

**Detailed Soil Survey and Land use Plan of 5E2A4d1, 5E2A4d3, 5E2A4d4, 5E2A4d5, 5E2A4f1, 5E2A4f2, 5E2A4f3 5E2A4f4, 5E2A4k1, 5E2A4u3 and 5E2A4u4 Microwatersheds of Mahi –Anas Catchment, District- Banawada, Tehsil- Bagidora, Rajasthan and District-Dahod, Taluka-Fatepura, Gujarat.**

**A B S T R A C T**

- 1. Surveyed Area** : 5E2A4d1, 5E2A4d3, 5E2A4d4, 5E2A4d5, 5E2A4f1, 5E2A4f2, 5E2A4f3, 5E2A4f4, 5E2A4k1, 5E2A4u3 and 5E2A4u4 Microwatersheds of Mahi – Anas Catchment, District- Banswada, Tehsil – Bagidora, Rajasthan and District - Dahod, Taluka – Fatepura, Gujarat.
- 2. Location** : The micro watersheds lie between  
Latitude: 23°08' to 23°17' N,  
Longitude: 74°07' to 74°16' 2" E
- 3. Total Surveyed Area** : 8697 ha.
- 4. Microwatersheds** : 11
- 5. Type of Survey** : Detailed Soil Survey.
- 6. Period of Survey** : December 2011 to January 2012.
- 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) Satellite Maps (1:12500)

**9. Distribution of Soil Series and Their Extent of Area**

<b>Sl. No</b>	<b>Series Name</b>	<b>No. of Mapping Units</b>	<b>Total Area (ha)</b>	<b>Percentage (%)</b>
1	Bajar	2	153	1.76
2	Dolatpura	1	17	0.20
3	Gangartalai	3	511	5.88
4	Jher	4	2179	25.06
5	Lankai	6	3324	38.22
6	Panchal	2	824	9.47
7	Salupat	3	469	5.39
8	Sangaria	3	1031	11.85
	Misc.	-	189	2.17
	<b>Total</b>	<b>24</b>	<b>8697</b>	<b>100.00</b>

**10. Area under different Soil Depth with percentage**

<b>Soil depth class</b>	<b>Area (ha)</b>	<b>Percentage (%)</b>
Shallow (10-25cm)	3003	34.53
Moderately deep (25-50cm)	3793	43.61
Deep (50-100cm)	170	1.96
Very deep (>100cm)	1542	17.73
Misc.	189	2.17
<b>Total</b>	<b>8697</b>	<b>100.00</b>

**11. Area under different Erosion Classes with their percentage**

<b>Erosion</b>	<b>Area (ha)</b>	<b>Percentage (%)</b>
None to slight	1515	17.42
Moderate	580	6.67
Severe	6413	73.74
Misc.	189	2.17
<b>Total</b>	<b>8697</b>	<b>100.00</b>

**12. Area under various Land Capability Classes & their percentage**

<b>S. No</b>	<b>Land Capability Class</b>	<b>Area (ha)</b>	<b>Percentage (%)</b>
1.	II-1	561	6.45
2.	II-2	204	2.35
3.	IIs-1	750	8.62
4.	IIs-1	197	2.27
5.	Ives-1	831	9.56
6.	IVes-2	2341	26.92
7.	VIes-1	824	9.47
8	VIes-2	1418	16.30
11	VIIes-1	68	0.78
	Forest	1314	15.11
	Misc.	189	2.17
<b>Total.</b>		<b>8697</b>	<b>100.00</b>

### 13. Area under different Slope Classes & Their Percentage

S. No.	Slope Class	Area (ha)	Percentage (%)
1.	Very Gently (1-3%) slope	1643	18.89
2.	Gently (3-5%) slope	900	10.35
3.	Moderately (5 -10%) slope	3317	38.14
4.	Strongly sloping (10-15%) slope	1418	16.31
	Moderately steep slope(15-25)	189	2.17
5.	Very steep (25-33%) slope	1041	11.97
6.	Misc.	189	2.17
	<b>Total</b>	<b>8697</b>	<b>100.00</b>

#### Salient Points:

- Out of the total surveyed area of 8,697 ha, 3,003 ha (34.53%) is occupied by shallow soils, 3,793 ha (43.61%) by moderately deep soils, 170 ha (1.96%) by deep soils and 1,542 ha (17.73%) by very deep soils.
- Around 2,648 ha (30.45%) area falls under strongly sloping to very steep slopes (hilly area).4,217 ha (48.49%) is under gently to moderate slope and the remaining 1,643 ha (18.89%) is under very gently sloping topography.
- Area suffers from severe erosion covering 6,413 ha (73.74%) area, needs immediate attention for soil conservation measures.
- 7,126 ha (82.0%) area is suitable for agriculture and 1,382 ha (15.9%) is marginally suitable for forest and pasture development.

## 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., JH2kG3GS(F)

- JH - is the abbreviated name for the soil series, Jher.
- 2 - indicates depth of the soil i.e. shallow soils (depth class).
- k- represents soil texture i.e. gravelly sandy clay loam (textural class).
- G - symbolizes for the soil slope class, say slope 25.33% (slope class).
- 3 - represents soil erosion, severe erosion (erosion class).
- G - indicates for gravelly phases.
- S - indicates for stony.
- F- indicates for forest.

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 6) and micro watershed wise (Table 7) 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 9) and micro watershed wise (Table 10) 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.

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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