

Consultancy Contract for WASCA-TN 'Ground Water' its dynamics with Surface Water for 'CWRMP' for Tiruvannamalai and Ramanathapuram Districts

WATER INFORMATION SYSTEM for TIRUVANAMALAI DISTRICT

Submitted to

**Deutsche Gesellschaft Fur Internationale
Zusammenarbeit (GIZ)**

Bonn and Eschborn, Germany.



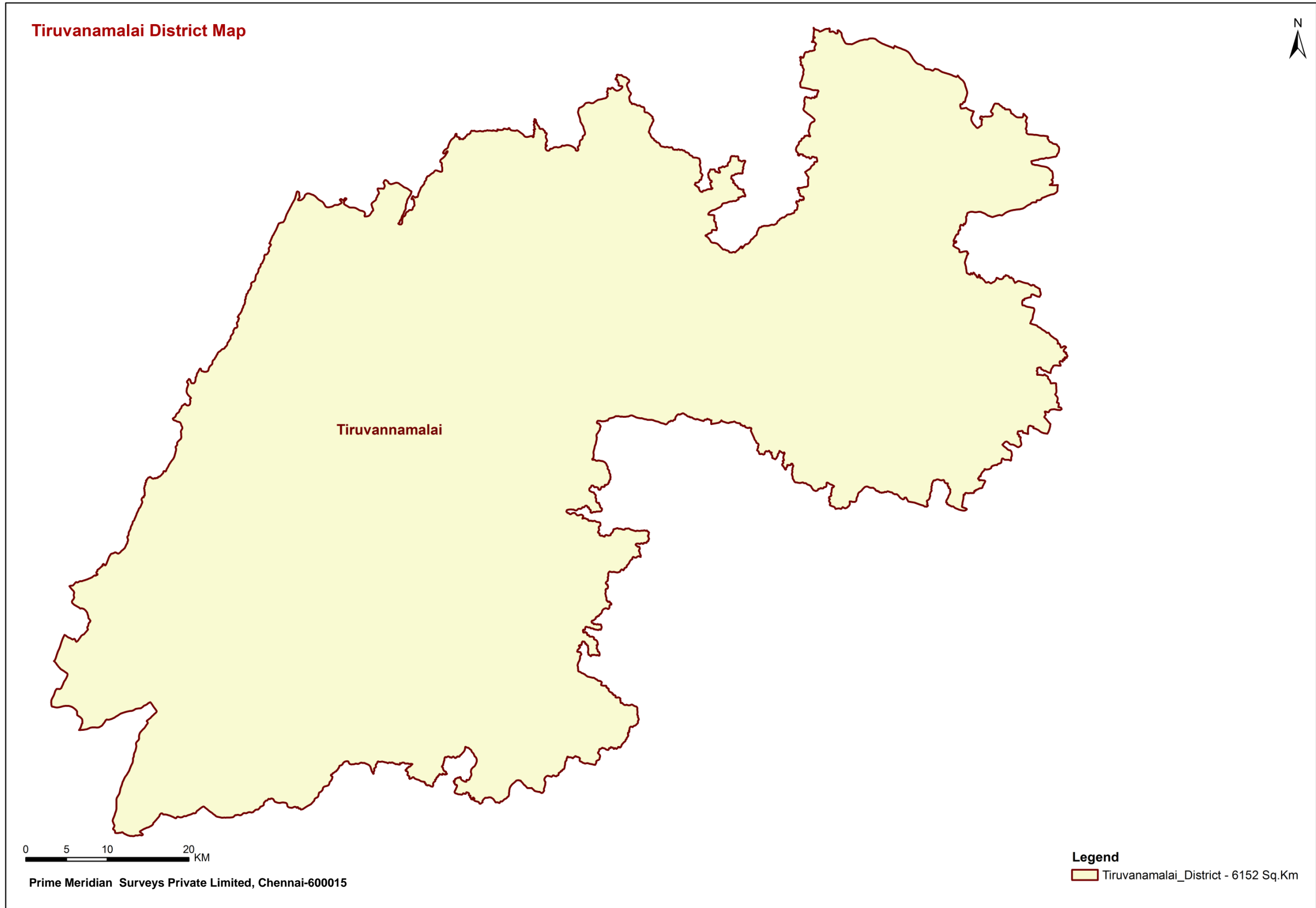
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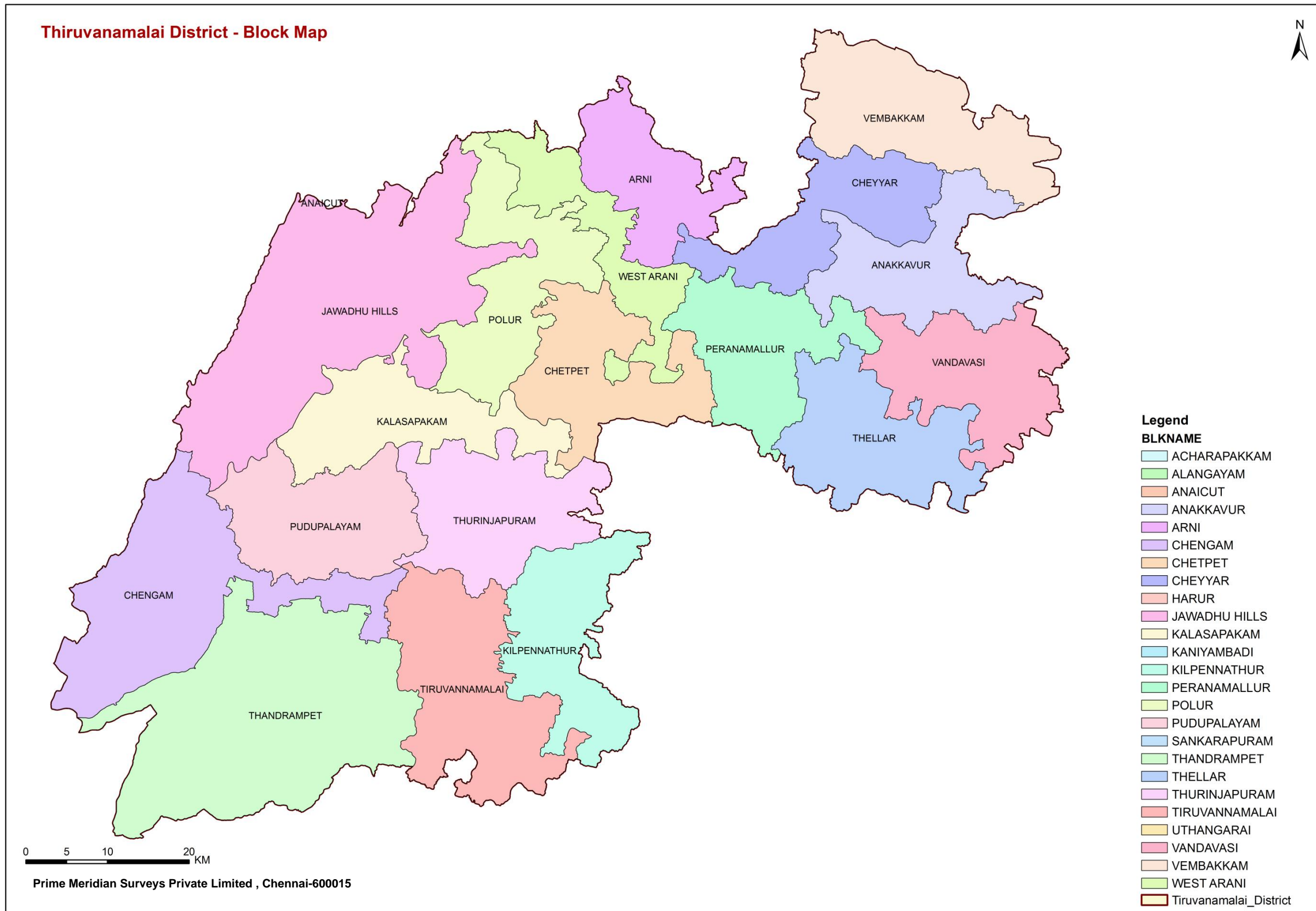
Prime Meridian Surveys Private Limited
1st Floor, No. 29, Dharmaraja Koil Street,
Saidapet, Chennai – 600015.

**Water Information System
Tiruvanamalai District**

Tiruvanmalai District Map

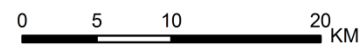
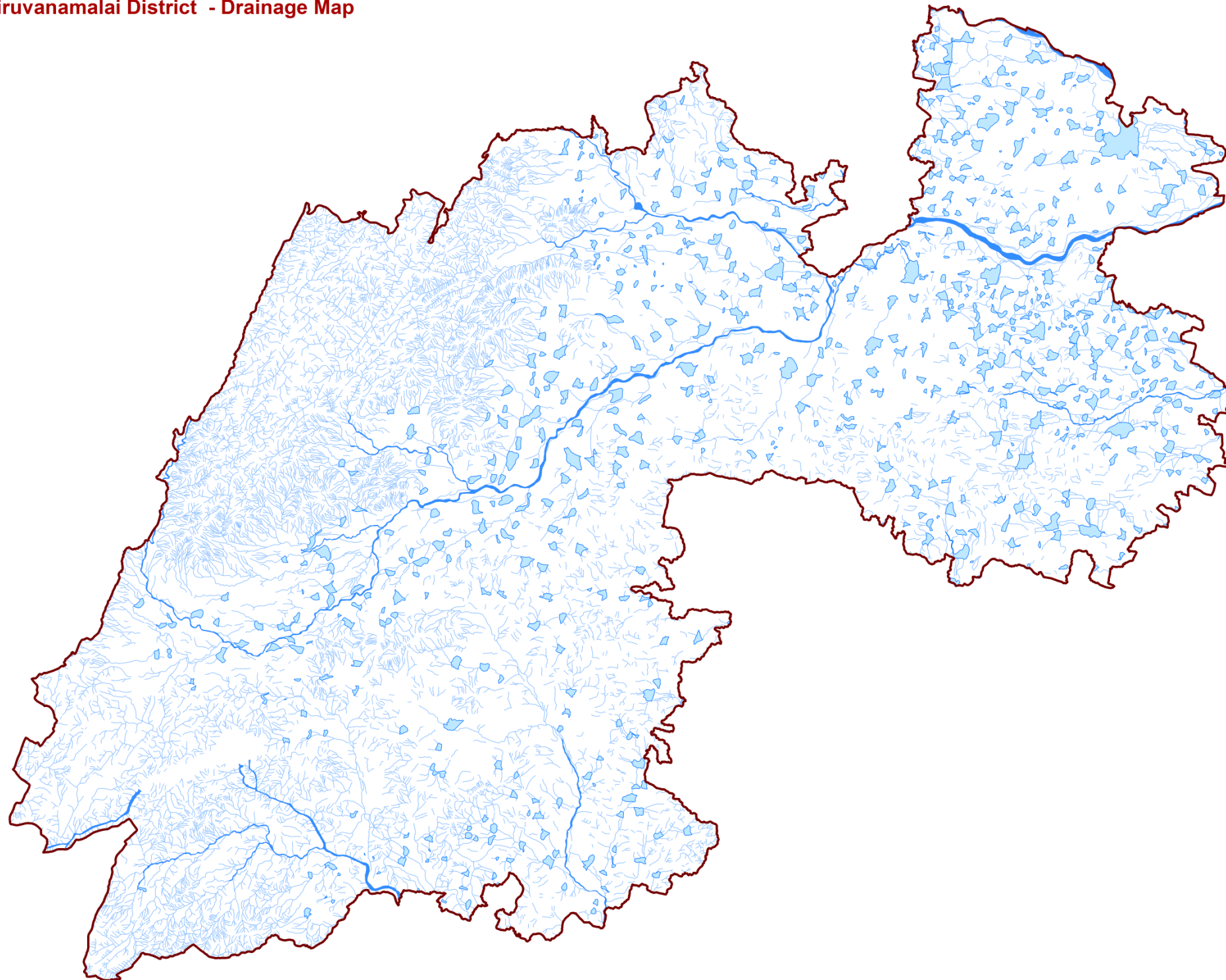


Thiruvanamalai District - Block Map



Tiruvanamalai District - Drainage Map

Tiruvanamalai District - Drainage Map



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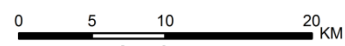
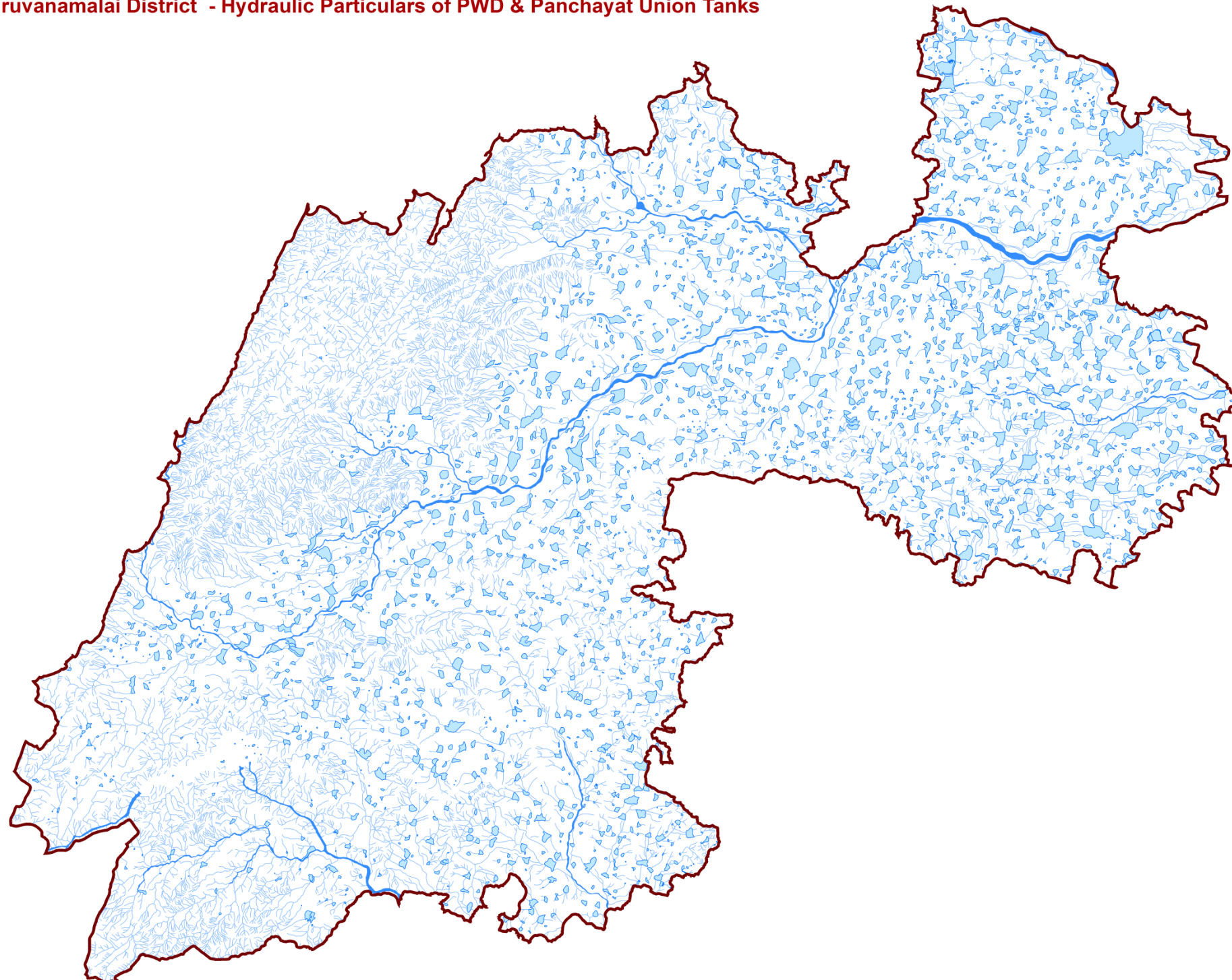
Legend

- Non Perennial
- Perennial
- Tanks

**Hydraulic Particulars of PWD Tanks
in
Tiruvannamalai District**




Tiruvanamalai District - Hydraulic Particulars of PWD & Panchayat Union Tanks

Tiruvanamalai District - Hydraulic Particulars of PWD & Panchayat Union Tanks



Chief Engineer
SG&SWRDC, Chennai-113

Legend

-  Non Perennial
-  Perennial
-  Tanks

Tiruvanamalai District – Hydraulic Particulars of PWD Tanks

Sl. No	Tank_Name	Latitude	Longitude	Village	Cap_MC M	FTL_m	MWL_m	TBL_m	Sto_Dep_m	Ayacut_ha	Catch_sqk m	Wat_Spr_ha	No_of_Weir	Weir_Len_m	No_Sluice	Low_Sil_m	Bund_Len_m	Dis_cusec
1	Nallur Tank	12.269615	78.95052	Nallur	0.610	100	100.6	101.6	3.05	40.58	3.96	49	1	26	1	97	1050	832
2	Uchimalai Kuppam Tank	12.257027	78.92161	Uchimalaikuppam	0.670	100	100.6	101.6	3.65	47.85	8.47	55	2	0	2	96.23	1260	864
3	Melpennathur Tank	12.254746	78.89618	Melpennathur	0.530	100	100.6	101.6	3.4	61.86	11.49	72	2	0	2	96.45	1110	1020
4	Melchengam Pudur Chitheri	12.253116	78.799489	Melchengampudur	0.540	100.75	101.35	102.25	4.8	60.21	7.3	51	1	24	2	95.95	755	720
5	Beemanandhal Tank	12.24499	78.949161	Beemanandal	0.520	100	100.6	101.6	2.4	51.06	4.24	51	3	0	2	97	1400	1817
6	Melvanakkampadi Tank	12.246966	78.800898	Melvanakkampadi	0.580	292.54	293.15	294.37	2.51	77.17	4.86	70	2	0	3	290.11	2050	2426
7	C.Sorpanandhal Tank	12.237565	78.86581	C.Sorpanandal	0.650	100	100.6	101.6	3.05	53.36	4.5	48	2	0	2	97.58	1620	1984
8	Kariyamangalam Putheri	12.23705	78.884736	Kariyamangalam	0.130	100	100.6	101.6	2.8	9.56	4.85	64	1	15	1	97.2	400	490
9	Melkarippur Tank	12.223972	78.90168	Melkaripalur	0.450	100	100.6	101.85	4.06	66.88	2.8	34	2	0	3	95.93	960	50.28
10	Kilvanakkampadi Tank	12.204631	78.907054	Kilvanakkampadi	1.390	100	100.6	101.85	3.7	80.96	4.01	115	3	0	3	96.3	1860	1384
11	Radhapuram Tank	12.206279	78.921567	Radhapuram	1.090	100	100.6	101.85	4.1	104.9	2.4	73	2	0	2	95.9	1080	1262
12	Kolunthampattu Tank	12.199567	78.88555	Kolundampattu	0.580	100	100.6	101.85	3.6	52.46	3.89	20	1	68.2	2	96.4	560	2012
13	Edathanur Tank	12.131484	78.947258	Edathanur	0.088	165.81	166.26	167.26	2	24.505	2.04	10	1	10.5	1	163.81	435	390.72
14	Serpapapattu Tank	12.111973	78.995699	Serpapattu	0.239	162.65	163.4	164.65	3.215	29.185	5.59	22.8	2	43.1	3	159.435	585	1602.7
15	Vanapuram Tank	12.109408	79.016539	Vanapuram	0.342	157.86	158.46	159.71	3.11	24.245	6.12	52.8	2	0	2	154.75	642	1143.85
16	Thenkarumbalur Tank	12.09803	78.995158	Thenkarumbalur	0.458	153.62	154.22	155.47	3.64	65.825	7.22	37.4	3	44	2	149.98	840	2161.24
17	Mazhuvampattu Tank	12.098832	79.016894	Mazhuvampattu	0.014	151.78	152.38	153.38	2.17	13.935	2.74	1.6	1	13.9	1	149.61	325	1164.14

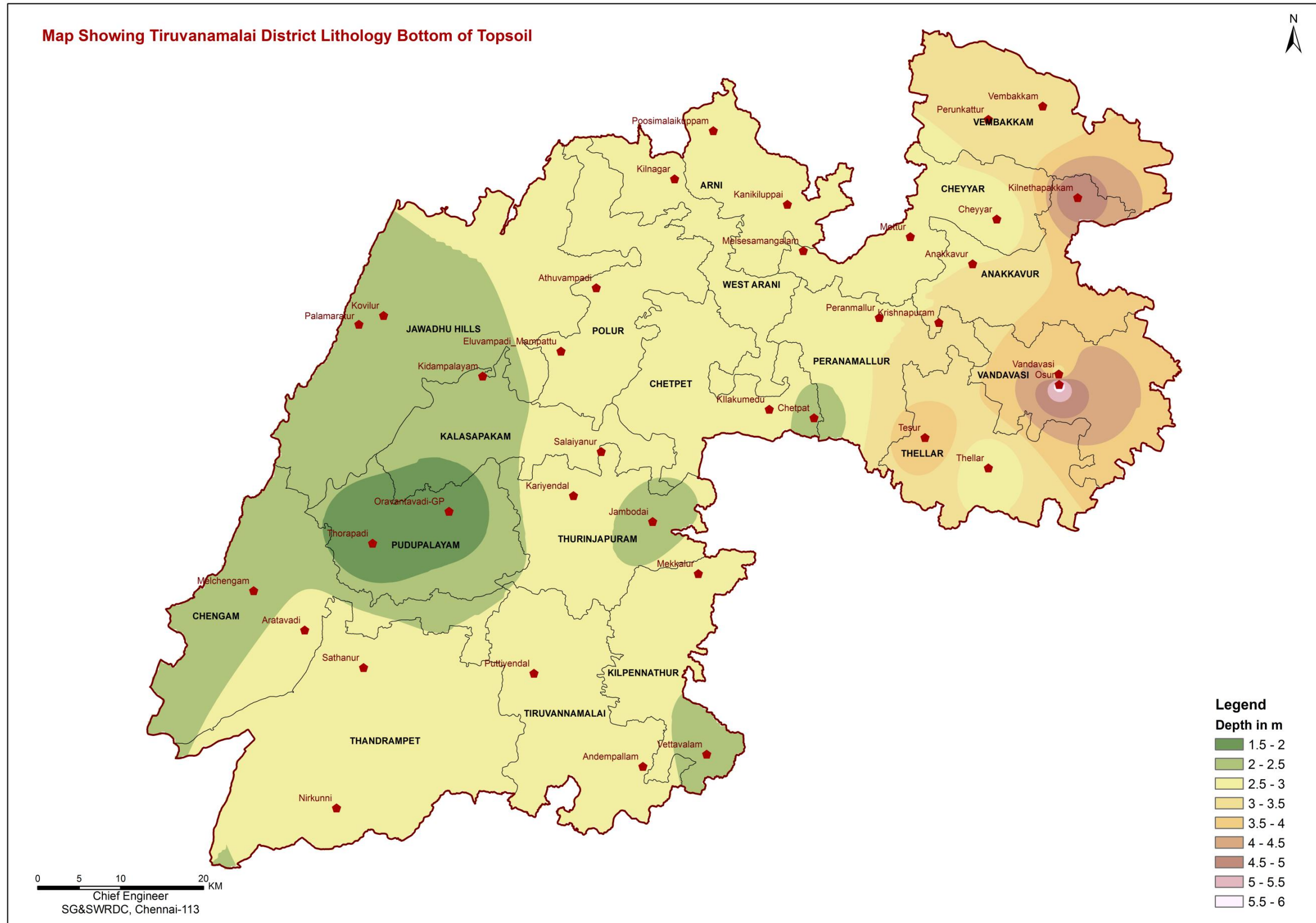
18	Agaram Pallipattu Tank	12.092172	78.965371	Agaram Pallipattu	0.069	156.67	157.115	158.115	2.1	14.82	0.91	9.9	1	13.7	1	154.565	783	274.93
19	Kottaiyur Tank	12.089047	78.991826	Kottaiyur	0.653	153.46	154.06	155.06	2.96	34.57	4.19	66.1	4	85.3	2	150.495	1241	2398.18
20	Kungilinatham Tank	12.08922	79.014701	Kungilinatham	0.130	147.65	148.1	149.1	2.58	21.73	2.62	15.1	2	38.7	1	145.07	400	1316.68
21	Sadakuppam Tank	12.07828	78.9703	Sadakuppam	0.027	150.23	150.675	151.675	1.96	8.77	1.38	4.2	1	12.1	1	148.265	303	218.6
22	Melendhal Tank	12.06038	79.00716	Melandal	0.078	141.28	141.725	142.725	3.2	52.47	2.48	26.4	1	36	2	138.08	600	650.43
23	Karuthuvampadi Tank	12.335027	79.067858	Karunduvampadi	0.437	100	100.6	102.1	3.2	43.66	4.53	513	1	17.9	1	96.8	1200	802
24	Mallavadi Tank	12.333247	79.082875	Mallavadi	0.417	100	100.6	102.1	3.8	43.08	3.16	497	1	41	2	96.2	1285	785
25	Mathulampadi Tank	12.330817	79.124401	Madulampadi	0.620	100	100.6	102.1	4	59.265	8.78	340	1	24	3	96	1000	980
26	Nookampadi Tank	12.31184	79.138295	Nookkampadi	0.514	100	100.6	102.1	2.85	52.29	6.14	280	2	0	2	97.15	1060	850
27	Kalasthampadi Tank	12.304291	79.112915	Kalasthampadi	0.445	100	100.6	102.1	3.76	43.6	5.74	523	1	25	3	96.24	720	790
28	Vallivagai Tank	12.282833	79.135979	Vallivagai	0.528	100	100.6	102.1	3.8	52.54	4.92	393	2	0	3	96.2	715	540
29	Nochimalai Tank	12.270839	79.041332	Nochimalai	0.550	100	100.6	101.9	2.4	52.78	8.1	160	3	0	2	96.6	1150	385
30	Venkikal Tank	12.266441	79.067049	Vengikkal	0.500	173.43	174.03	175.33	3.39	43.79	6.8	59	2	0	1	170.04	710	2423
31	Adaiyur Tank	12.255499	79.082103	Adaiyur	1.339	168.48	171.3	173.13	3.53	98.155	2.82	312	2	0	2	164.95	1050	1209
32	Somasipadi Tank	12.243486	79.146356	Somasipadi	0.502	100	100.6	102.1	2.9	48.415	4.91	2776	1	46.5	3	97	1025	1897
33	Polakkunam	12.225175	79.142649	Polakunam	0.617	100	100.6	101.6	3.12	65.8	1.94	726	1	17	1	96.88	1284	550
34	Samuthram	12.213957	79.037835	Samudram	2.229	168.48	171.3	171.13	4.6	131.17	14.14	478	1	132	3	163.58	1748	4746
35	Vedanatham	12.215136	79.190169	Vedanatham	0.432	100	100.6	101.6	3.22	42.62	3.5	508	1	19.5	2	96.78	860	550
36	Kalingal Eri	12.210154	79.136259	Kalingaleri	0.100	141.19	141.64	101.6	3.1	17.505	1.22	94	1	15.3	2	96.9	860	1019
37	Perumpakkam Tank	12.209133	78.992922	Perumbakkam	0.550	100	100.6	101.6	3.7	53.475	2.47	44	2	0	2	96.3	440	1320
38	Karikalampadi Tank	12.203484	79.201409	Karikalampadi	0.502	100	100.6	101.6	3.05	43.66	3.37	280	2	0	2	96.95	810	1286

39	Melsirupakkam Tank	12.193235	79.025458	Melsirupakkam	0.570	100	100.6	101.9	3.7	63.3	7.54	64	2	0	2	96.3	1745	940
40	Kattumalaiyanur Putheri	12.182954	79.172963	Kattumalayanur	0.150	140.88	141.22 5	101.6	3.05	36.7	3.32	17.2	2	0	2	96.95	732	958
41	Kolathur Tank	12.178206	79.208534	Kolathur	0.759	100	100.6	101.6	3.25	74.38	4.92	893	1	27.8	2	96.75	1380	2200
42	Thenmathur Tank	12.17683	79.079906	Thenmathur	0.630	100	100.6	101.9	2.95	62.86	2.4	210	1	30	2	97.05	940	94
43	Madapoondi Tank	12.176407	79.223921	Madapoondi	0.400	100	100.6	102.1	3	48.83	13.35	123.2	2	0	2	97	1500	1695
44	Meyur Tank	12.170909	79.024177	Meyyur	0.440	176.78 5	177.16 5	178.16 5	2.8	71.47	1.73	155	2	0	1	173.98	1550	925
45	Azhaganandal Tank	12.167579	79.096096	Alaganandal	0.400	100	100.6	101.9	2.59	41.12	2.36	88	2	0	1	95.41	915	712
46	Konalur Tank	12.166853	79.161929	Konalur	0.672	100	100.6	101.6	2.6	66.18	3.44	790	2	0	3	97.4	840	1432
47	Neelandhangal Tank	12.158734	79.213179	Neelanthangal	0.240	100	100.6	101.6	3.1	24.045	1.85	486	1	64	2	96.9	480	2400
48	Nadazhaganandal Tank	12.158934	79.16746	Nadalaganandal	0.471	100	100.6	102.1	2.45	47.14	2.93	556	1	9	1	97.55	570	780
49	Goodalur Papanthangal Tank	12.156993	79.205662	Gudalur Pappanthangal	0.104	100	100.6	102.1	2.9	49.53	3.5	163	1	68	1	97.1	750	2939
50	Kollakkudi Tank	12.149722	79.093953	Kolakkudi	0.151	150.12	150.56 5	151.76 5	3.355	42.55	5.02	30.5	2	39.8	1	146.76	1230	626.134
51	Vayalur Tank	12.146646	79.200084	Vayalur	0.910	100	100.6	101.6	2.5	54.82	4.67	450	2	0	2	97.5	1320	3589
52	Chellanguppam Tank	12.143029	79.13555	Chellankuppam	0.470	100	100.6	102.1	2.98	47.13	2.98	556	1	28.2	1	97.02	913	750
53	Nadupattu	12.144272	79.113452	Nadupattu	0.076	138.25	138.84 5	139.86 5	2.15	27.34	4.56	20.8	3	83	1	136.095	660	633.55
54	Avoor Tank	12.134594	79.208559	Avoor	0.690	100	100.6	102.18	3.5	83.205	3.78	816	2	0	1	96.5	1065	680
55	Aradapattu Tank	12.132657	79.107468	Aradapattu	0.096	139.71	140.01	141.01	2.625	14.32	2.87	12.5	2	50	1	137.085	870	0
56	Kallanai Tank	12.131669	79.191786	Kallanai	0.110	100	100.6	101.8	2.44	30.69	3.02	7.1	1	49	1	97.56	900	460
57	Su.Andapattu Tank	12.130415	79.116287	Su.Andapattu	0.841	134.42	135.03	136.03	1.89	32.69	3.02	7.1	2	48.7	1	132.53	540	2447.82 3
58	Pavupattu Tank	12.127658	79.067484	Pavupattu	0.341	148.91	149.51	150.76	3.12	19.75	3.52	32.8	2	41.3	1	140.169	710	1277.59

59	Kattampoondi Tank	12.118892	79.075544	Kattampoondi	0.505	143.24	143.83 5	145.08 5	3.07	65.67	4.25	40.1	4	64.15	1	140.165	1050	2665.28
60	Vettavalam Tank	12.116429	79.252733	Vettavalam	0.950	100	100.6	101.6	3.8	74.355	8.03	668	2	0	2	96.2	453	375
61	Paraiyampattu Tank	12.118939	79.053071	Parayampattu	0.085	152.58	153.02 5	154.02 5	2.51	17.5	3.1	9.9	1	34.5	1	149.985	485	692.63
62	Pavithram Tank	12.113246	79.121591	Pavithram	0.541	128.1	128.55	129.55	3.35	68	3.55	44	2	75.5	2	124.75	1010	5309.25
63	Olaipadi Tank	12.112332	79.225857	Olaipadi	0.650	100	100.6	101.6	3	68.305	3.5	792	2	0	1	97	585	270
64	Nariyapattu Tank	12.108453	79.07305	Nariyapattu	0.071	133.05	133.64 5	134.64 5	2.08	19.34	1.77	10.3	1	23.35	1	130.965	550	1245.66
65	Thalaiyampallam Tank	12.109425	79.059343	Thalayampallam	0.212	140.77	141.24	142.1	2.51	61.7	2.31	25.3	2	40	2	138.3	884	1143.92
66	Periya Kallappadi Tank	12.103217	79.101369	Periyakallappadi	0.395	130.15	130.76	131.76	3.035	56.85	7.77	42.7	2	85.35	2	127.115	1140	2617.3

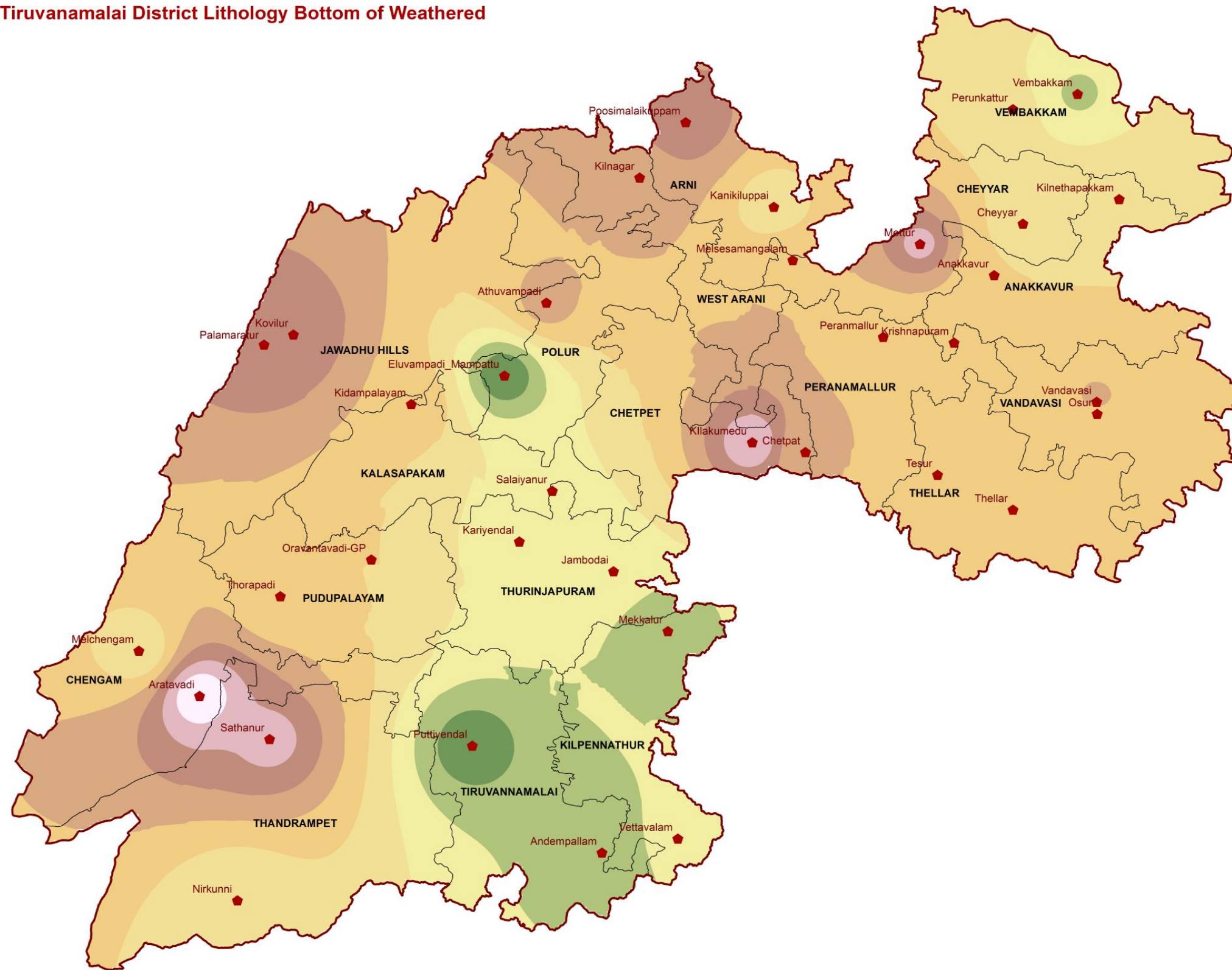
**Lithology details of selected locations
in
Tiruvanamalai District**

Map Showing Tiruvanamalai District Lithology Bottom of Topsoil



Map Showing Tiruvanamalai District Lithology Bottom of Weathered

Map Showing Tiruvanamalai District Lithology Bottom of Weathered



Legend
Depth in m

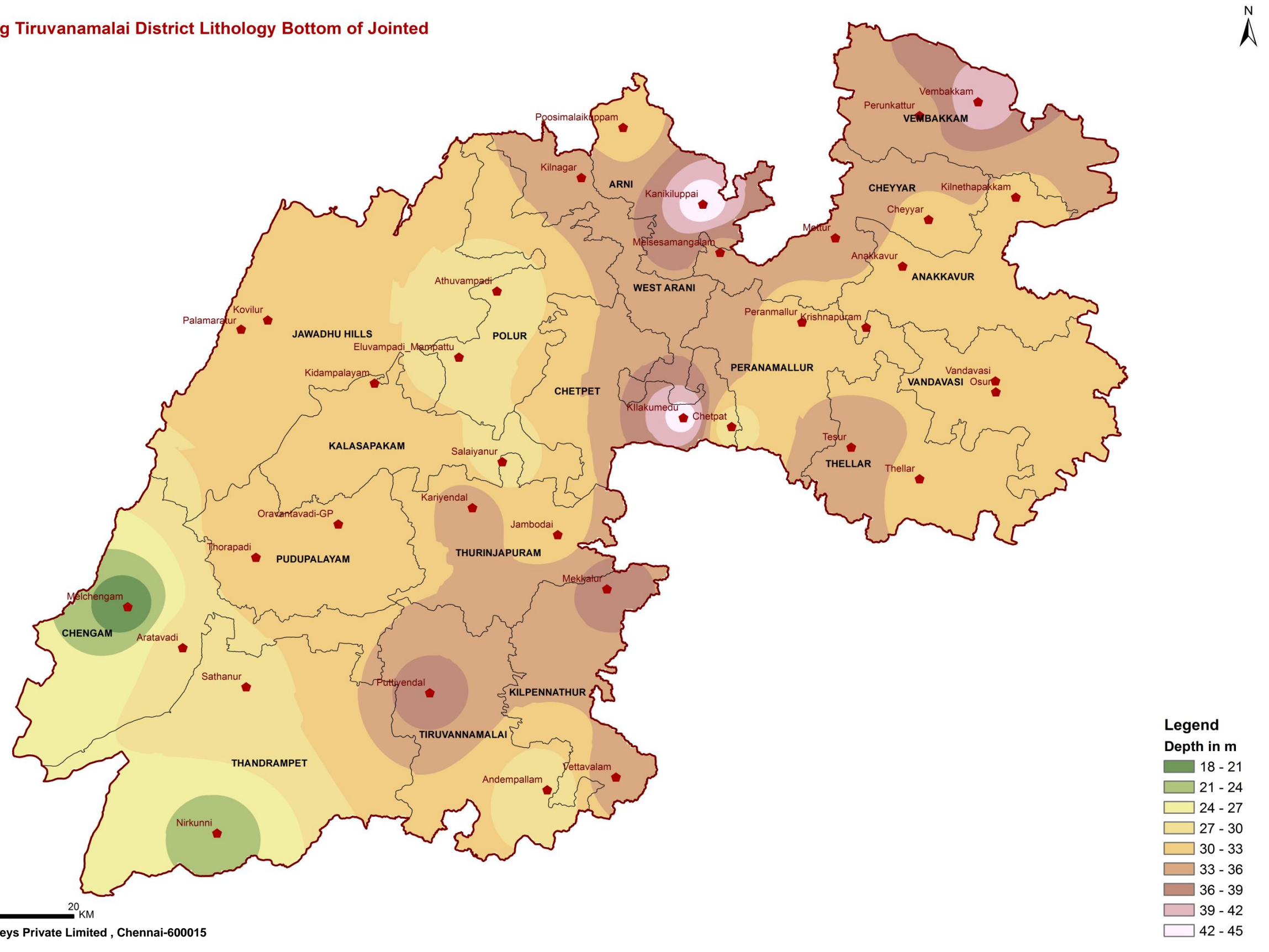
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20 - 22

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Prime Meridian Surveys Private Limited , Chennai-600015

Map Showing Tiruvanamalai District Lithology Bottom of Jointed

Map Showing Tiruvanamalai District Lithology Bottom of Jointed

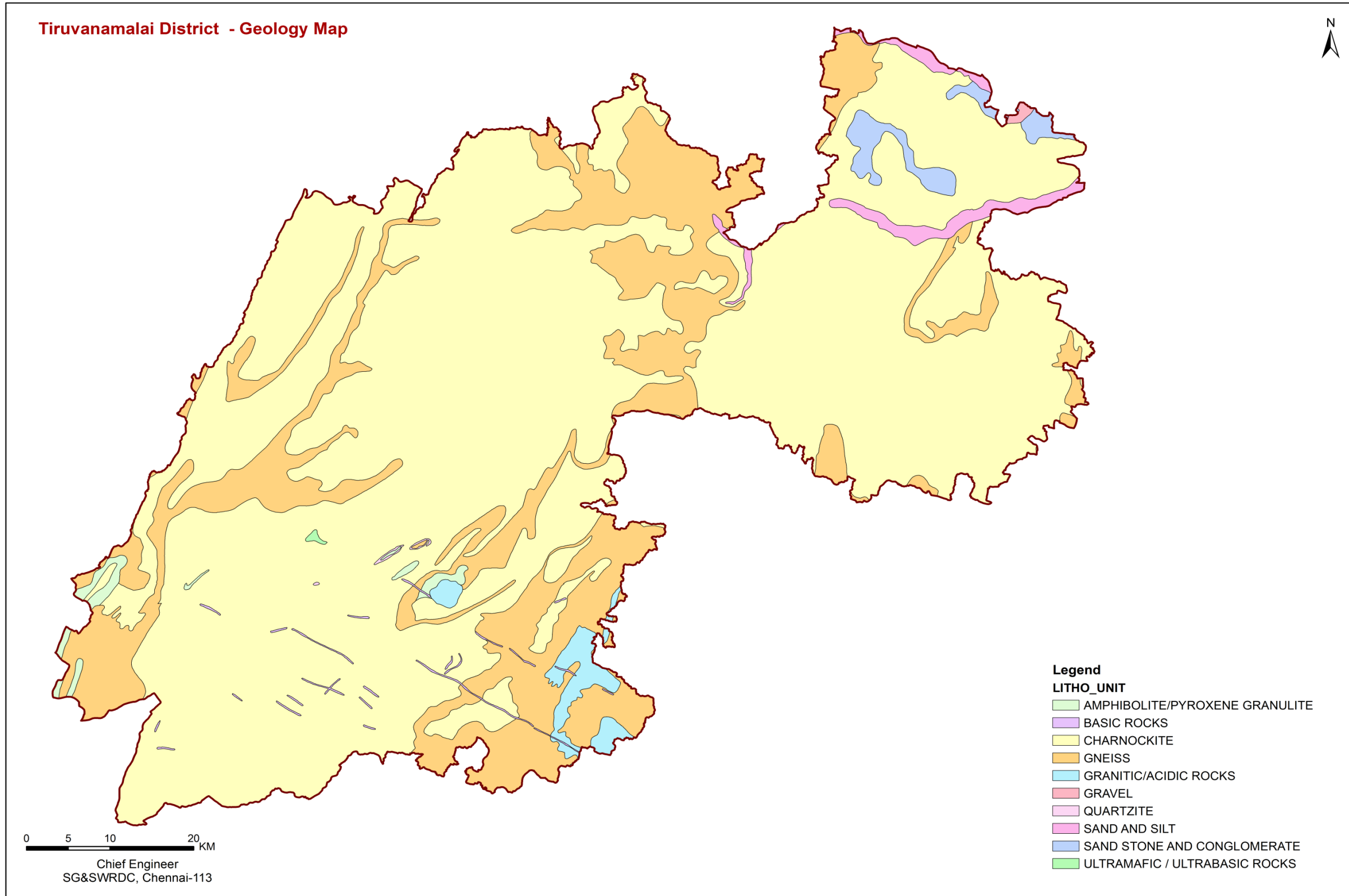


Lithology details of selected locations in Tiruvanamalai District

Sl.No.	Name	Latitude	Longitude	TopSoil	Sediments	Weathered	Jointed
1	Aratavadi	12.23339	78.803495	3	0	22	30
2	Melchengam	12.275274	78.748185	2	0	10	18
3	Chetpat	12.459096	79.356099	2	0	14	27
4	Kllakumedu	12.468159	79.307605	3	0	20	44
5	Cheyyar	12.670421	79.554273	2.5	0	10.5	32
6	Kilnethapakkam	12.69322	79.642189	5	0	11	32
7	Kovilur	12.567936	78.889078	2.5	0	18	32
8	Palamaratur	12.558604	78.862316	2.5	0	18	32
9	Kidampalayam	12.503534	78.996552	2	0	14	30
10	Salaiyanur	12.423175	79.125331	3	0	9	27
11	Mekkalur	12.293438	79.230539	3	0	6	38
12	Anakkavur	12.622846	79.528105	3	0	12	32
13	Mottur	12.651629	79.460624	2.5	0	19	36
14	Kanikiluppai	12.686197	79.327269	3	0	10	45
15	Melsesamangalam	12.636795	79.344426	3	0	14	35
16	Vettavalam	12.101308	79.239667	2	0	9	35
17	Krishnapuram	12.560464	79.491616	3	0	12	30
18	Peranmallur	12.565625	79.427098	3	0	12	30
19	Eluvampadi_Mampattu	12.530017	79.081598	3	0	4	29
20	Athuvampadi	12.597297	79.11977	2.5	0	15	27
21	Thorapadi	12.325755	78.877254	1.5	0	12	33
22	Oravantavadi-GP	12.359665	78.960081	1.5	0	12	30
23	Sathanur	12.193595	78.867443	3	0	19	30
24	Nirkunni	12.044309	78.83804	2.5	0	10	22
25	Tesur	12.438106	79.476484	4	0	12	36
26	Thellar	12.405875	79.54527	2.5	0	12	32
27	Kariyendal	12.376372	79.095027	3	0	9	35
28	Jambodai	12.348856	79.18109	2	0	9	32
29	Puttiyendal	12.18747	79.052288	3	0	4.5	38
30	Andempallam	12.088503	79.170505	3	0	6	27
31	Osur	12.494436	79.622177	6	0	12	32
32	Vandavasi	12.505797	79.621676	3	0	15	32
33	Perunkattur	12.776464	79.54533	3	0	10.5	35
34	Vembakkam	12.79048	79.604295	3	0	7.5	42
35	Poosimalaikuppam	12.764438	79.24684	3	0	18	30
36	Kilnagar	12.713208	79.204818	3	0	15	35

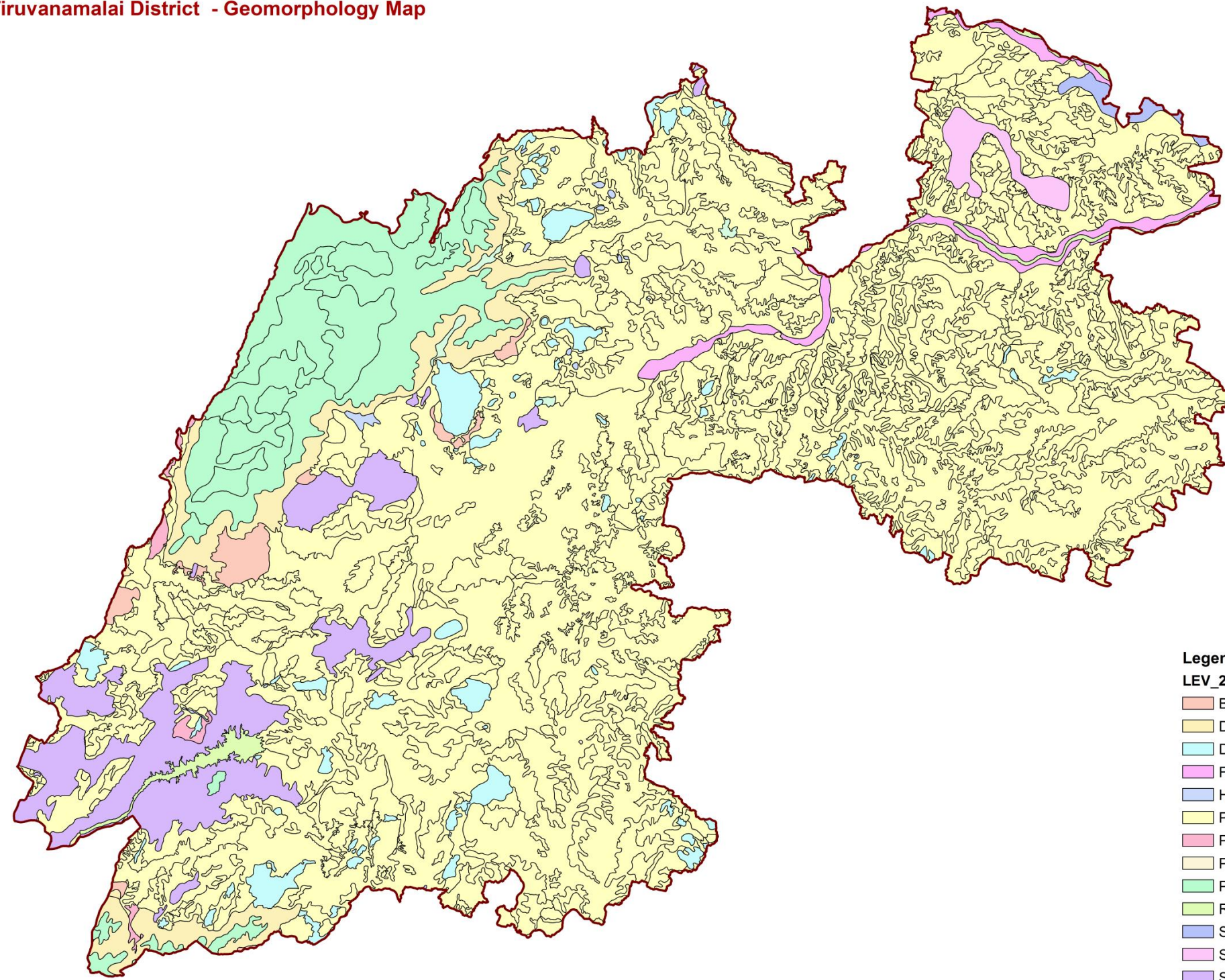


Tiruvanamalai District - Geology Map



Tiruvanamalai District - Geomorphology Map

Tiruvanamalai District - Geomorphology Map

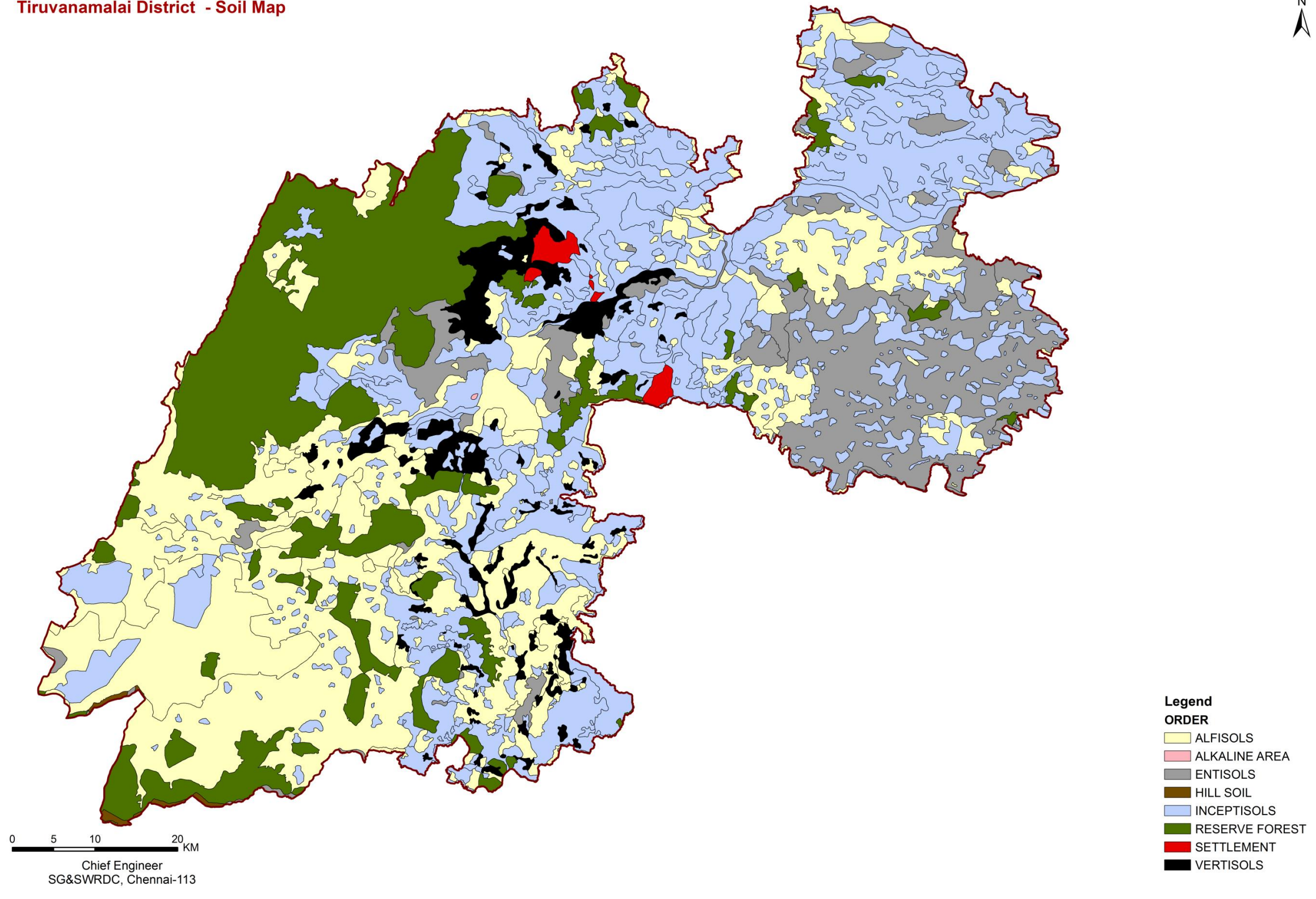


0 5 10 20 KM
Chief Engineer
SG&SWRDC, Chennai-113

- Legend**
LEV_2
- BAJADA
 - DEFLECTION SLOPE
 - DENUATIONAL HILLS / RESIDUAL HILLS
 - FLOOD PLAIN
 - HILLS AND PLATEAUS
 - PEDIMENT
 - PEDIPLAIN
 - PIEDMONT ZONE
 - PLATEAUS
 - RIVER
 - SEDIMENTARY HIGH GROUND
 - SEDIMENTARY LOW LAND
 - STRUCTURAL HILLS
 - TANK
 - VALLEYS

Tiruvanamalai District - Soil Map

Tiruvanamalai District - Soil Map

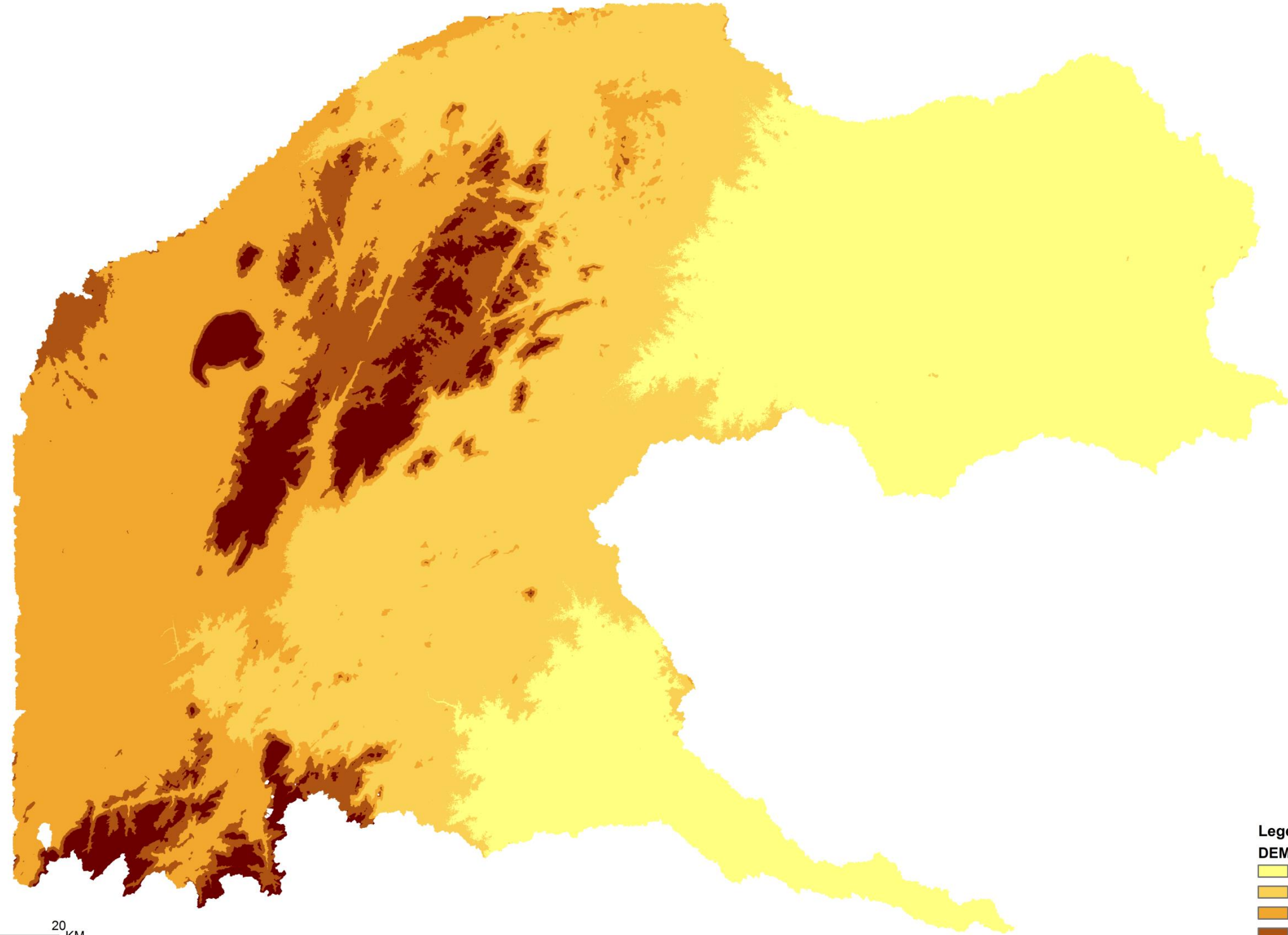


- Legend**
- ORDER**
- ALFISOLS
 - ALKALINE AREA
 - ENTISOLS
 - HILL SOIL
 - INCEPTISOLS
 - RESERVE FOREST
 - SETTLEMENT
 - VERTISOLS

0 5 10 20 KM
Chief Engineer
SG&SWRDC, Chennai-113

Tiruvanamalai District - Digital Elevation Model

Tiruvanamalai District - Digital Elevation Model








0 5 10 20 KM

Chief Engineer
SG&SWRDC, Chennai-113

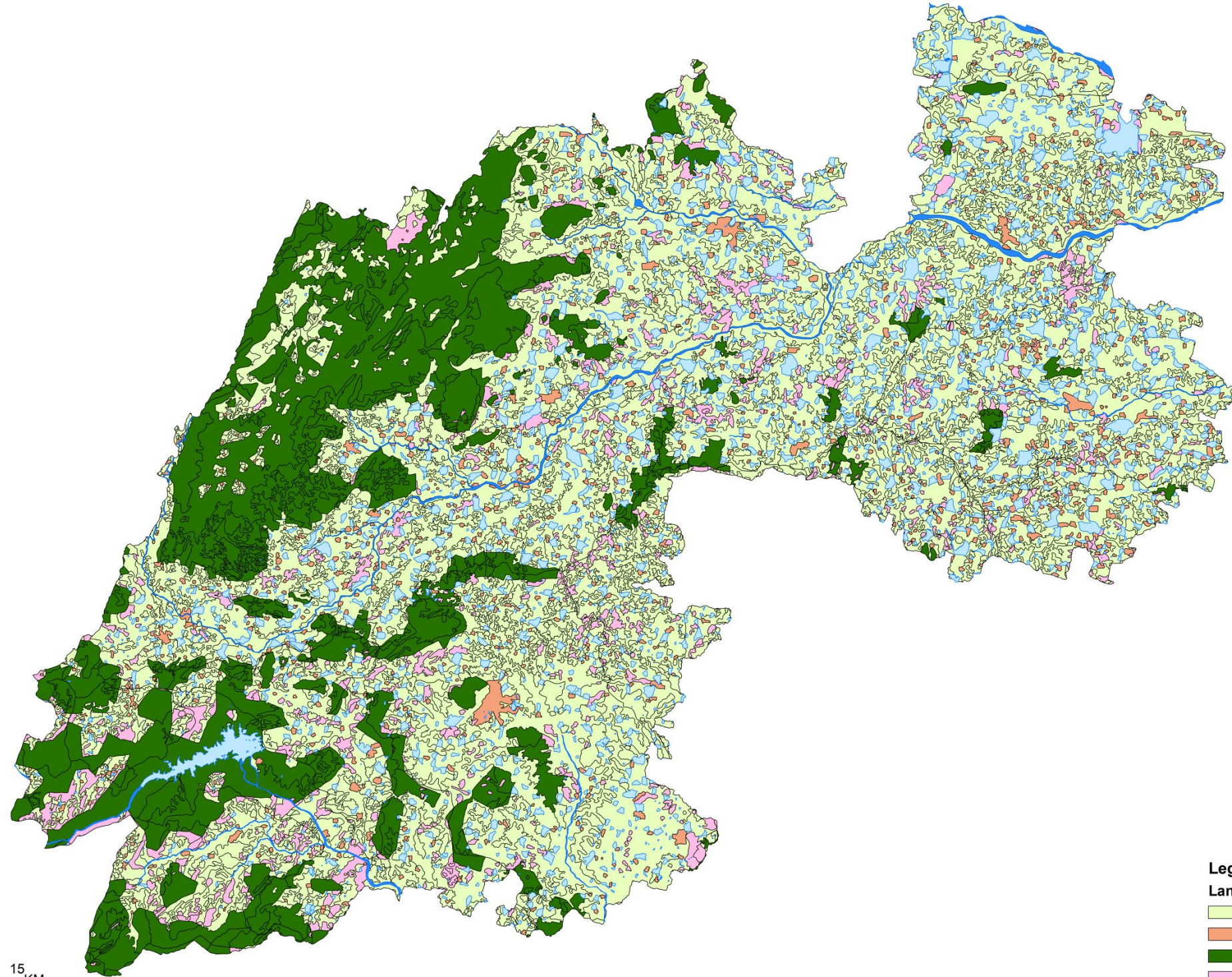
Legend

DEM

-  -1 - 152
-  152 - 303
-  303 - 508
-  508 - 741
-  741 - 1,339

Tiruvanamalai District - Landuse Map

Tiruvanamalai District - Landuse Map



0 3.75 7.5 15 KM

Chief Engineer
SG&SWRDC, Chennai-113

Legend

Landuse

-  AGRICULTURAL LAND
-  BUILT-UP LAND
-  FOREST
-  WASTELANDS
-  WATER

Landuse and Sub-surface Details

Geology

Geology	Area (Sq.Km)	Weightage (%)
ALLUVIUM	68.59	1.11
AMPHIBOLITE/PYROXENE GRANULITE/METTA GABBRO	33.90	0.55
CH	4589.19	74.59
DOLERITE (DYKE)	13.76	0.22
FHBG/HBG/GSGG/PAG/EHG/L.St+GSGG/GQFG/GBG	1300.85	21.14
Gr/PGGr/CH+PGGr/GGG/PGWGr/CH+PGr/GINGEE Gr	72.36	1.18
GRAVEL (CONJEEVARAM)	4.11	0.07
QZ/MQ/FERRUGINEOUS QUARTZITE	2.53	0.04
SSt/CSS/BBC(M)SS/ACaSt/SStCaS	64.99	1.06
UM (ULTRAMAFICS)	1.91	0.03
Total	6152.18	100.00

Soil

Soil	Area (Sq.Km)	Weightage (%)
ALFISOLS	1911.83	31.0756
ALKALINE AREA	0.40	0.0065
ENTISOLS	704.88	11.4574
HILL SOIL	10.26	0.1667
INCEPTISOLS	2079.47	33.8006
RESERVE FOREST	1164.78	18.9327
SETTLEMENT	31.75	0.5161
VERTISOLS	248.81	4.0443
Total	6152.18	100.00

Geomorphology

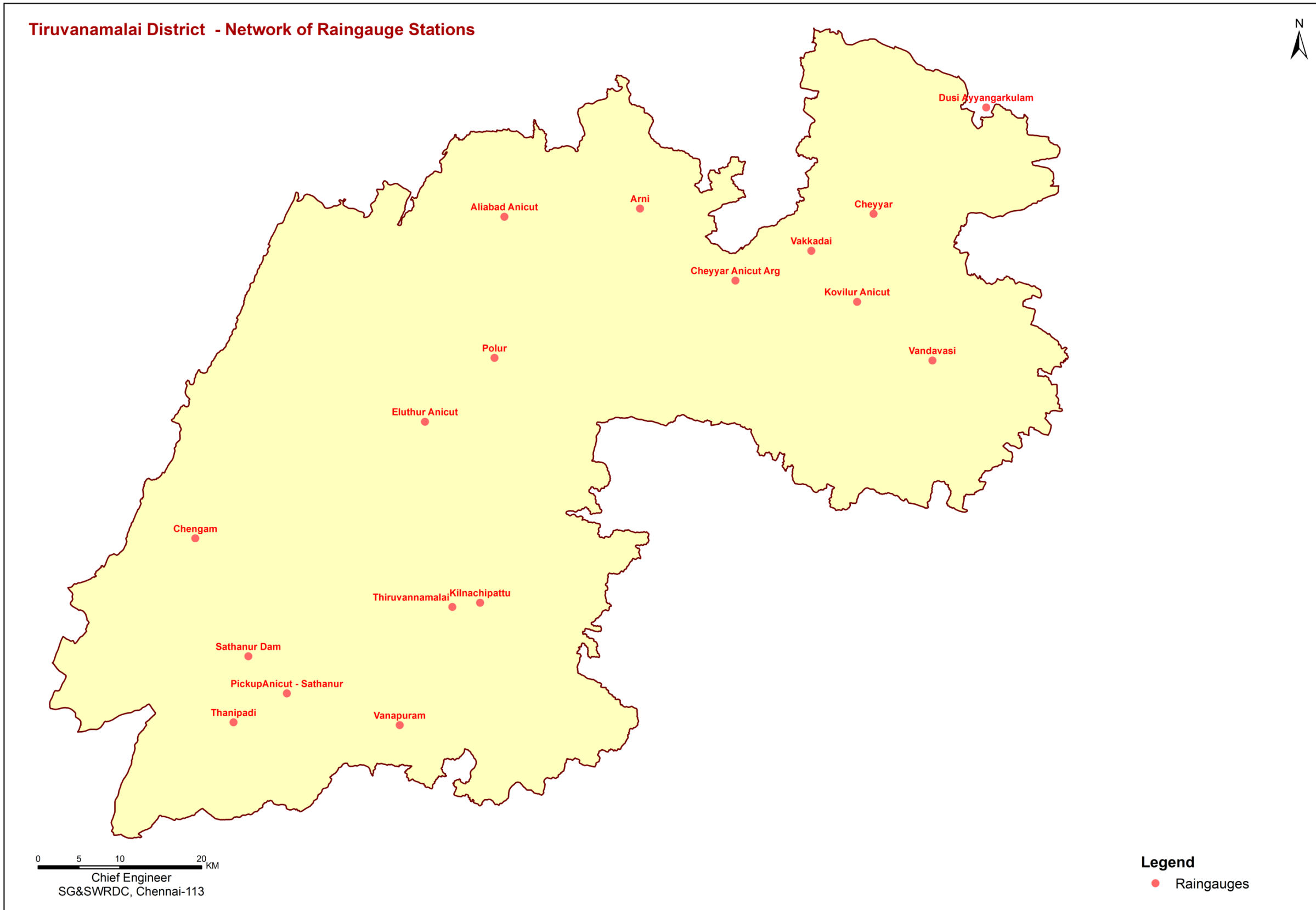
Geomorphology	Area (Sq.Km)	Weightage (%)
BAJADA	48.84	0.79
DEFLECTION SLOPE	213.60	3.47
DENUDATIONAL HILLS / RESIDUAL HILLS	157.89	2.57
FLOOD PLAIN	69.31	1.13
HILLS AND PLATEAUS	7.06	0.11
PEDIMENT	4657.16	75.70
PEDIPLAIN	14.99	0.24
PIEDMONT ZONE	1.14	0.02
PLATEAUS	536.57	8.72
RIVER	34.75	0.56
SEDIMENTARY HIGH GROUND	16.02	0.26
SEDIMENTARY LOW LAND	43.44	0.71
STRUCTURAL HILLS	342.48	5.57
TANK	0.00	0.00
VALLEYS	8.93	0.15
Total	6152.18	100.00

LandUse

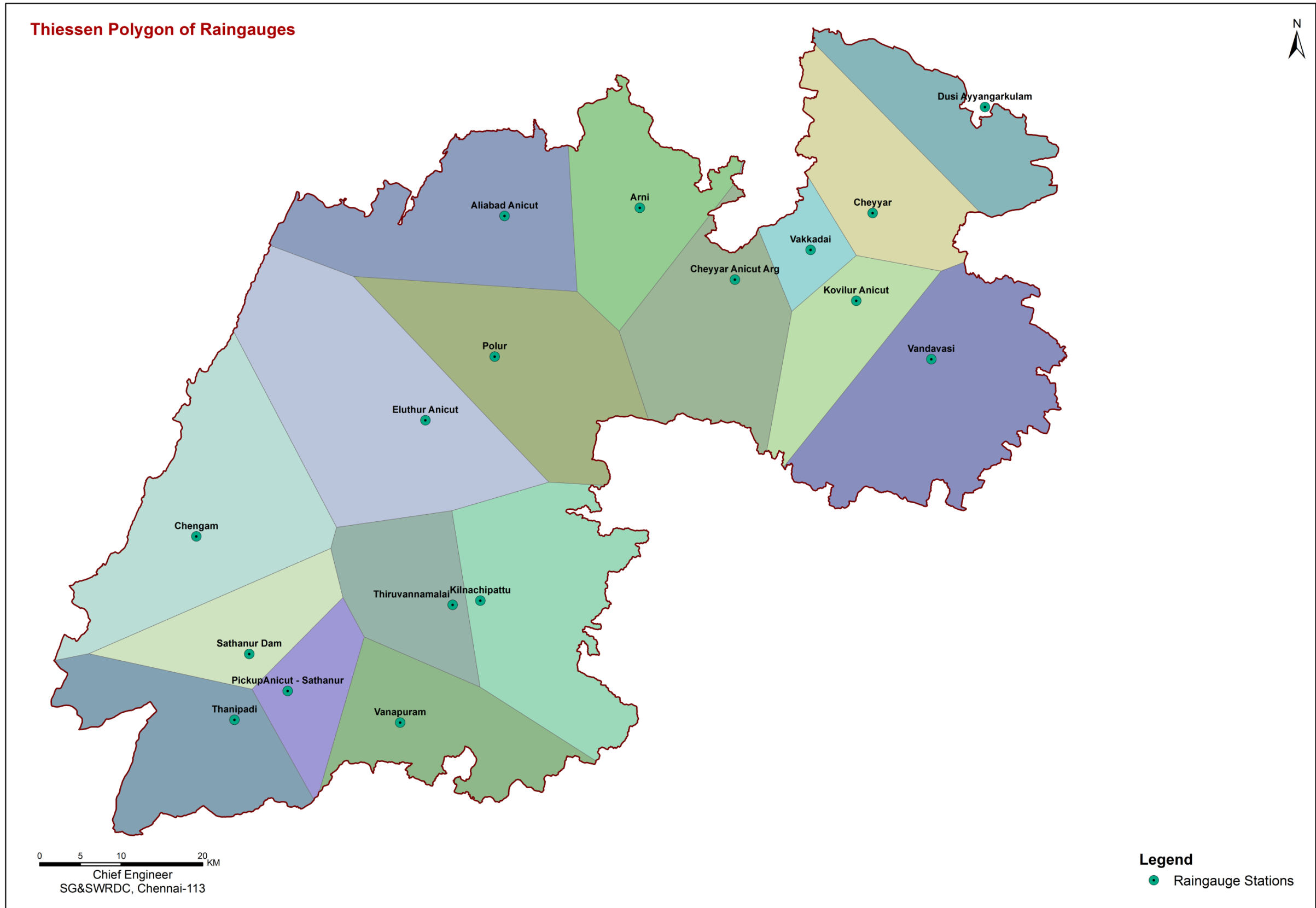
Landuse	Area (Sq.Km)	Weightage (%)
AGRICULTURE LAND	3682.55	59.86
BUILT-UP-LANDS	178.83	2.91
WASTELANDS	332.92	5.41
WATERBODIES	542.94	8.83
FOREST	1414.94	23.00
Total	6152.18	100

RAINFALL

Tiruvanamalai District - Raingauge Network



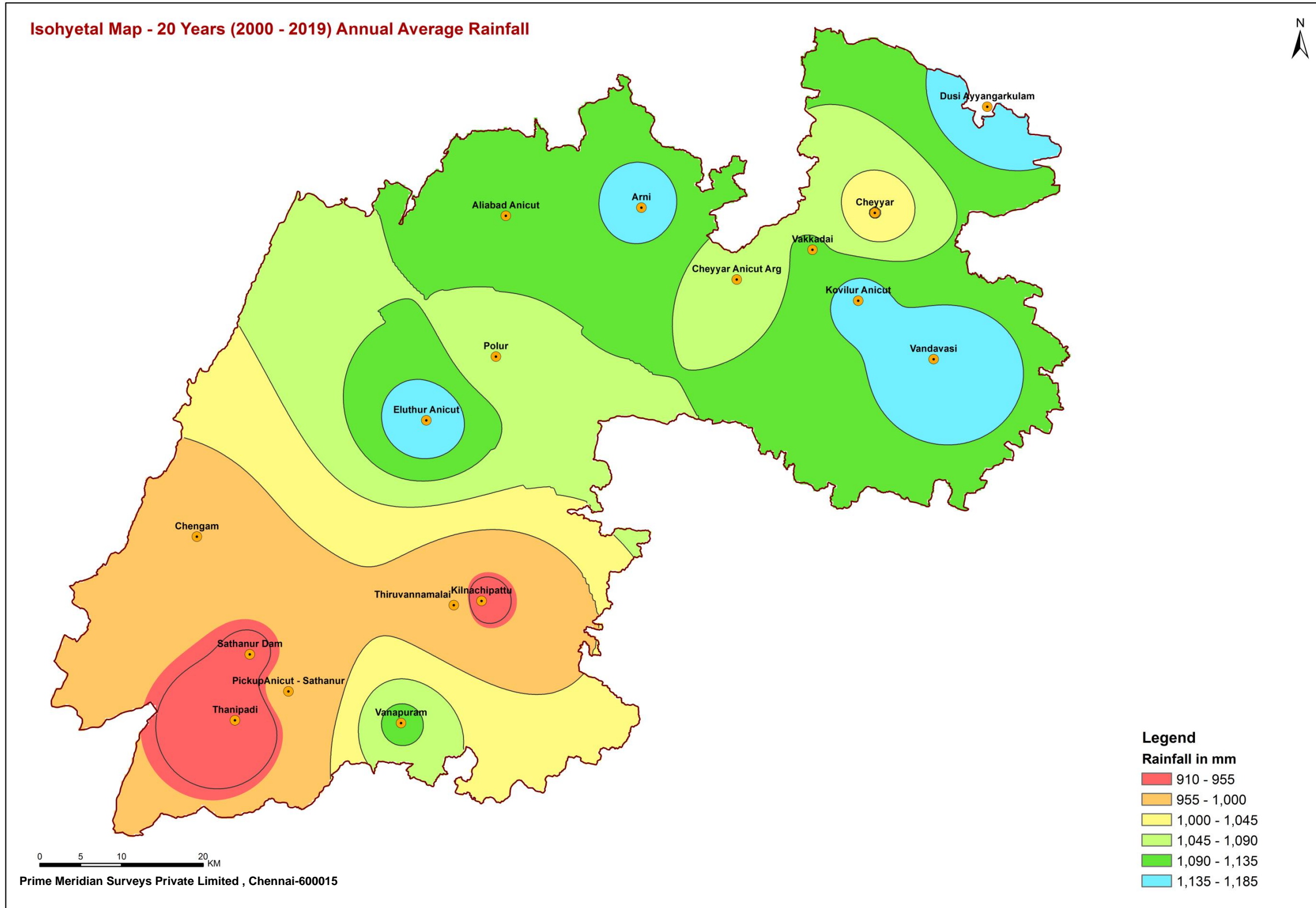
Tiruvanamalai District - Thiessen Polygon of Raingauges



Tiruvanamalai District - Weightage of Theissen Polygon of Raingauges

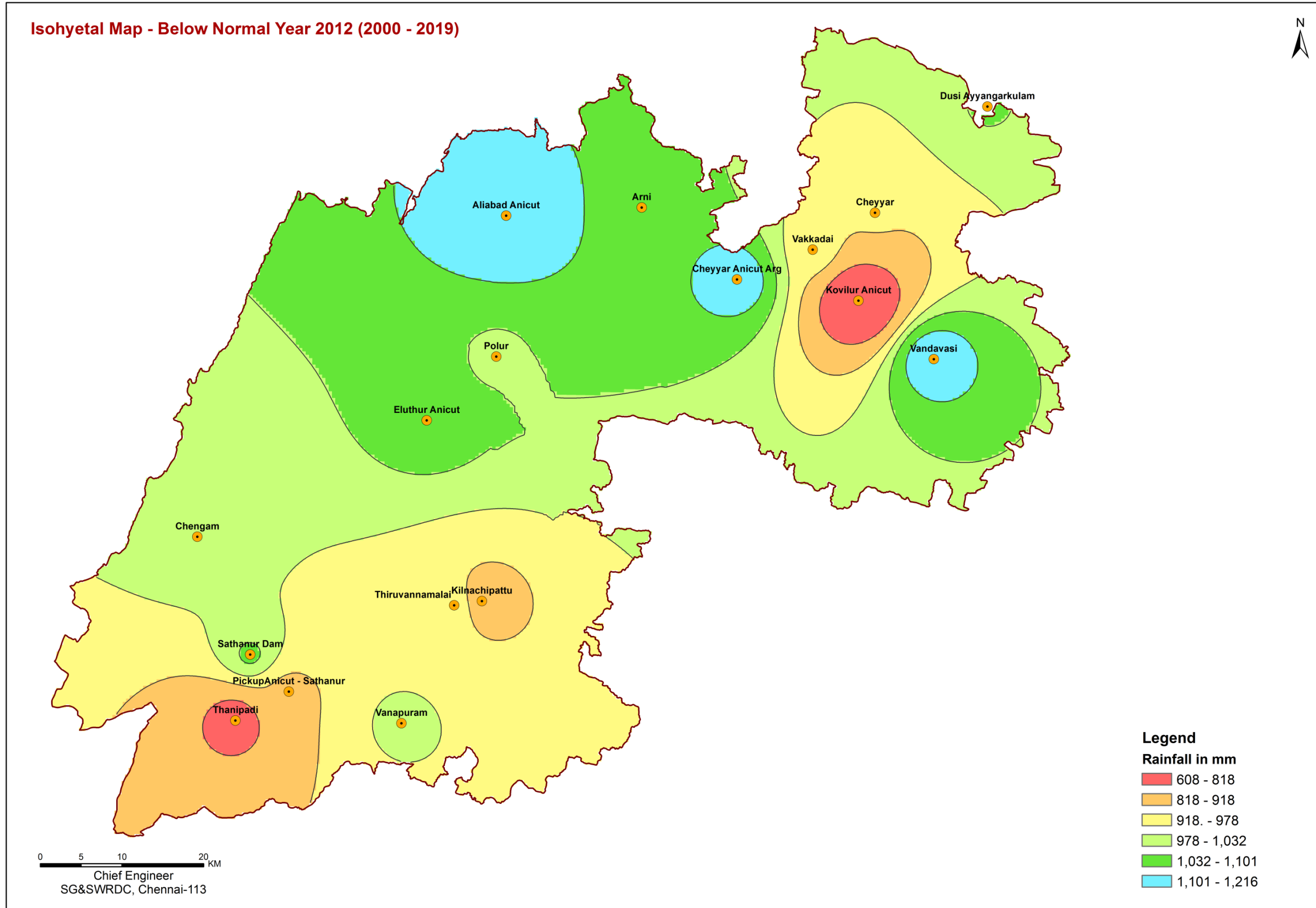
Sl. No.	Station	Latitude	Longitude	Area_Sq.Km	Weightage %
1	Aliabad Anicut	12.658679	79.078724	466.77	7.59
2	Arni	12.676665	79.274507	332.91	5.41
3	Chengam	12.336488	78.806559	566.34	9.21
4	Cheyyar	12.707685	79.544435	306.12	4.98
5	Cheyyar Anicut ARG	12.531764	79.36278	371.29	6.04
6	Dusi Ayyangarkulam	12.763495	79.623717	260.36	4.23
7	Eluthur Anicut	12.459847	78.982986	673.97	10.95
8	Kilnachipattu	12.231983	79.177005	487.78	7.93
9	Kovilur Anicut	12.525034	79.502014	229.49	3.73
10	PickupAnicut - Sathanur	12.138174	78.921806	159.27	2.59
11	Polur	12.499716	79.155343	461.70	7.50
12	Sathanur Dam	12.210049	78.84	230.46	3.75
13	Thanipadi	12.083098	78.779451	371.30	6.04
14	Thiruvannamalai	12.25179	79.027767	248.55	4.04
15	Vakkadai	12.629751	79.466213	92.57	1.50
16	Vanapuram	12.098978	79.062623	317.16	5.16
17	Vandavasi	12.464728	79.611919	576.13	9.36
Total				6152.18	100

Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Annual Average Rainfall



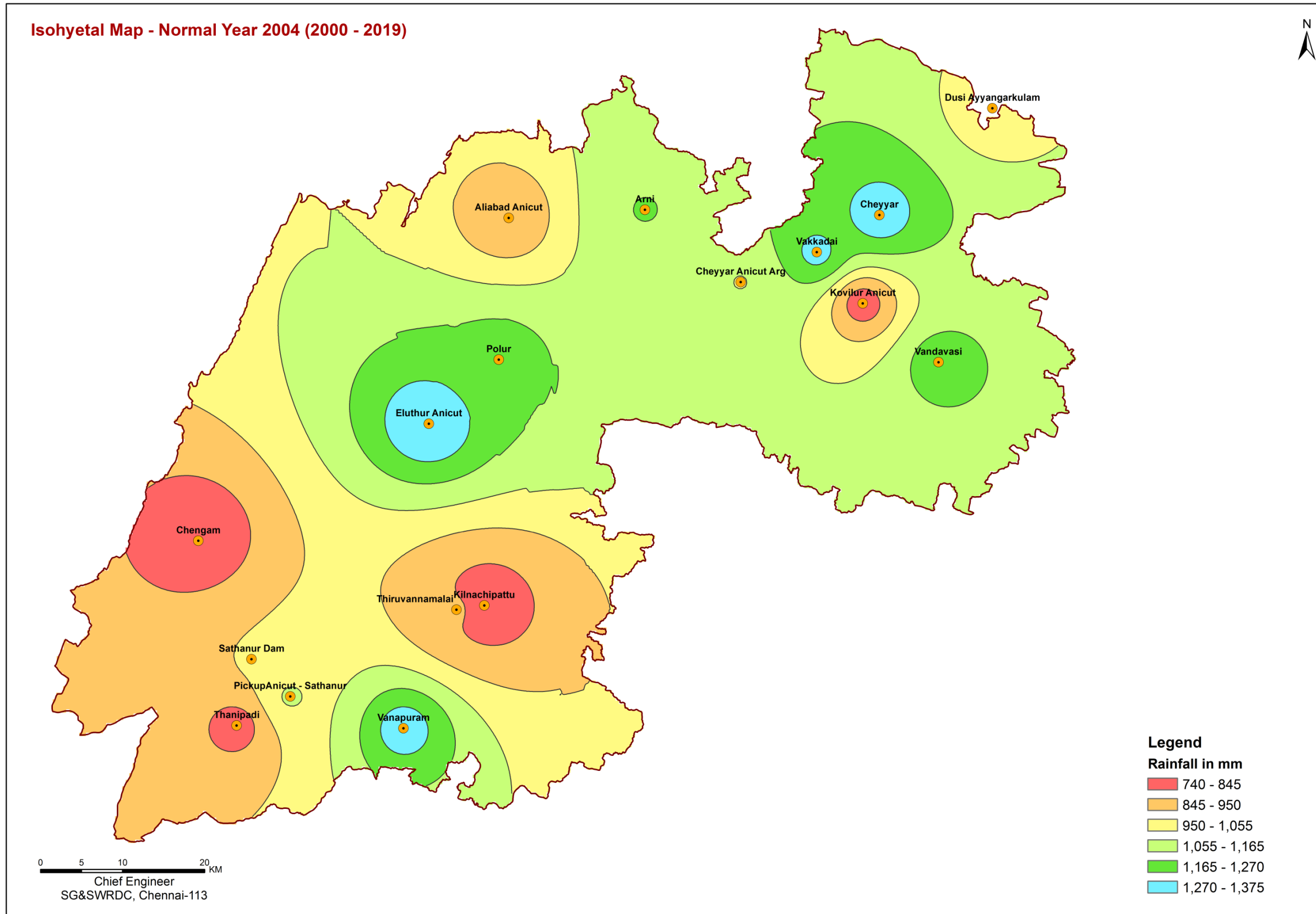
Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Below Normal Year 2012

Isohyetal Map - Below Normal Year 2012 (2000 - 2019)



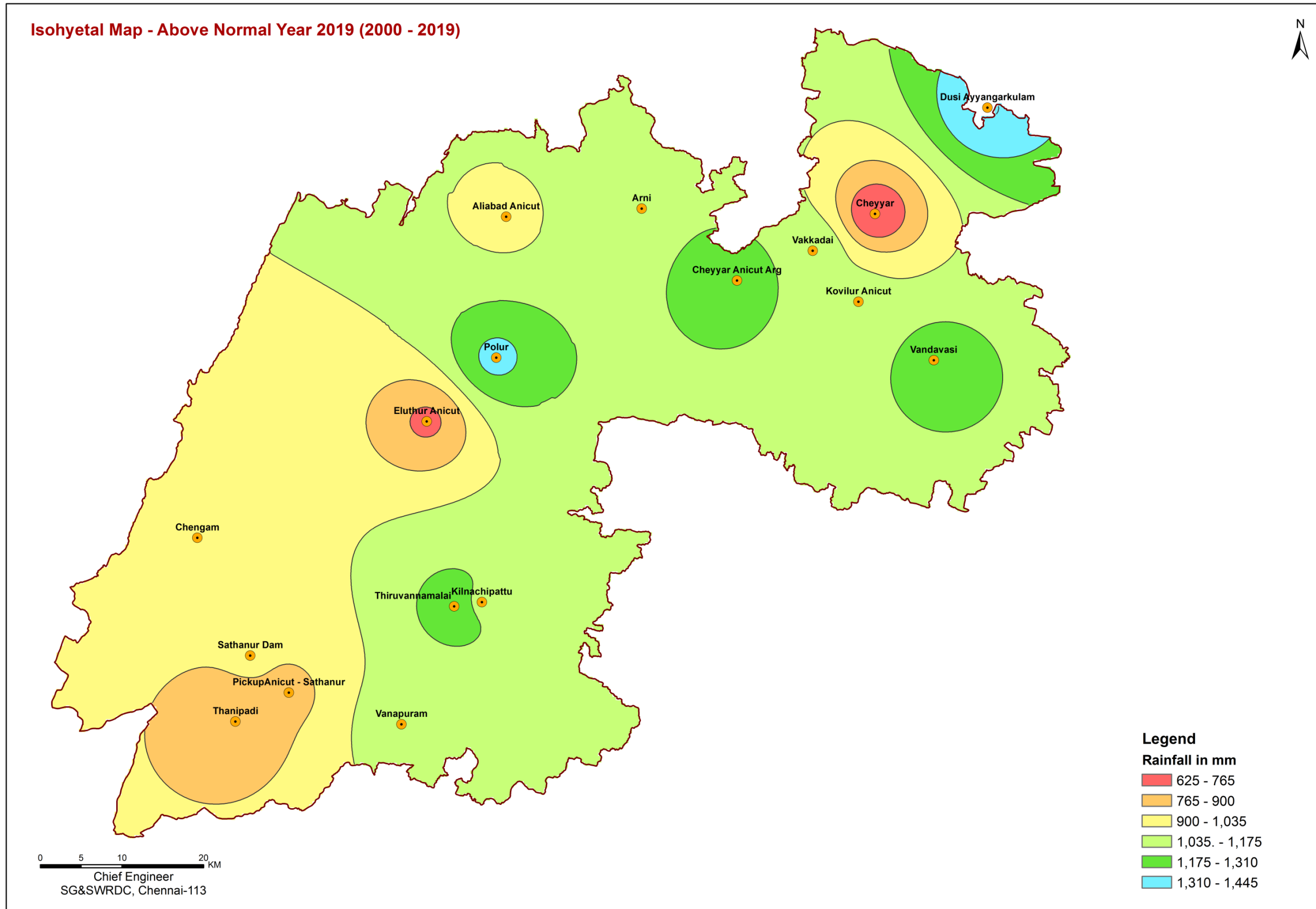
Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Normal Year 2004

Isohyetal Map - Normal Year 2004 (2000 - 2019)



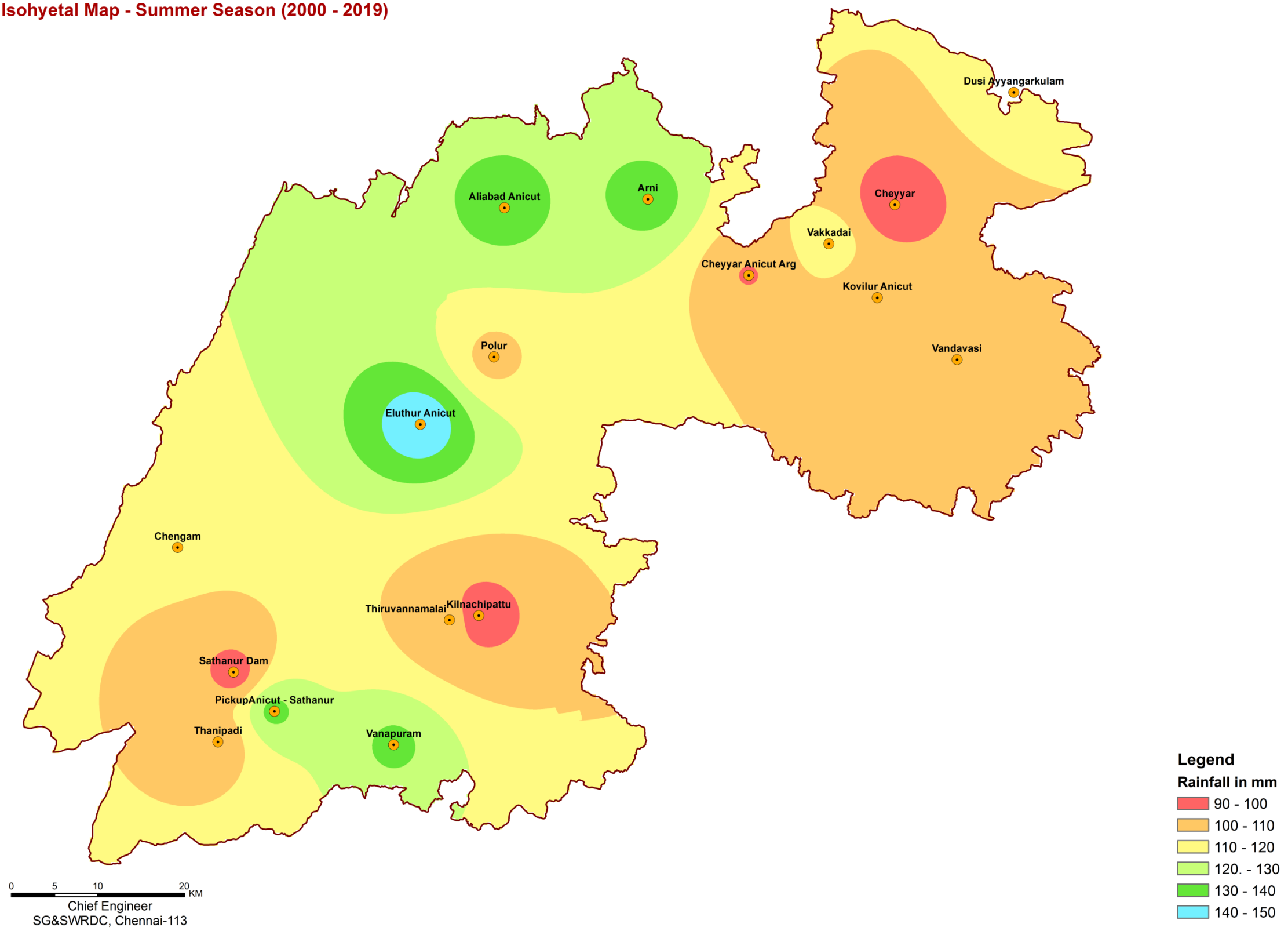
Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Above Normal Year 2019

Isohyetal Map - Above Normal Year 2019 (2000 - 2019)

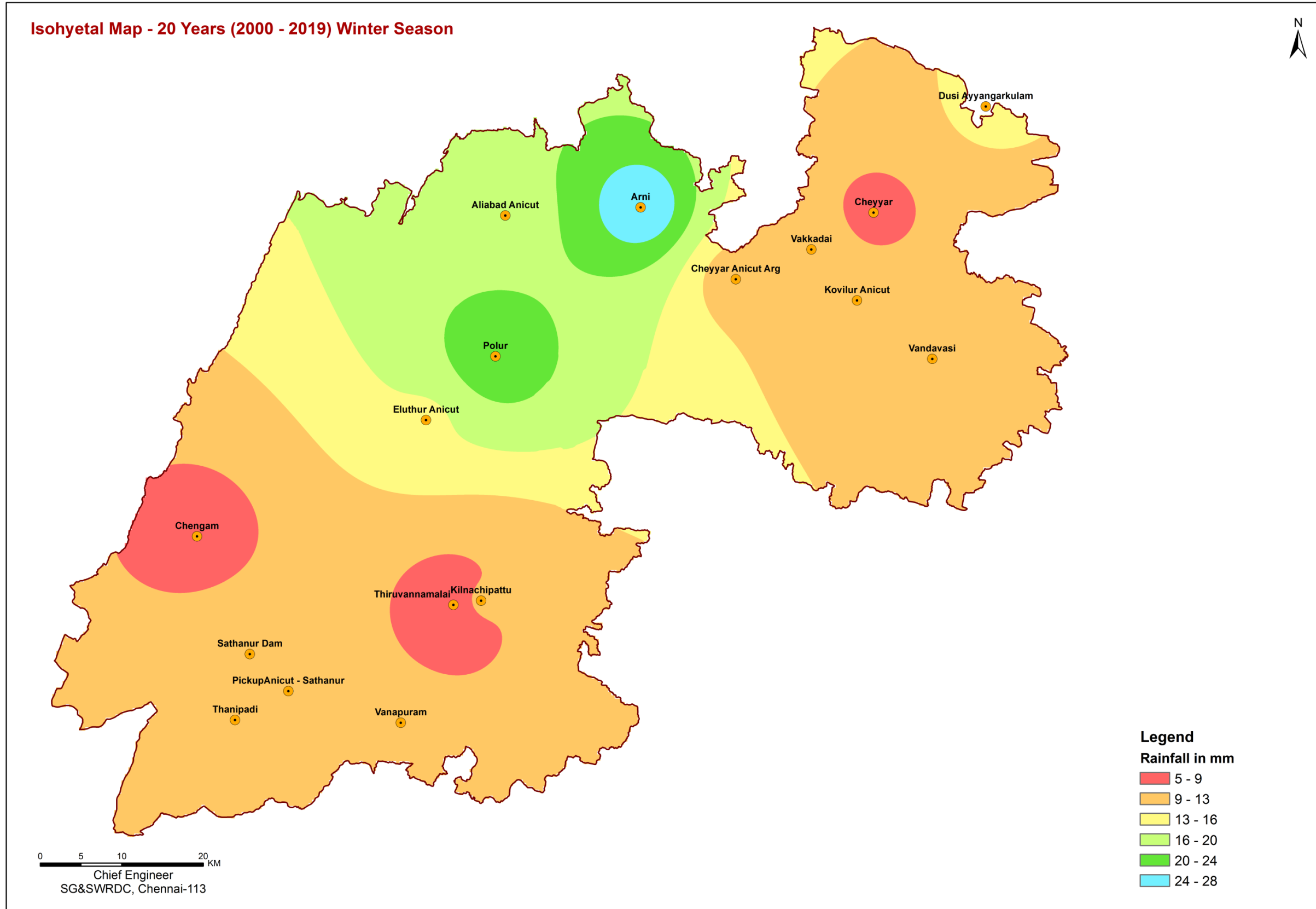


Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Summer Season

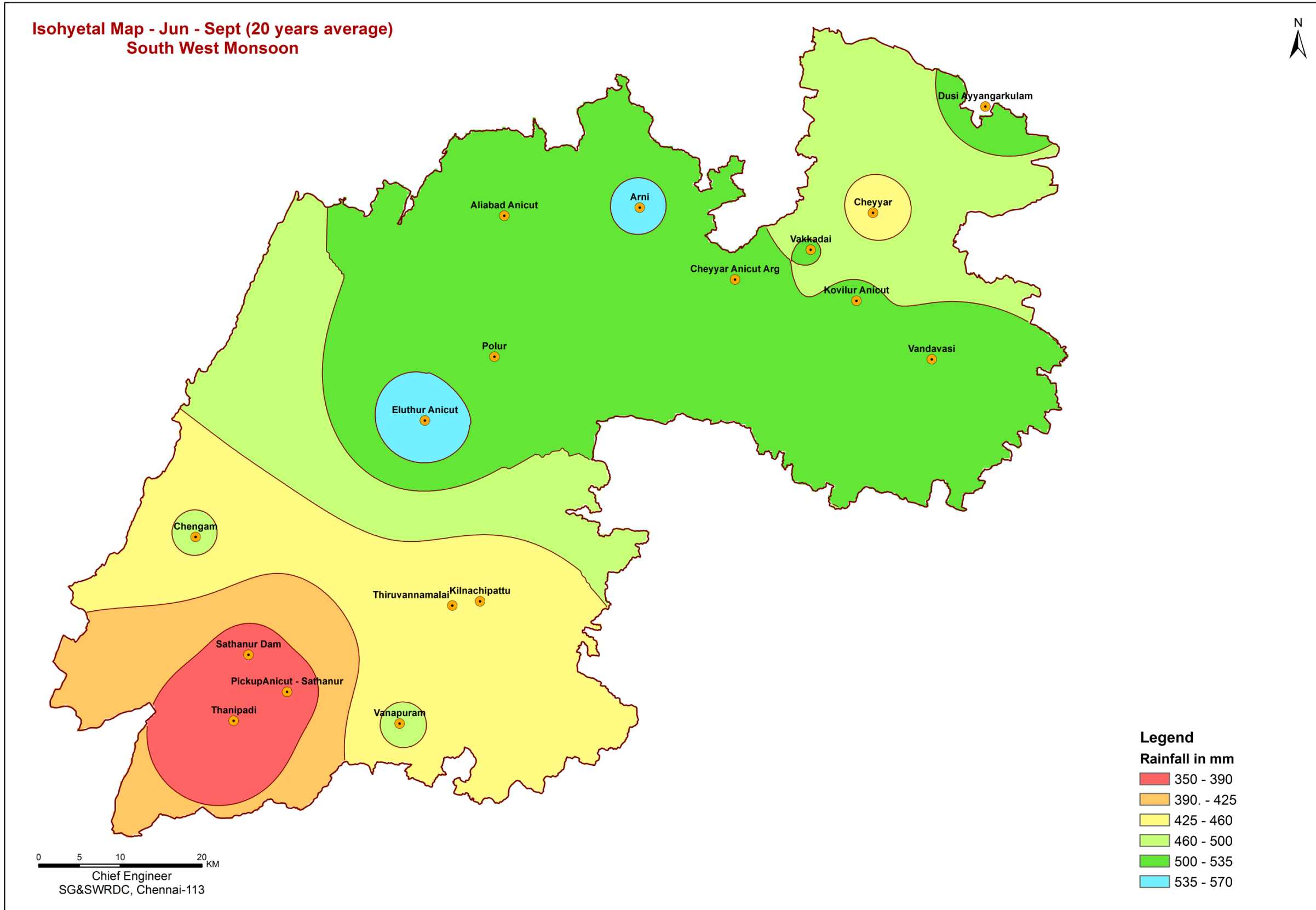
Isohyetal Map - Summer Season (2000 - 2019)



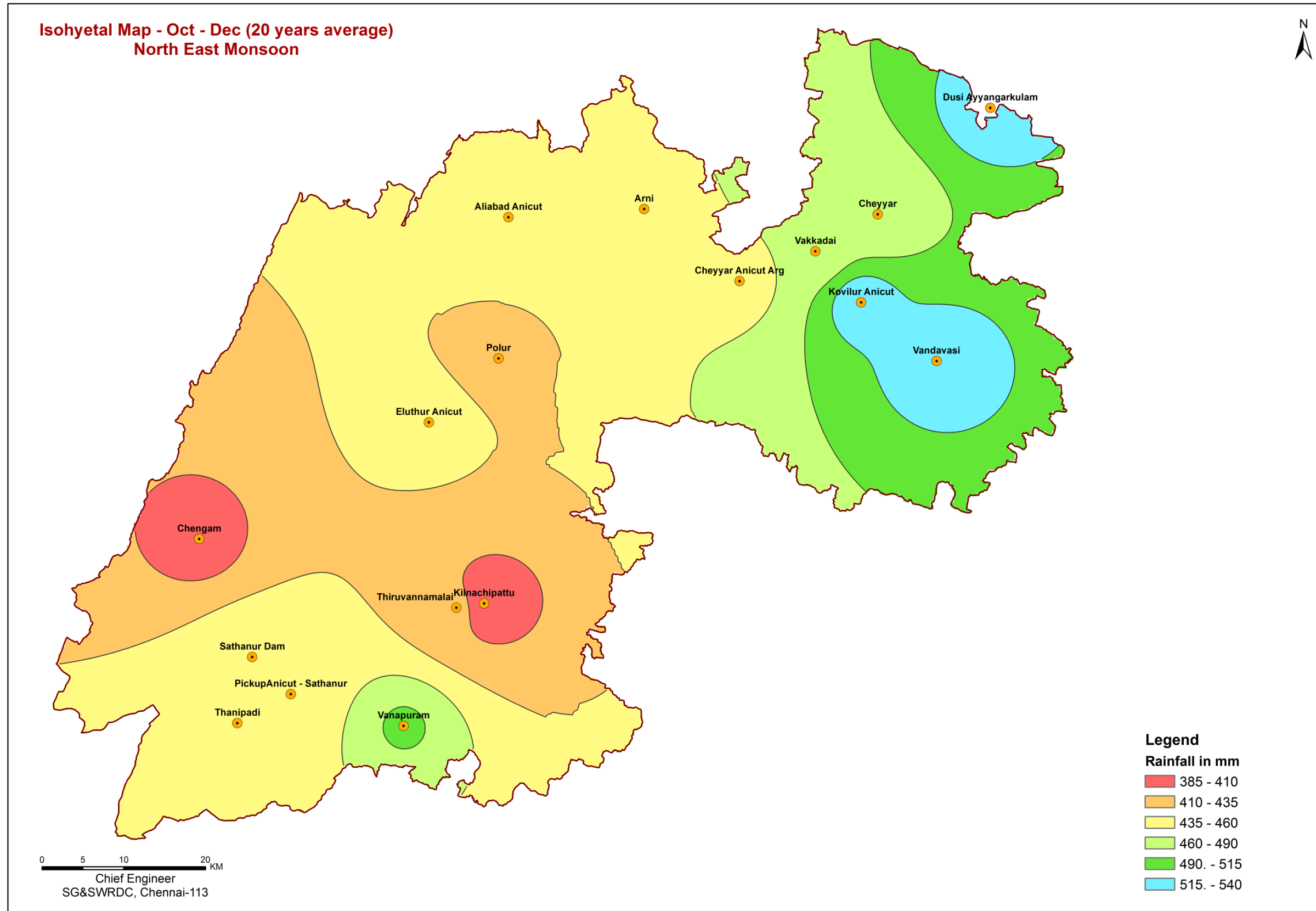
Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Winter Season



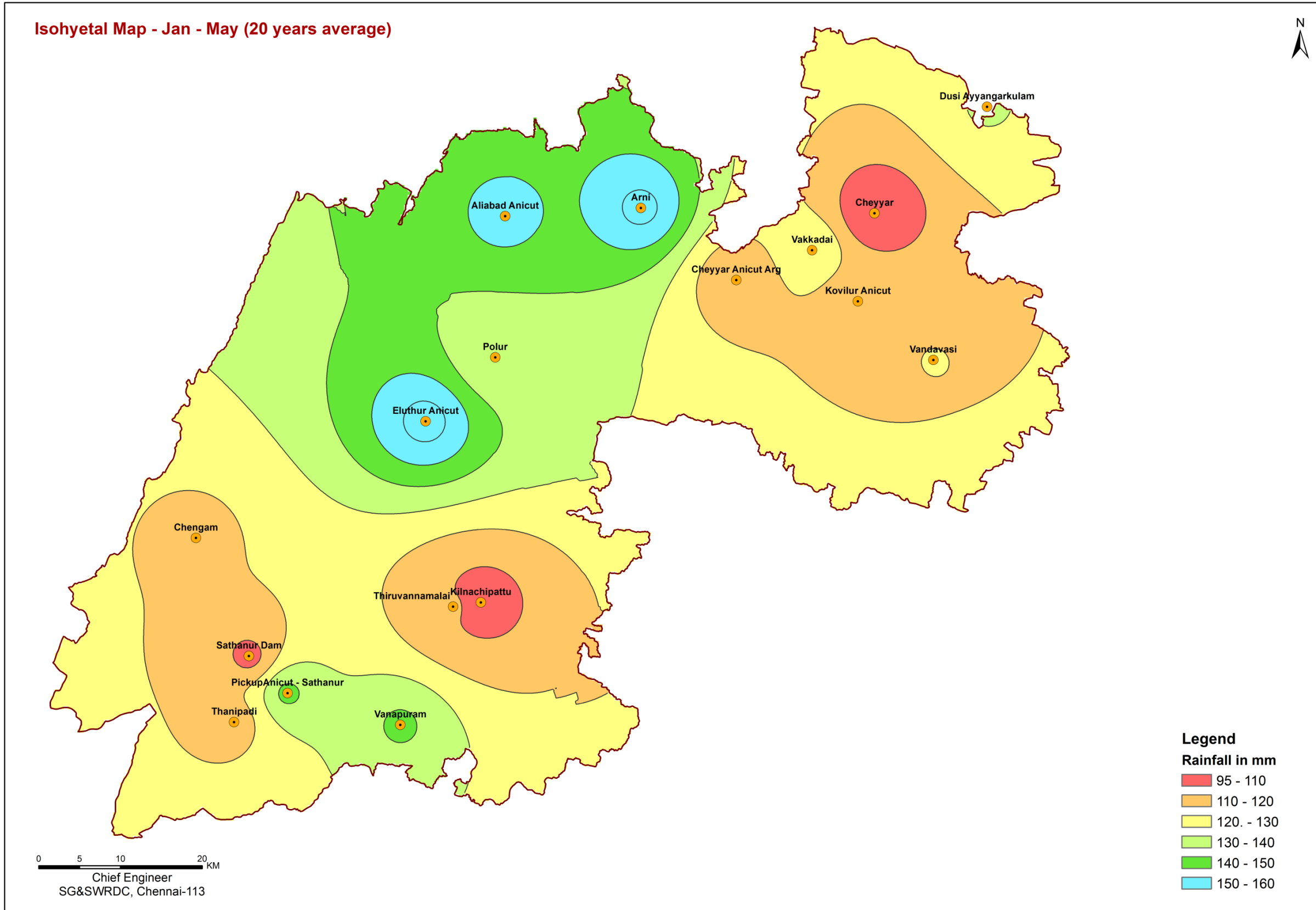
Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Jun - Sept



Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Oct - Dec



Tiruvanamalai District - Isohyetal Map - 20 years (2000 - 2019) Jan - May

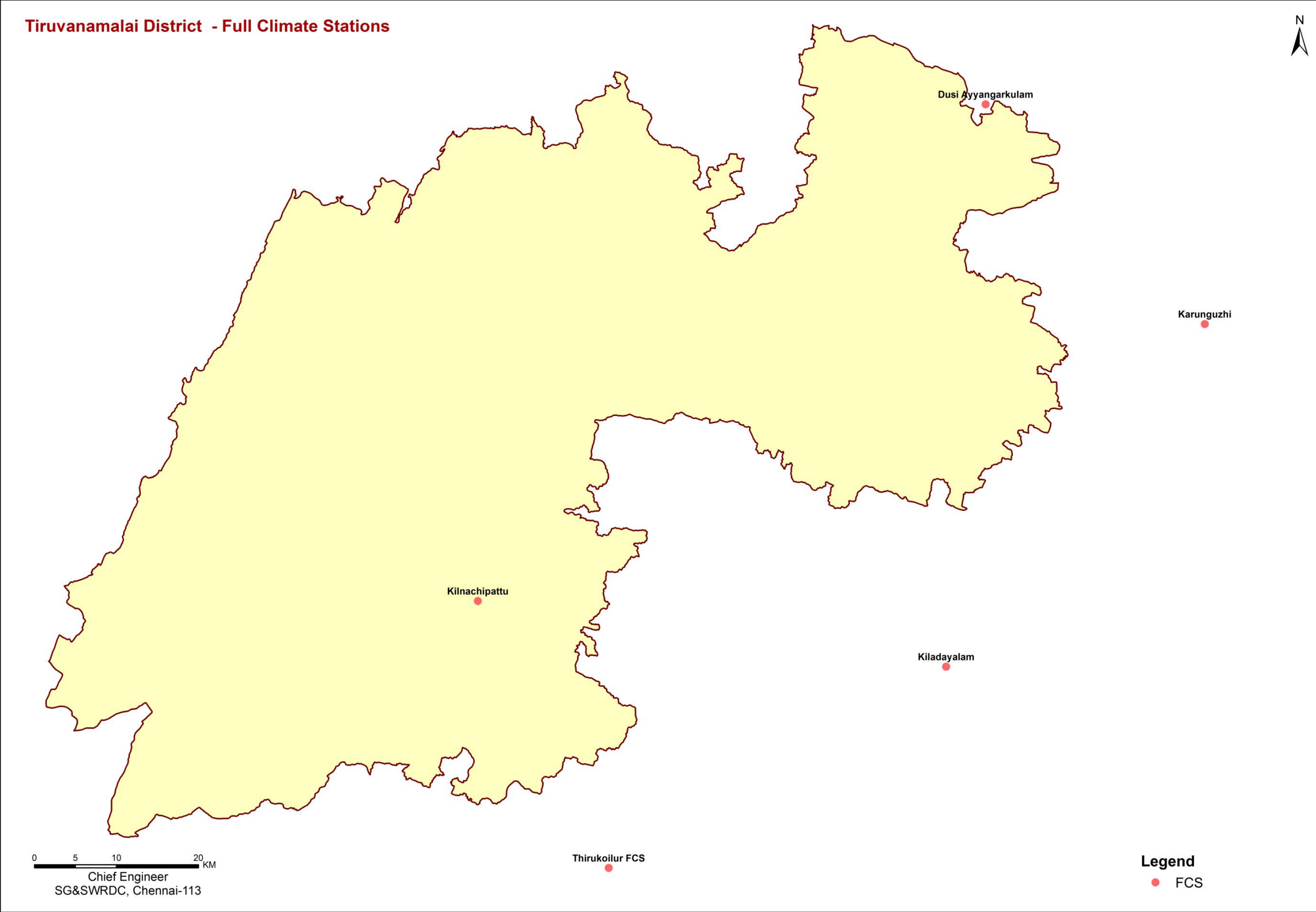


Dependable Rainfall in Tiruvanamalai District

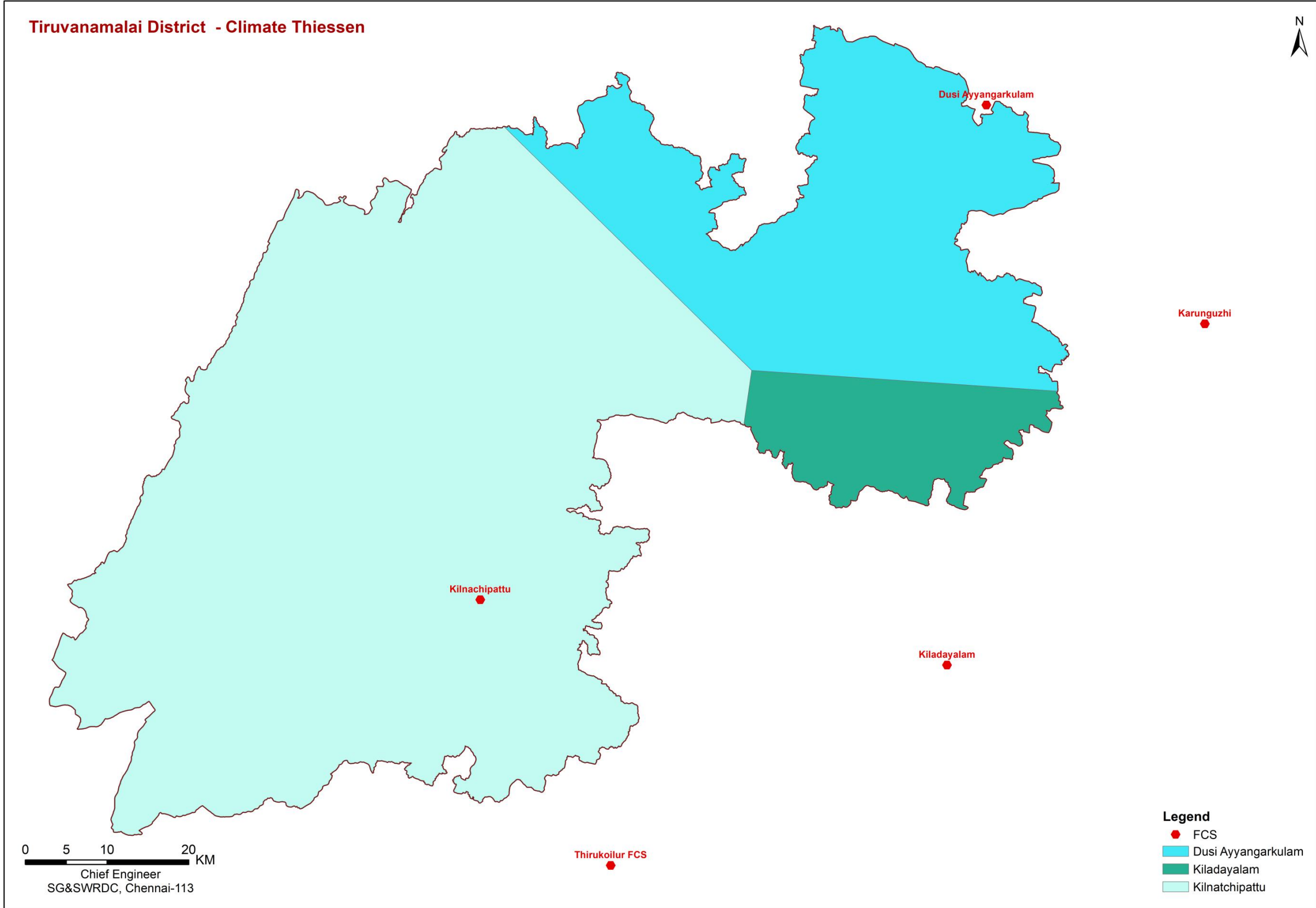
Year	Basin Average	Rank	Probability	Depedability %	
2015	1536.19	1	0.05	5.0	75% Dependable Rainfall of Tiruvanamalai District = 909.82 mm 50% Dependable Rainfall of Tiruvanamalai District =1070.92 mm
2005	1478.65	2	0.10	10.0	
2010	1250.29	3	0.15	15.0	
2017	1242.67	4	0.20	20.0	
2011	1215.52	5	0.25	25.0	
2007	1199.16	6	0.30	30.0	
2008	1173.55	7	0.35	35.0	
2003	1103.15	8	0.40	40.0	
2001	1092.18	9	0.45	45.0	
2000	1070.92	10	0.50	50.0	
2019	1069.33	11	0.55	55.0	
2004	1046.71	12	0.60	60.0	
2012	989.04	13	0.65	65.0	
2014	921.70	14	0.70	70.0	
2009	909.82	15	0.75	75.0	
2013	873.52	16	0.80	80.0	
2006	813.76	17	0.85	85.0	
2018	747.68	18	0.90	90.0	
2002	728.58	19	0.95	95.0	
2016	679.13	20	1.00	100.0	

Climatic Data from Full Climatic Stations

Tiruvanamalai District - Full Climate Stations

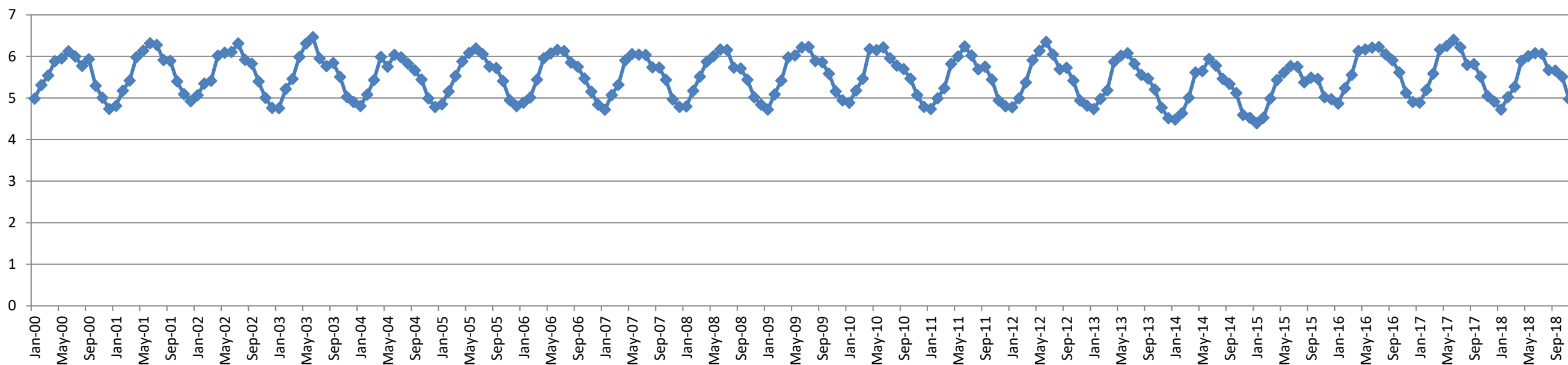


FCS - Thiessen Polygon of Fully Climatic Station

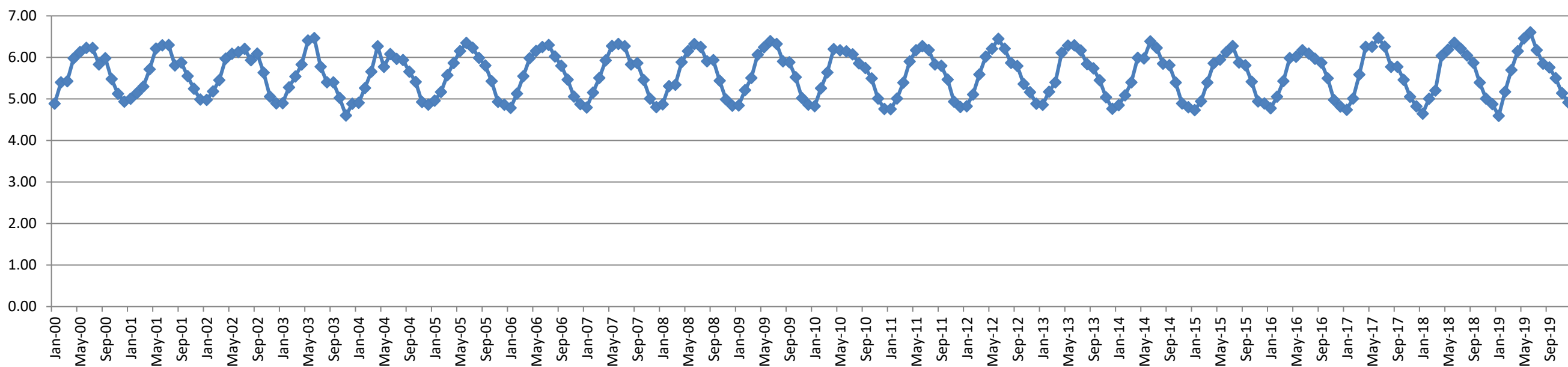


Evapotranspiration

Dusi Ayyankarkulam



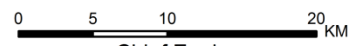
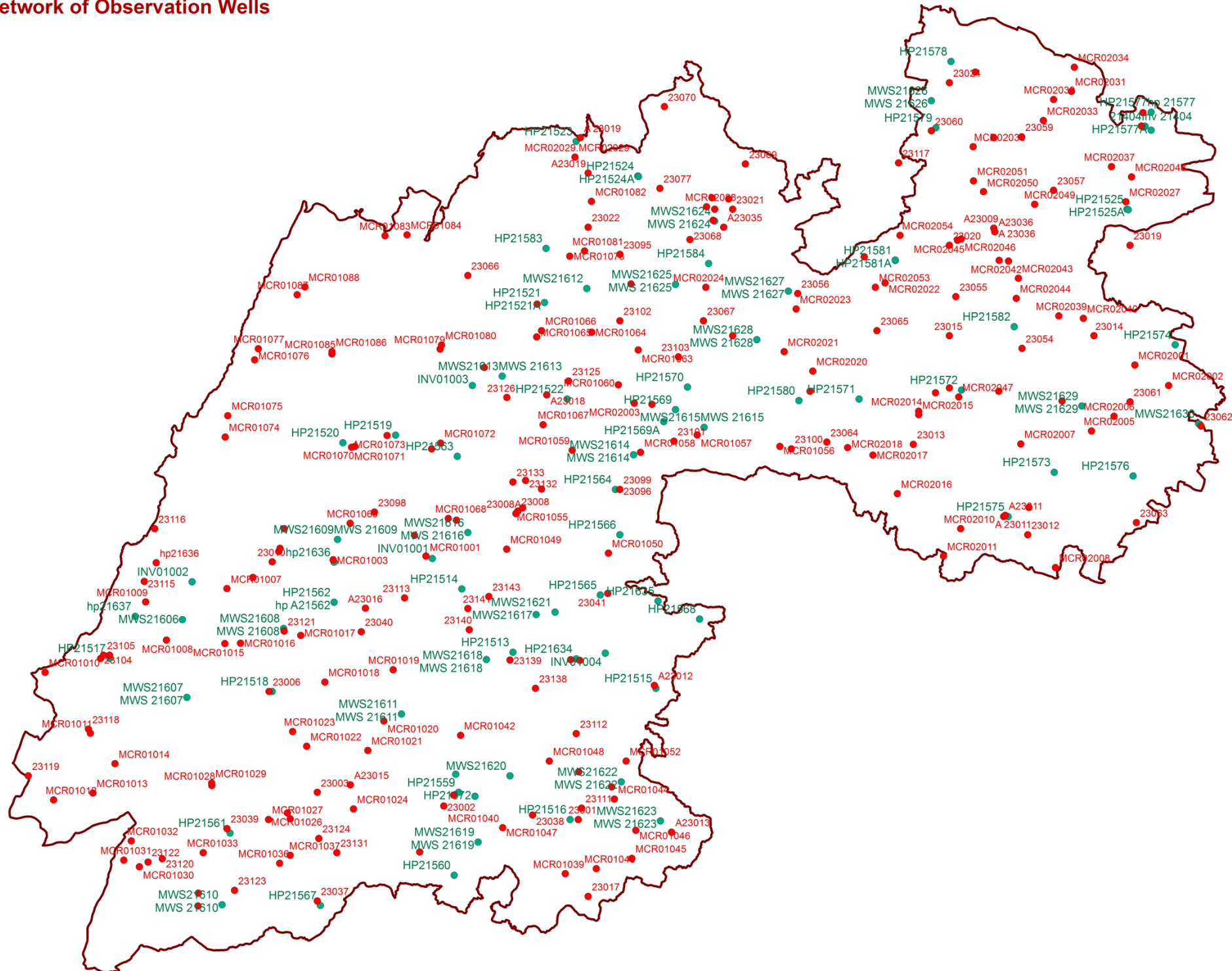
Kilnatchipattu



GROUND WATER

Tiruvanamalai District - Network of Observation Wells

Network of Observation Wells



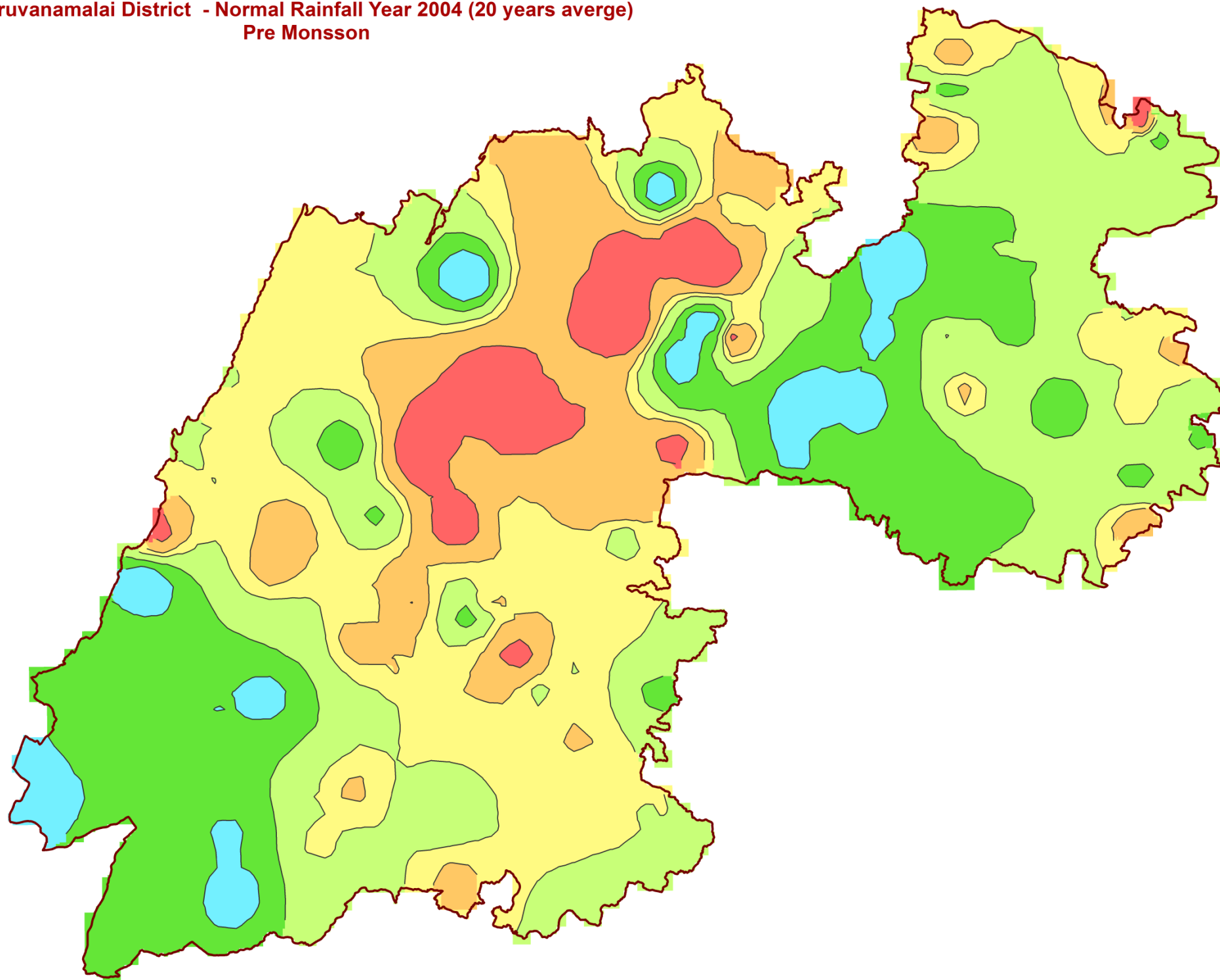
Chief Engineer
SG&SWRDC, Chennai-113

Legend

- Dug Well
- Bore Well







Tiruvanamalai District - Groundwater Level in a Normal Rainfall Year 2004 - Pre Monsson

Tiruvanamalai District - Normal Rainfall Year 2004 (20 years average)
Pre Monsson

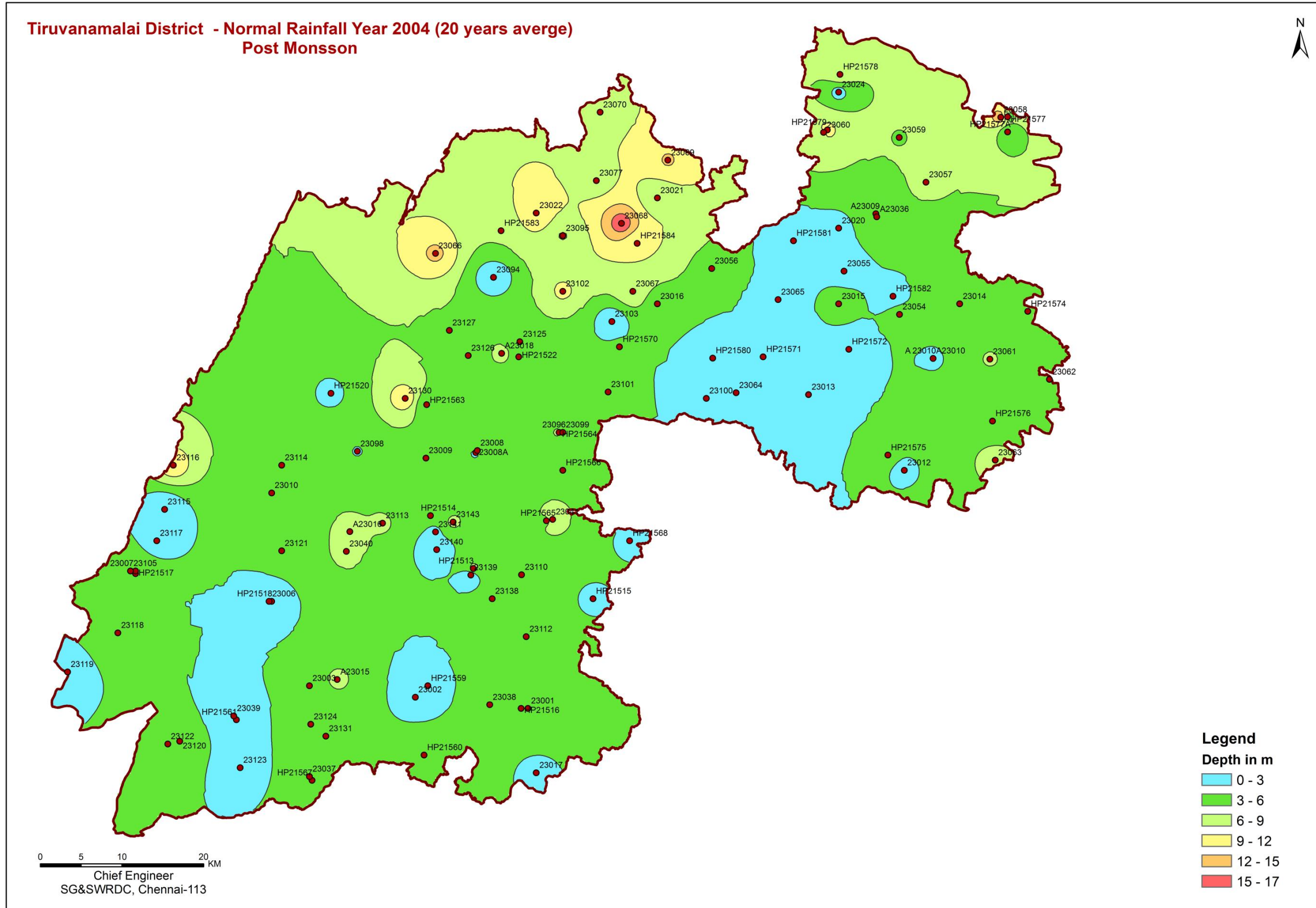


0 5 10 20 KM

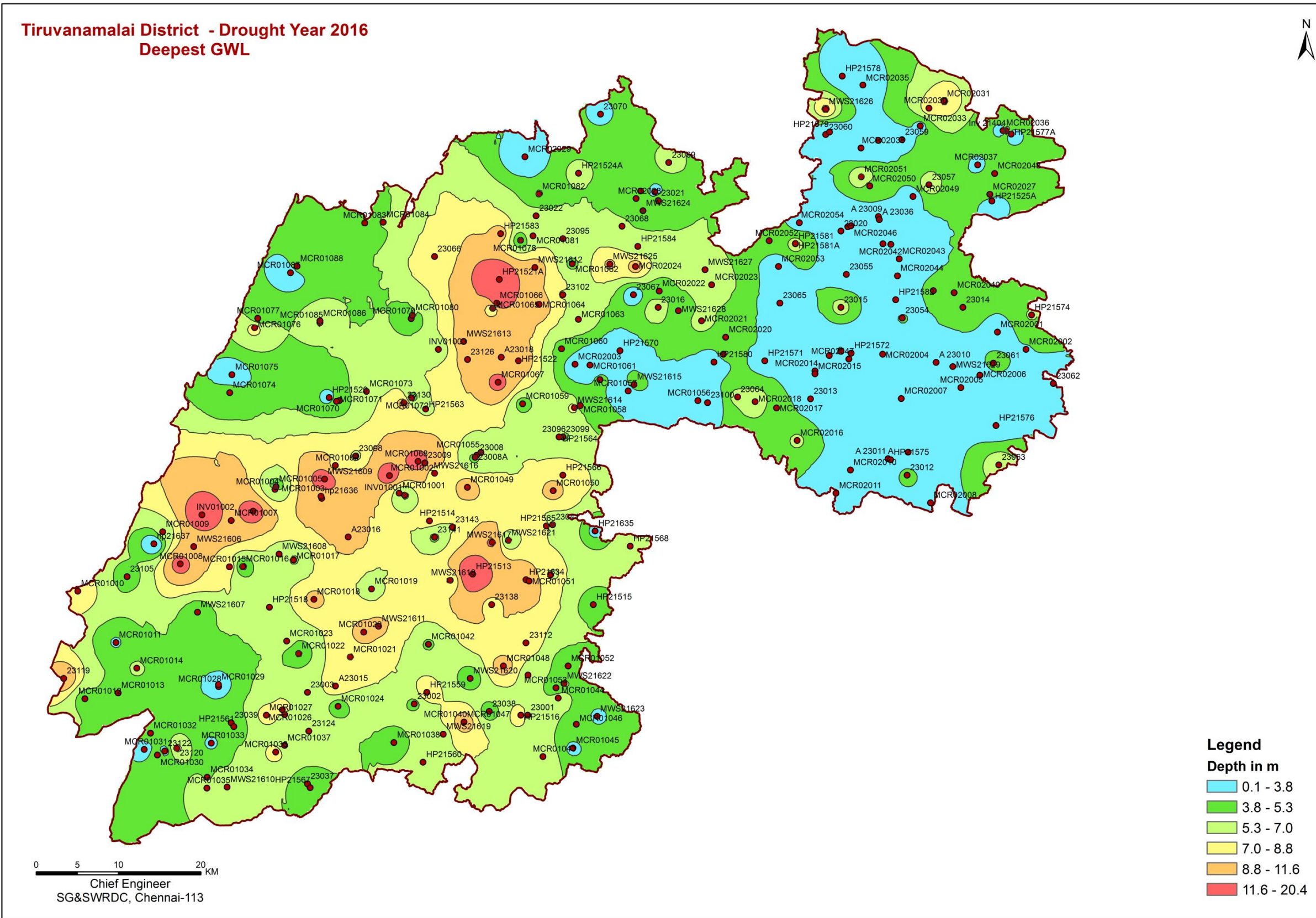
Chief Engineer
SG&SWRDC, Chennai-113

- Legend**
Depth in m
-  -0.15- 3
 -  3 - 5
 -  5 - 7
 -  7 - 8
 -  8 - 10
 -  10 - 15

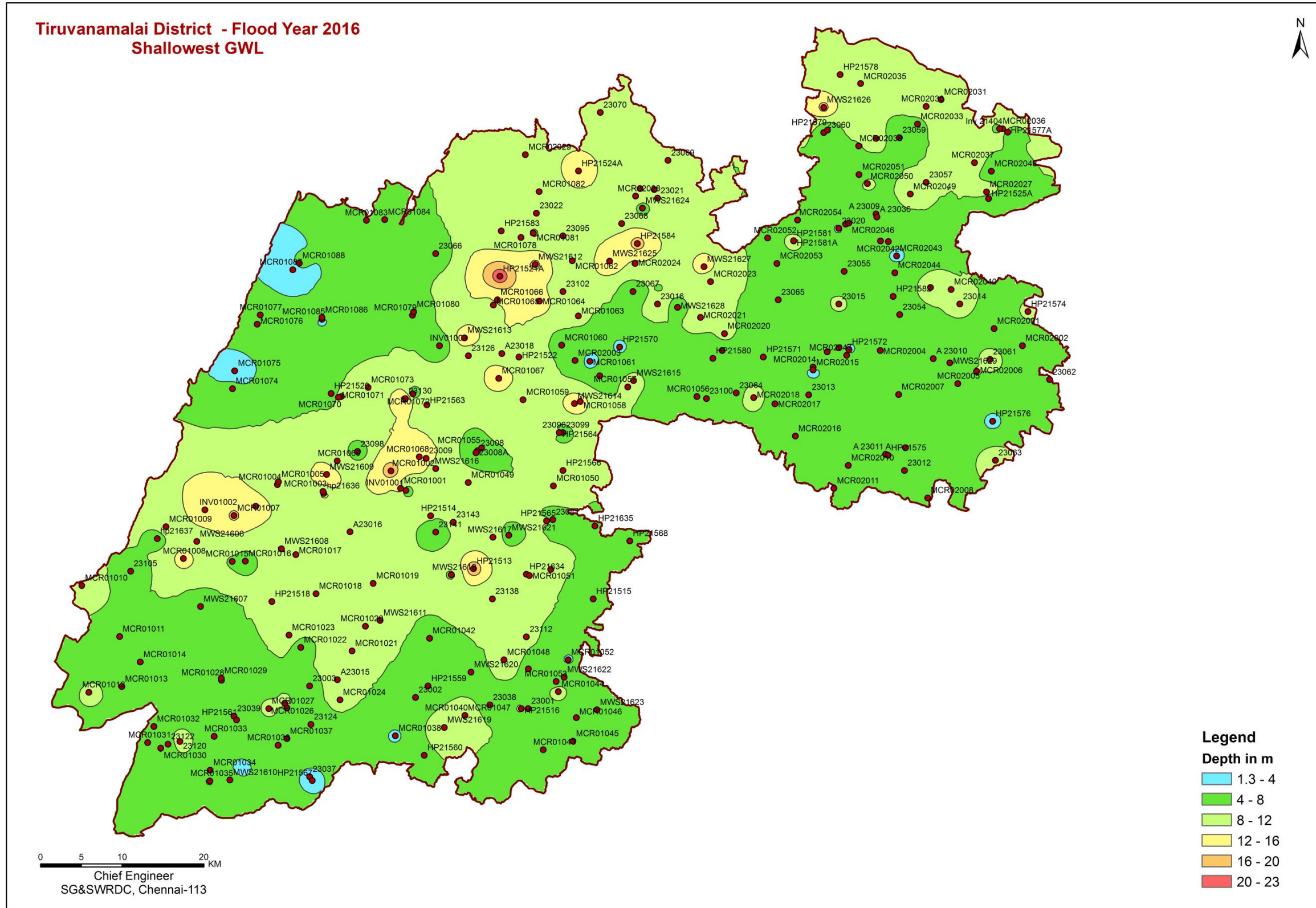
Tiruvanamalai District - Groundwater Level in a Normal Rainfall Year 2004 - Post Monsson



Tiruvanamalai District - Drought Year 2016 - Deepest GWL

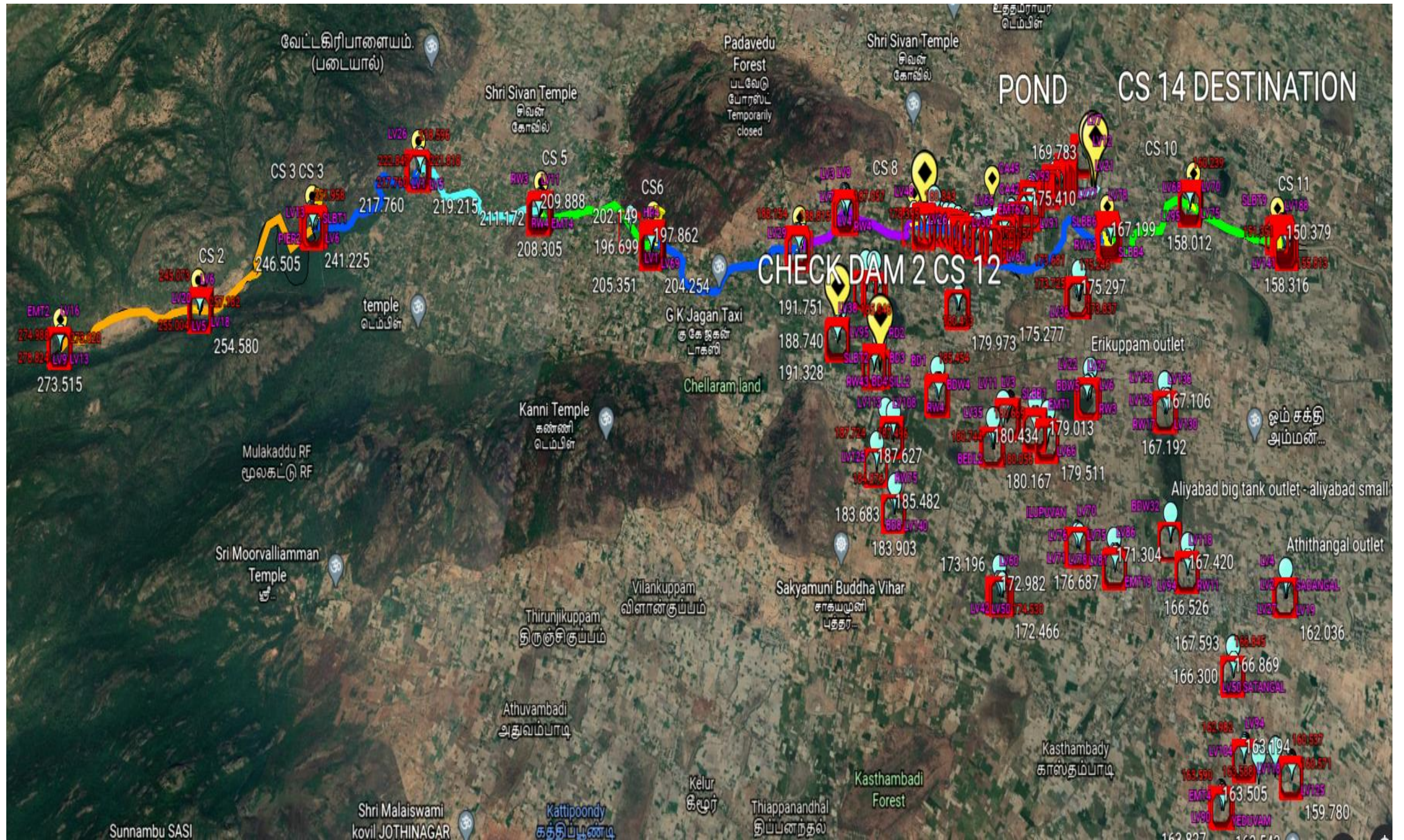


Tiruvanamalai District - Wet Year 2016 - Shallowest GWL



**RESULTS OF TOPOGRAPHICAL SURVEY CONDUCTED
IN PILOT NAGANADHI SUBBASIN**

WATER INFORMATION SYSTEM



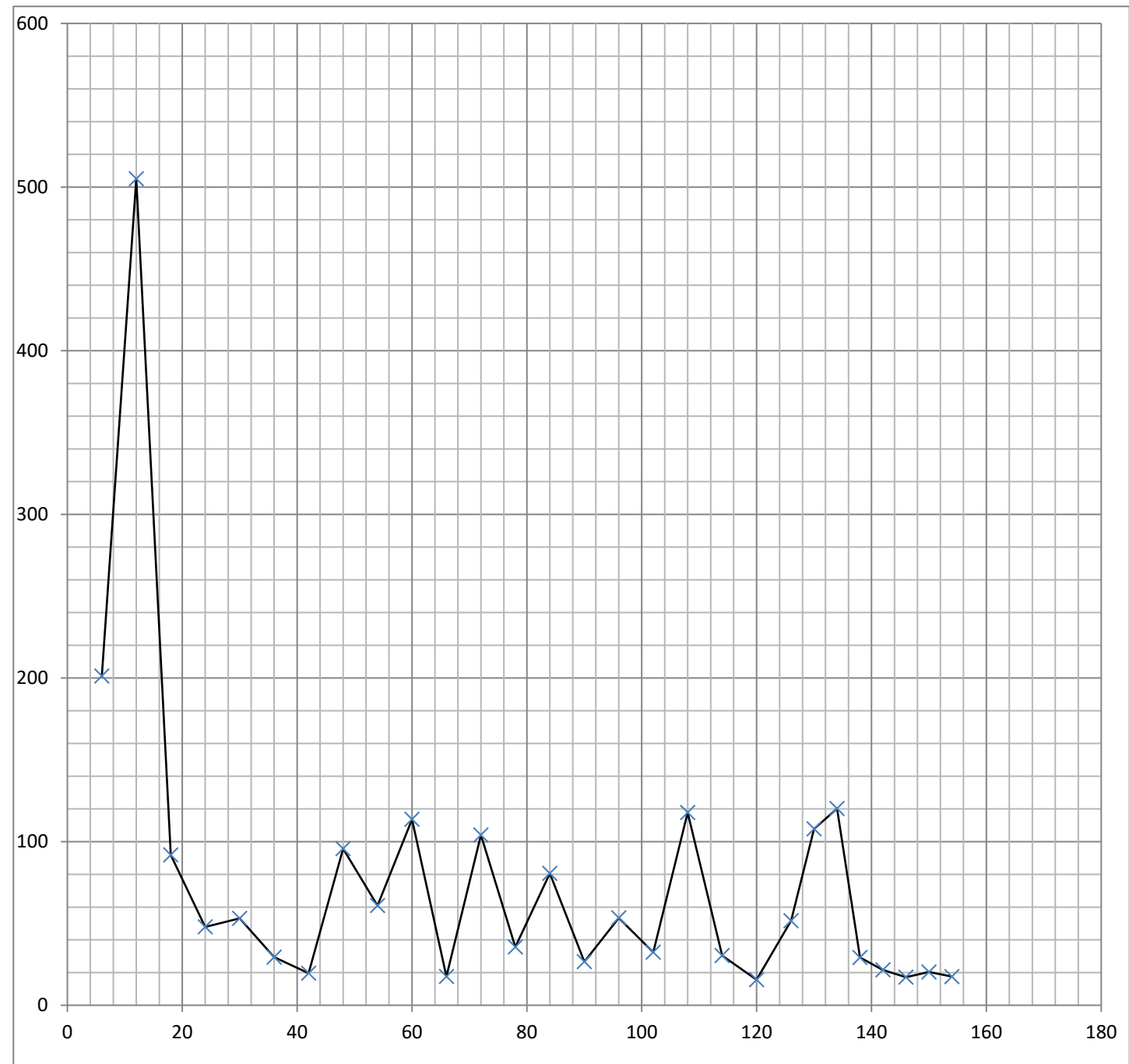
**GEOPHYSICAL SURVEYS IN SELECTED
LOCATION OF TIRUVANNAMALAI
DISTRICT**

Anakkavur

Depth	1/R	R
6	201.2072	0.00497
12	505.0505	0.00198
18	91.8274	0.01089
24	47.8698	0.02089
30	53.0786	0.01884
36	29.4118	0.03400
42	19.5465	0.05116
48	95.6938	0.01045
54	60.9013	0.01642
60	113.6364	0.00880
66	17.5408	0.05701
72	104.0583	0.00961
78	35.5999	0.02809
84	80.5802	0.01241
90	26.6241	0.03756
96	53.3618	0.01874
102	32.4149	0.03085
108	117.7856	0.00849
114	30.3490	0.03295
120	15.6079	0.06407

Depth	1/R	R
126	51.6529	0.01936
130	107.7586	0.00928
134	120.1923	0.00832
138	29.1630	0.03429
142	21.6029	0.04629
146	17.1615	0.05827
150	20.3211	0.04921
154	17.4886	0.05718

$\rho_1 = \text{VH}$ Gneiss with Fractures

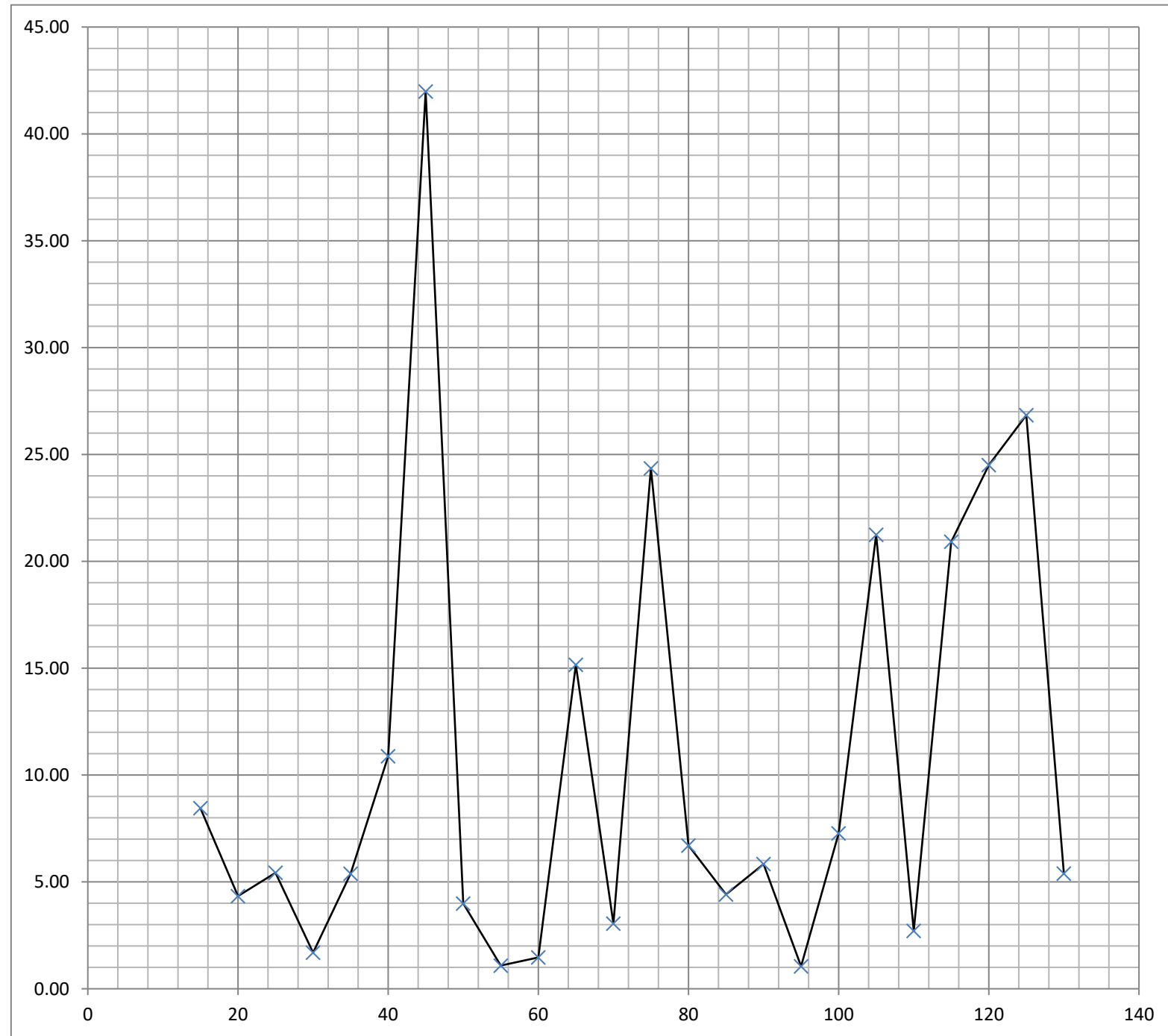


mottur

Depth	1/R	R
5	22.7687	0.04392
10	26.6170	0.03757
15	1.8370	0.54438
20	4.9259	0.20301
25	74.9625	0.01334
30	149.7006	0.00668
35	105.1525	0.00951
40	50.1002	0.01996
45	24.3072	0.04114
50	22.0702	0.04531
55	20.0441	0.04989
60	45.1467	0.02215
65	18.9934	0.05265
70	21.4041	0.04672
75	32.0821	0.03117
80	67.1592	0.01489
85	100.3009	0.00997
90	2.8281	0.35360
95	1.3120	0.76218
100	0.8667	1.15375

Depth	1/R	R
105	0.9027	1.10780
110	292.3977	0.00342
115	38.5208	0.02596
120	40.7830	0.02452
125	42.5170	0.02352
130	6.6975	0.14931
135	4.8497	0.20620
140	5.4048	0.18502
145	1.8177	0.55016
150	3.5823	0.27915
155	2.5892	0.38622
160	2.4333	0.41097
165	26.7523	0.03738
170	16.2655	0.06148
175	52.8821	0.01891
180	34.6021	0.02890

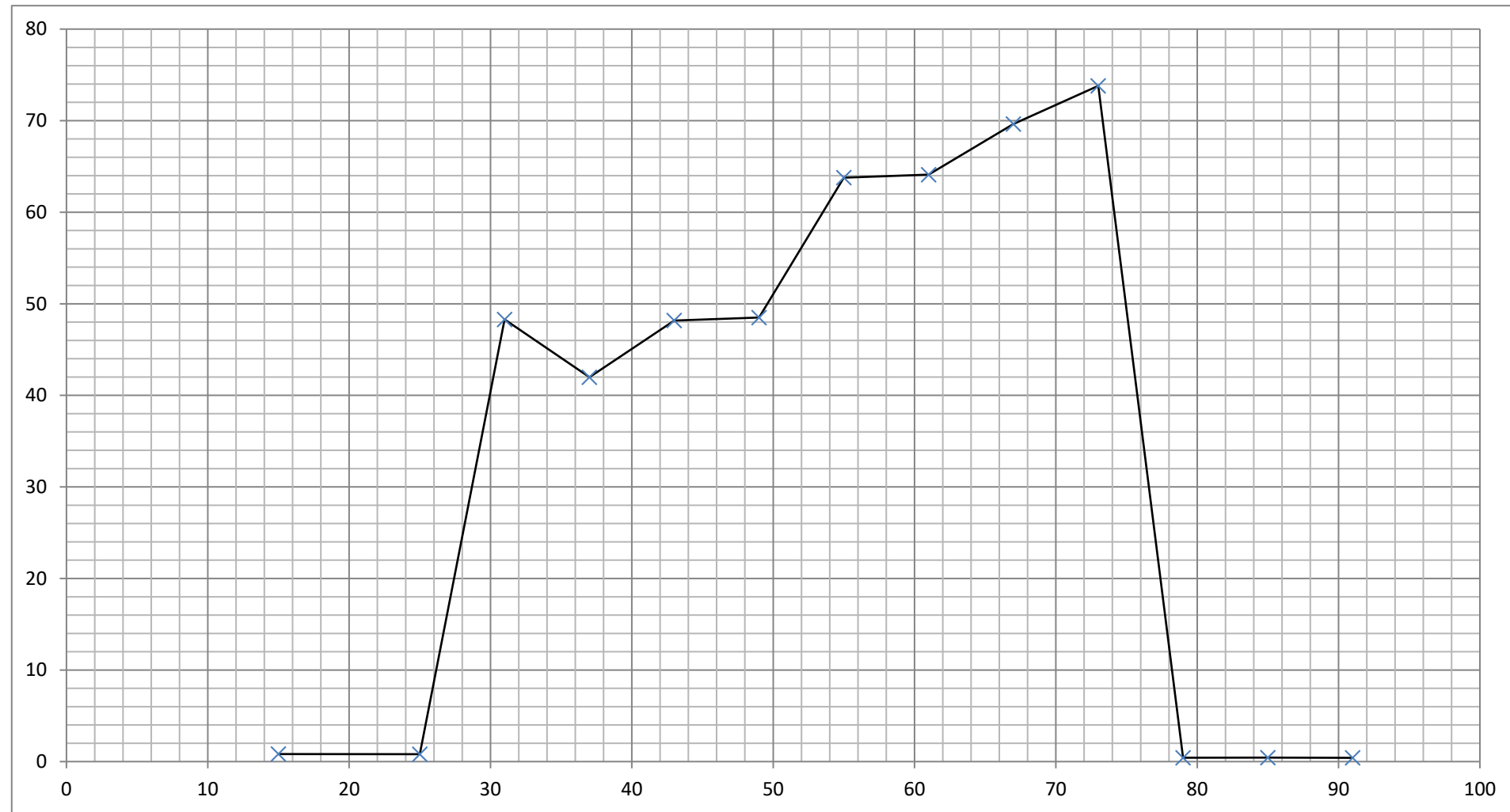
$\rho_1 = \text{LI}$ Gneiss with Fractures



**Kaniyampondi
Shanmugam**

Depth	1/R	R
15	0.8304	1.20417
25	0.8054	1.24157
31	48.2859	0.02071
37	41.9815	0.02382
43	48.1696	0.02076
49	48.4966	0.02062
55	63.7755	0.01568
61	64.1026	0.01560
67	69.6379	0.01436
73	73.8007	0.01355
79	0.4212	2.37397
85	0.4347	2.30030
91	0.4103	2.43750

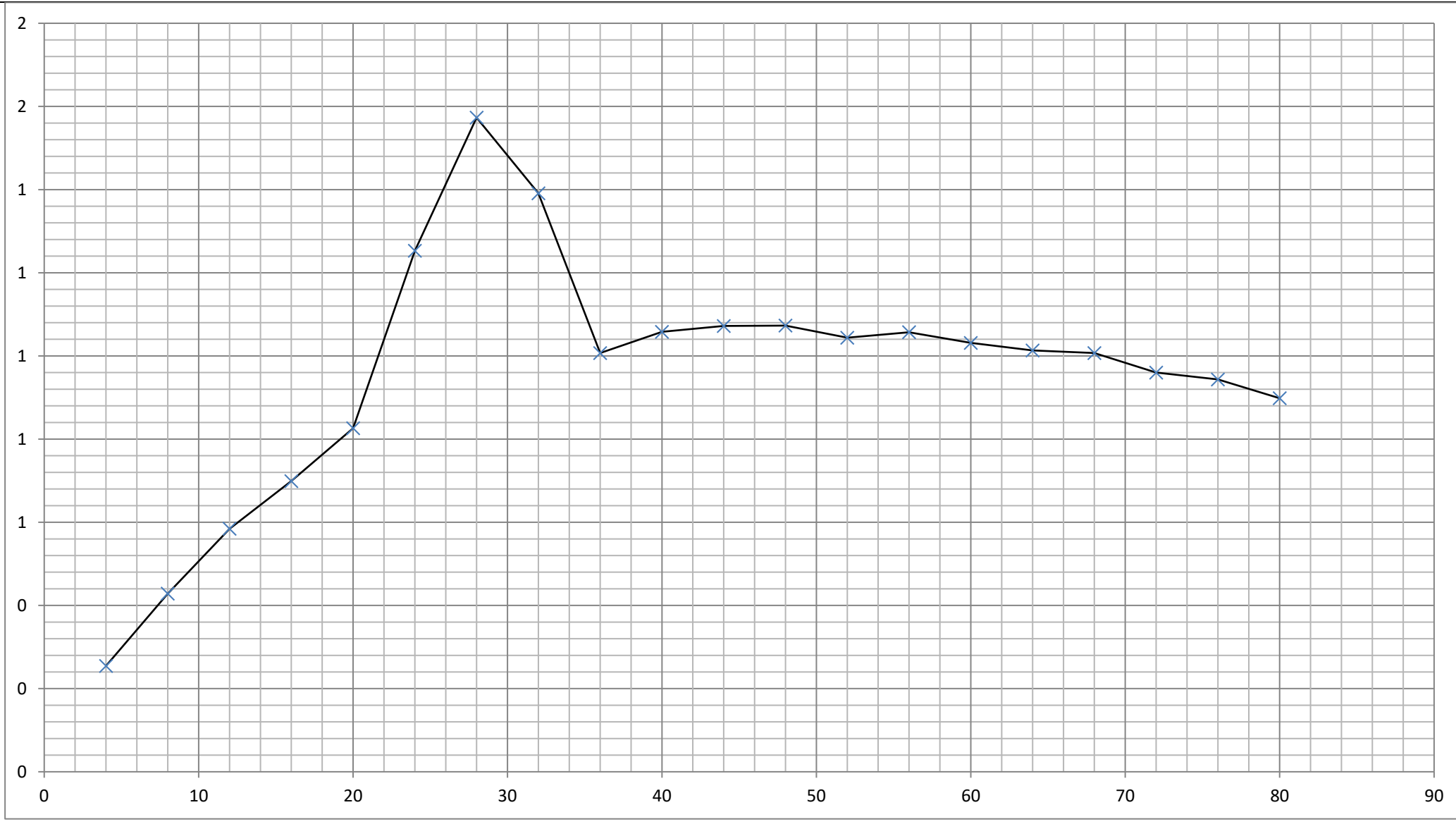
$\rho_1 = \text{VH Gneiss with Fractures}$



Melsesamangalam

4	0.2546	3.92812
8	0.4283	2.33461
12	0.5844	1.71130
16	0.6990	1.43065
20	0.8261	1.21056
24	1.2530	0.79811
28	1.5731	0.63567
32	1.3911	0.71883
36	1.0070	0.99308
40	1.0579	0.94526
44	1.0721	0.93278
48	1.0731	0.93191
52	1.0438	0.95801
56	1.0571	0.94602
60	1.0314	0.96953
64	1.0132	0.98694
68	1.0070	0.99308
72	0.9600	1.04166
76	0.9435	1.05986
80	0.8983	1.11318

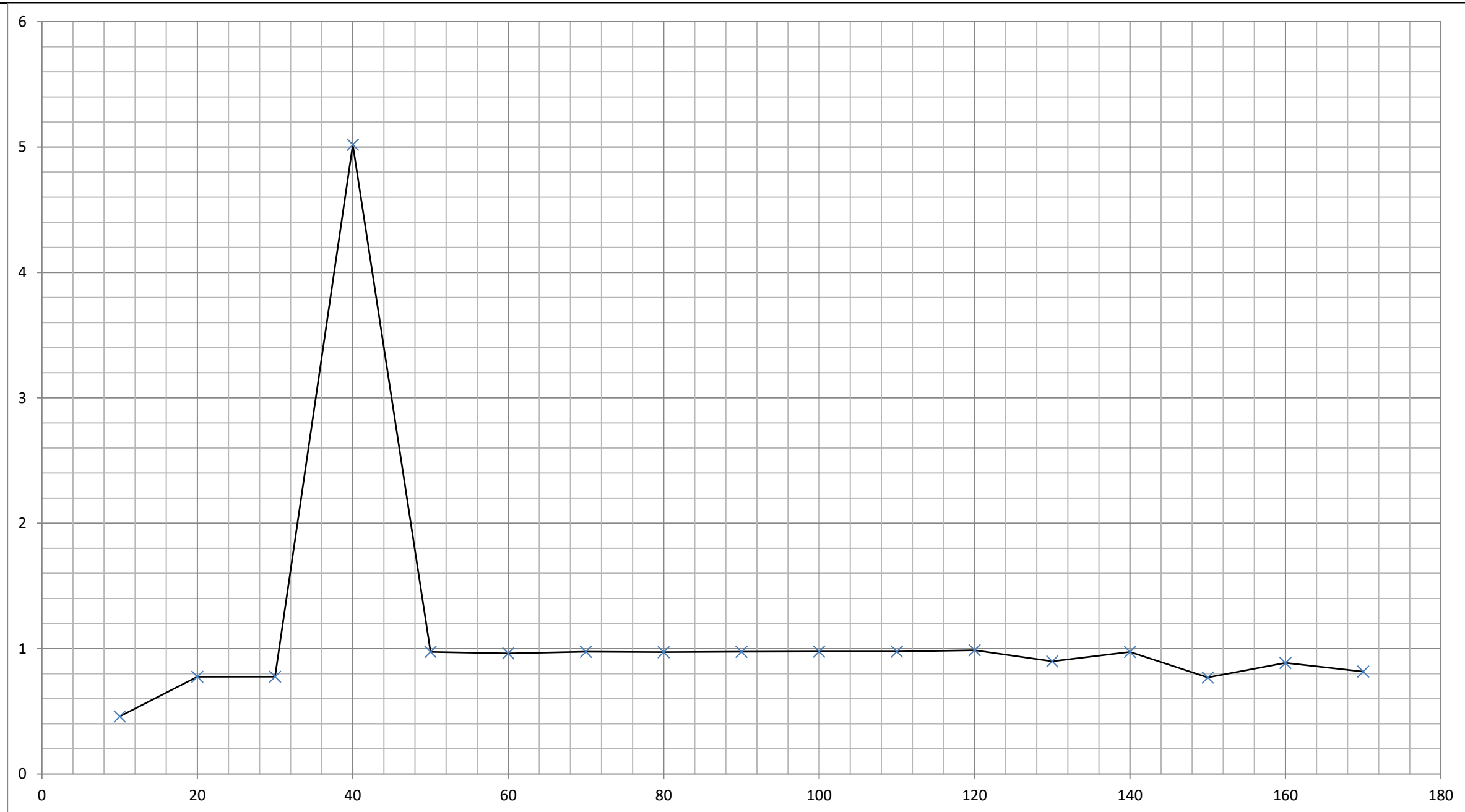
ρ_1 = VH Gneiss with Fractures



**Aratavadi
Manjula**

Depth	1/R	R
10	0.4588	2.17982
20	0.7756	1.28935
30	0.7762	1.28834
40	5.0184	0.19927
50	0.9742	1.02653
60	0.9622	1.03927
70	0.9751	1.02558
80	0.9720	1.02884
90	0.9750	1.02567
100	0.9767	1.02390
110	0.9767	1.02383
120	0.9874	1.01280
130	0.8985	1.11294
140	0.9735	1.02720
150	0.7696	1.29936
160	0.8858	1.12895
170	0.8167	1.22440

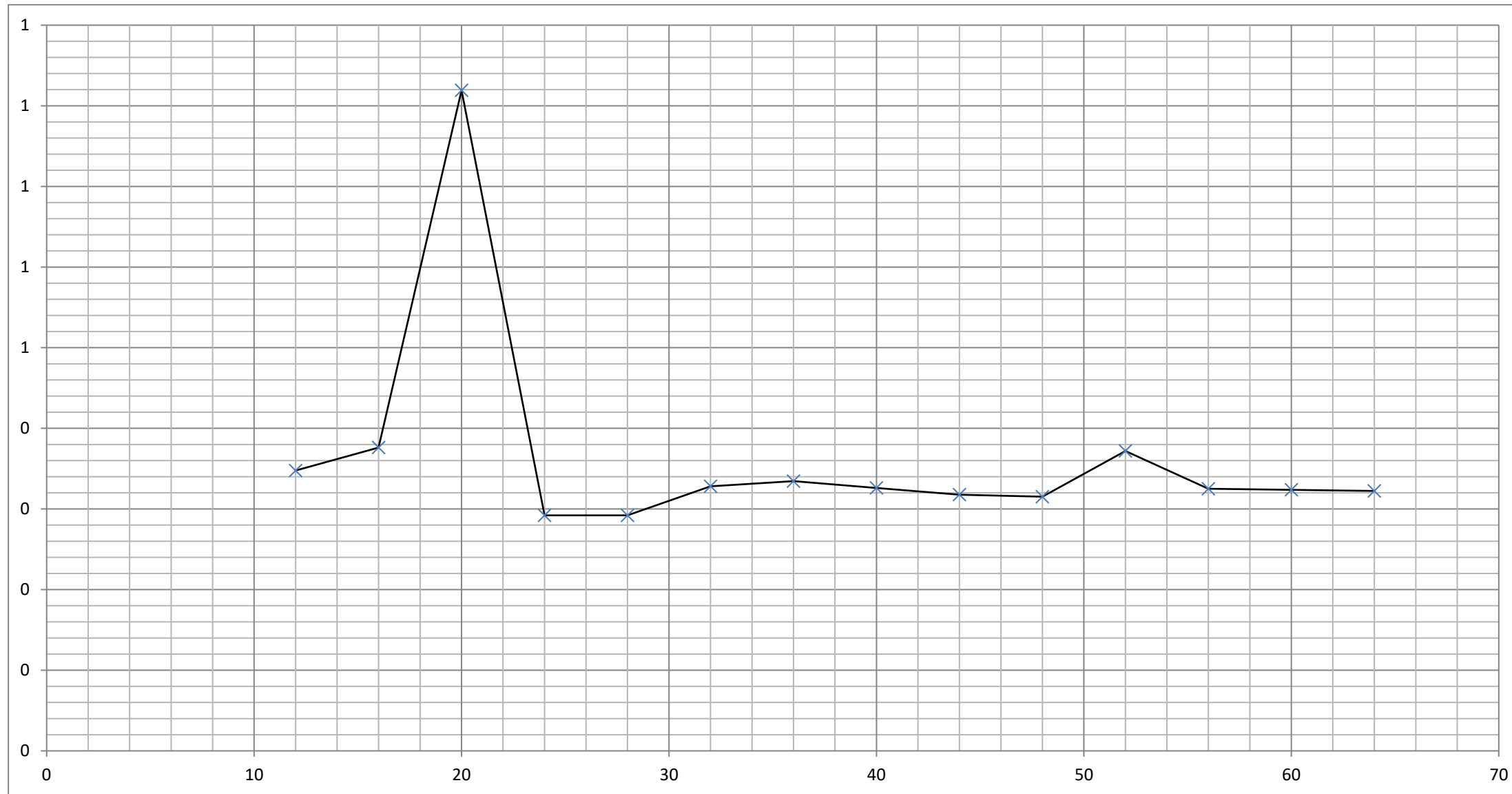
ρ_1 = VH Gneiss with Fractures



**Melchengam
Murugammal**

Depth	1/R	R
12	0.3476	2.87683
16	0.3761	2.65877
20	0.8192	1.22067
24	0.2921	3.42365
28	0.2921	3.42365
32	0.3281	3.04791
36	0.3345	2.98971
40	0.3261	3.06691
44	0.3177	3.14771
48	0.3152	3.17263
52	0.3719	2.68874
56	0.3250	3.07673
60	0.3238	3.08865
64	0.3223	3.10285

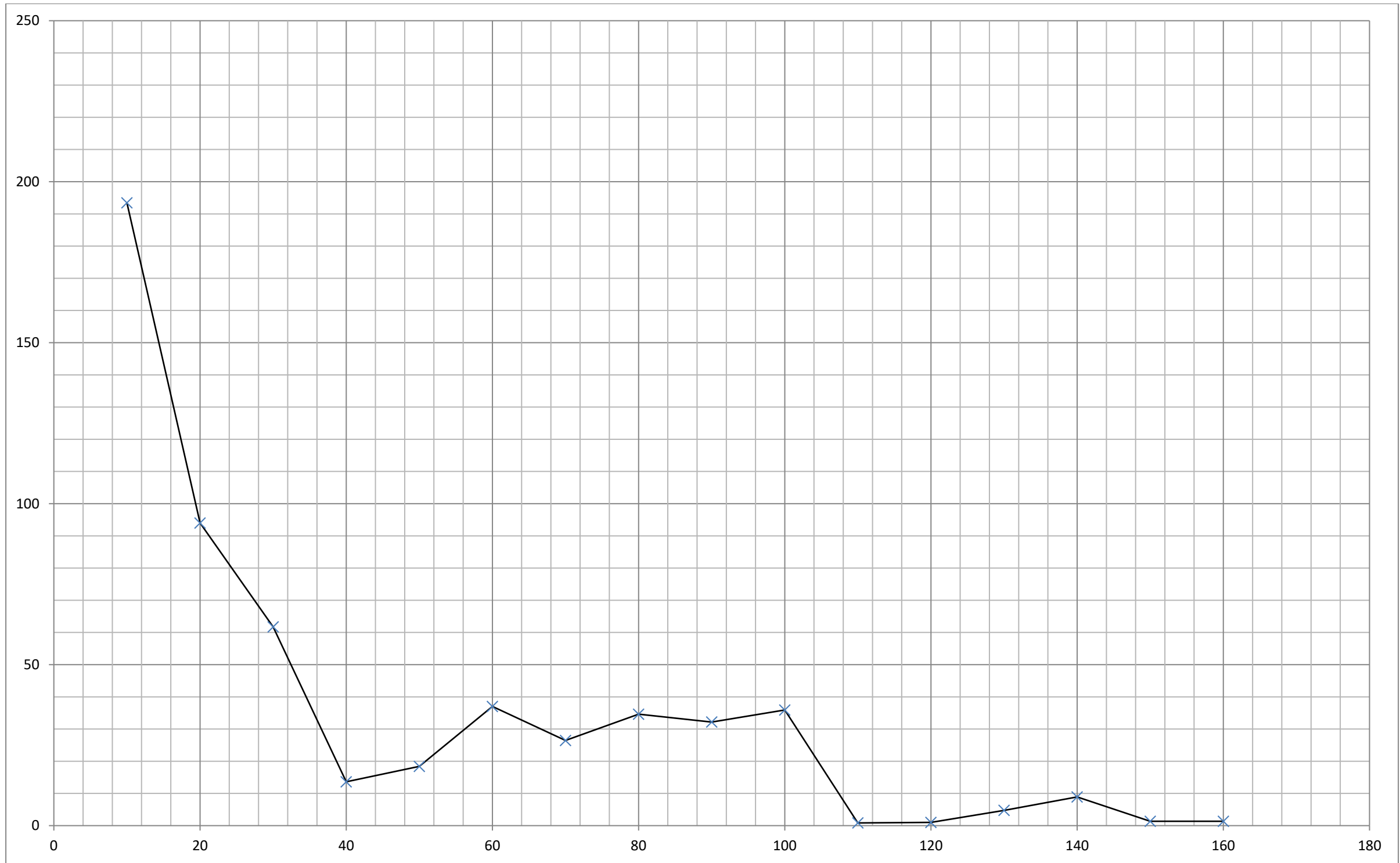
ρ_1 = VH Gneiss with Fractures



Chetpat
Radakrishnan

Depth	1/R	R
10	193.4236	0.00517
20	93.9850	0.01064
30	61.7284	0.01620
40	13.6110	0.07347
50	18.3993	0.05435
60	37.0096	0.02702
70	26.4480	0.03781
80	34.6141	0.02889
90	32.1750	0.03108
100	35.9066	0.02785
110	0.8371	1.19454
120	1.0007	0.99928
130	4.7423	0.21087
140	8.9142	0.11218
150	1.3487	0.74143
160	1.3544	0.73831

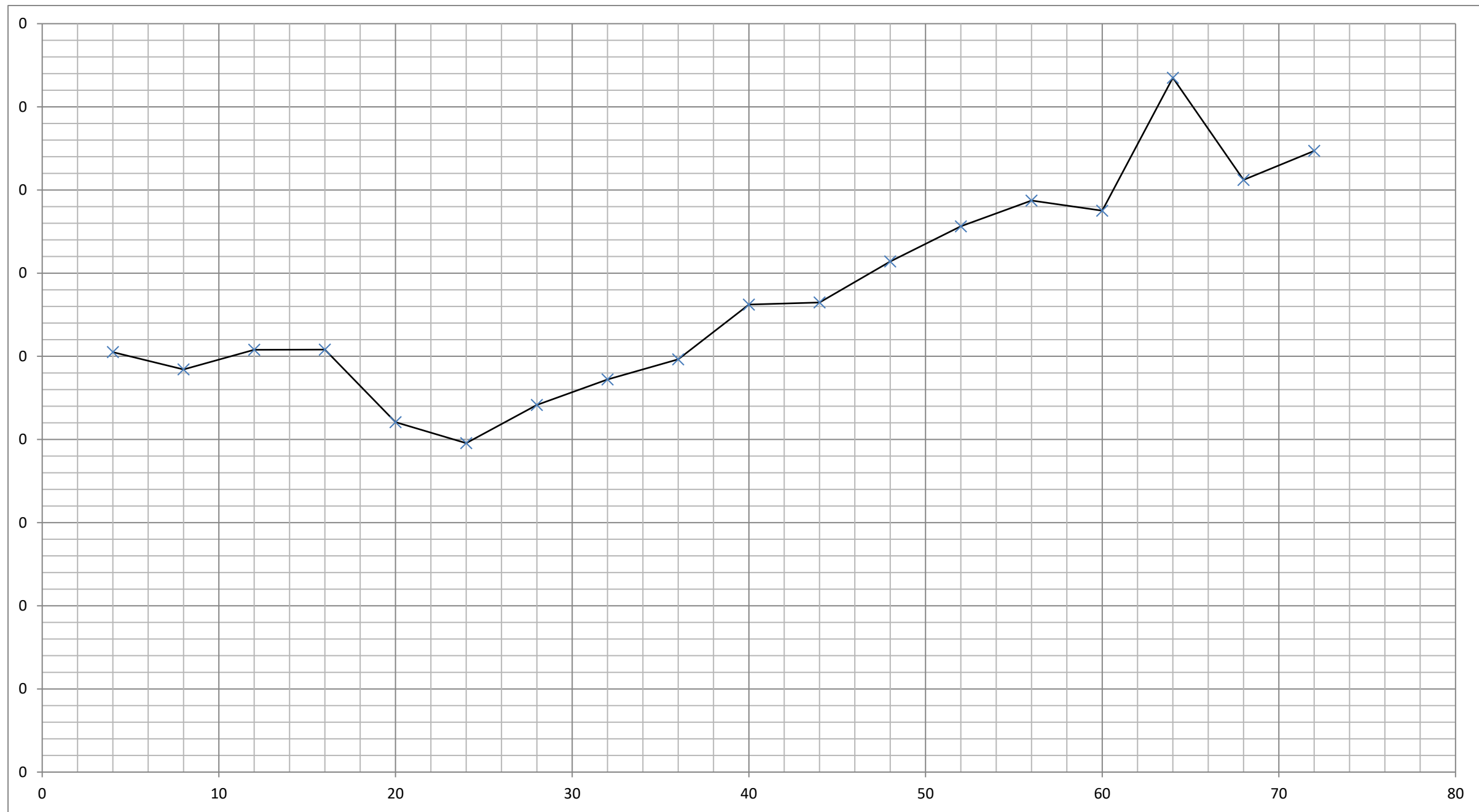
$\rho_1 = \text{LI}$ Gneiss with Fractures



**Kilakumedu
Mannupillai2**

Depth	1/R	R
4	0.2525	3.96000
8	0.2421	4.13005
12	0.2539	3.93808
16	0.2540	3.93638
20	0.2104	4.75312
24	0.1978	5.05588
28	0.2207	4.53015
32	0.2361	4.23568
36	0.2482	4.02964
40	0.2811	3.55730
44	0.2824	3.54155
48	0.3070	3.25709
52	0.3281	3.04739
56	0.3437	2.90992
60	0.3376	2.96241
64	0.4175	2.39526
68	0.3561	2.80857
72	0.3735	2.67725

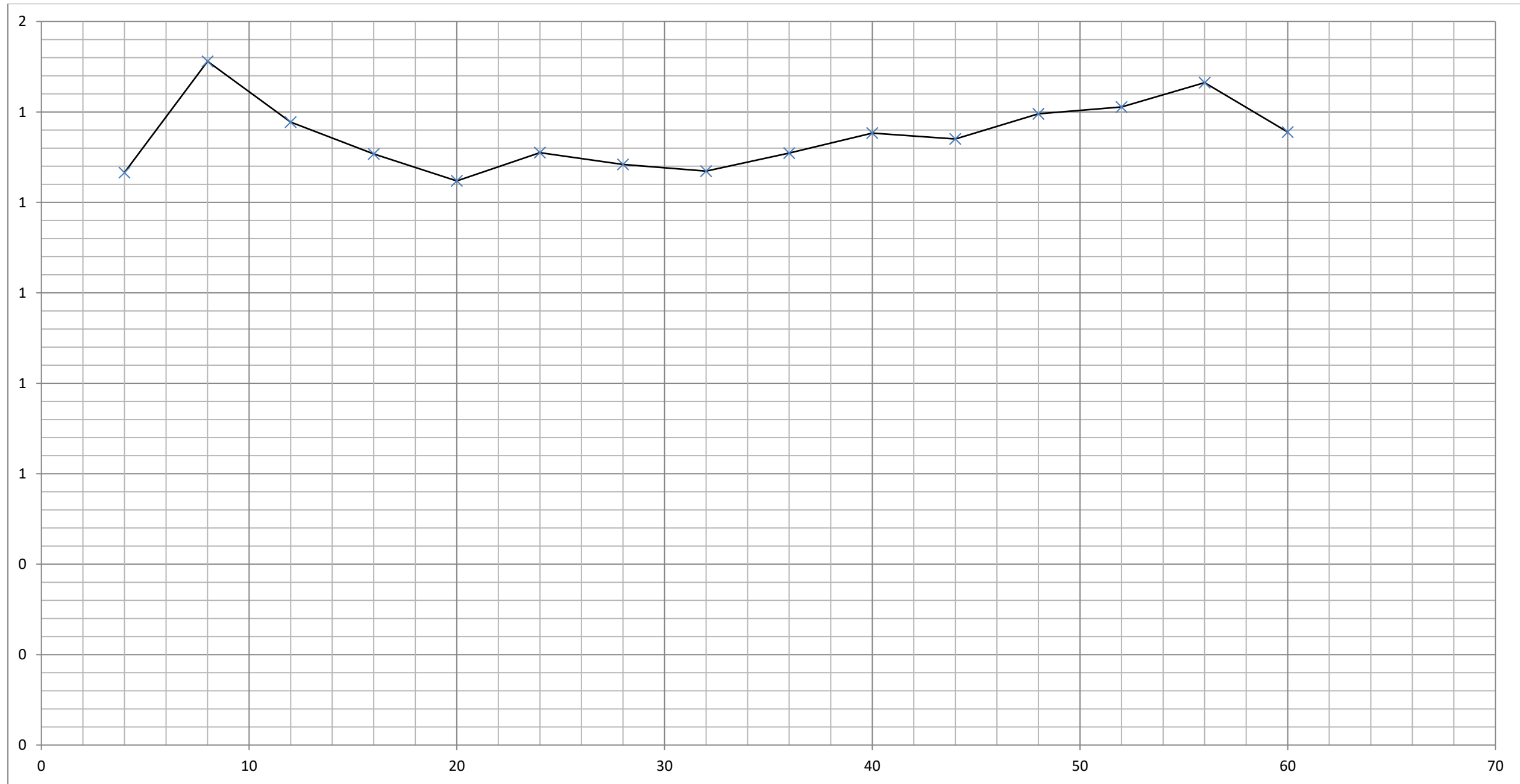
ρ_1 = VH Gneiss with Fractures



Cheyar

Depth	1/R	R
4	1.2659	0.78994
8	1.5119	0.66142
12	1.3774	0.72598
16	1.3072	0.76502
20	1.2475	0.80159
24	1.3099	0.76339
28	1.2840	0.77884
32	1.2691	0.78796
36	1.3090	0.76392
40	1.3533	0.73892
44	1.3403	0.74612
48	1.3958	0.71641
52	1.4110	0.70871
56	1.4648	0.68270
60	1.3555	0.73772

ρ_1 = VH Gneiss with Fractures

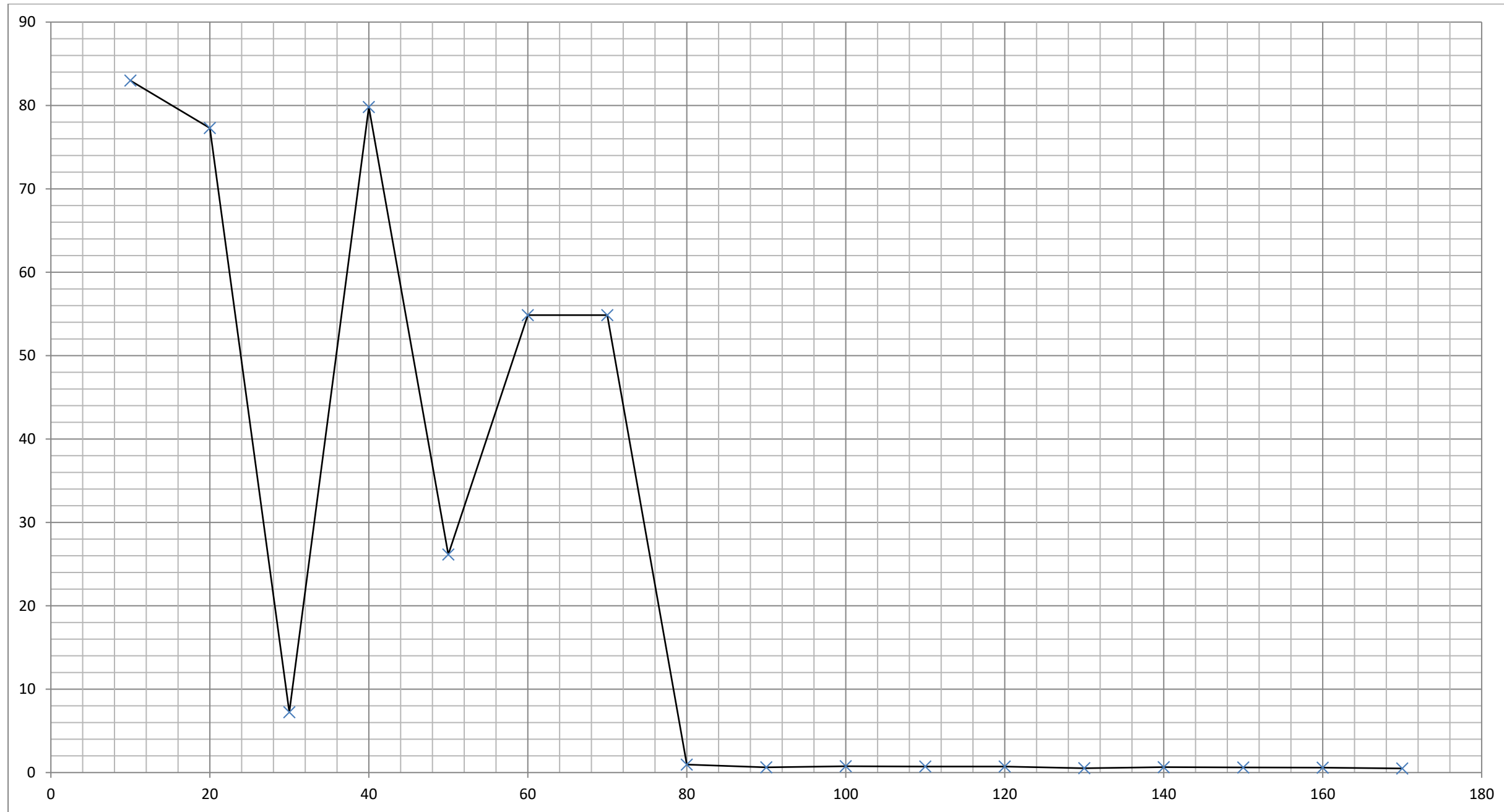


Aradapattu

Depth	1/R	R
10	82.9876	0.01205

20	77.2917	0.01294
30	7.2327	0.13826
40	79.8085	0.01253
50	26.1506	0.03824
60	54.8546	0.01823
70	54.8546	0.01823
80	0.9597	1.04196
90	0.6289	1.59001
100	0.7608	1.31445
110	0.7238	1.38157
120	0.7230	1.38316
130	0.5252	1.90413
140	0.6499	1.53862
150	0.6147	1.62682
160	0.5872	1.70313
170	0.4920	2.03254

ρ_1 = VH Gneiss with Fractures



**Kovilar Mamaratur
Govindaraj, S/o.Raji**

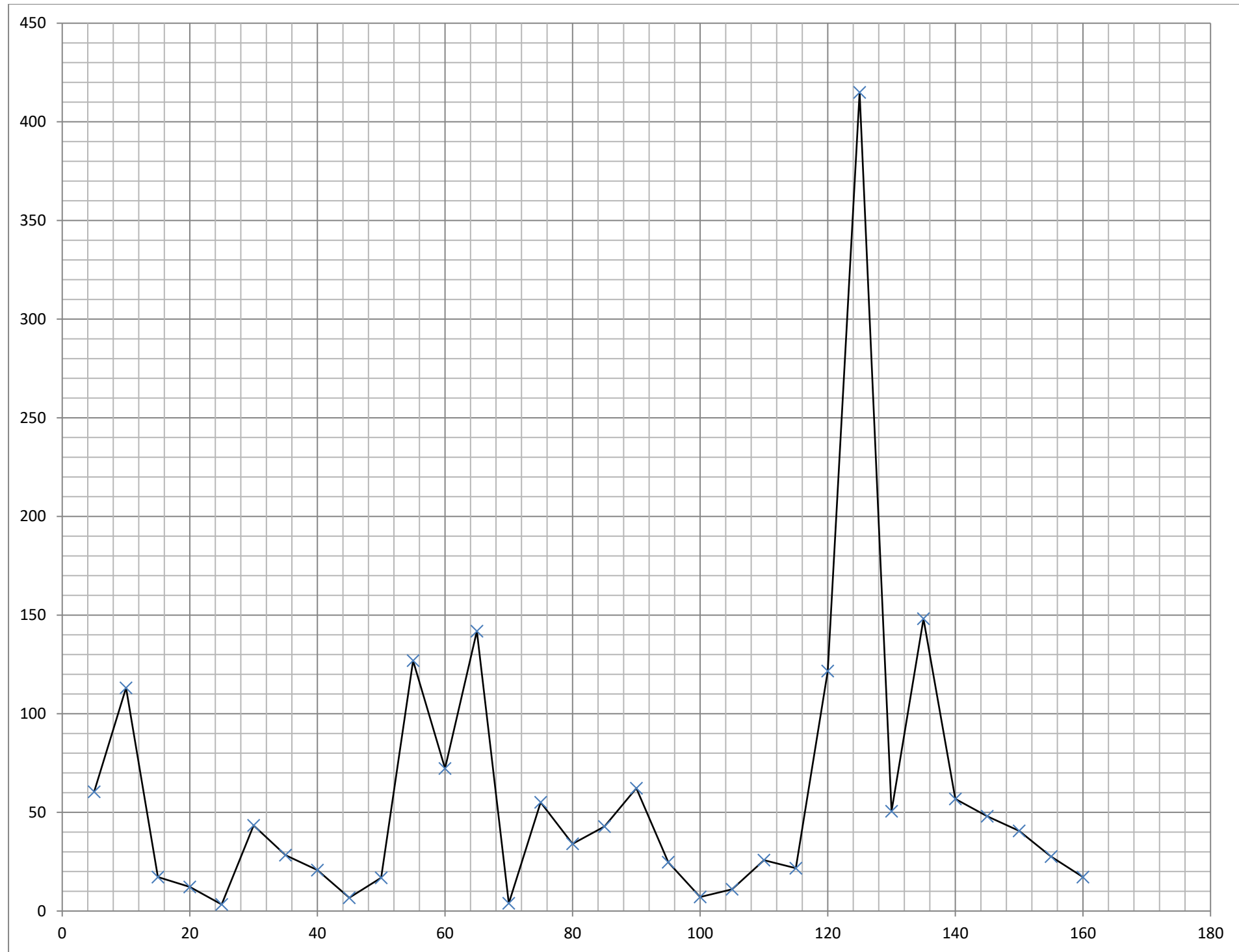
Depth	1/R	R
5	60.4230	0.01655

Depth	1/R	R
105	11.0290	0.09067

10	113.1222	0.00884
15	17.2058	0.05812
20	12.2055	0.08193
25	3.3266	0.30061
30	43.4028	0.02304
35	28.3126	0.03532
40	20.7512	0.04819
45	6.7358	0.14846
50	16.8379	0.05939
55	126.9036	0.00788
60	72.2543	0.01384
65	141.8440	0.00705
70	3.8914	0.25698
75	55.0964	0.01815
80	34.0483	0.02937
85	42.8449	0.02334
90	62.2278	0.01607
95	24.7158	0.04046
100	7.1119	0.14061

110	25.7798	0.03879
115	21.7014	0.04608
120	121.6545	0.00822
125	414.9378	0.00241
130	50.5561	0.01978
135	148.1481	0.00675
140	56.8182	0.01760
145	48.0307	0.02082
150	40.6339	0.02461
155	27.6014	0.03623
160	17.2087	0.05811

ρ_1 = VH Gneiss with Fractures

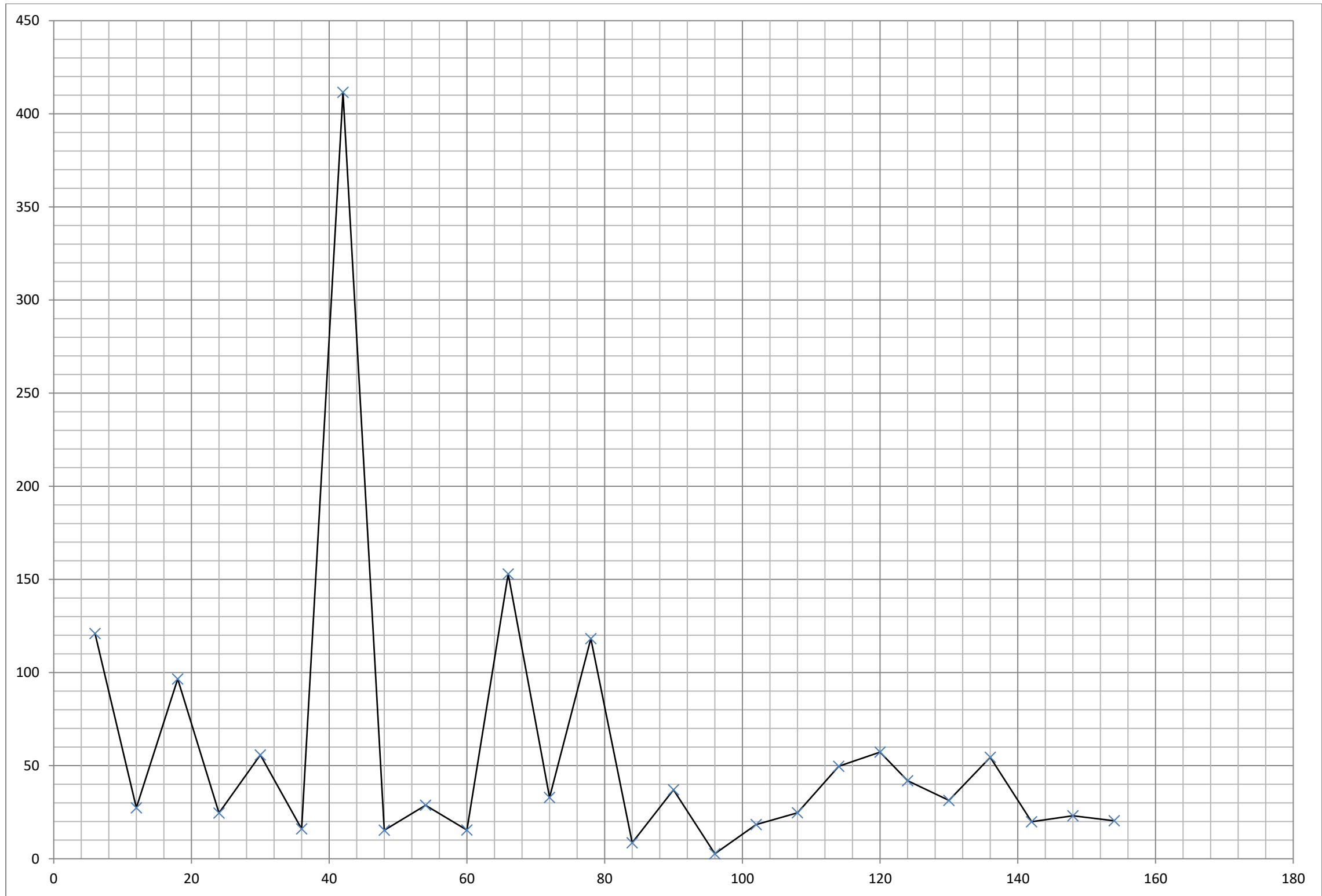


**Kalyanamandai Hamlet, Palamaratur
village, Jeyaran, S/o.Annamalai**

Depth	1/R	R	Depth	1/R	R
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6	120.9190	0.00827	124	41.8760	0.02388
12	27.3448	0.03657	130	31.3283	0.03192
18	96.5251	0.01036	136	54.4662	0.01836
24	24.5459	0.04074	142	19.8610	0.05035
30	55.7414	0.01794	148	23.0468	0.04339
36	15.9974	0.06251	154	20.3998	0.04902
42	411.5226	0.00243			
48	15.3163	0.06529			
54	28.7109	0.03483			
60	15.4107	0.06489			
66	152.9052	0.00654			
72	32.9056	0.03039			
78	118.2033	0.00846			
84	8.5741	0.11663			
90	37.0233	0.02701			
96	2.6849	0.37246			
102	18.3453	0.05451			
108	24.6670	0.04054			
114	49.6524	0.02014			
120	57.2410	0.01747			

ρ_1 = VH Gneiss with Fractures



CHECK DAM

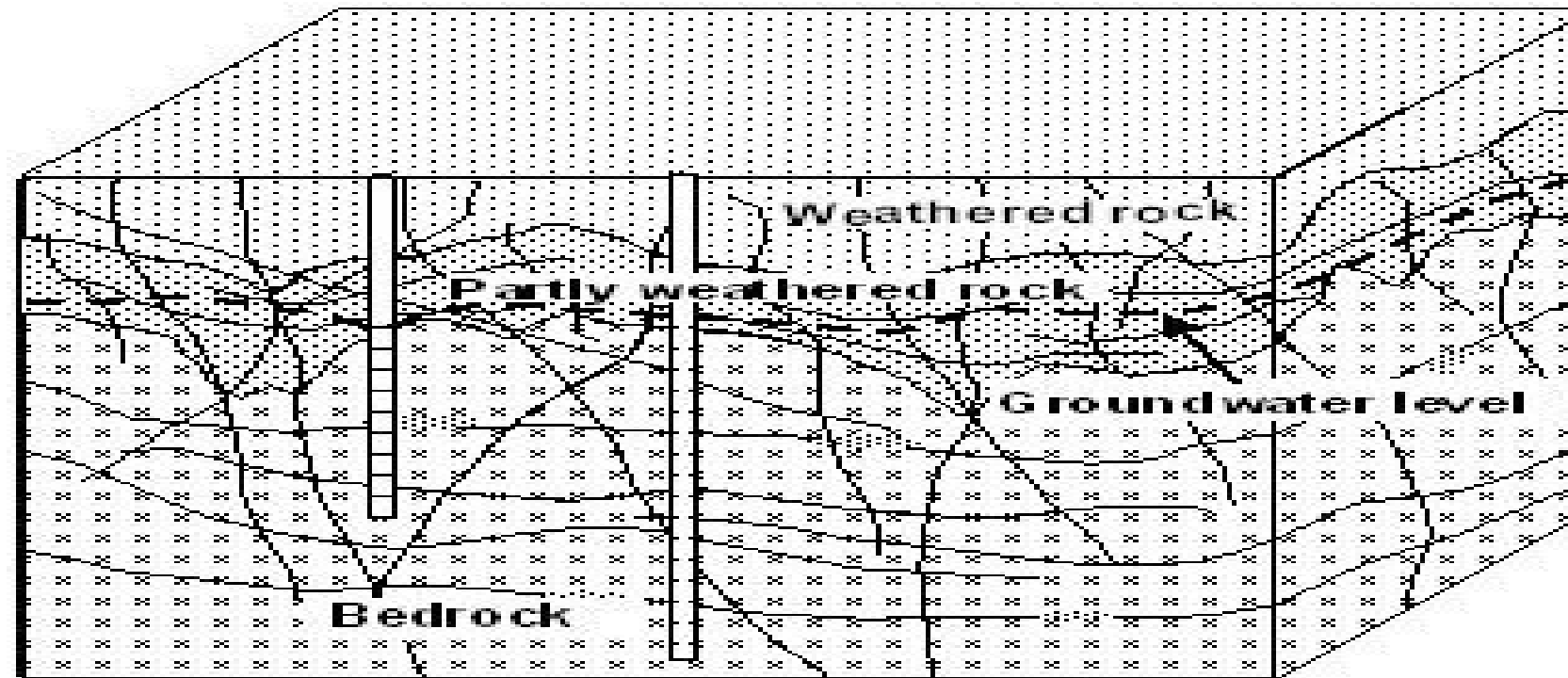
SI.No.	Location	Latitude	Longitude	Taluk	Block	Village
1	Kamandalar_Naganath	12.68123	79.21729	Arni	West Arni	Saderampattu
2	Pudhupalayam	12.70950	79.19415	Arni	West Arni	Keelnagar

Recharge Well

SI.No.	Name	Latitude	Longitude	Taluk	Block	Village
1	Poosimalaikuppam tank	12.781226	79.231409	Arni	Arani	Su.Vanam
2	Morappathangal tank	12.741413	79.28345	Arni	Arani	Morappanthangal
3	Velleri tank	12.72611	79.290577	Arni	Arani	Morappanthangal
4	Kolathur tank	12.735798	79.138766	Arni	West Arni	Kolathur
5	Agrapalayam	12.702276	79.244112	Arni	Arani	Agrapallyam
6	Vannankulam Tank	12.711671	79.15211	Arni	West Arni	Vannankulam
7	Thirumalai samudiram tank	12.65567	79.273649	Arni	West Arni	Mullipattu
8	Villai Chitheri	12.62966	79.292913	Arni	Arani	Nesal
9	Ariyalam peria eri	12.604175	79.264709	Arni	West Arni	Ariyalam
10	Agaram tank	12.607285	79.31691	Arni	West Arni	Agaram
11	Valayampattu tank	12.322946	78.749022	Chengam	Chengam	Chennasumudram
12	Kariyamangalam big tank	12.274625	78.825529	Chengam	Chengam	Kariyamangalam
13	Melpuluthiyur tank	12.277444	78.766669	Chengam	Chengam	Melpuzhuthiyur
14	Nallur Tank	12.268266	78.950645	Chengam	Chengam	Nallur
15	Melkarippur Tank	12.222939	78.901594	Chengam	Thandampattu	Kolundampat
16	Kolunthampattu Tank	12.198861	78.885	Chengam	Thandampattu	Sathanur
17	Perumpakkam Tank	12.210523	78.992792	Chengam	Chengam	Perumbakkam
18	Edathanur Tank	12.130533	78.946438	Chengam	Thandampattu	Thenmudyanur
19	Vanapuram Tank	12.108722	79.015604	Chengam	Thandampattu	Vanapuram
20	Perungulathur tank	12.042604	78.905603	Chengam	Thandampattu	Perungulathur
21	Thennampattu Tank_RW	12.803	79.491287	Cheyyar	Vembakkam	Nayanthangal
22	Perungattur_RW	12.759379	79.526508	Cheyyar	Vembakkam	Perungattur
23	Dusi Mamandur Tank_RW	12.736612	79.635195	Cheyyar	Vembakkam	Kanagampakkam
24	Chittathur Tank_RW	12.729994	79.598618	Cheyyar	Vembakkam	Chithathur
25	Arumparuthi Tank_RW	12.729725	79.493038	Cheyyar	Cheyyar	Arumparuthy
26	Karanai big tank_RW	12.70362	79.62883	Cheyyar	Anakkavur	Karanai
27	Periyakoil tank_RW	12.699954	79.545738	Cheyyar	Cheyyar	Periyakoil
28	Vadaelapakkam tank_RW	12.692022	79.589412	Cheyyar	Cheyyar	Vadaelapakkam
29	Vinnamangalam Tank_RW_2	12.63532	79.458049	Cheyyar	Cheyyar	Mukkur
30	Vinnamangalam Tank_RW_1	12.620298	79.457645	Cheyyar	Cheyyar	Vakkadai
31	Sengadu big tank_RW	12.612914	79.50222	Cheyyar	Anakkavur	Erungal
32	Melma big tank_RW	12.593041	79.641762	Cheyyar	Anakkavur	Melma
33	Purisai tank_RW	12.569269	79.577104	Cheyyar	Anakkavur	Purisai

34	Alathurai tank_RW	12.56637	79.682354	Cheyyar	Anakkavur	Alathurai
35	Aliyabad Big Tank	12.644807	79.214009	Polur	Polur	Alliabad
36	Kasthampadi Big Tank	12.62703	79.191367	Polur	Polur	Kasthambadi
37	Kelur tank	12.594106	79.138439	Polur	Polur	Thurunjikuppam
38	Vadamathimangalam Tank	12.5847	79.185638	Polur	Chetpet	Vadamathingalam
39	periyagaram big tank	12.546713	79.11017	Polur	Polur	Periyagaram
40	Kidampalayam tank	12.499954	79.001611	Polur	Kalasapakkam	Kidampalayam
41	Narasingapuram Big Tank	12.520872	79.255292	Polur	Chetpet	Narasingapuram
42	Polur tank	12.497076	79.11375	Polur	Polur	Polur
43	Sothukkanni Tank	12.473677	79.209466	Polur	Chetpet	Alliyalamangalam
44	Savarapoondi Tank	12.460316	79.313843	Polur	Chetpet	Savarapoondi
45	Pelasur tank	12.451193	79.153124	Polur	Chetpet	Pelasur
46	Kappalur tank	12.455049	79.091441	Polur	Kalasapakkam	Vanniyanur
47	Kadaladi tank	12.409617	78.951524	Polur	Kalasapakkam	Kadalady
48	Aniyalai tank	12.40532	79.146385	Polur	Kalasapakkam	Ladavaram
49	Periyakalampadi chitheri	12.376674	79.027292	Tiruvannamalai	Durinjurapuram	Periakilampady
50	Porkunam tank	12.375516	79.153976	Tiruvannamalai	Durinjurapuram	Kamalaputhur
51	Sorakolathur big tank	12.359441	79.105243	Tiruvannamalai	Durinjurapuram	Sorakolathur
52	vedanthavadi tank	12.35326	79.210328	Tiruvannamalai	Durinjurapuram	Vedandavadi
53	Kalasthampadi Tank	12.301585	79.11313	Tiruvannamalai	Durinjurapuram	Kalasthambady
54	keekkalur tank	12.290764	79.262168	Tiruvannamalai	Kizhpennathur	Kathhazhampattu
55	Nochimalai Tank	12.270731	79.040288	Tiruvannamalai	Thiruvannamalai	Adaiyur
56	Kilpennathur Big Tank	12.2408	79.217216	Tiruvannamalai	Kizhpennathur	Kilpennathur
57	Kolathur Tank	12.176323	79.211206	Tiruvannamalai	Kizhpennathur	Kolathur
58	Thenmathur Tank	12.177561	79.080363	Tiruvannamalai	Thiruvannamalai	Thenmathur
59	Vayalur Tank	12.147054	79.201732	Tiruvannamalai	Kizhpennathur	Vayalur
60	Kattampoondi Tank	12.118343	79.074829	Tiruvannamalai	Thiruvannamalai	Kattampoondi
61	Vettavalam Tank	12.115421	79.252595	Tiruvannamalai	Kizhpennathur	Vettavalam
62	Velayambakkam tank	12.049203	79.052154	Tiruvannamalai	Thiruvannamalai	Velayampakkam
63	Pernamallur Big Tank	12.560742	79.422693	Vandavasi	Pernamallur	Peranamallur
64	Periyakozhappalur Big Tank	12.532128	79.345327	Vandavasi	Pernamallur	Kolapalur
65	Kilvovalaivedu big tank	12.548605	79.538607	Vandavasi	Vandavasi	Kilkovalaivedu
66	Mahadevimangalam Big Tank	12.535514	79.421113	Vandavasi	Pernamallur	Injeemedu
67	Kovalai big tank	12.539156	79.724341	Vandavasi	Vandavasi	Kovalai
68	Salukai big tank_RW	12.539431	79.625477	Vandavasi	Vandavasi	Salukkai
69	Raghunathasamudram Tank	12.484306	79.401691	Vandavasi	Pernamallur	Melathangal
70	Elangadu tank	12.452636	79.560205	Vandavasi	Vandavasi	Elangadu
71	Osur big tank	12.464456	79.693953	Vandavasi	Vandavasi	Kottai
72	Madam Isakolathur Tank	12.450194	79.434969	Vandavasi	Pernamallur	Isakulathur
73	Achamangalam Big Tank	12.412901	79.492215	Vandavasi	Thellar	Seeyamangalam
74	Nallur big tank	12.388621	79.625616	Vandavasi	Thellar	Nallur
75	Thellar big tank	12.41164	79.554951	Vandavasi	Thellar	Thellar
76	Nerkunam Tank	12.372665	79.507394	Vandavasi	Thellar	Nerkunam

Hard Rock Diagram

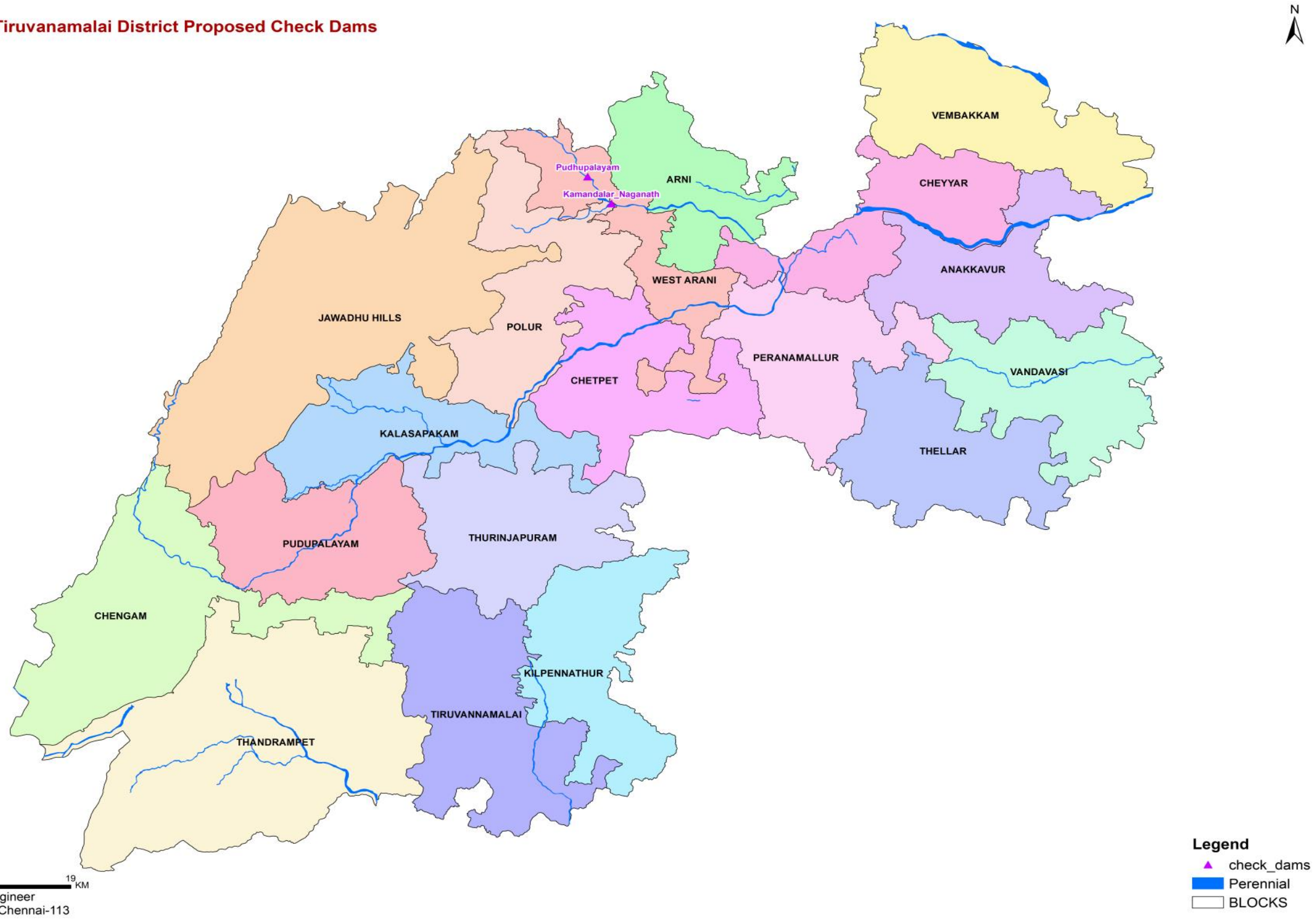


Cost Estimate for Construction of Recharge Wells

Sl. No.	Category	Qty (Nos.)	Unit Price (in Rs.)	Amount (in Rs.)
1.	Recharge Well	36	40,00,000	14,40,00,000

Sl. No.	Category	Length in (meters)	Qty (Nos.)	Unit Price (in Rs.)	Amount (in Rs.)
1.	Kamandalar_Naganath	62.17	1	20 ,00,000	124340000
2.	Pudhupalayam	20.02	1	20 ,00,000	40040000

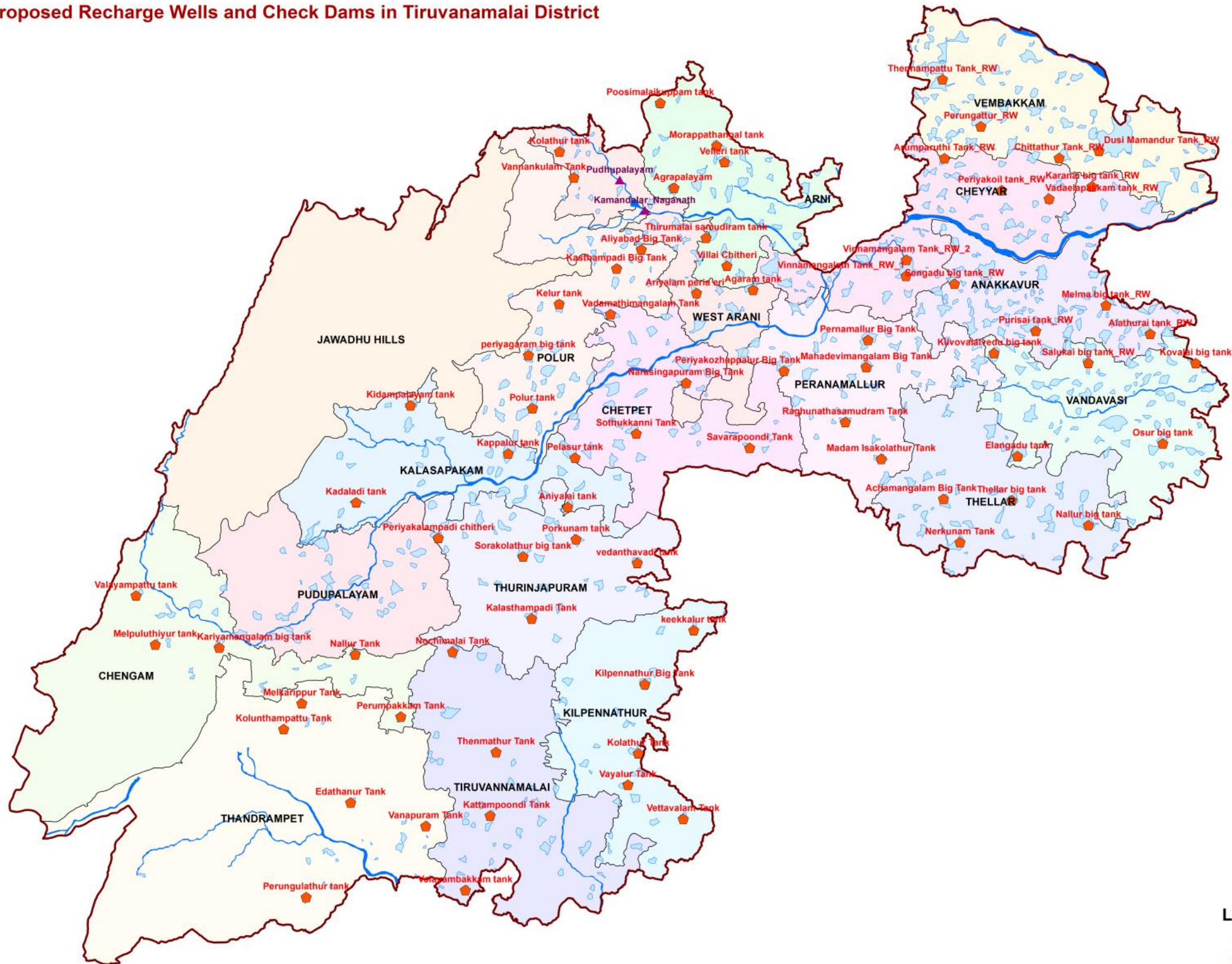
Map Showing Tiruvannamalai District Proposed Check Dams



0 4.75 9.5 19 KM
Chief Engineer
SG&SWRDC, Chennai-113

Legend
▲ check_dams
— Perennial
□ BLOCKS

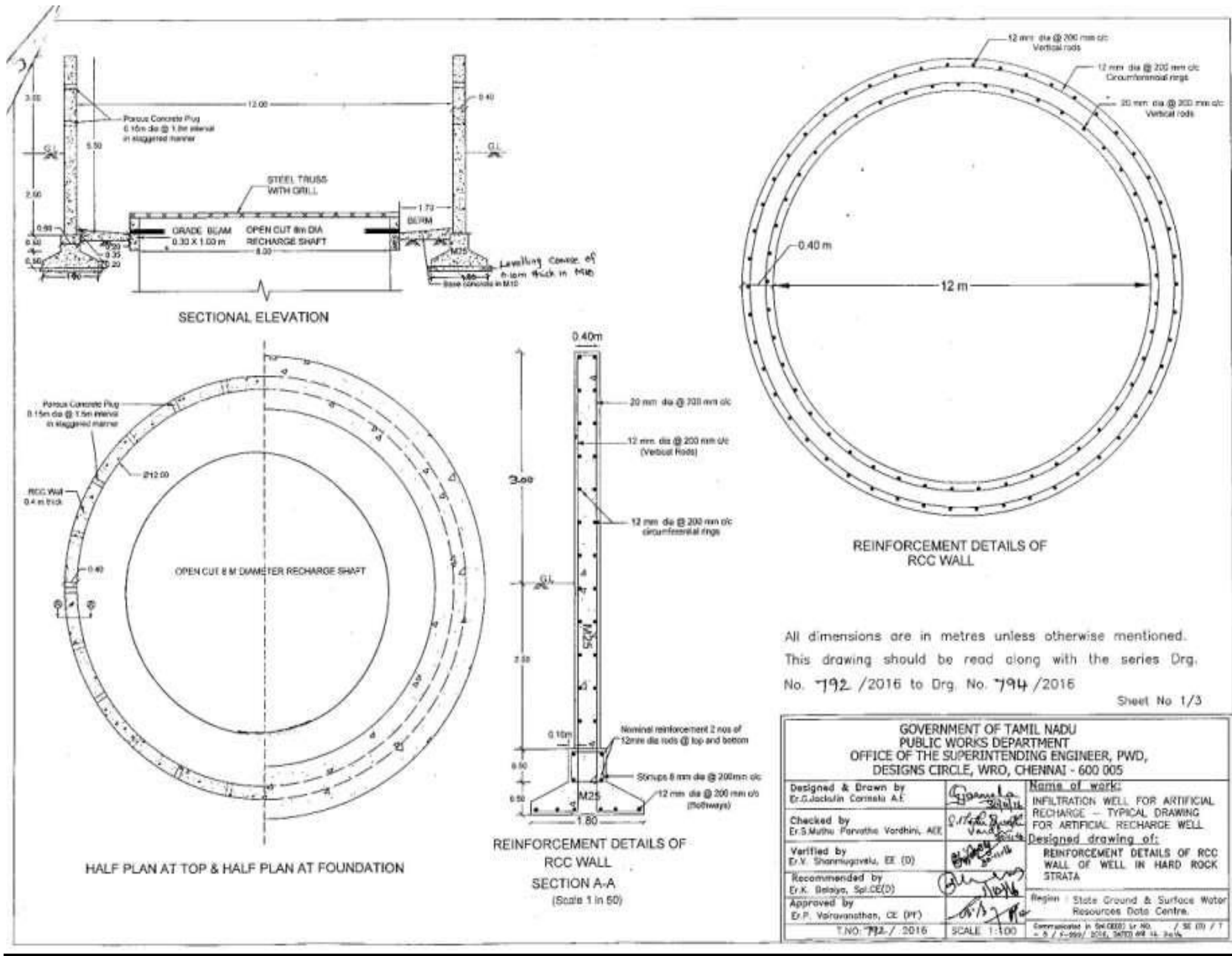
Map Showing Proposed Recharge Wells and Check Dams in Tiruvanamalai District



0 5 10 20 KM
 Chief Engineer
 SG&SWRDC, Chennai-113

- Legend**
- ▲ check_dams
 - ◆ Recharge_Wells
 - Tanks
 - Perennial

Recharge Well



All dimensions are in metres unless otherwise mentioned.
 This drawing should be read along with the series Drg. No. 792 /2016 to Drg. No. 794 /2016
 Sheet No 1/3

GOVERNMENT OF TAMIL NADU PUBLIC WORKS DEPARTMENT OFFICE OF THE SUPERINTENDING ENGINEER, PWD, DESIGNS CIRCLE, WRO, CHENNAI - 600 005		
Designed & Drawn by Er.G.Jackalin Connala A.E.		Name of work: INFILTRATION WELL FOR ARTIFICIAL RECHARGE - TYPICAL DRAWING FOR ARTIFICIAL RECHARGE WELL
Checked by Er.S.Muthu Parvathi Vardhini, AEE		Designed drawing of: REINFORCEMENT DETAILS OF RCC WALL OF WELL IN HARD ROCK STRATA
Verified by Er.V. Shanmugasulu, EE (D)		Region - State Ground & Surface Water Resources Data Centre.
Recommended by Er.K. Balaji, Spl.CE(D)		T.No: 792 / 2016 SCALE 1:100
Approved by Er.P. Varavananthan, CE (PT)		Approved in SE/CE/SD/NO. / SE (D) / 1 - 3 / 5-2016, 2016, 2016, 2016, 2016

HYDROLOGICAL Problems

Hydrological problems- Supply channel to Setharampattu tank from Kamandala river silted up and tank not receiving water for last 30 years



Hydrological problem – sand mining in Kamandala river



Hydrological problem- Kangranandal anicut – old system require renovation



Hydrological problem- Vellore anicut requiring renovation



