

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

**ABSTRACT**

1.	<b>Survey Area</b>	:	Nalgonda District ,Telangana State, India
2.	<b>Geographical Extent</b>	:	78°40' to 80°50' East Longitudes 16°25' to 17°50' North Latitudes
3.	<b>Agro-climatic Region</b>	:	Southern Plateau and Hills Region-X
4.	<b>Total Geographical Area</b>	:	14,25,590 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-1C&1D)
7.	<b>Mapping Scale</b>	:	1:50,000
8.	<b>Period of Survey</b>	:	November, 2012 to December,2012

9. Mapping unit wise soil association and their extent:

Sl. No.	MAPPING UNIT	SOIL-SERIES ASSOCIATION	AREA (Ha)	AREA (%)
1	ALg2a1	Mangalpalli -Tatikal	13067	0.92
2	ALg2d1	Tatikal - Manimadde	1001	0.07
3	GGn6c1	Narkatpalli - Kudasapalli	12643	0.89
4	GGn6d1	Kudasapalli - Devagirigutta	11851	0.83
5	GGn8c1	Devarcherla - Kudasapalli	22189	1.56
6	GGn8d1	Dubbakagutta - Kudasapalli	7370	0.52
7	GGo4d1	Tippaleni - Aravapalli	6353	0.45
8	GGu4c1	Pochampalli - Cherukupalli	7615	0.53
9	GGu4d1	Shapalli - Tippaleni	34054	2.39
10	GGv3a1	Kurmapalli - Koppol	57293	4.02
11	GGv3a2	Koppol - Gauraram	33666	2.36
12	GGv3a3	Ramachandrapuram - Gauraram	22731	1.59
13	GGv3a4	Adsarpalli - Kodada	159773	11.21
14	GGv3a5	Parivedala - Kottapalli	257200	18.04
15	GGv3a6	Mariyala - Parivedala	103286	7.25
16	GGv3a7	Munagala - Mukundapur	7353	0.52
17	GGv3a8	Mukundapur - Kodada	52732	3.70
18	GGv3c1	Cherukupalli - Raghavapuram	754	0.05
19	GGv3d1	Ramavat tanda - Gauraram	10218	0.72
20	GGv3d2	Gauraram - Ramavat tanda	7890	0.55
21	GGv3d3	Mallapuram - Raghavapuram	13063	0.92
22	GGv3d4	Raghavapuram - Kottapalli	1221	0.09
23	GGw2a1	Yengannagudem - Uppalancha	116205	8.15
24	GGw2a2	Uppalancha - Gudipalli	215704	15.13
25	GGw2a3	Sitaramapuram - Shakapur	22479	1.58
26	GGw2d1	Gudipalli - Yengannagudem	7494	0.53
27	LSv3a1	Raghunathapalem - Iragudem	13699	0.96
28	LSv3a2	Shobhanadrigudem - Ravipahad	4491	0.32
29	LSv3c1	Wazirabad - Chintalapalem	7253	0.51
30	LSv3d1	Sunypahad - Nakkaguda	7597	0.53
31	LSv3d2	Nakkaguda - Sunypahad	6364	0.45
32	LSw2a1	Tammavaram - Virappagudem	5280	0.37
33	LSw2d1	Virappagudem - Tammavaram	645	0.05
34	MBn6d1	Jalgambavi - Fatepur	91	0.01
35	MBo4d1	Fatepur - Ganipalli	179	0.01
36	MBu4d1	Fatepur - Bhimanpalli	312	0.02
37	MBv3a1	Paltoni tanda - Kottagudem	3041	0.21
38	SHi3a1	Peddaguttatanda - Narayanpur	2439	0.17
39	SHi4a1	Shunkisala - Mannevaripalli	522	0.04
40	SHi4c1	Mangaldonagudda - Mannevaripalli	8829	0.62
41	SHn6c1	Juvvichettu tanda - Yellapur	6825	0.48
42	SHn8c1	Yellapur - Maddimadugu gudda	4214	0.30
43	SHu4c1	Mannevaripalli - Chakravalam tanda	10415	0.73

Sl. No.	MAPPING UNIT	SOIL-SERIES ASSOCIATION	AREA (Ha)	AREA (%)
44	SHu4d1	Chakravalam tanda - Mannevaripalli	12780	0.90
45	SHv3a1	Ganganagar - Virlapalem	5734	0.40
46	SHv3a2	Virlapalem - Ganganagar	4835	0.34
47	e	ROC	8929	0.63
48	f	Habitation	15575	1.09
49	g	Water bodies	90336	6.34
	<b>Total</b>		<b>1425590</b>	<b>100.00</b>

### SALIENT FEATURES:

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- ❖ District represents agriculture as the dominant land use occupying 11,01,530 ha constituting 77.27 percent of the total geographical area followed by open scrub 1,28,483 ha (9.01%) and forest 80,737 ha constituting 5.66 percent.
  - ❖ Majority of the area is under very gently to gently sloping lands constituting nearly 54.90 per cent with nearly level to very gently sloping lands comprising 26.79 per cent.
  - ❖ Most of the area is under moderately deep to very deep soils (37.12 %) followed by deep to very deep soils (28.40 %).
  - ❖ Nearly 65.10 per cent of the area is affected by slight to moderate erosion followed by moderate erosion (16.38%) and moderate to severe erosion (9.94%).
  - ❖ Out of the total area, nearly 81.2 per cent of the area is found suitable for cultivation and classified as good to moderately good land with slight to moderate limitations.
  - ❖ About 41.79 per cent area is found suitable for potential irrigation with moderate to severe soil limitations for sustained use under irrigation followed by 31.85 per cent with moderate soil limitations.
  - ❖ The survey area has 37.20 per cent land under poorly to moderately managed, followed by moderately to well managed (16.73%) whereas 13.72 per cent of the area is unmanaged.
  - ❖ Nearly 29.3 percent of the area is classified under land capability class IIes, 41.4 percent under land capability class IIIes, 4.8 percent under land capability class IVes and 5.7 percent under forest
  - ❖ Soils of the district have been classified under four orders Alfisols, Inceptisols, Entisols and Vertisols as per Soil Taxonomy(USDA, 2014).
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## HOW TO USE SOIL RESOURCE MAPPING REPORT

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This report embodies the results of the Soil Resource Mapping of Nalgonda 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, 2014) to enable the users for scientific land use planning.

Nalgonda District spreads over an area of **14,25,590 hectares** and for administrative purposes, the district is divided into four revenue divisions and fifty nine mandals. The district is covered by thirty five Survey of India toposheets on 1:50,000 scales 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 Kurmapalli, series in association with Koppol 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:

GG	Granite Gneiss	:	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:

<p>The Chief Soil Survey Officer, Soil and Land Use Survey of India IARI Buildings, New Delhi 110 012 Phone: +91-11-25841263 / 25849486 Fax : +91-11-25843811 Email: <a href="mailto:csso-slusi@nic.in">csso-slusi@nic.in</a></p>	<p>The Soil Survey Officer Soil and Land Use Survey of India Survey No.207, Kodigehalli, Vidyaranyapura (P), Bangalore - 560 097. Phone : 080-23640761, 080-23641119. Fax : 080-23640751,Email:<a href="mailto:soilkar@nic.in">soilkar@nic.in</a></p>
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