

Prioritisation of Micro-watersheds of 2B1A8 Watersheds of Ganga Basin Districts Darjeeling, Jalpaiguri and Cooch Bihar of West Bengal using Remote Sensing Techniques

ABSTRACT

1.	Survey Area	:	<i>Darjeeling, Jalpaiguri and Cooch Bihar districts of West Bengal</i>
2.	Geographical Extent	:	<i>26⁰ 8' to 26⁰ 50' North latitude and 88⁰ 22' to 88⁰ 50' East longitude</i>
3.	Agro Climatic Region	:	<i>Eastern Himalayan Region II (as per planning commission 1989)</i>
4.	Total area of the district	:	81948 ha.
5.	Type of Survey	:	<i>Rapid Reconnaissance Survey using Remote Sensing Techniques</i>
6.	Base map	:	<i>a) IRS – ID Geocoded Satellite Imagery (1: 50,000 scale) b) SOI –toposheet (1:50,000 scale)</i>
7.	Scale of Mapping	:	<i>1 : 50,000</i>
8.	Period of Survey	:	<i>April, 2008</i>

9. Areal Extent of different Runoff Potential Mapping Units

Sl.No.	RPMU	Runoff Potential Value	Area(ha.)	(%)
1	AC01	56	81	0.10
2	AL01	56	674	0.82
3	AL02	56	430	0.52
4	AL03	56	26674	32.55
5	AL04	56	16969	20.71
6	AL05	55	952	1.16
7	AL06	54	2748	3.35
8	AL07	55	11930	14.56
9	AL08	56	7834	9.56
10	AL09	57	11734	14.32
11	AL10	57	836	1.02
12	AL11	56	271	0.33
13	HS	0	710	0.87
14	RI	0	68	0.08
15	WB	0	37	0.05
		Grand Total	81948	100

- 10. Hydrological Divisions** *Water Resource Region (2)*
 Basin (2B)
 Catchment (2B1)
 Subcatchment (2B1A)
 Watersheds (2B1A8,)
 Subwatersheds (2B1A8a,.b, .c.....,)
 Microwatersheds (2B1A8a1..., 2B1A8a2, ...)

11. Area Under Different soil erosion Classes

Erosion Classes	Darjeeling	Jalpaiguri	Koch Bihar	Area (ha)	Area %
None to slight erosion		41811	3729	45540	55.58
Slight erosion		17	2731	2748	3.35
Slight to Moderate erosion	28	23709	438	24175	29.5
Moderate erosion		8670	0	8670	10.58
Misc.		793	22	815	0.99
Total	28	75000	6920	81948	100

12. Area under different Priority Categories

Sl.No.	Priority Category	No. of Microwatersheds	Area (ha.)	Area %
1.	Low (56-60)	94	76565	93.43
2.	Very Low (55 & below)	7	5383	6.57
	Grand Total	101	81948	100

Salient Features:

- ❖ *2B1A8 watershed has been subdivided into 101 micro-watersheds following the delineation and codification method outlined in Watershed Atlas of India (1:1 M scale), 2012.*
- ❖ *Out of 101 micro-watersheds, an areas of 76565 ha (93.43%) area is under low category and 5383 ha (6.57%) area is under very low priority category. Jalpaiguri district has the highest low priority area of 73167 ha followed by Koch Bihar*
- ❖ *About 60218 ha (73.48%) area of the survey area is well managed, 20915ha (25.53%) area is moderately well managed.*
- ❖ *Slight to moderate erosion occupies 24175 ha (29.5%) while moderate erosion occupies 8670 ha (10.58%) of the total area.*

HOW TO USE SOIL SURVEY REPORT

This report on Prioritisation of Micro-watersheds of 2B1A8 Watersheds of Ganga Basin Districts Darjeeling, Jalpaiguri and Koch Bihar districts of West Bengal using Remote Sensing Techniques aims at identifying the microwatersheds which are relatively more prone to flooding and seasonal water logging and need the flood control measures. Further, it furnishes information on general characteristics of the catchments with particular reference to their location and extent, physiography, relief and drainage, geology, climate, land use and soils of the area also.

*The sub-catchment is delineated and codified following the codification system of Watershed Atlas of India (WAI) published by Soil & Land Use Survey of India in September, 1990. The surveyed area comprises only one watershed (2B1A8) of WAI which are subdivided into 16 subwatersheds and finally into 101 microwatersheds. Sub-watersheds are codified by suffixing small case English alphabets with the watershed code e.g. 2B1A8a, 2B1A8b etc and micro-watersheds are codified by affixing Arabic numerical with the sub-watershed code, e.g., 2B1A8a1, 2B1A8b1 etc. Within a micro-watershed, Runoff Potential Mapping Units (RPMUs) are demarcated and symbolized with alphanumeric codes viz. AL01, AL02, AC01 etc. The Runoff Potential Mapping Units (RPMU) is established by visual interpretation of False Color Composites (FCC) of IRS-P6 LISS-III followed by field verification. The RPMUs represent the landscape, physiography, slope, soil characteristics, existing soil conservation status, land use and severity of erosion of each mapping unit. These Runoff Potential mapping units are described in the **Table 5** on 'Legend to Runoff Potential Mapping Units'. Each of these units is assigned its runoff potential (RP) value which indicates the potential runoff from the microwatershed. Differentiating morphological characteristics of the Run-off Potential Mapping Units have been depicted in the **Table 6**.*

*Based on Run-off Potential (RP) value and the extent of RPMU in a microwatershed, the Runoff Potential Index (RPI) values of all microwatersheds are computed which is given in the **ANNEXURE-I**. The relative priorities are assigned based upon the Runoff Potential Index (RPI) of the microwatersheds. Higher the value of Runoff Potential Index (RPI) indicates higher priority whereas the lower value indicates lower priority. The list of microwatersheds under different priority categories are given in **ANNEXURE-II**.*

Microwatersheds categorized under very high and high priority are to be selected for management of flood prone area under FPR Scheme. Both treatable and non-treatable lands are occupied by each priority (very high or high category) microwatershed. The ratio of treatable and non-treatable lands in a priority microwatershed varies with the kind, degree and extent of the degraded lands occupied by the same microwatershed.

Each map sheets on 1:50,000 scale depicting the drainage network, hydrological units, runoff potential mapping units and administrative boundaries are appended with this report.

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