

Inventory of Rapid Reconnaissance Soil Survey on Prioritization of microwatersheds of 4C3C1 to C7 Watersheds of 4C3C Subcatchment, Pennar Catchment (Non-RVP) in Cuddapah, Kurnool, Nellore & Prakasam district of Andhra Pradesh State

ABSTRACT

01.	Surveyed Area	:	4C3C1 to C7 Watersheds of 4C3C Sub-catchment, Pennar Catchment (Non-RVP) in Cuddapah, Kurnool, Nellore & Prakasam district of Andhra Pradesh State
02.	Location	:	78° 49' to 78° 53' East Longitude 14° 12' to 15° 34' North Latitude
03.	Total Area	:	5,43,293 ha.
04.	Nos. of Microwatersheds	:	578 microwatersheds.
05.	Agro climatic zone:	:	Southern Zone (Zone-III)
06.	Kind of Survey	:	Rapid Reconnaissance Survey
07.	Period of Survey	:	2006-2007
08.	Base Map	:	Survey of India, Topographical Maps on 1:50000 scale
09.	Toposheets	:	57I11,12,14,15,16,57J09,10,11,13,14,15,16,57M03,04, 57N01,02 & 03
10.	Hydrological division	:	a. Region 4 - (Drainage flowing in to Bay of Bengal) b. Basin 4C - (Pennar) c. Catchment 4C3 - (Pennar) d. Sub-catchment 4C3C e. Watershed 4C3C1 to 4C3C8 f. Sub-watershed 4C3C1a to 4C3C2a etc. g. Micro-watershed 4C3C1a1, 4C3C2a1 etc.

11. Distribution of area (ha) under different watersheds

S.No.	Watersheds	Total Area (ha)	Area (%)	S No.	Watersheds	Total Area (ha)	Area (%)
1	4C3C1	53020	9.8	5	4C3C5	84256	15.5
2	4C3C2	98418	18.1	6	4C3C6	65168	12.0
3	4C3C3	63072	11.6	7	4C3C7	100388	18.5
4	4C3C4	78971	14.5	Grand Total		543293	100.0

12. Priority categorization

Sl.No.	Priority Category	No. of Microwatersheds	Total Area (Ha.)	Area (%)
1	Very High (above 70)	121	112182	20.65
2	High (66-70)	252	248413	45.72
3	Medium (61-65)	142	127944	23.55
4	Low (56-60)	62	54087	9.96
5	Very Low (55 & below)	1	667	0.12
	Grand Total	578	543293	100.0

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

S No	Watersheds	Very High	High	Medium	Low	Very Low	Total Area (Ha)	Area %
1	4C3C1	12764	32219	5959	2078	0	53020	9.8
2	4C3C2	24135	44407	25791	3418	667	98418	18.1
3	4C3C3	14178	27740	14077	7077	0	63072	11.6
4	4C3C4	11879	41129	18340	7623	0	78971	14.5
5	4C3C5	16600	37874	16906	12876	0	84256	15.5
6	4C3C6	13362	20807	21783	9216	0	65168	12.0
7	4C3C7	19264	44237	25088	11799	0	100388	18.5
Grand Total		112182	248413	127944	54087	667	543293	100

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

S No.	Water-sheds	CUDDAPAH	KURNOOL	NELLORE	PRAKASAM	Total Area (Ha.)	Area %
1	4C3C1	53020	0	0	0	53020	9.8
2	4C3C2	95780	0	2638	0	98418	18.1
3	4C3C3	62899	173	0	0	63072	11.6
4	4C3C4	44026	0	1623	33322	78971	14.5
5	4C3C5	17398	3799	0	63059	84256	15.5
6	4C3C6	65168	0	0	0	65168	12.0
7	4C3C7	100388	0	0	0	100388	18.5
Grand Total		438679	3972	4261	96381	543293	100.0

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

Sl.No.	EIMU	Runoff Potential Value	Total Area in ha.	Area (%)
1	AL01	59	5104	0.94
2	AL02	57	65393	12.04
3	AL03	68	3619	0.67
4	LS01	60	274	0.05
5	SS01	64	31853	5.86
6	SS02	86	34581	6.37
7	SS03	74	98633	18.15
8	SS04	68	70431	12.96
9	SS05	57	1892	0.35
10	SS06	66	47991	8.83
11	SS07	69	27448	5.05
12	SS08	61	11885	2.19
13	SS09	57	3128	0.58
14	SS10	63	36747	6.76
15	SS11	66	10621	1.95
16	SS12	69	14247	2.62
17	SS13	61	4320	0.80
18	SS14	64	34658	6.38
19	SS15	57	11660	2.15
20	SS16	56	2100	0.39
21	SS17	60	2246	0.41
22	Tank	0	11979	2.20
23	Hab.	0	3436	0.63
24	River	0	9047	1.67
	Grand Total		543293	100.00

16. Salient Features

- Out of the total area of 543293 ha., 438697 ha area falls under Cuddapah district, 93681 ha under Prakasam, 4261 ha under Nellore and 3972 ha. Under Kurnool district of Andhra Pradesh State.
- Very High category of priority micro-watershed cover 112182 ha (20.65%), High under 248413 ha (45%), Medium under 127944 ha (23.5%), Low under 54087 ha (9.96 %) of the total surveyed area.
- 68.4 percent of the total survey area is under moderate to severe erosion hazard with mere 15.70 percent under none to slight erosion hazard.
- An area of 1,09,189 ha (20.10%) is mixed agriculture and plantation, 2,00,917 ha (36.98%) covered under forest, 2,06,833 (38%) under open scrub of the total survey area.
- Nearly 52.6 percent of the survey area is under shallow to moderately deep, 5.1 percent under very shallow to shallow, 3 percent under moderately deep to deep soils with mere 16 percent under deep to very deep soils.

How to use Soil Survey Report

The report embodies the results of the Rapid Reconnaissance Survey conducted in Microwatersheds of 4C3C1 to 4C3C7 watersheds of 4C3C 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 4C3C Subcatchment have been categories 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. 4C3C1 which connotes:

- 4 : for water resource region
- C : for basin
- 3 : for catchment
- C : 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. 4C3C1a1 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, DR01, 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. 4C3C1a1 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, soil

depth, management class and erosion hazards are given in Table 8 to 13. Priority categorization with reference to district wise area is depicted in Table 15.

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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