

## सारांश/ ABSTRACT

1.	सर्वेक्षित क्षेत्र  <b>Surveyed area</b>	:	पोनायर जलग्रहण (आर. वी. पी.) 4सी1इ1 एवं 4सी1इ7 क्षेत्र के सुक्ष्मजलग्रहण क्षेत्र 4सी1इ1एम5, एम6, एम7, एम8, एम9, एन1, एन2, पी1, पी2 एवं 4सी1इ7ए6, सी1, सी2, डी2, डी3, डी4, एफ1, एफ3; होसुर तालुका, कृष्णागिरी जिला (तामिल नाडु) तथा मालुर तालुका, कोलार जिला (कर्नाटक)  4C1E1m5, m6, m7, m8, m9, n1, n2 , p1, p2 and 4C1E7a6, c1, c2, d2, d3, d4, f1, f3 Micro-watersheds of 4C1E1&7 watersheds in 4C1E Sub-catchment under 4C1 Catchment (Ponnaiyar catchment -RVP) in Taluk Hosur of Krishnagiri District, Tamil Nadu and Taluk Malur of Kolar District, Karnataka
2.	भौगोलिक सीमा  <b>Geographical extent</b>	:	12° 39 '12" से 12° 51' 00" उत्तरअक्षांश 77° 56' 07" से 78° 06 '48" पूर्व देशांतर  12° 39' 12" to 12° 51' 00" N latitude and 77° 56' 07" to 78° 06' 48" E longitude
3.	कुल मान चित्रित तथा रिपोर्ट किया गया क्षेत्रफल <b>Total area surveyed</b>	:	22,927 हैक्टर  22, 927 hectare
4.	सर्वेक्षण का प्रकार <b>Kind of survey</b>	:	सुंदूर संवेदन तकनीकी का उपयोग से विस्तृत मृदा सर्वेक्षण Detailed Soil Survey using Remote Sensing Techniques.
5.	सर्वेक्षण की अवधि <b>Period of survey</b>	:	नवंबर, 2015 से फरवरी, 2016 November'2015 to February' 2016
6.	आधार मानचित्र <b>Base map used</b>	:	उच्च रिज़ोलुशन उपग्रह चित्र (मापक 1:10000) एवं टोपोशीट (मापक 1:50000) Enlarged Toposheets on 1:10, 000 scale and High Resolution Satellite Imageries (Resourcesat-1).
7.	टोपोशीट क्रमांक <b>Toposheet Number</b>	:	57एच/13, 57एच/14, 57एल/01 एवं 57एल/02 57H/13, 57H/14, 57L/01 and 57L/02
8.	कृषि जलवायु क्षेत्र <b>Agro-climatic zone</b>	:	10-दक्षिण का पठार और पहाड़ी क्षेत्र X- Southern Plateau and Hill region

9. विभिन्न सुक्ष्मजल ग्रहण क्षेत्र के अंतर्गत मृदा श्रेणियों का क्षेत्रफल (हेक्टेयर) / Series wise distribution of area (ha) under different Micro-watersheds

मृदा श्रेणियाँ / Soil Series	सुक्ष्मजल ग्रहण क्षेत्र / Micro-watersheds																
	4सी1इ1एम5 4C1E1m5	4सी1इ1एम6 4C1E1m6	4सी1इ1एम7 4C1E1m7	4सी1इ1एम8 4C1E1m8	4सी1इ1एम9 4C1E1m9	4सी1इ1एन1 4C1E1n1	4सी1इ1एन2 4C1E1n2	4सी1इ1पी1 4C1E1p1	4सी1इ1पी2 4C1E1p2	4सी1इ7ए6 4C1E7a6	4सी1इ7सी1 4C1E7c1	सी1इ7सी2 4C1E7c2	सी1इ7डी2 4C1E7d2	सी1इ7डी3 4C1E7d3	सी1इ7डी4 4C1E7d4	सी1इ7एफ1 4C1E7f1	सी1इ7एफ3 4C1E7f3
अथिमुगम/Athimugam	460	380	126	438	389	300	367	99	472	391	15	130	71	117	222	165	100
भोगापुरम/Bhogapuram	118	20	163	18	47	132	57	107	0	305	203	180	472	185	26	0	0
इलुवापल्ली/Eluvapalli	197	188	137	197	62	115	273	61	182	163	58	161	8	57	83	20	148
गुत्ती/Guthi	0	0	0	0	1	0	0	0	0	0	91	605	165	0	0	0	0
कलिंगवरम/Kalingavaram	201	244	218	291	140	564	343	423	26	254	221	448	489	577	121	400	263
सोकानाथापुरम/Sokkanathapuram	0	17	0	0	7	0	9	29	200	0	0	19	0	0	0	32	63
सोललदिने/Solaladinne	459	109	285	270	192	599	531	319	322	67	22	369	110	253	632	641	491
अन्य /Misc	353	43	71	84	61	139	101	93	158	161	346	197	118	79	193	95	118
<b>कुल क्षेत्रफल/ Total Area</b>	<b>1788</b>	<b>1001</b>	<b>1000</b>	<b>1298</b>	<b>899</b>	<b>1849</b>	<b>1681</b>	<b>1131</b>	<b>1360</b>	<b>1341</b>	<b>956</b>	<b>2109</b>	<b>1433</b>	<b>1268</b>	<b>1277</b>	<b>1353</b>	<b>1183</b>

10. विभिन्न मृदा श्रेणियों के अंतर्गत भूमि क्षमता वर्ग का क्षेत्रफल (हेक्टेयर)/ Series wise distribution of area (ha) under different Land Capability Classes

Series Name	Land Capability Units												Forest	Misc	Total area	Area (%)	
	II-1	IIe-1	IIe-2	IIIes-1	IIIes-2	IIIs-1	IVes-1	IVes-2	IVes-3	IVes-4	IVs-1	VIes-1					
Athimugam	0	0	0	372	3628	242	0	0	0	0	0	0	0	0	0	4242	18.43
Bhogapuram	0	0	0	0	0	0	0	0	0	0	0	0	2033	0	0	2033	8.8
Eluvapalli	70	1753	287	0	0	0	0	0	0	0	0	0	0	0	0	2110	9.17
Guthi	0	0	0	0	0	0	0	0	0	0	0	0	0	862	0	862	3.74
Kalingavaram	0	0	0	0	0	0	0	0	3009	2214	0	0	0	0	0	5223	22.74
Sokkanathapuram	95	219	62	0	0	0	0	0	0	0	0	0	0	0	0	376	1.64
Solaladinne	0	0	0	0	0	0	67	5434	0	0	170	0	0	0	0	5671	24.72
Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2410	2410	10.44
<b>Total</b>	<b>165</b>	<b>1972</b>	<b>349</b>	<b>372</b>	<b>3628</b>	<b>242</b>	<b>67</b>	<b>5434</b>	<b>3009</b>	<b>2214</b>	<b>170</b>	<b>2033</b>	<b>862</b>	<b>2410</b>	<b>22927</b>	<b>100.00</b>	
<b>Area (%)</b>	<b>0.72</b>	<b>8.60</b>	<b>1.52</b>	<b>1.62</b>	<b>15.82</b>	<b>1.06</b>	<b>0.29</b>	<b>23.70</b>	<b>13.12</b>	<b>9.66</b>	<b>0.74</b>	<b>8.87</b>	<b>3.76</b>	<b>10.51</b>	<b>88.77</b>		

11. विभिन्न सुक्ष्मजल ग्रहण क्षेत्र के अंतर्गत भूमि क्षमता वर्ग का क्षेत्रफल (हेक्टेयर) / Micro-watersheds wise distribution of area (ha) under different Land Capability Classes

Micro-watersheds	Land Capability Units												Forest	Misc.	Total area	Area (%)
	II-1	Ile-1	Ile-2	IIIs-1	IIIs-2	IIIs-1	IVes-1	IVes-2	IVes-3	IVes-4	IVs-1	Vles-1				
4C1E1m5	18	179	0	17	435	8	0	459	137	64	0	118	0	353	1788	7.71
4C1E1m6	17	153	35	36	344	0	0	101	222	22	8	20	0	43	1001	4.34
4C1E1m7	0	137	0	16	110	0	0	285	70	148	0	163	0	71	1000	4.34
4C1E1m8	0	163	34	83	320	35	0	270	225	66	0	18	0	84	1298	5.65
4C1E1m9	0	69	0	63	314	12	0	176	123	17	16	47	1	61	899	3.9
4C1E1n1	13	102	0	8	292	0	0	499	341	223	100	132	0	139	1849	8.05
4C1E1n2	9	189	84	54	275	38	28	481	232	111	22	57	0	101	1681	7.31
4C1E1p1	5	37	48	3	96	0	20	279	202	221	20	107	0	93	1131	4.92
4C1E1p2	103	257	22	18	323	131	0	318	16	10	4	0	0	158	1360	5.96
4C1E7a6	0	163	0	16	375	0	0	67	124	130	0	305	0	161	1341	5.81
4C1E7c1	0	0	58	0	15	0	0	22	118	103	0	203	91	346	956	4.17
4C1E7c2	0	133	47	0	130	0	0	369	172	276	0	180	605	197	2109	9.21
4C1E7d2	0	8	0	6	65	0	0	110	290	199	0	472	165	118	1433	6.24
4C1E7d3	0	57	0	0	117	0	0	253	312	265	0	185	0	79	1268	5.46
4C1E7d4	0	83	0	52	165	5	0	632	62	59	0	26	0	193	1277	5.51
4C1E7f1	0	52	0	0	165	0	19	622	154	246	0	0	0	95	1353	5.95
4C1E7f3	0	190	21	0	87	13	0	491	209	54	0	0	0	118	1183	5.15
<b>Total</b>	<b>165</b>	<b>1972</b>	<b>349</b>	<b>372</b>	<b>3628</b>	<b>242</b>	<b>67</b>	<b>5434</b>	<b>3009</b>	<b>2214</b>	<b>170</b>	<b>2033</b>	<b>862</b>	<b>2410</b>	<b>22927</b>	
<b>Area (%)</b>	<b>0.72</b>	<b>8.60</b>	<b>1.52</b>	<b>1.62</b>	<b>15.82</b>	<b>1.06</b>	<b>0.29</b>	<b>23.70</b>	<b>13.12</b>	<b>9.66</b>	<b>0.74</b>	<b>8.87</b>	<b>3.76</b>	<b>10.51</b>	<b>100.00</b>	

**12. विभिन्न सुक्ष्मजल ग्रहण क्षेत्र के अंतर्गत मृदा गहराई वर्ग, मृदा ढलान एवं भू-क्षरण वर्ग का क्षेत्रफल (हेक्टेयर)/ Micro-watershed Wise Distribution of area (ha) under Different Depth, Slope and Erosion Classes**

SI No	Micro-watersheds	Depth			Slope							Erosion			Misc	Total area
		d2	d3	d5	B	C(A)	C	D	G	E	F	e1	e2	e3		
1	4C1E1m5	778	460	197	196	26	894	201	0	118	0	26	1227	182	353	1788
2	4C1E1m6	373	380	205	189	25	480	244	0	20	0	25	891	42	43	1001
3	4C1E1m7	666	126	137	153	0	395	218	0	163	0	0	618	311	71	1000
4	4C1E1m8	579	438	197	246	35	624	291	0	18	0	35	1095	84	84	1298
5	4C1E1m9	380	389	69	132	28	490	140	1	47	0	28	745	65	61	899
6	4C1E1n1	1295	300	115	110	113	791	564	0	132	0	113	1242	355	139	1849
7	4C1E1n2	931	367	282	271	69	840	343	0	57	0	69	1343	168	101	1681
8	4C1E1p1	849	99	90	60	25	423	423	0	107	0	25	685	328	93	1131
9	4C1E1p2	348	472	382	275	238	663	26	0	0	0	238	954	10	158	1360
10	4C1E7a6	626	391	163	179	0	442	254	0	270	35	0	745	435	161	1341
11	4C1E7c1	537	15	58	0	0	95	221	91	139	64	0	213	397	346	956
12	4C1E7c2	1602	130	180	133	0	546	448	605	180	0	0	851	1061	197	2109
13	4C1E7d2	1236	71	8	14	0	175	489	165	351	121	0	479	836	118	1433
14	4C1E7d3	1015	117	57	57	0	370	577	0	185	0	0	739	450	79	1268
15	4C1E7d4	779	222	83	135	5	797	121	0	26	0	5	994	85	193	1277
16	4C1E7f1	1041	165	52	71	0	787	400	0	0	0	0	1012	246	95	1353
17	4C1E7f3	754	100	211	190	13	599	263	0	0	0	13	998	54	118	1183
	<b>Total</b>	<b>13789</b>	<b>4242</b>	<b>2486</b>	<b>2411</b>	<b>577</b>	<b>9411</b>	<b>5223</b>	<b>862</b>	<b>1813</b>	<b>220</b>	<b>577</b>	<b>14831</b>	<b>5109</b>	<b>2410</b>	<b>22927</b>
	<b>% area</b>	<b>60.14</b>	<b>18.50</b>	<b>10.84</b>	<b>10.52</b>	<b>2.52</b>	<b>41.05</b>	<b>22.78</b>	<b>7.91</b>	<b>0.96</b>	<b>3.76</b>	<b>2.52</b>	<b>64.69</b>	<b>22.28</b>	<b>10.51</b>	<b>100.00</b>

### 13. Physico-Chemical properties of Soil

S. No.	Series Name	Range of pH		Range of EC		Range of ESP		Calcium carbonate		Range of Organic carbon (OC)		Area (ha)
		Value	Severity Class	Value $\text{dsm}^{-1}$	Severity Class	Value (%)	Severity Class	Value (%)	Severity Class	Value (%)	Class	
1	<b>Athimugam</b>	4.60-5.45	Acidic	0.02-0.12	Normal	0.72-1.92	Non Saline/sodic	Nil	Non calcareous	0.14-0.48	Very low to low	<b>4242</b>
2	<b>Bhogapuram</b>	5.46	Acidic	0.09	Normal	1.60	Non Saline/sodic	Nil	Non calcareous	1.04	Very high	<b>2033</b>
3	<b>Eluvapalli</b>	5.1-6.6	Acidic to Neutral	0.04-0.1	Normal	1.3-2.7	Non Saline/sodic	Nil	Non calcareous	0.2-0.5	Very low to low	<b>2110</b>
4	<b>Guthi</b>	5.1-5.8	Acidic	0.03-0.1	Normal	1.2-1.7	Non Saline/sodic	Nil	Non calcareous	0.7-1.6	Medium to very high	<b>862</b>
5	<b>Kalingavaram</b>	5.8-6.1	Acidic to Neutral	0.02-0.03	Normal	1.5-2.1	Non Saline/sodic	Nil	Non calcareous	0.5-0.6	Low to medium	<b>5223</b>
6	<b>Sokkanathapuram</b>	6.9-7.3	Neutral	0.04-0.1	Normal	0.8-2.0	Non Saline/sodic	1.1-1.4	Non calcareous	0.2-1.0	Very low to high	<b>376</b>
7	<b>Solaladinne</b>	4.3-6.7	Very acidic to Neutral	0.02-0.1	Normal	0.6-2.9	Non Saline/sodic	Nil	Non calcareous	0.2-0.4	Very low to low	<b>5671</b>
Miscellaneous												<b>2410</b>
<b>Total</b>												<b>22927</b>

**Source-** pH, EC, OC, ESP rating criteria as per SLUSI working manual for soil analysis

#### 14. मुख्य विशेषताएं/ Salient features

- a. सर्वेक्षित क्षेत्र के मुख्य परिदृश्य ग्रानाइट नीस (18407 हेक्टेयर) एवं जलोढ मिट्टी (2110 हेक्टेयर) हैं।

Major landscape of the surveyed area is Granite Gneiss (18407 ha) and Alluvium geology (2110 ha) of the total surveyed area

- b. कुल सर्वेक्षित क्षेत्र में 13789 हेक्टेयर (60.14 प्रतिशत) ऊथल मिट्टी है; 4242 हेक्टेयर (18.5 प्रतिशत) क्षेत्र में मध्यम गहरी पाई गयी है एवं 2486 हेक्टेयर (10.84 प्रतिशत) क्षेत्र बहुत गहरी मिट्टी से आच्छादित है।

Majority of the surveyed area comprises of Shallow Soils having 13789 ha (60.14 %) and moderately deep soils showing 4242 ha (18.5 %) followed by Very Deep Soils 2486 ha (10.84 %).

- c. कुल सर्वेक्षण क्षेत्र 9411 हेक्टेयर (41.05 प्रतिशत) 3-5% ढलान में आता है। 5223 हेक्टेयर (22.78 प्रतिशत) 5-10% ढलान वाली भूमि हैं। लगभग 2411 हेक्टेयर (10.52 प्रतिशत) 1-3% ढलान भूमि के अंतर्गत तथा 1813 हेक्टेयर (7.91 प्रतिशत) 10-15 % ढलान से प्रभावित हैं।

Out of total surveyed area 9411 ha (41.05%) is having 3-5% slope gradient, an area 5223 ha (22.78%) is having 5-10% slope gradient, and an area 2411 ha (10.52%) is having 1-3% slope gradient and the slope gradient 10-15% occupies 1813 ha (7.91%).

- d. कुल सर्वेक्षण किया क्षेत्र का लगभग 14831 हेक्टेयर (64.69 %) क्षेत्र मध्यम भू-क्षरण से प्रभावित है और 5109 हेक्टेयर (22.28%) भूमि तिव्र भू-क्षरण से प्रभावित है।

Nearly 14831 ha (64.69 %) out of total surveyed area is affected by moderate erosion hazard whereas an area of 5109 ha (22.28 %) is affected by severe erosion hazard.

- e. क्षेत्र में अधिकांश भूमि क्षमता कक्षा-IV 10724 हेक्टेयर (46.77 प्रतिशत) के अंतर्गत है तथा भूमि क्षमता वर्ग- III में 4242 हेक्टेयर (18.50 %) और 2203 हेक्टेयर क्षेत्र (9.61 प्रतिशत) भूमि क्षमता कक्षा-VI में फेली हुई है।

Majority of the area is under Land Capability Class-IV which is 10724 ha (46.77 %) followed by Land Capability Class-III with coverage of 4242 ha (18.50%) whereas 2203 ha (9.61 %) is under Land Capability Class-VI.

## HOW TO USE SOIL SURVEY REPORT

This report on Detailed Soil Survey and Land use Plan of 4C1E1m5, m6, m7, m8, m9, n1, n2, p1, p2 and 4C1E7a6, c1, c2, d2, d3, d4, f1, f3 Micro-watersheds of 4C1E1&7 watersheds in 4C1E Subcatchment under 4C1 Catchment (Ponnaiyar catchment -RVP) in Taluk Hosur of Krishnagiri District, Tamil Nadu state and Taluk Malur of Kolar District, Karnataka State 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 e.g. Soil depth, surface texture, slope, erosion, gravelliness, stoniness, rockiness. A soil mapping unit having mapping symbol, EV5kC2 indicates:

- a) Abbreviated name of soil series 'EV' for Elluvapalli
- b) Soil depth '5' for very deep soil depth (more than 100 cm)
- c) Soil texture 'k' for sandy clay loam surface texture
- d) Slope class 'C' for 3-5% slope and
- e) Erosion class '2' for moderate 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) 2014 and has been provided in **Table 10**.

In **Appendix III** entitled “**Village mapping units list under different micro-watersheds**” information on the soil mapping units mapped in the area vis a vis, physiographic position, predominant slope, soil conservation measures adopted and land capability is given.

In Chapter 7.0 section 7.1 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 8** “specific problems and recommendations”.

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

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