

REPORT ON PRIORITIZATION OF MICRO WATERSHEDS IN 4C2A and 4C2B SUBCATCHMENTS (NON RVP), KOLAR, BANGALORE DISTRICTS IN KARNATAKA VELLORE, VILUPPURAM, KANCHIPURAM, THIRUVANNAMALAI, DISTRICTS IN TAMILNADU AND CHITTOR DISTRICT OF ANDHRA PRADESH

ABSTRACT

1. Survey area : 4C2A and 4C2B subcatchments (Non RVP), Kolar, Bangalore Districts in Karnataka, Vellore, Viluppuram, Kanchipuram, Thiruvannamalai, Kanchipuram Districts, Tamilnadu and Chittoor District of Andhra Pradesh
2. Location : 12° 46' N to 13° 40' N Latitude
77° 52' E to 80° 10' E Longitude
3. Total area surveyed : 1751084 Hectares
4. Hydrological divisions
- a) Region - 4
 - b) Basin - 4C
 - c) Catchment - 4C2A
 - d) Subcatchments - 4C2A, 4C2B,
 - e) Watersheds - 4C2A1 to 4C2A8, 4C2B1 to 4C2B7

Watershed	Area	Sub Watersheds	No. of Micro-watersheds	Watershed	Area	Sub Watersheds	No. of Micro-watersheds
4C2A1	138430	18	135	4C2B1	56739	11	66
4C2A2	96843	18	114	4C2B2	109243	20	125
4C2A3	149259	17	124	4C2B3	106087	14	93
4C2A4	215367	22	178	4C2B4	115767	15	121
4C2A5	76377	12	86	4C2B5	159627	17	134
4C2A6	57351	11	68	4C2B6	66910	13	89
4C2A7	149146	22	154	4C2B7	113401	18	118
4C2A8	140537	22	151	Total	727774	108	746
Total	1023310	142	1010	Grand Total	1751084	250	1756

5. Agro climatic region : 10 (semiarid subtropical with excessive Evapo-transpiration)
Evapo-transpiration)
6. Type of survey : RR survey for priority delineation
7. Period of survey : Dec1998 to Jun 2001
8. Base maps : 1:50,000 scale survey of India topographic maps
9. Topo-sheet nos. : 57G/15, 16;
57K/ 3, 4, 7, 8, 11, 12, 14, 15, 16;
57L/5, 6, 9, 10, 11, 13, 14, 15, 16;
57 O/ 2, 3, 4, 7, 8;
57P/1,2,3,5,6,7,9,10,11,13,14,15;
66D/1, 2, 3.

10. Soil Erosion hazard

Sl.No.	Erosion	Area in ha.	Percentage
1 *	None to slight	21261	1.21
2 *	Slight	648530	37.04
3	Slight to moderate	67926	3.88
4	Moderate	780317	44.56
5	Moderate to Severe	51076	2.92
6	Severe	11062	0.63
	Total	1580172	90.24
	Misc. lands	170912	9.76
	Grand total	1751084	100.00

* Categorywise same but perceptually different

11. Priority categorization

Sl. No.	Priority category	Silt yield index	No. of Micro-watershed	Area in ha.	Percentage
1	Very high	1200 and above	42	40025	2.29
2	High	1100-1199	141	133307	7.61
3	Medium	1000-1099	368	374863	21.41
4	Low	900-999	493	496121	28.33
5	Very low	Less than 900	712	706768	40.36
	Total		1756	1751084	100.00

12. Land use and area distribution

Sl. No.	Land use category	Area (ha.)	Percentage
1	Area under rain fed cultivation	463003	26.44
2	Area under irrigated cultivation	568976	32.49
3	Plantation Crops	88058	5.03
4	Barren/Fallow	17947	1.02
5	Forest	398109	22.74
6	Sparse vegetation/bushy vegetation Uncultivated &	44079	2.52
7	Misc.	170912	9.76
	Total	1751084	100.00

13. Distribution of soils of the area vis- a- vis soil depth

Sl. No.	Depth Category	Area (ha.)	Percentage
1	Very Shallow to Shallow Soils	53198	3.04
2	Shallow to moderately deep Soils	495346	28.29
3	Moderately deep to deep Soils	72190	4.12
4	Deep to very deep Soils	678436	38.74
5	Very deep Soils	281002	16.05
	Total	1580172	90.24
6	Misc.	170912	9.76
	Grand Total	1751084	100.00

14. Watershed wise distribution of area under number of micro watersheds in different priority categories

Priority category micro-watersheds	Very High	High	Medium	Low	Very Low	Total
4C2A						
4C2A1	-	-	2071 (3)	27403 (27)	108956 (105)	138430 (135)
4C2A2	-	427 (1)	6240 (7)	11134 (12)	79042 (94)	96843 (114)
4C2A3	-	-	11071 (9)	44507 (35)	93681 (80)	149259 (124)
4C2A4	8185 (6)	7619 (7)	23595 (19)	58005 (47)	117963 (99)	215367 (178)
4C2A5	-	4300 (5)	14483 (18)	15465 (17)	42129 (46)	76377 (86)
4C2A6	6580 (8)	2662 (3)	6036 (7)	3561 (5)	38512 (45)	57351 (68)
4C2A7	1166 (1)	829 (1)	13640 (13)	53874 (56)	79637 (83)	149146 (154)
4C2A8	789 (1)	0	10176 (10)	98635 (105)	30937 (35)	140537 (151)
Total	16720 (16)	15837 (17)	87312 (86)	312584 (304)	590857 (587)	1023310 (1010)
4C2B						
4C2B1	18957 (20)	9107 (10)	9075 (10)	10345 (13)	9255 (13)	56739 (66)
4C2B2	-	42182 (48)	43982 (48)	12707 (16)	10372 (13)	109243 (125)
4C2B3	-	4602 (5)	27549 (25)	31945 (26)	41991 (37)	106087 (93)
4C2B4	3809 (5)	19275 (19)	56260 (59)	28237 (28)	8186 (10)	115767 (121)
4C2B5	539 (1)	36122 (34)	76755 (60)	27445 (23)	18766 (16)	159627 (134)
4C2B6	- (0)	328 (1)	17915 (60)	25131 (34)	23536 (32)	66910 (89)
4C2B7	- (0)	5854 (7)	56015 (22)	47727 (49)	3805 (4)	113401 (118)
Total	23305 (26)	117470 (124)	287551 (282)	183537 (189)	115911 (125)	727774 746
Grand total	40025 (42)	133307 (141)	374863 (368)	496121 (493)	706768 (712)	1751084 (1756)

2 District

15. State wise distribution of area and number of microwatersheds in different priority categories

S.NO	PRIORITY	TAMILNADU				A.PRADESH	KARNATAKA		TOTAL
		CPATTU	VELLORE	TIRU.MALAI	V.PURAM	CHITTOOR	KOLAR	BANGALORE	
1	Very high	-	10436	23296	-	5754	539	-	40025
		-	(15)	(26)	-	(7)	(1)	-	42*
2	High	427	23851	12643	-	44334	47922	4130	133307
		(1)	(37)	(15)	-	(58)	(54)	(6)	141*
3	Medium	6632	70106	32735	-	130727	132359	2304	374863
		(9)	(82)	(33)	-	(160)	(134)	(4)	368*
4	Low	23348	134060	64001	-	215730	58982	-	496121
		(23)	(147)	(62)	-	(248)	(63)	-	493*
5	Very low	161882	283180	151711	76	86669	23250	-	706768
		(183)	(311)	(141)	(2)	(110)	(23)	-	712*
	Total	192289	521633	284386	76	483214	263052	6434	1751084
		(216)	(592)	(277)	(2)	(583)	(275)	(10)	(1756)

*Some micro watershed falls in more than one district

16. Distribution of the area vis-a-vis textural classes and erosion classes wise in 4C2A&4C2B subcatchments

Sl. No.	Textural classes	None to slight *	Slight erosion *	Slight to moderate erosion	Moderate erosion	Moderate to severe erosion	Severe erosion	Severe to very severe erosion	Misc. lands	Total area in ha.
1	Coarse	-	898	7515	7760	-	-	-	-	16173
2	Moderately Coarse	-	-	490	2808	8189	-	-	-	11487
3	Medium texture	-	-	-	2950	-	-	-	-	2950
4	Moderately fine	2085	639803	13622	619649	42444	4056	-	-	1321659
5	Coarse Gravelly	-	-	2204	-	-	3233	-	-	3233
6	Moderately coarse Gravelly	-	-	2204	-	-	-	-	-	2204
7	Moderately fine Gravelly	-	5007	34653	144536	443	3773	-	-	188412
8	Fine	19176	2822	8083	1493	-	-	-	-	31574
9	Gravelly Fine	-	-	1359	1121	-	-	-	-	2480
	Misc.	-	-	-	-	-	-	-	170912	170912
	Total	21261	648530	67926	780317	51076	11062	-	170912	1751084

* Category wise same but Perceptually different

17. Distribution of soils of the area vis- a- vis physiographic position

Sl. No.	Physiographic Position	Area (ha.)	Percentage
1	River Streams	34049	1.94
2	Sand beaches	898	0.05
3	Delta alluvium/marine alluvium	2801	0.16
4	Valley plains	276746	15.80
5	Pediplains	842825	48.13
6	Pediments	28996	1.66
7	Subdued hills	1161	0.07
8	Upper Hill Valley	4604	0.26
9	Hill side slopes	366639	20.94
10	Sand bars and river banks	6844	0.39
11	Hill crests and Sideslopes	7457	0.43
12	Foothill slopes	7152	0.41
	Sub Total	1580172	90.24
	Misc.	170912	9.76
	Total	1751084	100.00

18. Distribution of Soils Vis a Vis different slope categories

Sl. No.	Slope category	Area (ha.)	Percentage
1	Nearly level , 0-1%	276506	15.79
2	Nearly level to gently sloping ,0-3%	214491	12.25
3	Very gently to gently sloping , 1-5%	603979	34.49
4	Very gently to moderately sloping ,1-10%	40812	2.33
5	Gently sloping ,3-5%	634	0.04
6	Gently to moderately sloping ,3-10%	61093	3.49
7	Gently to strongly sloping ,5-15%	9874	0.56
8	Gently sloping to moderately steep ,10-25%	53751	3.07
9	Steep to very very steep , 25-50%	315799	18.03
10	Very steep to very very steep ,33-over50%	3233	0.18
	Sub total	1580172	90.24
11	Misc.	170912	9.76
	Total	1751084	100.00

19. Salient features

1. Out of 1756 microwatersheds surveyed and reported, 42 microwatersheds are under very high priority category and 141 microwatersheds have been categorized under as high priority covering nearly 7.6% of the total area.
2. The surveyed area comprises of 68.75% of red soils, 5.79% of black soils and 15.7% of red and black mixed soils. The surveyed area is dominated by red soils.
3. Of the surveyed area nearly 39% of the soils are deep to very deep followed by shallow to moderately deep contributing 28%, shallow 3%, moderately deep to deep 4% and very deep 16%.
4. Nearly 45% of the soils of the surveyed area are under moderate erosion.
5. Soil Management wise 34.11% of the area surveyed is well managed, 16.19% poorly managed and 1.91% moderately managed, and 38.03% is unmanaged.

20. Extent of area under different erosion intensity mapping units:

Sl.No.	Mapping Units	Area	%
1	A1	250	0.01
2	A2	490	0.03
3	A3	671	0.04
4	A4	32638	1.86
5	A5	2449	0.14
6	A6	6844	0.39
7	A7	352	0.02
8	CA3	133	0.01
9	CA5	898	0.05
10	G1	66366	3.79
11	G1.5	7594	0.43
12	G2	12694	0.72
13	G2.1	11539	0.66
14	G2.2	30988	1.77
15	G2.3	15116	0.86
16	G2.4	90919	5.19
17	G2.5	27283	1.56
18	G2.6	26642	1.52
19	G2.7	12874	0.74
20	G2.8	3796	0.22
21	G2.10	3868	0.22
22	G4	1361	0.08
23	G4.1	2863	0.16
24	G4.2	3233	0.18
25	G5	4495	0.26
26	G5.1	3589	0.20
27	G5.3	14401	0.82
28	G5.4	19038	1.09
29	G5.5	4009	0.23
30	G5.7	732	0.04
31	G5.9	257	0.01
32	G6	390	0.02
33	G8	1447	0.08
34	G8.1	1289	0.07
35	G8.3	3171	0.18
36	G8.4	12792	0.73
37	G8.6	6015	0.34
38	G8.7	6212	0.35
39	G8.8	940	0.05
40	G9	2482	0.14
41	G9.1	14539	0.83
42	G9.3	2207	0.13
43	G9.4	1698	0.10
44	G10	11975	0.68
45	G10.1	28098	1.60
46	G10.2	2314	0.13
47	G10.4	3662	0.21
48	G10.5	11438	0.65
49	G10.6	2958	0.17
50	G10.7	865	0.05
51	G10.9	6763	0.39
52	G10.11	11345	0.65
53	G12	205320	11.73
54	G12.1	19351	1.11
55	G12.2	5842	0.33
56	G12.3	3773	0.22
57	G12.4	332	0.02
58	G12.5	17412	0.99
59	G12.6	3899	0.22
60	G12.7	8299	0.47
61	G12.8	1121	0.06
62	G12.9	624	0.04

63	G13	4835	0.28
64	G13.1	1455	0.08
65	G13.2	924	0.05
66	G14	126975	7.25
67	G14.1	2162	0.12
68	G14.2	443	0.03
69	G14.3	7760	0.44
70	G15	528	0.03
71	G16	2204	0.13
72	G18	20184	1.15
73	G18.1	1525	0.09
74	G19	4127	0.24
75	G22	860	0.05
76	G23	126	0.01
77	G23.1	5002	0.29
78	G24	5525	0.32
79	G24.1	1347	0.08
80	G24.2	3900	0.22
81	G25	1493	0.09
82	G26	273924	15.64
83	G26.1	116630	6.66
84	G26.2	121871	6.96
85	G26.3	4746	0.27
86	G26.4	2689	0.15
87	G26.5	94	0.01
88	G26.6	162	0.01
89	G26.7	12827	0.73
90	G27	5050	0.29
91	G28	735	0.04
92	G28.1	1647	0.09
93	G28.2	2023	0.12
94	G29	264	0.02
95	G29.1	4422	0.25
96	G29.2	8901	0.51
97	G29.3	780	0.04
98	G31.1	1277	0.07
99	G31.2	1844	0.11
100	G31.3	2085	0.12
101	G32	1483	0.08
102	G33	1561	0.09
103	G33.1	445	0.03
104	G33.2	4538	0.26
105	G35.1	413	0.02
106	G37	3092	0.18
107	G37.1	1707	0.10
108	G39	634	0.04
109	G39.1	378	0.02
110	LT2	1419	0.08
111	LT3	1531	0.09
112	LT4	1151	0.07
113	LT8	296	0.02
114	LT10	1223	0.07
Subtotal		1580172	90.24
1	HABIT	22218	1.27
2	RIVER/ST	26217	1.50
3	TANK	114086	6.52
4	ROC	8193	0.47
5	ML	16	0.00
6	OTHERS	182	0.01
MISC. Total		170912	9.76
TOTAL		1751084	100.00