

Report on Detailed Soil Survey and Land Use of 2C1C4n3, n4, n5, n6, n7 & n8, 2C1C5c1, c2, c3, c4, c5, c6 & c7, 2C1C5f1 & f2, 2C1C5g1, g2, g4, g5, g6, g8 & g9 and 2C1C6q4, q5, q6 & q7 Micro-watersheds of RB-Upper Ken Sub-Catchment of Ken FPR Catchment in Tehsil - Rithi, District - Katni, and Tehsil-Shahnager, District- Panna, Madhya Pradesh State

Abstract

1. **Survey area** : Report on Detailed Soil Survey and Land Use of 2C1C4n3, 4, 5, 6, 7 & 8, 2C1C5c1, 2, 3, 4, 5, 6 & 7, 2C1C5f1 & 2, 2C1C5g1, 2, 4, 5, 6, 8 & 9 and 2C1C6q4, 5, 6 & 7 Microwatersheds of RB-Upper Ken Sub-Catchment of Ken FPR Catchment in Tehsil- Rithi, District- Katni, and Tehsil-Shahnager, District- Panna, Madhya Pradesh State
2. **Geo-geographical Location** : 23° 49' to 24° 44' and 24° 10' to 24° 15' N Latitude
80° 02' to 80° 13' E and 80° 26' to 80° 30' E Longitude
3. **Type of Survey** : Detailed Soil Survey using Remote sensing techniques
4. **Base map used** : Google Earth maps 1:12500 scale
SOI Toposheets 1:50000 scale
5. **Total area mapped** : 22628 ha
6. **Agro Climatic Region** : VIII-Central Plateau & Hill region
7. **Period of Survey** : May-June, 2010

8. Names of Soil Series and their extent:

Sl. No.	Series Name	No. of mapping unit	Area (ha)	Percentage
1.	Aloni(A)	6	513	2.26
2.	Basudha(BA)	2	783	3.46
3.	Chakrabhata(C)	1	260	1.14
4.	Damoh(D)	2	2420	10.72
5.	Dhaniya(DH)	5	1777	7.85
6.	Dungri(DU)	5	543	2.39
7.	Haruda(HD)	9	4684	20.70
8.	Khamatra(K)	7	3179	14.05
9.	Kemtalai(KT)	3	282	1.24
10.	Kusumi (KU)	10	3126	13.82
11.	Panna (P)	8	3379	14.95
12.	Shahnagar (S)	4	858	3.79
13.	Tidni (T)	3	525	2.32
14.	Waterbodies	-	83	0.36
15.	Misc.land	-	216	0.95
	Total	65	22628	100.00

9. Distribution of Area under Different Depth Classes:

Soil Depth Class	Area in ha	Percentage
Shallow	7104	31.40
Moderately deep	5310	23.47
Deep	3904	17.25
Very deep	6011	26.57
Water bodies	83	0.36
Miscl. Lands	216	0.95
Total	22628	100.00

10. Distribution of Area under Different Soil Erosion Classes:

Erosion Class	Area in ha.	Percentage
None to slight erosion	2016	8.90
Moderate erosion	9338	41.27
Severe erosion	10622	46.96
Very severe erosion	353	1.56
Water bodies	83	0.36
Miscl. Lands	216	0.95
Total	22628	100.00

11. Distribution of Area under Different Land Capability Classes

Land Capability Class	Area in ha	Percentage
II	6792	30.02
III	4717	20.86
IV	5666	25.03
VI	2138	9.45
VII	3016	13.33
Water bodies	83	0.36
Miscl. Lands	216	0.95
Total	22628	100.00

12. Salient Features of the area:

- ◆ That 11509 ha (50.88%) area is suitable for agriculture and 5666 ha (25.03%) area is marginally suitable for agriculture and 5154 ha (22.78%) lands may be brought under agro-horticulture or pasture development to ensure sustainable agriculture development of the area.
- ◆ Out of total surveyed area of 22628 ha about 9915 ha (43.82%) area is under deep to very deep soil depth class followed by 7104 ha (31.40%) under shallow soil and 5310 ha (23.47%) area under moderately deep soil depth.
- ◆ About 8179 ha (36.16%) of total surveyed area topographically under very gently sloping lands (1-3%) and about 8050 ha (35.59%) area under gently sloping (3-5%) followed by moderately slopping (5-10%) which is 3084 ha (13.03%) and strong to steep sloping (10-33%) is 3018 ha (13.34).
- ◆ That 10,975 ha (48.52%) area suffers from severe to very severe erosion hazards require urgent 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. Detailed descriptions of soils series recognized in the area and interpretation of different soil mapping units for various applied aspects of agricultural development, such as land use planning, soil and water management, soil conservation, are given in relevant chapters. Different problems of the area have been depicted and corrective measures have also been suggested.

In order to use the report, the user will locate the area of his interest on the soil map appended with the report. On the map, each soil mapping unit has been delineated and represented by symbolic expression. The abbreviated symbol of mapping unit reflects information about the name of soil series, soil depth, surface texture, land slope, gradient erosion status and surface features like gravelliness, stoniness and rockiness. The soil mapping unit is demarcated as KU3d_E3 where 'KU' represents for 'Kusumi' Soil Series, '3' for Moderately deep soil depth, 'd' for **gravelly sandy loam surface texture**, '**E**' for **strong slope (10-15%)**, '**3**' for **severe water erosion**.

The detailed of the soil mapping units, their description and multipurpose interpretative groupings have been shown in **Annexure-I** (Guide to Soil Mapping Units). The Differentiating Morphological Characteristics of Soil Series are furnished in **Table-5** and the Morphological Description of Soil Series is described in **Annexure-II**. Micro watershed wise mapping units are described in **Annexure –III**. **An analytical method is described in Annexure –IV**. The Glossary of Scientific terms used in this report is given in **Annexure –V**. The symbols used in the report are also illustrated in **Annexure-VI**.

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