

REPORT ON PRIORITIZATION OF MICRO WATERSHEDS IN 4C1D SUBCATCHMENT (NON RVP) (MISC AREA AROUND PONDICHERRY) IN CUDDALORE, KANCHIPURAM, THIRUVANNAMALAI, VILLUPURAM DISTRICTS OF TAMILNADU AND PONDICHERRY

ABSTRACT

1. Survey area : Report On Prioritization Of Micro Watersheds in 4C1D subcatchment in Cuddalore, Kanchipuram, Thiruvannamalai, Villupuram Districts, Tamilnadu and Pondicherry
2. Location : 13° 51' 50" to 12° 29' 50" N Latitude and 77° 32' 10" to 80° 9' E Longitude
3. Total area surveyed : 482744 hectare
4. Agro climatic region : 10 (semiarid subtropical with excessive evapo-transpiration)
5. Type of survey : RR survey for priority delineation
6. Period of survey : 1993-1998
7. Base maps : 1:50,000 scale Survey of India topographic maps
8. Topo-sheet nos. : 58M/ 5, 9, 13,
57 P/3, 4, 7, 8, 11, 12, 15, 16
63D/3, 4
9. Hydrological divisions
- a) Region - 4
- b) Basin - 4C
- c) Catchment - 4C1
- d) Sub catchment - 4C1D
- e) Watersheds - 4C1D1 to 4C1D6
- f) Sub watersheds and Microwatersheds

Sl. No.	Water sheds	Number of Sub watersheds	No of micro watersheds	Area in Hectare
1	4C1D1	7	39	32995
2	4C1D2	20	123	110896
3	4C1D3	21	131	133026
4	4C1D4	12	78	76885
5	4C1D5	14	82	91235
6	4C1D6	6	42	37707
7	Total	80	495	482744

10. Priority categorization

Sl. No.	Priority category	Silt yield index	No. of Micro-watershed	Area in ha.	Percentage
1	Very high	1200 and above	8	6229	1.3
2	High	1100-1199	13	11786	2.4
3	Medium	1000-1099	25	24138	5.0
4	Low	900-999	73	69961	14.5
5	Very low	Less than 900	376	370630	76.8
		Total	495	482744	100

11. District wise distribution of area and number of microwatersheds in different priority categories

S.NO	Priority category	TAMILNADU			PONDICHERRY	TOTAL
		CHENGALPATTU	NORTH ARCOT	SOUTH ARCOT		
1	Very high	0 (0)	0 (0)	4628 (8)	1601 (5)	6229 (8)
2	High	1917 (3)	178 (1)	8022 (11)	1669 (3)	11786 (13)
3	Medium	5161 (6)	3099 (5)	13868 (17)	2010 (3)	24138 (25)
4	Low	12478 (15)	15488 (23)	41952 (50)	43 (1)	69961 (73)
5	Very low	56701 (62)	28259 (37)	268646 (310)	17024 (40)	370630 (376)
	TOTAL	76257 (86)	47024 (66)	337116 (396)	22347 (52)	482744 (495)

12. Watershed wise distribution of area and number of microwatersheds in different districts

S.NO	W.S.C	TAMILNADU			PONDICHERRY	TOTAL
		CHENGALPATTU	NORTH ARCOT	SOUTH ARCOT		
1	4C1D1	0 (0)	0 (0)	19522 (35)	13473 (28)	32995 (39)
2	4C1D2	0 (0)	178 (1)	102060 (123)	8658 (20)	110896 (123)
3	4C1D3	0 (0)	33092 (47)	99934 (112)	0 (0)	133026 (131)
4	4C1D4	0 (0)	0 (0)	76669 (78)	216 (4)	76885 (78)
5	4C1D5	38550 (44)	13754 (18)	38931 (48)	0 (0)	91235 (82)
6	4C1D6	37707 (42)	0 (0)	0 (0)	0 (0)	37707 (42)
	TOTAL	76257 (86)	47024 (66)	337116 (396)	22347 (52)	482744 (495)

* Denotes one microwatershed covers area in more than one district

13. Watershed wise distribution of area and number of microwatersheds in different priority categories

Watersheds	Very High	High	Medium	Low	Very Low	Total
4C1D1	4637 (6)	1115 (1)	1799 (2)	676 (1)	24768 (29)	32995 (39)
4C1D2	1592 (2)	3968 (5)	9022 (9)	13909 (17)	82405 (90)	110896 (123)
4C1D3	0 (0)	1388 (2)	4647 (5)	31840 (29)	95151 (95)	133026 (131)
4C1D4	0 (0)	2759 (2)	1674 (2)	4018 (5)	68434 (69)	76885 (78)
4C1D5	0 (0)	2556 (3)	5299 (5)	14194 (14)	69186 (60)	91235 (82)
4C1D6	0 (0)	0 (0)	1697 (2)	5324 (7)	30686 (33)	37707 (42)
Total	6229 (8)	11786 (13)	24138 (25)	69961 (73)	370630 (376)	482744 (495)

14. Soil Erosion hazard

Sl. No.	Erosion	Area in ha.	Percentage
1	None to slight	30394	6.3
2	Slight	246040	51.0
3	Slight to moderate	25602	5.3
4	Moderate	69819	14.5
5	Moderate to severe	34208	7.1
6	Severe to very severe	665	0.14
	Sub Total	406728	84.75
	Miscellaneous	76016	15.75
	Total	482744	100.00

15. Distribution of soils vis a vis soil depth categories

Sl. No.	Depth Category	Area (ha.)	Percentage
1	Very Shallow to shallow	417	0.08
2	Shallow to Moderately deep	90015	18.65
3	Moderately deep	423	0.09
4	Deep to very deep	132530	27.45
5	Very Deep	183343	37.98
	Sub Total	406728	84.25
	Misc.	76016	15.75
	Total	482744	100.00

16. Distribution of the area vis a vis land use types

Sl. No.	Land use category	Area (ha.)	Percentage
1	Area under rain fed cultivation	81753	16.94
2	Area under irrigated cultivation	243601	50.46
3	Plantation Crops	51073	10.58
4	Barren	1756	0.36
5	Forest	1954	0.4
6	Sparse vegetation/ Thorny Bushes	18668	3.87
7	Uncultivated	632	0.13
8	Fallow lands	7291	1.51
	Sub Total	406728	84.25
	Misc.	76016	15.75
	Total	482744	100.00

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

Sl. No.	Physiographic Position	Area (ha.)	Percentage
1	River Streams	6135	1.27
2	Sand beaches+ delta	4323	0.90
3	Sand Dunes	632	0.13
4	Delta alluvium	3101	0.64
5	Valley plains	168531	34.91
6	Pediaplains	216967	44.94
7	Pediments	4004	0.83
8	Hill side slopes	2167	0.45
9	Hill crest and side slopes	203	0.04
10	Gullied lands	665	0.14
	Misc.	76016	15.75
	Total	482744	100.00

18. Distribution of surveyed area w.r.t. Soil Colour

S. No	Soil Colour	Area in Hect	Percent
1	Red Soil	189524	39.3
2	Black Soil	50028	10.4
3	Red & Black Mixed soils	167176	34.6
	Total	406728	84.3
	Misc.	76016	15.7
	Total	482744	100.0

19. Distribution of soils of the area vis a vis textural types

Sl. No.	Textural Type	Area (ha.)	Percentage
1	Coarse sand	4955	1.02
2	Moderately fine to fine	167644	34.73
3	Moderately fine gravelly	60899	12.62
4	Fine loamy	14074	2.91
5	Moderately coarse gravelly	1202	0.25
6	Moderately coarse	920	0.19
7	Moderately fine	129423	26.81
8	Fine	27611	5.72
	Misc.	76016	15.75
	Total	482744	100.00

20. Distribution of Soils vis a vis different slope categories

Sl. No.	Slope category	Area (ha.)	Percentage
1	Nearly level to level (0-1%)	171543	35.53
2	Nearly level to very gently sloping (0-3%)	120384	25.42
3	Very gently sloping to gently sloping (1-5%)	99882	20.69
4	Very gently sloping to moderately sloping (1-10%)	10420	2.16
5	Gently sloping to moderately sloping (3-10%)	2129	0.44
6	Strongly sloping to moderately sloping (10-25%)	862	0.18
7	Steep to very steep(25-50%)	1305	0.18
8	Steep to very very steep (More than 25-50%)	203	0.04
	Total	406728	84.64
	Misc.	76016	15.75
	Total	482744	100.00

21. Salient features:

1. Area under very high and high priority category microwatersheds is 6229 and 11786 hectare only comprising 3.7% of the surveyed area
2. Majority of the surveyed area say 57.3% is under slight erosion and 50.46% is under irrigated agriculture
3. Pediplains occupy nearly 45% of the area and valley plains occupy 34.81% of the area
4. Texturally most of the area (nearly 74%) falls under the soils with moderately fine to fine texture.
5. The soils with depth more than 75cm occupy nearly 65% of the area;
6. Highest area under slight erosion, irrigated agriculture, pediplains or valley plains, moderately fine to fine texture, deep to very deep soil depth class, are the factors responsible for the less area under high & very high priority categories

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

Sl. No.	EIMUs	Area in ha.	Percent
1.	A4	6135	1.27
2.	A5	3101	0.64
3.	CA1	1758	0.36
4.	CA3	1266	0.26
5.	CA5	2567	0.53
6.	CD1	179	0.04
7.	CD3	453	0.09
8.	G2.1	214	0.04
9.	G2.4	1091	0.23
10.	G4	203	0.04
11.	G5	40	0.01
12.	G6	460	0.10
13.	G6.1	362	0.07
14.	G9.3	431	0.09
15.	G9.5	886	0.18
16.	G10	4004	0.83
17.	G10.1	1181	0.24
18.	G10.2	1895	0.39
19.	G10.5	275	0.06
20.	G10.8	597	0.12
21.	G12	16308	3.38
22.	G12.1	4422	0.92
23.	G12.5	11006	2.28
24.	G14	23280	4.82
25.	G14.1	423	0.08
26.	G14.2	29410	6.09
27.	G16	1068	0.22
28.	G16.1	134	0.03
29.	G17	1537	0.32
30.	G20	48	0.01

31.	G22	2603	0.54
32.	G23	217	0.04
33.	G24	6544	0.36
34.	G24.2	13219	2.74
35.	G25	213	0.04
36.	G26	167176	34.63
37.	G26.1	40890	8.47
38.	G26.5	89	0.02
39.	G26.7	14074	2.92
40.	G27	24534	5.08
41.	G29.1	41	0.00
42.	G29.4	5424	1.12
43.	G29.5	717	0.15
44.	LT1	3674	0.76
45.	LT2	4603	0.95
46.	LT4	410	0.08
47.	LT5	58	0.01
48.	LT6	665	0.14
49.	SD1	4798	0.99
50.	SD2	2047	0.42
	Total	406728	84.25
Miscellaneous			
Marshy lands.		1502	0.31
Salt pan		1240	0.26
ROC		11850	2.45
Habitation		7314	1.52
River/stream		3453	0.72
Tank		50657	10.49
Total		76016	15.75
Grand Total		482744	100.00

* Area % is less than 0.01 therefore not calculated.