

Report on Prioritisation of Micro-watersheds of Mahanadi Basin (4G1C Sub-catchment), Districts Cuttack, Ganjam, Baudh, Kandhamal, Khorda and Nayagarh of Odisha

Abstract

1. **Survey Area** : Part of 4G1C Sub-catchment of Mahanadi Basin districts Cuttack, Ganjam, Baudh, Kandhamal, Khorda & Nayagarh of Odisha state
2. **Location** : 19⁰ 53' to 20⁰ 54' □ N Latitude
83⁰ 46' □ to 85⁰ 12' □ E Longitude
3. **Total Area** : 928587 hectare
4. **Agro Climatic Region** : VII (Eastern Plateau and hills) as per Planning Commission Classification.
5. **Period of Survey** : November 2007 to March 2008.
6. **Type of Survey** : Rapid Reconnaissance Survey
7. **Base Material Used** : Survey of India Topographic Map (scale 1: 50,000)

8. Areal Extent of different Runoff Mapping Units

Sl.No.	EIMU	Runoff Potential Value	Area (ha)	Area (%)
1	AL01	55	22463	2.42
2	AL02	57	18888	2.03
3	AL03	61	6384	0.69
4	AL04	70	4614	0.50
5	AL05	59	4459	0.48
6	AL06	56	17635	1.90
7	AL07	58	33788	3.64
8	CG01	73	6208	0.67
9	CG02	79	188497	20.30
10	CG03	87	17535	1.89
11	CG04	97	3381	0.36
12	CG05	74	4643	0.50
13	CG06	81	40729	4.39
14	CG07	87	16020	1.73
15	CG08	81	1307	0.14

Sl.No.	EIMU	Runoff Potential Value	Area (ha)	Area (%)
16	CG09	87	7105	0.77
17	CG10	95	1282	0.14
18	CG11	81	10187	1.10
19	CG12	90	10352	1.11
20	CG13	84	4970	0.54
21	CG14	70	8390	0.90
22	CG15	76	5262	0.57
23	CG16	76	2002	0.22
24	CG17	73	16444	1.77
25	CG18	78	6830	0.74
26	CG19	65	18375	1.98
27	CG20	68	1968	0.21
28	CG21	59	2256	0.24
29	CG22	57	1312	0.14
30	CG23	64	9932	1.07
31	CG24	67	8705	0.94
32	CG25	70	7988	0.86
33	CG26	62	13459	1.45
34	CG27	74	7507	0.81
35	CG28	57	51624	5.56
36	CG29	58	50738	5.46
37	CG30	57	35457	3.82
38	CG31	73	13945	1.50
39	CG32	65	18743	2.02
40	CG33	57	43942	4.73
41	CG34	57	11004	1.19
42	CG35	61	35555	3.83
43	CG36	61	9746	1.05
44	CG37	59	40115	4.32
45	CG38	57	1463	0.16
46	LA01	57	11638	1.25
47	LA02	56	14828	1.60
48	LA03	64	8618	0.93
49	LA04	58	5257	0.57
50	LA05	62	1659	0.18
51	HS	0	12902	1.39
52	RI	0	26542	2.86
53	TA	0	153	0.02
54	WB	0	2204	0.24
55	RE	0	1299	0.14
56	RC	0	166	0.02
57	NALA	0	112	0.01
	Grand Total		928587	100

(ii)

- 9. Hydrological Divisions:** Water Resource Region (4)
 Basin (4G)
 Catchment (4G1)
 Subcatchment (4G1C)
 Watersheds (4G1C 1, 2, ...9)
 Subwatersheds (4G1C 1a,b, .c..., 4G1C 2a, b, .c...)
 Microwatersheds (4G1C 1a1..., 4G1C 2a1, ...)

10. Soil Erosion Hazard

EROSION	Baudh	Cuttack	Ganjam	Kandhamal	Khorda	Nayagarh	Area (ha)	%
None to slight erosion	60511	20636	-	22330	30596	83417	217490	23.42
Slight to moderate erosion	84632	176	2045	96044	3957	51658	238512	25.69
Moderate erosion	53025	4954	1116	87221	8189	51702	206207	22.21
Moderate to severe erosion	26539	2483	407	41858	3106	70474	144867	15.6
Severe erosion	10777	4679	-	26798	2858	33021	78133	8.41
Misc.	11218	8061	-	3407	1639	19053	43378	4.67
Grand Total	246702	40989	3568	277658	50345	309325	928587	100

11. Priority Categorization

Sl.No.	Priority Category	No.of Microwatersheds	Area (ha.)	Area (%)
1	Very High (above 75)	98	116219	12.52
2	High (70-75)	180	212709	22.91
3	Medium (65-70)	206	246401	26.54
4	Low (60-65)	166	198040	21.33
5	Very Low (60 & below)	145	155218	16.72
	Grand Total	795	928587	100.00

12. District wise Priority Categorization

Priority Category	Baudh	Cuttack	Ganjam	Kandhamal	Khorda	Nayagarh	Area (ha)	%
Very High	47101	-	649	40900	972	26597	116219	12.52
High	52299	1968	2092	75672	581	80097	212709	22.91
Medium	42891	5451	827	107847	4960	84425	246401	26.53
Low	50038	14021	-	51267	6664	76050	198040	21.33
Very Low	54373	19549	-	1972	37168	42156	155218	16.71
Total	246702	40989	3568	277658	50345	309325	928587	100

13. Salient Features:

- ❑ 4G1C subcatchment has been subdivided into 795 microwatersheds following the basic code of watersheds outlined in Watershed Atlas of India (1:1 M scale).
- ❑ Out of 928587 hectares surveyed area, 116219 ha. (12.52%) covered by 98 microwatersheds have been categorized under very high priority and 212709 ha. (22.91%) covered by 180 microwatersheds have been categorized as high priority area which need immediate attention for suitable runoff control measures under integrated watershed development programme.
- ❑ Baudh district has highest area under very high priority i.e 47101 ha (40.53% of total Very High & 5.05% of total area) followed by Kandhamal and Nayagarh district having 40900 ha (35.19% of total Very High & 4.40% of total area) and 26597 ha (22.89% of total Very High & 2.86% of total area) respectively. But Cuttack district has no very high area.
- ❑ About 402902 ha (43.39%) of the survey area is unmanaged while 44162 ha. (4.76%) area is poorly managed.
- ❑ Severely eroded lands occupy 78133 ha (8.41%) while moderately to severely eroded land covering 144867 ha (15.60%) need proper soil-water conservation practices.