

Report on Prioritisation of Microwatersheds of 3B3D1-5 Watershed of Brahmaputra Basin, Sibsagar district of Assam and Mokokchung, Mon, Tuensang and Zunheboto districts of Nagaland and Tirap district of Arunachal Pradesh using Remote Sensing Technique

ABSTRACT

1.	Survey Area	:	<i>3B3D1-5 Watershed of Brahmaputra Basin, Sibsagar district of Assam and Mokokchung, Mon, Tuensang and Zunheboto districts of Nagaland and Tirap district of Arunachal Pradesh.</i>
2.	Location	:	<i>94⁰ 18 ' to 95⁰ 17'30" E Longitude and 26⁰ 05''' to 27⁰ 01' N Latitude</i>
3.	Total Mapped Area	:	<i>374521 ha</i>
4.	Agro-climatic Region	:	<i>Eastern Himalayan Region (II) as per Planning Commission(1989)</i>
5.	Type of Survey	:	<i>Rapid Reconnaissance Survey using Remote Sensing Technique</i>
6.	Period of Survey	:	<i>December 2006 to March 2007</i>
7.	Base Material Used	:	<i>Survey of India Toposheets (1:50,000) and IRS-P6 LISS-III Precision Geo-coded FCC(3, 2, & 1) Satellite Imagery (1:50,000)</i>

8. Areal Extent of different Runoff Potential Mapping Units

Sl. No.	RPMU	Runoff Potential Value	Area (ha.)	Area (%)
1	AL01	56	23906	6.38%
2	AL02	58	2036	0.54%
3	AL03	57	488	0.13%
4	AL05	57	13273	3.54%
5	AL06	54	7689	2.05%
6	AL07	61	1800	0.48%
7	AL08	54	24759	6.61%
8	AC01	61	456	0.12%
9	AC02	64	1280	0.34%
10	AC03	58	376	0.10%
11	AC04	56	742	0.20%
12	SD02	60	820	0.22%
13	SD04	69	1701	0.45%
14	SD05	90	23433	6.26%
15	SD06	75	22981	6.14%

Sl. No.	RPMU	Runoff Potential Value	Area (ha.)	Area (%)
16	SD07	80	21477	5.73%
17	SD08	85	8962	2.39%
18	SD09	84	295	0.08%
19	SD10	67	54593	14.58%
20	SD11	93	43669	11.66%
21	SD12	86	28083	7.50%
22	SD14	78	8146	2.18%
23	SD15	69	9920	2.65%
24	SD16	62	3838	1.02%
25	SD17	76	21390	5.71%
26	SD18	80	9612	2.57%
27	SD19	67	305	0.08%
28	SD20	78	1550	0.41%
29	SD21	71	2223	0.59%
30	SD22	64	3947	1.05%
31	SD23	60	330	0.09%
32	SD24	76	5001	1.34%
33	SD25	74	3494	0.93%
34	SD26	65	230	0.06%
35	SD27	58	2868	0.77%
36	SD29	69	717	0.19%
37	SD31	60	1597	0.43%
38	SD32	64	700	0.19%
39	SD33	58	2109	0.56%
40	SD34	54	265	0.07%
41	HS (Habitation)	0	6644	1.77%
42	RI (River)	0	4814	1.29%
43	Tank	0	248	0.07%
44	WB (Water bodies)	0	1754	0.47%
Grand Total			374521	100

9. Hydrological Divisions :

Water Resource Region (3)

Basin (3B)

Catchment (3B3)

Subcatchment (3B3D)

Watersheds (3B3D 3, 4,)

Subwatersheds (3B3D 3a, b, .c.....,)

Microwatersheds (3B3D3a1..., 3B3D4a1,)

10. Area under different Soil Erosion classes:

Erosion Classes	Assam	Nagaland				Arunachal Pradesh	Total Area (ha)	Area (%)
	Sibsagar	Mokok-chung	Mon	Tuensang	Zunheboto	Tirap		
None to slight erosion	48665	226	279	237			49407	13.19
Slight erosion	7676	11	242	25			7954	2.12
Slight to Moderate erosion	16539	5705	9682	32453	10442	1381	76202	20.35
Moderate erosion	6459	10529	2075	14349	633		34045	9.09
Moderate to Severe erosion	2078	8337	45177	47976	1806	952	106326	28.39
Severe erosion	19	5683	36641	42390	1721	673	87127	23.26
Misc.	9260	734	1603	1754	84	25	13460	3.59
Total	90696	31225	95699	139184	14686	3031	374521	100

11. Area under different Priority Categories

Sl. No.	Priority Category and Range	No. of Microwatersheds	Area (ha.)	Percentage
1	Very High (above 70)	359	266833	71.25
2	High (66-70)	16	13432	3.59
3	Medium (61-65)	8	5388	1.44
4	Low(56-60)	62	54432	14.53
5	Very Low(55 & below)	40	34436	9.19
	Grand Total	485	374521	100.00

12. District and State wise Priority Categorization:

Priority Category	Assam	Nagaland				Arunachal Pradesh	Total Area (ha)	Area (%)
	Sibsagar	Mokokchung	Mon	Tuensang	Zunheboto	Tirap		
Very High	118	29949	91391	131681	10663	3031	266833	71.25
High	1643	203	2527	5036	4023		13432	3.59
Medium	1911	406	806	2265			5388	1.44
Low	52588	667	975	202			54432	14.53
Very Low	34436						34436	9.19
Total	90696	31225	95699	139184	14686	3031	374521	100

13. Salient Features:

- ❖ 3B3D sub-catchment has been subdivided into 485 microwatersheds following the delineation and codification method outlined in Watershed Atlas of India (1:1 M scale).
- ❖ Out of 374521 hectares surveyed area, 266833 ha. (71.25%) covered by 359 micro-watersheds have been categorized under very high priority and 13432 ha. (3.59%) covered by 16 micro-watersheds have been categorized under high priority area which need immediate attention for suitable soil water conservation measures under integrated watershed development programme.
- In Arunachal Pradesh, 3031ha (0.81% of the whole survey area) comes under very high priority area whereas 263684 ha (70.41% of total survey area) is in Nagaland state and only 118 ha(0.03% of total survey area) areas come under very high priority category in Assam. Accordingly, 117891ha & 1643ha areas have been demarcated under high priority category in Nagaland and Assam respectively. The very high and high priority area needs immediate soil-water conservation measures to check the runoff from hilly terrain.
- ❖ In Tuensang district, 131681 ha(35.16%) & 5036ha(1.34%) followed by Mon district 91391ha(24.40%) & 2527(0.67%), Mokokchung district, 29949ha(8.0%) & 203ha(0.05%), Zunheboto district 10663ha(2.85%) & 4023ha(1.07%), Tirap district 3031ha(0.81%) and in Sibsagar district 118 ha(0.03%) & 1643ha(0.44%) are identified as very high & high priority category respectively.
- ❖ About 144410 ha (38.56%) area of the survey area is unmanaged, 3494ha (0.93%) area is unmanaged to poorly managed and 14152ha (3.78%) area is poorly managed.
- ❖ Severely eroded lands occupy 87127 ha (23.26%) while moderately to severely eroded land cover 106326 ha (28.39%) and moderate eroded land 34045(9.09%) that also need proper soil water conservation practices.