

***Report on Prioritisation of Microwatersheds in 3B1B1-5 Watersheds of Dudhanai, Krishnai and Jinari river of Brahmaputra Basin in East Garo Hills and West Garo Hills districts of Meghalaya and Barpeta & Goalpara district of Assam using Remote Sensing and GIS Techniques***

**ABSTRACT**

- 1. Survey Area** : 3B1B1-5 Watersheds of Dudhanai, Krishnai and Jinari river of Brahmaputra Basin in East Garo Hills and West Garo Hills districts of Meghalaya and Barpeta & Goalpara district of Assam
- 2. Location** : 90<sup>0</sup> 30' to 90<sup>0</sup> 55' E Longitude and 25<sup>0</sup> 30' 15" to 26<sup>0</sup> 10' N Latitude
- 3. Total Area** : 268527 ha
- 4. Agroclimatic Region** : Eastern Himalayan Region (II) as per Planning Commission(1989)
- 5. Period of field visit** : May and June 2008
- 6. Type of Survey** : Rapid Reconnaissance Survey using Remote Sensing Technique
- 7. Base Material** : Survey of India Toposheets (1:50,000) and IRS-P6 LISS-III Precision Geo-coded FCC(3, 2, & 1) Satellite Imagery (1:50,000)

**8. Extent of different Runoff Potential Mapping Units**

<b>Sl.No.</b>	<b>RPMU</b>	<b>Runoff Potential Value</b>	<b>Area (ha.)</b>	<b>Area(%)</b>
1	AL01	56	25905	9.65
2	AL02	60	1864	0.69
3	AL03	55	635	0.24
4	AL04	55	1348	0.50
5	AL05	56	3868	1.44
6	AL06	57	10561	3.93
7	AL07	57	1331	0.50
8	AL08	59	791	0.29
9	AL09	61	8837	3.29
10	AL10	56	4946	1.84
11	GN01	66	3195	1.19
12	GN02	65	9275	3.45

<i>Sl.No.</i>	<i>RPMU</i>	<i>Runoff Potential Value</i>	<i>Area (ha.)</i>	<i>Area(%)</i>
13	GN03	73	13009	4.84
14	GN04	89	8622	3.21
15	GN05	92	6623	2.47
16	GN06	71	19709	7.34
17	GN07	83	19140	7.13
18	GN08	80	2210	0.82
19	GN09	71	14681	5.47
20	GN10	63	15877	5.91
21	GN11	71	5596	2.08
22	GN12	68	9639	3.59
23	GN13	76	9332	3.48
24	GN14	65	1726	0.64
25	GN15	72	5829	2.17
26	GN16	68	15866	5.91
27	GN17	65	10192	3.80
28	GN19	71	4551	1.69
29	GN20	59	2939	1.09
30	GN21	58	2124	0.79
31	GN22	65	868	0.32
32	GN23	60	2836	1.06
33	GN24	58	4983	1.86
34	HA	0	3866	1.44
35	ROC	0	41	0.02
36	W	0	15712	5.85
	<b>Grand Total</b>		<b>268527</b>	<b>100</b>

9. *Hydrological Divisions* :
- Water Resource Region (3)*
  - Basin (3B)*
  - Catchment (3B1)*
  - Subcatchment (3B1B)*
  - Watersheds (3B1B 1, 2, .....)*
  - Subwatersheds (3B1B 1a,b, .c.....,)*
  - Microwatersheds (3B1B1a1..., 3B1B2a1, ...)*

**10. Soil Erosion Hazard:**

Erosion Classes	Assam		Meghalaya		Total Area	% Area
	Barpeta	Goalpara	East Garo Hills	West Garo Hills		
None to slight erosion		29578	830		30408	11.32
Slight to moderate erosion		6094	9198	277	15569	5.8
Moderate erosion		17293	53723	5008	76024	28.31
Moderate to severe erosion		10345	53997	6258	70600	26.29
Severe erosion		1648	48725	5934	56307	20.97
Misc.	8883	8725	2002	9	19619	7.31
<b>Total</b>	<b>8883</b>	<b>73683</b>	<b>168475</b>	<b>17486</b>	<b>268527</b>	<b>100.0</b>

**11. Priority Categorization :**

Sl. No.	Priority Category	No of Micro-watersheds	Area (ha.)	Percentage
1	Very High (above 70)	128	107411	40.00
2	High (66-70)	87	71041	26.46
3	Medium (61-65)	26	21673	8.07
4	Low (56-60)	67	55988	20.85
5	Very Low (55 & below)	13	12414	4.62
	<b>Grand Total</b>	<b>321</b>	<b>268527</b>	<b>100.00</b>

**12. District and State wise Priority Categorization:**

Priority Category	Barpeta	Goalpara	East Garo Hills	West Garo Hills	Total Area (ha)	%
Very High (above 70)		1207	93887	12317	107411	40.00
High (66-70)		3988	61884	5169	71041	26.46
Medium (61-65)		11037	10636		21673	8.07
Low (56-60)	64	53856	2068		55988	20.85
Very Low (55 & below)	8819	3595			12414	4.62
<b>Total</b>	<b>8883</b>	<b>73683</b>	<b>168475</b>	<b>17486</b>	<b>268527</b>	<b>100.00</b>

### **13. Salient Features:**

- ❖ *3B1B subcatchment has been subdivided into 321 microwatersheds following the delineation and codification method outlined in Watershed Atlas of India (1:1 M scale).*
- ❖ *Out of 268527 hectares surveyed area, 107411 ha. (40.00%) covered by 128 microwatersheds have been categorized under very high priority area and 71041 ha. (26.46%) covered by 87 microwatersheds have been categorized under high priority area which need immediate attention for suitable soil water conservation measures under integrated watershed development programme.*
- ❖ *29327 ha constituting 10.92% and 76877 ha constituting 28.63% areas of Meghalaya have been demarcated under very high and high priority category respectively.*
- ❖ *In East Garo Hills district, 93887 ha (34.96%) & 61884ha (23.04%) and in West Garo Hills district 12317ha (4.58%) & 5169 ha (1.92%) are under very high & high priority category respectively. In Goalpara district of Assam 1207ha (0.45%) are under very high priority category.*
- ❖ *About 57175 ha (21.29%) area of the survey area is unmanaged, 5596ha (2.08%) area is unmanaged to poorly managed and 10701ha (3.99%) area is poorly managed.*
- ❖ *Severely eroded lands occupy 56307 ha (20.97%) while moderately to severely eroded land covering 70600 ha (26.29%) need proper soil water conservation practices.*