

Report on Detailed Soil Survey and Land Use of 3C3A7b3 to b7, 3C3A7C1 to C6, 3C3A7d1 to d5 and 3C3A7h1 to h3 Micro Watersheds of Brahmaputra Basin of P.S. Bishalgarh, Jampuijola and Melaghar of West Tripura district, Tripura using Remote Sensing and GIS Technique

Abstract

1.	Survey area	<i>3C3A7b3 to b7, 3C3A7C1 to C6, 3C3A7d1 to d5 and 3C3A7h1 to h3 micro watersheds of Brahmaputra Basin, P.S. Bishalgarh, Jampuijola and Melaghar of West Tripura district, Tripura.</i>
2.	Geographical location	<i>23°34'10" to 23°43'35" North Latitude 91°13' 30" to 91°25'30" East Longitude.</i>
3.	Type of Survey	<i>Detailed Soil Survey using Remote Sensing and GIS Technique</i>
4.	Base Map used	<i>Satellite Imagery on 1:8,000 scale</i>
5.	Total map area	<i>18606 ha</i>
6.	Agro-climatic region	<i>Eastern Himalayan region-II as per National Planning Commission(1989)</i>
7.	Period of Survey	<i>January, 2013 to May,2013.</i>

8. Name of Soil series and their areal extent mapped in different micro watersheds

Sl. No.	Name of Soil Series	No. of mapping units	Area in ha	%
1	<i>Amtali</i>	3	401	2.16
2	<i>Bathanmura</i>	3	136	0.73
3	<i>Bishalgarh</i>	3	1309	7.05
4.	<i>Champamura</i>	5	2883	15.53
5.	<i>Charilam</i>	2	39	0.21
6.	<i>Gopinagar</i>	4	89	0.25
7.	<i>Kasba</i>	5	758	4.08
8.	<i>Melaghar</i>	1	32	0.17
9.	<i>Murabari</i>	5	7644	41.18
10.	<i>Rautkhola</i>	5	2226	11.99
11.	<i>Sardarbari</i>	1	26	0.14
12.	<i>Sutarmura</i>	5	829	4.47
13.	<i>Misc.(habitation reservoir waterbody, tank and river)</i>	5	2234	12.04
Total		47	18606	100.0

9. Distribution of area under different Soil Erosion Classes.

<i>Erosion classes</i>	<i>Area in ha</i>	<i>Percentage</i>
<i>None to slight water erosion</i>	5611	30.16
<i>Moderate water erosion</i>	9378	50.40
<i>Severe water erosion</i>	1383	7.43
<i>Misc.</i>	2234	12.01
Total	18606	100.00

10. Distribution of area under different Slope Classes.

<i>Slope Classes</i>	<i>Area in ha</i>	<i>Percentage</i>
<i>Nearly level(0-1%) sloping</i>	2727	14.66
<i>Very gently(1-3%) sloping</i>	72	0.39
<i>Very gently(1-3%) sloping, terraced to nearly level(0-1%)</i>	2884	15.50
<i>Gently(3-5%) sloping</i>	2596	13.95
<i>Moderately(5-10%) sloping</i>	5184	27.85
<i>Strongly(10-15%) sloping</i>	2167	11.65
<i>Moderately steep (15-25%) sloping</i>	742	3.99
<i>Misc.</i>	2234	12.01
Total	18606	100.00

11. Distribution of area under different land capability classes

<i>LCC</i>	<i>Area in ha</i>	<i>Percentage</i>
<i>II</i>	2741	14.73
<i>III</i>	10329	55.51
<i>IV</i>	393	2.11
<i>VI</i>	1880	10.10
<i>VII</i>	1029	5.53
<i>Misc.</i>	2234	12.01
Total	18606	100.00

12. Salient Features of the area:-

1. Out of twelve soil series identified and mapped in the study area the Murabari soil series occurs in 41.18%(7644ha) followed by Champamura 15.3%(2883ha) and Rautkhola soil series which covers 11.99% (2226ha).
2. The entire survey area is covered by very deep soil.
3. About 2909 ha (15.68%) area falls under strongly sloping to moderately steep hill side slope, 7780 ha(41.92%) area is under gently to moderately sloping upland, and the remaining 5637 ha(29.39%) area is under nearly level to very gently sloping valleys and stream banks.
4. About 1383 ha(7.43%) area is suffering from severe water erosion and requires immediate attention for integrated soil conservation measures.
5. Nearly 5637 ha(30.37%) area is well managed and covered under agriculture.
6. Out of total 18606ha of the study area, 490ha(2.6%) area is classified as land capability class II land while 12580ha(67.6%), 393ha(2.1%), 2499ha(13.4%) and 410ha(2.2%) area fall under capability class III, IV, VI and VII respectively.
7. About 13463 ha(72.4%) area is suitable for agriculture(class III to IV of land capability) while 2909 ha (15.6%) area falls under class VI and VII of land capability should be kept for forestry, pasture development and wild life sanctuary.
8. About 71.4% of total reported geographical area is noted moderately to marginally for agriculture but having very good potential for Rubber plantation / orchards based agricultural system.

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 may 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 and gradient erosion status. Thus, a soil mapping unit marked by an abbreviation code like AM5kB(A)1 where 'AM' represents for 'Amtali' Soil Series, '5' for very deep soil depth, 'k' for sandy clay loam surface texture, 'B(A)' for nearly level to very gently sloping (0-3%) banded with nearly level to level(0-1%), '1' for none to slight water erosion.

The detailed of the soil mapping units, their description and multipurpose interpretative groupings have been shown in **Appendix-I** (Guide to Soil Mapping Units). The differentiating characteristics of Soil Series are furnished in **Table-7** and the Typifying Pedon of the Soil Series are described in **Appendix-II**. Village-wise mapping units along with their area extent, present land use and management status are given in **Appendix -III**.

The analytical methods used for soil analysis and the symbols used in the report are also illustrated in **Appendix-IV & V** respectively.

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