

REPORT ON PRIORITIZATION OF SUBWATERSHEDS IN 2A4C (DHADHAR) AND 2A4D (PAIMAR-PHALGU) SUB CATCHMENTS OF 2A4 CATCHMENT CONFLUENCEING WITH SON OF LOWER GANGA BASIN (RIGHT BANK) IN CHATRA, GAYA, BIRIDIH, HAZARIBAGH, JAHANABAD, MUNGER, NALANDA, NAWADA AND PATNA DISTRICTS OF BIHAR STATE.

A B S T R A C T

1. Survey area :- 2A4C and 2A4D sub catchments of 2A4 Catchment (Lower Ganga Basin) watersheds :- 2A4C 1-5 and 2A4D 1-6.
2. Location :-
 - a) Longitude - $84^{\circ} 35'$ to $86^{\circ} 10'$ East.
 - b) Latitude - $23^{\circ} 55'$ to $25^{\circ} 31'$ North.
 - c) Agroclimatic Region-IV Middle Gangetic Plain Region.
 - d) Soil Conservation zone- Zone No. 3 and B - Indogangetic and Other Alluvial Plains Region & Eastern Red Soils Region.
 - e) Agro climatic Zone - 1) South Bihar Alluvial Plain Zone.
2) Cultural & North Eastern Plateau Zone.
 - f) Watershed Atlas of India (1990) -
Water resource region - 2 (Ganges region)
Basin - A (Lower Ganges-right bank)
Catchment - 2A4 (Part)
Sub Catchment - 2A4C (Dhadhar) & 2A4D (Paimar-Phalgu)
Watersheds - 2A4C - 1-5 and 2A4D - 1-6
3. Type of Survey:- Rapid Reconnaissance Survey for Priority Delineation.
4. Period of Survey:- 10th Jan. 1994 to 13th June 1994.
5. Base map:- Survey of India Topographical maps of 1:50,000 scale.
6. Hydrological sub divisions:-
 - a) Catchment :- 2A4 (Part).
 - b) Sub catchments :- i) Dhadhar 2A4C
ii) Paimar-Phalgu rivers - 2A4D (Part).
 - c) Watersheds :- 1 to 5 of 2A4C and 1 to 6 of 2A4D
 - d) Sub watersheds :- 184 of 2A4C and
211 of 2A4D

395 - Total
7. Total area:- 12,15,518 (hac.)
8. Area under mapping:- 11,88,934 (hac.)

9. Miscellaneous area:- 26,584 (hac.)
 (Stream, waterbodies, road
 and habitation etc.)

10. Areal extent of different erosion intensity mapping units:

Sl. No.	Mapping units	Weightage	Delivery ratio	Area in (hac.)	% of the total area
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Parent material :- (A) Alluvium :-

1.	A1	15	0.65	74534	6.1
2.	A2	15	0.64	215592	17.7
3.	A3	15	0.59	261604	21.5
4.	A4	15	0.58	1447	0.1
5.	A5	17	0.72	2851	0.2
6.	A6	15	0.65	1698	0.1
7.	A7	20	0.85	38372	3.2

(B) Complex zone - of mica schiest, granite gneiss and Quartzite

8.	C1	20	0.86	53763	4.4
9.	C2	18	0.78	123019	10.1
10.	C3	16	0.79	39654	3.3
11.	C4	14	0.63	7072	0.6
12.	C5	15	0.70	44681	3.7
13.	C6	19	0.81	707	0.1
14.	C7	17	0.71	45176	3.7
15.	C8	16	0.68	115596	9.5
16.	C9	14	0.58	48368	3.9
17.	C10	15	0.62	14268	1.2

(C) Quartzite schiest

18.	S1	18	0.78	586	0.1
19.	S2	17	0.83	16748	1.4
20.	S3	17	0.73	6837	0.6
21.	S4	17	0.71	10034	0.8
22.	S5	16	0.68	39497	3.2
23.	S6	13	0.57	22333	1.8
24.	S7	15	0.62	4418	0.4

(D) Quartzite

25.	Q	13	0.62	79	0.1
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Total				11,88934	97.8
Miscellaneous				26584	2.2

Grand Total				12,15518	100 %
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11. Gradation of Subwatersheds into Priority Categories of 2A4C & 2A4D Sub catchments :-

Sl. No.	Priority category S.Y.I.	2A4C - 1to5 watersheds			2A4D - 1to6 watersheds		
		No. of Sub-watersheds	Area in hac.	%	No. of Sub-watersheds	Area in hac.	%
1.	Very high	23	74595	13.5	35	94235	14.2
2.	High	39	112476	20.4	26	74698	11.2
3.	Medium	26	78686	14.3	30	93015	14.0
4.	Low	14	41169	7.5	26	89206	13.4
5.	Very low	82	244125	44.3	94	313313	47.2
Total		184	551051	100	211	664467	100

Cont.

T O T A L			
Sl. No.	No. of Sub-watersheds	Area in hac.	Percentage
1.	58	168830	13.9
2.	65	187174	15.4
3.	56	171701	14.1
4.	40	130375	10.7
5.	176	557438	45.9
395		1215518	100

Note :-

Priority Rating

Very high - 1300 and above.
 High - 1200 - 1299.
 Medium - 1100 - 1199.
 Low - 1000 - 1099.
 Very low - <1000.

12. Watershed wise distribution pattern of Priority sub watersheds into priority categories of 2A4C and 2A4D subcatchments :-

Sl. No.	Watershed Code	Priority categories	Number	Area in hac.	%	Total	
		Very high	High	Medium	Low	Very low	
1.	2A4C-1	1	1	2	1	30	35
		3380	2495	4508	3219	82448	96050
		3.5	2.6	4.7	3.4	85.8	17.4
2.	2A4C-2	8	17	15	4		44
		35919	58492	50633	14762		159806
		22.5	36.6	31.7	9.2		29.0
3.	2A4C-3					23	23
						71970	71970
						100	13.1
4.	2A4C-4	8	14	4	2	10	38
		19212	35080	9330	1990	32104	97716
		19.7	35.9	9.5	2.0	32.9	17.7
5.	2A4C-5	6	7	5	7	19	44
		16084	16409	14215	21198	57603	125509
		12.8	13.1	11.3	16.9	45.9	22.8
Total (2A4C 1-5)		23	39	26	14	82	184
		74595	112476	78686	41169	244125	551051
		13.5	20.4	14.3	7.5	44.3	100
6.	2A4D-1					32	32
						109320	109320
						100	16.5
7.	2A4D-2	1	1	4	10	12	28
		2646	2450	15388	38204	45176	103864
		2.5	2.3	14.8	36.9	43.5	15.6
8.	2A4D-3				2	34	36
					6371	107886	114257
					5.6	94.4	17.2
9.	2A4D-4		5	6	7	13	31
			12349	17719	24071	43504	97643
			12.6	18.1	24.7	44.6	14.7
10.	2A4D-5	13	9	11	7		40
		34285	25444	37346	20560		117635
		29.1	21.6	31.8	17.5		17.7
11.	2A4D-6	21	11	9		3	44
		57304	34455	22562		7427	121748
		47.1	28.3	18.5		6.1	18.3
Total (2A4D 1-6)		35	26	30	26	94	211
		94235	74698	93015	89206	313313	664467
		14.2	11.2	14.0	13.4	47.2	100
GRAND TOTAL		58	65	56	40	176	395
		168830	187174	171701	130375	557438	1215518
		13.9	15.4	14.1	10.7	45.9	100

13. District wise distribution of Priority Area (hac.) of 2A4C and 2A4D subcatchment with percentage :-

Sl. No.	Watershed Code	Priority Grouping	Chattra	Gaya	Giridih	Hazari-bagh	Jahana-bad
1.	2A4C 1-5	Very high		9081	19306	32918	
				12.2	25.9	44.1	
2.	,,	High		1765	34758	51717	
				1.6	30.9	46.0	
3.	,,	Medium		3219	32939	30301	
				4.1	41.9	38.5	
4.	,,	Low		6718	4362	24880	
				16.3	10.6	60.4	
5.	,,	Very low		41172		16431	
				16.9		6.7	
Total				61955	91365	156247	
%				11.2	16.6	28.4	
1.	2A4D 1-6	Very high	63941	7495		20175	
			67.9	7.9		21.4	
2.	,,	High	53253	14999		6446	
			71.3	20.1		8.6	
3.	,,	Medium	51777	35070		6131	
			55.7	37.7		6.6	
4.	,,	Low	16282	67823			932
			18.3	76.0			1.0
5.	,,	Very low	7427	106672			61
			2.4	34.0			
Total			192680	232059		32752	993
%			29.0	34.9		4.9	0.2
Grand total			192680	294014	91365	188999	993
%			15.8	24.2	7.5	15.6	0.1

Cont.

Sl. No.	Watershed Code	Priority Grouping	Munger	Nalanda	Nawada	Patna	Total	State
1.	2A4C 1-5	Very high			13290		74595	Bihar
					17.8		13.5	
2.	"	High			24236		112476	"
					21.5		20.4	
3.	"	Medium			12227		78686	"
					15.5		14.3	
4.	"	Low			5209		41169	"
					12.7		7.5	
5.	"	Very low	5456	107077	63787	10202	244125	"
			2.2	43.9	26.1	4.2	44.3	
Total			5456	107077	118749	10202	551051	
%			1.0	19.4	21.5	1.9	100	
1.	2A4D 1-6	Very high		2624			94235	"
				2.8			14.2	
2.	"	High					74698	"
							11.2	
3.	"	Medium		37			93015	"
							14.0	
4.	"	Low		4169			89206	"
				4.7			13.4	
5.	"	Very low		128330		70823	313313	"
				41.0		22.6	47.2	
Total				135160		70823	664464	
%				20.3		10.7	100	
Grand total			5456	242237	118749	81025	1215518	
%			0.4	19.9	9.8	6.7	100	

14. District wise Distribution of the Survey area in hac.-
2A4C and 2A4D Sub catchment :-

Sl. No.	Watershed Code	Chatral	Gaya	Biridih	Hazaribag	Jahanabad	Munger
1.	2A4C 1-5		61955	91365	156247		5456
2.	2A4D 1-6	192680	232059		32752	993	
	Total	192680	294014	91365	188999	993	5456
	%	15.8	24.2	7.5	15.6	0.1	0.4

Cont.

Sl. No.	Watershed Code	Nalanda	Nawada	Patna	Total	Remarks
1.	2A4C 1-5	107077	118749	10202	551051	
2.	2A4D 1-6	135160		70823	664467	
	Total	242237	118749	81025	1215518	
	%	19.9	9.8	6.7	100	