

सारांश/ABSTRACT

1. **सर्वेक्षित क्षेत्र / Surveyed Area :** 2 सी 5 डी 1 से 9 और 2 सी 5 ई 1 से 2 तक निचले बाएं यमुना बैंक (2 सी 5 डी और 2 सी 5 ई) के 2 सी 5 जलप्रकल्प क्षेत्र के उप जलप्रकल्प क्षेत्र, राज्य-उत्तर प्रदेश का जिला- मथुरा, राजस्थान राज्य के अलवर और भरतपुर जिले एवं हरियाणा के गुरगांव, मेवात और फरीदाबाद जिले और दिल्ली राज्य के सूक्ष्मजलग्रहण क्षेत्रों की प्राथमिकता के लिए त्वरित टोही सर्वेक्षण की सूची /Inventory of Rapid Reconnaissance Survey for Prioritization of Microwatersheds in 2C5D1 to 9 and 2C5E1 to 2 Watersheds of Lower Left Yamuna Bank (2C5D and 2C5E) Subcatchments of 2C5 Catchment, Districts- Mathura of Uttar Pradesh State and Districts – Alwar and Bharatpur of Rajasthan State and Mewat, Faridabad and Gurgoan of Haryana and Delhi.
2. **भौगोलिक स्थिति /Location :** 27° 06' 35" to 28° 42' 34" उत्तरी अक्षांश /North Latitude
76° 15' 34" to 77° 48' 33" पूर्वी देशान्तर /East Longitude
3. **कुल मानचित्र क्षेत्र/Total Area:** 1034324 ha
Surveyed
4. **सर्वेक्षण के प्रकार/Kind of:** त्वरित टोही सर्वेक्षण/Rapid Reconnaissance Survey
Survey
5. **सर्वेक्षण की अवधि/Period of:** 2009 to 2010 and 2011 to 2012
Survey
6. **कृषि जलवायु क्षेत्र/Agro:** उपरी गंगेटिक, केंद्रीय पठार और पहाड़ी क्षेत्र/Upper Gangetic Plains
climatic zone (Zone 5), Central Plateau and Hills Region (Zone 8)
7. **प्रयुक्त आधार मानचित्र /Base:** भारतीय सर्वेक्षण नक्शे/Survey of India Toposheets on 1:50,000 scale
Maps
8. **जलीयविभाजन/Hydrological :** 2 क्षेत्र/Region
division
2C घाटी/Basin
2C5 जलप्रकल्प क्षेत्र/
Catchment
2C5D उप जलप्रकल्प क्षेत्र/
Subcatchments
2C5D1 जलग्रहण क्षेत्र/
Watersheds
2C5D1a, b ... जलग्रहण क्षेत्र/
Subwatersheds
2C5D1a1, 2 ... सूक्ष्मजलग्रहण क्षेत्र/
Microwatersheds

9. विभिन्न अफवाह संभावित मानचित्र इकाइयों का क्षेत्रीय विस्तार/ Areal Extent of Different Runoff Potential Mapping Units (RPMUs):-

Sl. No.	RPMU	Runoff Potential Value	Area (ha)	Percentage
1	AE01	70	18102	1.750
2	AL01	55	34865	3.371
3	AL02	57	171724	16.603
4	AL03	56	341390	33.006
5	AL04	58	6878	0.665
6	AL05	56	1780	0.172
7	AL06	60	11835	1.144
8	AL07	57	87841	8.493
9	AL08	58	10098	0.976
10	AL09	58	71653	6.928
11	AL10	68	16474	1.593
12	AL11	62	1496	0.145
13	AL12	68	691	0.067
14	AL13	75	1276	0.123
15	AL14	62	197	0.019
16	SS01	55	18899	1.827
17	SS02	57	14555	1.407
18	SS03	60	7243	0.700
19	SS04	65	8790	0.850
20	SS05	61	9275	0.897
21	SS06	56	4770	0.461
22	SS07	67	6452	0.624
23	SS08	68	1916	0.185
24	SS09	64	420	0.041
25	SS10	62	6026	0.583
26	SS11	70	2835	0.274
27	SS12	62	3494	0.338
28	SS13	75	7717	0.746
29	SS14	79	20714	2.003
30	SS15	67	732	0.071
31	SS16	69	6988	0.676
32	SS17	84	13890	1.343
33	SS18	88	4970	0.481
34	SS19	79	48343	4.674
35	SS20	84	2805	0.271
36	Water bodies	0	2586	0.250
37	Habitation	0	57569	5.566
38	River	0	7035	0.680
Grand Total			1034324	100

10. मृदा अपरदन/Soil Erosion Hazards:-

Districts	EROSION							Misc.
	None to slight water erosion	Slight to moderate water erosion	Moderate water erosion	Moderate to severe water erosion	Severe water erosion	Severe to very severe water erosion	Severe to very severe wind erosion	
Alwar	132413	45859	30761	17901	62991	25846	12241	5462
Bharatpur	84841	23416	21544	3257	2528	5895	1277	1128
Central Delhi	164							1346
East Delhi	2							96
Faridabad	93662	34475	10450	5991	5206	3053		21420
Gurgaon	14277	1017	620	3288	378	4575		1135
Mathura	125169	12677	12315	3096	2658	84		11850
Mewat	80674	36795	27095	2645	2636	5761	4584	4233
New Delhi			462					2996
North Delhi	64							1311
South Delhi	747		1722		20			14295
South West Delhi			2					1918
Total Area (ha)	532013	154239	104971	36178	76417	45214	18102	67190
Percentage (%)	51.436	14.912	10.149	3.498	7.388	4.371	1.750	6.496

11. विभिन्न प्राथमिकता वर्ग के अंतर्गत सूक्ष्मजलग्रहण क्षेत्रों का जिले के अनुसार विभाजन/District wise distribution of Microwatersheds under different priority categories

STATE	DISTRICT	Priority Category	No. of Microwatershed	Area (ha)	Percentage	
DELHI	Central Delhi	Low	3	553	0.053	
		Medium	1	38	0.004	
		Very Low	2	919	0.089	
		Total		6	1510	0.146
	East Delhi	Low	4	98	0.009	
		Total		4	98	0.009
	New Delhi	Low	2	32	0.003	
		Medium	6	2766	0.267	
		Very Low	1	660	0.064	
		Total		9	3458	0.334
	North Delhi	Low	3	147	0.014	
		Very Low	4	1228	0.119	
		Total		7	1375	0.133
	South Delhi	High	4	783	0.076	
		Low	13	2243	0.217	
		Medium	7	2358	0.228	
		Very High	7	1140	0.110	
		Very Low	23	10260	0.992	
		Total		54	16784	1.623
	South West Delhi	Medium	3	417	0.040	
Very High		2	784	0.076		
Very Low		3	719	0.070		
	Total		8	1920	0.186	
HARYANA	MEWAT	High	67	7611	0.736	
		Low	583	126950	12.274	
		Medium	176	27968	2.704	
		Very High	22	1894	0.183	
		Total		848	164423	15.897
	FARIDABAD	High	21	3277	0.317	
		Low	651	151014	14.600	
		Medium	21	4197	0.406	
		Very High	38	8090	0.782	
		Very Low	22	7679	0.742	
		Total		753	174257	16.847
	GURGAON	High	27	4832	0.467	
		Low	66	11394	1.102	
		Medium	38	5201	0.503	
		Very Low	21	3863	0.373	
		Total		152	25290	2.445
RAJASTHAN	ALWAR	High	457	60791	5.877	
		Low	545	140214	13.556	
		Medium	443	63638	6.153	
		Very High	450	60789	5.877	

STATE	DISTRICT	Priority Category	No. of Microwatershed	Area (ha)	Percentage
		Very Low	25	8042	0.778
	Total		1920	333474	32.241
	BHARATPUR	High	46	6242	0.603
		Low	473	113413	10.965
		Medium	76	12957	1.253
		Very High	14	1728	0.167
		Very Low	25	9546	0.923
	Total		634	143886	13.911
UTTAR PRADESH	MATHURA	Low	639	161975	15.660
		Medium	20	3565	0.345
		Very Low	3	2309	0.223
	Total		662	167849	16.228
Grand Total			5057	1034324	100

12.सूक्ष्म जलग्रहण क्षेत्रों की प्राथमिकता के आधार पर राज्यानुसार विस्तार/ Statewise status of priority of microwatersheds

State	Status	Priority Category	No. of Micro watershed	Area (ha)	
DELHI	F	Low	3	2395	
		Medium	4	4205	
		Very High	1	1476	
		Very Low	19	13454	
	Total			27	21530
	P	High	2	783	
		Low	1	678	
		Medium	3	1374	
		Very High	5	448	
		Very Low	2	332	
	Total			13	3615
	Total			40	25145
	HARYANA	F	High	13	9797
Low			309	246990	
Medium			32	22341	
Very High			14	8898	
Very Low			10	6715	
Total			378	294741	
P		High	21	5923	
		Low	76	42368	
		Medium	21	15025	
		Very High	9	4949	
	Very Low	2	964		

	Total	129	69229	
Total		507	363970	
RAJASTHAN	F	High	75	56870
		Low	306	232198
		Medium	104	74961
		Very High	87	61693
		Very Low	25	17588
	Total	597	443310	
	P	High	18	10163
		Low	47	21429
		Medium	17	1634
		Very High	4	824
Total	86	34050		
Total		683	477360	
UTTAR PRADESH	F	Low	185	146421
		Medium	4	3565
		Very Low	2	2309
	Total	191	152295	
	P	Low	42	15554
Total	42	15554		
Total		233	167849	
Grand Total		1463	1034324	

*Note: F = State fully covered under microwatershed

P = State partially covered under microwatershed

13. विभिन्न प्राथमिकता वर्ग के अंतर्गत क्षेत्र का विभाजन/Distribution of Area under Different Priority Categories

Sl.No.	Priority Category	No. of Microwatersheds	Area (ha.)	Area Percentage
1	Very High (above 70)	111	78288	7.57
2	High (66-70)	109	83536	8.08
3	Medium (61-65)	165	123105	11.90
4	Low (56-60)	902	708033	68.45
5	Very Low (55 & below)	58	41362	4.00
Grand Total		1345	1034324	100.00

13. मुख्य बिन्दु/Salient Features:

- चित्रण एवं सहिंताकरण, उपचार क्षेत्र (मृदा एवं जल संरक्षण उद्देश्यों के लिए) का व्यावहारिक आकार, विशिष्ट क्षेत्रीय सीमा एवं अद्वितीय राष्ट्रीय कोड के क्रम में रखते हुये 'सूक्ष्मजलग्रहण क्षेत्र' स्तर तक किया जाता है /Delineation and codification is done up to microwatershed level in order to have viable size of the treatment area (for soil & water conservation purposes) having distinct spatial extent and unique national code.
- कुल 1345 सूक्ष्मजलग्रहण क्षेत्रों में से, 220 बहुत उच्च और उच्च श्रेणी के अंतर्गत आते हैं/Out of the total 1345 microwatersheds surveyed, 220 falls under very high and high category.
- 111 सूक्ष्मजलग्रहण क्षेत्र बहुत उच्च प्राथमिकता वाले 78288 हेक्टेयर (7.57%) क्षेत्र के साथ और 9 83636 हेक्टेयर (8.08%) क्षेत्र के साथ 109 सूक्ष्मजलग्रहण क्षेत्र उच्च प्राथमिकता वाले श्रेणियों में आते हैं, जिसमें तुरंत समुचित "मृदा एवं जल संरक्षण" के लिए ध्यान देने की आवश्यकता है/111 microwatersheds falls under very high priority with 78288 ha (7.57 %) and 109 microwatersheds with 83536 ha (8.08 %) comes under high priority categories, requires immediate attention for proper soil and water conservation.
- लगभग 36178 हेक्टेयर क्षेत्र (3.4 9 8%) 'मध्यम से गंभीर पानी के क्षरण' और 76417 हेक्टेयर क्षेत्र (7.388%) 'गंभीर पानी का क्षरण' से प्रभावित है। केवल 18102 हेक्टेयर क्षेत्र (1.750%) 'गंभीर से बहुत गंभीर' वायुक्षरण की श्रेणी के अंतर्गत आता है/About 36178 ha area (3.498 %) is prone to 'moderate to severe water erosion' and 76417 ha area (7.388 %) is prone to 'severe water erosion'. For wind erosion hazards, only 18102 ha area (1.750 %) comes under 'severe to very severe' class.
- कुल सर्वेक्षित क्षेत्र का 'जलोढ़ मैदान' क्षेत्र लगभग 776300 हेक्टेयर (75.05%) है और 'रेत पत्थर' का 1 91134 हेक्टेयर (18.48%) है। लगभग 18638 हेक्टेयर (1.8%) क्षेत्र को 'ऊबड़-खाबड़' भूमि के रूप में मैप किया गया है जबकि कुल सर्वेक्षित क्षेत्र का 11211 हेक्टेयर (1.08%) क्षेत्र 'ऊंची-नीची' भूमि के अंतर्गत आता है/ 'Alluvial plain' occupies nearly 776300 ha (75.05%) area and 'sand stone' occupies 191134 ha (18.48%) of total surveyed area. About 18638ha (1.8%) area are mapped as a ravinous lands while 11211ha (1.08%) area comes under undulating plains of the total surveyed area.

HOW TO USE SOIL SURVEY REPORT

The report embodies the results of Rapid Reconnaissance Survey conducted for identification and delineation of priority microwatersheds of 2C5D1 to 9, and 2C5E1 to 2 watersheds of Lower Yamuna FPR (2C5D and 2C5E) Subcatchments falling in one districts of Uttar Pradesh State i.e. Mathura and two district of Rajasthan state i.e. Alwar and Bharatpur and three district of Haryana state i.e. Mewat, Faridabad and Gurgoan and Delhi. Covering an area of 1034324 ha spread over 1345 microwatersheds. The priorities are fixed on the basis of Runoff Potential Index (RPI). Higher the values of Runoff Potential Index suggest higher priority and vice versa. The concerned maps on the scale of 1:50,000 are appended with the report. It also furnishes information on general characteristics of the area such as, location and extent, physiography, relief, drainage, geology, climate, present landuse, natural vegetation, water supply and soils of the area.

In the map, each microwatershed is marked by a symbol like 2C5D1a1 etc. where '2' stands for water resource region, '2C' indicates basin, '2C5' for catchment, '2C5D' for subcatchment, '2C5D1' for watershed, '2C5D1a' for subwatershed and '2C5D1a1' for microwatershed. Within each microwatershed, the Runoff Potential Mapping Units (RPMUs) are demarcated according and symbolized by capital English alphabets, based on geological origin of the land 'AL' stands for Alluvium and their further subdivisions are made on the basis of land and soil characteristics. Each unit connotes a set of physiography, slope, landuse, soil characteristics such as soil depth, colour, texture, severity of erosion and management practices. Mapping units are assigned with respective runoff potential weightage value the priority categorisation of microwatersheds have been done hazard as very high, high, medium, low and very low priority areas according to runoff potential index value.

The mapping legends furnished in the **Table-4** and differentiating characteristics of each mapping units represented in **Table-5**.

The details of computation made for determining district wise runoff potential index of various microwatersheds are furnished in Annexure-I and the information of relative priority of microwatersheds in descending order of grading are furnished in Annexure-II.

Microwatersheds categorized under very high and high priority are selected for treatment of degraded lands under these microwatersheds under FPR scheme. Both treatable and non-treatable lands are occupied by each priority (very high and high category) microwatersheds. 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 some microwatersheds.

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