

सारांश/ABSTRACT

1. सर्वेक्षित क्षेत्र /
Surveyed Area : 2 सी 5 एफ 1 से 9 और 2 सी 5 आई 1 से 3 तक निचली यमुना के 2 सी 5 जलप्रकल्प क्षेत्र के 2 सी 5 एफ और 2 सी 5 आई उप जलप्रकल्प क्षेत्र, हिमाचल राज्य का सिरमौर जिला, उत्तर प्रदेश राज्य के जिला- बागपत, मुजफ्फरनगर, सहारनपुर, राज्य-हरियाणा के भिवानी, गुरुग्राम, झज्जर, जींद, करनाल, कुरुक्षेत्र, पानीपत, रोहतक, सोनीपत और यमुनानगर 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 2C5F1 to 9 and 2C5I1 to 3 Watersheds of Lower Yamuna (2C5F and 2C5I) Subcatchments of 2C5 Catchment, Districts - Sirmaur of Himanchal Pradesh State and Districts- Baghpat, Muzaffarnagar and Saharanpur of Uttar Pradesh State and Districts- Bhiwani, Gurugram, Jhajjar, Jind, Karnal, Kurukhetra, Panipat, Rohtak, Sonipat and Yamuna Nagar of Haryana State and Delhi
2. भौगोलिक स्थिति /
Location : 30° 30' 48" to 28° 18' 55" उत्तरी अक्षांश /North Latitude
76° 16' 44" to 77° 35' 45" पूर्वी देशान्तर /East Longitude
3. कुल मानचित्र क्षेत्र/
Total Area Surveyed : १०७०४९३ हे./ 1070493 ha
4. सर्वेक्षण के प्रकार/
Kind of Survey : त्वरित टोही सर्वेक्षण /Rapid Reconnaissance Survey
5. सर्वेक्षण की अवधि/
Period of Survey : 2009 to 2010 and 2011 to 2012
6. कृषि जलवायु क्षेत्र/
Agro climatic zone : Upper Gangetic Plains (Zone 5) and Central Plateau and Hills Region (Zone 8)
7. प्रयुक्त आधार मानचित्र /
Base Maps : Survey of India Toposheets on 1:50,000 scale
8. जलीयविभाजन/
Hydrological division : 2 क्षेत्र/Region
2C घाटी/Basin
2C5 जलप्रकल्प क्षेत्र/Catchment
2C5F उप जलप्रकल्प क्षेत्र/ Subcatchments
2C5F1 जलग्रहण क्षेत्र /Watershed
2C5F1a, b ... उपजलग्रहण क्षेत्र/ Subwatersheds
2C5F1a1, 2 ... सूक्ष्मजलग्रहण क्षेत्र/ Microwatersheds

9. विभिन्न अफवाह संभावित मानचित्र इकाइयों का क्षेत्रीय विस्तार/

Areal Extent of Different Runoff Potential Mapping Units (RPMUs):-

क्र.सं./ S. No.	आर पी एम यू/ RPMU	संभावित रनऑफ मूल्य/ Runoff Potential Value	क्षेत्र/ Area (ha)	प्रतिशत/ Percentage
1	AL01	60	1747	0.16
2	AL02	59	1784	0.17
3	AL03	67	11070	1.03
4	AL04	56	8840	0.83
5	AL05	56	978	0.09
6	AL06	59	1483	0.14
7	AL07	56	89429	8.35
8	AL08	58	550127	51.39
9	AL09	59	27765	2.59
10	AL10	54	874	0.08
11	AL11	63	16554	1.55
12	AL12	58	95293	8.90
13	AL13	54	6370	0.60
14	AL14	61	1365	0.13
15	AL15	56	5248	0.49
16	AL16	59	9826	0.92
17	AL17	57	6280	0.59
18	AL18	57	1038	0.10
19	AL19	55	27889	2.61
20	AL20	56	34093	3.18
21	AL21	56	2296	0.21
22	AL22	61	152	0.01
23	CM01	59	239	0.02
24	CM02	69	12266	1.15
25	CM03	71	429	0.04
26	CM04	76	324	0.03
27	CM05	62	2233	0.21
28	CM06	64	422	0.04
29	CM07	68	8030	0.75
30	CM08	58	602	0.06
31	SS01	65	622	0.06
32	SS02	56	103	0.01
33	SS03	67	604	0.06

34	SS04	64	114	0.01
35	SS05	70	541	0.05
36	SS06	62	859	0.08
37	SS07	75	3416	0.32
38	SS08	79	2957	0.28
39	SS09	88	493	0.05
40	HB	0	120034	11.21
41	RIVER	0	15307	1.43
42	WB	0	397	0.04
Grand Total			1070493	100

10. मृदा अपरदन/Soil Erosion Hazards:-

Districts	EROSION						Misc.
	Non to slight water erosion	Slight moderate to water erosion	Moderate water erosion	Moderate severe to water erosion	Severe water erosion	Severe to very severe water erosion	
Central Delhi	-	-	-	-	-	-	846
North Delhi	441	964	59	-	-	-	3118
North East Delhi	-	175	48	-	-	-	127
North West Delhi	512	25484	2351	105	69		15636
South Delhi	-	1	859	-	-	1931	6304
South West Delhi	8612	3340	2150	745	-	44	23481
West Delhi	-	112	1311	-	-	-	12000
Bhiwani	-	19150	2999	787	-	-	812
Karnal	11167	116695	19820	953	-	-	9045
Kurukshetra	-	8	2468	-	-	-	-
Gurugram	1422	19124	8138	3258	9689	5432	12895
Rohtak	10541	96984	16495	1497	-	-	7816
Jhajjar	11773	71230	22674	2142	-	-	9761
Jind	625	16283	192	-	-	-	607
Sonipat	20113	151885	19113	5197	396	-	14611
Panipat	25011	87478	3147	2713	165	-	6205
Yamunanagar	9905	37473	29770	4177	747	-	9694
Sirmaur	20	698	7343	6108	-	-	480
Baghpat	-	443	405	-	-	-	446
Muzaffarnagar	-	380	130	-	-	-	677
Saharanpur	-	789	164	83	4	-	1177
Total Area (ha)	100181	648696	139636	27765	11070	7407	135738
Percentage (%)	9.36	60.60	13.04	2.59	1.03	0.69	12.68

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

राज्य/State	जिला/ District	प्राथमिकता वर्ग/ Priority Category	सूक्ष्मजलग्रहण क्षेत्रों की सं/ No. of Micro watershed	क्षेत्र/Area (ha.)	प्रतिशत/ Percentage
DELHI	Central Delhi	Very Low	5	846	0.08
	Total		5	846	0.08
	North Delhi	Very Low	8	1700	0.16
		Low	4	2882	0.27
	Total		12	4582	0.43
	North East Delhi	Very Low	2	2	0.00
		Low	2	348	0.03
	Total		4	350	0.03
	North West Delhi	Very Low	16	7611	0.71
		Low	63	36581	3.42
		Medium	1	4	0.00
	Total		80	44196	4.13
	South Delhi	Very Low	7	2843	0.27
		Medium	3	1142	0.11
		High	3	578	0.05
		Very High	12	4532	0.42
	Total		25	9095	0.85
	South West Delhi	Very Low	27	14366	1.34
		Low	37	23171	2.16
		Very High	2	835	0.08
Total		66	38372	3.58	
West Delhi	Very Low	22	8961	0.84	
	Low	10	4462	0.42	
Total		32	13423	1.25	
Total			224	110864	10.36
HARYANA	Jhajjar	Low	164	117580	10.98
	Total		164	117580	10.98
	Bhiwani	Low	31	23748	2.22
	Total		31	23748	2.22
	Gurugram	Very Low	4	2722	0.25
		Low	56	34671	3.24
		Medium	4	2811	0.26
		High	19	12926	1.21
		Very High	13	6828	0.64
	Total		96	59958	5.60
	Jind	Low	30	17707	1.65
	Total		30	17707	1.65
Karnal	Very Low	5	3902	0.36	
	Low	162	153778	14.37	

		Total	167	157680	14.73	
Kurukshetra	Low		5	2476	0.23	
		Total	5	2476	0.23	
Panipat	Very Low		11	8422	0.79	
	Low		140	116297	10.86	
		Total	151	124719	11.65	
Rohtak	Low		165	133333	12.46	
		Total	165	133333	12.46	
Sonipat	Very Low		1	933	0.09	
	Low		251	207651	19.40	
	Medium		2	1831	0.17	
	Very High		1	900	0.08	
		Total	255	211315	19.74	
Yamunanagar	Very Low		2	1885	0.18	
	Low		90	73858	6.90	
	Medium		14	8405	0.79	
	High		21	7618	0.71	
		Total	127	91766	8.57	
Total			1446	940282	87.84	
HIMACHAL PRADESH	Sirmaur	Low	1	90	0.01	
		Medium	8	1793	0.17	
		High	23	12766	1.19	
			Total	32	14649	1.37
Total			32	14649	1.37	
UTTAR PRADESH	Muzaffarnagar	Low	8	1187	0.11	
			Total	8	1187	0.11
	Saharanpur	Low	10	1948	0.18	
		Medium	3	238	0.02	
		High	1	31	0.00	
			Total	14	2217	0.21
Baghpat	Low	8	1294	0.12		
		Total	8	1294	0.12	
Total			30	4698	0.44	
Grand Total			1732	1070493	100	

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

राज्य/ State	स्थिति/ Status	प्राथमिकता वर्ग/ Priority Category	सूक्ष्मजलग्रहण क्षेत्रों की सं/ No. of Micro watershed	क्षेत्र/ Area (ha.)
DELHI	F	Very Low	53	35793
		Low	51	44629
		Medium	2	1087
		High	1	515
		Very High	6	4081
	Total		113	86105
	P	Very Low	1	536
		Low	49	22815
		Medium	2	59
		High	2	63
		Very High	6	1286
Total		60	24759	
Total			173	110864
HARYANA	F	Very Low	20	17442
		Low	813	793368
		Medium	9	6673
		High	24	14869
		Very High	8	5435
	Total		874	837787
	P	Very Low	1	422
		Low	169	87731
		Medium	12	6374
		High	16	5675
		Very High	6	2293
Total		204	102495	
Total			1078	940282
HIMACHAL PRADESH	F	Medium	1	579
		High	10	8044
	Total		11	8623
	P	Low	1	90
		Medium	7	1214
		High	13	4722
Total		21	6026	
Total			32	14649
UTTAR PRADESH	P	Low	24	4429
		Medium	3	238
		High	1	31
	Total		28	4698
Total			28	4698
Grand Total			1311	1070493

*Note: **F** = State fully covered under microwatershed
P = State partially covered under microwatershed

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

क्र.सं./ S.No.	प्राथमिकता वर्ग/ Priority Category	सूक्ष्मजलग्रहण क्षेत्रों की सं/ No. of Micro watershed	क्षेत्र/ Area (ha)	प्रतिशत/ Percentage
1	Very High (above 70)	20	13095	1.22
2	High (66-70)	51	33919	3.17
3	Medium (61-65)	23	16224	1.52
4	Low (56-60)	984	953062	89.03
5	Very Low (55 & below)	74	54193	5.06
Grand Total		1152	1070493	100

14. मुख्य बिन्दु/Salient Features:

- ⇒ चित्रण एवं संहिताकरण, 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 1152 सूक्ष्मजलग्रहण क्षेत्रों में से, 20 बहुत उच्च और उच्च श्रेणी के अंतर्गत आते हैं/Out of the total 1152 microwatersheds surveyed, 20 falls under very high and high category.
- ⇒ 20 सूक्ष्मजलग्रहण क्षेत्र बहुत उच्च प्राथमिकता वाले 13095 हेक्टेयर (1.22 %) क्षेत्र के साथ और 33919 हेक्टेयर (3.17 %) क्षेत्र के साथ 51 सूक्ष्मजलग्रहण क्षेत्र उच्च प्राथमिकता वाले श्रेणियों में आते हैं, जिसमें तुरंत समुचित "मृदा एवं जल संरक्षण" के लिए ध्यान देने की आवश्यकता है/ 20 microwatersheds falls under very high priority with 13095 ha (1.22 %) and 51 microwatersheds with 33919 ha (3.17 %) comes under high priority categories, requires immediate attention for proper soil and water conservation.
- ⇒ लगभग 139636 हेक्टेयर क्षेत्र (13.04 %) 'मध्यम जल अपरदन' उसके बाद 27765 हेक्टेयर क्षेत्र (2.59%) ' मध्यम से गंभीर जल अपरदन', 11070 हेक्टेयर क्षेत्र (1.03%) 'गंभीर जल अपरदन', 7407 हेक्टेयर क्षेत्र (0.59%) 'गंभीर से बहुत गंभीर' जल अपरदन' की श्रेणी के अंतर्गत आता है /About 139636 ha area (13.04 %) is prone to 'moderate' water erosion followed by 27765 ha (2.59%) is prone to 'moderate to severe water erosion', 11070 ha (1.03%) is prone to severe water erosion and 7407 ha area (0.69 %) comes under 'severe to very severe' class.

HOW TO USE SOIL SURVEY REPORT

The report embodies the results of Rapid Reconnaissance Survey conducted for identification and delineation of priority microwatersheds of 2C5F1 to 9, and 2C5I1 to 3 watersheds of Lower Yamuna FPR (2C5F and 2C5I) Subcatchments falling in one districts of Himanchal Pradesh State i.e. Sirmaur and ten districts of Haryana State i.e. Yamuna Nagar, Kurukhetra, Karnal, Panipat, Jind, Sonapat, Rohtak, Bhiwani, Jhajjar and Gurugram and three districts of Uttar Pradesh State i.e. Baghpath, Muzafarnagar and Saharanpur and Delhi.

Covering an area of 1070493 ha spread over 1152 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 2C5F1a1 etc. where '2' stands for water resource region, '2C' indicates basin, '2C5' for catchment, '2C5F' for subcatchment, '2C5F1' for watershed, '2C5F1a' for subwatershed and '2C5F1a1' 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.

For further clarification, information or comments contact may be made to:

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