

ABSTRACT

1. Surveyed area	:	Detailed Soil Survey and Land use Plan of 4D5B2j1, j2, j3,j6, j7, j8, j9; 4D5B3a1, a2, a3, a4, a5, a6, b1, b2, b3, b4, b5, c1, c2, c3, c4, c5, f1, f2, f3 and 4D5B5b4, b5, b6 Microwatersheds of 4D5B2,3&5 watersheds in 4D5B Subcatchment under 4D5 Catchment (NagarjunaSagar-RVP) in Taluks- Dharwad, Hubli and Navalgund, District-Dharwad,Karnataka State Using Remote Sensing Techniques
2. Geographical extent	:	15°26' to 15°38' N latitude and 75° 0' to 75°21' E longitude.
3.Total area surveyed	:	37,604 ha
4. Kind of survey	:	Detailed Soil Survey using Remote Sensing Techniques.
5. Period of survey	:	January- February, 2013.
6. Base map used	:	Enlarged Toposheets on 1:12,500 scale and High Resolution SatelliteImageries.
7. Toposheet Number	:	48M02, 48M03 and 48M06
8. Agro-climatic zone	:	X- Southern Plateau and Hill region

9.Area & Priority status of subwatersheds/ microwatersheds surveyed*

Sl.No	Sub watershed	Microwatersheds	Priority category
1	Aj9h	4D5B5b4,b5,b6	Very High
2	Aj11a	4D5B2j1,j2,j3	Very High
3	Aj11e	4D5B2j6,j7,j8,j9	High
4	Aj11f	4D5B3a1,a2,a3	Very High
5	Aj11g	4D5B3b1,b2,b3,b4,b5	High
6	Aj11h	4D5B3a4,a5,a6	VeryHigh
7	Aj11i	4D5B3c1,c2,c3,c4 and c5	Very High
8	Aj11j	4D5B3f1,f2 and f3	Very High

* Report No. AGR11341

10. Microwatershed wise Distribution of area(ha) under different soil series

Series Name	Chandanamatti	Dharwad	Govinakoppa	Halakhusugal	Hebbli	Ron	Kankur	Karadigudda	Morab	Moradgi	Vanahalli	Misc	Total Area (ha)	Percentage
4D5B2j1	0	0	0	630	0	414	0	0	643	0	0	23	1710	4.55
4D5B2j2	0	0	0	439	0	186	0	0	427	0	0	16	1068	2.84
4D5B2j3	0	0	0	560	0	0	0	0	645	0	0	18	1223	3.25
4D5B2j6	0	0	0	605	0	215	0	0	457	0	0	101	1378	3.66
4D5B2j7	0	0	0	701	0	45	0	0	494	0	0	37	1277	3.40
4D5B2j8	0	0	0	954	0	42	0	0	268	0	0	0	1264	3.36
4D5B2j9	1	0	0	629	0	22	0	0	358	0	0	0	1010	2.69
4D5B3a1	0	0	0	819	0	75	0	0	223	51	55	59	1282	3.41
4D5B3a2	124	0	29	534	17	0	0	0	123	47	161	0	1035	2.75
4D5B3a3	462	0	175	131	8	0	110	23	15	68	362	21	1375	3.66
4D5B3a4	163	63	63	0	0	0	105	50	0	86	215	76	821	2.18
4D5B3a5	58	184	39	0	0	0	154	14	0	310	427	2	1188	3.16
4D5B3a6	147	215	54	0	0	0	107	6	0	110	547	8	1194	3.18
4D5B3b1	91	112	86	0	42	66	373	83	52	178	326	228	1637	4.35
4D5B3b2	23	367	0	28	0	0	0	0	78	191	243	23	953	2.53

Series Name	Chandanamatti	Dharwad	Govinakoppa	Halakhusgal	Hebbli	Ron	Kankur	Karadigudda	Morab	Moradgi	Vanahalli	Misc	Total Area (ha)	Percentage
4D5B3b3	77	323	11	14	0	0	7	0	44	493	130	21	1120	2.98
4D5B3b4	11	320	0	0	0	0	54	0	0	524	186	620	1715	4.56
4D5B3b5	53	292	0	0	0	0	90	0	0	450	185	309	1379	3.67
4D5B3c1	0	0	0	597	0	203	0	0	172	0	10	7	989	2.63
4D5B3c2	153	0	11	488	0	47	1	0	65	0	224	14	1003	2.67
4D5B3c3	298	4	49	469	0	64	17	9	50	89	361	24	1434	3.81
4D5B3c4	0	0	1	966	0	137	0	0	623	0	43	30	1800	4.79
4D5B3c5	152	0	15	409	12	0	20	184	75	134	474	200	1675	4.45
4D5B3f1	0	0	0	842	0	26	0	0	317	22	12	9	1228	3.27
4D5B3f2	0	20	0	428	3	0	6	12	38	728	58	0	1293	3.44
4D5B3f3	0	121	0	1264	0	182	0	0	210	21	0	77	1875	4.99
4D5B5b4	15	33	0	434	0	0	0	0	161	305	72	14	1034	2.75
4D5B5b5	0	24	0	536	0	0	0	0	146	247	0	0	953	2.53
4D5B5b6	35	83	0	532	36	0	132	0	123	362	387	1	1691	4.50
Total Area	1863	2161	533	13009	118	1724	1176	381	5807	4416	4478	1938	37604	100.00
Percentage	4.95	5.75	1.42	34.59	0.31	4.58	3.13	1.01	15.44	11.74	11.91	5.15	100.00	

11. Series Wise Distribution of area under Different Depth, Slope and Erosion Classes

S.No	SERIES	Depth				Slope			Erosion		Total area	%Area
		d2	d3	d4	d5	B	C	F	e2	e3		
1	Chandanamatti	0	1863	0	0	365	1498	0	193	1670	1863	4.94
2	Dharwad	0	0	0	2161	2051	110	0	1902	259	2161	5.73
3	Govinakoppa	533	0	0	0	0	533	0	0	533	533	1.43
4	Halakhusugal	0	0	0	13009	4540	8469	0	4442	8567	13009	34.69
5	Hebbli	0	118	0	0	0	0	118	118	0	118	0.32
6	Kankur	0	1176	0	0	0	1176	0	139	1037	1176	3.12
7	Karadigudda	0	381	0	0	0	381	0	0	381	381	1.01
8	Morab	0	0	0	5807	5432	375	0	4277	1530	5807	15.41
9	Moradgi	0	0	0	4416	1149	3267	0	1553	2863	4416	11.74
10	Ron	0	0	0	1724	296	1428	0	256	1468	1724	4.57
11	Vanahalli	0	0	4478	0	2048	2430	0	2006	2472	4478	11.96
	Misc	0	0	0	0	0	0	0	0	0	1938	5.19
	Total	533	3538	4478	27117	15881	19667	118	14886	20780	37604	100.11
	% Area	1.42	9.41	11.91	72.11	42.23	52.30	0.31	39.59	55.26	100.00	

12. Series wise Distribution of Area under Various Land Capability Classes

S.No	SERIES	Ies-1	Ies-2	Ies-3	IIes-1	IIes-2	IIes-3	IIes-4	IVes-1	IVes-2	IVes-3	VIes-1	Forest	Total Area (ha)
1	Chandanamatti	0	0	0	0	0	0	193	0	0	1670	0	0	1863
2	Dharwad	0	1792	0	259	110	0	0	0	0	0	0	0	2161
3	Govinakoppa	0	0	0	0	0	0	0	0	0	0	0	533	533
4	Halakhusugal	0	2298	0	0	2144	0	0	8567	0	0	0	0	13009
5	Hebbli	0	0	0	0	0	0	0	0	0	0	118	0	118
6	Kankur	0	0	0	0	0	0	139	0	0	1037	0	0	1176
7	Karadigudda	0	0	0	0	0	0	0	0	0	381	0	0	381
8	Morab	0	3902	0	0	375	0	0	1530	0	0	0	0	5807
9	Moradgi	108	704	0	337	741	0	0	2526	0	0	0	0	4416
10	Ron	116	0	0	130	140	0	0	1338	0	0	0	0	1724
11	Vanahalli	0	0	1027	730	0	979	0	291	1451	0	0	0	4478
	Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0	1938
	Total	224	8696	1027	1456	3510	979	332	14252	1451	3088	118	533	37604
	% Area	0.60	23.13	2.73	3.87	9.33	2.60	0.88	37.90	3.86	8.21	0.31	1.42	100.00

13. Salient features:-

- a. Major part of the surveyed area falls under Shale landscape, it is followed by Granite Gneiss and Alluvium landscape.
- b. Around 72.11% (27117 Ha) of the total surveyed area comprises of very deep soil it is followed by area under deep soils (11.91 %) and moderate deep soil (9.41 %).
- c. Around 42.23% (15881ha) of total surveyed area having 1-3% slope gradient, 52.3% (19667 ha) is having 3-5% slope gradient and 0.31% (118 ha) comprises of slope gradient 15-25% respectively.
- d. Nearly 55.26% (20780 ha) of total surveyed area is affected by severe erosion hazard whereas an area of 39.59% (14886 ha.) is affected by moderate erosion hazard.
- e. Majority of the area is under Land Capability Class IVes-1 (14252 Ha) followed by Class Iles-2 (8696 Ha) whereas 533Ha is under forest.

HOW TO USE SOIL SURVEY REPORT

This report on 4D5B2j1, j2, j3, j6, j7, j8, j9; 4D5B3a1, a2, a3, a4, a5, a6, b1, b2, b3, b4, b5, b6, c1, c2, c3, c4, c5, f1, f2, f3 and 4D5B5b4, b5 microwatersheds of 4D5B2,3&5 watersheds in 4D5B Subcatchment under 4D5 Catchment (NagarjunaSagar- RVP) in Taluks- Dharwad, Hubli and Navalgund, District- Dharwad, Karnataka State contains detailed information about the soils of the area. This information is for various purposes including development of strategies for sustainable agro-production system development for the area. This report provide information on soil for planning cropping schedules, soil and water management programmes including soil conservation practices. The requisite information for desired locality could be obtained from the report as follows:

First, the user needs to locate the area of interest on soil map appended with this report and note the soil-mapping units enclosed by the soil boundary. This identification is done with the help of permanent features like roads, ponds, streams, village site, revenue survey number of the field, etc.

On the soil map, area covered by a soil-mapping unit is marked by a mapping symbol. Each of the soil-mapping unit refers to a particular kind of soil type and its related properties eg. soil depth, surface texture, slope, erosion, gravelliness, stoniness, rockiness. A soil mapping unit having mapping symbol, MR5rC3 indicates:

- a) Abbreviated name of soil series ‘MR’ for Moradgi
- b) Soil depth ‘5’ for very deep soil depth (more than 100 cm)
- c) Soil texture ‘r’ for clay surface texture
- d) Slope class ‘C’ for 3-5% slope and
- e) Erosion class ‘3’ for severe erosion

Detailed information on soil series, profile description and other related soil characteristics is given in **Chapter 4** entitled “Soils of the Area” and in “Description of representative pedons” in **Appendix II**. Soil classification of the soils of the area is done according to the “Soil Taxonomy” (USDA) 2014 and has been provided in **Table 12**.

In **Appendix III** entitled “**Village mapping units under different micro-watersheds**” information on the soil mapping units mapped in the area vis a vis, physiographic position, predominant slope, soil conservation measures adopted and land capability is given.

In Chapter 7, section 7.1 on land capability classification, two types of problems viz. 1) Inherent problem and 2) improvable problem /correctable problems have been listed for each of the land capability unit mapped along with the recommendations for soil conservation, treatment needs and crop production. These recommendations are brief and suggestive but are adequate for broad level watershed management planning. For specific planning and potential for a particular land use of any site or area of interest the user agencies can use their local experiences and knowledge about the area and may make necessary modifications as warranted. General recommendations for the soil and water conservation have been given in **Chapter 8** “specific problems and recommendations”.

For any suggestion, comment, or clarification further correspondence/personal contact may be established with

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