5. Changes in the Land Use

Analysis of physiographic division shows that, along the lowland region, settlement with mixed trees dominated and constituted 53.58 percent area during 1966-67 (Table 3). This increased to 59.91 percent areal coverage as per the recent data. Paddy field which was spread in 28.16 percent area was reduced to 7.01 percent as per 2011 data. Built up area increased from 4.87 percent to 25.03 percent area in the forty years time period. Considering the midland region, 14.14 percent area was under paddy during 1966-67 which decreased to 3.84 percent as per 2011 data. Settlement with mixed trees was also reduced from 82.32 percent of 1966-67 to 78.32 percent in 2011 data. While built up land increased from 1.30 percent to 16.86 percent during the study period.

Along the highland region, reduction in area was witnessed in forest land which was reduced from 42.35 percent areal coverage of 1966-67 to 28.85 percent as per the 2011 data. Built up showed an increase from 0.52 percent area of 1966-67 to 5.97 percent in 2011. Scrub land area also increased from 0.36 percent area to 10.81 percent area as per the latest data. Settlement with mixed trees also increased from 49.54 percent to 51.34 percent during the study period

Table 3: Area under Various Land Use Categories Based on Physiographic Zones in Thiruvananthapuram District 1966-67 to 2011

Sl.No.	Land Use Categories	Lowland				Midland				Highland			
		1966-67		2011		1966-67		2011		1966-67		2011	
		Area (sq.km.)	Area (%)	Area (sq.km.)	Area (%)	Area (sq.km.)	Area (%)	Area (sq.km.)	Area (%)	Area (sq.km.)	Area (%)	Area (sq.km.)	Area (%)
1	Settlement with mixed trees	175.71	53.58	196.45	59.91	573.25	82.32	545.40	78.32	576.37	49.54	597.27	51.34
2	Aerodrome	1.48	0.45	3.25	0.99		0.00		0.00		0.00		0.00
3	Built-up land	15.98	4.87	82.07	25.03	9.05	1.30	117.40	16.86	6.00	0.52	69.51	5.97
4	Paddy field	92.34	28.16	22.99	7.01	98.46	14.14	26.75	3.84	37.21	3.20	3.12	0.27
5	Forest	0	0	0	0.00	3.31	0.47	1.34	0.19	492.68	42.35	335.64	28.85
6	Scrub land	0	0	0	0.00		0.00	1.21	0.17	4.23	0.36	125.80	10.81
7	Grassland	0	0	0	0.00		0.00		0.00	5.79	0.50	0.36	0.03
8	Wasteland	0.17	0.05	0.92	0.28	0.31	0.04	1.69	0.24	22.93	1.97	17.67	1.52
9	Sandy area	18.67	5.69	4.54	1.39		0.00		0.00		0.00		0.00
10	Water bodies	23.56	7.18	17.67	5.39	12.02	1.73	2.60	0.37	18.22	1.57	14.16	1.22
	Total	327.90	100	327.90	100.00	696.38	100.00	696.39	100.00	1163.42	100.00	1163.53	100.01

Table 4: Change of Land Use in Various Physiographic Divisions 1966-67 to 2011

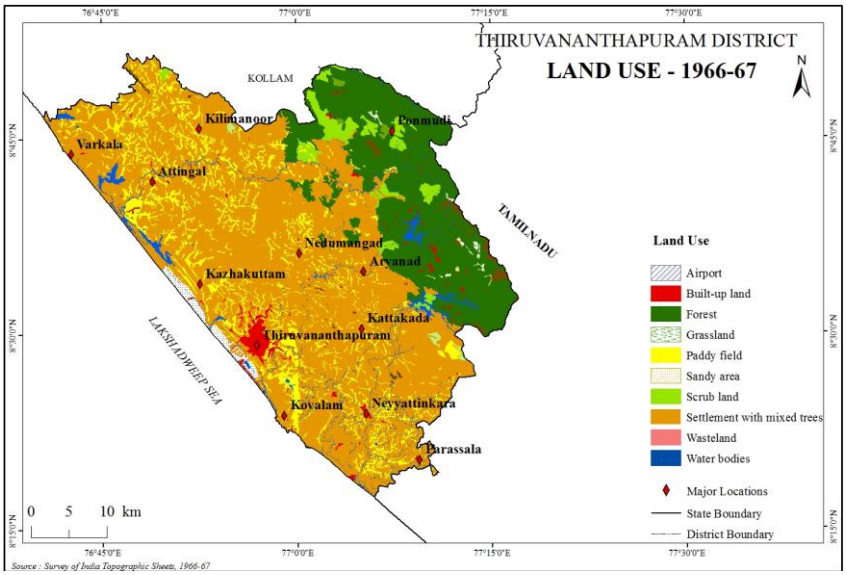
Sl.No.	Land Use Categories	Area (sq.km.)		
		Lowland	Midland	Highland
1	Settlement with mixed trees	20.74	-27.85	19.74
2	Aerodrome	1.77	0.00	-0.23
3	Built-up land	66.10	108.35	63.10
4	Paddy field	-69.35	-71.70	-73.35
5	Forest	0.00	-1.96	-5.00
6	Scrub land	0.00	1.21	-6.00
7	Grassland	0.00	0.00	-7.00
8	Wasteland	0.76	1.38	-7.24
9	Sandy area	-14.13	0.00	-23.13
10	Waterbody	-5.89	-9.42	-15.89

Thus the separate analysis of land use of physiographic divisions was useful in identifying the following characteristics:

- Built up area increased irrespective of physiographic divisions but was high along the midland region. About 108.35 sq.km area was added to built up in midland alone. Lowland and highland showed an addition of 66.10 sq.km and 63.10 sq.km each.
- Settlements with mixed trees showed a general trend of reduction in area. But along the lowland and highland area, this land use showed an increase of 20.74 sq.km and 19.74 sq.km each. This can be due to the fact that along the lowland the areas previously under paddy were widely changed to coconut farm and also for other cultivation. Along the highland areas bordering the forest was converted for either settlements or for plantation purposes.
- Reduction in area under paddy fields was common in all divisions and along the lowland and midland areas, but was slightly more along the midland area with a reduction of 71.70 sq.km was witnessed.
- Area under wasteland increased more along the midland (+1.38 sq.km) and lowland regions (+0.76sq.km) while it area reduced along the highland (-7.24 sq.km). This can be due to the increasing mining activities going on along these regions. Clay mining and stone quarrying are more active towards the midland areas of the district.
- Where as reduction in the area occupied by water bodies was more along the midland areas (-9.42 sq.km). This can be ascribed as the effect of increasing concentration of built up in this zone which forces the reclamation of small water bodies like ponds and tanks for construction purposes.

6. Conclusion

The present study, conducted to analyse the population changes and related land use variations of Thiruvananthapuram district showed that with the increasing population, land use has undergone considerable changes from 1966 to 2011 and conversion between different land use types took place frequently, especially among paddy fields, built up lands, wasteland sand scrub lands. The work unravels the effectiveness of remote sensing and GIS as effective tools for detecting and quantifying long term changes and patterns in population and land use change dynamics.



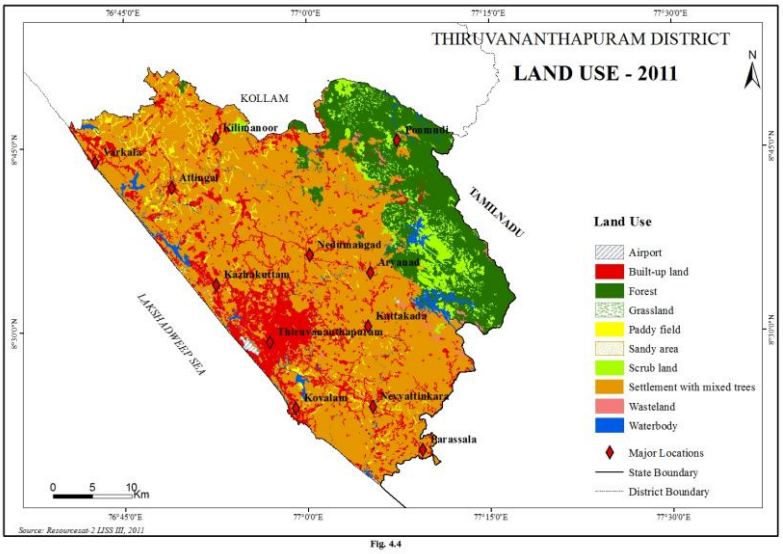


Fig. 4.4

7. Acknowledgements

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