

## ABSTRACT

1.	<b>Survey Area</b>	:	Goalpara district, Assam
2.	<b>Geographical Extent</b>	:	90 <sup>0</sup> 7'20" to 91 <sup>0</sup> 6'00" East Longitude and 25 <sup>0</sup> 52'50" to 26 <sup>0</sup> 13'50" North latitude
3.	<b>Kind of Survey</b>	:	Soil Resource Mapping using remote sensing and GIS techniques.
4.	<b>Period of Survey</b>	:	November, 2013 to January, 2014
5.	<b>Total area</b>	:	202523 ha.
6.	<b>Agro Climatic Region</b>	:	Eastern Himalayan range , Agro-climatic Zone No-II as per National Planning Commission
7.	<b>Base map used</b>	:	a) IRS – ID Geocoded Satellite Imagery (1: 50000 scale) b) SOI –Toposheet (1:50000 scale)

### A. Soil Series association mapped and their respective area

Mapping Unit	Mapping Symbol	Soil association	Area (ha)	Area (%)
ACb3c1	31	Manas RF	577	0.28
ALb2a2	6	Amguri-Harimura	48441	23.92
ALb2c1	1	Deldabhita-Sotomatia	25992	12.83
ALb2d1	4	Rajapani-Sotomatia	5458	2.70
ALb3b1	2	Simlitola-Dakuapara	382	0.19
ALb3b2	3	Dakuapara-Simlitola	15479	7.64
ALd2a1	14	Pahartati-Dakaidol	7493	3.70
ALd2d1	15	Dakaidol-Pahartati	396	0.20
ALf2a1	15/2	Keotpara-Tangalmari	32	0.02
ALg2a1	10	Majguri-Maicongri	2748	1.36
ALj2a1	15/1	Tangalmari-Purangaon	1414	0.70
ALk1d1	9	Lasipara-Korigaon	3174	1.57
ALn2a1	11	Tangalmari-Purangaon	17571	8.68
ALn2d1	12	Purangaon-Garugaon	874	0.43
ALq2a1	7	Lepgaon-Sanyasipara	4455	2.20
GGi4c1	16	Atmal Damalgiri-Rongru Asim	508	0.25
GGn6c1	19	Barkhola-Rongkhongiri-Rongru Asim	5353	2.64
GGn7c1	18	Jorabat-Darka	2250	1.11
GGn7c2	22/1	Darka-Jorabat	358	0.18
GGn8c1	22	Bamuni-Jhabukbari	455	0.22
GGn8c2	17	Jhabukbari-Bamuni	405	0.20
GGo4c1	24	Gomnigiri-Milmilia-Dopgiri	3092	1.53
GGr6c1	21	Chakrachila-Bamuni	1230	0.61
GGz4c1	27	Gangakhuli-Milmilia-Gomnigiri	3390	1.67
HS	HS		16147	7.97
River	RI		25999	12.84
Sand Bar	SB		6615	3.27
WB	WB		627	0.31
BIL	Bil		1608	0.79
<b>Grand Total</b>			<b>202523</b>	<b>100.00</b>

## B. Area under different landuse classes

Landuse	Area(ha)	Area (%)
Deciduous forest (Double Story Veg)	36572	18.06
Deciduous forest (Single Story Veg)	7038	3.48
Grasslands/Pasture	4444	2.19
Multiple crop cultivation	18985	9.37
Open scrub	5458	2.70
Plantation and orchard near habitation	15479	7.64
Single crop cultivation	60421	29.83
Single crop cultivation and partly waste land	2748	1.36
Tea plantation	382	0.19
Misc.	50996	25.18
<b>Total</b>	<b>202523</b>	<b>100</b>

## C. Area under different erosion classes

Erosion	Area(ha)	Area (%)
Moderate erosion	50827	25.10
Moderate to severe erosion	17543	8.66
None to slight erosion	71913	35.51
None to slight to moderate erosion	11244	5.55
Misc.	50996	25.18
<b>Total</b>	<b>202523</b>	<b>100</b>

## D. Area under different landscape and physiography

Landscape	Physiography	Area(ha)	Area (%)
Alluvium	Alluvial plain	95752	47.28
	Broad valley	4455	2.20
	Flood plain	18445	9.11
	Marshy land	3174	1.57
	Paleo channel	32	0.02
	Point bar complex	7889	3.90
	River terrace	1414	0.70
Alluvium Colluvium	Stream bank	2748	1.36
	Alluvial plain	577	0.28
Granite gneiss	Foot hill slope	3092	1.53
	Hill side slope	8821	4.36
	Hill top	508	0.25
Granite gneiss	Subdued hill/ Hummocky	1230	0.61
	Undulating Upland	3390	1.67
Misc.	Misc.	50996	25.18
<b>Total</b>		<b>202523</b>	<b>100</b>

## E. Area under different slope classes

Slope Classes	Area(ha)	Area (%)
Nearly level slope	3174	1.57
Nearly level to very gently slope	114874	56.72
Very gently to gently slope	16438	8.12
Strongly to moderately steep slope	6583	3.25
Moderately steep to steep slope	2608	1.29
Gently to moderately slope	6990	3.45
Very steep to extremely steep slope	860	0.42
Misc.	50996	25.18
<b>Total</b>	<b>202523</b>	<b>100.00</b>

## F. Area under different Land Capability Classes

LCC	Land Capability	Mapping Units	Area(ha)	Area (%)
Forest	Forest area	ACb3c1, ALb2c1, GGi4c1, GGn6c1, GGn7c1, GGn7c2, GGn8c1, GGn8c2, GGo4c1, GGr6c1, GGz4c1	43610	21.53
II	Land suitable for cultivation, good land with minor limitations	ALb2a2, ALj2a1, ALq2a1	54310	26.82
III	Land suitable for cultivation, moderately good land with major limitations	ALg2a1	2748	1.36
II-III	Land suitable for cultivation, moderately good land to good land with limitations	ALb3b1, ALb3b2, ALd2a1, ALf2a1, ALn2a1	40957	20.22
III-IV	Land suitable for cultivation, moderately good land to fairly good land with occasional cultivation with major limitations	ALb2d1, ALd2d1, ALn2d1	6728	3.32
IV-V	Fairly good land suitable for occasional cultivation and pasture and forestry with major to no limitations	ALk1d1	3174	1.57
	Misc.		50996	25.18
	<b>Total</b>		<b>202523</b>	<b>100</b>

## G. Salient Features:

- ❖ Total 33 soil series have been identified and mapped in three landscape of Goalpara district.
- ❖ About (40%) area of the district is cultivated land followed by forest land (22%), plantation (8%) and grass & open scrub land (5%).
- ❖ Soil of the district are highly suitable for variety of crops and horticulture crops like Rice, Wheat, Maize, Pulses, oilseeds, Sugarcane, Potato, Jute, Banana, Coconut, Areca nut, Orange, Pineapple.
- ❖ The cropping intensity can be increased by ensuring irrigation and balance fertilizer and manures.
- ❖ Major soil erosion of the district is none to slight erosion (35.51%) followed by moderate erosion (25.10%), moderate to severe erosion (8.66%) and none to slight to moderate erosion (5.55%).
- ❖ Alluvial plain is the major physiography of the district followed by flood plain, hill side slope and others.
- ❖ Soils of the district fall in seven slope classes. Out of which 55.24% of the area is under nearly level to very gently sloping lands, followed by very gently to gentle slope(8.12%), gently to moderately slope(3.45%), strongly to moderately steep slope(3.25%) and others slopes.
- ❖ Land suitable for cultivation, good land with minor limitations i.e LCC II covers the maximum area 54310 ha(26.82%) followed by LCC II-III (20.22%), III-IV (3.32%) and IV-V (1.57%).
- ❖ Soils of the area are taxonomically classified into four orders i.e. Alfisols, Inceptisols, Entisols and Ultisols. All the 33 soils series identified in the area are further classified into 8 sub-orders, 12 great groups, 20 subgroups and 24 families.

## HOW TO USE SOIL RESOURCE MAPPING REPORT

This report embodies the results of the Soil Resources Mapping of Goalpara district, Assam 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 8) such as land capability classes, land irrigability classes, soil suitability grouping, hydrological grouping and also recommendation for crops; horticulture development; forest, forage and grassland development; water harvesting, water storage and management that are essential for soil and land resource management. The genesis and classification of the soils are also discussed in **Chapter 5**.

Goalpara district of Assam is spread over an area of 182400ha. The district is covered by twenty one SOI topographical sheets on the scale of 1: 50,000 which are used as base material along with satellite imageries.

Each soil mapping unit is marked by mapping unit i.e. ALb2c1 (Alluvium; alluvial plain; 0-3 % slope; forest land use; Soil Series Association, describing Deldabhita as dominant series in association with Sotomatia 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 your 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, 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. Alb2a1 may be referred as follows:

AL	-	Alluvium	-	Landscape
b	-	Alluvium plain	-	Physiography
2	-	0-3 %	-	Slope class
c	-	Forest 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 any further enquiry / clarification, correspondence or personal contact may be established, with the

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