

Report on Prioritization of Micro Watersheds in 4H2C(Baitarni to Subarnarekha) Subcatchment of 4H2 (Baitarni River) Catchment in Balasore, Mayurbhanj districts of Orissa and Midnapur district of West Bengal.

ABSTRACT

1. Survey Area : 4H2C Subcatchment of 4H2(Baitarni River Basin)
2. Location : a) Longitude: - 86⁰ - 18' to 87⁰ - 15' East
b) Latitude: - 20⁰-47' to 22⁰- 21' North
c) Agro Climatic Region: - VII-Eastern Plateau and Hill Region.
d) Soil Conservation Region: - 8, Eastern Red Soil Region.
e) Watershed Atlas of India (1990)
Water Resource Region- 4 (Drainage flowing in the Bay of Bengal)
Basin- 4H (Mahanadi to Ganges Water Resource Region)
Catchment- 4H2 (Baitarni River)
Sub Catchment- 4H2C (Baitarni to Subarnarekha)
Watershed- 4H2C 1 to 9
3. Type of Survey : Rapid Reconnaissance Survey for Priority Delineation
4. Period of Survey : November 1996 to July 1998
5. Base Map : Survey of India Topographical Maps of 1: 50,000 scale.
6. Hydrological Subdivision : a) Catchment – 4H2 (Baitarni River)
b) Subcatchment – 4H2C (Baitarni to Subarnarekha)
c) Watersheds– 9
d) Sub watersheds – 176 (a, b, c...z.)
e) Micro watersheds – 889
7. Total Area : 8,68,530 hectare.
8. Area under Mapping : 8,61,919 hectare.
9. Miscellaneous Area : 6,611 hectare.
(Streams, Water bodies, Roads and Habitation).

10. Extent of various Erosion Intensity Mapping Units.

S. No.	Parent Material	Mapping Units	Weightage Value	Delivery Ratio	Area in hectare	% of total Area
1.	Alluvium	A1	13	0.59	10069	1.1
2.	Alluvium	A2	10	0.50	147914	17.0
3.	Alluvium	A3	13	0.58	175752	20.2
4.	Alluvium	A4	12	0.46	23427	2.7
5.	Alluvium	A5	18	0.71	31729	3.7
6.	Alluvium	A6	15	0.62	5974	0.7
7.	Lateritic	L1	16	0.66	13699	1.6
8.	Lateritic	L2	17	0.66	42427	4.9
9.	Lateritic	L3	15	0.64	25903	3.0
10.	Lateritic	L4	10	0.51	19939	2.3
11.	Quartzite	Q1	14	0.72	102294	11.8
12.	Quartzite	Q2	19	0.83	38161	4.4
13.	Quartzite	Q3	15	0.63	22243	2.6
14.	Quartzite	Q4	10	0.51	111347	12.8
15.	Quartzite	Q5	14	0.60	43617	5.0
16.	Quartzite	Q6	10	0.52	5310	0.6
17.	Quartzite	Q7	11	0.57	5694	0.6
18.	Quartzite	Q8	15	0.64	36420	4.2
			Total		861919	99.2
			Miscellaneous		6611	0.8
			Grand Total		868530	100

11. Gradation of micro watersheds into priority categories of 4H2C1 to 9 watersheds.

S. No.	Priority Category	S.Y.I. Value	No. of Micro watersheds	Area in hectare	Percentage
1.	Very High	1200 & above	31	29357	3.4
2.	High	1100-1199	18	16614	1.9
3.	Medium	1000-1099	114	96830	11.1
4.	Low	900-999	116	97396	11.2
5.	Very low	<900	610	628333	72.4
	Total		889	868530	100.0

12. Watershed-wise distribution pattern of priority micro watersheds showing areal extent (ha & percentage) under 4H2C Subcatchment.

S. No.	Watersheds Code	Very High	High	Medium	Low	Very Low	Total
1.	4H2C1	-	-	-	-	71 88.816 10.7	71 88.816 10.2
2.	4H2C2	2 1,288 0.2	1 1,408 0.1	4 3,278 0.4	11 9,966 1.1	81 87,484 10.1	99 1,03,424 11.9
3.	4H2C3	-	-	-	3 2,172 0.2	36 35,414 4.1	39 37,586 4.3
4.	4H2C4	16 17,704 2.0	5 7,835 0.9	9 7,612 0.9	17 15,362 1.8	99 1,01,708 11.7	146 1,50,221 17.3
5.	4H2C5	12 9,335 1.1	9 5,690 0.7	27 20,811 2.4	13 10,507 1.2	17 11,654 1.3	78 57,997 6.7
6.	4H2C6	-	-	19 18,168 2.1	9 8,815 1.0	93 94,750 10.9	121 1,21,733 14.0
7.	4H2C7	1 1,030 0.1	3 1,681 0.2	44 33,227 3.8	44 32,698 3.8	45 34,618 4.0	137 1,03,254 11.9
8.	4H2C8	-	-	-	-	45 39,720 4.6	45 39,720 4.6
9.	4H2C9	-	-	11 13,734 1.5	19 17,876 2.1	123 1,34,169 15.5	153 1,65,779 19.1
	Total	31 29,357 3.4	18 16,614 1.9	114 96,830 11.1	116 97,396 11.2	610 6,28,333 72.4	889 8,68,530 100

13. District wise distribution of priority area (ha) in 4H2C Subcatchment with percentage.

S. No.	Priority Grouping	Orissa		West Bengal	Total (%)
		Balasore	Mayurbhanj	Midnapur	
1.	Very High	821 (0.1)	28,536 (3.3)	-	29,357 (3.4)
2.	High	3,928 (0.4)	12,686 (1.5)	-	16,614 (1.9)
3.	Medium	5,943 (0.7)	83,781 (9.6)	7,106 (0.8)	96,830 (11.1)
4.	Low	17,879 (2.1)	73,259 (8.4)	6,258 (0.7)	97,396 (11.2)
5.	Very low	3,28,251 (37.8)	2,87,539 (33.1)	12,543 (1.5)	6,28,333 (72.4)
	Total (%)	3,56,822 (41.1)	4,85,801 (55.9)	25,907 (3.0)	8,68,530 (100)

Salient Points:

1. The sub catchment 4H2C is a part of Water Resource Region No. 4 draining into Bay of Bengal with geographical area of 8,68,530 ha distributed into 9 watersheds.
2. The Survey area is spread over Balasore and Mayurbhanj district of Orissa and Midnapur district of West Bengal with coverage of 41.1 %, 55.9 % and 3.0 % respectively.
3. The area falls under Agro-climatic Region-VII- "The Eastern Plateau & Hill Region." further it is a segment of Soil Conservation on Region No.8 "The Eastern Red Soil Region".
4. Soils of the Surveyed area are developed from three parent materials viz. Alluvium, Lateritic and Quartzite, which account for 45.4 %, 11.8 % and 42.0 % respectively, mapping units formulated are 6,4 and 8 respectively.
5. Only 31 micro watersheds with an area of 29,357 ha has fallen in very high priority category where as 19 micro watersheds with an extent of 17,514 ha falls in high priority category.
6. About 16.2 % of the area is hilly, a part of Eastern Ghat hill range, which contribute peak rate of runoff due to its steep to very steep slope gradient.
7. 54 % of the area is plain, bunded and terraced land which are extensively used for paddy cultivation.