

Report on Detailed Soil and Land Use Survey of “5D4A8g1, j1 to 2, 5D4B1a1 to 3, b1 to 3, d1 to 5, g1 to 4, k3 to 4, 5D4B2f1 to 2, 5D4B7a1 to 2, b1 to 2, c1 to 2, d1 to 3” Micro- watersheds of Narmada catchment, Taluka- Shahpur and Patan, Distt- Jabalpur and Taluka- Kardi, Dist- Narsinghpur, Madhya Pradesh State

ABSTRACT

- 1. Survey Area** : Report on Detailed Soil and Land Use Survey of “5D4A8g1, j-1-2, 5D4B1a1-3, b1-3, d1-5, g1-4, k3-4, 5D4B2f1-2, 5D4B7a1-2, b1-2, c1-2, d1-2” Micro-watersheds of Narmada catchment, Taluka- Shahpur& Patan, Distt- Jabalpur & Taluka- Kardi, Dist-Narsinghpur , Madhya Pradesh State
- 2. Total Area Mapped and Reported** : **23,947 ha**
- 3. Base map used** : 1. Google maps on 1: 12,500 Scale
2. SOI Topo sheets on 1: 50,000 Scale
- 4. Geographical Location** : 79⁰-5' to 79⁰-42' E, longitude
23⁰-4' to 23⁰-19' N, latitude
- 5. Kind of Survey** : Detailed Soil Survey
- 6. Period of Survey** : Dec. 2012 to Jan 2013
- 7. Agro climatic Zone** : Central Plateau and Hill Region (Zone VIII)

8. Soil Series mapped and area covered by each series under different Micro-watersheds/

विभिन्न सूक्ष्म-जलग्रहण क्षेत्र एवं मृदा श्रेणीयों के अंतर्गत क्षेत्रफल:

Series Name	Area	%age	5D4A8g1	5D4A8j1	5D4A8j2	5D4B1a1	5D4B1a2	5D4B1a3	5D4B1b1	5D4B1b2	5D4B1b3	5D4B1d1	5D4B1d2	5D4B1d3	5D4B1d4	5D4B1d5	5D4B1g1	5D4B1g2
Khairi	2328	9.7	86	74	73	31	124	45	-	-	-	-	197	-	36	-	-	66
Maharajpur	5688	23.8	-	-	-	-	-	-	35	156	455	68	293	339	319	823	37	184
Pauri	923	3.9	303	113	198	-	-	-	-	-	-	-	-	-	-	-	-	-
Silpura	7880	32.9	238	286	260	306	23	474	242	114	200	169	230	123	86	15	331	144
Uda	5954	24.9	162	43	93	140	441	123	132	289	326	526	68	222	248	151	58	180
Misc.	1174	4.9	27	101	60	14	1	43	25	2	29	8	13	15	8	5	39	25
Total	23947	100.0	816	617	684	491	589	685	434	561	1010	771	801	699	697	994	465	599
% age	100.0	0.4	3.4	2.6	2.9	2.1	2.5	2.9	1.8	2.3	4.2	3.2	3.3	2.9	2.9	4.2	1.9	2.5



Series Name	5D4B1g3	5D4B1g4	5D4B1k3	5D4B1k4	5D4B2f1	5D4B2f2	5D4B7a1	5D4B7a2	5D4B7b1	5D4B7b2	5D4B7c1	5D4B7c2	5D4B7d1	5D4B7d2	5D4B7d3
Khairi	-	-	18	161	78	21	150	113	191	183	129	334	-	88	130
Maharajpur	811	268	533	63	21	-	18	-	-	-	-	-	605	347	313
Pauri	-	-	-	-	131	178	-	-	-	-	-	-	-	-	-
Silpura	88	68	45	100	329	318	218	538	415	442	585	514	337	191	451
Uda	102	319	308	433	375	410	156	163	236	24	54	3	47	110	12
Misc.	11	37	50	47	62	49	78	91	97	62	54	52	12	23	34
Total	1012	692	954	804	996	976	620	905	939	711	822	903	1001	759	940
% age	4.2	2.9	4.0	3.4	4.2	4.1	2.6	3.8	3.9	3.0	3.4	3.8	4.2	3.2	3.9

9. Micro-watersheds wise Distribution of Area under various Land Capability Classes/

भूमि क्षमता के आधार पर विभिन्न सूक्ष्म-जलग्रहण क्षेत्र के अंतर्गत क्षेत्रफल:

Land C. Unit	Area	%age	5D4A8g1	5D4A8j1	5D4A8j2	5D4B1a1	5D4B1a2	5D4B1a3	5D4B1b1	5D4B1b2	5D4B1b3	5D4B1d1	5D4B1d2	5D4B1d3	5D4B1d4	5D4B1d5
Khairi	2328	9.7	86	74	73	31	124	45	-	-	-	-	197	-	36	-
Maharajpur	5688	23.8	-	-	-	-	-	-	35	156	455	68	293	339	319	823
Paunri	923	3.9	303	113	198	-	-	-	-	-	-	-	-	-	-	-
Silpura	7880	32.9	238	286	260	306	23	474	242	114	200	169	230	123	86	15
Uda	5954	24.9	162	43	93	140	441	123	132	289	326	526	68	222	248	151
Misc.	1174	4.9	27	101	60	14	1	43	25	2	29	8	13	15	8	5
Total	23947	100.0	816	617	684	491	589	685	434	561	1010	771	801	699	697	994
% age	100.0	100.0	3.4	2.6	2.9	2.1	2.5	2.9	1.8	2.3	4.2	3.2	3.3	2.9	2.9	4.2



Land Capability Unit	5D4B1g1	5D4B1g2	5D4B1g3	5D4B1g4	5D4B1k3	5D4B1k4	5D4B2f1	5D4B2f2	5D4B7a1	5D4B7a2	5D4B7b1	5D4B7b2	5D4B7c1	5D4B7c2	5D4B7d1	5D4B7d2	5D4B7d3
IIIs-1	184	440	675	594	703	496	589	616	298	236	510	228	271	420	302	550	526
IIIs-1	37	44	283	32	156	161	-	-	27	84	-	-	-	-	421	9	73
IVe-1	83	84	39	12	45	100	103	110	114	144	6	44	80	-	112	37	163
IVe-2	122	6	4	17	-	-	111	23	31	23	127	87	356	271	59	73	42
Vle-1	-	-	-	-	-	-	-	-	72	327	199	290	61	160	95	67	102
Vles-1	-	-	-	-	-	-	28	1	-	-	-	-	-	-	-	-	-
Vles-2	-	-	-	-	-	-	103	177	-	-	-	-	-	-	-	-	-
Misc.	39	25	11	37	50	47	62	49	78	91	97	62	54	52	12	23	34
Total	465	599	1012	692	954	804	996	976	620	905	939	711	822	903	1001	759	940
%	1.9	2.5	4.2	2.9	4.0	3.4	4.2	4.1	2.6	3.8	3.9	3.0	3.4	3.8	4.2	3.2	3.9

**10. Micro-watersheds wise Distribution of Area under various Erosion Classes/
विभिन्न क्षरण वर्गों एवं सूक्ष्म-जल ग्रहण क्षेत्रों के अंतर्गत क्षेत्रफल:**

Erosion	Area	% age	5D4A8g1	5D4A8j1	5D4A8j2	5D4B1a1	5D4B1a2	5D4B1a3	5D4B1b1	5D4B1b2	5D4B1b3	5D4B1d1	5D4B1d2	5D4B1d3	5D4B1d4	5D4B1d5	5D4B1g1	5D4B1g2
None to slight erosion (e1)	1883	7.9	-	-	-	-	-	-	-	-	-	20	-	2	15	519	37	44
Moderate erosion (e2)	14365	60.0	244	125	213	263	549	381	180	559	981	678	728	682	674	470	184	440
Severe erosion (e3)	4790	20.0	504	348	300	122	36	189	229	-	-	65	60	-	-	-	205	90
Very severe erosion (e4)	1735	7.2	41	43	111	92	3	72	-	-	-	-	-	-	-	-	-	-
Misc.	1174	4.9	27	101	60	14	1	43	25	2	29	8	13	15	8	5	39	25
Total	22773	100	789	516	624	477	588	642	409	559	981	763	788	684	689	989	426	574
%^ age	95.098	100	3.29	2.15	2.61	1.99	2.46	2.68	1.71	2.33	4.1	3.19	3.29	2.86	2.88	4.13	1.78	2.4



Erosion	5D4B1g3	5D4B1g4	5D4B1k3	5D4B1k4	5D4B2f1	5D4B2f2	5D4B7a1	5D4B7a2	5D4B7b1	5D4B7b2	5D4B7c1	5D4B7c2	5D4B7d1	5D4B7d2	5D4B7d3
None to slight erosion (e1)	283	32	156	161	-	-	27	84	-	-	-	-	421	9	73
Moderate erosion (e2)	675	594	703	496	589	616	298	236	510	228	271	420	302	550	526
Severe erosion (e3)	43	29	45	100	345	311	145	167	133	131	436	271	171	110	205
Very severe erosion (e4)	-	-	-	-	-	-	72	327	199	290	61	160	95	67	102
Misc.	11	37	50	47	62	49	78	91	97	62	54	52	12	23	34
Total	1012	692	954	804	996	976	620	905	939	711	822	903	1001	759	940
%^ age	4.23	2.89	3.98	3.36	4.16	4.08	2.59	3.78	3.92	2.97	3.43	3.77	4.18	3.17	3.93

**11. Series wise Distribution of Area under various Land Capability Classes/
भूमि क्षमता वर्ग के आधार पर मृदा श्रेणियों के अंतर्गत क्षेत्रफल:**

Land Capability Unit	Area	%	Khairi	Maharajpur	Paunri	Silpura	Uda
IIIes-1	14365	60.0	2038	4095	-	2353	5879
IIIs-1	1883	7.9	290	1593	-	-	-
IVe-1	1684	7.0	-	-	-	1609	75
IVe-2	2183	9.1	-	-	-	2183	-
Vle-1	1735	7.2	-	-	-	1735	-
Vles-1	523	2.2	-	-	523	-	-
Vles-2	400	1.7	-	-	400	-	-
Misc.	1174	4.9	-	-	-	-	-
Total	23947	100	2328	5688	923	7880	5954
% age	100	100	9.7	23.8	3.9	32.9	24.9

12. Salient Features/ प्रमुख बिंदु:

- ❖ Out of the total surveyed area of 23,947 ha, about 91.2 % (21,850 ha) is occupied by very deep soils followed by 3.9 % (923 ha) area under shallow soils.
- ❖ An area of 32.9 % (7,880 ha) of total area having very gentle slope and an area of 34.1 % (8,169 ha) of total reported area occurs on gentle sloping landforms. About 16.4 % (3918 ha) of total area occurs on moderate. Similarly, About 3.8 % (923 ha) of total reported area is under strong to steep slopes.. An area of 1,455 ha (6.1%) area is terraced and then leveled, which are under cultivation.
- ❖ An area of 60 % (14,365 ha) suffers from moderate erosion hazards. About 20.0 % (4,790 ha) area suffer from severe erosion & 7.2 % (1,735 ha) area suffers from very severe erosion having problems of severe gullied erosion which needs immediate attention for soil and water conservation measures.
- ❖ The bushy forest area which is subject to unabated degradation due to illicit felling of trees/bushes needs immediate attention for afforestation programme besides taking proper soil-water conservation measures.

HOW TO USE SOIL SURVEY REPORT

The present report furnishes a detailed account of various characteristics of the surveyed area, like Physiography, relief, geology, climate, natural vegetation, land use and soils. Description of the soil series recognized in the area, like detailed information on soil characteristics, classification, potentialities and limitations are given in the report. Interpretations of different soil mapping units for various applied aspects of agricultural development such as land use plans, soil and water management, soil conservation plans, identification of areas for afforestation, engineering applications, and eco-restoration and waste-land management have been given in different chapters. Different problems of the area have also been depicted and their corrective measures are thereby suggested. Soil survey interpretations for land capability class, soil and land irrigability class, hydrological grouping and paddy grouping are described in chapter 6.

In order to use the report, the user will locate the area of his interest on the soil map appended with the report. Permanent features like roads, village sites, streams and ponds etc. would help for location of specific area. On the map each soil unit has been delineated and represented by symbolic expression dealing with all technical description. The abbreviated symbol of mapping unit shows information about the name of soil series, soil depth, soil texture, land slope gradient, erosion condition and land surface features like graveliness, stoniness or rockiness. It refers to a particular type of soil like an example **P2dG3SR** that represents P- Paunri series, 2- Shallow depth, d- Gravelly Sandy loam texture of surface, G- steep slope (25-33%), 3- Severe erosion and SR- for slightly stony & Rocky phase.

The details of the soil mapping unit with description, extent in each sub-watershed and their multipurpose interpretations (like land capability units, soil and land irrigability classes, paddy soil grouping, hydrological grouping etc) have been shown in appendix I (Guide to soil mapping units).

The differentiating characteristics of soil series are furnished in table 5 and the typifying Pedon of soil series are described in Appendix II where detailed description of soils and morphological description of representative soil profiles along with their analytical data are given. Village wise mapping units, their area extent, and present land use and management status, Physiography, predominant slope, land use and capability classification etc. are given in Appendix IV.

For any clarification and comments, correspondence may be made to

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