

Abstract

1.	Surveyed Area	:	Lakhisarai district, Bihar
2.	Location	:	Latitude 24° 58' 21" to 25° 20' 20" N Longitude 85° 54' 13" to 86° 23' 45" E
3.	Agro climatic Region	:	Middle Gangetic Plain (Zone – IV as per planning commission)
4.	Total Area of the District	:	1,21,963 ha
5.	Kind of Survey	:	Soil Resource Mapping using Remote Sensing and GIS Techniques
6.	Base Map	:	(a) IRS-ID Geocoded Satellite Imagery (1:50,000 scale) (b) Survey of India Topographical maps (1:50,000 scale)
7.	Scale of Mapping	:	1:50,000
8.	Period of Survey	:	December, 2014 to January, 2015

A. Soil Series Association mapped and their respective area:

Sl. No.	Mapping Symbol	Mapping Unit	Soil Series Association	Area (ha)	Area (%)
01	01	ALb1a1	Bishunapur-Pratappur	12590	10.32
02	02	ALb1a2	Bobothan-Barigarapur	19820	16.25
03	03	ALb1a3	Darhiasagar-Godhna	12523	10.27
04	04	ALb2a1	Badki Balia	13073	10.72
05	07	ALb2b1	Ismaila-Majhaul	1856	1.52
06	08	ALe2a1	Hakimabad-Murgiachak	9298	7.62
07	09	ALg2a1	Bariyahi-Bhagwanpur	2555	2.09
08	05	ALn2a1	Bamoura-Sanhanayatola	16662	13.66
09	06	ALn2a2	Mohanpur-Khamhar	9647	7.91
10	10	GRn6c1	Nonkutola-Simaratola	14152	11.60
11	11	GRn7c1	Mokanpur-Simaratola	3198	2.62
12	12	H	Habitation	3365	2.76
13	13	R	River	3143	2.58
14	14	W	Waterbody	81	0.07
Grand Total				121963	100.00

B. Various land use/land cover of the Lakhisarai District, Bihar are as under

Land use classes	Area (ha)	Area (%)
Agriculture	98024	80.37
Forest	17350	14.23
Habitation	3365	2.76
River	3143	2.58
Waterbody	81	0.07
Total	121963	100.00

C. Landscape or physiographic division of the soils of the Lakhisarai District, Bihar

Landscape	Physiography	Area (ha)	Area (%)
Alluvium	Alluvial Plain (b)	59862	49.08
	Flood Plain (n)	26309	21.57
	Levee (e)	9298	7.62
	Stream banks (g)	2555	2.09
Granite	Undifferentiated hill side slope	17350	14.23
Habitation	Miscellaneous	3365	2.76
River		3143	2.58
Waterbody		81	0.07
Total		121963	100.00

D. Soil Depth classes of the district are as under

Depth class	Area (ha)	Area (%)
Very shallow	14152	11.60
Shallow	3198	2.62
Very deep	98024	80.37
Habitation	3365	2.76
River	3143	2.58
Waterbody	81	0.07
Total	121963	100.00

E. Soils of the district fall under different slope classes are as under

Slope classes	Area (ha)	Area (%)
Nearly level (A)	34760	28.50
Very gently sloping (B)	50191	41.15
Gently sloping (C)	13073	10.72
Moderately steeply sloping (F)	14152	11.60
Steeply sloping (G)	3198	2.62
Habitation	3365	2.76
River	3143	2.58
Waterbody	81	0.07
Total	121963	100.00

F. Erosion classes of the soils of the district are as under

Erosion classes	Area (ha)	Area (%)
none to slight erosion	54580	44.75
slight to moderate	43444	35.62
Severe erosion	17350	14.23
Habitation	3365	2.76
River	3143	2.58
Waterbody	81	0.07
Total	121963	100.00

G. Land capability classes of the soils of the district are as under

Land capability classes	Area (ha)	Area (%)
II	54580	44.75
II-III	43444	35.62
VII	17350	14.23
Habitation	3365	2.76
River	3143	2.58
Waterbody	81	0.07
Total	121963	100.00

Salient Features:

- Total area of the district is alluvium landscape and granite, the alluvium landscape is divided into four physiographic units i.e. alluvium plain, flood plain, levees and stream/ river bank and undifferentiated hill side slope is under granite landscape.
- Total 20 nos. of soil series have been identified and mapped
- In the district 98024 ha (80.37%) area is under agriculture followed by forest 17350 ha (14.23%) and miscellaneous land i.e. habitation 3365 ha (2.76%), river 3143 ha (2.58%) and waterbody 81 ha (0.07%).

- About 34760 ha (28.50%) area having nearly level slope (0-1%), the soils comprising 50191 ha (41.15%) area under very gently sloping (1-3%), 13073 ha (10.72%) area falls under gently sloping (3-5%), 14152 ha (11.60%) soil comprising under moderately steeply sloping (10-25%) and 3198 ha (2.62%) of survey area having steeply sloping (25-33%).
- About 54580 ha (44.75%) area having none to slight erosion, 43444 ha (35.62%) area falls under slight to moderate erosion and 17350 ha (14.23%) area suffer from severe erosion hazards needs to attention for soil conservation measures.
- Soils of the area are taxonomically classified into two orders i.e Inceptisols and Entisols. All the 20 soils series identified in the area are further classified into 4 sub order, 4 great group, 8 sub group and 15 families

How to Use Soil Resource Mapping Report

This report embodied the results of the Soil Resource Mapping of Lakhisarai district, Bihar providing information on the geographical setting of the district such as location, extent, physiography, relief, drainage, climate, geology, natural vegetation, agriculture, land use and soils.

The report contains other information on Interpretative grouping of soils (Chapter 7) such as land capability classes, land irrigability classes, soil suitability grouping and hydrological grouping and also recommendation for crops; horticulture development, forest, forage and grassland development; water harvesting, water storage and water management that are essential for soil and land resource management. The genesis and classification of the soils are also discussed in Chapter 5.

Lakhisarai district of Bihar is spread over an area of 121963 ha. The district is covered by 08 SOI topographical sheets on the scale of 1:50,000 which are used as base material along with satellite imageries.

Each soil mapping units is marked by mapping unit i.e ALb1a1 (Alluvium; alluvial plain; 0-1% slope; agriculture land use; soil series association describing Bishunapur as dominant series in association with Pratappur series). Each soil association is restricted to a maximum of three soil series.

For the use of the soil resource report, first locate the area of interest on the map and note down the soil mapping units. Permanent features such as road, stream, lakes and village habitation etc. shown on the map, help to locate the area of interest on the map. For the detailed information on soil mapping unit in respect of soil series of the area of interest, its extent, present and proposed land uses and reference may be made to Chapter 4, appendix I and II.

The mapping unit used in soil mapping represents the five levels of mapping i.e ALb1a1 may be referred as follows:

AL	-	Alluvium	-	Landscape
b	-	Alluvial plain	-	Physiography
1	-	0-1% slope	-	Slope Class
a	-	Agriculture land	-	Land Use
1	-	Association of soil series with erosion and management soil unit.		

Any comment and suggestion on the report would be welcome. For further enquiry or clarification, correspondence or personal contact may be established with either of the following address:

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