

Report on Prioritization of Sub-watersheds of 4G3 part (L.B. of Seonath up to Tesua) Catchment of Mahanadi RVP Catchment in Bilaspur, Durg and Mandla Districts of Madhya Pradesh.

ABSTRACT

- 1. Survey area** "4G3A" Subcatchment of Mahanadi R.V.P. Catchment.
- 2. Location:**
- a) Latitude: - 21⁰ 50' to 22⁰ 50' N
 - b) Longitude: - 81⁰ 17' to 82⁰ 35' E
 - c) Agro-climatic Region: - VII. The Eastern Plateau and Hill Region.
 - d) Soil Conservation Region: - No. 8 – Eastern Red Soil Region.
 - e) Watershed Atlas of India (1990)
 - Water resource region :- 4 (Flowing in the Bay of Bengal)
 - Basin :- G (Mahanadi Basin)
 - Catchment :- 4G3 of Mahanadi River
 - Sub-catchment :- 4G3A- L.B. of Seonath up to Tesua
 - Watershed :- 4G3A 1-8
- 3. Type of Survey** : - Rapid Reconnaissance Soil Survey for priority delineation.
- 4. Period of Survey** : -Nov. 95 to June 96 and Nov. 96 to May 97.
- 5. Base map** : -Survey of India topographical map of 1: 50,000 scale.
- 6. Hydrological Subdivision: -**
- a) Catchment : - 4G3 of Mahanadi river basin
 - b) Subcatchment : - 4G3A – L.B. of Seonath up to Tesua
 - c) Watersheds : - 8
 - d) Sub-watersheds : - 281
- 7. Total area** : - 8,48,861 ha.
- 8. Area under Mapping** : - 8,12,462 ha.
- 9. Miscellaneous Area** : - 36,399 ha. (Stream, Water bodies, Rly line, Road, Habitation etc.)

10. Areal Extent of Different erosion intensity mapping units: -

Sl. No.	Mapping Units	Weightage Value	Delivery Ratio	Area in hac.	Percentage of the Total area
1.	A1	17	0.77	7755	0.9
2.	A2	20	0.96	9806	1.1
3.	A3	18	0.78	5131	0.6
4.	A4	14	0.61	1249	0.1
5.	C1	17	0.80	32929	3.8
6.	C2	14	0.60	250945	29.5
7.	C3	15	0.63	33256	3.9
8.	C4	17	0.72	12343	1.4
9.	L1	19	0.82	3008	0.3
10.	S1	17	0.81	14217	1.7
11.	S2	17	0.87	42744	5.0
12.	S3	17	0.90	67855	8.0
13.	S4	15	0.75	17481	2.1
14.	S5	15	0.72	36053	4.2
15.	S6	15	0.72	144231	17.0
16.	S7	15	0.65	120970	14.3
17.	S8	16	0.68	12489	1.8
Total	17			81,2462	95.7%
Miscellaneous				36399	4.3
Grand Total				84,8,861	100 %

11. Gradation of Subwatersheds in to priority categories

Sl.No.	Priority Categories	Number of Subwatersheds	Area in ha.	Percentage
1.	Very High	34	81091	9.6
2.	High	38	109482	12.9
3.	Medium	46	138177	16.3
4.	Low	66	177710	20.9
5.	Very Low	97	306002	36.0
Total		281	812462	95.7%
Miscellaneous			36399	4.3
Grand Total			848861	100%

12. Watershed wise distribution of subwatersheds in to priority categories

Sl. No.	Watersheds Code	Priority Categories number (area in ha.)					Total
		Very high	High	Medium	Low	Very low	
1.	4G3A-1	-	-	-	9 32261 3.8%	24 85357 10.1%	33 117618 13.9%
2.	4G3A-2	-	-	4 11743 1.4%	13 28830 3.4%	15 53606 6.3%	32 94179 11.1%
3.	4G3A-3	2 4509 0.5%	5 15731 1.9%	6 20867 2.5%	11 33713 4.0%	4 9847 1.1%	28 84667 10.0%
4.	4G3A-4	7 20204 2.4%	11 44356 5.2%	17 56267 6.7%	8 22433 2.6%	-	43 143260 16.9%
5.	4G3A-5	4 3885 0.5%	5 8854 1.0%	8 20057 2.4%	11 22743 2.7%	12 28239 3.3%	40 83778 9.9%
6.	4G3A-6	-	3 12802 1.5%	9 25555 2.9%	12 32767 3.8%	20 66988 8.0%	44 138112 16.2%
7.	4G3A-7	21 52493 6.2%	14 27739 3.3%	2 3688 0.4%	2 4963 0.6%	5 10411 1.2%	44 99294 11.7%
8.	4F3A-8	-	-	-	-	17 51554 6.0%	17 51554 6.0%
Total		34 81091 9.6%	38 109482 12.9%	46 138177 16.3%	66 177710 20.9%	97 306002 36.0%	281 812462 95.7%
Miscellaneous		4026 0.5%	3101 0.4%	4272 0.5%	11532 1.3%	13468 1.6%	36399 4.3%
Grand Total		85117	112583	142449	189242	319470	848861 100%

13. District wise distribution of priority area ha. with percentage

Sl. No.	Priority Categories	Bilaspur	Durg	Mandla	Total
1.	Very High	77991 9.2%	3100 0.4	-	81091 9.6%
2.	High	109482 12.9%	-	-	109482 12.9%
3.	Medium	138177 16.3%	-	-	138177 16.3%
4.	Low	177310 20.8%	-	400 0.1	177710 20.9%
5.	Very Low	306002 36.0%	-	-	306002 36.0%
Total		808962 95.2%	3100 0.4	400 0.1	812462 95.7%
Miscellaneous		-	-	-	36399 4.3%
Grand Total		-	-	-	848861 100%

14. Salient findings

1. The Subcatchment 4G3A is a part of Water Resource Region No. 4 terminating into Bay of Bengal with geographical area 8,48,861 ha. distributed into 8 watersheds.
2. The survey area is spread over in Bilaspur, Durg and Mandla districts of Madhyapradesh with coverage of 95.2%, 0.4% and 0.1% respectively.
3. The area under reference is covered by SOI toposheet No. 64 F, G, J and K on 1:2,50,000 scale.
4. The area falls under agro-climatic region VII "the eastern plateau and hill region". Further it a segment of soil conservation region No. 8 "the eastern red soil region".
5. Soils in the survey area developed from 4 parent materials viz. alluvium, complex geology, laterite, sand stone and shale which account for 2.7%, 38.6%, 0.3% and 54.1% respectively. Mapping units are formulated 4, 4, 1 and 8 respectively.
6. 72 Sub-watersheds with an area of 1,90,573 (22.5%) has been grouped into very high and high priority categories, 46 sub-watersheds 1,38,177 ha. (16.3%) comes under medium priority and rest 163 sub-watersheds with an area of 4,83,712 ha. (56.9%) is fallen in low and very low priority category.
7. 13.0% of the area is hilly, a part of Eastern Ghat hill range, which contribute peak rate of run off due to its steep to very steep slope gradient.
8. 52.8% of the area is plain, bunded and terraced land is extensively used for paddy cultivation.