

**INVENTORY OF SOIL & LAND RESOURCES OF
WAYANAD DISTRICT, KERALA STATE
USING REMOTE SENSING TECHNIQUES**

ABSTRACT

1.	Survey Area	:	Wayanad District, Kerala State, India)
2.	Geographical Extent	:	75 ⁰ 47' and 70 ⁰ 27' East Longitudes 11 ⁰ 27' and 15 ⁰ 58' North Latitudes
3.	Agro-climatic Region	:	Agro-climatic Zone-XII (West Coast Plains & Ghat Region)
4.	Total Geographical Area	:	2,12,939 ha.
5.	Type of Survey	:	Soil Resource Mapping (SRM) using Remote Sensing Techniques
6.	Base Maps	:	(i) Survey of India Toposheets (scale 1:50,000) 49 M/13, 49 M/14, 58 A/01, 58 A/02, 58 A/03, 58 A/05 and 58 A/07 (ii) Geology Map (scale 1:2,50,000) of Geological Survey of India (iii) Satellite Imagery (scale 1:50,000) of LISS-III (IRS-1D)
7.	Scale of Mapping	:	1:50,000
8.	Period of Survey	:	May, 2013

9. Mapping unit wise soil association and their extent:

MAPPING UNIT	Soil Association	Area(ha)	Percentage
CKn6b1	Chembottara-Rippon	1277	0.6
CKn8b1	Karingavayal-Chembra-Pozhutana	10493	4.9
CKn8c1	Meppadi-Ladysmith	14349	6.7
CKn8d1	Neelimala- Pozhutana	5644	2.7
CKu4b1	Kottappadi-Tariyod	3879	1.8
GNN6b1	Nedumbala-Kavummandam	35114	16.5
GNN6c1	Maddur-Tholpetty	18523	8.7
GNN6d1	Krishnagiri-Maddur	271	0.1
GNN8b1	Padivayal-Vakeri	31124	14.6
GNN8c1	Muppayanad-Kuppadi	22359	10.5
GNN8d1	Vakeri-Krishnagiri	684	0.3
GNp3a1	Madakkimala -Tekkumtara	19651	9.2
GNp3b1	Madakkimala-Tekkumtara-Srimangalam	4563	2.1
GNp3c1	Muthanga- Srimangalam	647	0.3
GNu4b1	Trikkepatta-Cholavayal-Mailkunnu	12682	6.0
GNu4c1	Takkarapadi- Mailkunnu-Cholavaya	6676	3.1
GNw2a1	Muttal-Cheruppatta-Nulpuzha	15749	7.4
GNw2b1	Kottanad-Panamaram	1181	0.6
SCn8b1	Kuttambi-Trissleri	985	0.5
SCn8c1	Trissleri-Kuttambi	4294	2.0
SCn8d1	Kuttambi-Trissleri	387	0.2
e	ROC	399	0.2
f	Habitation, Built-up area etc.	161	0.1
g	Waterbodies	1848	0.9
Total		212939	100

SALIENT FEATURES:

- ❖ Agriculture has dominant area in the district and occupied 94096 ha (44%) followed by forest area 66847 ha (31.4%).
- ❖ Out of the total area, about 27.1 per cent area is suitable for cultivation with minor limitations and 17.1 per cent with major limitations.
- ❖ The interpretative grouping on land capability class (LCC) falls under six classes. Land capability class VII dominated accounting to 20 per cent, followed by class II accounting 19.3 per cent and class IV accounting 17.1 per cent of the area.
- ❖ As per the soil irrigation potential, 27.1 per cent area has moderate soil limitations 23.3 per cent under very severe soil limitations whereas 17.1 per cent lands have severe soil limitations for sustained use under irrigation.
- ❖ As per the Land Irrigability Class, 19.3 per cent lands have moderate limitation for sustained use under irrigation followed by 17.1 percent lands that are marginal for sustained use under irrigation because of very severe limitations.
- ❖ Twenty one mapping units have been established in the survey area, of which GNn6b1 mapping unit occupies maximum area of 16.5% followed by GNn8b1 (14.6%).
- ❖ Most of the area in Wayanad district comes under Gneiss landscape (79.58 %) followed by Charnockite (16.7 %) and Schist (2.7%).
- ❖ Most of the area of Wayanad district comes under steep to very steep slope class (42.1%) followed by strongly sloping to moderately steep slope class (26.1%).
- ❖ Very deep (75.3%) soils occupy majority of the area are followed by deep soils (23.6%).
- ❖ Major area comes under moderate to severe erosion (64.8%) followed by none to slight erosion (19.3%).
- ❖ Major area comes under poorly to moderately managed class (64.8%) followed by well managed class (19.3%).

HOW TO USE SOIL RESOURCE MAPPING REPORT

This report embodies the results of the Soil Resource Mapping of Wayanad district of Kerala, State and furnishes information on the geographical setting of the state vis-à-vis location, extent, physiography, relief, drainage, climate, geology, natural vegetation, agriculture, land use and soils.

The report contains information on nature and kind of soil resources with its extent on landscape and interpretative grouping of soils and land resources which includes land capability classification that helps to prepare scientific land use plan for agriculture, horticulture, forestry, grassland development and providing suggestive management guidelines for crop suitability and crop recommendations. The soils of the area have also been differentiated as per soil characteristics based on Soil Taxonomy (USDA) to enable the users for scientific land use planning.

Wayanad District which spreads over an area of 2,12,939 ha have its district headquarters at Kalpetta with Manathavady, Sulthan Bathery and Vythiri taluks. The district is covered by 7 numbers of Survey of India Toposheets on 1:50,000 scale and the same have been used as reference maps for the survey. Satellite data (NRSC Imagery) has been used for image interpretation and soil mapping. In the report each soil mapping unit is marked by a symbol which represent the five levels of generalization as features within mapping units *viz.*

Geology (parent material)	GN	- Gneiss
Physiography	w	- Lower pediplains
Slope	2	- 0-3 % Slope
Land use	a	- Agriculture
Soils	1	- Association of soil series

Each soil association is restricted to a maximum of three soil series found within concerned soil mapping unit.

For the use of the soil resource report, first user needs to locate the area of interest on the map and note down the soil mapping units. Permanent features such as road, stream, lakes and village habitation etc. shown on the map will help user to locate the area of interest on the map. For the detailed information on soil mapping unit in respect of soil series in the area of interest, its extent, present and proposed land uses reference may be made to chapter 4, 5 and Appendix-I and II.

Any comments and/or suggestions on the report are welcome. For any additional information and clarification, further correspondence or personal contact may be established with:

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