Abstract

1. **Surveyed Area**   : Nainital district, Uttarakhand

2. **Total Area**   : 412107 ha

3. **Geographical Extent**   : 29º00' and 29º05' North Latitude

    80º14' and 78º80' East Longitude

4. **Kind of Survey**   : Soil Resource Mapping using Remote Sensing & GIS Techniques

5. **Period of Survey**   : 2009

6. **Agro-climatic Region**   : 1 (Western Himalayan Region)

❖ **Soil Series/ Association Mapped and their Extent**

Mapping Symbol	Mapping Unit	Series Association			Area (ha)	Area (%)
1	ALb3a1	Nayagaon	Motalhaldu	-	37,804	9.17
2	ALb3a2	Haldupokhra	Motalhaldu	Haldwani-1	8,877	2.15
3	ALb3b1	Tanda	Haldwani-1	-	8,580	2.08
4	ALb3c1	Maachandi	Roorkie	Kherli	59,341	14.40
5	ALb3c2	Bailprao	Haldwani	Shantipur	32,257	7.83
6	ALh4a1	Haripura	Bahadurpur	-	2,695	0.65
7	CGf5a1	Dunaghat	Sonla	Karn_Karnayat	1,838	0.45
8	CGf7a1	Gwalkot	Jasauli	-	18,677	4.53
9	CGf7c1	Jageshwar	Chaurangikhal	Sat_Tal	39,845	9.67
10	CGf7c2	Irthram	Dharamgarh	Charma	2,218	0.54
11	CGf7d1	Dungar	Pirsal	Maniger	715	0.17
12	CGf9c1	Lidha	Balwakhan	Sauna	11,688	2.84
13	CGf9c2	Kondu	Dharamgarh	Charma	10,675	2.59
14	CGf9c3	Almora	Bhatuli	Khand	9,613	2.33
15	CGf9d1	Pirsal	Maniger	Gopeshwar	4,353	1.06
16	SDf5a1	Kilolighat	Saneh	-	4,233	1.03
17	SDf5c1	Papidanda	Delighati	Kalagarh	2,904	0.70
18	SDf7a1	Nainital	Mangoli	-	5,580	1.35
19	SDf7c1	Papidanda	Kumbichaur	Delighati	87,574	21.25

Mapping Symbol	Mapping Unit	Series Association			Area (ha)	Area (%)
20	SDf7c2	Pokharao	Kumbichaur	Papidanda	18,987	4.61
21	SDf7d1	Saneh	Gwalkot	-	257	0.06
22	SDf9c1	Papidanda	Pokharao	Dhari	6,073	1.47
23	SDf9c2	Chandidevi	Pokharao	-	13,499	3.28
24	CGx4c1	Kalagarh	Padampur	-	5,765	1.40
25	CGv3a1	Kotdwar	Lalpani	-	1,118	0.27
Water bodies					16,065	3.90
Habitation					876	0.21
TOTAL					4,12,107	100

❖ **Spatial Extent of Landscape/ Physiography Class**

Landscape	Physiography	Area (ha)	Area (%)
Alluvium (AL)	Alluvial plains (b)	1,46,859	35.63
	Dissected stream banks (h)	2695	0.65
Complex Geology (CG)	Undifferentiated mountain side slope (f)	99,622	24.18
	Piedmont planes (x)	5,765	1.40
	Upper pedi-plains (v)	1,118	0.27
Sandstone (SD)	Undifferentiated mountain side slope (f)	1,39,107	33.75
Habitation		876	0.21
Waterbodies		16,065	3.90
TOTAL		4,12,107	100

❖ **Spatial Extent of Slope Class**

Slope classes and code	Slope Range	Area (ha)	Area (%)
Very gently to gently sloping (3)	1-5 %	1,47,977	35.90
Gently to moderately sloping (4)	3-10 %	8,460	2.05
Moderately to Strongly sloping (5)	5-15 %	8,975	2.18
Moderately steep to steep sloping (7)	15-33 %	1,73,853	42.18
Very steep to extremely steep sloping (9)	33-50 % and above	55,901	13.57
Habitation		876	0.21
Waterbodies		16,065	3.90
TOTAL		4,12,107	100

❖ **Spatial Extent of Major Land Use/ Land Cover**

Major Land Use	Area (ha)	Area (%)
Agriculture (a)	80,822	19.60
Plantation (b)	8,580	2.08
Forest (c)	3,00,439	72.91
Open scrub (d)	5,325	1.29

Habitation	876	0.21
Waterbodies	16,065	3.90
TOTAL	**4,12,107**	**100**

❖ **Spatial Extent of Land Capability Class**

Land Capability Classes (LCC)	Area (ha)	Area (%)
Land Capability Class – II-III	56,379	13.67
Land Capability Class – III-IV	8,766	2.13
Land Capability Class – IV	24,257	5.88
Land Capability Class – VII-VIII	5,325	1.29
Forest	3,00,439	72.91
Habitation	876	0.21
Waterbodies	16,065	3.90
TOTAL	**4,12,107**	**100**

Salient Features

1. The surveyed area fall under various physiographic subdivisions viz. alluvial plains, dissected stream banks, undifferentiated mountain slope, and piedmont planes.

2. Major part of surveyed area mapped under alluvium landscape having alluvial plains landform accounting to 35.63 %. Next to this, sandstone landscape having undifferentiated mountain side slope occupied the area with an area of 139107 ha (33.75 %).

3. Soils of the area have been classified under three Orders i.e. Inceptisols, Entisols and Mollisols in order of their dominance. All the forty nine soil series identified in the area have been further classified into 6 Suborders; 9 Great Groups; 17 Subgroups and 32 Families.

4. Land use wise, nearly 72.91 % of the total geographical area is occupied by forest while agriculture occupied with only 19.60 % of the area.

5. Land Capability assessment of the district shows that apart from 72.91 % area which is under forest, around 5.88 % of the area is under Land Capability Class IV which is occurring on vulnerable slope gradient. These lands are best suited for cultivation of plantation crops/ aromatic/ medicinal herbs. Around 1.29 % areas are classified under Land Capability Class VII-VIII suited for agroforestry/ pastures. Similarly around 15.80 % area is classified under Land Capability Class II-IV occurring in valleys which is susceptible to flood hazards and suited for cereal/ pulses based cropping system.