

Report On Detailed Soil Survey and Landuse of Aj9i, Aj9j, Aj9k, Aj10a, Aj10c, Aj10d, Aj10f, and Aj10g Subwatersheds of Aj Subcatchment under Nagarjunsagar Catchment (RVP) in Dharwad District, Karnataka State Using Remote Sensing Techniques

ABSTRACT

1. Surveyed area : Aj9i, Aj9j, Aj9k, Aj10a, Aj10c, Aj10d, Aj10f, Aj10g Subwatersheds of Aj sub catchment, Nagarjunsagar catchment in Dharwad District, Karnataka State
2. Geographical extent : Aj9 watershed lies between 15°25'57" to 15°28'16" N latitude and 75°0'43" to 75°19'55" E longitude
Aj10 watershed lies between 15°14'49" to 15°25'24" N latitude and 75°10'32" to 75°20'13" E longitude
3. Total area mapped and surveyed : 36078 ha.
4. Kind of survey : Detailed Soil Survey using Remote Sensing Techniques
5. Period of survey : February, 2011 to March, 2011
6. No. of villages in the surveyed area : 50
7. Base map used : Enlarged SOI toposheets quadrantwise of 48M/03, 48M04, 48M07 on 1 : 12,500 scale and IRS-P6, LISS IV Satellite Imageries
8. Agroclimatic zone : 10 (South Plateau and Hill region)

9. Soil serieswise area in ha under different subwatersheds:

S. No	Soil series	Sub-watershed code								Total area	%
		Aj9i	Aj9j	Aj9k	Aj10a	Aj10c	Aj10d	Aj10f	Aj10g		
1	Behatti	601	178	26				21	36	862	2.4
2	Dyampur				116	26				142	0.4
3	Hebsur	1930			1238					3168	8.8
4	Hebli	1199	3690	6545			2627	4151	4696	22908	63.5
5	Kallur	349	301	20	131	104	93	206	41	1245	3.5
6	Navalur		98	103			154		31	386	1.0
7	Shivalli		49	27						76	0.2
8	Sulla		318	252						570	1.6
9	Thimmapur				741	3470			417	4628	12.8
	Misc.	258	373	550	153	133	117	405	104	2093	5.8
	Grand Total	4337	5007	7523	2379	3733	2991	4783	5325	36078	
	Percentage	12.0	13.8	20.9	6.6	10.3	8.3	13.3	14.8		100

10. Area under different land capability classes:

Sl.No	Land capability classes	Total area (Ha)	Percentage	Soil Series
1	II	19832	55.0	Dyampur, Hebli, Hebsur, Kallur, Navalur, Thimmapur
2	III	13708	38.0	Behatti, Dyampur, Hebli, Hebsur, Kallur, Navalur, Sulla, Thimmapur
3	IV	381	1.0	Behatti.
4	VI	64	0.2	Shivahalli
5	Misc.	2093	5.8	Tank, River, Habitation
	Total	36078	100.0	

11. Specific problems of the area and subwatershedwise extent:

S. No.	Specific problems	Sub-watershed code							
		Aj9i	Aj9j	Aj9k	Aj10a	Aj10c	Aj10d	Aj10f	Aj10g
1	Moderate erosion on slope above 3% on moderately deep to very deep soils	887	2091	2898	816	760	815	1823	2357
2	Severe erosion on 1-5% slope on moderately deep to very deep soils	360	0	0	119	47	433	444	41
3	Moderate erosion on shallow Soils on 1-5% slopes	0	49	27	0	0	0	0	0
4	Gravelliness	0	367	279	0	0	0	0	0
5	Stoniness	0	21	27	0	0	0	0	0
6	Shallowness	0	49	27	0	0	0	0	0
	Problematic area (ha)	1247	2209	2925	935	807	1298	2267	2398
	Total Problematic area (ha)	14086							

12. Salient features:-

- ❖ The survey area is dominated by very deep soils covering an area 31949 hectares (88.5%) followed by moderately deep soils contributing 1432 hectares (4%), deep soils 528 ha (1.5%) and shallow soils 76 ha (0.2%).
- ❖ Nearly 20144 ha (55.8%) of the surveyed area is under very gentle slope followed by 13765 ha (38.2%) area is under gentle slope and 76 ha (0.2%) under moderate slope.
- ❖ Majority of the area 32541 ha (90.2%) is under moderate erosion followed by 1444 ha (4.0%) area under severe erosion.
- ❖ Out of the total surveyed area, 19832 ha (55.0%) is under Land Capability Class IIes-1 followed by 11582 ha (32.1%) area under Land Capability Class IIIes-1.
- ❖ 5.8% (2093 ha) of the total surveyed area is under Miscellaneous land

HOW TO USE SOIL SURVEY REPORT

This report on Aj9i, Aj9j, Aj9k, Aj10a, Aj10c, Aj10d, Aj10f and Aj10g subwatersheds of Aj subcatchment in Nagarjunsagar catchment of Dharwad district, contains the detailed information of the survey area in respect of physiography, relief, geology, climate, natural vegetation, land use and soils. Soils series description as identified and mapped in the area and interpretations of their phase level mapping units for different land development activities like land use planning, soil and water conservation, forest management, eco-restoration and waste land development etc. are also incorporated. The limitations and potentialities of soils mapped and their conservation measures have been discussed broadly mapping unit wise.

To use this report, the user needs to locate the area of interest on the soil map appended with this report. Each soil unit has been delineated and represented on the map by standard symbolic expression. Each of the soil-mapping unit refers to a particular kind of soil type and the abbreviated symbols of soil mapping unit indicates soil series, soil depth, texture, slope class, erosion and surface features like gravelliness, stoniness and rockiness. A soil mapping unit having mapping symbol T5r B2 refers as 'T' for Thimmapur series, '5' for very deep soil depth, 'r' for clay surface texture, 'B' for very gently sloping lands (1-3%) and '2' for moderate erosion.

Detailed information on soil series, profile description and other related soil characteristics is given in **Chapter 5** 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) 1999 and has been provided in **Table 10**.

In **Appendix III** entitled "**Checklist of mapping units under different subwatersheds**" information on the soil mapping units mapped in the area vis a vis physiographic position, predominant slope, present land use, soil conservation measures adopted and land capability is given.

In **Appendix I**, entitled as "Index to soil mapping units" multipurpose interpretation of each soil mapping unit is presented. Mapping units mapped in the surveyed area have been listed along with respective description. Furthermore this provides information on area of mapping unit in each subwatershed followed by the interpretation with respect of land capability units, soil and land irrigability classification, paddy soil grouping and hydrological soil groupings. This table readily provides information on soil and land characteristics and their use potential at a glance thus can be very helpful.

In Chapter **9.0** section **9.1** 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 9.8** "General recommendations for soil conservation and crop production".

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

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