a	17.16
		43U2a	214.16

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		43U3a	16.13
		43U3b	15.83
		44M1a	628.09
		44M2a	275.84
		44M2b	325.59
		44M2c	369.28
		44M3a	363.21
		44M4a	179.31
		44M6a	11.36
		44M7a	205.39
		44M8a	218.38
	Panchayat Total		**2863.34**
	Meenja	42S1b	7.00
		43U11a	4.16
		43U12a	231.06
		43U14a	103.04
		43U16a	16.44
		43U17a	36.87
		43U2a	39.37
		43U3a	229.00
		43U3b	226.94
		43U3c	152.63
		43U4a	93.62
		43U4b	424.04
		43U4c	411.89
		43U5a	729.09
		43U6a	549.35
		43U7a	705.31
		43U7b	393.40
		43U7c	90.02
		43U8a	53.24
		44M7a	5.94
		44M8a	7.13
	Panchayat Total		**4509.53**
	Paivalike	42S16a	4.15
		42S18a	1.40
		42S1b	274.57
		42S1c	333.46
		42S1d	559.65
		42S1e	579.41
		42S1f	228.24
		42S1g	213.79
		42S4a	46.26
		42S5a	222.51
		42S5b	300.54
		42S5c	302.70

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		42S6a	183.10
		42S7a	91.63
		42S8a	500.05
		42S8b	540.98
		42S8c	677.21
		42S8d	118.03
		43U11a	272.77
		43U12a	110.20
		43U13a	233.04
		43U13b	850.57
		43U13c	149.34
		43U13d	207.68
		43U14a	134.00
		43U8a	1.77
	Panchayat Total		**7137.06**
	Puthige	41M16a	12.43
		41M17a	4.09
		41M2a	239.37
		41M3a	226.31
		41M4a	25.45
		42S14a	77.10
		42S15a	105.96
		42S16a	460.54
		42S17a	211.59
		42S17aa	83.16
		42S17ab	532.29
		42S17ac	403.61
		42S17b	3.54
		42S17c	20.81
		42S18a	36.74
		42S20c	831.66
		42S20d	20.05
		42S5c	1.58
		42S6a	287.68
		42S7a	268.96
	Panchayat Total		**3852.92**
	Vorkady	43U10a	240.12
		43U11a	1.05
		43U3b	4.28
		43U7a	32.69
		43U7b	29.16
		43U8a	969.23
		43U9a	589.34
		44M4a	202.33
		44M5a	283.22
		44M5b	341.27

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		44M5c	368.54
		44M5d	213.79
		44M5e	317.31
		44M6a	459.79
		44M7a	150.17
	Panchayat Total		**4202.30**
	Block Total		**34154.45**
Neeleswaram	Cheruvathur	36K6a	360.16
		36K6b	134.59
		36K6d	1.44
		36K6e	1.26
		37K2a	4.24
		37K3a	91.72
		37K43f	172.60
		37K44a	976.42
		37K5a	2.43
	Panchayat Total		**1744.86**
	Kayyur-Cheemeni	35P9e	26.28
		36K11b	1.46
		36K12b	60.11
		36K13c	404.80
		36K13d	1.13
		36K13h	289.76
		36K6b	143.76
		36K6c	352.90
		36K6d	212.21
		36K6e	6.43
		37K11a	4.52
		37K12a	1.38
		37K16a	2.18
		37K35d	92.94
		37K35e	254.50
		37K36a	466.24
		37K37a	232.59
		37K38a	713.19
		37K38b	226.66
		37K38c	215.22
		37K38d	351.62
		37K38e	158.33
		37K39a	593.71
		37K40a	212.70
		37K41a	224.96
		37K42a	178.87
		37K43a	118.51
		37K43b	289.97
		37K43c	160.01

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		37K43d	603.88
		37K43e	555.84
		37K43f	146.69
		37K6a	1.41
		37K9a	1.79
	Panchayat Total		**7306.57**
	Padanna	36K11a	146.12
		36K4a	22.23
		36K5a	16.50
		36K6a	663.58
		36K6e	1.76
		36K7a	242.14
		36K8a	283.93
		37K2a	95.28
		37K44a	19.96
	Panchayat Total		**1491.50**
	Pilicode	36K11a	227.88
		36K11b	703.03
		36K11c	63.90
		36K12a	255.90
		36K12b	346.65
		36K12c	135.14
		36K12d	175.69
		36K13b	165.23
		36K13c	44.87
		36K6a	65.40
		36K6c	22.74
		36K6d	7.75
		36K6e	322.09
		36K7a	262.57
	Panchayat Total		**2798.85**
	Thrikkarippur	36K10a	726.63
		36K11a	714.04
		36K14a	16.80
		36K15a	4.66
		36K8a	151.78
		36K9a	482.68
	Panchayat Total		**2096.58**
	Valiyaparamba	35P35a	5.56
		36K10a	10.42
		36K15a	3.88
		36K1a	49.04
		36K2a	76.30
		36K3a	101.25
		36K4a	775.68
		36K5a	12.46

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		36K6a	121.73
		36K8a	15.60
		36K9a	339.46
		37K1a	43.80
		37K2a	26.16
		Waterbody	173.71
	Panchayat Total		**1755.04**
	Block Total		**17193.50**
Neeleswaram(M)	Neeleswaram(M)	37K2a	246.99
		37K3a	3.65
		37K41a	2.08
		37K42a	1.89
		37K44a	2.16
		37K4a	17.45
		37K5a	471.71
		37K6a	416.73
		37K7a	63.58
		38N14a	58.97
		38N16a	2.90
		38N1a	343.18
		38N20a	3.62
		38N20b	458.71
		38N20c	211.92
		38N21a	425.10
	Municipality Total		**2730.62**
Parappa	Balal	37K14aa	611.81
		37K14ab	255.87
		37K14ac	597.96
		37K14ad	2.91
		37K14ae	21.32
		37K14d	123.61
		37K14e	117.34
		37K14j	250.03
		37K14k	624.64
		37K14l	874.09
		37K14m	211.81
		37K14n	212.52
		37K14o	147.59
		37K14p	203.03
		37K14r	12.94
		37K14s	258.79
		37K14t	173.40
		37K14u	866.41
		37K14v	650.19
		37K14w	678.88
		37K14x	449.38

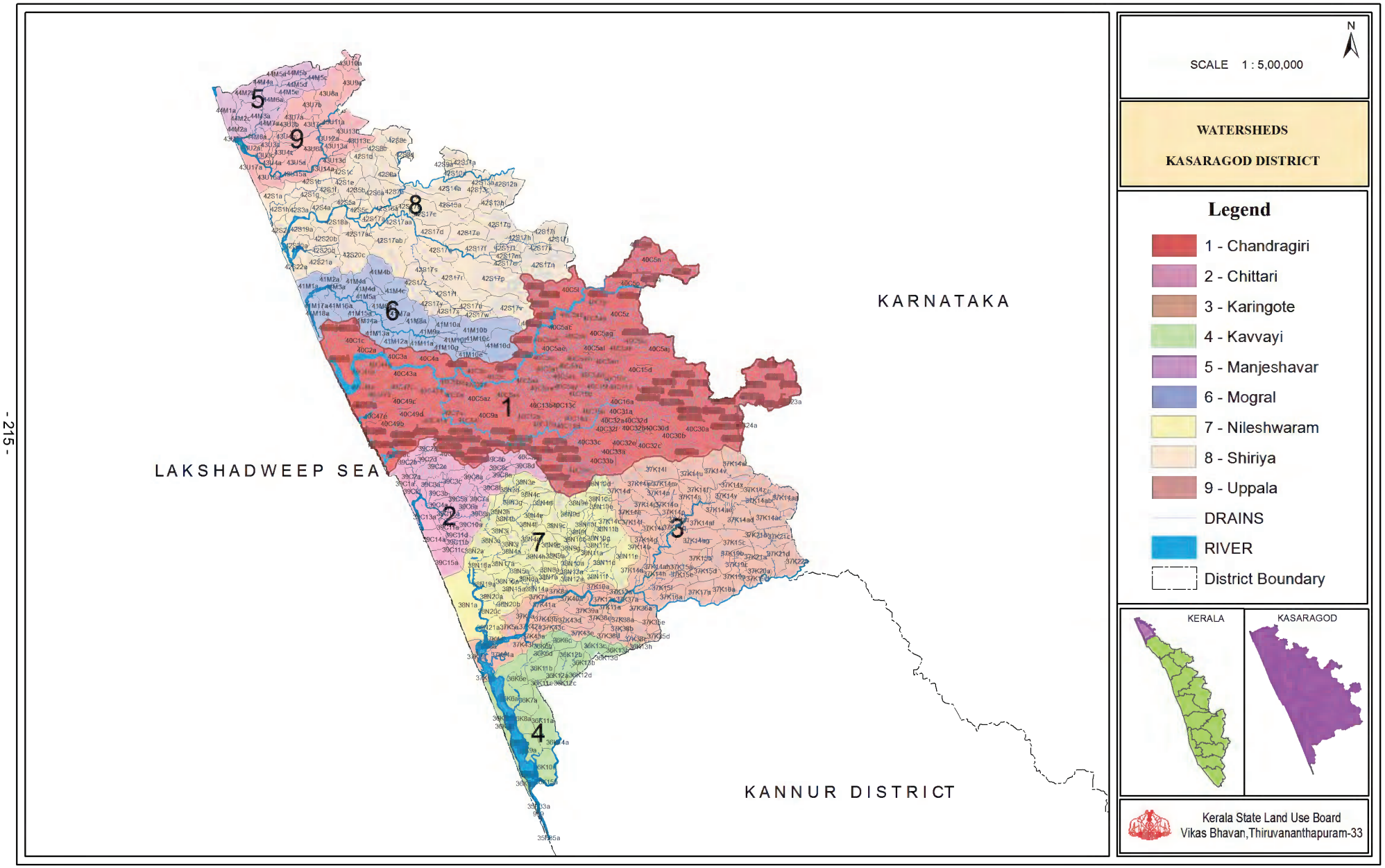
Block/Municipality	Panchayat	WS Code	Area (Ha.)
		37K14y	285.72
		37K14z	632.13
		38N10c	122.93
		38N10d	372.31
		38N10e	59.80
		38N9e	7.67
		40C30a	12.08
		40C30c	374.25
		40C32c	10.96
		40C32e	4.81
		40C33a	15.47
		40C33b	96.35
		40C36c	43.15
		40C36d	56.03
	Panchayat Total		**9438.21**
	East-Eleri	37K14ac	88.94
		37K14ag	41.63
		37K15a	19.15
		37K15b	184.27
		37K15c	851.01
		37K15d	296.63
		37K17a	479.24
		37K18a	496.63
		37K19a	368.83
		37K19b	276.10
		37K19c	137.92
		37K19d	130.21
		37K20a	554.12
		37K21a	302.11
		37K21b	305.55
		37K21c	462.53
		37K21d	435.57
		37K22a	594.95
	Panchayat Total		**6025.38**
	Kallar	37K14l	33.10
		37K14u	3.72
		40C14a	7.02
		40C15a	278.61
		40C15b	10.70
		40C15e	8.69
		40C15f	94.76
		40C16a	159.14
		40C30b	2.11
		40C30c	103.16
		40C30d	621.11
		40C31a	592.23

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		40C32a	270.10
		40C32b	191.57
		40C32c	599.59
		40C32d	131.06
		40C32e	636.37
		40C32f	162.67
		40C33a	766.38
		40C33b	433.19
		40C33c	220.82
		40C34a	2.37
		40C36c	1.77
	Panchayat Total		**5330.24**
	Kinanoor-Karindalam	37K10a	312.73
		37K11a	155.24
		37K12a	195.41
		37K13a	99.43
		37K14a	322.13
		37K14b	176.25
		37K14c	283.86
		37K14d	387.83
		37K14e	135.77
		37K14f	369.73
		37K14g	137.97
		37K14h	2.12
		37K14i	445.69
		37K14j	59.35
		37K14k	8.69
		37K14o	103.15
		37K14p	1.13
		37K38a	1.10
		37K39a	1.83
		37K40a	6.23
		37K41a	7.49
		37K7a	89.75
		37K8a	220.37
		37K9a	161.86
		38N10a	99.03
		38N10d	6.39
		38N10e	51.63
		38N10g	88.06
		38N11a	316.40
		38N11b	448.32
		38N11c	252.46
		38N11d	452.90
		38N11e	1036.99
		38N11f	367.41

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		38N12a	282.15
		38N13a	158.32
		38N14a	198.63
		38N6a	2.71
		38N7a	28.48
		38N8a	87.31
		38N9a	59.65
		38N9b	16.13
		38N9g	70.30
	Panchayat Total		**7708.38**
	Kodom-Beloor	38N10a	89.12
		38N10b	156.76
		38N10c	37.60
		38N10d	2.59
		38N10e	258.97
		38N10f	156.28
		38N10g	63.06
		38N11a	27.58
		38N11b	360.46
		38N3c	103.68
		38N3d	198.82
		38N3e	463.45
		38N3f	118.77
		38N3g	327.24
		38N4b	218.26
		38N4c	237.89
		38N4d	440.39
		38N4e	157.83
		38N4f	234.77
		38N4g	81.61
		38N9b	220.16
		38N9c	463.16
		38N9d	695.29
		38N9e	384.30
		38N9f	165.31
		38N9g	236.20
		39C8d	196.53
		39C8f	19.71
		40C14a	1.22
		40C33a	13.97
		40C33b	130.64
		40C33c	177.85
		40C34a	296.72
		40C35a	508.25
		40C36a	312.78
		40C36b	413.36

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		40C36c	186.71
		40C36d	537.11
		40C36e	271.57
		40C36f	382.20
		40C36g	42.24
	Panchayat Total		**9390.43**
	Panathadi	37K14w	17.45
		40C16a	72.41
		40C17a	150.23
		40C17b	114.78
		40C17c	342.86
		40C17d	110.29
		40C18a	436.74
		40C19a	715.47
		40C20a	64.78
		40C21a	356.68
		40C22a	320.71
		40C23a	150.12
		40C24a	184.04
		40C25a	219.97
		40C25b	359.27
		40C25c	270.75
		40C26a	319.07
		40C27a	209.79
		40C28a	296.80
		40C29a	237.01
		40C30a	1446.49
		40C30b	318.30
		40C30c	223.52
		40C30d	1.87
		40C5aj	8.51
		40C5s	467.37
		40C5t	467.83
		40C5u	647.72
		40C5v	274.78
	Panchayat Total		**8805.63**
	West-Eleri	37K14a	5.53
		37K14ac	222.18
		37K14ad	603.02
		37K14ae	456.30
		37K14af	818.83
		37K14ag	1017.18
		37K14ah	520.58
		37K14g	134.61
		37K14h	259.90
		37K14i	71.69

Block/Municipality	Panchayat	WS Code	Area (Ha.)
		37K14o	86.90
		37K14p	361.45
		37K14q	228.20
		37K14r	115.56
		37K14s	113.73
		37K14t	116.25
		37K14u	28.91
		37K14y	19.49
		37K14z	24.51
		37K15a	650.78
		37K15b	72.46
		37K15c	212.73
		37K15d	174.62
		37K15e	333.42
		37K15f	439.95
		37K16a	548.82
		37K17a	132.82
		37K21b	21.97
		37K21c	1.72
	Panchayat Total		**7794.11**
	Block Total		**54493.62**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SCALE 1 : 5,00,000
WATERSHEDS
KASARAGOD DISTRICT
Legend
1 - Chandragiri
2 - Chittari
3 - Karingote
4 - Kavvayi
5 - Manjeshavar
6 - Mogral
7 - Nileshwaram
8 - Shiriya
9 - Uppala
DRAINS
RIVER
District Boundary
KERALA
KASARAGOD
KARNATAKA
LAKSHADWEEP SEA
KANNUR DISTRICT
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33

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.

MINOR IRRIGATION CENSUS (2006-07)

Table: 21.1

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

Sl. No.	Name of Block/Municipality	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	Kanhangad	1696	2161	1967	42	87	72	17	38	33	1755	2286	2071
2	Kanhangad Municipality	116	73	73	16	8	8	0	0	0	132	81	80
3	Kasaragod	1799	2452	2258	82	157	148	41	74	68	1922	2684	2474
4	Kasaragod Municipality	108	43	42	0	0	0	0	0	0	108	43	42
5	Manjeswaram	1790	2043	2004	73	92	91	0	0	0	1863	2135	2095
6	Neeleswaram	2504	4906	4225	193	286	250	0	0	0	2697	5192	4475
	District Total	**8013**	**11678**	**10569**	**406**	**630**	**569**	**58**	**112**	**101**	**8477**	**12420**	**11237**

Table: 21.2

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

Sl.No.	Name of Block/Municipality	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	Kanhangad	188	5138	4539	45	526	493	233	5664	5032
2	Kanhangad Municipality	7	335	335	6	118	118	13	453	453
3	Kasaragod	147	3186	2794	35	439	376	182	3625	3170
4	Kasaragod Municipality	12	226	222	0	0	0	12	226	222
5	Manjeswaram	186	4830	4740	25	502	461	211	5332	5201
6	Neeleswaram	125	3569	3132	74	1257	1153	199	4826	4285
	District Total	**665**	**17284**	**15762**	**185**	**2842**	**2601**	**850**	**20126**	**18363**

Table: 21.3

MINOR IRRIGATION SCHEMES ACCORDING TO SOURCE OF ENERGY

Sl. No.	Name of Block/Municipality	Ground Water Schemes							Surface Water Schemes (Surface Lift Scheme Only)						
		Electric Pump	Diesel Pump	Wind Mills	Solar Pumps	Manual/ Annual	Others	Total (3to8)	Electric Pump	Diesel Pump	Wind Mills	Solar Pumps	Manual/ Annual	Others	Total (10to15)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Kanhangad	1370	102	1	0	91	191	1755	32	8	0	0	3	2	45
2	Kasaragod	1885	33	0	0	4	0	1922	33	2	0	0	0	0	35
3	Manjeswaram	1770	55	3	1	0	34	1863	25	0	0	0	0	0	25
4	Neeleswaram	2128	279	4	0	235	51	2697	28	42	0	0	1	3	74
5	Kanhangad Municipality	131	1	0	0	0	0	132	6	0	0	0	0	0	6
6	Kasaragod Municipality	107	0	1	0	0	0	108							
	District Total	**7391**	**470**	**9**	**1**	**330**	**276**	**8477**	**124**	**52**	**0**	**0**	**4**	**5**	**185**

Table: 21.4

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

Sl.No.	Name of Block/Municipality	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	Kanhangad	1755	2286	2071	233	5664	5032	1988	7950	7104
2	Kanhangad Municipality	132	81	80	13	453	453	145	534	533
3	Kasaragod	1922	2684	2474	182	3625	3170	2104	6309	5643
4	Kasaragod Municipality	108	43	42	12	226	222	120	269	264
5	Manjeswaram	1863	2135	2095	211	5332	5201	2074	7467	7295
6	Neeleswaram	2697	5192	4475	199	4826	4285	2896	10018	8760
	District Total	**8477**	**12421**	**11237**	**850**	**20126**	**18363**	**9327**	**32547**	**29599**

Table: 21.5

MINOR IRRIGATION SCHEMES IN TRIBAL & NON TRIBAL VILLAGES

Sl. No.	Name of Block/Municipality	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	Kanhangad	0	1696	1696	0	42	42	0	17	17	0	188	188	0	45	45	0	1988	1988
2	Kasaragod	0	1799	1799	0	82	82	0	41	41	0	147	147	0	35	35	0	2104	2104
3	Manjeswaram	0	1790	1790	0	73	73	0	0	0	0	186	186	0	25	25	0	2074	2074
4	Neeleswaram	0	2504	2504	0	193	193	0	0	0	0	125	125	0	74	74	0	2896	2896
5	Kanhangad Municipality	0	116	116	0	16	16	0	0	0	0	7	7	0	6	6	0	145	145
6	Kasaragod Municipality	0	108	108	0	0	0	0	0	0	0	12	12	0	0	0	0	120	120
	District Total	**0**	**8013**	**8013**	**0**	**406**	**406**	**0**	**58**	**58**	**0**	**665**	**665**	**0**	**185**	**185**	**0**	**9327**	**9327**

Table: 21.6

SEASON WISE AREA IRRIGATED BY MINOR IRRIGATION SCHEMES

Sl. No.	Name of Block/Municipality	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	Kanhangad	467	558	797	249	2071	1228	1204	1912	688	5032	1696	1762	2709	937	7104
2	Kasaragod	426	391	1241	415	2473	887	831	988	463	3169	1313	1223	2229	879	5644
3	Manjeswaram	280	217	1233	365	2095	1149	869	2439	744	5201	1428	1086	3672	1109	7295
4	Neeleswaram	795	853	2231	597	4476	1255	1225	1228	577	4285	2050	2078	3459	1174	8761
5	Kanhangad Municipality	9	7	55	10	81	186	139	89	39	453	195	146	143	49	533
6	Kasaragod Municipality	0	0	37	5	42	61	52	44	65	222	61	52	81	70	264
	District Total	**1977**	**2026**	**5594**	**1641**	**11238**	**4766**	**4320**	**6700**	**2576**	**18362**	**6743**	**6347**	**12293**	**4218**	**29601**

Table: 21.7

MINOR IRRIGATION SCHEMES ACCORDING TO WATER LIFTING DEVICES

Sl. No.	Name of Block/Municipality	Ground Water Schemes						Surface Water Schemes (Surface Lift Scheme only)					
		Sub mersible Pump	Centri fugal Pump	Turbine	Manual/ Annual	Others	Total (3 to 7)	sub mersible 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	Kanhangad	334	1330	0	91	0	1755	0	40	0	3	2	45
2	Kasaragod	463	1453	2	4	0	1922	13	22	0	0	0	35
3	Manjeswaram	799	1064	0	0	0	1863	2	23	0	0	0	25
4	Neeleswaram	180	2206	20	235	56	2697	4	66	0	1	3	74
5	Kanhangad Municipality	16	116	0	0	0	132	0	6	0	0	0	6
6	Kasaragod Municipality	1	107	0	0	0	108			0			0
	District Total	**1793**	**6276**	**22**	**330**	**56**	**8477**	**19**	**157**	**0**	**4**	**5**	**185**

Table: 21.8

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

Sl. No.	Name of Block/Municipality	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												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Kanhangad	83	69	222	252	357	522	723	951	46	36	222	179	102	62	1755	2071
2	Kasaragod	38	56	303	275	382	548	524	741	135	164	345	558	195	130	1922	2474
3	Manjeswaram	713	1004	406	398	215	154	205	119	29	25	274	377	21	19	1863	2095
4	Neeleswaram	158	685	617	1181	331	775	669	904	157	158	337	338	377	434	2646	4475
5	Kanhangad Municipality	0	0	50	39	82	41	0	0	0	0	0	0	0	0	132	80
6	Kasaragod Municipality	0	0	1	0	44	19	62	22	0	0	0	0	1	0	108	42
	District Total	**992**	**1814**	**1599**	**2145**	**1411**	**2059**	**2183**	**2737**	**367**	**383**	**1178**	**1452**	**696**	**645**	**8426**	**11237**

Table: 21.9

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

Sl. No.	Name of Block/Municipality	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												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Kanhangad	57	2119	152	2684	9	116	6	89	0	0	1	9	3	15	228	5032
2	Kasaragod	26	439	77	1756	35	376	4	68	0	0	0	0	39	530	181	3170
3	Manjeswaram	75	2457	66	1704	10	129	10	68	0	0	0	0	48	843	209	5201
4	Neeleswaram	0	0	167	4051	2	19	4	38	0	0	0	0	10	177	183	4285
5	Kanhangad Municipality	0	0	11	439	0	0	0	0	0	0	1	7	1	7	13	453
6	Kasaragod Municipality	0	0	9	196	0	0	0	0	0	0	0	0	3	26	12	222
	District Total	**158**	**5015**	**482**	**10830**	**56**	**640**	**24**	**263**	**0**	**0**	**2**	**16**	**104**	**1598**	**826**	**18363**

Table: 21.10

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

Sl. No.	Name of Block/Municipality	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												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Kanhangad	140	2187	374	2937	366	638	729	1041	46	36	223	187	105	77	1983	7104
2	Kasaragod	64	495	380	2031	417	924	528	809	135	164	345	558	234	661	2103	5643
3	Manjeswaram	788	3461	472	2101	225	282	215	187	29	25	274	377	69	862	2072	7295
4	Neeleswaram	158	685	784	5232	333	793	673	942	157	158	337	338	387	611	2879	8760
5	Kanhangad Municipality	0	0	61	478	82	41	0	0	0	0	1	7	1	7	145	533
6	Kasaragod Municipality	0	0	10	196	44	19	62	22	0	0	0	0	4	26	120	264
	District Total	**1150**	**6828**	**2081**	**12975**	**1467**	**2697**	**2207**	**3001**	**367**	**383**	**1180**	**1467**	**800**	**2244**	**9252**	**29599**

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 spurted 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 17th Survey. The figures for Kerala in terms of demand projection in the Draft 17th EPS are given below.

Table: 22.1

17th EPS ESTIMATES FOR 11th PLAN PERIOD

Year	Energy Consumption	Peak Demand	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 17th 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 11th 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	**No of EHT substations**			
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	**Distribution transformers**			
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
	Total	**2879.79**	**2878.39**	**2891.75**

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
Total (All India)	**37567.4**	**93918.38**	**1199.75**	**17706.35**

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
Total (All India)	**4780**	**18454.52**	**173626.4**

Source: Kerala State Electricity Board

MISCELLANEOUS

Water Transport

In Kerala there are many water bodies including rivers, lakes, backwaters etc. Backwater is a wonderful gift of nature to the God's Own Country. Water transport provides for those people who reside in waterlogged areas. These waterlogged areas include Alappuzha, Kollam, Kottayam, Ernakulam, Kannur and Kasaragod district. Ashtamudy and Vembanadu Lake which completes the network of waterways not only provides natural beauty but inland navigation facilities also. This includes navigable river, backwaters and manmade cross canals. Most of these are in Travancore-Cochin region. Of the 44 rivers in Kerala, the 41 west flowing rivers together with back waters and manmade canals form the integral part of inland navigation system. It is the water bodies that connect the islands and remote villages with the main land. This inland water transport system consists of 1895 kms of waterways. This type of inland water transport has advantages such as pollution free and cheap means of transportation. It is in the inland canals that connect the rivers from one to another. Here we have the west coast canal system which has a length of about 560 kms. The Vembanad lake which has a length of about 83 kms. has cochin in this north and Alappuzha in the southern end.

Table: 23.1

NEWLY REGISTERED VEHICLES IN KASARAGOD DISTRICT FOR THE YEAR 2013-14

Sl.No.	Classification of Vehicles	Vehicle No.
Transport Vehicles		
1	Multiaxied Articulated Vehicles	0
2	Trucks and Lorries	56
3	Four Wheelers	2569
4	Three Wheelers	956
Total		**3581**
5	Stage Carriage	426
6	Contract Carriage	28
7	Private Service Vehicles	5
8	Other Buses	19
Total		**478**
9	Motor Cabs	226
10	Maxi Cabs/Taxi	0
11	Other Taxis	46
12	LMV 3 Seater	3956
13	LMV 4 to 6 Seater	2265
14	Motor Cycle Hire	2
Total		**6495**
15	Other TVs	109
Total Transport		**10663**
16	Scooters	0
17	Mopads	0
18	Motor Cycles including above & below 95cc	13256
Total		**13256**
19	Cars	8456
20	Jeeps	118
21	Omni Buses	116
22	Tractors	16
23	Trailors	0
24	Others	693
Total		**9399**
Total Non Transport		**22655**
Grand Total		**33318**

Table: 23.2

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

Goods Vehicle	Four Wheelers and above	10038
	Three Wheelers including tempos	2040
Buses	Stage carriages	478
	Contract Carriages/Omni Buses	981
Four Wheelers	Cars	58146
	Taxis	5669
	Jeeps	4235
Three Wheelers	Autorickshaws	19683
	Motorized Cycle Rickshaws	0
Two Wheelers	Motorized Cycles	0
	Scooter/Motor Cycles	102656
Tractors/Trailors	Tractors/Trailors	756
	Tillers	174
	Trailors	112
	Others	339
Grand Total		**205307**

Table: 23.3

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

(In Kms)

District/State	State Highways	Major District Roads	Total
Kasaragod	141.78	1301.38	1443.16
State	**4341.65**	**27469.95**	**31811.60**

Source: Economic Review

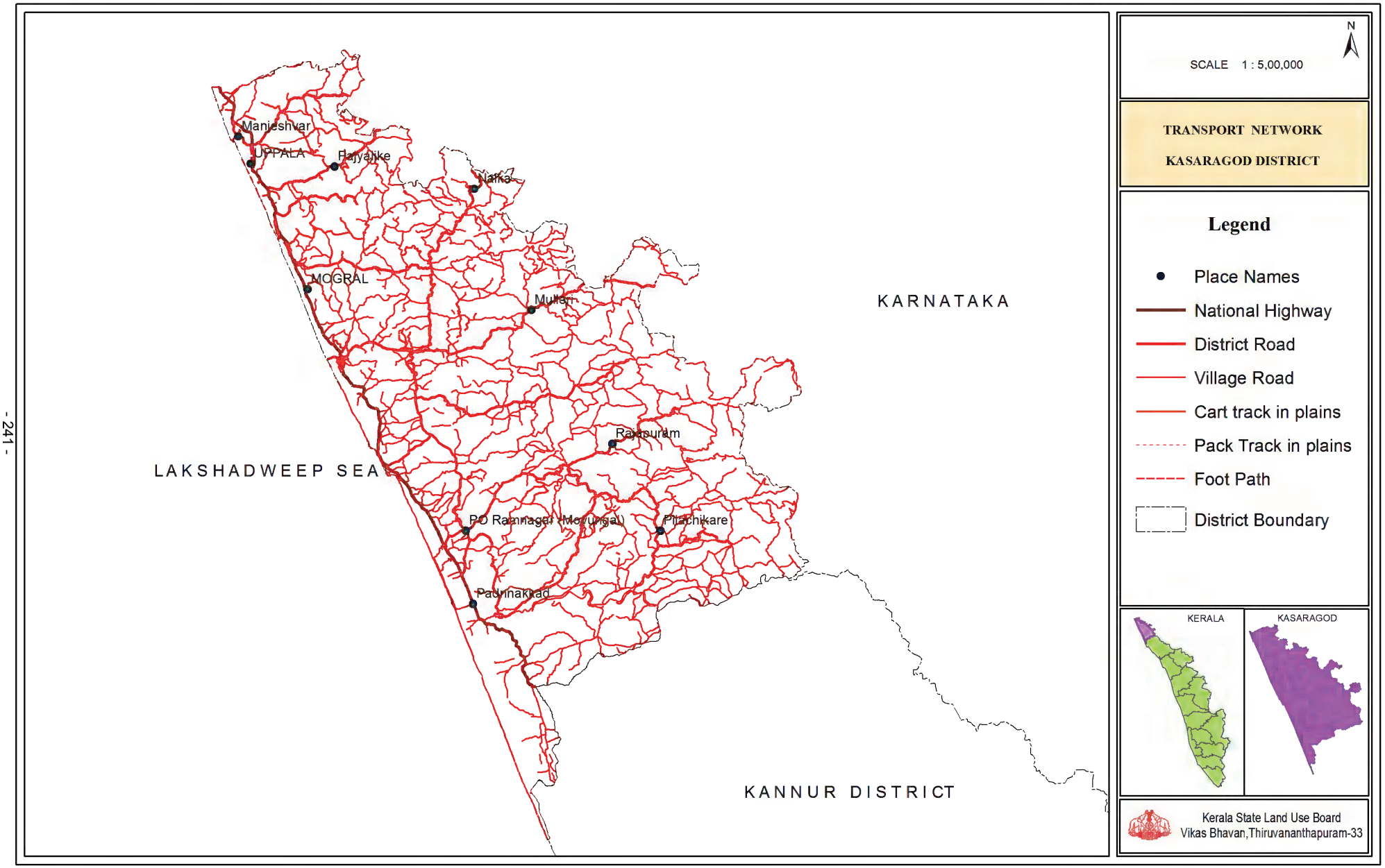
Table: 23.4

STANDARDISED LIST OF INSTITUTIONS IN KASARAGOD DISTRICT

Sl. No.	Institutions	Location	No. of Beds	Health Block
1	CHC	Manjeswaram	32	CHC Mangalpady
2	CHC	Cheruvathur	24	CHC Nileswar
3	CHC	Periya	12	CHC Periya
4	CHC	Bedadka	24	CHC Bedadka
5	CHC	Muliyar	12	CHC Muliyar
6	CHC	Poodamkallu	41	CHC Poodamkallu
7	CHC	Mangalpady	24	CHC Mangalpady
8	CHC	Badiadka	30	CHC Kumbala
9	CHC	Kumbala	30	CHC Kumbala
10	24X7 PHC	Chittarickal	24	CHC Nileswar
11	24X7 PHC	Narkilakkadu	24	CHC Nileswar
12	24X7 PHC	Kayyur	0	CHC Nileswar
13	24X7 PHC	Valiyaparamba	0	CHC Nileswar
14	24X7 PHC	Padne	24	CHC Nileswar
15	24X7 PHC	Uduma	24	CHC Bedadka
16	24X7 PHC	Palathur	24	CHC Poodamkallu
17	24X7 PHC	Ennappara	0	CHC Poodamkallu
18	24X7 PHC	Vellarikundu	24	CHC Poodamkallu
19	24X7 PHC	Bayar	24	CHC Mangalpady
20	PHC	Karnthalam	0	CHC Nileswar
21	PHC	Mankodu	0	CHC Nileswar
22	PHC	Thaikkadappuram	0	CHC Nileswar
23	PHC	Thuruthi	0	CHC Nileswar
24	PHC	Olat	0	CHC Nileswar
25	PHC	Mavilakadapuram	0	CHC Nileswar
26	PHC	Udumbunthala	0	CHC Nileswar
27	PHC	Pallikkara	0	CHC Periya
28	PHC	Ajanoor	0	CHC Periya
29	PHC	Anadashram	0	CHC Periya

Sl. No.	Institutions	Location	No. of Beds	Health Block
30	PHC	Karicherry	0	CHC Periya
31	PHC	Bandadka	0	CHC Bedadka
32	PHC	Chattanchal	0	CHC Bedadka
33	PHC	Kalanad	0	CHC Bedadka
34	PHC	Mulleria	0	CHC Muliyar
35	PHC	Chengala	0	CHC Muliyar
36	PHC	Adoor	0	CHC Muliyar
37	PHC	Mogral puthur	0	CHC Muliyar
38	PHC	Madikkai	0	CHC Poodamkallu
39	PHC	Konnakkadu	0	CHC Poodamkallu
40	PHC	Vorkady	0	CHC Mangalpady
41	PHC	Meenja	0	CHC Mangalpady
42	PHC	Arikady	0	CHC Kumbala
43	PHC	Madhur	0	CHC Kumbala
44	PHC	Puthige	0	CHC Kumbala
45	PHC	Angadimugar	0	CHC Kumbala
46	PHC	Kumbadaje	0	CHC Kumbala
47	PHC	Perla	0	CHC Kumbala
48	PHC	Bellur	0	CHC Kumbala
49	PHC	Vaninagar	0	CHC Kumbala

Source: DHS


Manjeshvar
UPPALA
Hajyajike
Naika
MOGRAL
Mulleri
KARNATAKA
Rajapuram
LAKSHADWEEP SEA
PO Ramnagar (Meruguai)
Pilachikare
Padinakkad
KANNUR DISTRICT
N
SCALE 1 : 5,00,000
TRANSPORT NETWORK
KASARAGOD DISTRICT
Legend
Place Names
National Highway
District Road
Village Road
Cart track in plains
Pack Track in plains
Foot Path
District Boundary
KERALA
KASARAGOD
Kerala State Land Use Board
Vikas Bhavan,Thiruvananthapuram-33