

# Report on prioritization of Micro-watersheds of 3A1A (1-4) watersheds of Tista RVP Catchment of Brahmaputra Basin, Darjeeling, Jalpaiguri and Coochbihar districts of West Bengal – Using Remote Sensing Technique

## Abstract

- 1. Survey Area** : 3A1A (1-4) watersheds of Tista RVP Catchment of Brahmaputra Basin, Darjeeling, Jalpaiguri and Coochbihar districts of West Bengal
- 2. Total Area Mapped** : 222157 ha.
- 3. Location** : 88<sup>o</sup> 17' to 89<sup>o</sup> 04' E Longitudes  
26<sup>o</sup> 14'30" to 27<sup>o</sup> 07' N Latitude
- 4. Agro-climatic Zone** : Humid High rainfall North Eastern Zone (3)
- 5. Kind of Survey** : Rapid Reconnaissance Survey for demarcation of priority micro watersheds using Remote Sensing Technique.
- 6. Period of Survey** : April, 2008 and November 2009 to December,2009
- 7. Base Map Used** : Survey of India toposheets on 1: 50,000 scale and IRS-P6 LISS-III Precision Geo-coded FCC(4, 3, & 2) Satellite Imagery (1:50,000)

## 8. Extent of areas under different Runoff Potential Mapping Unit

Sl.No.	EIMU	Weightage Value	Delivery Ratio	Area (ha.)	Area (%)
1	AL01	16	0.65	511	0.23
2	AL02	13	0.55	11159	5.02
3	AL03	13	0.56	19130	8.61
4	AL04	13	0.57	8280	3.73
5	AL05	13	0.55	39626	17.84
7	AL07	13	0.55	4186	1.88
8	AL08	12	0.55	4012	1.81
9	AL09	12	0.54	3135	1.41
10	AL10	13	0.56	5907	2.66
11	AL11	14	0.59	2512	1.13
12	AL12	12	0.55	2111	0.95
13	AC01	13	0.58	1233	0.56
14	AC02	13	0.55	9431	4.25

15	AC03	14	0.57	3785	1.70
16	AC04	13	0.55	919	0.41
17	AC05	15	0.67	683	0.31
19	GG02	15	0.65	735	0.33
20	GG03	17	0.62	6318	2.84
21	GG04	18	0.67	11154	5.02
22	GG05	18	0.67	718	0.32
23	GG06	17	0.64	15489	6.97
24	GG07	18	0.74	5631	2.53
25	GG08	19	0.79	2307	1.04
27	GG10	21	0.86	329	0.15
28	GG11	19	0.8	1286	0.58
30	GG13	18	0.7	13207	5.94
31	GG14	21	0.91	116	0.05
32	GG15	17	0.67	3183	1.43
33	GG16	16	0.66	2334	1.05
34	GG17	22	0.81	49	0.02
35	GG18	16	0.63	9206	4.14
36	GG19	18	0.68	2046	0.92
37	GG20	14	0.6	1978	0.89
38	GG21	16	0.69	756	0.34
39	GG22	16	0.64	4737	2.13
40	HS(Habitation)	0	0	2534	1.14
41	W(Water body)	0	0	197	0.09
42	RI (River)	0	0	21108	9.50
43	RC (Rock)	0	0	119	0.05
	<b>Total</b>			<b>222157</b>	<b>100</b>

## 9. Erosion Class

EROSION	Darjeeling	Jalpaiguri	Coochbihar	Total area	%area
None to slight erosion;	1032	59112	20609	80753	36.35
Slight erosion	35645	213		35858	16.14
Slight to Moderate erosion	22366	14867		37233	16.76
Moderate erosion	23791	13314	3255	40360	18.17
Moderate to Severe erosion	2307	683		2990	1.35
Severe erosion	445	511		956	0.43
Severe to Very severe erosion	49			49	0.02
Miscellaneous	2804	18560	2594	23958	10.78
<b>Total</b>	<b>88439</b>	<b>107260</b>	<b>26458</b>	<b>222157</b>	<b>100.00</b>

## 10. Priority Categorisation

Sl. No.	Priority Category	No.of Microwatersheds	Area (ha).	Percentage
1	Very High (1300 and above)	5	4498	2.02
2	High (1200-1299)	30	22100	9.95
3	Medium (1100-1199)	25	23402	10.53
4	Low (1000-1099)	28	28882	13.00
5	Very Low (Below 1000)	124	143275	64.49
	<b>Grand Total</b>	<b>212</b>	<b>222157</b>	<b>100.00</b>

### 11. Districtwise distribution of Priority areas (ha)

Priority Category	Darjeeling	Jalpaiguri	Coochbihar	Total area	%area
Very High	4498			4498	2.02
High	22100			22100	9.95
Medium	23240	162		23402	10.53
Low	28764	118		28882	13
Very Low	9837	106980	26458	143275	64.49
<b>Total</b>	<b>88439</b>	<b>107260</b>	<b>26458</b>	<b>222157</b>	<b>100.00</b>

### 12. Salient Features

- ★ Out of total catchment area, 4498 ha (2.02%) covered by 5 micro watersheds comes under very high priority and 22100 ha (9.95 %) spread over 30 micro watersheds comes under high priority
- ★ Land degradation wise Darjeeling is the most suffered as compared to other districts. Jalpaiguri and Coochbihar district has no priority watersheds under very high and high.
- ★ 3A3A4 watershed is the most vulnerable to degradation followed by 3A3A3 and 3A3A2 watershed.
- ★ Of the whole catchment, 956 ha (0.43 %) land suffer from severe erosion hazards, 49ha (0.02%) land suffer from severe to very severe erosion hazards and 2990 ha (1.35%) land suffer from moderate to severe erosion.
- ★ Nearly 1688ha of the total survey area is unmanaged and 12012ha is under poorly managed, while 2111ha and 60322ha is poorly to moderately and moderately managed respectively.
- ★ Very steep to very very steep slope occupies 25.45% of the total area that demands suitable soil-water conservation measures under integrated watershed management programme.