

**INVENTORY OF SOIL & LAND RESOURCES OF
RANGA REDDY DISTRICT, TELANGANA
STATE USING REMOTE SENSING TECHNIQUES**

ABSTRACT

1.	Survey Area	:	Ranga Reddy (Telangana, India)
2.	Geographical Extent	:	77°21' to 78°51' East Longitudes 16°54' to 17°48' North Latitudes
3.	Agro-climatic Region	:	Southern Plateau and Hills Region- (Zone - X)
4.	Total Geographical Area	:	7,54,466 ha
5.	Kind of Survey	:	Soil Resource Mapping (SRM) using Remote Sensing Techniques
6.	Base Maps	:	(i) Survey of India Toposheets (scale 1:50,000) (ii) Geology Map (scale 1:2,50,000) of Geological Survey of India (iii) Satellite Imagery (scale 1:50,000) of LISS-III (IRS-1C&1D)
7.	Scale of Mapping	:	1:50,000
8.	Period of Survey	:	December, 2010 to January, 2011

9. Mapping unit wise soil association and their extent

S. No.	Mapping Unit	Soil Series Association	Area (ha)	Area (%)
1	ALg2a1	Nagarguda-Bennur	3826	0.5
2	BAn6c1	Madanpalli-Naskal	4731	0.6
3	BAn8c1	Naskal-Madanpalli	684	0.1
4	BAu4c1	Kottapalli-Girgitanpalli	6217	0.8
5	BAv3a1	Shahbad-Mitlakanpalli-Kothagadi	97582	12.9
6	BAv3c1	Mudimial-Beralli	2557	0.3
7	BAv3d1	Beralli-Mudimial	7955	1.1
8	BAw2a1	Kothagadi-Kottapuram-Shahbad	45962	6.1
9	GRn6d1	Yallammatanda-Buggatanda-Koraditanda	7229	1.0
10	GRn8c1	Koraditanda-Buggatanda-Yallammatanda	5130	0.7
11	GRu4a1	Ragapur	3235	0.4
12	GRu4c1	Jaipal-Sultanpalli-Tulekalam	10643	1.4
13	GRu4d1	Sultanpalli-Jaipal-Tulekalam	15005	2.0
14	GRv3a1	Nagaluru-Sultanpalli	136574	18.1
15	GRv3b1	Pasmamla	1951	0.3
16	GRv3c1	Tulekalam-Sultanpalli-Jaipal	17117	2.3
17	GRv3d1	Sultanpalli-Jaipal-Tulekalam	12547	1.7
18	GRw2a1	Narkhada-Dundigal	110178	14.6
19	LAi4c1	Ananthagiri-Panchalingalu	1510	0.2
20	LAn6c1	Rawalpalli	1514	0.2
21	LAu4c1	Pudur-Pulmaddi	5949	0.8
22	LAu4d1	Pulmaddi-Kompalli	2749	0.4
23	LAv3a1	Manmadan palli-Tottepalli	17897	2.4
24	LAv3d1	Chandrayanpalli-Tottepalli	4138	0.5
25	LSv3a1	Karankote-Kottabaspalli	4215	0.6
26	LSv3d1	Kottabaspalli-Karankote	430	0.1
27	LSw2a1	Guntabaspalli-Malakpur	6513	0.9
28	GGn6c1	Rampuram-Bawapalle	5222	0.7
29	GGn6d1	Bawapalle-Rampuram	1360	0.2
30	GGu4c1	Jatpalli-Annasagar-Timmaipalli	11794	1.6
31	GGu4d1	Timmaipalli-Annasagar-Jatpalli	2876	0.4
32	GGv3a1	Pargi-Kokta	29870	4.0
S. No.	Mapping Unit	Soil Series Association	Area (ha)	Area (%)
33	GGv3a2	Kodamhalli	18368	2.4
34	GGv3c1	Godisingapur-Durgapur	5358	0.7

35	GGv3d1	Durgapur-Godisingapur	2672	0.4
36	GGw2a1	Gaotapur-Malkangiri	60148	8.0
37	e	Rock out crop	7254	1.0
38	f	Habitation	57941	7.7
39	g	Water body	17565	2.3
Total			754466	100.0

NOTE: An area of **17545 ha** of Hyderabad city has been deducted from the map area.

SALIENT FEATURES:

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- ❖ District represents agriculture as the dominant land use occupying 5,34,368 ha constituting 70.8% of the total geographical area followed by forest 78,426 ha constituting 10.4%.
 - ❖ Majority of the area is under plains constituting nearly 48.0 per cent with very gently sloping to gently sloping and 30.0 per cent nearly level to very gently sloping.
 - ❖ The area under deep to very deep soils is 58.8 per cent followed by deep soils covering 12.4 per cent and 7.4 per cent area under very deep soils.
 - ❖ Nearly 50 per cent area is affected by slight to moderate erosion followed by none to slight water erosion (22%) and moderate to severe erosion (16%), respectively.
 - ❖ Out of the total area, nearly 78.0 per cent of the area is found suitable for cultivation and classified as good to moderately good land with slight to moderate limitations.
 - ❖ About 43.0 per cent area is found suitable for potential irrigation with moderate soil limitations for sustained use under irrigation followed by 24.0 per cent with moderate to severe soil limitations.
 - ❖ The survey area has 45.3 per cent land moderate to well manage, followed by well managed (21.2%) whereas 16.3 per cent area has unmanaged soils.
 - ❖ Taxonomically soils had been classified under four soil orders namely Inceptisols, Entisols, Alfisols and Vertisols.
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HOW TO USE SOIL RESOURCE MAPPING REPORT

This report embodies the results of the Soil Resource Mapping of Rangareddy district of Telangana 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 interpretative grouping of soils and land resources which includes land capability classification providing suggestive management related guidelines; soil suitability groupings and crop recommendations which in turn provides a scientific database for horticulture, forest, forage and grassland development; water harvesting, water storage and water management. 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.

Ranga Reddy District spreads over an area of 7,54,466 ha and for administrative purposes, the district is divided into five revenue divisions and sixty mandals. The district is covered by twenty seven 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 i.e. GRv3a1 (Granite, Geology; upper pediplains, 1-5 per cent slope; agriculture land use; soil series association, which means the area has dominance of Nagaluru, series in association with Sultanpalli 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.

The symbols used in the soil mapping unit represents the five levels of mapping i.e. GRv3a1 may be referred as follows:

GR	Granite	:	Landscape
v	Upper Pediplains	:	Physiography
3	1-5 % Slope	:	Slope classes
a	Agriculture	:	Land use
1	Soil series association		

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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