

Report on Prioritization of Micro-watersheds of 4C3B1 to 4C3B9 Watersheds of 4C3B Subcatchment (Non RVP) of 4C3, Pennar Catchment, Cuddapah, Chittoor and Nellore districts of Andhra Pradesh and Kolar district of Karnataka state

ABSTRACT

01. **Surveyed Area** : 4C3B1 to 4C3B9 Watersheds of 4C3B Sub-catchment (non RVP) in Cuddapah, Chittoor and Nellore districts of Andhra Pradesh and Kolar district of Karnataka state
02. **Location** : 13⁰18' to 14⁰28' North Latitude
78⁰28' to 79⁰28' East Longitude
03. **Total Area** : 7,92,083 ha
04. **Nos. of Microwatersheds** : 707
05. **Agro climatic zone:** Southern Plateau and Hill region (zone–X)
06. **Kind of Survey** : Rapid Reconnaissance Survey
07. **Period of Survey** : December 2006 to March 2007
08. **Base Map** : Survey of India, Topographical Maps on 1:50000 scale
09. **Toposheet Used** : 57J/11, 57J/12, 57J/15, 57J/16, 57K/6, 57K/7, 57K/9, 57K/10, 57K/11, 57K/13, 57K/14, 57K/15, 57N/3, 57N/4, 57N/7, 57N/8, 57O/1, 57O/2, 57O/5 and 57O/6.
10. **Hydrological division** :
 - a. Region 4 - (Drainage flowing in to Bay of Bengal)
 - b. Basin 4C - (Cauvery and Krishna)
 - c. Catchment 4C3 - (Pennar)
 - d. Sub-catchment 4C3B - (Lower Pennar up to confluence with Cheyyeru)
 - e. Watershed 4C3B1 to 4C3B9
 - f. Sub-watershed 4C3B1a to 4C3B1b etc.
 - g. Micro-watershed 4C3B1a1, 4C3B1a2 etc.

11. Distribution of area (ha) under different watersheds

Sl.No.	Watersheds	Watershed and Stream	Area(ha)	Percentage (%)
1	4C3B1	Patagunjana, Cheyyeru	120285	15.19
2	4C3B2	Cheyyeru, Mandavi	20123	2.54
3	4C3B3	Pulanga	89526	11.30
4	4C3B4	Mandavi	99807	12.60
5	4C3B5	Punchu	109044	13.77
6	4C3B6	Punchu	52596	6.64
7	4C3B7	Satyavati	152634	19.27
8	4C3B8	Ganganeru	93802	11.84
9	4C3B9	Mandavi	54266	6.85
Total			792083	100.00

12. Priority categorization

Sl.No.	Priority categorization	Nos. of Micro-watersheds	Area(ha)	Area (%)
1	Very High (above 70)	105	112310	14.18
2	High (66-70)	198	233690	29.5
3	Medium (61-65)	318	357917	45.19
4	Low (56-60)	86	88166	11.13
	Grand Total	707	792083	100.00

13. Watershed wise Area (ha.) under different priority categories

Sl.No	Watersheds	Very high	High	Medium	Low	Total
1	4C3B1	27868	34823	38231	19363	120285
2	4C3B2	5140	5961	9022	0	20123
3	4C3B3	14620	31713	22332	20861	89526
4	4C3B4	21343	31446	45322	1696	99807
5	4C3B5	1875	24460	69572	13137	109044
6	4C3B6	6817	24095	20118	1566	52596
7	4C3B7	14555	41527	85700	10852	152634
8	4C3B8	9786	30535	36849	16632	93802
9	4C3B9	10306	9130	30771	4059	54266
	Total	112310	233690	357917	88166	792083

13a. Watershed wise number of priority micro-watersheds

Sl.No	Watersheds	Very high	High	Medium	Low	Total
1	4C3B1	25	31	30	19	105
2	4C3B2	5	5	7	-	17
3	4C3B3	14	27	19	12	81
4	4C3B4	22	26	41	-	91
5	4C3B5	2	24	65	-	103
6	4C3B6	6	19	19	02	46
7	4C3B7	12	32	72	11	127
8	4C3B8	10	26	34	15	85
9	4C3B9	9	8	31	04	52
	Total	105	198	318	86	707

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

Sl. No	Water-sheds	Nos. of MWS	Cuddapah (A.P.)	Chittoor (A.P.)	Nellore (A.P.)	Kolar (KA)	Total	Area (%)
1	4C3B1	105	119660	41	584	-	120285	15.19
2	4C3B2	17	20123	-	-	-	20123	2.54
3	4C3B3	81	89526	-	-	-	89526	11.30
4	4C3B4	91	73904	25903	-	-	99807	12.60
5	4C3B5	103	2073	106971	-	-	109044	13.77
6	4C3B6	46	-	52596	-	-	52596	6.64
7	4C3B7	127	1219	149660	-	1755	152634	19.27
8	4C3B8	85	93802	-	-	-	93802	11.84
9	4C3B9	52	50223	4043	-	-	54266	6.85
	Total	707	450530	339214	584	1755	792083	100.00
	Percentage	-	56.88	42.83	0.07	0.22	-	100.00

MWS-Micro-watershed

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

Sl.No.	RPMU	Runoff Potential Value	Area in ha.	Area (%)
1	AL01	58	17910	2.26
2	DL01	78	4324	0.55
3	GR01	79	30981	3.91
4	GR02	76	24017	3.03
5	GR03	68	9573	1.21
6	GR04	61	10669	1.35
7	GR05	69	49809	6.29
8	GR06	64	98898	12.49
9	GR07	59	106862	13.49
10	GR08	58	30211	3.81
11	GR09	58	40711	5.14
12	GR10	62	583	0.07

13	GR11	60	12228	1.54
14	GR12	64	14741	1.86
15	GR13	64	2447	0.31
16	GR14	72	3491	0.44
17	GR15	68	4069	0.51
18	GR16	63	3583	0.45
19	GR17	63	1235	0.16
20	GR18	59	2473	0.31
21	GR19	72	7090	0.9
22	GR20	80	9577	1.21
23	SS01	64	21093	2.66
24	SS02	86	28088	3.55
25	SS03	74	74237	9.37
26	SS04	68	26294	3.32
27	SS05	57	22883	2.89
28	SS06	65	28026	3.54
29	SS07	69	6559	0.83
30	SS08	61	10318	1.3
31	SS09	57	24090	3.04
32	SS10	62	5396	0.68
33	SS11	66	1425	0.18
34	SS12	69	3913	0.49
35	SS13	61	7003	0.88
36	SS14	64	371	0.05
37	SS15	56	18677	2.36
38	Misc.	-	28228	3.56
	Grand Total	-	792083	100.00

16. Salient Features

- Out of the total area of 7,92,083 ha, 4,50,530 ha (56.88%) fall in the districts Cuddapah (A.P.) followed by 3,39,214 ha (42.83%) in Chittoor district (A.P.), 584 ha (0.07%) in Nellore district (A.P.) and 1755 ha (0.22%) in Kolar districts of Karnataka state.
- Very high and high category of priority micro-watershed cover 3,46,000 ha (43.68%) of the total Surveyed area and need immediate treatment measures.
- Moderate, moderate to severe and severe erosion hazards are prevalent over an area of 3,24,871 ha (41.01%), 1,45,908 ha (18.42%) and 41241 ha (5.21%) respectively.
- An area of 2,03,727 ha (25.72) covered under forest, pasture and grassland occupy 2,64,268 ha accounting for (33.36%) of the total area uncultivable waste lands occupy an area of 2447 ha which is 0.31% of the total area.
- Very shallow to shallow soils cover an area of 1,88,091 ha (23.75%)while shallow to moderately deep soil cover an area of 2,77,943 ha (35.09%) of the total area.
- Out of total cultivated area of 2,70,553 ha (34.15%), 1,54,552 ha (19.51%) is under rainfed and 1,15,978 ha (14.64%) is under irrigation.

How to use Soil Survey Report

The report embodies the results of the rapid reconnaissance survey conducted in Microwatersheds of 4C3B1 to 4C3B9 watersheds of 4C3B Subcatchment of 4C3, Pennar, 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 4C3B 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
- C : for basin
- 3 : 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. 4C3B1a1 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. 4C3B1a1 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 within 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.

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