Detailed Soil Survey and Land use Plan of 5E2A1f3, 5E2A1f5, 5E2A1f8, 5E2A1k4, 5E2A4a1, 5E2A4a2, 5E2A4a4, 5E2A4a5, 5E2A4a6, 5E2A4c4, 5E2A4c5 and 5E2A4c7 Microwatersheds of 5E2 Mahi –Anas RVP Catchment, District- Banswara, Tehsil-Bagidora Rajasthan and District-Dahod, Taluka-Fatepura- Gujarat.

A B S T R A C T

1. **Surveyed Area**	**:**	5E2A1f3, 5E2A1f5, 5E2A1f8, 5E2A1k4, 5E2A4a1, 5E2A4a2, 5E2A4a4, 5E2A4a5, 5E2A4a6, 5E2A4c4, 5E2A4c5 and 5E2A4c7 Microwatersheds of Mahi – Anas Catchment, District- Banswara, Tehsil-Bagidora Rajasthan and District-Dahod, Taluka-Fatepura- Gujarat.
2. **Location**	**:**	The micro watersheds lie between Latitude: 23°13´ to 23°22´ N, Longitude: 74°9´ to 73°15´ E,
3. **Total Surveyed Area**	**:**	7885 ha.
4. **Number of Villages**	**:**	43
5. **Type of Survey**	**:**	Detailed Soil Survey.
6. **Period of Survey**	**:**	January 2012 to March2012.
7. **Agro-climatic Zone**	**:**	13 Gujarat Plain & Hill Region & RJ-8 Southern Humid Plain Zone
8. **Base Map**	**:**	(1) Village maps (16":1mile (2) SOI Toposheets (1:50,000 scale) (3) High resolution satellite image (1:12500)

9. Distribution of Soil Series and Their Extent of Area

Sl. No	Series Name	No. of Mapping Units	Total Area (ha)	Percentage (%)
1	Bhukhedi	3	567	7.19
2	Bhurimati	1	229	2.90
3	Bhuri timbi	3	558	7.08
4	Chikhli	3	1098	13.93
5	Ladera	2	687	8.71
6	Limdi	3	1004	12.73
7	Moti timbi	2	1031	13.08
8	Nalpada	2	176	2.23
9	Paduri	3	698	8.85
10	Tejamota	3	1666	21.13
	Misc.		171	2.17
	Total		**7885**	**100.00**

10. Area under different Soil Depth with percentage

Soil depth class	Area (ha	Percentage (%)
Shallow (10-25cm)	3404	43.17
Moderately deep (25-50cm)	1665	21.12
Deep (50-100cm)	1729	21.93
Very deep (>100cm)	916	11.61
Misc.	171	2.17
Total	**7885**	**100.00**

11. Area under different Erosion Classes with their percentage

Erosion	Area (ha)	Percentage (%)
None to slight	1285	16.30
Moderate	2622	33.25
Severe	3807	48.28
Misc.	171	2.17
Total	**7885**	**100.00**

12. Area under various Land Capability Classes & their percentage

S. No	Land Capability Class	Area (ha)	Percentage (%)
1.	II-1	397	5.04
2.	II-2	258	3.30
3.	IIe-1	290	3.70
4.	IIe-2	248	3.15
5.	IIs-1	229	2.90
6.	IIs-2	401	5.01
7.	IIes-1	630	8.00
8.	IIIe-1	192	2.44
9.	IVes-1	568	7.20
10	IVes-2	694	8.80
11.	VIes-1	1137	14.41
12.	VIes-2	1774	22.50
13.	VIes-3	896	11.38
Misc.		171	2.17
Total.		**7885**	**100.00**

13. Area under different slope classes & their percentage

S. No.	Slope Class	Area (ha)	Percentage (%)
1.	Very Gently (1-3%) slope	2453	31.11
2.	Gently (3-5%) slope	1454	18.44
3.	Moderately (5 -10%) slope	1137	14.42
4.	Strongly sloping (10-15%) slope	1561	19.80
5	Moderately steep slope(15-25)	213	2.70
6.	Very steep (25-33%) slope	896	11.36
Misc.		171	2.17
Total		**7885**	**100.0**

Salient Points:

- Out of the total surveyed area of 7885 ha, 3404 ha (43.17%) is occupied by shallow soils, 1665 ha (21.12%) by moderately deep soils, 1729 ha (21.92%) by deep soils and 916 ha (11.62%) by very deep soils.

- Around 2670 ha (33.86%) area falls under strongly sloping to very steep slopes (hilly area).2651 ha (32.86%) is under gently to moderate slope and the remaining 2453 ha (31.11%) is under very gently sloping topography.

- Area suffers from severe erosion covering 3807 ha (48.28%) area, needs immediate attention for soil conservation measures.

- Nearly 1285 ha (16.30%) area is well managed and covered under agriculture which needs assured irrigation besides effective agronomic practices.

- Land not suitable for cultivation, suitable for pasture & forestry with major limitations i.e. LCC VI covers the maximum area 3807 ha. (48.30%).

- 1262 ha. (16.00%) lands are having class IV marginally suitable for agriculture

- 192 ha. (2.44%) Lands have been placed in class III which are moderately good land for agriculture.

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 and the soils. Detailed description of the soil series recognized in the area and interpretation of different soil mapping units for various applied aspects of agricultural development such as land use plans, soil and water management, soil conservation plan, identification of new area for afforestation, engineering application, eco-restoration have been given in different chapters. Different problems of the area have been depicted and corrective measures are also suggested.

In order to use the report, the user may locate the area of the interest on the soil map appended with the report. On the map, each soil mapping unit has been delineated and represented by symbolic expression that deals with technical description. The abbreviated symbol of mapping unit given information about the name of soil series, soil depth, soil texture, slope gradient, erosion status, land surface features like gravelliness, stoniness and rockiness.

On the soil map, each soil mapping unit is marked by a symbolic expression, viz., LM2kE3G (P)

LM - is the abbreviated name for the soil series, Limbdi.
2 - Indicates depth of the soil i.e. shallow soils (depth class).
k- Represents soil texture i.e. gravelly sandy clay loam (textural class).
E - Symbolizes for the soil slope class, say slope 10-15% (slope class).
3 - Represents soil erosion, severe erosion (erosion class).
G - Indicates for gravelly phases.
P- Indicates for Pasture.

In the soil mapping unit gravelly texture class indicated by underlining the texture symbol, 'gravelly' phases are indicated by symbols G respectively.

For multipurpose interpretation of the mapping units, user can refer to the "Guide to Soil Mapping Units" **(Appendix-1)** where in the entire soil mapping units have been listed with their description under microwatershed and their interpretative groupings. This table provides comprehensive information on important soil and land characteristics and their potential uses.

The table on series-wise **(Table 7)** and microwatershed wise **(Table 8)** provide data on distribution of area under different soil depths, slopes and erosion phases and is useful to obtain information on soil and land characteristics.

The table on series-wise **(Table 10)** and microwatershed wise (**Table 11)** distribution of area under different land capability units read with chapter on "Land capability Classification" is useful for obtaining information on the potential, problems and conservation treatment needs of the survey area.

The detailed information on soil series, profile description and other soil characteristics, reference can be made to *Chapter 4* "Soils of the Area" and Appendix – II. Micro watershed wise mapping units list along with their area extent, present land use and management status are given in the Appendix –III. The symbols used in the report and the analytical methods used for soil analysis are also illustrated in Appendix IV & V, respectively

The recommendations in this report are brief, suggestive and broad in nature for systematic watershed management planning.

Any comments and suggestion on this report are welcome. For any other details and clarification, contact or correspondence may be established with:-

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