

**INVENTORY OF SOIL & LAND RESOURCES MAPPING OF  
MAHABUBNAGAR DISTRICT OF TELANGANA STATE  
USING REMOTE SENSING TECHNIQUES**

**ABSTRACT**

1.	<b>Survey Area</b>	:	Mahabubnagar district, Telangana State
2.	<b>Geographical Extent</b>	:	77°15 ' and 79 °15 'East Longitudes 15 ° 55' and 17 °29' N North Latitudes
3.	<b>Agro-climatic Region</b>	:	Southern Plateau and Hills region-X
4.	<b>Total Geographical Area</b>	:	18,39,406 ha
5.	<b>Kind of Survey</b>	:	Soil Resource Mapping (SRM) using Remote Sensing Techniques
6.	<b>Base Maps</b>	:	(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-1D)
7.	<b>Scale of Mapping</b>	:	1:50,000
8.	<b>Period of Survey</b>	:	December, 2011 to January, 2012 and March to April, 2012

9. Mapping unit wise soil association and their extent

SI No	MAPPING UNIT	Soil Association	Area (ha)	Area (%)
1	ALg2a1	Kodgal-Ammapalli	2989.00	0.16
2	BAu4d1	Chandrakal-Luthnagar	350.00	0.02
3	BAv3a1	Raichur-Luthnagar	18016.00	0.98
4	BAw2a1	Indanur-Lalapet	18079.00	0.98
5	DLi4c1	Chinnampalli-Somsil	1536.00	0.08
6	DLn6c1	Rampur-Kothalapur	2746.00	0.15
7	DLn8c1	Kothalapur-Rampur	6982.00	0.38
8	DLv3a1	Yangampalli-Somsil	1140.00	0.06
9	GGn6c1	Appanapalli-Konapalli	26980.00	1.47
10	GGn6d1	Kottakota-Wanparthi	10845.00	0.59
11	GGn8c1	Kotakadra-Kandur-Kishtagiri	27472.00	1.49
12	GGn8d1	Ghanapuram-Tatikonda	3826.00	0.21
13	GGu4a1	Bapanpalli-Ragegadda	7778.00	0.42
14	GGu4a2	Salekalpuram-Telkapalli Tanda	8135.00	0.44
15	GGu4a3	Telkapalli Tanda-Achampet	3490.00	0.19
16	GGu4c1	Ragegadda-Mangalilunta Tanda-Burgipalli	39657.00	2.16
17	GGu4d1	Lambadi Tanda-Achampet	11852.00	0.64
18	GGu4d2	Kottapalli-Achampet	15128.00	0.82
19	GGv3a1	Tangallapalli-Machanpalli	188464.00	10.25
20	GGv3a2	Kodapart-Dudial	238124.00	12.95
21	GGv3a3	Dudial-Taduru	39718.00	2.16
22	GGv3a4	Madanpuram-Aitol	104487.00	5.68
23	GGv3a5	Chengunta-Lalkota	21971.00	1.19
24	GGv3c1	Gudyal-Pedda Mulghera	11925.00	0.65
25	GGv3c2	Kammadhanam-Pedda Mulghera	5451.00	0.30
26	GGv3d1	Pedda Mulghera-Karvena	7432.00	0.40
27	GGw2a1	Mannur-Gatlakanpuram-Kondadoddi	473321.00	25.73
28	GGw2a2	Kodur-Tipparasipalli	47304.00	2.57

29	GGw2d1	Kondadoddi-Kodur	6767.00	0.37
30	GRn6d1	Krishnapuram-Chinnachintarevula	1082.00	0.06
31	GRn8d1	Chinnachintarevula-Krishnapuram	134.00	0.01
32	GRu4c1	Ghut-Penchkalpad	178.00	0.01
33	GRu4d1	Kothapalem-Pardipuram	5465.00	0.30
34	GRv3a1	Dudial-Kodapart-Mirdoddi	21703.00	1.18
35	GRv3a2	Karvena-Gurrampalli	28248.00	1.54
36	GRv3a3	Vankayan Nagar-Venkatapuram	12590.00	0.68
37	GRv3a4	Venkatapuram-Machanpalli	2667.00	0.14
38	GRw2a1	Bhimpur-Aij	40236.00	2.19
39	GRw2a2	Kisannagar-Aij	16905.00	0.92
40	GRw2d1	Machanpalli-Budadipad	1541.00	0.08
41	LAv3a1	Linganavai-Peddadagada	3757.00	0.20
42	LSv2a1	Kalukuntala-Valluru	2947.00	0.16
43	LSv3a1	Bududapadu-Valluru	26200.00	1.42
44	LSv3d1	Kalukuntala-Valluru	1994.00	0.11
45	LSw2a1	Boravelli-Valluru-Ayyavaripalli	27116.00	1.47
46	MBv3a1	Kodandapuram-Daudarpalli	260.00	0.01
47	MBv3a2	Daudarpalli-Gadwal	529.00	0.03
48	SHi4c1	Nilaram Gutta-Tangalrevu Penta	18232.00	0.99
49	SHn6c1	Amrabad-Domala Penta	40183.00	2.18
50	SHn8c1	Egalapenta-Domala Penta	53227.00	2.89
51	SHu4c1	Farhabad	49232.00	2.68
52	SHv3a1	Vativellupalli	6101.00	0.33
53	e	ROC	31719.00	1.72
54	f	Habitations	17028.00	0.93
55	g	Waterbodies	78167.00	4.25
<b>Grand Total</b>			<b>1839406</b>	<b>100.00</b>

## **SALIENT FEATURES:**

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- ❖ Agriculture has dominant area in the district and occupied 13,62,275 ha (74.06%) followed by forest area 2,83,801 ha (15.43%).
- ❖ As per the Land capability classification, LCC class III - IV dominated accounting to 26.90 per cent followed by III (20.52%), which are marginally suitable for agriculture production but have good potentials for Plantation/ Animal husbandary.
- ❖ As per the soil irrigation potential, 64.76 per cent area has severe soil limitations for sustained use under irrigation; whereas 15.43 per cent lands that have covered by forest.
- ❖ As per the Land Irrigability Class, 58.68 per cent lands have severe limitations for sustained use under irrigation followed by 15.43 per cent lands that have occupied by forest.
- ❖ The survey area has 56.92 per cent moderately managed, followed by poorly managed 30.68 per cent, need immediate attention for eco-restoration of area.
- ❖ Most of the area comes under taxonomically classified soil order Inceptisols followed by Entisols, Alfisols and Vertisols, respectively.
- ❖ The survey area is dominated by very gently sloping to gently sloping lands (40.27%), whereas Nearly level to very gently sloping land accounts for 34.64 per cent of the area.
- ❖ The area under very deep soils is 38.30 per cent followed by moderately deep soils covering 29.71 per cent.
- ❖ Nearly 57.28 per cent area is affected by slight water erosion followed by moderate erosion (30.31%).

## HOW TO USE SOIL RESOURCE MAPPING REPORT

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This report embodies the results of the Soil Resource Mapping of Mahabubnagar district of Andhra Pradesh 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.

Mahabubnagar District spreads over an area of **18,39,406 ha** and for administrative purposes, the district is divided into five revenue sub divisions and sixty mandals. The district is covered by thirty eight 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. SHn8c1 (Shale Geology; undifferentiated hills side slope, 25-50 per cent slope; forest land use; soil series association, which means the area has dominance of Egalapenta series in association with Domala Penta 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. SHn8c1 may be referred as follows:

SH	Shale	:	Landscape
n	Undifferentiated hills side slope	:	Physiography
8	25-50 % Slope	:	Slope classes
c	Forest	:	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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