

Inventory of Rapid Reconnaissance Soil Survey for Prioritization of Micro-watersheds of 4D1B1 and 4D1B2 Watersheds of 4D1B Subcatchment (Non RVP) of 4D1(Lower most Krishna below Nagarjunsagar dam), Krishna Catchment, Krishna District of Andhra Pradesh and Khammam District of Telangana State

ABSTRACT

01. **Surveyed Area** : 4D1B1 to B2 Watersheds of 4D1B Sub-catchment (Non-RVP) in Krishna district of Andhra Pradesh and Khammam district of Telangana State
02. **Location** : 15⁰ 42' to 16⁰ 49' North Latitude
80⁰ 19' to 81⁰ 10' East Longitude
03. **Total Area** : 1,51,259 ha.
04. **Nos. of Microwatersheds** : 150 microwatersheds.
05. **Agro climatic zone:** Southern Plateau and Hill region (Zone–X)
06. **Kind of Survey** : Rapid Reconnaissance Survey
07. **Period of Survey** : January, 2006 to March 2006
08. **Base Map** : Survey of India, Topographical Maps on 1:50000 scale
09. **Toposheet Used** : 65D/05, 06,09,10,11,15,16, 65H/04, 66A/13, 14 & 66E/01
10. **Hydrological division** : a. Region 4 - (Drainage flowing in to Bay of Bengal)
b. Basin 4D - (Krishna)
c. Catchment 4D1 - (Krishna)
d. Sub-catchment 4D1B
e. Watershed 4D1B1 to 4D1B2
f. Sub-watershed 4D1B1a to 4D1B2a etc.
g. Micro-watershed 4D1B1a1, 4D1B1a2 etc.

12. Districtwise distribution of area under different Runoff Potential Mapping Unit (RPMU)

S No.	RMPU	KRISHNA (AP)	KHAMMAM (TS)	AREA (Ha)	AREA (%)
1	AL01	55348	-	55348	36.6
2	AL02	5554	-	5554	3.7
3	CA01	4092	-	4092	2.7
4	CA02	20737	-	20737	13.7
5	GR01	4790	71	4861	3.2
6	GR02	266	-	266	0.2
7	GR03	755	-	755	0.5
8	GR04	888	-	888	0.6
910	GR05	501	-	501	0.3
11	GR06	1134	42	1176	0.8
12	GR07	16984	2169	19153	12.7
13	GR08	1276	188	1464	1.0
14	Habbitation	2341	-	2341	1.6
15	River	20057	-	20057	13.3
16	Marshy land(ML)	13382	-	13382	8.9
17	Tank	636	48	684	0.5
		148741	2518	151259	100.01

13. Distribution of area (ha) under different watersheds

S No.	Watersheds	Area (Ha.)	Area(%)
1	4D1B1	84178	56
2	4D1B2	67081	44
	Total	151259	100

14. Priority categorization

Sl No	Priority Category	Krishna District(AP)		Khammam District(TS)		Total Area (Ha.)	Area (%)
		No. Micro-watersheds	Area (Ha.)	No. Micro-watersheds	Area (Ha.)		
1	High (66-70)	6	5433	-	-	5433	3.59
2	Medium (61-65)	6	7106	-	-	7106	4.70
3	Low (56-60)	134	136202	4	2518	138720	91.71
	Total	146	148741	4	2518	151259	100

15. Watershed wise Area (ha.) and number of micro watersheds under different priority categories

S No.	Watersheds	High	Medium	Low	Area (Ha.)	Area (%)
1	4D1B1 Microwatersheds	0 (0)	1380 (1)	82798 (84)	84178 (85)	56
2	4D1B2 Microwatersheds	5433 (6)	5726 (5)	55922 (54)	67081 (65)	44
	Total	5433 (6)	7106 (6)	138720 (138)	151259 (150)	100

16. District wise distribution of area (ha) under different watersheds

S No.	Watersheds	Krishna(AP)	Khammam(TS)	Area (Ha.)	Area (%)
1	4D1B1	84178	0	84178	56
2	4D1B2	64563	2518	67081	44
		148741	2518	151259	100
	Total			151259	100

15. Aerial Extent of different Run-off Potential Mapping Units (RPMU).

S No	RPMU	RP Value	Area (Ha.)	Area (%)
1	AL01	57	55348	36.6
2	AL02	61	5554	3.7
3	CA01	57	4092	2.7
4	CA02	56	20737	13.7
5	GR01	71	4861	3.2
6	GR02	69	266	0.2
7	GR03	63	755	0.5
8	GR04	60	888	0.6
9	GR05	64	501	0.3
10	GR06	61	1176	0.8
11	GR07	61	19153	12.7
12	GR08	57	1464	1.0
13	Hab. (H)	0	2341	1.6
14	River (R)	0	20057	13.3
15	Tank (T)	0	684	0.5
16	Marshy Land (ML)	0	13382	8.9
	Total		151259	100

16. Salient Features

- Out of the total area of 151259 ha, 148657 ha (98%) fall in the districts Krishna (A.P.) followed by 2602 (2%) in Khammam district (TS.),
- High category of priority micro-watershed cover 6349 ha (4%) and medium category cover 21467 ha (14%) of the total Surveyed area.
- 29975 ha. (19.8%) area suffers from moderate erosion and 6770 ha (4.5%) area from moderate to severe erosion and maximum area comes under slight erosion (37.6%)
- An area of 62366 ha (41.23%) is under agriculture, 20329 ha (13.44%) under mixed agriculture and plantation, 28008 ha (18.52%) covered under forest, open scrub and grassland occupy 4092 ha accounting for (2.71%) of the total survey area.
- Nearly 70 percent of the survey area is under deep to very deep soils where as 4.8 percent under shallow to moderately deep soils.
- Land with steep to very steep slope occupies nearly 5127 ha (3.4%) whereas strong to steep sloping land covers about 755 ha (0.5%) and gentle to moderate slope about 1389 ha (0.9%). Maximum area comes under nearly gentle to very gentle slope which is 87195 ha (57.6%).

How to use Soil Survey Report

The report embodies the results of the rapid reconnaissance survey conducted for identification and delineation of priority microwatersheds of 4D1B1 and 4D1B2 watersheds of 4D1B Subcatchment of 4D1, Krishna, Non RVP Catchment for planning soil and water conservation measures and treatment plan for effective soil conservation practices.

The priority categories have been fixed on the basis of runoff potential index (RPI) values derived on computation by formula described in the chapter 3 of the report. Higher values of the RPI suggest higher priority and vice-versa.

The microwatersheds of 4D1B Subcatchment have been categorized into five categories of priority termed as very high, high, medium, low and very low.

All the microwatersheds of the reported area are listed in Appendix I, showing Runoff Potential Mapping Unit (RPMU), their area, runoff potential value, Index and Priority grading. This annexure is very useful to know any information at microwatershed level. All the microwatersheds have been listed in descending order of their sediment yield index in Annexure II and graded in different priority categories.

The codification and delineation in National Watershed Atlas is demarcated upto watershed level e.g. 4C3B1 which connotes:

- 4 : for water resource region
- D : for basin
- 1 : for catchment
- B : for subcatchment
- 1 : for watershed

This delineation and codification is transferred on a priority demarcation map where two more delineations are made and an English alphabet followed by an Arabic number is suffixed to the watershed symbol to connote subwatershed and microwatershed respectively. Thus the 7 digit symbol e.g. 4D1B1a1 represents a microwatershed code on a priority delineation map. Different runoff potential mapping units are marked with capital English alphabet followed by Roman numbers if needed like AL01, GR02, etc. Each soil mapping unit denotes a set of soil and land attributes such as physiography, slope, depth, soil texture, land use, land cover, management practices, category of erosion, etc. Detailed description of soil mapping units has been given in chapter 4.

The user on the basis of the maps appended with the report needs to identify the location of the area of interest. On the map 7 digit code e.g. 4D1B1a1 is to be noted along with the symbols of RPMU. To know the priority category Annexure I and II

is to be referred. To get the area of different RPMUs mapped with in the microwatershed of interest Annexure I is to be consulted. The description of each RPMU is given in table 6 and RPMU differentiating characteristics in table 7. The distribution of area under different priority

categories with reference to district wise area, slope, soil depth, management class, drainage class and erosion hazards are given in table 9 to 15. Priority categorization with reference to district wise area is depicted in Table 17.

Request for detailed soil survey for preparation of micro watersheds development plan or for the area of interest can be sent to the Chief Soil Survey Officer by giving the codes of Microwatersheds, at the address given below.

The findings of the rapid reconnaissance survey have been summarized in Chapter 5. The very high priority Microwatersheds are shown in the appended by vertical hachuring where as Microwatersheds of high priority by horizontal hachuring. These priorities are relative severity of the problems in the microwatershed against the urgency of the treatment.

In case any additional information or explanation is required, the reference may be made to.

<p>The Chief Soil Survey Officer Soil and Land Use Survey of India (Department of Agri., Co-operation & Farmers Welfare), Government of India I.A.R.I. Buildings, New Delhi- 110012 Ph.011-25841263, 25849686 Fax-011-25843811 E-mail-csso-slusi@nic.in</p>	<p>and/or</p>	<p>The Soil Survey Officer Soil and Land Use Survey of India Mrida Sarvekshan Bhavan, Rajendra Nagar Hyderabad- 500030 (Telangana State) Ph. & Fax-040-24010051 040-24010042 Email- ssohyderabad-slusi@nic.in soilap@nic.in</p>
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