

Report on Soil Resource Mapping of District Kangra, Himachal Pradesh

Abstract

1. **Surveyed area** : Kangra district, Himachal Pradesh
2. **Total area** : 5,74,763 ha
3. **Geographical Extent** : 31°21' & 32° 59' North latitude
75°47'55" & 77°45' East longitude
4. **Kind of Survey** : Soil Resource Mapping using Remote Sensing Technique
5. **Soil Series/Association mapped and their extent:**

Sl. No.	Mapping Symbol	Mapping Unit	Series Association	Area (ha)	Area (%)
1	309	SDx5a1	Ladwada-Tangh	2660	0.46
2	310	SDx5a2	Ladwada-Tangh	560	0.1
3	311	CMx5a1	Malan-Love	7459	1.3
4	312	CMn7a2	Love-Ladret	1464	0.25
5	313	CMx5a2	Malan-Love	832	0.14
6	315	CGn7c1	Ladret-Love-Kangra	19781	3.44
7	316	CGn7c2	Ladret-Love-Kangra	2388	0.42
8	317	SDx5c1	Ladwada-Tangh	891	0.16
9	318	SDx3a1	Tangh-Ladwada	16619	2.89
10	319	SDx3a2	Tangh-Ladwada	1044	0.18
11	320	SDx2a1	Tangh-Ladwada	5157	0.9
12	321	SDn7c1	Darot-Ronah-Deothi	73724	12.83
13	322	SDn7c2	Masrur-Darot-Malhanta	5761	1.00
14	323	SDn7d1	Masrur-Deothi-Darot	19815	3.45
15	324	SDn7d2	Masrur-Deothi	3721	0.65
16	325	SDn5d1	Sopkhal Lahathore-Fatehpur-Ronah	2968	0.52
17	326	ALb1a1	Bagh- Dehra Gopipur	9584	1.67
18	327	ALb2a1	Dehra Gopipur -Vantungli Katholi	35985	6.26
19	328	ALb1a2	Dehra Gopipur -Vantungli Katholi	875	0.15
20	329	ALb2b1	Dehra Gopipur -Bharmar	3435	0.6
21	330	ALb2b2	Dehra Gopipur -Bharmar	1221	0.21
22	331	ALn1a1	Bharmar-Bagh	3365	0.59
23	332	ALn2a1	Bharmar-Bagh	230	0.04
24	333	ALb1d1	Bharmar-Bagh-Parangal	42	0.01
25	334	ALb4a1	Bharmar-Vantungli Katholi	954	0.17
26	335	ALd1e1	Bharmar-Bagh	40	0.01
27	336	CMx2a1	Malan	1282	0.22
28	337	CMx3a1	Malan	16404	2.85
29	338	CMn7c1	Love-Ladret	27746	4.83

Sl. No.	Mapping Symbol	Mapping Unit	Series Association	Area (ha)	Area (%)
30	339	CMn7c2	Love-Ladret	1583	0.28
31	340	CMn7d1	Ladret-Love	24115	4.2
32	341	CMn7d2	Ladret-Love	1187	0.21
33	342	CMn6a1	Love-Ladret	3569	0.62
34	343	CMn7a1	Love-Ladret	3542	0.62
35	344	CMn9b1	Harser-Kangra	876	0.15
36	345	SLf9c1	Chambaghat-Jatoli	138	0.02
37	348	CMx2b1	Malan	75	0.01
38	349	SLx4a1	Kiar-Solan	325	0.06
39	350	SLf9c2	Jatoli-Chambaghat	14	0
40	356	ALn1d1	Bharmar-Bagh	1028	0.18
41	357	ALd1a1	Bharmar-Bagh	2535	0.44
42	358	ALb3a1	Dehra Gopipur -Bagh	2430	0.42
43	359	ALb1b1	Dehra Gopipur -Bagh	273	0.05
44	360	ALb3a1	Dehra Gopipur -Bagh	20982	3.65
45	361	CGx4a1	Malan	1273	0.22
46	362	CGx3a1	Malan	1972	0.34
47	363	ALb1a1	Bagh- Dehra Gopipur	102	0.02
48	364	SDn7a1	Pandhwar-Ronah-Sanaur	1016	0.18
49	365	CGx5a1	Malan	1602	0.28
50	367	SDf9c1	Kangra-Chamba border Hills-Basa Sughwalan	2213	0.39
51	368	SDf7d1	Masrur-Deothi	74	0.01
52	370	SDf7c1	Masrur-Darot-Deothi	39	0.01
53	371	ALn4e1	Bharmar-Bagh	46	0.01
54	372	CGn7a1	Love-Ladret-Kangra	89	0.02
55	373	CGx4c1	Malan-Love	168	0.03
56	374	Alh5e1	Bharmar-Bagh	244	0.04
57	375	ALn1e1	Bharmar-Bagh	848	0.15
58	376	Aln1e2	Bharmar-Bagh	309	0.05
59	377	CMx3a2	Malan	274	0.05
60	378	SDn9c1	Kangra-Chamba border Hills-Basa Sughwalan	5188	0.9
61	379	SDx3c1	Tangh-Ladwada	203	0.04
62	380	SDx2b1	Tangh-Ladwada	102	0.02
63	382	ALb4a1	Bharmar-Vantungli Katholi	2186	0.38
64	383	Alb3d1	Bharmar- Dehra Gopipur	176	0.03
65	384	CMn9c1	Harser-Kangra	3817	0.66
66	385	CMx5d1	Malan-Love	4252	0.74
67	386	SDn9d1	Kangra-Chamba border Hills-Below Paror Rly	383	0.07
68	387	SDx3d1	Ladwada	285	0.05
69	388	CMi2a1	Malan	147	0.03
70	389	CMn9d1	Kangra-Harser	265	0.05
71	390	ALb2a1	Vantungli Katholi- Dehra Gopipur - Bharmar	88	0.02

Sl. No.	Mapping Symbol	Mapping Unit	Series Association	Area (ha)	Area (%)
72	1309	SDx5a1	Ladwada-1-Tangh-1	1075	0.19
73	1310	SDx5a2	Ladwada-1-Tangh-1	596	0.1
74	1311	CMx5a1	Malan-1-Love-1	681	0.12
75	1318	SDx3a1	Tangh-1-Ladwada-1	1936	0.34
76	1321	SDn7c1	Darot-1-Ronah-1-Deothi-1	3784	0.66
77	1324	SDn7d2	Masrur-1-Deothi-1	38	0.01
78	1327	ALb2b1	Dehra Gopipur -1-Vantungli Katholi-1	4508	0.78
79	1329	ALb2b1	Dehra Gopipur -1-Bharmar-1	743	0.13
80	1330	Alb2b2	Dehra Gopipur -1-Bharmar-1	1220	0.21
81	1332	ALn2a1	Bharmar-1-Bagh-1	53	0.01
82	1337	CMx3a1	Malan-1	1923	0.33
83	1338	CMn7c1	Love-1-Ladret-1	2032	0.35
84	1340	CMn7d1	Ladret-1-Love-1	29	0.01
85	1344	CMn9b1	Harser-1-Kangra-1	15338	2.67
86	1345	SLf9c1	Chambaghat-1-Jatoli-1	67	0.01
87	1347	SLx5a1	Kiar-1-Gamrola-1-Solan-1	158	0.03
88	1350	SLf9c2	Jatoli-1-Chambaghat-1	12228	2.13
89	1351	SDf9a1	Kangra-Chamba border Hills-1-Basa Sughwalan-1	105	0.02
90	1352	SDf9a2	Kangra-Chamba border Hills-1-Basa Sughwalan-1	84	0.01
91	1353	SLf9a1	Gamrola-1-Bilaspur-1	495	0.09
92	1354	SLf9a2	Bilaspur-1-Gamrola-1	629	0.11
93	1360	ALb3a1	Dehra Gopipur -1-Bagh-1	125	0.02
94	1364	SDn7a1	Pandhwar-1-Ronah-1-Sanaur-1	450	0.08
95	1366	SDf9d1	Kangra-Chamba border Hills-1	495	0.09
96	1367	SDf9c1	Kangra-Chamba border Hills-1-Basa Sughwalan-1	24480	4.26
97	1368	SDf7c1	Masrur-1-Deothi-1	164	0.03
98	1369	SLf9d1	Silru-1-Chambaghat-1-Devghara-1	3635	0.63
99	1370	SDf7c1	Masrur-1-Darot-1-Deothi-1	700	0.12
100	1379	SDx3c1	Tangh-1-Ladwada-1	168	0.03
101	1381	SLx2a1	Kiar-1-Gamrola-1	196	0.03
102	8282	Snow cover/cloud cover data		95974	16.7
103	9898	Habitation		3113	0.54
104	9999	Water bodies		41501	7.22
Total				574763	100.00

6. Spatial Extent of Landscape/Physiography Classes

Landscape	Physiography	Area (ha)	Area (%)
Alluvium	Alluvial plains	84929	14.78
Alluvium	Dissected stream banks	244	0.04
Alluvium	Flood plains	5879	1.02
Alluvium	Point bar complex	2575	0.45
Complex geology	Piedmont planes	5015	0.87
Complex geology	Undifferentiated mountain side	22258	3.87
Conglomerate	Piedmont planes	33182	5.77
Conglomerate	Plateau plains / hill tops / mesa	147	0.03
Conglomerate	Undifferentiated mountain side	85563	14.89
Sandstone	Piedmont planes	31296	5.45
Sandstone	Undifferentiated mountain side	145202	25.26
Slate	Piedmont planes	679	0.12
Slate	Undifferentiated mountain side	17206	2.99
Snow cover/cloud cover data		95974	16.7
Miscellaneous area		44614	7.76
Total		574763	100.00

7. Spatial Extent of Slope Classes

Slope classes and code	Slope Range	Area(ha)	Area(%)
Nearly level (1)	0-1%	18126	3.15
Nearly level to very gently sloping (2)	1-3%	55317	9.62
Very gently sloping to gently sloping (3)	1-5%	64541	11.23
Gently sloping to moderate sloping (4)	3-10%	4952	0.87
Moderately sloping to strongly sloping (5)	5-15%	23978	4.17
Strongly sloping to moderately steep (6)	10-25%	3569	0.62
Moderately steep to steep sloping (7)	15-33%	193242	33.62
Very steep to extremely steep (9)	33-50% and above	70450	12.26
Snow cover/cloud cover data		95974	16.7
Miscellaneous area		44614	7.76
TOTAL		574763	100.00

8. Spatial Extent of Major Land Use/ Land Cover

Major Land Use	Area (ha)	Area (%)	
Agriculture (a)	159620	27.78	
Plantation	23283	4.05	
Forest (c)	187113	32.55	
Open scrub (d)	62672	10.90	
Barren land	1487	0.26	
Snow cover/cloud cover data		95974	16.7
Miscellaneous area		44614	7.76
TOTAL	574763	100.00	

9. Spatial Extent of Soil Erosion Classes

Erosion	Area (ha)	Area (%)
None to slight water erosion (e1)	200726	34.92
Slight to moderate erosion (e1-e2)	60702	10.56
Moderate water erosion (e2)	93628	16.29
Moderate to severe erosion (e2-e3)	65433	11.38
Severe to Very severe erosion (e3-e4)	13686	2.38
Snow cover/cloud cover data	95974	16.7
Miscellaneous area	44614	7.76
TOTAL	574763	100.00

10. Spatial Extent of Land Capability Classes

Land Capability Classes (LCC)	Area (ha)	Area (%)
Land Capability Class - II	61219	10.65
Land Capability Class – II-III	2488	0.43
Land Capability Class - III	76753	13.35
Land Capability Class - III-IV	7201	1.25
Land Capability Class - IV	36689	6.38
Land Capability Class - VI	8820	1.53
Land Capability Class - VII	53892	9.38
Forest	187113	32.55
Snow cover/cloud cover data	95974	16.7
Miscellaneous area	44614	7.76
TOTAL	574763	100.00

11. Soils of the area have been classified under three Orders i.e. Alfisols, Entisols and Inceptisols and all the fifty three Soil Series identified in the area have been further classified into three Suborders; four Great Groups; seven Subgroups and twenty four Families.