

**Report on Soil Resource Mapping of Krishna District of
Andhra Pradesh State using Remote Sensing and GIS
Techniques.**

Regional Centre, Nagpur



**SOIL AND LAND USE SURVEY OF INDIA
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Ministry of Agriculture
Government of India
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ABSTRACT

1. Survey area : Krishna District, Andhra Pradesh.
2. Geographical Extent : 15⁰43' to 17⁰10' North latitude
80⁰0' to 81⁰33' East longitude
3. Agro- climatic Zone : Agro-Climatic zone no. XI (East Coast plains & hills region.)
4. Total area mapped : 874499 ha
5. Kind of Survey : Soil Resource Mapping (SRM) using Remote Sensing & GIS Techniques
6. Base Map : a) IRS-1D Geo-coded Satellite Imagery (1:50,000 Scale)
: b) SOI Toposheets (1: 50,000 scale)
7. Scale of Mapping : 1: 50,000
8. Period of Survey : March to April,2011
9. Distribution of area under different soil series association mapped

SI No	Mapping Unit	Series Association	Area	% area
01	ALb1a1	Challapalli-Lankapalle-Lakshmipuram	119773	13.70
02	ALb1a2	Aitavaram-Challapalli	25312	2.89
03	ALb1a3	Lakshmipuram-Challapalli-Chiruvallanka	66426	7.60
04	ALd2a1	Avanigadda-Ibrahimpattanam	8480	0.97
05	ALe1a4	Kottapalem-Chiruvallanka	3088	0.35
06	ALg2a1	Lankapalle-Vissanpeta-Challapalli	33209	3.80
07	ALg2a2	Aitavaram-Challapalli-Penuchanigiporlu	1679	0.19
08	ALl1a1	Machillipattanam-Munjuluru-Magnipudi	13648	1.56
09	ALl2a2	Magnipudi-Machillipattanam	3696	0.42
10	ALl1a3	Munjuluru-Parichivra	53885	6.16
11	ALl1a4	Munjuluru-Machillipattanam	18635	2.13

Sl No	Mapping Unit	Series Association	Area	% area
12	ALm1c1	Soraghundi-Parichivra	20927	2.39
13	GGn8c1	Pallagiri-Kottapeta	18227	2.08
14	GGn8d1	Kottapeta-Pallagiri	1965	0.22
15	GGn6c1	Pallagiri-Kottapeta	1649	0.19
16	GGn6d1	Pallagiri-Kottapeta	1244	0.14
17	GGr5c1	Kottapeta-Kummarkunta	262	0.03
18	GGo3c1	Kummarkunta-Bandipalem	5491	0.63
19	GGo3d1	Bandipalem-Kummarkunta	3288	0.38
20	GGo3a1	Bandipalem-Bhimavaram	7923	0.91
21	GGv2a1	Bhimavaram-Bandipalem	12369	1.41
22	GGv2a2	Chamalapadu-Bhimavaram	39888	4.56
23	GGv2a3	Kanchikacheruvu-Pochampalli	77800	8.90
24	GGv2a4	Bandipalem-Pochampalli	15348	1.76
25	GGw2a1	Kanchikacheruvu-Konakanchi	28558	3.27
26	GGw2a2	Konakanchi-Pochampalli	8465	0.97
27	GGw1a1	Chamalapadu-Kanchikacheruvu	5195	0.59
28	KHn8c1	Battulawarigudem-Annaravpeta	7253	0.83
29	KHn8d1	Annaravpeta-Battulawarigudem	3284	0.38
30	KHn6c1	Battulawarigudem-Ramanakpeta	227	0.03
31	KHn6d1	Ramanakpeta-Battulawarigudem	911	0.10
32	KHr5c1	Battulawarigudem-Ramanakpeta	2196	0.25
33	KHr5d1	Ramanakpeta-Battulawarigudem	2013	0.23
34	KHv2a1	Annavaram-Yollapuram	31596	3.61
35	KHv3b1	Naguluru-Annavaram	33224	3.80
36	KHv2a2	Annavaram-Naguluru	18980	2.17
37	KHv3a1	Yollapuram-Annavaram	5611	0.64
38	LAv3c1	Lopudi-Chekkapalli	3744	0.43
39	LAv3a1	Chekkapalli-Lopudi	9105	1.04
40	LSv3c1	Agraharam-Budvada	2007	0.23
41	LSv4c1	Agraharam-Buddivada Rf	849	0.10

Sl No	Mapping Unit	Series Association	Area	% area
42	LSv2a1	Madipadu-Ramapuram	838	0.10
43	LSv2a2	Venkateshnagar-Agraharam	340	0.04
44	LSw2a1	Ramapuram-Madipadu	210	0.02
		Sub Total	718818	82.20
45	MISC	Miscellaneous	155681	17.80
		Grand Total	874499	100.00

10. Distribution of area under different depth classes.

Sr. No.	Depth	Area(ha)	Area%
1	Very deep	439928	50.31
2	Deep to very deep	179195	20.49
3	Moderately deep to deep	35640	4.08
4	Shallow to moderately deep	47060	5.38
5	Shallow	16995	1.94
6	Misc.	155681	17.80
	Grant Total	874499	100.00

11. Distribution of area under different Erosion classes.

Sr. No.	Erosion	Area(ha)	Area%
1	None to slight water erosion	272217	31.13
2	Slight to moderate erosion	324373	37.09
3	Moderate water erosion	98881	11.31
4	Moderate to severe erosion	1911	0.22
5	Severe water erosion	21436	2.45
6	Misc.	155681	17.80
	Grant Total	874499	100.00

12. Distribution of area under different management classes

Sr. No.	Management	Area(ha)	Area%
1	Well managed(WB)	316515	36.19
2	Moderately managed(MB) to well managed(WB)	269588	30.83
3	Moderately managed(MB)	103160	11.80
4	Poorly managed(PB) to	4835	0.55

	moderately managed(MB)		
5	Poorly managed(PB)	24720	2.83
6	Misc.	155681	17.80
	Grant Total	874499	100.00

13. Distribution of area under Different slope classes

Sr. No.	Slope Classes	Area(ha)	Area%
1	Nearly level	326889	37.38
2	Nearly level to very gently sloping	281456	32.18
3	Very gently sloping to gently sloping	70393	8.05
4	Gently sloping to moderately sloping	849	0.10
5	Moderately sloping to strongly sloping	4471	0.51
6	Moderately sloping to moderately steep	4031	0.46
7	Steep to very steep	30729	3.51
8	Misc.	155681	17.80
	Grant Total	874499	100.00

14. Distribution of area under different land use.

Sr. No.	Landuse	Area(ha)	Area%
1	Agriculture	610057	69.76
2	Forest	62832	7.18
3	Open Scrub	12705	1.45
4	Plantation	33224	3.80
5	Misc.	155681	17.80
	Grant Total	874499	100.00

15. Salient features:

- Most of the area comes under Alluvium plains (29.50%) followed by Granite Gneisses (26.03%), Coastal Alluvium (12.67%), Khandolite (12.04%), Laterite landscape (1.47%) and Limestone landscape (0.47%).
- Survey area is dominated by Nearly level lands (37.38%) followed by nearly level to gently sloping lands (32.18%), Very gently sloping to gently sloping (8.05%), Gently sloping to moderately sloping(11.29%), steep to very steep (3.51%),

moderately sloping to strongly sloping(0.51%) and only 0.10% Moderately sloping to moderately steep slope land

- Most of the area of this district is under agriculture which accounts 69.76%, forest (7.18%), Plantation (3.80 %) and scrubs / shrubs land (1.45%) of the whole survey area.
- Major area is under very deep soil (50.31%) which is followed by deep to very deep (20.49 %), Shallow to moderately deep (5.38%), Moderately deep to deep (4.08%) and shallow soils (1.94%).
- 46.06% of the whole area has moderate to severe soil limitation for sustained use under soil irrigability (class B to C) whereas 21.42% area comes under soil irrigability class B,7.39% area under C ,2.87% area under class D and remaining 4.46% area being qualified as class E.
- 4.13 % area is of high runoff potential and 3.2 % under moderately high runoff potential.
- Major soils are classified under Entisols order, Inceptisols, Alfisols and Vertisols are the other soil orders.
- Most of the area is prone to slight to moderate erosion (37.09 %). None to slightly eroded soil spread over 31.13 % which is followed by moderate water erosion accounting for 11.31 %, severe water erosion occupying 2.45% and moderate to severe erosion accounting for 0.22 % area.