

**INVENTORY OF SOIL RESOURCES OF  
WEST GODAVARI DISTRICT, ANDHRA PRADESH  
USING REMOTE SENSING TECHNIQUES**

**ABSTRACT**

1.	<b>Survey Area</b>	:	West Godavari District, Andhra Pradesh State
2.	<b>Geographical Extent</b>	:	80 <sup>0</sup> 55' to 81 <sup>0</sup> 55' East longitude 16 <sup>0</sup> 15' and 17 <sup>0</sup> 30' North latitude
3.	<b>Agro-climatic Region</b>	:	East Coast Plains and Hills Region-XI
4.	<b>Total Geographical Area</b>	:	7,74,908 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-1-D)
7.	<b>Scale of Mapping</b>	:	1:50,000 scale
8.	<b>Period of Survey</b>	:	December, 2010 to January, 2011 & April, 2011

## 9. Mapping unit wise soil association and their extent

S. No	Mapping Unit	Series Association	Area (ha)	Area (%)
1	ALb2a1	Kovvuru-Dagguluru-Jangareddigudem	199138	25.7
2	ALb2b1	Dagguluru-Kovvuru-Munipalle	7457	1.0
3	ALe2a1	Alampuram-Munipalle	652	0.1
4	Alf2b2	Munipalle-Dagguluru-Kovvuru	4783	0.6
5	ALg2a1	Vegavaram-Jangareddigudem-Kovvuru	21416	2.8
6	BAw3a1	Duddukuru-Talikicherla	1656	0.2
7	BAw2a1	Talikicherla-Duddukuru	2939	0.4
8	CAI2a1	Bondada-Losari-Sarva	53353	6.9
9	CAI2b1	Sarva-Losari	9293	1.2
10	CGn6c1	Jilakaragudem-Kollivarigudem-Muddappagudem	4868	0.6
11	CGu4c1	Erraguntapalle-Guntupalle	2865	0.4
12	CGu4d1	Adamilli-Erraguntapalle	2675	0.3
13	CGv3a1	Vadlapatlanutanam-Kamayapalem-Wankavarigudem	16986	2.2
14	CGv3c1	Wankavarigudem-Kamayapalem	3245	0.4
15	CGw2a1	Taduvai-Dippakayalapadu	56102	7.2
16	CGw2b1	Dippakayalapadu-Taduvai-Virishettigudem	11267	1.5
17	CGw2c1	Virishettigudem-Dippakayalapadu-Taduvai	6009	0.8
18	CKn6c1	Sivagiri-Chiduru	6211	0.8
19	CKn8c1	Chiduru-Sivagiri-Kommayakunta	6921	0.9
20	CKu4c1	Papikonda R. F.-Chintapalle	2307	0.3
21	CKw2a1	Itikalkota-Rachennagudem	2442	0.3
22	CKw2c1	Rachennagudem-Itikalkota	1237	0.2
23	GGn6c1	Singagudem-Gopavaram	798	0.1
24	GGu4d1	Dondapudi-Jagannathapuram	463	0.1
25	GGv3a1	Velagalapalle-Jagannathapuram	756	0.1
26	GGw2a1	Pota Chintalapudi-Malleshwaram	20308	2.6
27	GGw2c1	Malleshwaram-Pota Chintalapudi	1647	0.2
28	KHn6c1	Repalli-Singanapalli	7109	0.9
29	KHn8c1	Singanapalli-Ramchandrapuram-Repalli	26298	3.4
30	KHu4b1	Aliveru-Hukumpeta-Pandrimamidigudem	517	0.1
31	KHu4c1	Pandrimamidigudem-Hukumpeta	3893	0.5
32	KHu4d1	Hukumpeta-Pandrimamidigudem-Aliveru	1448	0.2

S. No	Mapping Unit	Series Association	Area (ha)	Area (%)
33	KHv3a1	Bandalagudem-Gurgumilli	4762	0.6
34	KHv3b1	Gurgumilli-Bandalagudem	617	0.1
35	KHv3c1	Gurgumilli-Bandalagudem	1745	0.2
36	KHw2a1	Dasayapalem-Akkampeta	33503	4.3
37	KHw2c1	Akkampeta-Dasayapalem	2616	0.3
38	LAv3a1	Chebrolu-Arugolanu	2570	0.3
39	LAv3c1	Arugolanu-Chebrolu	487	0.1
40	SDn6c1	Marrigudem-Kavicherlagudem	1274	0.2
41	SDu4c1	Jilugumilli-Kottapalle	722	0.1
42	SDu4d1	Kottapalle-Jilugumilli	1439	0.2
43	SDv3a1	Gollagudem-Pallapadiyan	9274	1.2
44	SDv3b1	Gollagudem- Pallapadiyan	19764	2.6
45	SDv3c1	Pallapadiyan -Godugupeta-Gollagudem	6987	0.9
46	SDv3d1	Godugupeta-Kottapalle- Pallapadiyan	3680	0.5
47	SDw2a1	K. Ramachandrapuram-Pangidigudem-Gopalpuram	63684	8.2
48	SDw2a2	Gopalpuram-K. Ramachandrapuram	8961	1.2
49	SDw2b1	Malapalle-Pangidigudem-Ramsingavaram	24565	3.2
50	SDw2c1	Ramsingavaram-Malapalle-Pangidigudem	2468	0.3
51	SP	Salt Pan	3159	0.4
52	AQ	Aqua-culture	46563	6.0
53	e	Rock out crop	712	0.1
54	f	Habitation	18367	2.4
55	g	Water body	29930	3.9
<b>Total</b>			<b>774908</b>	<b>100.0</b>

## **SALIENT FEATURES:**

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- ❖ Agriculture has dominant area in the district and occupied 498502 ha (64.4%) followed by forest area 88493 ha (11.5%).
- ❖ Topographically around 69% of total geographic area of district is occur in plain land having 1-3% slope: it is followed by 9.4% area under rolling plain and hills occupied 4.3% under 25-50% slope category.
- ❖ The area under very deep soils is 75.8 per cent followed by moderately deep soils covering 7.2per cent whereas 2.8per cent area is under deep soils. The remaining 8.6% area covered by shallow to moderately deep soil.
- ❖ Out of total area 2 % found Severe water erosion whereas Moderate to severe erosion water erosion occur with 6.3% area . Nearly 62.4per cent area is affected by none to slight water erosion followed by Moderate water erosion of 11.6%
- ❖ The major part of the district i.e nearly 75.0 per cent area is suitable for cultivation and qualified for good to moderately good land with slight to moderate limitations.
- ❖ Around 52.1 % area have Lands that have moderate limitations for sustained use under irrigation whereas 6.9% of lands that have few limitations for sustained use under irrigation .
- ❖ The survey area has 63.8 per cent land well managed followed by Moderately managed (12.7%) and Poorly managed (7.4%).
- ❖ Taxonomically soil has been classified under four soil order namely Alfisols, Entisols, Inceptisols and vertisols,.

## HOW TO USE SOIL RESOURCE MAPPING REPORT

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This report embodies the results of the Soil Resource Mapping of West Godavari 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.

West Godavari District spreads over an area of 7,74,908 ha and for administrative purposes, the district is divided into five revenue divisions and sixty mandals. The district is covered by twenty 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. ALb2a1 (Alluvium, Geology; Flood plain, 0-3% slope; Agriculture land use; soil series association, which means the area has dominance of Kovvuru series in association with Dagguluru and Jangareddigudem 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 III.

The symbols used in the soil mapping unit represents the five levels of mapping i.e. ALb2a1 may be referred as follows:

AL	Alluvium]	:	Landscape
b	Flood plain	:	Physiography
2	0-3 % 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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