

Detailed Soil Survey and Land use Plan of 4D4C6b5, b6, b7, b8, c1, c2, c3, c4, c5, d1, d2, d3, f1, f2, f3, g4, g5, h1, h2, h3, h4, j1, j2, j3, j4, j5 micro watersheds of 4D4C6 watershed in 4D4C Subcatchment under 4D4 Catchment (Tungabhadra) (RVP) in Taluk-Harihar, Honnali and Channagiri, District-Davangere and Taluk-Bhadravati, District-Shimoga, Karnataka State Using Remote Sensing Techniques

ABSTRACT

1. Surveyed area : 4D4C6b5, b6, b7, b8, c1, c2, c3, c4, c5, d1, d2, d3, f1, f2, f3, g4, g5, h1, h2, h3, h4, j1, j2, j3, j4, j5 micro watersheds of 4D4C6 watershed in 4D4C Subcatchment under 4D4 Catchment (Tungabhadra) (RVP) Harihar, Honnali & Channagiri Taluks Davangere District and Bhadravati Taluk, Shimoga District, Karnataka State
2. Geographical extent : 14° 00' to 14° 23' N latitude and 75°32' to 75°51' E longitude
3. Total area surveyed : 29761 ha
4. Kind of survey : Detailed Soil Survey using Remote Sensing Techniques.
5. Period of survey : February, 2013 to March, 2013
6. Base map used : Enlarged Toposheets on 1:12,500 scale and High Resolution Satellite Imageries.
7. Toposheet Number : 48N/11, 48N/12, 48N/15, and 48N/16.
8. Agro-climatic zone : 10 (Southern Plateau and Hill region)

9. Area & Priority status of subwatersheds/ microwatersheds surveyed*

Sl.No	Sub watershed	Microwatersheds	Area in (ha)	Priority category
1	Tm1d	4D4C6b5, b6, b7, b8	5296	High
2	Tm1f	4D4C6c1, c2	2176	Very High
3	Tm1g	4D4C6c3,c4,c5	3957	Very High
4	Tm2a	4D4C6d1, d2, d3	2637	Very High
5	Tm2b	4D4C6f2, f3	3737	Very High
6	Tm2d	4D4C6g4, g5	3618	High
7	Tm3a	4D4C6h1, h2,h3, h4	5106	High
8	Tm3b	4D4C6j1, j2 (part), j4, j5	3234	High
		Total	29761	

* Report No. 907

10. Mapping unitwise distribution of area (ha) under different Microwatersheds *

SMU	Microwatersheds																									Area(ha)	Percentage	
	4D4C6b5	4D4C6b6	4D4C6b7	4D4C6b8	4D4C6c1	4D4C6c2	4D4C6c3	4D4C6c4	4D4C6c5	4D4C6d1	4D4C6d2	4D4C6d3	4D4C6f1	4D4C6f2	4D4C6f3	4D4C6g4	4D4C6g5	4D4C6h1	4D4C6h2	4D4C6h3	4D4C6h4	4D4C6j1	4D4C6j2	4D4C6j3	4D4C6j4			4D4C6j5
AG3h G3GSR	160	136	144	28		58	9	101	335	21	77	118	131	59	139	54	46	68	112	179	113	70	21	5	94	89	2367	8.0
AG3h H3GSR	42	429	153	352	115	190		4	14	40	159	248	107	67	64		152	76	172	283	342	43	62	0	96	174	3384	11.4
AP3h E3GS	0	0	154	92	47	53	40	44	221	146	91	93	150		42	46	90	67	49	114	25	76	0	0	30	53	1723	5.8
AP3h F3GS	0	0	16	0		22	28	69	38		102	150	38	5	116	158	134	0	0	0	0	0	0		18	2	896	3.0
AR5hB2	0	0	0	0	142	14	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209	0.7
AR5hC2	0	0	0	0	62	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	107	0.4
BR5hB2	0	0	53	30	68	0	0	0	0	0	22	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	202	0.7
BR5hC(B)1	0	0	13	59	0	0	77	23	192	112	88	39	285	250	92	69	196	151	129	199	3	157	0	0	0	65	2199	7.4
BR5hC2	34	0	152	84	7	137	173	13	133	154	192	99	54	55		204	342	114	16	133	0	0	0	0	0	20	2116	7.1
BV2h E3GS	0	0	38	55	0	0	0	0	0	0	0	0	14	130	34		21	0	0	0	0	0	0	0	0	0	292	1.0
BV2h F3GS	0	0	0	0	0	0	0	0	0	0	0	0	0	214	70	3	22	0	0	0	0	0	0	0	0	0	309	1.0
GG5hD2GS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		194	340	0	0	0	36	72	642	2.2
GG5hD3	0	81	0	35	0	69	0	0	0	0	0	0	0	0	0	0	0	0	192		34	0	0	0	0	72	483	1.6
HS5hB1	0	0	89	2	177		318	0	0	142	0	81	273	0	0	562	2	671	14	14		270	214	41	208	153	3231	10.9
HS5hB2	0	0	54		256	25	369	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	712	2.4
HS5hC2	521	0	253	6	3		28	0	0	0	0	0	18			186	49	58		0	0	0	0	0	103	0	1225	4.1
KG5hD3	0	0	81	290		200	0	102	0	0	18	54		87	160	64	393	100	238	167	9	71	46	13	364	400	2857	9.6
KM5hB2	0	0	0	0	49		16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	0.2
KU3hC2	0	0	21	0	0	79	82	6	51	0	9		53	1	7			0	0	0	0	0	0	0	0	0	309	1.0
KU3hC2GS	28	0	46	87	0	0	399	11	69	23	92		18		56	247	79	0	0	0	0	0	0	0	0	0	1155	3.9
KU3hD3GS	0	0	0	0	0	0	0	1	151	131				15	13	21		0	0	0	0	0	0	0	0	0	332	1.1
NG3hC2GS	0	0	0	0	0	0	0	0	0	0	2	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0.3
NG3hD3GS	0	0	0	0	0	0	0	0	0	0		22	0	0	0	0	92	0	0	0	0	0	0	0	0	0	114	0.4
TD3h E3GS	49	125	14	65	0	0	0	0	0	0	47	7	13	0	0	0	32	0	42		93	22	0	0	18	12	539	1.8
TD3h F3GSR	130	62	28	4	0	324	0	215	37	0		2	2	14	0	0	9	2	38	24	237	0	0	0	33	0	1161	3.9
TH3h C3GS	0	0	89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	0.3
TH3h D3GS	260	4	190	188	65	52	57	100	0	21	78	131	118	425	237	13	0	0	62	21	0	0	0	0	0	0	2022	6.8
TK2h G3GS	0	0	0	0	0	0	0	0	0	0	1	57	51	0	0	0	110		82		0	0	0	0	0	0	301	1.0
Habitations	21	0	30	5	42	7	42		15	2	14	20	9	0	13	69	33	51		1	0	12	1	7	13	16	423	1.4
Tank	1	10	27	0	0	0	12	22	22	0	0	10	0	30	2	0	13	3	8	5	23	10	0	0	0	6	204	0.7
Total	1246	847	1645	1382	1033	1230	1703	711	1278	792	992	1251	1379	1352	1045	1696	1815	1361	1154	1334	1219	731	352	66	1013	1134	29761	100

* As per the Microwatershed atlas of Karnataka

11. Series wise distribution of area (ha.) under different land capability units

LCC	Soil Series														Area
	Agradahalli	Alasapur	Arakeri	Bairanahalli	Bevinahalli	Gudumghatta	Hanchina siddapur	Kanchugarana halli	Kotemallur	Kundur	Niralagund	Tadasa	Taraganahalli	Tyagadakatte	
F	5751	0	0	0	0	1125	0	0	0	0	0	1700	0	0	8576
IIs-1	0	0	0	0	0	0	3231	0	0	0	0	0	0	0	3231
IIs-2	0	0	0	2199	0	0	0	0	0	0	0	0	0	0	2199
IIses-1	0	0	209	202	0	0	712	0	0	0	0	0	0	0	1123
IIIes-1	0	0	107	2116	0	0	1225	0	0	0	0	0	0	0	3448
IIIes-2	0	0	0	0	0	0	0	0	0	1464	93	0	0	0	1557
IVes-1	0	0	0	0	0	0	0	0	65	0	0	0	0	0	65
IVes-2	0	0	0	0	0	0	0	0	0	332	114	0	2111	0	2557
IVes-3	0	0	0	0	0	0	0	2857	0	0	0	0	0	0	2857
VIIes-1	0	0	0	0	292	0	0	0	0	0	0	0	0	301	593
VIIes-2	0	2619	0	0	309	0	0	0	0	0	0	0	0	0	2928
Misc															627
Total	5751	2619	316	4517	601	1125	5168	2857	65	1796	207	1700	2111	301	29761

12. Salient features:-

- a Major geology of the surveyed area is Greywacke/Shale and Greywacke/ Schist complex followed by Alluvium/Colluviums.
- b. Majority of the surveyed area comprises of moderately deep soils 14184 Ha. (47.65%) and very deep soils 14048 Ha.(47.20%) followed by shallow soils 902 Ha (3.04.%).
- c. Nearly 24.5% of the surveyed area is under gently sloping lands with 21.68% under moderately sloping and 14.87% under very gently sloping lands.
- d. Nearly 58% of the survey area is under severe erosion, while 21.37% is under slight and 18.53% under moderate erosion.
- e. Majority of the area is under Land Capability Class IIIes-1 (3448 Ha) followed by Class IIs-1 (3231Ha) whereas 8576 Ha is under forest.

HOW TO USE SOIL SURVEY REPORT

This report on 4D4C6b5, b6, b7, b8, c1, c2, c3, c4, c5, d1, d2, d3, f1, f2, f3, g4, g5, h1, h2, h3, h4, j1, j2, j3, j4, j5 micro watersheds of 4D4C6 watershed in 4D4C Subcatchment under 4D4 Catchment (Tungabhadra) (RVP) in Harihar, Honnali and Channagiri Taluks of Davangere District and Bhadravati Taluk of Shimoga District, Karnataka contains detailed information about the soils of the area. This information is for various purposes including development of strategies for sustainable agro-production system development for the area. This report provide information on soil for planning cropping schedules, soil and water management programmes including soil conservation practices. The requisite information for desired locality could be obtained from the report as follows:

First, the user needs to locate the area of interest on soil map appended with this report and note the soil-mapping units enclosed by the soil boundary. This identification is done with the help of permanent features like roads, ponds, streams, village site, revenue survey number of the field, etc.

On the soil map, area covered by a soil-mapping unit is marked by a mapping symbol. Each of the soil-mapping unit refers to a particular kind of soil type and its related properties eg. soil depth, surface texture, slope, erosion, gravelliness, stoniness, rockiness. A soil mapping unit having mapping symbol, KG5RD3 indicates:

- a) Abbreviated name of soil series 'KG' for Kanchagarnahalli
- b) Soil depth '5' for very deep soil depth (more than 100 cm)
- c) Soil texture 'r' for clay surface texture
- d) Slope class 'D' for 5-10% slope and
- e) Erosion class '3' for severe erosion

Detailed information on soil series, profile description and other related soil characteristics is given in **Chapter 4** entitled "Soils of the Area" and in "Description of representative pedons" in **Appendix II**. Soil classification of the soils of the area is done according to the "Soil Taxonomy" (USDA) 1999 and has been provided in **Table 11**.

In **Appendix III** entitled "**Checklist of mapping units under different micro-watersheds**" information on the soil mapping units mapped in the area vis a vis , physiographic position, predominant slope, present land use, soil conservation measures adopted and land capability is given.

In **Appendix I**, entitled as "Guide to soil mapping units" multipurpose interpretation of each soil mapping unit is presented. Mapping units mapped in the surveyed area have been listed

along with respective description. Furthermore this provides information on area of mapping unit in each subwatershed followed by the interpretation with respect of land capability units, soil and land irrigability classification, paddy soil grouping and hydrological soil groupings. This table readily provides information on soil and land characteristics and their use potential at a glance thus can be very helpful.

In Chapter 6.0 section 6.1 on land capability classification, two types of problems viz. 1) Inherent problem and 2) improvable problem /correctable problems have been listed for each of the land capability unit mapped along with the recommendations for soil conservation, treatment needs and crop production. These recommendations are brief and suggestive but are adequate for broad level watershed management planning. For specific planning and potential for a particular land use of any site or area of interest the user agencies can use their local experiences and knowledge about the area and may make necessary modifications as warranted. General recommendations for the soil and water conservation have been given in **Chapter 7** “General recommendations for soil conservation and crop production”.

For any suggestion, comment, or clarification further correspondence/personal contact may be established with

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