

REPORT ON DEMARCATION OF PRIORITY MICRO WATERSHEDS IN 4B1A and 4B1B SUBCATCHMENTS (NON RVP) IN CUDDALORE, DINDIGAL, KARUR, MADURAI NAGAPATTINAM, NAMAKKAL, PERAMBALUR, PUDUKOTAI, SALEM, TANJAVUR, THIRUCHIRAPALLI, THIRUVARUR, DISTRICTS, TAMILNADU AND KARAİKAL, PONDICHERRY

ABSTRACT

- 1. Survey area** : 4B1A and 4B1B Subcatchments in Cuddalore, Dindigal, Karur, Madurai, Nagapattinam, Namakkal, Perambalur, Pudukottai, Salem, Tanjavur, Thiruchirapalli, Thiruvavarur Districts, Tamilnadu and Karaikal, Pondicherry.
- 2. Location** : 10° 15' 20" to 11° 25' 30" North Latitude
78° 10' 15" to 79° 40' 15" East latitudes
- 3. Total area surveyed** : 172919 hectares
- 4. Hydrological divisions**
- a) Region - 4
- b) Basin - 4B
- c) Catchment - 4B1
- d) Sub-catchments - 4B1A, 4B1B
- e) Watersheds- - 4B1A1 to 4B1A7, 4B1B1 to 4B1B4
- f) Sub watersheds and microwatersheds:

Subcatchment	Watersheds	No. of subwatersheds	No. of Microwatersheds	Area in ha
4B1A	4B1A1	22	167	193920
	4B1A2	10	72	73000
	4B1A3	22	178	262653
	4B1A4	22	157	177641
	4B1A5	22	172	200195
	4B1A6	22	133	122511
	4B1A7	19	101	102895
Total		139	980	1132815
4B1B	4B1B1	22	152	188918
	4B1B2	20	145	165989
	4B1B3	14	89	79750
	4B1B4	20	139	161719
Total		76	525	596376
Grand Total		215	1505	1729191

- 6. Agro climatic region** : 10 (Semiarid subtropical with excessive evapo-transpiration)
- 7. Type of survey** : RR survey for priority delineation
- 8. Period of survey** : Oct 1994 to May 1996
- 9. Scale** : 1:50,000 scale
- 10. Base maps** : Survey of India topographic maps on 1:50000 scale
58J/1, 2, 3, 5, 6, 7, 9, 10, 13, 14;
58I/3, 4, 7, 8, 11, 12, 15, 16;
58M/3, 4, 7, 8, 11, 12, 15, 16 and
55N/2, 3, 5, 6, 7, 9, 10, 13, 14, 15

11. Priority categorization (Area in Ha)

S. No	Priority category	Silt Yield Index	No. of Micro-watersheds	Area in ha	Percentage
1	Very high	1200 and above	42	43735	2.53
2	High	1100-1199	218	240033	13.88
3	Medium	1000-1099	223	261860	15.14
4	Low	900-999	158	171490	9.92
5	Very low	Less than 900	864	1012073	58.53
			1505	1729191	100.00

12. Distribution of area under different soil erosion classes(Area in Ha)

S. No.	Erosion	Area in ha.	Percentage
1	None to Slight erosion *	334307	19.3
2	Slight erosion *	573849	33.2
3	Slight to moderate erosion	199759	11.6
4	Moderate erosion	435395	25.2
5	Severe erosion	2769	0.2
	Sub Total	1546079	89.4
	Misc. lands	183112	10.6
	Grand Total	1729191	100.0

* category wise same but perceptually different.

13 Area distribution vis a vis soil color (Area in Ha)

S. No	Soil Color	Area in ha	Percent
1	Red Soils	546805	31.6
2	Black Soils	716219	41.4
3	Red & Black Mixed Soils	283055	16.4
	Total	1546079	89.4
	Misc. lands	183112	10.6
	Grand Total	1729191	100.0

14 Area distribution vis a vis gravel percent (Area in Ha)

S. No	Gravel spread	Area	percentage
1	0% (Non gravelly)	1474406	85.27
2	10-20%	470	0.03
3	20-30%	18120	1.05
4	20-40%	491	0.03
5	20-50%	52068	3.01
6	25-30%	524	0.03
	Sub total	1546079	89.41
	Misc.	183112	10.59
	Grand Total	1729191	100.00

15. Distribution of area vis a vis Physiography(Area in Ha)

S. No	Physiography	Area(in ha)	%
1	Delta Alluvium	334307	19.3
2	Hill side slope	61514	3.6
3	Lower Hill Valley	1791	0.1
4	Marine Alluvium	21841	1.3
5	Pediments	22812	1.3
6	Pediaplains	535657	31.0
7	River& Stream Banks	180473	10.4
8	Sand Beaches/Sand dunes	25925	1.5
9	Upper Hill Valley	12306	0.7
10	Valley Plain	349950	20.2
	Sub Total	1546079	89.4
	Misc.	183112	10.6
	Grand Total	1729191	100.0

16. Distribution of area vis a vis soil depth classes (Area in Ha)

S. No.	Depth Classes	Area in Hectare	Percentage
1	Very shallow to shallow	52068	3.0
2	Shallow to moderately deep	286785	16.6
3	Moderately deep to deep	12532	0.7
4	Deep to very deep	454271	26.3
5	Very deep	740423	42.8
	Total	1546079	89.4
	Misc. Lands	183112	10.6
	Grand Total	1729191	100.0

17. Distribution of area vis a vis slope classes (Area in Ha)

S. No.	Slope (%)	Area	Percent
1	Nearly level to level (0-1%)	684257	39.6
2	Nearly level to very gently sloping (0-3%)	349632	20.2
3	Very gently sloping (1-3%)	25548	1.5
4	Very gently sloping to gently sloping (1-5%)	368527	21.3
5	Gently sloping to moderately sloping (3-10%)	44539	2.5
6	Moderately sloping to strongly sloping (5-15%)	12062	0.7
7	Strongly sloping to moderately steep (10-25%)	8452	0.5
8	Steep to very steep (25-50%)	53123	3.1
	Total	1546079	89.4
	Misc.	183112	10.6
	Grand Total	1729191	100.0

18. Distribution of area vis a vis land use(Area in Ha)

S. No.	Details of Land use	Area in Hectare	Percentage
1	Forest	78965	4.6
2	Plantation	38030	2.2
3	Rainfed agriculture	439858	25.4
4	Fallow lands/Uncultivated	67823	3.9
5	Grass cover with thin thorny bushes	31234	1.8
6	Irrigated crops	888769	51.4
7	Dry land	2981	0.2
8	Barren	1400	0.1
	Total	1546079	89.4
	Misc. lands	183112	10.6
	Grand Total	1729191	100.0

19. Distribution of area under different management/conservation classes (Area in Ha)

S. No.	Soil management / Conservation Status	Area in Hectare	Percentage
1	Unmanaged/Unconserved/Unbunded	484912	28.0
2	Poorly conserved and poorly managed	115394	6.7
3	Moderately bunded/Moderately conserved	12062	0.7
4	Well conserved/well bunded	933711	54.0
	Sub Total	1546079	89.4
	Misc. lands	183112	10.6
	Grand Total	1729191	100.0

20. Distribution of area under different depth classes vis a vis soil colour (Area in Ha)

S. No.	Soil Depth	Red soil	Black soil	Mixed Soils	Total	Percentage
1	Very shallow to shallow	52068	-	-	52068	3.0
2	Shallow to Moderately deep	253550	33235	-	286785	16.6
3	Moderately deep to deep	12532	-	-	12532	0.7
4	Deep to very deep	197563	256708	-	454271	26.3
5	Very deep	31092	426276	283055	740423	42.8
	Total	546805	716219	283055	1546079	89.4
	Misc. lands				183112	10.6
	Grand total	546805	716219	283055	1729191	100.0
	Percentage	31.6	41.4	16.4	100.0	

21. Distribution of area in different textural groupings(classes) (Area in Ha)

S. No.	Textural Type	Area	Percent
1	Fine	491202	28.41
2	Fine gravelly	16528	0.96
3	Fine loamy	368165	21.29
4	Fine loamy gravelly	301878	17.46
5	Fine loamy to fine	290300	16.79
6	Coarse	33219	1.92
7	Coarse Loamy	23304	1.35
8	Coarse loamy gravelly	21483	1.24
	Total	1546079	89.41
	Misc.	183112	10.59
	Grand Total	1729191	100.00

22. Distribution of area under different textural and erosion classes (Area in Ha)

Texture	* None-Slight	* Slight	Slight-Moderate	Moderate	Severe	Misc.	Grand Total	percentage
Fine	334307	66895	82313	7687			491202	28.41
Fine Gravelly	-	-	16528	-	-	-	16528	0.96
fine loamy	-	184978	15228	165190	2769	-	368165	21.29
fine loamy gravelly	-	11951	54328	-	-	-	301878	17.46
Fine Loamy-Fine	-	284951	625	4724	-	-	290300	16.79
coarse	-	5674	5350	22195	-	-	33219	1.92
coarse loamy	-	19400	3904	-	-	-	23304	1.35
coarse loamy gravelly	-	-	21483	-	-	-	21483	1.24
	334307	573849	199759	435395	2769	-	1546079	89.41
					Misc.	183112	183112	10.59
Grand Total	334307	573849	199759	435395	2769	183112	1729191	100.00

23. Distribution of area under different erosion classes vis a vis soil depth

S No	Depth	* None-Slight	* Slight	Slight-Moderate	Moderate	Severe	Grand Total	Percentage
1	d1-d2	-	-	-	52068	-	52068	3.01
2	d2-d3	-	17164	56842	212288	491	286785	16.58
3	d3-d4	-	470	12062	-	-	12532	0.72
4	d4-d5	-	181191	121958	148844	2278	454271	26.27
5	d5	334307	375024	8897	22195	-	740423	42.82
	Subtotal	334307	573849	199759	435395	2769	1546079	89.41
						Misc.	183112	10.59
Grand Total		334307	573849	199759	435395	2769	1729191	100.00

d1-d2: 0-25cm; d2-d3: 10-50cm; d3-d4: 25-100cm; d4-d5: 50-100cm; d5: more than 100cm;

* Categorywise same but perceptually different

24. Distribution of area under different soil colour classes and erosion classes

(IN Hectares)

s.no	COLOUR	* None-Slight	* Slight	Slight moderate	moderate	Severe	Misc	Grand Total	Percentage
1	Red	-	28454	117089	400771	491	-	546805	31.62
2	Black	334307	262340	82670	34624	2278	-	716219	41.42
3	Mixed	-	283055	-	-	-	-	283055	16.37
Subtotal							-	1546079	89.41
Misc							183112	183112	10.59
Grand Total		334307	573849	199759	435395	2769	183112	1729191	100.00

* Categorywise same but perceptually different

25. Distribution of area under different priority categories vis-à-vis different watersheds

Watersheds	Priority Category					Total
	Very High	High	Medium	Low	Very Low	
4B1A1	0	0	651	0	193269	193920
	0	0	(1)	0	(166)	(167)
4B1A2	0	0	0	0	73000	73000
	0	0	0	0	(72)	(72)
4B1A3	2555	14199	39708	7366	198825	262653
	(1)	(7)	(21)	(4)	(145)	(178)
4B1A4	0	0	0	0	177641	177641
	0	0	0	0	(157)	(157)
4B1A5	0	1195	4759	15250	178991	200195
	0	(1)	(4)	(14)	(153)	(172)
4B1A6	2422	17970	23258	32897	45964	122511
	(3)	(23)	(27)	(35)	(45)	(133)
4B1A7	7684	44124	23110	8698	19279	102895
	(7)	(42)	(24)	(10)	(18)	(101)
Sub Total	12661	77488	91486	64211	886969	1132815
	(11)	(73)	(77)	(63)	(756)	(980)
4B1B1	5723	40360	69737	28432	44666	188918
	(5)	(35)	(54)	(22)	(36)	(152)
4B1B2	10090	24879	43212	53552	34256	165989
	(9)	(21)	(37)	(47)	(31)	(145)
4B1B3	8008	17213	25446	11866	17217	79750
	(9)	(18)	(28)	(14)	(20)	(89)
4B1B4	7253	80093	31979	13429	28965	161719
	(8)	(71)	(27)	(12)	(21)	(139)
Sub Total	31074	162545	170374	107279	125104	596376
	(31)	(145)	(146)	(95)	(108)	(525)
Grand Total	43735	240033	261860	171490	1012073	1729191
	(42)	(218)	(223)	(158)	(864)	(1505)

26. Extent of area under different erosion intensity mapping units

S. No.	EIMU	AREA	%	S. No	EIMU	AREA	%
1	A1	2639	0.15	31	G19	10191	0.59
2	A2	3904	0.23	32	G20	711	0.04
3	A3	4993	0.29	33	G21	1760	0.10
4	A4	168580	9.75	34	G22	71511	4.14
5	A5	334307	19.33	35	G23	25548	1.48
6	A6	357	0.02	36	G24	10802	0.62
7	CA1	1400	0.08	37	G25	7687	0.44
8	CA3	66895	3.87	38	G26	283055	16.37
9	CA4	2441	0.14	39	G27	14497	0.84
10	CA5	5674	0.33	40	G28	16528	0.96
11	CA6	18214	1.05	41	G30	1791	0.10
12	CA7	19400	1.12	42	G31	12062	0.70
13	CD1	140	0.01	43	G31.1	244	0.01
14	G1	470	0.03	44	G33	491	0.03
15	G1.1	524	0.03	45	G35	283	0.02
16	G2	36013	2.08	46	G39	2278	0.13
17	G2.1	16055	0.93	47	LT1	7767	0.45
18	G5	907	0.05	48	LT2	24564	1.42
19	G6	6771	0.39	49	LT3	37108	2.15
20	G8	2952	0.17	50	LT5	434	0.03
21	G9	105	0.01	51	LT7	625	0.04
22	G10	18120	1.05	52	LT9	246	0.01
23	G10.2	976	0.06		Subtotal	1546079	89.41
24	G11	1389	0.08		HABIT	48633	2.81
25	G12	65841	3.81		RIVER/ST	51108	2.96
26	G13	3335	0.19		TANK	42702	2.47
27	G14	167920	9.71		ROC	8033	0.46
28	G16	21483	1.24		SP	2584	0.15
29	G17	8594	0.50		ML	30052	1.74
30	G18	35497	2.05		Subtotal	183112	10.59
					Grand total	1729191	100.00

4989
1661735
334307
166914
71640
5659
25530
283166
509

7878
24456
37106
47157
51791
42102
2584

1728652

27. Distribution of area and number of microwatersheds in different priority categories vis a vis different districts

S. NO	PRIORITY Category	THANJAVUR	THIRUVARUR	NAGAPATTINAM	PUDUKOTTAI	TRICHY	KARUR	NAMAKKAL	MADURAI	DINDIGUL	SALEM	CUDDALORE	PERAMBALORE	PONDICHERRY	TOTAL
1	Very high	0 0	0 0	0 0	3978 (2)	4250 (8)	5551 (9)	7968 (9)	0 0	3290 (4)	170 (2)	0 0	18528 (17)	0 0	43735 *(42)
2	High	7108 (4)	0 0	0 0	25742 (23)	49058 (75)	81872 (88)	20103 (24)	334 (1)	11355 (18)	898 (1)	0 0	43563 (55)	0 0	240033 *(218)
3	Medium	24476 (18)	0 0	0 0	28915 (27)	71019 (77)	55553 (62)	30600 (37)	1562 (2)	2612 (5)	249 (2)	0 0	46874 (61)	0 0	261860 *(223)
4	Low	7519 (5)	0 0	0 0	3411 (5)	37928 (39)	38072 (43)	13658 (19)	212 (1)	0 0	0 0	0 0	70690 (80)	0 0	171490 *(158)
5	Very low	203274 (190)	285226 (301)	182766 (183)	3501 (6)	77374 (73)	37385 935)	14470 (22)	0 0	0 0	0 0	64494 (53)	127309 (139)	16274 (20)	1012073 *(864)
	Total	242377 (217)	285226 (301)	182766 (183)	65547 (63)	239629 (272)	218433 (237)	86799 (111)	2108 (4)	17257 (27)	1317 (5)	64494 (53)	306964 (352)	16274 (20)	1729191 1505)

Districtwise total number of microwatersheds does not tally with the total number of microwatersheds as some of the microwatersheds fall in more than one district

28. Distribution of area and number of microwatersheds in different districts Vis -a-vis different watersheds

S.No.	WATERSHEDS	THANJAVUR	THIRUVARUR	NAGAPATTINAM	PUDUKOTTAI	TRICHY	KARUR	NAMAKKAL	MADURAI	DINDIGUL	SALEM	CUDDALORE	PERAMBALORE	PONDICHERRY	TOTAL
1	4B1A1	51800 (69)	142120 (131)	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	193920 *(167)
2	4B1A2	0 0	62688 (67)	10312 (14)	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	73000 *(72)
3	4B1A3	134715 (89)	47869 (58)	52958 (56)	12394 (7)	13135 (11)	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1582 (3)	262653 *(178)
4	4B1A4	41573 (46)	32549 (45)	88827 (85)	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	14692 (17)	177641 *(157)
5	4B1A5	13835 (10)	0 0	30669 28	0 0	0 0	0 0	0 0	0 0	0 0	0 0	64494 (53)	91197 (97)	0 0	200195 *(172)
6	4B1A6	0 0	0 0	0 0	0 0	13336 (23)	0 0	0 0	0 0	0 0	0 0	0 0	109175 (126)	0 0	122511 *(133)
7	4B1A7	0 0	0 0	0 0	0 0	67837 (81)	0 0	0 0	0 0	0 0	0 0	0 0	35058 (41)	0 0	102895 *(101)
	SUB TOTAL	241923 (214)	285226 (301)	182766 (183)	12394 (7)	94308 (115)	0 0	0 0	0 0	0 0	0 0	64494 (53)	235430 (264)	16274 (20)	1132815 *(980)
1	4B1B1	454 (3)	0 0	0 0	53153 (56)	117455 (118)	14810 (21)	0 0	2108 (4)	938 (4)	0 0	0 0	0 0	0 0	188918 *(152)
2	4B1B2	0 0	0 0	0 0	0 0	17442 (14)	53403 (61)	22293 (30)	0 0	0 0	1317 (5)	0 0	71534 (88)	0 0	165989 *(145)
3	4B1B3	0 0	0 0	0 0	0 0	0 0	15244 (23)	64506 (81)	0 0	0 0	0 0	0 0	0 0	0 0	79750 *(89)
4	4B1B4	0 0	0 0	0 0	0 0	10424 (25)	134976 (132)	0 0	0 0	16319 (23)	0 0	0 0	0 0	0 0	161719 *(139)
	SUB TOTAL	454 (3)	0 0	0 0	53153 (56)	145321 (157)	218433 (237)	86799 (111)	2108 (4)	17257 (27)	1317 (5)	0 0	71534 (88)	0 0	596376 *(525)
	GRAND TOTAL	242377 (217)	285226 (301)	182766 (183)	65547 (63)	239629 (272)	218433 (237)	86799 (111)	2108 (4)	17257 (27)	1317 (5)	64494 (53)	306964 (352)	16274 (20)	1729191 (1505)

* Districtwise total number of microwatersheds does not tally with the total number of microwatersheds as some of the microwatersheds fall in more than one district