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

ABSTRACT

1.	**Survey Area**	:	Khammam district, Telangana State
2.	**Geographical Extent**	:	79°47 ' and 80 °47 'East Longitudes 16 ° 45' and 18 °35' N North Latitudes
3.	**Agro-climatic Region**	:	Southern Plateau and Hills region-X
4.	**Total Geographical Area**	:	1603316 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-1D)
7.	**Scale of Mapping**	:	1:50,000 Scale
8.	**Period of Survey**	:	08th to 25th September, 2011 and 20th June to 26th July, 2012

9. Mapping Unit wise soil association and their extent.

Sl.No.	Mapping Units	Soil Association		Area in (ha)	Area (%)
1	ALb2a1	Bargampad	Chintalagudem	84667	5.28
2	CKn6c1	Katukapalli		10197	0.64
3	DLu4d1	Abbapur	Polaram	5041	0.31
4	GNn6c1	Padamata	Vinobanagar	11960	0.75
5	GNn8c1	Vinobanagar	Himamnagaram	38167	2.38
6	GNn8d1	Himamnagaram	Vinobanagar	90	0.01
7	GNu4d1	Nelakondapalli	Jankelgudem	11807	0.74
8	GNv2a1	Gopalpur	Pallipadu	103479	6.45
9	GNv2a2	Rebbavaram	Naikulagudem	44977	2.81
10	GNv2a3	Khanapuram	Naikulagudem	2132	0.13
11	GNv2a4	Julurpad	Khanapuram	15765	0.98
12	GNv3a1	Kammagudem	Gopalpur	194675	12.14
13	GNv3a2	Chandragonda	Pindipole	15082	0.94
14	GNv3c1	Krishnavaram	Julurpad	181052	11.29
15	GNw2a1	Chandavaram	Tatipudi	62115	3.87
16	GRn6d1	Jellachera	Medikonda	1225	0.08
17	GRv2a1	Keshavpuram	Govvalagudem	119	0.01
18	GRv3a1	Palleru	Mallepalli	266	0.02
19	GRw2a1	Tallampadu	Ponekal	1498	0.09
20	GRw2a2	Ponekal	Tallampadu	43812	2.73
21	KHn8c1	Bondapadu		77539	4.84
22	QZn6c1	Yellandu		9933	0.62
23	QZn6d1	Yellandu		171	0.01
24	QZu4c1	Nizampeta	Motambodu	93099	5.81
25	QZu4d1	Motambodu	Rudramakota	4814	0.3
26	QZv3a1	Vaddugudem	Muttarakatta	387	0.02
27	SDn6c1	Rampur	Ramapur	98600	6.15
28	SDn8c1	Ramapur	Rampur	46282	2.89
29	SDu4c1	Arepalli	Kalikode	3473	0.22
30	SDv3a1	Lakshmidevpalli	Chatakonda	107627	6.71
31	SDv3b1	Pengadapa	Lakshmidevpalli	41355	2.58
32	SDv3c1	Chatakonda	Gollagudem	103082	6.43
33	SDw2a1	Koyagudem	Mated	58713	3.66
34	SDw2a2	Mated	Koyagudem	2558	0.16
35	SHn8c1	Alubaka	Abbayigudem	12192	0.76
36	SHv3a1	Ramchandrapuram	Borrabanda	5324	0.33
37	SHv3c1	Borrabanda	Ramchandrapuram	16689	1.04
38	Misc.			93352	5.82
Grand Total				**1603316**	**100**

SALIENT FEATURES:

- Agriculture has dominant area in the district and occupied 743077 ha (46.35%) followed by forest area 702265 ha (43.81%).
- Out of the total area, about 50 per cent area is suitable for cultivation and qualified for moderately good to good land with moderate limitations.
- As per the Land capability classification, LCC class III dominated accounting to 18.56 per cent followed by II- III (18.07%) and III-IV (9.12%).
- As per the Soil irrigation potential, 44.39 per cent area has moderate to severe soil limitations for sustained use under irrigation; whereas and 0.09 per cent lands under very severe soil limitation for sustained use under irrigation.
- As per the Land Irrigability Class, 10.08 per cent lands have moderate limitations for sustained use under irrigation followed by 39.90 per cent lands have moderate to severe limitations .Only 0.09 percent lands are not suitable for sustained use under irrigation .
- Most of the comes under taxonomically classified soil order Inceptisols followed by Entisols, Vertisols and Alfisols respectively.
- The area under very deep soils is 34.46 percent followed by shallow to moderately deep soils is 17.21 per cent and shallow and deep soils covering 19.21 per cent of the total area of the district.

HOW TO USE SOIL RESOURCE MAPPING REPORT

This report embodies the results of the Soil Resource Mapping of Khammam district of Telangana 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 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.

Khammam District spreads over an area of 1603316 ha and is covered by thirty nine 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. DLn6d1 (Dolorite Geology; undifferentiated hills side slope, 10-25 per cent slope; openscrub land use; soil series association, which means the area has dominance of Abbapur series in association with Polaram 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. DLn6d1 may be referred as follows:

DL	Dolorite	:	Landscape
n	Undifferentiated hills side slope	:	Physiography
6	10-25 % Slope	:	Slope classes
d	Openscrub	:	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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