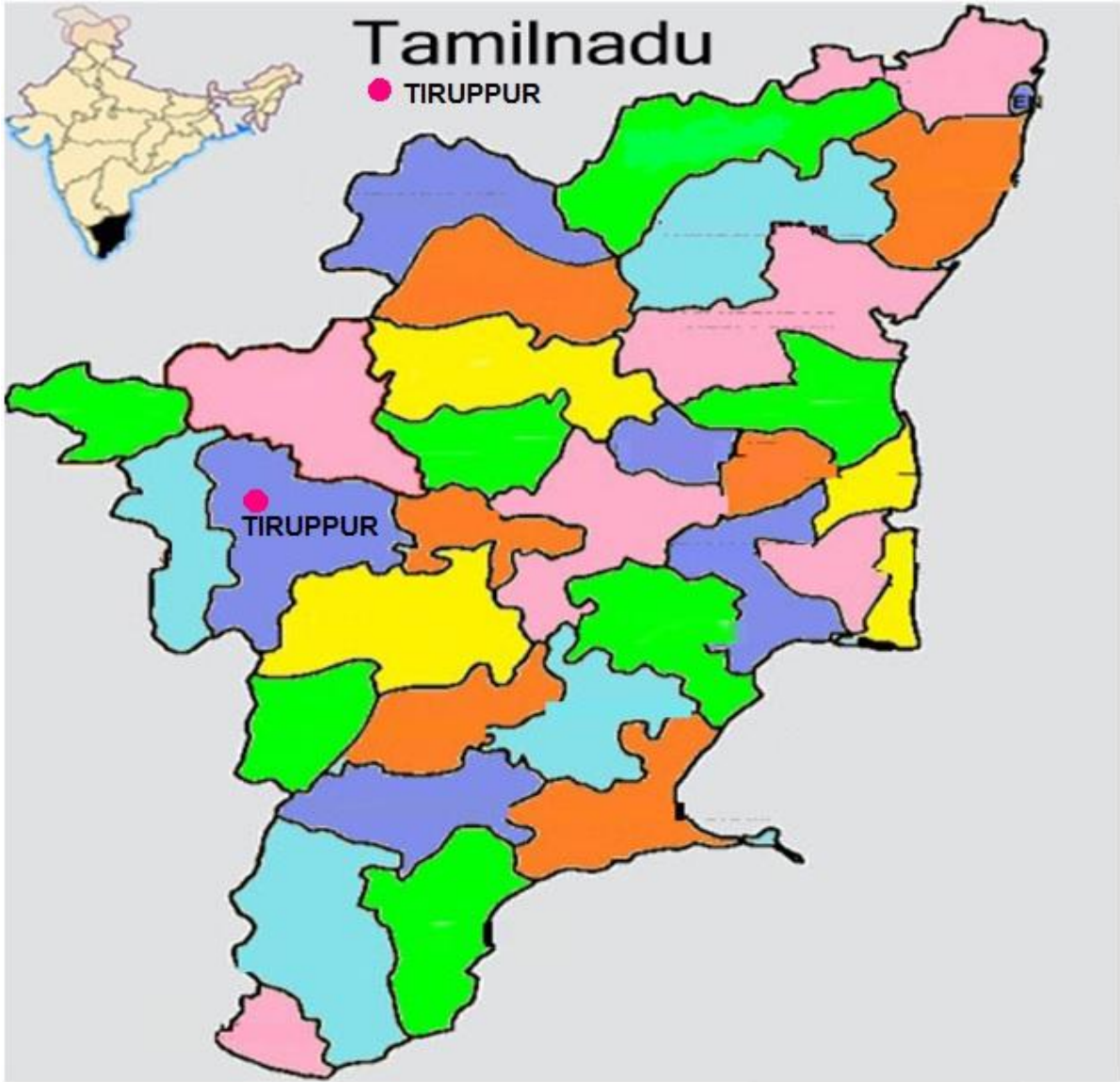


**EVALUATION OF CEPI SCORE & ACTION PLAN FOR
CEPI AREA OF TIRUPPUR**



**SUBMITTED
JANUARY 2020**



TAMILNADU POLLUTION CONTROL BOARD

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EXECUTIVE SUMMARY

The monitoring of CEPI area in Tiruppur has been carried out for Ambient Air Quality, Ground and Surface Waters to finalize the Post monsoon CEPI score. TNPCB finalized the location of samplings for both AAQM and Water in consideration with the previous CEPI monitoring. The existing sampling locations with respect to air monitoring, groundwater sampling and surface water sampling where monitoring was undertaken during 2018 by CPCB were again sampled. CPCB has conducted AAQ survey at eight locations in which two are within the CEPI core area and 3 are in impact zone of 5 KM CEPI area and the remaining 3 are in buffer zone of 10 KM CEPI area. Hence to conduct the Ambient Air Quality within the core area 5 new locations were identified. The total number of surface water sampling locations considered by CPCB is eight. Out of which seven locations are in River Noyyal. Now, samples were collected during 2019 Post monsoon at ten locations. Out of which six are in the River Noyyal and the remaining four are from Nanjarayan Lake, Andipalayam Lake, Moolikulam Tank and Manickapuram Lake which are being fed by River Noyyal. Further eight ground water sampling locations were identified by CPCB in which 2 no of wells are unused wells. Only two of the ground water sampling locations are located within the CEPI core area. Presently new regularly used wells were identified nearby the existing unused wells and new bore/ open wells were identified within the CEPI core area.

The sampling and analysis were carried out as per the CPCB / EPA/ APHA / IS / ASTM standard methods.

After the sampling and analysis of both AAQM & Water, the results were used for calculating the CEPI score as per the CPCB revised guidelines of 2016.

The salient features of CEPI concepts and the evaluation methodology as per revised CEPI guidelines are enumerated.

Based on the study report conducted by CPCB during 2018, the CEPI score as per the revised guidelines was - 72.39 (Ambient Air -33.0, Water- 65.0, Land -64.0, An_Wc_Lc).

The Tamil Nadu Pollution Control Board after putting lot of efforts in improving the quality of ZLD system and methodology of managing the other solid wastes has successfully reduced the CEPI score and based on the study results the CEPI score as per the revised CEPI guidelines, 2016, the CEPI index of Post-Monsoon -Ambient Air is 14.0, Surface Water is 10.0, and Ground Water is 23.25 respectively. The overall CEPI score for Tiruppur for the Post-monsoon 2019 is **24.32**.

CHAPTER – 1

PREAMBLE

1.0 Introduction

Industrial pollution is the contamination of the environment by businesses, particularly plants and factories that dump waste products into the air and water. Industrial waste is one of the largest contributors to the global pollution problem endangering people and the environment. The Central Pollution Control Board (CPCB) has developed a Comprehensive Environmental Pollution Index (CEPI). The main objective of the study is to identify polluted industrial clusters or areas in order to take concerted action and to centrally monitor them at the national level to improve the current status of their environmental components such as air and water quality data, ecological damage and visual environmental conditions.

Tiruppur is also known as the knitwear capital of India. It has spurred up the textile industry in India for the past four decades. Dyeing industry in Tiruppur is the backbone of garment industry. Exports were Rs.18,000 crore in 2013-14, Rs. 21,000 crore in 2014-15, Rs. 23,000 crore in 2015-16 Rs. 26,000 crore in 2016-17, Rs. 24,000 crore in 2017-18 and Rs. 26,000 crore in 2018-19. It contributes to a huge amount of foreign exchange to India. The city provides employment to around 5 lakh workers.

Special Industrial Parks have been developed to support the textile industry. Nethaji Apparel Park, Tirupur Export Knitwear Industrial Complex, SIDCO Industrial Estate are apparel parks that are operational in Tiruppur.

Textile related industries such as bleaching units, printing units, washing units and compacting units are also in operation in Tiruppur. Apart from this, Rough stone quarry, Stone crushers, Coconut oil mill, Spinning mills and Polythene rolls manufacturing units for garment packing are other types of industries functioning in Tiruppur district.

The ZLD system provided in Tiruppur is the first of its kind in the world. Scientists, Economists, Environmentalists and Parliamentarians around the world have inspected and appreciated the ZLDS operated in the CETPs of Tiruppur.

On an average the textile dyeing industries in Tiruppur recycle 10 crore litres of treated effluent recovered from the ZLDS provided by the CETPs. This prevents the exploitation of surface and ground water.

1.1 CEPI Area Boundary Details

The core area in Tiruppur is 12 sq.km and is located on the banks of River Noyyal which starts from Mangalam Village (lat – 11⁰06'27.75"N and lon- 77⁰17'19.16"E) on the western side to Nallur Village on the eastern side (lat - 11⁰07'07.40"N and lon- 77⁰24'09.24"E).

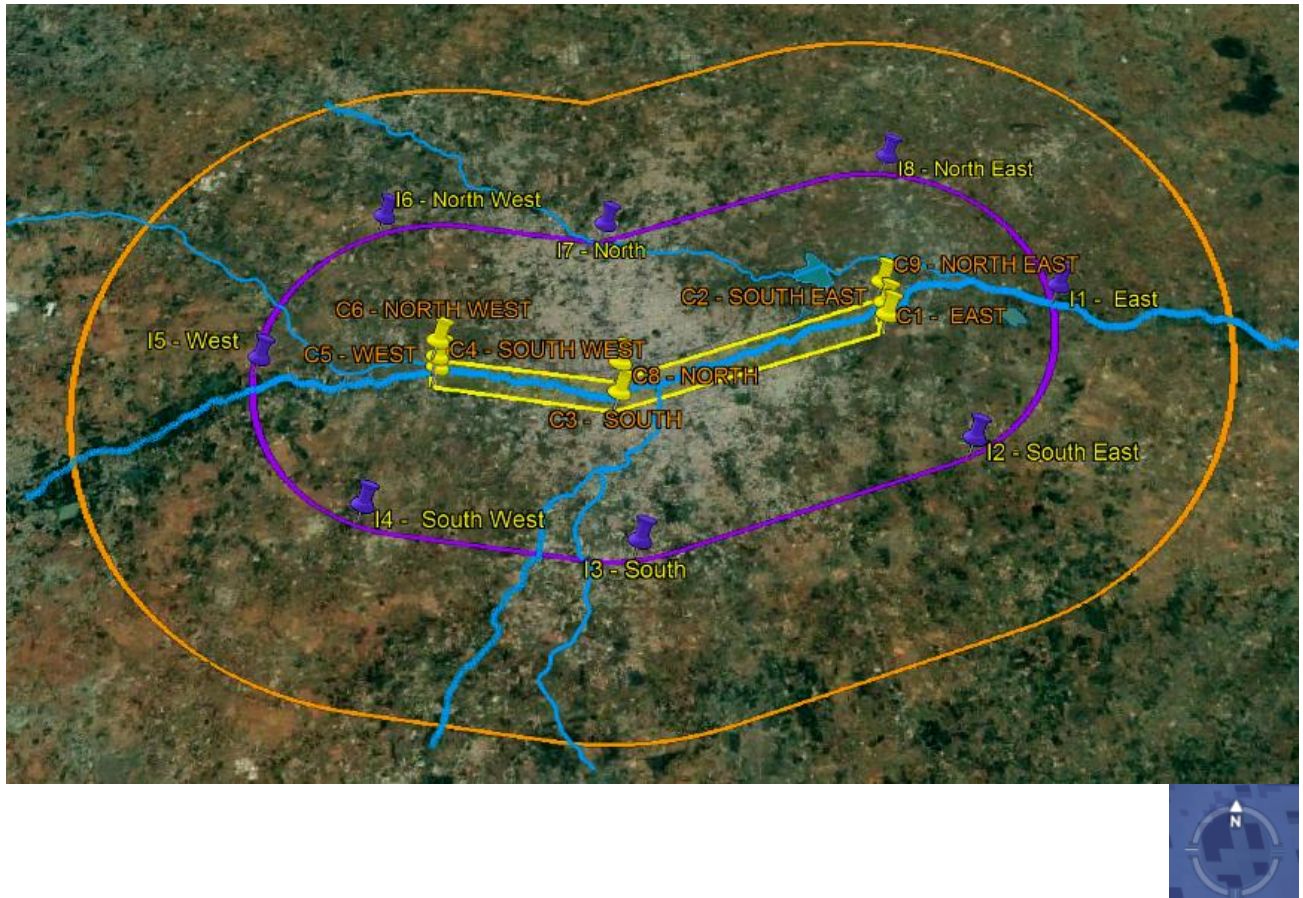
Boundaries of (Core zone) Critically Polluted Area (CPA) are briefed in the table below

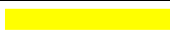


Sl. No	Location	Latitude	Longitude
C-1	East M/s.Eastern CETP	11.118722°	77.402567°
C-2	South East M/s.Colourlines Eastern CETP member unit	11.115283°	77.402833°
C-3	South Palakudon Bus stop, Karuvampalayam	11.095850°	77.334060°
C-4	South West Sulthanpettai	11.104586°	77.288778°
C-5	West M/s.Mangalam CETP	11.107708°	77.288656°
C-6	North West Mangalam scating ground	11.112337°	77.288729°
C-7	North Saradhanagar	11.104276°	77.334542°
C-8	North East M/s.Kasipalayam CETP	11.124988°	77.402511°

Boundaries of Impact Zone in the Critically Polluted Area (CPA) are briefed in the table below.

Sl. No	Location	Latitude	Longitude
I-1	East	11.121943°	77.447520°
I-2	South East	11.079640°	77.420503°
I-3	South	11.056044°	77.337550°
I-4	South West	11.067922°	77.271326°
I-5	West	11.109163°	77.243861°
I-6	North West	11.150157°	77.273916°
I-7	North	11.145331°	77.331874°
I-8	North East	11.163862°	77.407715°

MAP SHOWING BOUNDARIES OF CORE ZONE 12SQKM, IMPACT ZONE (5KM RADIUS) AND BUFFER ZONE (10KM RADIUS) OF CEPI AREA – TIRUPPUR



	CEPI CORE ZONE 12 SQKM
	CEPI IMPACT ZONE (5KM Radius)
	CEPI BUFFER ZONE (10KM Radius)

C-1	East	11.118722°	77.402567°
C-2	South East	11.115283°	77.402833°
C-3	South	11.095850°	77.334060°
C-4	South West	11.104586°	77.288778°
C-5	West	11.107708°	77.288656°
C-6	North West	11.112337°	77.288729°
C-7	North	11.104276°	77.334542°
C-8	North East	11.124988°	77.402511°

I-1	East	11.121943°	77.447520°
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I-4	South West	11.067922°	77.271326°
I-5	West	11.109163°	77.243861°
I-6	North West	11.150157°	77.273916°
I-7	North	11.145331°	77.331874°
I-8	North East	11.163862°	77.407715°

1.2 Habitation details in CEPI Area:

The following villages are located in the core and impact zone

S.No	Name of the village	Direction in which located	Distance in KM	Population in Numbers
1	Mangalam	South West	1	17,699
2	Andipalayam	South	0.5	25,539
3	Tiruppur	Within core area	0	3,67,940
4	Mannarai	North	0.2	17,261
Total				4,28,439

1.3 Eco Geological Features in and around CEPI Area.

There are no eco-geological features located within 10 Km radius from the CEPI core area.

Major Water Bodies:

River Noyyal, tributary of River Cauvery is the major water body flows in Tiruppur. It originates from the Vellingiri hills in the Western Ghats in Coimbatore District and flows through Coimbatore, Tiruppur, Erode and Karur Districts. The river finally confluences into the River Cauvery at Noyyal Village in Karur District. The river's basin is 158.3 KM long. The river enters Tiruppur District at Pendevipalayam Village and leaves the district at Muthur barrage covering a total distance of 76.4 KM. Two small streams named Koushika River originating from Kurudi Hills in Coimbatore District and Nallaru Odai originating from Annur in Coimbatore District joins River Noyyal near Mangalam and near Velliyampalayam Village respectively.

Ecological parks, Sanctuaries, Flora and Fauna or any eco-sensitive Zones

No ecological parks, sanctuaries, flora and fauna or any eco sensitive zones are present within 10 km radius from the CEPI core area.

Monuments of Historical/archaeological importance

No Buildings, Monuments of Historical/archaeological importance are present within 10 KM radius from the CEPI core area in Tiruppur.

1.4 Industries details in CEPI Area.

Category	Red	Orange
17 Category	-	-
Large (CETP-7 & IETP-1)	8	-
Medium (Member unit-1 & IETP-3)	4	-
Small (Member unit-80, IETP – 12, Printing units-45 & Washing units-6)	137	6
Total	149	6
Total No of Industries	155	

The majority of the Red category industry located within the earmarked CEPI core area are 7 CETPs & its 81 member units, 16 IETPs, 45 printing units & Orange category industry located within this core area is 6 washing units.

1.5 Green Belt Development details in CEPI Area

The details of the green belt developed by the industries located in the CEPI core area is briefed below.

Sl. No	Name of the Industry	Total area in Hectares	No of Trees developed Nos.		Proposed
			2017 -18	2018 -19	
1	M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd	1.327	52	56	60
2	M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited	1.21	150	200	300
3	M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd	1.01	45	65	100
4	M/S. Rayapuram Common Effluent Treatment Plant Pvt Ltd	1.31	100	50	300
5	M/s. Mannarai Common Effluent Treatment Plant (P) Limited	2.86	75	100	200
6	M/s. Kasipalayam Common Effluent Treatment Plant Private Limited	1.44	300	220	500
7	M/s. Eastern Common Effluent Treatment Company Private Limited	1.98	30	45	75
8	Santhosh Textile Process	1.34	20	30	40
9	Chem Tech Processors	1.91	75	120	170

1.6 CEPI score declared by CPCB

As identified by the Central Pollution Control Board, the Comprehensive Environmental Pollution Index (CEPI) score for Tiruppur District, Tamilnadu is 72.39.

Sl.No. in the Booklet	Name of Polluted Industrial Area (PIAs)	Air	Water	Land	CEPI score	Status of Environment
32	Tiruppur (Tamil Nadu)	33	65	64	72.39	An-Wc-Lc

Source: Comprehensive Environmental Assessment of Industrial Clusters by CPCB, December 2018

CEPI Data work sheet during the year 2018 calculated by CPCB

Air Quality Analysis Report					
Pollutant	Group	A1	A2	A (A1xA2)	16
PM10	B	0.5	Large		
PM2.5	B	0.5			
As	C	3			
		4	4		

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
PM10	107.23	100	1.0723	8	24	0.357433	M	13.5
PM2.5	50.31	60	0.84	5	24	0.17	M	3.5
As	2.61	6	0.44	0	24	0.00	L	0
B score = (B1+B2+B3)							B	17

C	0	<5%
D	0	A-A-A

AIR EPI	(A+B+C+D)	33.00
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Surface Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1xA2)
TP	B	0.5	Large	
NH4-N	B	0.25		
Phenols	C	3		
		3.75	4	15

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
TP	6.04	0.3	20.12	24	24	20.12	C	10
NH4 - N	47.05	1.5	31.37	21	24	27.45	C	30
Phenols	0.17	0.01	16.75	12	24	8.38	C	10
B value = (B1+B2+B3)							B	50

C	0	<5%
D	0	A-A-A
WATER EPI	(A+B+C+D)	65

Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1xA2)
TDS	A	0.25	Large	
T Hard	A	0.25		
Phenols	C	3		
		3.5	4	14

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
TDS	5042.5	2000	2.52	22	24	2.31	C	10
T Hard	1326.96	600	2.21	21	24	1.94	C	10
Phenols	0.02	0.001	20.83	24	24	20.83	C	30
B value = (B1+B2+B3)							B	50

C	0	<5%
D	0	A-A-A
GW EPI	(A+B+C+D)	64

AIR	33
WATER	65
GROUND WATER	64
CEPI SCORE	72.392

CHAPTER – 2

2.0 Air Environment

The major air pollutants in the CEPI core area are PM, SO₂ and NO₂ which are being monitored by the individual industries through Advance/District Environmental Laboratory of TNPCB. The major source of emission is from Boilers and all the Boilers are provided with Air pollution control measures connected to a stack of adequate height as per CPCB stack height guidelines.

2.1. Primary and Secondary Pollutants considered for AEPI

The values of the parameters “PM₁₀, PM_{2.5} and Arsenic” are taken for the calculation of CEPI score as per the CPCB report 2018.

Primary Pollutant : Particulate Matter (PM₁₀).

Secondary Pollutants: Particulate Matter (PM_{2.5}) & Arsenic.

Survey has been conducted Post monsoon 2019 and the values of the parameters “PM₁₀, PM_{2.5} and Arsenic” are taken for the calculation of CEPI score

Primary Pollutant : Particulate Matter (PM₁₀)

Secondary Pollutants: Particulate Matter (PM_{2.5}) & Arsenic.

2.2 Air Quality Sampling Locations

Air Quality Sampling Locations during 2018 by CPCB

CPCB has conducted AAQ survey at eight locations during 2018 in which two are within the CEPI core area and 3 are in impact zone of 5 KM CEPI area and the remaining 3 are in buffer zone of 10 KM CEPI area. Hence to find out the Ambient Air Quality within the core area 5 new locations were identified and survey was conducted. Out of 24 samples collected by the CPCB during 2018 CEPI monitoring, 8 samples of Pm₁₀ and 5 samples of PM_{2.5} have exceeded and Arsenic is found within the NAAQ standards.

Sample Code	Name of the Monitoring Location	Latitude	Longitude
AAQ-1	M/s. Velumurugan Dyeing unit, Tiruppur	11°06'22"N	77°17'13" E
AAQ-2	M/s. Algendra Dyeing Unit, Tiruppur	11°06'25"N	77°18'47" E

AAQ-3	Mr. Saravanamani's House, Arulapuram , Tiruppur	11°02'05"N	77°18'51" E
AAQ-4	Mr.Ramasamy's House Director, M/s. Karipudur CETP, Tiruppur	11°03'18"N	77°18'51" E
AAQ-5	M/s. Ess Kay Emm Colours Washing Unit, Tiruppur	11°03'28"N	77°21'31" E
AAQ-6	M/s.G.K.M Colours, Tiruppur	11°04'25"N	77°19'40" E
AAQ-7	Mr.Kathirvel'sHouse Mudalipalayam, SIDCO, Tiruppur	11°07'12"N	77°24'25" E
AAQ-8	Mr.Jaya Prakash house 363/3, Ratha Nagar Extn., Pitchampalayam pudur, Tiruppur	11°08'13"N	77°21'39" E

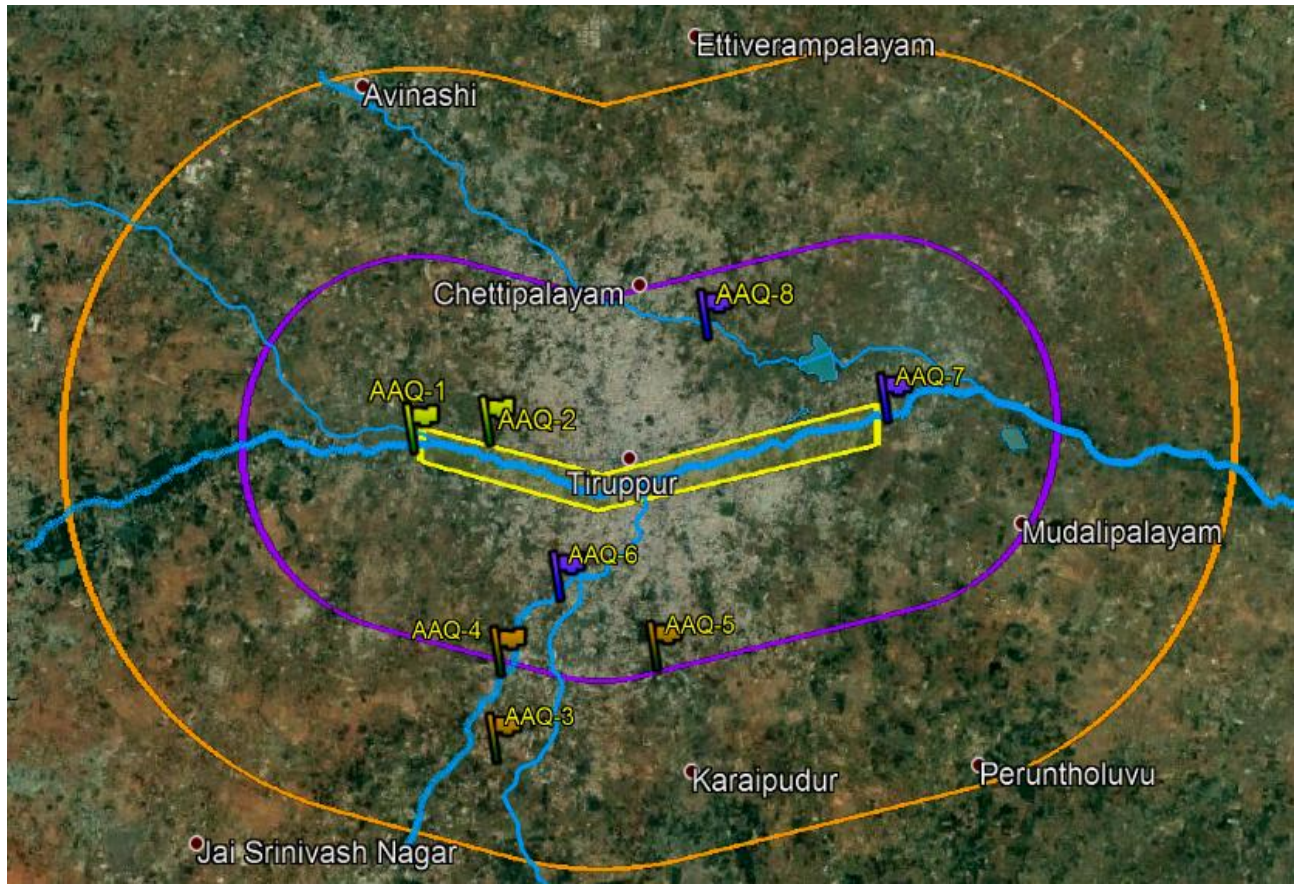
Air Quality Sampling Locations during 2019 Post monsoon by TNPCB




The total number of Ambient Air Quality monitoring location during 2018 by the CPCB's CEPI monitoring is eight of which, three locations are out of CEPI area and these three locations can be placed inside the core area based on the meteorological conditions.

Sl. No.	Name of location	Latitude (N)	Longitude (E)
AAQ-1	M/s. Velmurugan Dyeing unit	11.105873°	77.289032°
AAQ-2	M/s Azhagendra Dyeing	11.108818°	77.307890°
AAQ-3	M/s Golden Textile Process (Additional Point)	11.105328°	77.326114°
AAQ-4	M/s T.R.Ruby Colours (Additional Point)	11.099181°	77.335502°
AAQ-5	M/s. Rohini Textile Industry (Additional Point)	11.109911°	77.369215°
AAQ-6	M/s Fashion Knit Process (Additional Point)	11.112631°	77.371697°
AAQ-7	M/s Spencer Apearal Hostel (Additional Point)	11.120836°	77.393672°
AAQ-8	Mr. Kathirvel's House	11.120165°	77.406988°


All the Ambient Air Quality monitoring locations are fixed based on up wind, down wind and cross wind stations to be covered in the entire CEPI area.

**MAP SHOWING THE LOCATION OF AMBIENT AIR QUALITY MONITORING STATIONS -
TIRUPPUR 2018**

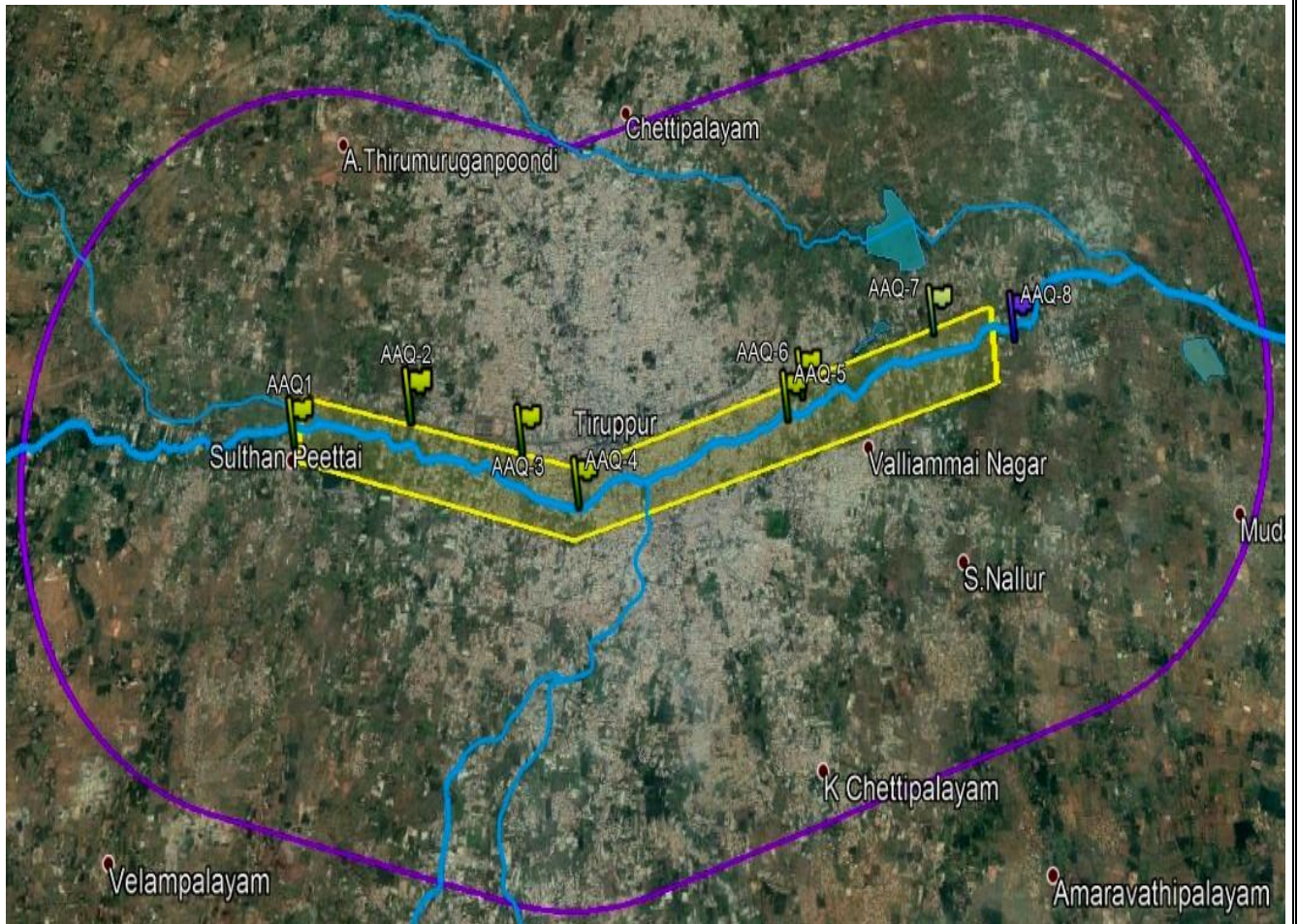


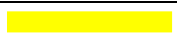



	CEPI core zone 12 SQKM
	CEPI Impact Zone (5km)
	CEPI Buffer Zone (10KM)




 Ambient Air Quality Monitoring staions	
AAQ-1	M/s. Velumurugan Dyeing unit
AAQ-2	M/s. Algendra Dyeing Unit
AAQ-3	Mr. Saravanamani's House, Arulpuram
AAQ-4	Mr.Ramasamy's House, Director , M/s. Karipudur CETP
AAQ-5	M/s. Ess Kam Colours Washing Unit
AAQ-6	M/s.G.K.M Colours
AAQ-7	Mr.Kathirvel's House, Mudalipalayam, SIDCO
AAQ-8	Mr.Jaya Prakash house, Pitchampalayam pudur

**MAP SHOWING THE LOCATION OF AMBIENT AIR QUALITY MONITORING STATIONS -
TIRUPPUR 2019**



	CEPI core zone 12 SQKM	
	CEPI Impact Zone (5km)	
	CEPI Buffer Zone (10KM)	

	Ambient Air Quality Monitoring stations
AAQ-1	M/s Velmurugan Dyeing
AAQ-2	M/s Azhagendra Dyeing
AAQ-3	M/s Golden Textile Process
AAQ-4	M/s T.R.Ruby Colours
AAQ-5	M/s Rohini Textile Industry
AAQ-6	M/s Fashion Knit Process
AAQ-7	M/s Spencer Apparel Hostel
AAQ-8	Thiru Kathirvelan's House

2.3 Status of AAQ in 2018 in CEPI Area

The parameters "PM₁₀, PM_{2.5} and arsenic" are taken by CPCB for the calculation of CEPI score during 2018 in CEPI core area of Tiruppur.

SI.NO	POLLUTANT	UNIT	MEAN
1	SO ₂	µg/m ³	13.1
2	NO ₂	µg/m ³	30.2
3	PM ₁₀	µg/m ³	107
4	PM _{2.5}	µg/m ³	50.3
5	Lead	µg/m ³	0.166
6	Ammonia	µg/m ³	18.2
7	Ozone (8 hrs)	µg/m ³	11.4
8	Carbon Monoxide (8 hrs)	mg/m ³	0.025
9	Benzene	µg/m ³	0.500
10	Benzo(a)Pyrene	ng/m ³	0.500
11	Arsenic	ng/m ³	2.61
12	Nickel	ng/m ³	5.00

Air Quality Analysis Report

Pollutant	Group	A1	A2	A (A1xA2)
PM10	B	0.5	Large	
PM2.5	B	0.5		
As	C	3		
		4	4	16

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
PM10	107.23	100	1.0723	8	24	0.357433	M	13.5
PM2.5	50.31	60	0.84	5	24	0.17	M	3.5
As	2.61	6	0.44	0	24	0.00	L	0
B score = (B1+B2+B3)							B	17

C	0	<5%
D	0	A-A-A
AIR EPI	(A+B+C+D)	33.00

2.4 Industries Stack Emission Details

S. No	Company Name	Emission Sources	APC Measures Provided	Stack Height Mtr
1	M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd	Boiler 3 T/Hr	Stack	30
		Boiler 6 T/Hr	Stack	30
2	M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited	Boiler - 5 T/hr	Stack	30
		Boiler - 2 T/hr	Stack	30
3	M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd	Wood Fired Boiler – 2 T/hr	Stack	30
		Wood Fired Boiler – 6 T/hr	Dust collectors with stack	30
4	M/S. Rayapuram Common Effluent Treatment Plant Pvt Ltd	Boiler 5 Ton/Hr.	Dust collectors with stack	30
		Boiler 8 Ton/Hr.	Dust collectors with stack	30
5	M/s. Mannarai Common Effluent Treatment Plant (P) Limited	Boiler -3T/hr	Stack	20
		Boiler 6 T/hr	Stack	20
6	M/s. Kasipalayam Common Effluent Treatment Plant Private Limited	Boiler - 6T/Hr	Stack	30
7	M/s. Eastern Common Effluent Treatment Company Private Limited	Boiler- 5 T/Hr & 0.75 T/Hr	Stack	30
		Boiler- 6 T/Hr	Acoustic enclosures with stack	30
8	M/s. Santhosh Textile Process	Boiler 3.0 T/Hr -1 No	Stack	25
		Thermic Fluid Heater (10 Lakh K.Cal/Hr) - 1 No.	Stack	25
9	M/s. Chemtech Process	Boiler-8Ton/hr-2Nos	Common stack	26.37
		Boiler-12Ton/hr	Stack	19.95
10	M/s. Raagam Exports (Dyeing Division)	Boiler - 6T/hr	Wet scrubber with stack	24

11	M/s. Poomer Textile Process	Boiler 6.0 T/Hr	Stack	22
12	M/s. Crystal Knitters	Boiler 3 T/hr	Stack	30
13	M/s. Sri Jayalakshmi Knit Process	Boiler - 2 Nos.	Common stack	15
14	M/s. Velmayil Bleachers	-	-	-
15	M/s. Venmugil Bleaching Company	-	-	-
16	M/s. Noga Bleachers	-	-	-
17	M/s. Sri Nive Bleachers	-	-	-
18	M/s. Rasi Bleaching Company	-	-	-
19	M/s. Poomer Bleachings	-	-	-
20	M/s. T.R.Rooby Colours P Ltd	Boiler 3 T/Hr	Stack	15.54
		Thermic Fluid Heater (10 Lakh K.Cal/Hr)	Dust collectors with stack	15.54
21	M/s. Rohini Textile Industry Private Limited	Boiler 8 T/Hr-1 no, & Boiler 6 T / Hr - 1no	Common stack	18
		Thermic Fluid Heater- 15 lakh K Cal/hr	Stack	18
22	M/s. Srie Flora Garments Bleaching Unit	Boiler (4 TPH)	Stack	27.44
23	M/s. Danam Process	Fire Wood Boiler 3.0 T/Hr	Stack	20
		Themic Fluid Heater6 Lakh/kg/calories	Stack	20

2.5 Quantification of Stack Emission Load

Status of industries stack emission load is briefed in the table below

Sl. No.	Name of the units contributed the Pollution load	Pollution load (Kg/Day)		
		PM	SO ₂	NO ₂
1	M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited	33.79	12.13	15.20
2	M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd	25.57	2.18	4.36
3	M/S. Rayapuram Common Effluent Treatment Plant Pvt Ltd	50.60	6.78	11.99
4	M/s. Mannarai Common Effluent Treatment Plant (P) Limited	24.16	2.12	4.06
5	M/s. Kasipalayam Common Effluent Treatment Plant Private Limited	13.67	1.28	2.68
6	M/s. Eastern CETP Pvt Ltd	26.04	2.20	4.60
7	M/s. Santhosh Textile Process	97.71	10.85	16.70
8	M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd	42.58	6.66	9.47
9	M/s. Raagam Exports (Dyeing Division)	29.93	4.55	3.68
		344.05	48.75	72.74

Status of Ambient Air Quality in industries is briefed in the table below

Sl. No.	Name of the Industries	Stations ($\mu\text{g}/\text{m}^3$)			
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂
1	M/s.Mannarai CETP	67.3	6.5	12.6	15.6
2	M/s.Eastern CETP	81.8	10	12.2	14.8
3	M/s.Sirupooluvapatti CETP	68.5	10.5	13.25	15.2
4	M/s. Rayapuram CETP	70.8	8.8	14	15.8
5	M/s. Mangalam CETP	89.3	8.8	12.8	20.0
6	M/s. Kasipalayam CETP	60.2	8.6	13.2	15.8
7	M/s. Andipalayam CETP	79.8	8.8	11.4	13.2
8	M/s. Santhosh Textile Process	82.4	9.1	8.94	21.2
9	M/s. Raagam Exports (Dyeing Division)	73.8	9.2	12.8	13

2.6 Consolidated Stack Emission Load in CEPI Area

From Quantification of stack emission Load (Chapter 2.5)

- i) Total Pollution load of PM from the major industries in Tiruppur was **344.05** Kg/Day
- ii) Total Pollution load of SO₂ from the major Industries in Tiruppur was **48.75** Kg/Day
- iii) Total Pollution load of NO₂ from the major industries in Tiruppur was **72.74** Kg/Day

2.7 Status of AAQ during 2019 post monsoon

During post monsoon 2019 five locations were monitored. The Report of Analysis reveals that the values of the parameters “PM₁₀, PM_{2.5} and Arsenic” are within the standards of 100 µg/m³, 60 µg/m³ and 6 ng/m³ respectively and the details are briefed in the table below.

Parameters	M/s. Velmurugan Dyeing unit	M/s. Alagendra Dyeing unit	M/s. Golden Textile Process	M/s. T.R.Rooby Colours	M/s. Rohini Textile Industry Private Ltd	M/s Fashion Knit Process	M/s Spencer Apparel Hostel	Mr. Kathirvel's House	Mean Concentration	NAAQS	Unit
Particulate Matter (PM ₁₀)	82.083	87.777	45.902	80.486	62.638	66.11	71.875	54.305	68.89	100	µg/m ³
Particulate Matter (PM _{2.5})	44.83	32.5	36.916	39.95	45.62	35.9	39.875	45.75	40.16	60	µg/m ³
Arsenic	0	0	0	0	0	0	0	0	0	6	ng/m ³

2.8 Conclusion

CPCB has conducted AAQ survey at eight locations during 2018 in which two are within the CEPI core area and 3 are in impact zone of 5 KM CEPI area and the remaining 3 are in buffer zone of 10 KM CEPI area. Hence to conduct the Ambient Air Quality within the core area 5 new locations were identified and survey was conducted.

The total number of Ambient Air Quality monitoring location during 2018 by CPCB's CEPI monitoring is eight. Out of which three locations are out of CEPI area and those three locations can be placed inside the core area based on the meteorological conditions.

In the present Ambient Air Quality monitoring downwind PM_{10} and $PM_{2.5}$ concentration is 68.89 & 40.16 $\mu\text{g}/\text{m}^3$ respectively. Based on the emission load and the average stack height the PM load to the Ambient Air is minimum and proportionately the Ambient Air Quality PM_{10} & $PM_{2.5}$ concentration will also to be less. During CPCB's 2018 CEPI monitoring few of the Ambient Air Quality location showed more than the limit value which may be due to localized sources like vehicular emission, construction activity etc., Moreover, all the Boilers are provided with Air pollution control measures and are connected to stack of adequate height to control PM and gaseous emission.

CHAPTER – 3

3.0 Water Environment

River Noyyal, a tributary of River Cauvery is the major water body flows in Tiruppur. It originates from the Vellingiri hills in the Western Ghats in Coimbatore District and flows through Coimbatore, Tiruppur, Erode and Karur Districts. The River Noyyal finally confluences with River Cauvery at Noyyal Village in Karur District. The river basin is **158.3 KM** long. The river enters Tiruppur District at Pendevipalayam Village and leaves the district at Muthur barrage covering a total distance of **76.4 KM** in Tiruppur. Two small streams named Koushika River originating from Kurudi Hills in Coimbatore District and Nallaru Odai originating from Annur in Coimbatore District joins River Noyyal near Mangalam and near Velliyampalayam Village respectively. Other water bodies located in Tiruppur are Andipalayam Lake, Moolikulam Tank, Nanjarayan Lake and Manickapuram Lake which are fed by River Noyyal and Nanjarayan Lake is fed by Nallaru odai.

Effluent Disposal Methods:

All the textile dyeing and bleaching industries located in the CEPI core area have either connected to the Common Effluent Treatment Plants or have provided Individual Effluent Treatment Plant with Zero Liquid Discharge (ZLD) system. Also, all the printing and washing units have provided effluent recycling system wherein the effluents are being treated and reused in the process. The total effluent generation in Tiruppur CEPI core area is 35267.5 KLD. In which 31675 KLD is treated in the CETP's and 3132.5 KLD is treated by IETP's. All the units have provided adequate ETP facility and the treated waste water are reused again in the process. Hence there is no effluent discharge from any of the textile processing industries into any water body.

Present status of water environment:

River Noyyal is the surface water source, flowing in the middle of the earmarked CEPI area. It receives flood discharge only during monsoon season which is stored in the tanks adjacent to the river and is being used for irrigation activities. The sewage generated from Tiruppur Corporation limit and from the nearby villages is being discharged directly into the River Noyyal without any treatment.

As per CPCB's, CEPI monitoring of surface water during 2018 the parameters selected were Phenol, Ammonical Nitrogen & Total Phosphorous. Since the River Noyyal is predominantly flows with domestic waste water and sewage of 86.9 MLD generated from

Tiruppur Corporation, it clearly indicates that the concentration of total Phenol, Ammonical Nitrogen & Total Phosphorous are from this sewage which is the main contributing factor. Moreover all the poultry and meat waste are also being dumped on the bank of River Noyyal. The leachate of the same also being contributes to increase in the above parameters.

3.1 Primary and Secondary Pollutants considered for SWEPI

In the surface water, the concentration of Phenol, Ammonical Nitrogen & Total Phosphorous are the parameters taken for calculation by CPCB during 2018.

Primary Pollutant : Ammonical Nitrogen

Secondary Pollutants: Phenol & Total Phosphorous

Samples have been collected Post monsoon 2019 and the values of the parameters “Phenol, Ammonical Nitrogen & Total Phosphorous” are taken for the calculation of CEPI score.

Primary Pollutant : Ammonical Nitrogen

Secondary Pollutants: Phenol & Total Phosphorous

3.2 Surface Water Quality Sampling Locations

The total number of surface water sampling locations considered during 2018 by the CPCB’s CEPI monitoring is eight. Out of which seven locations are in River Noyyal. Two numbers are in CEPI core area, four numbers are in the impact zone of 5 KM and two are in buffer zone of 10 KM. During the sampling time there was only domestic waste water and sewage were flowing in River Noyyal. These seven locations within River Noyyal can be replaced with other surface water sources.

Out of 24 samples collected by the CPCB during 2018 CEPI monitoring, Total Phosphorous in 24 samples, Ammonical Nitrogen in 21 samples and Phenols in 12 samples have exceeded the IS- 10500 Drinking Water Standards.

The Surface Water Quality Sampling Locations during 2018 by CPCB are briefed in the table below.

Sample Code	Name of the Monitoring Location	Latitude	Longitude
SWQ-1	Agraharapudur, Noyyal, Tiruppur.	11°5’30”N	77°33’09”E
SWQ-2	Andipalayam(Anaipalayam), Opp to Andipalayam CETP, Tiruppur.	11°06’25”N	77°18’47”E
SWQ-3	S.R.Nagar North Periyandipalayam Tiruppur	11°06’10”N	77°19’16”E

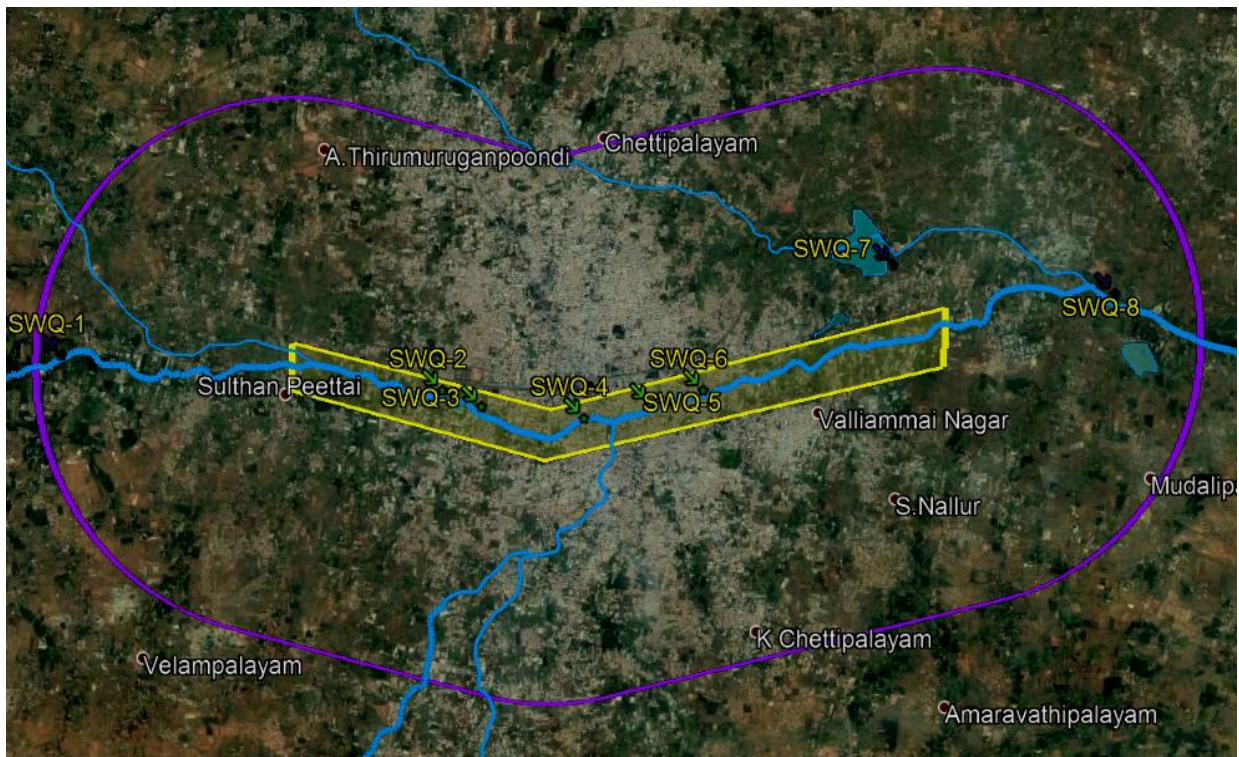
SWQ-4	Jamunai Odai, Tiruppur	11°06'07"N	77°20'21"E
SWQ-5	Manthirivaikkal, Tiruppur	11°06'18"N	77°21'02"E
SWQ-6	Sangallipallam Odai, Tiruppur	11°06'28"N	77°21'35"E
SWQ-7	Nallar Odai, Tiruppur	11°07'49"N	77°23'30"E
SWQ-8	Anaipalayam(SIDCO), River Noyyal, Tiruppur	11°07'41"N	77°25'51"E

Now, samples were collected during 2019 Post monsoon at ten locations. Out of which six are in the River Noyyal, and the remaining four are from Andipalayam Lake, Moolikulam Tank and Manickapuram Lake which are being fed by River Noyyal and Nanjarayan Lake which is fed by Nallaru odai. Four of these sampling locations are within the CEPI core area and the remaining six locations are within the CEPI impact zone(5 KM).

The Surface Water Quality Sampling Locations during 2019 Post monsoon by TNPCB is briefed in the table below

SI. No.	Name of location	Latitude (N)	Longitude (E)
SWQ-1	Agraharapudur (River Noyyal) (CEPI Impact area)	11°10'66"2	77°24'71"8
SWQ-2	Andipalayam Tank (Additional point) (CEPI Impact area)	11°10'25"05	77°29'30"29
SWQ-3	Andipalayam (Anaipalayam- River Noyyal)	11°10'53"61	77°31'29"75
SWQ-4	River Noyyal at near Vishnu clothing company	11°10'31"13	77°32'10"76
SWQ-5	Noyyal at Manthirivaikkal junction	11°10'44"93	77°35'02"90
SWQ-6	Noyyal at Sukumar nagar (Sangilipallam confluence point)	11°10'78"73	77°36'13"23
SWQ-7	Moolikulam Tank (Additional point) (CEPI Impact area)	11°12'23"16	77°38'52"56
SWQ-8	Nanjarayan Tank (Additional point) (CEPI Impact area)	11°13'02"78	77°39'18"85
SWQ-9	Anaipalayam (SIDCO) River Noyyal (CEPI Impact area)	11°12'80"16	77°43'09"02
SWQ-10	Manickapuram Tank (Additional point) (CEPI Impact area)	11°12'11"04	77°43'59"03

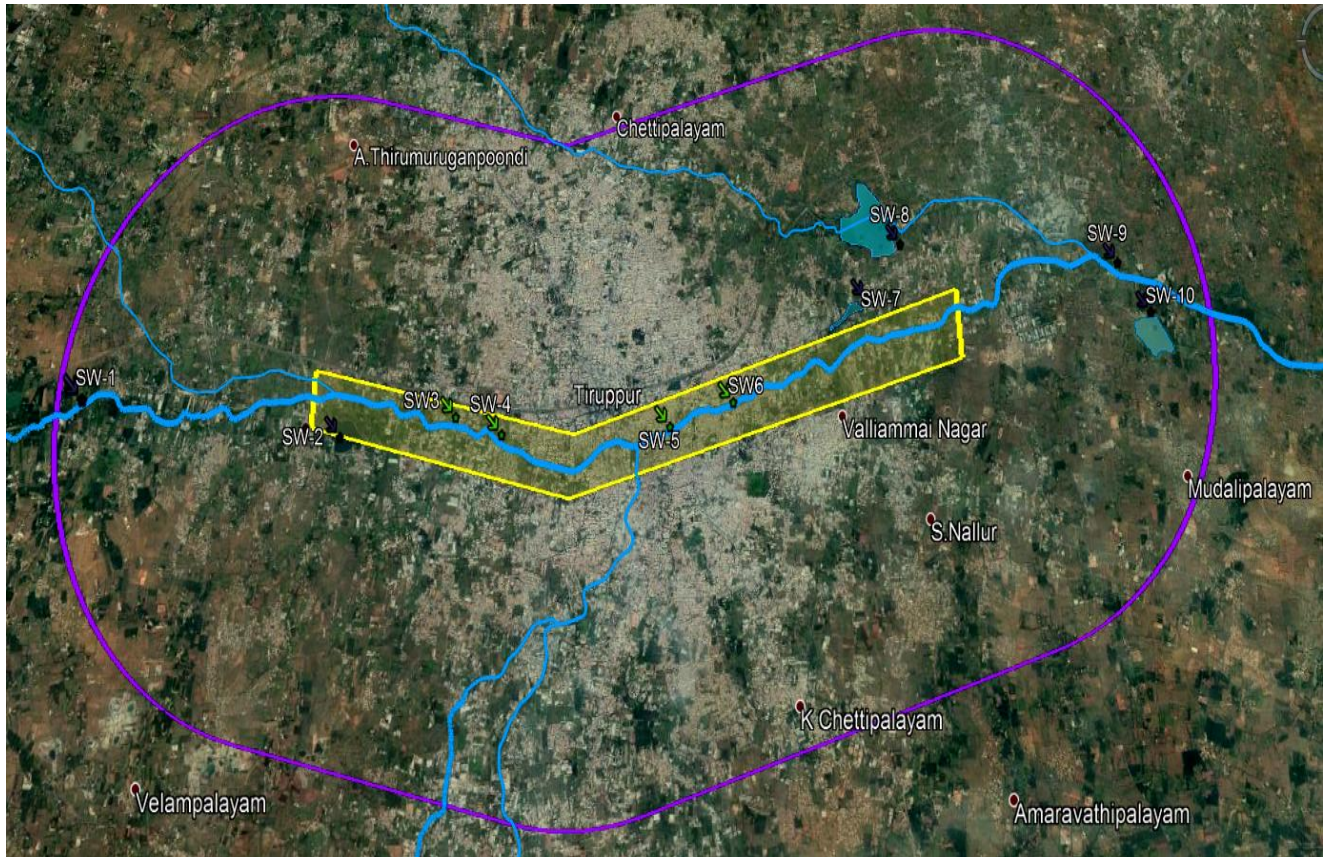
MAP SHOWING SURFACE WATER SAMPLING LOCATIONS - TIRUPPUR 2018



	CEPI core zone 12 SQKM	
	CEPI Impact Zone (5km)	
	CEPI Buffer Zone (10KM)	

Surface Water Sampling Locations	
SWQ-1	Agraharapudur, Noyyal
SWQ-2	Andipalayam(Anaipalayam), Opp to Andipalayam CETP
SWQ-3	S.R.Nagar North, Periyandipalayam
SWQ-4	Jamunai Odai
SWQ-5	Manthirivaikkal
SWQ-6	Sangallipallam Odai
SWQ-7	Nallar Odai
SWQ-8	Anaipalayam(SIDCO)

MAP SHOWING SURFACE WATER SAMPLING LOCATIONS - TIRUPPUR 2019



	CEPI core zone 12 SQKM
	CEPI Impact Zone (5km)
	CEPI Buffer Zone (10KM)



Surface Water Sampling Locations

SW-1	Agraharapudhur Bridge @ Noyyal
SW-2	Andipalayam Lake
SW-3	Anaipalayam Andipalayam @ Noyyal
SW-4	Near M/sVishnu Clothing Company @ Noyyal
SW-5	Manthirivaikal Junction @ Noyyal
SW-6	Sugumar Nagar New Noyyal Road @ Noyyal
SW-7	MooliKulam Tank
SW-8	Nanjarayan Lake
SW-9	Anaipalayam SIDCO
SW-10	Manikapuram Lake

3.3 Details of Effluents generation from major Industries located in CEPI Area

Sl. No.	Name of the industry	Source of Trade Effluent	Quantity MLD
1.	M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd	From the dyeing and bleaching units of their member units	3.88
2.	M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited	From the dyeing and bleaching units of their member units	5
3.	M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd	From the dyeing units of their member units	2.73
4.	M/S. Rayapuram Common Effluent Treatment Plant Pvt Ltd	From the dyeing and bleaching units of their member units	5.5
5.	M/s. Mannarai Common Effluent Treatment Plant (P) Limited	From the dyeing and bleaching units of their member units	4.165
6.	M/s. Kasipalayam Common Effluent Treatment Plant Private Limited	From the dyeing and bleaching units of their member units	4.4
7.	M/s. Eastern Common Effluent Treatment Company Private Limited	From the dyeing and bleaching units of their member units	6
8.	M/s. Santhosh Textile Process	From the dyeing process	0.2
9.	M/s. Chemtech Process	From the dyeing process	0.55
10.	M/s. Raagam Exports (Dyeing Division)	From the dyeing process	0.3455
11.	M/s. Poomer Textile Process	From the dyeing process	0.14
12.	M/s. Crystal Knitters	From the dyeing process	0.1
13.	M/s. Sri Jayalakshmi Knit Process	From the dyeing process	0.096
14.	M/s. Velmayil Bleachers	From the bleaching process	0.035
15.	M/s. Venmugil Bleaching Company	From the bleaching process	0.04
16.	M/s. Noga Bleachers	From the bleaching process	0.045
17.	M/s. Sri Nive Bleachers	From the bleaching process	0.05
18.	M/s. Rasi Bleaching Company	From the bleaching process	0.096
19.	M/s. Poomer Bleachings	From the bleaching process	0.24
20.	M/s. T.R.Rooby Colours P Ltd	From the bleaching process	0.27
21.	M/s. Rohini Textile Industry Private Limited	From the bleaching process	0.3
22.	M/s. Srie Flora Garments Bleaching Unit	From the bleaching process	0.3
23.	M/s. Danam Process	From the bleaching process	0.325
	Total		34.808

3.4 Domestic Waste Water Generation and Disposal in CEPI Area

The discharge of domestic waste water and sewage from the local bodies located in and around the CEPI earmarked area are the predominant sources of water pollution.

Tiruppur Municipal Corporation has 60 wards with 4 zones and has a population of around 10.0 lakhs. In the Corporation area approximately 94.4 MLD of sewage is generated. Out of 60 wards, the Corporation has provided UGD covering 19 wards and the sewage generated from these wards are treated in the Sewage Treatment plant (STP) of capacity 15 MLD located at S.Periyapalayam. Presently the STP is operated at the capacity of 7.5 MLD. The untreated sewage of 86.9 MLD generated from the remaining 41 wards of Tiruppur Municipal Corporation is being directly discharged into the River Noyyal.

Another sewage treatment plant of capacity 1.5 MLD has been installed at S.Periyapalayam village near Nanjarayan Tank and the same is not in operation at present.

There are unauthorized printing, button & zip dyeing units located in the residential area and commercial area within the Corporation limit adjacent to River Noyyal. These units are being inventorized by Flying Squad and action is being initiated for the closure of these units. Hence discharge of effluent into the River Noyyal is completely stopped.

3.5 Industrial and Domestic Waste Water impact on Surface Water bodies

The dyeing and bleaching units are recovering 98% of their effluent for reuse. The remaining final wastes 2% is evaporated in ATFD, carry over in the wet sludge and recovered as salt. **No discharge of effluent either treated or untreated into any water body is permitted.** TNPCB is closely monitoring the compliance with respect to reutilization of treated water. Also the domestic sewage generated from industries in CEPI area is being treated through septic tank and dispersion trench/ soak pit arrangements.

Effluent treatment Methods in CETP

Sl. No	Name of the industry	Quantity of Trade Effluent (KLD)	Reused a) RO Permeate, MVRE, MEE b) Brine solution (KLD)	ATFD (KLD)	Solar Evaporation Pan (KLD)
1.	M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd	3880	a) 2611.5 b) 95.0	9.5	-
2.	M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited	5000	a) 4341 b) 157	2.0	-
3.	M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd	2730	a) 1223 b) 122	5.0	-
4.	M/s. Rayapuram Common Effluent Treatment Plant Pvt Ltd	5500	a) 4737 b) 198	15	-
5.	M/s. Mannarai Common Effluent Treatment Plant (P) Limited	4165	a) 3712.63 b) 34.44	1.43	-
6.	M/s. Kasipalayam Common Effluent Treatment Plant Private Limited	4400	a) 3367.1 b) 141	11.9	-
7.	M/s. Eastern Common Effluent Treatment Company Private Limited	6000	a) 4328 b) 150	22.0	-

Effluent treatment Methods in IETP

Sl. No.	Name of the industry	Quantity of Trade Effluent (KLD)	Reused RO Permeate (KLD)	ATFD (KLD)	Solar Evaporation Pan (KLD)
1.	M/s. Santhosh Textile Process	200	197.46	2.54	-
2.	M/s. Chemtech Process	550	548.2	1.8	-
3.	M/s. Raagam Exports (Dyeing Division)	345.5	342.65	2.85	-
4.	M/s. Poomer Textile Process	140	138.75	1.25	-
5.	M/s. Crystal Knitters	100	94.0	6.0	-
6.	M/s. Sri Jayalakshmi Knit Process	96	91.32	4.68	-
7.	M/s. Velmayil Bleachers	35	29.75	-	5.25
8.	M/s. Venmugil Bleaching Company	40	34.0	6.0	-
9.	M/s. Noga Bleachers	45	38.25	-	6.75

10.	M/s.Sri Nive Bleachers	50	40.0	10.0	-
11.	M/s.Rasi Bleaching Company	96	86.4	9.6	-
12.	M/s. Poomer Bleachings	240	237.6	2.4	-
13.	M/s.T.R.Rooby Colours P Ltd	270	268.985	1.015	-
14.	M/s.Rohini Textile Industry Private Limited	300	297.0	-	3.0
15.	M/s.Srie FloraGarments Bleaching Unit	300	297.0	3.0	-
16.	M/s.Danam Process	325	313.0	12.0	-

3.6 Common Treatment Facilities details (CETP's and IETP's)

In the earmarked 12 sq km CEPI area the total generation of Effluent is 35.267 MLD generated from member units of 7 CETP's and 16 IETP's in which, 31.675 MLD is treated in 7CETP's and the remaining 3.1325 MLD is treated in 16 IETP's. Also out of the 106 member units of seven CETP's only 81 member units are located within the earmarked 12 sq km CEPI area. All the CETPs have provided with chemical treatment facility, biological treatment facility, filtrations with Reverse Osmosis facility and evaporator with ATFD for Reject Management and all IETP's have provided ZLD system. Through these treatment facility systems all the CETPs and IETPs are achieving Zero Liquid Discharge. The treated water from RO, evaporator condensate, brine solution are being reused by the member units. Remaining concentrate from the evaporator is being recovered as mixed salt. Hence there is no discharge of treated or untreated trade effluent into the River Noyyal / surface water bodies.

3.7 Status of Surface Water Quality in 2018 in CEPI Area

Now, samples were collected during 2019 Post monsoon at ten locations. Out of which six are in the River Noyyal, and the remaining four are from Andipalayam Lake, Moolikulam Tank and Manickapuram Lake which are being fed by River Noyyal and Nanjarayan Lake which is fed by Nallaru odai. Four of these sampling locations are within the CEPI core area and the remaining six locations are within the CEPI impact zone(5 KM).

The Report of Analyses of the sample is briefed in the table below.

SI.NO	PARAMETER	UNIT	MEAN
I	Simple Parameters		
1	Total Ammonia (NH ₄ +NH ₃)-Nitrogen	mg/l	47
2	Total Phosphorous as P	mg/l	6.04
3	Phenols	mg/l	0.17

Surface Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1xA2)
TP	B	0.5	Large	
NH ₄ -N	B	0.25		
Phenols	C	3		
		3.75	4	15

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
TP	6.04	0.3	20.12	24	24	20.12	C	10
NH ₄ - N	47.05	1.5	31.37	21	24	27.45	C	30
Phenols	0.17	0.01	16.75	12	24	8.38	C	10
B value = (B1+B2+B3)							B	50

C	0	<5%
D	0	A-A-A

WATER EPI	(A+B+C+D)	65
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3.8 Status of Surface Water Quality during 2019 post monsoon

S.NO	PARAMETERS	UNITS	Sampling location & Results										Mean Concentration
			Agraharapudur (Noyyal river)	Andipalayam Tank	Andipalayam (Anaipalayam-Noyyal river)	Noyyal river near Vishnu clothing company	Noyyal at manthirivaikkal junction	Noyyal at Sukumar nagar Sanglilpallam confluence point)	Moolikulam Tank	Nanjarayan Tank	Anaipalayam (SIDCO) Noyyal River	Manickapuram Tank	
1	Phenol	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005
2	Ammonical Nitrogen	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	Total Phosphorous	mg/l	0.0652	0.0652	0.09783	0.09783	0.09783	0.0652	0.0652	0.0652	0.1304	0.0522	0.0802

3.9 Conclusion

As per CPCB's, CEPI monitoring of surface water during 2018 the parameters selected were Phenol, Ammonical Nitrogen & Total Phosphorous. All the industries in Tiruppur have provided ZLD system and no effluent is discharged into any water body. Since the River Noyyal is predominantly flows with domestic waste water and sewage of 86.9 MLD generated from Tiruppur Corporation, It clearly indicates that the concentration of total Phenol, Ammonical Nitrogen & Total Phosphorous are from this sewage which is the main contributing factor. Moreover all the poultry and meat waste are being dumped on the bank of River Noyyal. The leachate of the same also contributes to increase in the above parameters.

During CPCB 2018 CEPI monitoring, the surface water samples were collected at eight locations, of which seven locations are selected only on the River Noyyal at different points. Actually in the River Noyyal we need to take one upstream and one downstream sample and one in the middle of the core area.

Also, the CPCB during its 2018 CEPI monitoring has collected samples of water in River Noyyal at locations near poultry waste dumping (on the River bank), near meat waste dumping (on the River bank) and near sewage intrusion points due to which the presence of total Phenol, Ammonical Nitrogen & total Phosphorous might have shown higher values.

The contribution from the industries for the discharge of waste water in to the Noyyal River or any inland surface is controlled, since all the units in Tiruppur have provided ZLD system .The higher concentration of Phenol, Ammonical Nitrogen and Total Phosphorus in the results may be due to the discharge of sewage generated from Tiruppur Corporation and from the nearby villages. .

To avoid similar sample in River Noyyal alone new surface water sample locations were identified during 2019 Post monsoon at the locations namely Andipalayam Lake, Moolikulam Tank and Manickapuram Lake which are being fed by River Noyyal and Nanjarayan Lake which is fed by Nallaru odai.

Four new surface water locations are identified across the core area to avoid similar samples at River Noyyal itself.

CHAPTER – 4

4.0 Land Environment

Ground water from the bore well/ open well has been in usage for domestic and agricultural needs.

4.1 Primary and Secondary Pollutants considered for GWEPI

In the ground water, the concentration of Phenol, Total Dissolved Solids & Total Hardness are the parameters taken by CPCB during 2018 for the calculation of CEPI score.

Primary Pollutant : Phenol

Secondary Pollutants: Total Dissolved Solids & Total Hardness.

Samples have been collected 2019 Post monsoon and the values of the parameters “Phenol, Total Dissolved Solids & Total Hardness” are taken for the calculation of CEPI score.

Primary Pollutant : Phenol

Secondary Pollutants: Total Dissolved Solids & Total Hardness.

4.2 Ground Water Quality Sampling Locations

Out of 24 samples collected by the CPCB during 2018 CEPI monitoring, Total Dissolved Solids in 22 samples, Total Hardness in 21 samples and Phenols in 24 samples have exceeded the IS- 10500 Drinking Water Standards.

The Ground Water Quality Sampling Locations during 2018 by CPCB is briefed in the table below

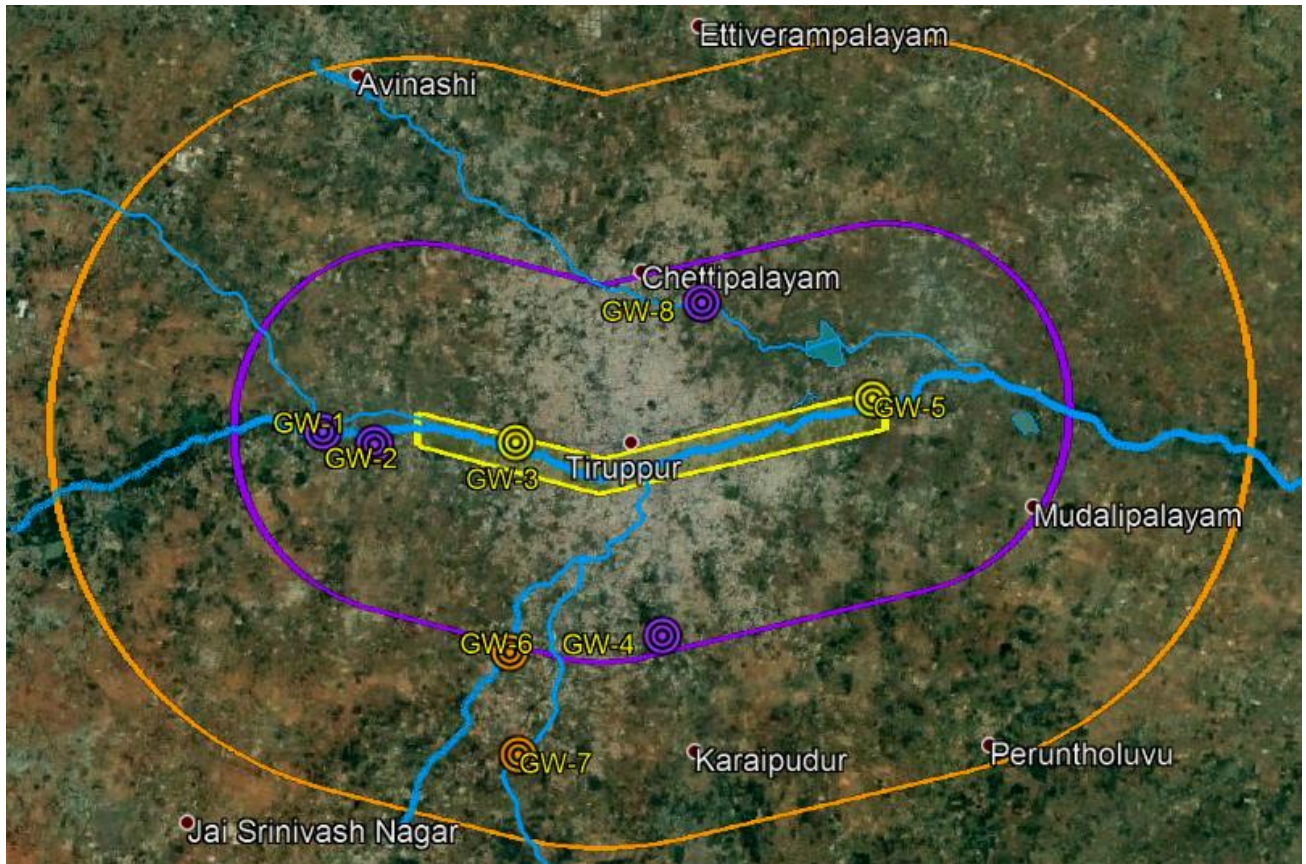
Sample Code	Name of the Monitoring Location	Latitude	Longitude
GW-1	Muthurathinam-Open Well, Tiruppur	11°06'23"N	77°15'57"E
GW-2	Inside the premises of M/S.Thirumalai Textile Process-Open Well, Tiruppur	11°06'15"N	77°16'43"E
GW-3	Formerly M/s.Southern Dyeing – Open Well, Tiruppur	11°06'24"N	77°18'47"E
GW-4	Corporation Bore well-Veerapandi Bus Stop, Tiruppur	11°03'47"N	77°21'06"E

GW-5	Mr.Murugasamy Gounder Bore Well, Tiruppur	11°07'20"N	77°23'58"E
GW-6	Mr. Ramasamy Open Well Gobalan Thottam, Tiruppur	11°03'25"N	77°18'53"E
GW-7	Mr.Rajamani's Bore Well, Tiruppur	11°01'58"N	77°19'06"E
GW-8	Mr.Boopathy's Rasi Thottam Open Well, Tiruppur	11°08'33"N	77°21'23"E

The Ground Water Quality Sampling Locations during 2019 Post monsoon by TNPCB is briefed in the table below

Sl. No.	Name of location	Latitude (N)	Longitude (E)
GW-1	Gurunathan's - open well Vellanchettipalayam (Mangalam to Vadugankalipalayam Road) (Additional Point)	11°10'69"533	77°.26'65"191
GW-2	Inside the premises of M/s. Thirumalai Textile Process - open well	11°.10'42"12	77°.27'86"80
GW-3	Thiru Selvaraj Open well (Additional Point)	11°.06'22"00	77°.17'35"00
GW-4	Formerly M/s.Southern Dyeing - bore well (Additional Point)	11°10'69"09	77°31'29"24
GW-5	Open well of M/s Sri Venkateswara Rice Mills (Adjacent to M/s T.R. Rooby Colours) (Additional Point)	11°09'91"81	77°33'55"02
GW-6	Murugasamy Gounder's Bore well	11°12'23"56	77°39'96"05
GW-7	Mr.M.Palanisamy's bore well (Additional Point)	11°11'50"36	77°38'61"30
GW-8	Open well of M/s. Rohini Textile Industry Private Ltd. (Additional Point)	11°10'99"11	77°36'92"15

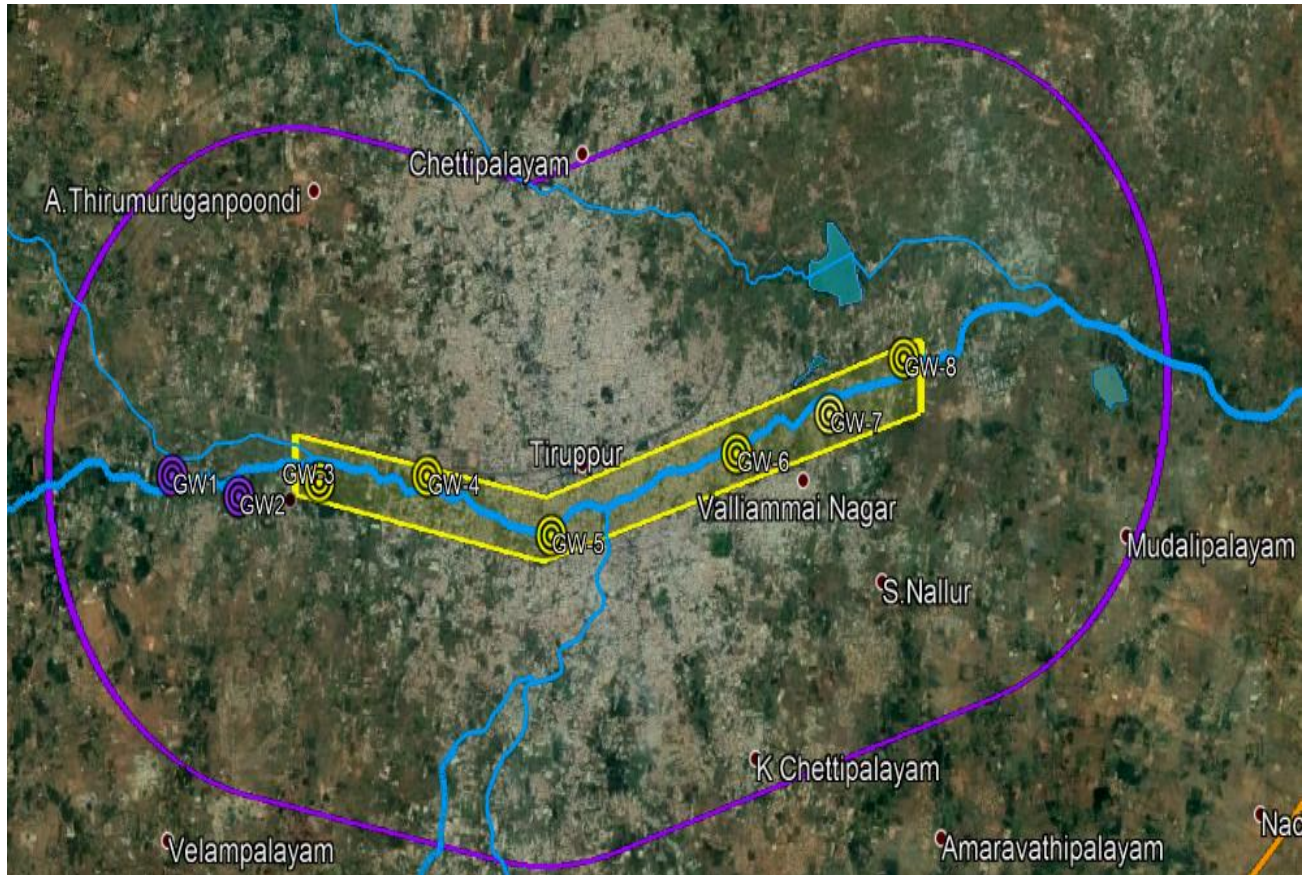
MAP SHOWING GROUND WATER SAMPLING LOCATIONS - TIRUPPUR 2018



	CEPI core zone 12 SQKM	
	CEPI Impact Zone (5km)	
	CEPI Buffer Zone (10KM)	

Ground Water Sampling Locations	
GW-1	Muthurathinam-Open Well
GW-2	M/S.Thirumalai Textile Process- Open Well
GW-3	Formerly M/s.Southern Dyeing -Open Well
GW-4	Corporation Bore well-Veerapandi Bus Stop
GW-5	Mr.Murugasamy Gounder -Bore Well
GW-6	Mr. Ramasamy- Open Well, Gobalan Thottam
GW-7	Mr.Rajamani's - Bore Well
GW-8	Mr.Boopathy's Rasi Thottam - Open Well

MAP SHOWING GROUND WATER SAMPLING LOCATIONS - TIRUPPUR 2019



	CEPI core zone 12 SQKM	
	CEPI Impact Zone (5km)	
	CEPI Buffer Zone (10KM)	

Ground Water Sampling Locations	
GW-1	Thiru Gurunathan's - Open Well
GW-2	M/s Thirumalai Textile Process - Open Well
GW-3	Thiru Selvaraj's - Open Well
GW-4	M/s Southern Dyeing - Bore Well
GW-5	M/s Venkateswara Rice Mill - Open Well
GW-6	M/s Rohini Textiles - Open Well
GW-7	M/s Colour Park - Bore well
GW-8	Thiru. Murugasami Gounder's Bore Well

4.3 Status of Ground Water quality in 2018

During CPCB monitoring of CEPI 2018 eight ground water sampling locations were identified in which 2 numbers of wells are unused wells. Only two of the ground water sampling locations are located within the CEPI core area. Four numbers are located in CEPI impact zone and the remaining two were in CEPI buffer zone (10 KM). Presently new regularly used wells were identified nearby the existing unused wells and new bore/ open wells were identified within the CEPI core area. Six number of sample locations are within the CEPI core area and the remaining two are within the CEPI impact zone (5KM) and samples were collected from these wells and analyzed. The report of analysis of the samples is briefed in the table below.

SI.NO	PARAMETER	UNIT	MEAN
I	Simple Parameters		
1	Phenols	mg/l	0.02
2	Total Dissolved Solids	mg/l	5043
3	Total Hardness as CaCO ₃	mg/l	1327

Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1xA2)
TDS	A	0.25	Large	
T Hard	A	0.25		
Phenols	C	3		
		3.5	4	14

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
TDS	5042.5	2000	2.52	22	24	2.31	C	10
T Hard	1326.96	600	2.21	21	24	1.94	C	10
Phenols	0.02	0.001	20.83	24	24	20.83	C	30
B value = (B1+B2+B3)							B	50

C	0	<5%
D	0	A-A-A

GW EPI	(A+B+C+D)	64
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4.4 Status of Ground Water Quality during 2019 Post monsoon

S.No	Parameters	Unit	Sampling Locations & Results								Mean Concentration	IS 10500 Drinking water Standards
			Gurunathan's - open well	M/s. Thirumalai Textile Process - open well	Thiru Selvaraj Open well	M/s.Southern Dyeing - bore well	Open well of M/s Sri Venkateswara Rice Mills	Open well of M/s. Rohini Textile Industry Private Ltd	Mr.M.Palanisamy's bore well	Murugasami Gounder's Bore well		
1	Phenol	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.002
2	TDS	mg/l	5828	5224	1323	3844	2856	1852	2040	1236	3025.37	2000
3	Total Hardness	mg/l	2090	1800	450	950	440	700	850	590	983.75	600

In the total 8 ground water and open well water samples collected, 5 samples have exceeded the TDS and Total Hardness. The basic ground water quality in Tiruppur near by the CEPI core area observed on the past shows higher TDS and Total Hardness values.

4.5 Management of Hazardous Waste in CEPI Area

The textile dyeing & bleaching units generates the following solid wastes from the treatment of their waste water.

1. Chemical sludge.
2. Biological sludge.
3. Mixed salt.

Previously these solid wastes were being stored on open land. Later on as per the continuous efforts by Tamilnadu Pollution Control Board the industries built covered shed with concrete flooring for storing these wastes. Presently the chemical sludge is transported to the cement industries for co-processing. So far **85,511 T** of sludge generated from all the Textile Dyeing & Bleaching units in Tiruppur district has been transported to cement industries for co-processing. Periodical inspections are being made to ensure that the chemical sludge is disposed properly.

The biological sludge – 4811.14 T and mixed salt – 31742.72 T are being stored under closed shed provided with concrete/ HDPE lined flooring.

The quantity of the chemical sludge generated and disposed by the Industries in CEPI area is briefed in the table below.

SL NO	Industry Name M/s	Total Quantity Generated (Tons)	Total Quantity Disposed (Tons)	Type of disposal
1	Mangalam CETP	421.00	328.00	Disposed to cement industry for co-processing
2	Sirupooluvapatti CETP	3299.203	3278.755	
3	Andipalayam CETP	8683.35	8495.35	
4	Rayapuram CETP	402.12	394.99	
5	Mannarai CETP	7180.94	7134.74	
6	Kasipalayam CETP	6765.13	6765.13	
7	Eastern CETP	1150.17	1036.70	
8	From Total IETP's - 16 numbers	2049.4	1735	
Total		29951.26	29168.67	

4.6 Management of Bio-Medical Waste in CEPI Area

The Bio Medical Waste generated by all the Health Care Facility is being handed over to the Common Bio Medical Waste Treatment Facility named M/s Tekno Therm Industries and M/s Kovai Bio Waste Management Ltd located in Coimbatore District for further treatment and disposal.

4.7 Management of Municipal Solid Waste in CEPI Area

Tiruppur Corporation has been dumping all the Municipal Solid Waste generated in Tiruppur Town into an abandoned quarry located at Kallankadu Village. The piling up of solid waste in the abandoned quarry has resulted continuous upward flow from the bore well of the private premises adjacent to the above said quarry. This leachate from the quarry which has TDS in the range of 83,000 mg/l reaches the River Noyyal via Sangilipallam odai. The Board has issued directions to Tiruppur Corporation.

Tiruppur Corporation has submitted applications under Solid Waste Rules, 2016 for obtaining authorization from TNPCB for 20 numbers of Micro Compost Centre (MCC) at various locations in Tiruppur Corporation limits.

4.8 Details of STPs/ETPs/CETPs

No STP is located in CEPI core area. All the industries in CEPI area have provided septic tank and dispersion trench/ soak pit arrangements for the treatment and disposal of domestic waste water and sewage.

The components of IETP and CETP are briefed in the table below.

M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd			
S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Collection Well	1	5.0 Dia. x 11.5 Ht
2	Bar Screen	1	-
3	Rotating Brush Screen	1	-
4	Storage cum Homogeneous Tank	1	59.0x10.4x6.0
5	Neutralization Tank	1	59.0 m3
6	Distribution Tank	1	240 m3
7	Biological Oxidation Tank	1	59.0x18.5x6.0
8	Sedimentation Feed Tank	1	136m3
9	Clarifier	1	27.0 Dia. x 3.0 Ht
10	Sludge Return Sump	1	106 m3
11	Sludge Thickener	1	4.0 Dia. x 3.0 Ht
12	Filter Press	2	25 m3/Day
13	Clarified Water Sump	1	10.0x10.0x4.0
14	PSF Feed Sump	1	16.0x16.0x4.0
15	Pressure Sand Filter	3	2.7 Diax1.5 Ht Each
16	ACF Feed Tank	1	10.0x10.0x4.0
17	Activated Carbon Filter	3	2.7 Diax1.5 Ht Each
18	RO Feed Tank	1	8.7x3.25x4.4
19	Cartridge Filters	3	165 m3/Hr Each
20	RO BANK (4 STAGE)	3 banks	90X3=270 Membranes
21	RO Combined Permeate Tank	1	18.0x8.6x4.4
22	RO Reject Tank	1	5.7x8.6x4.4
23	MVRE Feed Tank	1	10.0x7.5x2.6
24	MVR Evaporator	1	20 m3/Hr
25	MVRE Condensate Tank	1	4.0x2.5x2.0
26	MVRE Reject Tank	1	10.0x4.0x2.5
27	MEE (2FF + 1FC)	1	100 KL (Standby)
28	MEE (3FC)	1	100 KL
29	ATFD	1	500 litres/hr
30	Solar Evaporation Pan	1	1230 Sq.m

M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited

S.I. No.	Name of the Treatment Unit	No.of units	Dimensions in meters
1	Collection Well- 1	1	7.8 Dia X 4.0 m
2	Collection Well- 2	1	9.0 Dia X 4.0 m
3	Collection Well- 3	1	7.8 Dia X 4.0 m
4	Equalization Tank	1	26.2 Dia X 5.0 m
5	Biological Tank	1	48.6 X 19.0 X5.8
6	Secondary Clarifier	1	29.5 Dia X 3.6 m
7	Biological Sludge Well	1	4.8 Dia X 3.5 m
8	Chlorination Feed Tank	1	26.4 X 6.8 X 5.0
9	Chlorination Reactor Tank	1	9.0 X 8.0 X 6.0
10	HRSCC –I	1	14.0 Dia X 4.3 m
11	HRSCC Sludge Well-I	1	4.0 Dia X 8.0 m
12	PSF Feed Tank	1	14.7 X 10.0 X 5.5
13	PSF Backwash Tank	1	3.3 Dia X 4.0 m
14	Filter press-I	1	10 m3/hr
15	Pressure Sand Filter	3	150 m3/hr
16	Ro Feed Tank	1	10.2 dia X 3.5m
17	RO Skid –I	1	150 Membranes
18	RO Skid –II	1	150 Membranes
19	RO Skid –III	1	70 Membranes
20	IV th Stage RO	2	48 Membranes
21	Permeate Tank	1	20.2 X13.2 X 5.0
22	RO Reject tank	1	13.6 X 13.2 X 5.0
23	IV Stage RO Reject tank	1	13.2 X 6.5 X 5.0
24	HRSCC –II	1	6.2 dia X 4.5m
25	HRSCC Sludge Well-II	1	2.0 dia X 6.0m
26	MVRE Feed tank	1	4.9 Dia X 6.0 M
27	Activated carbon Filter	3	150 m3/hr
28	MVRE	1	750 KLD
29	MVRE Reject Tank	1	9.0 X 8.4 X 6.0 M
30	MEE Reject tank	1	9.0 X 3.6 X 6.0 M
31	HRSCC –III	1	5.3 dia X 5.0m
32	Brine tank-I	1	4.0 X 2.6 X 6.0
33	Brine tank-II	1	4.0 X 2.6 X 6.0
34	MEE	1	300 KLD
35	Over head tank(Permeate)	1	10 dia X 2.6 m
36	Chlorination yard	1	300 m3/hr
37	Decanter	1	5 m3/hr
38	Filter press-II	1	10 m3/hr
39	Pressure Sand Filter	1	50 m3/hr
40	Pressure Sand Filter	3	25 m3/hr
41	ATFD	1	15 KLD
42	Solar Evaporation Pan	1	1084 sq.m.

M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Receiving Sump	1	10.0M Dix2.5LDMx7.0
2	Equalization Tank	1	28.0m Dia x 2.50 mLD
3	Neutralization Tank	1	5.7x3.5x3.5
4	Biological Tank	1	28.0m Dia x 4.80 mLD.
5	Secondary Clarifier	1	16.0mDia x 3.0m LD
6	OR Feed Sump	1	5.0mDia x4mLD
7	Oxidation Reduction Plant	1	1.6m Dia x 500m L
8	OR Treated Sump	1	21 m Dia x2.95 m SWD
9	Flash Mixer-I	1	2 m x2 m x2.2 m LD
10	Flash Mixer-II	1	2 m x2 m x2.2 m LD
11	Flocculator	1	6 m x6 m x2.5 m LD
12	Tube Settler	1	8.1m x6.5m x2m SWD
13	Sludge Well	1	1.5m x4m
14	Decanter	1	5 Tons/Day
15	Clarified Water Sump I/DMF Feed	1	9m Dia x2.5m LD
16	DMF Feed Sump	1	1.5mx1.5mx4.2m
17	Dual Media Filter	3	3.6m Dia
18	Ultra Filtration Plant	1	80 Element
19	Filter Backwash Feed Tank	1	5m x5m x4.6m TD
20	Clarified Water Sump II/ACF Feed	1	10m Dia x2.5m LD
21	ACF Feed Sump	1	2m x1.5mx4.2m
22	Activated Carbon Filter	3	3m Dia
23	RO-I	1	119 Membranes in each bank
24	RO-II	1	56 Membranes in each bank
25	RO-III Feed Tank	1	5m x4m x5m
26	RO-III	1	28 Membranes
27	RO Reject Tank / NF Feed Tank	1	6.65mx 2.8mx4.25m
28	Nano Filtration-I	1	30 Membranes
29	Nano Filtration- II	1	8 Membranes
30	RO-IV Feed Tank	1	5m x4m x5m
31	RO-IV (A&B)	1	30+24 = 54 Membranes
32	RO-V stage	1	48 membranes
33	RO combined permeate tank	1	26mx4.0m LD
34	Brine Tank	1	8.5x2.5x4.7
35	MVR Feed Tank	1	5.5x2.5x4.7
36	MVRE	1	280KLD (not in operation)
37	MVRE Reject Tank	1	2.75m x2.1m x5.4m
38	5 Effect Falling Film evaporator	1	220 KLD
39	2 effect forced circulation evaporator	1	70 KLD
40	ATFD	1	500 kg/hr
41	Solar Evaporation Pan	1	1121 Sqm

M/s. Rayapuram Common Effluent Treatment Plant Pvt Ltd

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Lifting pump sump	1	7.1 L x 3.55 W x 3.6m LD
2	Storage and Homogenizing tank	1	13.8 L x 69.7 W x 6.0 LD
3	Neutralization Tank	1	118 Cum.
4	Distribution Tank-1	1	127 Cum.
5	Distribution Tank-2	1	159 Cum.
6	Biological Oxidation Tanks	2	69.2 L x 13.8 W x 6.0 LD
7	Sedimentation feed tank	1	136 Cum.
8	Clarifier	1	31.0 Dia x 3.0 LD
9	Sludge return sump	1	106 Cum.
10	Sludge Thickener	1	4.0 Dia x 3.7 LD
11	Filter press	2	32 Cum/ Day.
12	Treated Water Storage Tank	1	16.8 L x 3.5 W x 5.1 LD
13	Sand Filter	3	3.3 Dia x 3.0 HOS
14	Filtered Water Storage (Sand Filter)	1	14 L x 8.5 W x 5.8 LD
15	Resin Filter	3	3.3 Dia x 3.0 HOS
16	Filtered Water Storage(Resin Filter)	1	16 L x 8.5 W x 5.9 LD
17	Softener Filters	5	1.8 Dia. x 2.8 HOS
18	Softened Water Storage Tank	1	8.5 L x 5.0 W x 6.0 LD
19	Back wash and Drain of Resin Filters (BDTRF)	1	7.2 L x 2.4 W x 4.6 LD
20	Sulphuric acid dosing tank for NT	1	2.6 Dia x 3.0 Ht
21	Hypo dosing tank	1	2.6 Dia x 3.0 Ht
22	Sulphuric acid dosing tank for Filters	1	2.6 Dia x 3.0 Ht
23	SMBS dosing tank	1	1.9 Dia x 2.0 Ht
24	Caustic dosing tank	1	2.6 Dia x 3.0 Ht
25	Brine tank	1	5.6 L x 2.6 W x 3.3 LD
26	Hydrochloric acid dosing tank	2	2.6 Dia x 3.0 Ht
27	Caustic dosing tank	1	2.0 Dia x 4.0 Ht
28	Dewatering Polymer dosing tank	1	1.2 Dia x 1.6 Ht
29	Pressure Sand Filters	3	3.1 Dia x 1.5 HOS
30	Cartridge Filters Feed Tank	1	6.0 L x 6.0 W x 3.8 LD
31	Cartridge Filters	6	40" Long
32	R.O. Streams	3	4 Stages in each stream. Stage 1 : 12 Vessels (72 membranes) Stage 2 : 7 Vessels (42 membranes) Stage 3 : 5 Vessels (30 membranes) Stage 4 : 3 Vessels (18 membranes)
33	R.O. membranes	396	8" Dia. x 40" Long
34	Degasser	1	2.1m Dia x 2.75 m Ht
35	R.O. Permeate tank	1	15.3 L x15.2 W x 3.4 Ht.

36	R.O Reject Tank	1	15.3 L x 4.8 W x 3.2 Ht.
37	CIP Tank	1	2500 Ltrs
38	Hydrochloric acid Storage tank	1	9000 Ltrs
39	Hydrochloric acid Dosing tank	1	500 Ltrs
40	SMBS Dosing tank	1	750 Ltrs
41	Antiscalant Dosing tank	1	200 Ltrs
42	Sodium hydroxide dosing tank	1	500 Ltrs
43	Additional Stage RO	1	1500 cum/Day (13 Vessels 78 membranes)
44	Add. RO reject tank cum HP RO feed tank	1	11.87 L x 3.2 W x 4.7 Ht
45	High pressure RO reject tank	1	5.2 L x 3.2 W x 4.7 Ht
46	High Pressure RO	1	200 cum/Day
47	MVR Evaporator Feed Tank	1	15.0 L x 9.5 W x 2.0 Ht.
48	Evaporator vessel	2	3.8 Dia x 11.2 L
49	MVR Evaporator	2	1000 Cum/Day
50	Condensate Tank-1	2	1.5 Dia x 2.2 Ht
51	Condensate Tank-2	2	0.75 Dia x 0.8 Ht
52	MVR Evaporator Condensate Tank	1	8.9 L x 9.4 W x 1.9 Ht.
53	MVR Evaporator Concentrate Tank	1	9.5 L x 1.95 W x 2.0 Ht
54	Quench tank	2	1000 Ltrs
55	Multiple effect evaporator	1	100 Cu.m /Day
56	RC Feed tank	1	4.24 L x 2.91 W x 5.5 Ht
57	RC Mixing Tank	1	4.24 L x 5.4 W x 5.5 Ht
58	RC Supernatant tank	1	4.24 L x 2.91 W x 5.5 Ht
59	RC Clarifier	1	5.4 Dia x 3.56 Ht
60	RC Thickener	1	2.5 Dia x 3.54 Ht
61	Soda ash dosing tank	2	1.6 L x 2.0 W x 1.4 Ht
62	Lime dosing tank	2	1.6 L x 2.0 W x 1.4 Ht
63	Old MEE feed tank	1	4.8 L x 2.6 W x 2.4 Ht
64	Chiller feed tank	1	4.8 L x 2.6 W x 2.4 Ht
65	Forced circulation feed tank	1	4.8 L x 2.6 W x 2.4 Ht
66	Hypo contact tank	1	39.5 L x 4.5 W x 4.7 Ht
67	RC Intermediate storage tank	1	4.28 L x 3.55 W x 9.6 Ht
68	Brine intermediate storage tank	1	5.16 L x 4.75W x 5.8 Ht
69	Brine preparation and storage tank-1	1	13.0 L x 3.2 W x 3.5 Ht
70	Brine preparation and storage tank-2	1	10.8 L x 3.14 W x 6.0 Ht
71	Forced circulation evaporator	1	40 Cum/Day
72	Crystallizer with chiller	1	60 cum/ Day
73	Chlorination plant	1	5500 cum/Day
74	New MEE plant	1	300 cum/Day
75	New MEE 1 st feed tank	1	10.7 L x 4.0 W x 5.7 Ht
76	pH correction tank	2	7.0 L x 4.2 W x 5.7 Ht
77	New MEE 2 nd feed tank	1	4.2 L x 4.0 W x 5.7 Ht
78	New MEE RC feed tank	1	6.0 L x 3.2 W x 5.7 Ht
79	New MEE ML tank	1	3.5 L x 3.5 W x 5.7 Ht
80	ATFD	1	20 cum/Day
81	ATFD feed tank	1	3.5 L x 2.2 W x 5.7 Ht
82	Solar Evaporation Pond	1	847 m2

M/s. Mannarai Common Effluent Treatment Plant (P) Limited

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Receiving Sump	1	10.00 Dia*4.90 SWD
2	Pre Aeration Cum Equalization Tank	1	40.00*10.00*4.00
3	Biological Tank	1	26.00 Dia*5.70 SWD
4	Clariflocculator(Secondary Clarifier)	1	15.30 Dia*3.60 SWD
5	Intermediate Collection Sump	1	35.00 Dia*3.60 SWD
6	Chlorinator	3	1*1*1
7	Oxidation Reduction Reactor	1	98.00 L* 21.00 Dia
8	Oxidation Reduction Sump	1	19.50 Dia*4.20 SWD
9	Flocculator	1	6.00*6.00*3.00
10	Tube Settler	1	8.10*6.50*3.00
11	Clarified Water Sump	1	10.00 Dia*2.7 SWD
12	DMF Feed Tank -II	1	15.15*10*5.5
13	Chemical Preparation Yard & Dosing System	1	20.00 Dia*10.00 SWD
14	Thickener Bio Sludge	1	6.80 Dia*3.20 SWD
15	Thickener Chemical Sludge	1	7.00 Dia*2.3 SWD
16	Dual Media Filters	3	117m ³ /hr
17	Ultra Filtration	1	75 Modules
18	Activated Carbon Filters	3	105m ³ /hr
19	RO Feed Tank	1	8.90*5.05*4.00
20	RO I & II bank with RO –I stage, II stage & III stage in each bank.	1	147 Membranes x 2
21	RO III Feed Tank	1	7.80*4.10*5.00
22	RO IV Stage (30m ³ /hr)	1	30membranes
23	RO III Reject Tank	1	11.3*10*5.5
24	Chemical Preparation Tank- I	1	2.71*4.3*2.2
25	Chemical Preparation Tank- II	1	3.75*4.31*2.2
26	CO ₂ Softening System	1	0.3D*5m H
27	Softening Clarifier	1	9.00 Dia* 6.00 SWD
28	MEE Feed Tank	1	10*10*5.5
29	MEE 6 Effect (6 Falling film)	1	30m ³ /hr
30	MEE 4 effect (forced circulation)	1	6 m ³ /hr
31	Crystallizer Feed Tank	1	6*6*5.5
32	Adiabatic Chiller Crystallizer	1	6.4m ³ /hr
33	MEE Reject – I	1	6*3.2*5.5
34	MEE Reject – II	1	5.8*5*5.5
35	MEE Reject –III	1	5.6*6*5.5
36	Na ₂ so ₄ Aeration tank –I	1	6*3.2*5.5
37	Na ₂ so ₄ Aeration tank –II	1	1.78*4.64*2.2
38	Mother Liquor Tank	1	8.9*5*5.5
39	Solar Pan	1	51.00*37.5
40	Treated Sodium Sulphate Solution Storage Tank-I	2	5.65*4.31*2.2
41	Treated Sodium Sulphate Solution Storage Tank-II	2	2.00 Dia*2.00 SWD
42	Total Permeate Sump	1	21.6 Dia*4.00 SWD
43	ATFD	1	500 Litres/hr

M/s. Kasipalayam Common Effluent Treatment Plant Private Limited

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Bar Screen	1	Dia. of Bars:10- 12mm
2	Rotating Brush Screen	1	Clear opening Dia-3mm
3	Storage and Homogenizing Tank	1	40.5m Dia X 3.0m Ht
4	Neutralization Tank	1	3.0m X 3.0m X 4.0m
5	Distribution Tank	1	294 m3 Capacity
6	Backwash Drain Tank for resin filter	1	4.15 X 4.15 X 3.25
7	Hydrochloric acid dosing tank	1	10m3 capacity
8	R.O Membranes	360	8" Dia X 40" long
9	Additional Stage RO (IV th Stage)	1	60 - Membranes
10	Degasser Tower	1	2.0m Dia X 4.0m ht
11	R.O Permeate Tank	1	17.2m X 10m X 4m
12	Hydrochloric acid Storage tank	1	20m3 capacity
13	Hydrochloric acid dosing tank	1	1.5m3 capacity
14	Collection Well	1	9.0 X 4.75 X 7.3
15	Collection Well	1	7.75 X 4.15 X 5.20
16	Sedimentation Feed Tank	1	91m3 Capacity
17	Clarifier	1	27.0m Dia X 2.7m ht
18	Filter Press	1	25 cu.m/day
19	Quartz filtered water Storage Tank	1	12m X 8.5m X 5.8m
20	Resin Filter	3	2.9m Dia X 3.0m HOSs
21	Softened Filter	4	1.8m dia X 2.8 HOS
22	Sulphuric Acid Dosing Tank for NT	1	15 m3 Capacity
23	Brine Tank	1	4m X 6m X 3m
24	Pressure Sand Filter	3	Dia 2.9m X 2.5m Ht
25	SMBS Dosing Tank	1	0.8m3 capacity
26	Anti scalant Dosing Tank	1	0.3m3 Capacity
27	Biological Oxidation Tank	1	78.7m X 19.6m X 6.0m
28	Sludge Thickener	1	4.0m dia X 8.5m ht
29	Anti-foaming dosing tank	1	5 m3 Capacity
30	Hypo Dosing Tank for SRS	1	15 m3 Capacity
31	Caustic Dosing Tank	1	15 m3 Capacity
32	Catridge Filters Feed Tank	1	3m X 10m X 4m
33	CIP Tank	1	6 m3 capacity
34	Sodium Hydroxide dosing tank	1	0.7m3 capacity
35	Hypo Contact Tank	1	13.m dia X 4.3m ht
36	Condensate Tank	1	1.5 Dia. x 2.2 Ht
37	Quench Tank	1	0.89 Dia X 0.85 HOS
38	Brine Preparation Tank	1	6.0m X 7.0m X 4.3m
39	Brine Distribution Tank	2	4.48 X 6.10 X 3.3
40	MEE Feed Tank	1	5.4 X 2.5 X 3.1
41	Multiple Effect Evaporator	1	Four Effect- 150m3/d
42	Crystallizer Feed Tank	1	5.4 X 2.5 X 3.1
43	Sludge Return Sump	1	2.5m X 6.07m X 5.6m
44	Treated Water Storage Tank	1	9.4m X 3.5m X 5.1m
45	Quartz Filter	3	3.1m Dia X 3.0m Ht
46	Resin Filtered Water Storage Tank	1	23.0m X 8.3m X 5.9m
47	Softened Water Storage Tank	1	10.0m X 8.5m X 6.0m

48	Sulphuric Acid Dosing Tank for Filters	1	15 m3 Capacity
49	Decolorant Dosing Tank	1	5 m3 capacity
50	Hypo Dosing Tank for Colour removal	1	15 m3 Capacity
51	Dewatering Polymer dosing Tank	1	5 m3 capacity
52	Catridge Filters	3	40" long
53	R.O Streams	3	3 stages
54	R.O Reject Tank	1	13.2m X 4.5m X 4m
55	RC Feed Tank	1	65 m3 capacity
56	Lime Dozing Tank – II	1	1.5 X 1.5 X 1.5
57	Soda Ash Dosing Tank II	1	1.5 X 1.5 X 1.5
58	Centrifuge	1	1500 kg/hr
59	Lime Dozing Tank – I	1	1.5 X 1.5 X 1.5
60	Soda Ash Dosing Tank 1	1	1.5 X 1.5 X 1.5
61	Sodium Hydroxide dosing tank	1	15 m3 Capacity
62	Reactor Clarifier	1	66 m3 Capacity
63	RC Thickener	1	12.2 m3 capacity
64	Filter press	1	8 m3/hr
65	MVR Evaporator feed Tank	1	11.65 X 10.35 X 3.10
66	MVR Evaporator	1	748 Cu.m/day
67	Crystallizer	1	40 Cu.m/day
68	Forced circulation evaporator	1	40 KLD
69	ATFD	1	20 KLD
70	Solar Evaporation Pans	1	3645 Sq.mtr

M/s. Eastern Common Effluent Treatment Company Private Limited

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Bar screen	1	--
2	Rotating brush screen	1	--
3	Storage and Homogenizing tank	1	16 W x 68 L x 6.0 LD
4	Neutralization Tank	1	72 Cu.m.
5	Distribution Tank	1	137 Cu.m.
6	Biological Oxidation Tanks	2	68 L x 16 W x 6.0 LD
7	Sedimentation feed tank	1	91.05 Cu.m.
8	Clarifier	1	33.0 Dia x 3.0 LD
9	Sludge return sump	1	72 Cu.m.
10	Sludge Thickener	1	5.0 Dia x 3.5 LD
11	Filter press	2	25 Cum/ Day x 2 Nos.
12	Chlorination Feed Tank - Tank A	1	19 L x 8 W x 6 LD
13	Chlorine Reactor Tank	1	9mLx7mWx7.5mH
14	Chlorinators-	4	30kg/hr
15	HRSC Clarifier – Chlorine contact tank	1	16m dia X 4m H
16	PSF Feed tank - Tank B	1	19mL X 14mW X 6m H
17	PSF	4	2.9 Dia x 3.0 HOS
18	PSF Filtered Water Storage Tank (Softener Feed) - Tank C	1	19mL X 16mW X 6m H
19	Softener Filters	6	1.8 Dia. x 2.6 HOS
20	Softener Filters	1	2.9 Dia x 3.0 HOS
21	Softened Water Storage Tank (RO ACF Feed) - Tank D	1	19 L x 3.4 W x 6.0 LD
22	Sulphuric acid dosing tank for NT	1	2.55 m Dia x 4.5 m Ht
23	Anti-foaming dosing tank	1	1.35 m Dia x 1.25 m Ht
24	Hypo dosing tank for SRS	1	2.6 m Dia x 3.6 m Ht
25	Sulphuric acid dosing tank for Filters	2	2.55 m Dia x 4.5 m Ht
26	Caustic dosing tank	2	2.6 Dia x 3.6 m Ht
27	Brine tank	1	4.2 L x 2.5 W x 3.0 LD
28	Hydrochloric acid dosing tank	2	2.6 m Dia x 3.6 m Ht
29	Dewatering Polymer dosing tank	1	1.7 m Dia x 1.2 m Ht
30	Activated Carbon Filters	3	3.3 m Dia x 3.27 m HOS
31	Cartridge Filters Feed Tank	1	8.5 L x 3.9 W x 4.5 LD
32	Cartridge Filters	5	40" Long
33	R.O. Streams -Skid A, B & C	3	3 Stages in each stream. Stage 1 : 12 Vessels (72 membranes) Stage 2 : 7 Vessels (42 membranes) Stage 3 : 4 Vessels (24 membranes)
34	R.O. Streams -Skid D	1	4 Stages in stream. Stage 1 : 11 Vessels (66 membranes)

			Stage 2 : 7 Vessels (42 membranes) Stage 3 : 3 Vessels (18 membranes) Stage 4 : 2 Vessels (12 membranes)
35	Additional stage RO	1	9 Vessels (54 membranes)
36	Degasser	1	2.25m Dia x 3.3 m Ht
37	R.O. Permeate tank	1	25.0 L x 8.5 W x 4.0 Ht.
38	R.O Reject Tank	1	7.5 L x 8.5 W x 4.0 Ht.
39	Hydrochloric acid Storage tank	1	10000 Ltrs
40	Back wash and Drain of Softener Filters (BDTRF) - Flocculator feed tank	1	3.5 L x 2.5 W x 5 LD
41	Supernatant tank	1	3.3 L x 3.0 W x 4.5 LD
42	Thickener	1	2.5m Dia x 5m LD
43	Soda ash dosing tank	1	2.5 m L X 2.5 m W X 2.0 m Ht
44	Lime dosing tank	1	2.5 m L X 2.5 m W X 2.0 m Ht
45	MVR Evaporator Feed Tank	1	4.0 L x 6.0 W x 2.4 Ht.
46	MVR Evaporator	2	450 Cu.m/Day
47	Condensate Tank-1	2	1.5 m Dia x 2.2 m Ht
48	Condensate Tank-2	2	0.75 m Dia x 0.75 m Ht
49	MVR Evaporator Condensate Tank	1	13.1 L x 6.6 W x 2.14 Ht.
50	MVR Evaporator Concentrate Tank	1	6.0 L x 3.0 W x 2.14 Ht
51	Brine preparation tank	1	8.8 m X 5.9 m X 2.8 m
52	MEE Evaporator Feed Tank	1	13.1 L x 11.4 W x 2.08 Ht.
53	MEE	1	300 Cu.m/Day
54	Chiller	1	108 Cu.m/Day
55	Auxiliary Evaporator Feed Tank	1	6.0 L x 3.0 W x 2.14 Ht.
56	Auxiliary Evaporator (FCE)	1	36 Cu.m/Day
57	FE-3 effects, FCE-3 effect		180 KLD capacity
58	ATFD	1	4.8 m3/day
59	Solar Evaporation Pond	1	756 m2

M/s. Santhosh Textile Process

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Collection Tank	1	8.1 x 8.1 x 4.0
2	E.T.P. Feed Tank	2	10.55 x 4.8 x 3.5
3	Ferrous Dosing Tank	1	1.2 x 2.5 x 1.0
4	Lime Dosing Tank	1	3.0 x 1.2 x 1.0
5	Settling Tank	2	9.2 x 3.6 x 3.1
6	Aeration Tank	1	15.5 x 9.2 x 5.3
7	Secondary Clarifier Tank	1	9 Dia x 2.8
8	Reactivated Clarifier Feed Tank	1	10 x 6 x 2.75
9	Reactivated Clarifier	1	7 Dia x 4.1
10	RO - I stage Feed Tank	1	7.8 x 4.65 x 4.85
11	R.O. I - Stage Sand Filter	2	2.5 x 2.0 Dia
12	RO - II stage Feed Tank	1	7.8 x 4.65 x 4.85
13	R.O. II - Stage Sand Filter	1	2.3 x 0.8 Dia
14	R.O. III – Stage Feed Tank	1	10.6 x 4.6 x 1.55
15	R.O. III - Stage Sand Filter	1	2.4 x 1.0 Dia
16	Total Permeate Tank	1	7.8 x 4.65 x 4.85
17	R.O. III - Stage Reject Tank	1	11 x 3.3 x 1.8
18	NF Brine Tank	1	3.0 x 3.0 x 2.35
19	MEE Feed Tank	1	11.8 x 4.1 x 0.9
20	Final Reject Tank	1	440.23 Sq.M
21	Solar Pan	11	4.0 x 3.4 x 2.2
22	Sludge Tank	1	36 Membranes (8")
23	Ro - I Stage	6	10 Membranes (8")
24	Ro - II Stage	2	15 Membranes (8")
25	Ro - III Stage	3	5 Membranes
26	Nano Brine	1	8.2 x 2.96 x 0.75
27	Sludge Dryings Beds	6	3000 Lt /Hr
28	Multiple Effect Evaporator	1	3000 Lt /Hr
29	ATFD	1	200 ltr / Hr

M/s Chemtech Processors

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Collection Tank	2	9.00X9.00X3.0
2	Flash Mixer	1	1.00X.80X1.50
3	Flocculator	1	3.00x1.75x2.00
4	Settling Tank	1	3.40x3.00x4.80
5	Flocculator II	1	3.00x1.75x2.40
6	Settling Tank II	1	3.40x3.00x4.80
7	Flash mixer	1	1x.80x2.30
8	Intermediate Storage Tank	1	3.00x1.75x1.90
9	Equalization tank	3	9.00x3.90x3.30
10	Aeration	1	16 m Dia,5.5 m Depth
11	Secondary Clarifier	1	8 m Dia
12	Chemical preparation tank	1	...
13	Multi grade Sand Filter	1	40 m3/hr
14	Activated Carbon Filter	1	40 m3/hr
15	Sludge Drying Bed	9	9.12x6.08x3.04
16	Sludge Bed Leachate Tank	1	3.10x2.30x3.80
17	Pie Metric Well	4
18	Ro Feed Storage Tank	1	9.12x6.08x0.91
19	Ro Feed Storage Tank	1	9.12x6.08x0.91
20	Ro Feed Service tank	1	5m3
21	Iron Removal Filter	1	1.80x1.60Dia
22	Multi grade Sand Filter	1	2.80x1.10Dia
23	Activated Carbon Filter	1	2.80x1.10 Dia
24	Ro1 Storage Tank	1	10m3
25	Ro2 reject Storage Tank	1	5m3
26	Ro3 reject Storage Tank	1	5m3
27	Permeate Storage Tank	2	3.65x3.65x3.04
28	MEE Feed Tank	1	4.25x3.30x4.50
29	Ro 1 Stage	1	35 Membrane
30	RO II Stage	1	13 Membrane
31	Ro III Stage	1	10 Membrane
32	Nano Filtration	1	6 Membrane
33	Multiple Effect Evaporater	1	4 Effects
34	Sludge Storage Shed	1	6x28x9m
35	Agitated Thin Film Drier (ATFD)	1	500 Lph

M/s Raagam Exports (Dyeing Division)

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Collection cum Equalization Tank	1	10.6 X 8.4 X 5.5
2	Collection cum Equalization Tank	1	15 X 5.4 X 5.4
3	Aeration Tank	1	12.5 X 8.3 X 6.5
4	Secondary Clarifier	1	Dia 5.0 X 5 SWD
5	Hypo Contact Tank	1	5 m3 Capacity
6	Treated Collection Sump & Filter Feed Tank	1	7.7 X 4.8 X 5.4
7	Sludge Drying Beds	4	5.2 X 3 X 0.4 -each
8	Multimedia Sand Filter	2	1.6 Dia X 1.5 -each
9	Ultra Filtration Feed Tank	1	7.8 x 2.4 X 5.4
10	Ultra Filtration System	1	6 module-each 100sqm
11	R.O Feed Tank	1	Dia 5.0 X 4 SWD
12	R.O 1st Stage	1	8"X 40"-24 Membranes
13	R.O 2nd Stage	1	8"X 40"-18 Membranes
14	R.O 3rd Feed Tank	1	7.7 X 2.4 x 5
15	RO - 3rd stage	1	8"X40" - 5 Membranes
16	RO Permeate Collection Tank	1	4.8 X 10.6 X 6
17	Evaporator Feed Tank	1	4.8 X 1.6 X 6
18	Falling Film Evaporator	1	3 Effects / 60m3/day
19	Crystalizer	1	6m3/day
20	Forced Circulation Evaporator	1	15 m3/day
21	Agitated Thin Film Dryer	1	6m3/day
22	Condensate Collection Tank	1	6.5 X 3.3 X 3.1
23	Concentrate Collection Tank	1	3.7 X 2.4 X 2.2
24	FC Evaporator Feed Tank	1	2 X 1.5 X 2.5
25	ATFD Feed Tank	1	Dia 3.1 X 3.9 ht

**M/s Poomer Textile Process & M/s Poomer Bleachings – provided
Combined Effluent Treatment Plant**

S.I. No.	Name of the Treatment Unit	No. of Units	Dimensions in meters
1	Collection Tank - I	1	7.20 x 6.30 x 4.40
2	Collection Tank - II	1	3.50 x 7.00 x 4.50
3	Combined Collection Tank	2	5.10 x 4.40 x 4.40
4	Anearobic Tank	1	14.0 Dia x 7.00 Ht
5	Aeration Tank	1	14-8.6 Dia x 4.50 Ht
6	Secondary Clarifier Tank	1	8.60 Dia x 2.50 Ht
7	Tertiary Clarifier Tank	1	7.70 Dia x 3.50 Ht
8	RO I Stage Feed Tank - I	2	5.10 x 4.40 x 4.40
9	RO I Stage Feed Tank - II	2	5.15 X 2.20 X 4.40
10	Sand Filter (RO I Stage)	2	1.50 Dia x 2.00 Ht
11	Micron Filter - RO I Stage	1	7 Filters (2.5" Dia)
12	RO I Stage (5Vesselx5 Membranes)	1	25 Membranes (8"Dia)
13	RO II Stage Feed Tank	1	3.30 x 2.20 x 4.40
14	Sand Filter (RO II Stage)	1	1.10 Dia x 2.00 Ht
15	Micron Filter - RO II Stage	1	5 Filters (2.5" Dia)
16	RO II Stage (2Vesselsx6Membranes)	1	12 Membranes (8"Dia)
17	RO III Stage Feed Tank	1	3.30 x 2.20 x 4.40
18	Sand Filter (RO III Stage)	1	1.10 Dia x 2.00 Ht
19	Micron Filter- RO III Stage	1	3 Filters (2.5" Dia)
20	RO III Stage (1 Vessels x 6Membranes)	1	6 Membranes (8"Dia)
21	RO IV Stage Feed Tank	1	1.60 Dia x 1.70 Ht
22	Micron Filter- RO IV Stage	1	4 Filters (2.5" Dia)
23	RO IV Stage (1 Vessels x 5 Membranes)	1	5 membranes (8" Dia)
24	RO V Stage Feed Tank	1	1.50 Dia x 2.00 Ht
25	Micron Filter - RO V Stage	1	4 Filters (2.5" Dia)
26	RO V Stage (1 Vessels x 4 Membranes)	1	4 membranes (8"Dia)
27	Multi Effect Evaporator Feed Tank	1	3.30 x 2.50 x 4.40
28	Multi Effect Evaporator	1	60.00 KL/Day
29	ATFD Feed Tank	1	1.95 x 2.40 x 1.05
30	Agitated Thin Film Dryer	1	260.00 Liters /Hour
31	Treated Water Tank	1	9.80 x 6.90 x 4.30
32	Sludge Drying Beds - I	3	5.65 x 5.15 x 1.15
33	Sludge Drying Beds - II	1	6.00 x 5.15 x 1.15

4.9 Conclusion

During CPCB monitoring of CEPI 2018 eight ground water sampling locations were identified in which 2 number of wells are unused wells.

Presently new regularly used wells were identified nearby the existing unused wells and samples were collected and analyzed. The result shows well below the limit of IS 10500 Drinking water standards.

Moreover, the chemical sludge generated from the industries were being stored in the open yard previously, which may be the cause of ground water contamination and the same was reflected in the CEPI monitoring by CPCB during 2018.

In the total 8 ground water and open well water samples collected, 6 samples have exceeded the TDS and Total Hardness. The basic ground water quality in Tiruppur near by the CEPI core area observed on the past shows higher TDS and Total Hardness values.

Later on due to continuous efforts from Tamil Nadu Pollution Control Board all the solid waste generating units have provided covered shed with concrete flooring. Also, the chemical waste is disposed to cement industries for co-processing. So far about **85,511Tons** of sludge generated from all the Textile Dyeing & Bleaching units located in the entire Tiruppur district has been transported to cement industries for co-processing. About **29,168 Tons** of sludge generated from the Textile Dyeing & Bleaching units located in CEPI area has been transported to cement industries for co-processing.

Other solid waste namely Biological sludge and mixed salt are being stored under covered shed. Thus the leachate of any waste is completely stopped and the ground water contamination is totally avoided.

CHAPTER – 5

5.0 Health Statistics

5.1 Hospitals details in CEPI Area

1. Govt .Head Quarters Hospital - Tiruppur (H1)
2. Tiruppur Medical Foundation – Tiruppur (H2)

5.2 Health data for 2016-2017

1.Govt .Head Quarters Hospital - Tiruppur

AIR BORNE

Type of Diseases	2016-2017	Remarks
Asthma	56	CEPI monitoring is carried out for the first time (2018) by CPCB.
Acute Respiratory Infection	775	
Bronchitis	460	
Cancer	15	
Total	1306	

WATER BORNE

Type of Diseases	2016-2017	Remarks
Gastroenteritis	56	CEPI monitoring is carried out for the first time (2018) by CPCB.
Diarrhea	734	
Renal disease	548	
Cancer	-	
Total	1338	

2. Tiruppur Medical Foundation – Tiruppur

AIR BORNE

Type of Diseases	2016-2017	Remarks
Asthma	78	CEPI monitoring is carried out for the first time (2018) by CPCB.
Acute Respiratory Infection	84	
Bronchitis	-	
Cancer	-	
Total	162	

WATER BORNE

Type of Diseases	2016-2017	Remarks
Gastroenteritis	48	CEPI monitoring is carried out for the first time (2018) by CPCB.
Diarrhea	125	
Renal disease	-	
Cancer	-	
Total	173	

5.3 Analysis of data & Conclusion

The Health Care data of the period 2016-17 has been used for the calculation of CEPI Score for Tiruppur. The total number of cases registered was 1201. The total population of the CEPI area is 4,28,439. The percentage of Air Borne and Water Borne diseases is less than 1% of the Population. Hence the **receptor score (C)** is taken as **ZERO** for Air, Water and Land Environment.

CHAPTER – 6

6.0 ACTION TAKEN DURING 2018-2019 & 2019-2020

6.1 Action Taken by the Industries in CEPI Area for the improvement of Pollution Control Measures

2018-19

1. M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd

- a. The CETP has transported 328 T of chemical sludge so far to cement industry for co processing in dry form.
- b. The CETP has installed ATFD of capacity – 500 litres/hr. After installation of the ATFD the CETP has demolished 2299 sq.m of SEP. At present the CETP has SEP -1230 sq.m.

2. M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited

- a. The CETP has transported 3278.755 T of chemical sludge so far to cement industry for co processing in dry form.

3. M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd

- a. The CETP has constructed a new aeration tank - 600KL capacity and commissioned it.
- b. The CETP has installed ATFD -500 kg/hr.
- c. The CETP has transported 8495.35 T of chemical sludge so far to cement industry for co processing in dry form.

4. M/s. Rayapuram Common Effluent Treatment Plant Pvt Ltd

- a. The CETP has installed additional stage evaporator 300 m³/day (2 FF + 4FC).
- b. The CETP has installed ATFD - 20 m³/day.
- c. The CETP has installed additional 5th stage RO (1500 m³ capacity).
- d. The CETP has installed high Pressure RO with disc membranes – 200 m³/day.
- e. The CETP has transported 394.99 T of chemical sludge so far to cement industry for co processing in dry form.

5. M/s. Mannarai Common Effluent Treatment Plant (P) Limited

- a. The CETP has installed ATFD – 500 litres/hr.
- b. The CETP has constructed mixed salt storage shed of size 36.5mx18.2m.
- c. The CETP has transported 7134.74 T of chemical sludge so far to cement industry for co processing in dry form.

6. M/s. Kasipalayam Common Effluent Treatment Plant Private Limited

- a. The CETP has installed ATFD of capacity – 1000 litres/hr. After installation of the ATFD the CETP has demolished 4440 sq.m of SEP. At present the CETP has SEP -1100 sq.m.
- b. The CETP has provided forced circulation evaporator -40 KLD.
- c. The CETP has transported 6765.13 T of chemical sludge so far to cement industry for co processing in dry form.

7. M/s. Eastern Common Effluent Treatment Company Private Limited

- a. The CETP has converted wood fired boiler-5 T & 6 T into coal fired boiler. The CETP has provided adequate Air Pollution Control measures to the boilers.
- b. The CETP has transported 1036.7 T of chemical sludge so far to cement industry for co processing in dry form.

8. M/s Santhosh Textile Process

- a. The unit has revamped the ETP and added additional components in the ZLDS such as ATFD, Hydro extractor and has demolished the SEP.
- b. The unit has provided shed for the storage of mixed salt.

9. M/s Chem Tech Processors

- a. The unit has installed ATFD -500 litres/hr capacity and demolished the entire area of solar evaporation pan (ie.,560 m²).
- b. The unit has provided closed shed of size 6mx28m x 9m for the storage of chemical sludge.

10.M/s. Poomer Textile Process

- a. The unit has installed RO IV th stage (with 5 membranes) & RO Vth stage (with 4 membranes).
- b. The unit has provided ATFD of adequate capacity for the treatment of final reject generated.

6.2 Other Initiatives in CEPI Area

1. M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd

- a. The CETP has connected EMFMs-26 nos to water quality watch centre. The CETP has connected EMFMs-4 nos to CPCB web portal.

2. M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited

- a. The CETP has connected all the 32 EMFMs to Water Quality Watch Centre. The CETP has connected 3 EMFMs and 2 CCTV cameras to CPCB web portal.

3. M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd

- a. The CETP has connected the EMFM -43 nos. to water quality watch centre and EMFM-4 nos & CCTV cameras – 2 nos. to CPCB web portal.

4. M/s. Rayapuram Common Effluent Treatment Plant Pvt Ltd

- a. The CETP has connected EMFMs-27 nos. to water quality watch centre and EMFMs -3 nos & CCTV cameras -2 nos to CPCB web portal.

5. M/s. Mannarai Common Effluent Treatment Plant (P) Limited

- b. The CETP has connected the 22 EMFMs to water quality watch centre and 3 EMFMs & 14 CCTV cameras to CPCB web portal.

6. M/s. Kasipalayam Common Effluent Treatment Plant Private Limited

- a. The CETP has connected the 25 EMFMs to water quality watch centre and 4 EMFMs to CPCB web portal.

7. M/s. Eastern Common Effluent Treatment Company Private Limited

- a. The CETP has connected the 19 EMFMs to water quality watch centre and 3 EMFMs & 3 CCTV cameras to CPCB web portal.

8. M/s Santhosh Textile Process

- a. The unit has installed EMFM to the inlet of ATFD.
- b. The unit has provided CCTV in the ZLDS area.

9. M/s Chem Tech Processors

- a. The unit has connected 22 Nos of EMFM to water quality watch centre, TNPCB.

10. M/s Raagam Exports (Dyeing Division)

- a. The unit has connected the EMFMs-16 nos to water quality watch centre, TNPCB.

CHAPTER – 7

7.0 PROPOSED ACTION PLAN

7.1 Proposed Short term Action plan

Sl. No.	Description	Responsible stack holders	Target date
1	Establishment of CAAQM station at Tiruppur –Equipment installation is nearing completion.	Tamil Nadu Pollution Control Board	June 2020

Proposed Short term Action plan by the Industries

i) M/s. Kasipalayam Common Effluent Treatment Plant Private Limited.

Sl.No.	Description	Action Plan	Target Date	Cost in Rs.
1	Water Environment	Chemical treatment for RMS	April -2020	0.86 Cr
2		Additional Boilers 10 Ton/Hr for RMS	April -2020	2.3Cr.

ii) M/s. Rayapuram Common Effluent Treatment Plant Pvt Ltd.

Sl.No.	Description	Action Plan	Target Date	Cost in Rs.
1	Water Environment	BPED (Bipolar electro dialysis)	October - 2020	4.0 Cr
2	Air Environment	Electro chlorination	October - 2020	3.0 Cr.

iii) M/s. Eastern Common Effluent Treatment Company Private Limited

Sl.No.	Description	Action Plan	Target Date	Cost in Rs.
1	Water Environment	Additional Agitated Thin Film Driver (ATFD)	June-2020	0.80 Cr
2	Air Environment	Wood Boiler to Coal Conversion of 6 T/hr Boiler	February- 2020	0.22 Cr

7.2 Proposed Long Term Action Plan

Sl. No	Action Points (Including source and mitigation measures)	Responsible stack holders	Time limit
1.	Tiruppur needs additional STPs with underground drainage system to treat the entire domestic sewage generated from the Tiruppur municipal corporation so as to improve the River Noyyal water quality. Since the Tiruppur Corporation is discharging all its domestic waste water and sewage directly into River Noyyal without any treatment, Tamil Nadu Pollution Control Board has issued direction to the Corporation, Tiruppur.	Tiruppur Corporation	>2 years
2.	Tiruppur Municipal Corporation has to provide proper collection and decentralized compost yards to avoid illegal dumping of municipal solid wastes. The Tiruppur Corporation is dumping all its municipal solid waste into abandoned quarry. Hence Tamil Nadu Pollution Control Board has issued direction to the Corporation, Tiruppur.	Tiruppur Corporation	>2 years
3.	The Government Head Quarters Hospital Tiruppur has to provide appropriate treatment system to treat the sewage and trade effluent generated from the Hospital for which Board has already given directions.	Government Head Quarters Hospital Tiruppur	>2 years

Direction issued to Government Head Quarters Hospital, Tiruppur dated 01.10.2018.

By Speed Post



TAMIL NADU POLLUTION CONTROL BOARD
Proceedings No. T4/TNPCB/F.24139/TPN/W&A/TPN/2018 dated 01.10.2018

Sub: TNPCB – Industries – M/s. Government Head Quarters Hospital located at S.F.No.280/1, 707, Nallur Village, Tiruppur South Taluk, Tiruppur District- Directions under Section 33A of the Water (P&CP) Act, 1974 and under sec 31A of the Air (P & CP) Act, 1981 – Issued - Regarding.

Ref: 1. DEE's Proc.No.F.TPN0031/OM/DEE/TNPCB/TPN/W/2018 Dt 10.08.2018
2. DEE's Lr.No.TPN0031/DEE/TNPCB/TPN/2018 Dated 07.09.2018

Whereas, the unit of M/s. Government Head Quarters Hospital located at S.F.No.280/1, 707, Nallur Village, Tiruppur South Taluk, Tiruppur District was issued with CTO of the Board vide Proc. dated 03.05.2000 and renewed upto 31.03.2019 for functioning Hospital with 433 beds and providing Medical treatment facility for inpatients, for discharge of 20 KLD of Sewage on unit's own land, Incinerator – 1 No. DG set – 75 KVA – 1 No.

Whereas during inspection of the unit by the DEE/ TPN on 06.08.2018, the following have been observed:

- The hospital is functioning with 726 beds which shows that the hospital has expanded its activity without getting prior consent of the Board.
- The hospital is generating sewage beyond consented capacity.
- The hospital is generating trade effluent from lab washings.
- The hospital has no ETP/STP to treat the trade effluent/ sewage.
- The hospital is discharging its untreated trade effluent & sewage directly into the Sangilli Pallam Odai through temporary pumping arrangement which finally confluence into the River Noyyal.
- The hospital is functioning without getting renewal of BMW authorisation.
- The hospital has furnished the built up area in the application as 11200 sq.mts and the same is now increased to more than 20,000 sq.mts which attracts EIA Notification, 2006.

Based on the inspection, show cause notice has been issued to the unit vide Proc. dated 10.08.2018 by the DEE for the violations mentioned therein. The unit vide letter dated 20.08.2018 has replied for the show cause notice issued to the unit. However, the unit's reply was found not satisfactory.

The compliance of the violations mentioned in the show cause notice are as follows:

S.No.	Violations in SCN	DEE's remarks
1.	The hospital was functioning with 726 beds which shows that hospital has expanded its activity without getting prior consent of the Board.	Construction activity is still going on for the increased bed capacity. The hospital has not applied for CTO Expansion so far.

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2.	The hospital is generating trade effluent and sewage beyond the consented capacity.	Already the hospital is functioning with increased bed capacity which increases the sewage & trade effluent generation rate.
3.	The hospital was found discharging the entire quantity of untreated trade effluent & sewage directly outside its premises into Sangallipallam odai through pumping arrangement which finally confluences into the River Noyyal.	The hospital has not installed any ETP to treat the sewage/ trade effluent. Both sewage & trade effluent are being directly discharged into the Sangilli Pallam Odai through temporary pumping arrangement which finally confluences into the River Noyyal.
4.	The hospital is functioning without getting renewal of BMW authorisation.	The unit has not applied for renewal of BMW authorisation so far.
5.	The hospital in its application for consent has furnished the built up area as 11200 sq.mts. But during inspection it was noticed that the hospital is in the process of constructing additional buildings whose built up area has increased to more than 20,000 sq.mts which attracts the provisions of EIA Notification, 2006, wherein the hospital should have obtained prior Environmental Clearance (EC) from SEIAA before going for expansion as the project falls under Item No.8 (a) of category B projects of the said EIA Notification, 2006.	Construction of additional building were in full swing. Some portions were already constructed & even occupied. The built up area is beyond 20,000 sq.mts which attracts EIA Notification, 2006 wherein the hospital has to obtain EC.

In view of the above, DEE/ TPN has recommended for the issue of necessary Directions to the Joint Director, Medical Sciences of M/s. Government Head Quarters Hospital located at S.F.No.280/1, 707/1, Nallur Village, Tiruppur South Taluk, Tiruppur District under section 33A of the Water (P & CP) Act, 1974 as amended.

Therefore, in exercise of powers conferred under Section 33 A of the Water (P&CP) Act, 1974 as amended and under sec 31A of the Air (P & CP) Act, 1981, the Board issues the following Direction to your unit:

1. The unit shall apply and obtain Consent of the Board under Water and Air Acts for the Expansion activity after obtaining Environmental Clearance from SEIAA, TN, as it was noticed that the hospital is in the process of constructing additional buildings whose built up area has increased to more than 20,000 sq.mts which attracts EIA Notification, 2006.
2. The hospital shall operate only within the consented quantity and shall not go for expansion before obtaining Consent of the Board.



TAMIL NADU POLLUTION CONTROL BOARD

3. The hospital shall ensure that the trade effluent and sewage generated is within the consented quantity.
4. The unit shall ensure that there shall not be any stagnation or ponding of treated/untreated effluent inside the premises of the unit and shall ensure that no effluent shall reach directly or indirectly any water source or adjacent private/public lands under any circumstances.
5. The unit shall apply and obtain Authorisation under Biomedical Waste Management Rules, 2016 immediately.

Failure to comply with the above said directions, will lead to issue of further directions which may include closure and stoppage of power supply to your unit under Section 33A of the Water (P&CP) Act, 1974 as amended and section 31A of the Air (P&CP) Act 1981.

The receipt of this proceeding shall be acknowledged.

Chairman (FAC)

To

The Joint Director,
Medical Sciences of M/s. Government Head Quarters Hospital,
S.F.No.280/1, 707/1, Nallur Village,
Tiruppur South Taluk,
Tiruppur District.

Copy to

1. The Principal Secretary to Government,
Health & Family Welfare Department, Secretariat, Chennai.
2. The Director of Medical and Rural Health Services,
Chennai – 6.
3. The Joint Chief Environmental Engineer (M),
Tamil Nadu Pollution Control Board,
Coimbatore.
4. The District Environmental Engineer
Tamil Nadu Pollution Control Board,
Tiruppur North.
5. File Copy

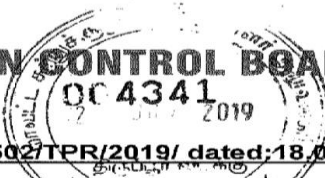
[Handwritten Signature]
04/10/18
For Chairman

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Fax : 044-22353068
Email : tnpccb@md3.vsnl.net.in www.tnpccb.gov.in

Direction issued to Tiruppur Corporation regarding discharge of untreated sewage into River Noyyal dated 18.06.2019.



TAMILNADU POLLUTION CONTROL BOARD



Proceedings No. T5/TNPCB/F.14502/TPR/2019/ dated:18.06.2019

Sub: TNPCB – Local Body – News published in ‘Dinakaran & Dinathanthi’ about Noyyal River pollution – Directions issued to the Tiruppur Corporation, Tiruppur to take necessary action against the discharge and disposal of untreated sewage all along River Noyyal through various sewage outfalls under Section 33A of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 - Regarding.

Ref: 1. News published in ‘Dinakaran & Dinathanthi’ newspapers dated 11.06.2019 about Noyyal River pollution
2. DEE/Tiruppur(North),Lr.No:F.Tech-44/DEE/TNPCB/TPN/2019, dt:11.06.2019

Whereas, there was news published in ‘Dinakaran and Dinathanthi’ newspapers regarding the Noyyal River pollution vide reference first cited.

In this regard, the District Environmental Engineer, TNPCB, Tiruppur(North) has inspected the area on 11/06/2019 and reported the following vide reference second cited, to the Board in respect of discharge of untreated sewage into River Noyyal flowing through Tiruppur Corporation area.

1. Tiruppur Municipal Corporation is having 60 wards comprising of 4 zones serving for a population of around 10 lakhs. In the Corporation area, approximately 94.4 MLD of sewage is generated from households, commercial and industrial establishments.
2. The Corporation has provided an Underground Drainage (UGD) connection with sewage treatment plant of capacity 15 MLD covering 19 wards. Further, another sewage treatment plant of capacity 1.5 MLD has been installed at S.Periyapalayam village near Nanjarayan Tank.
3. The remaining capacity of untreated sewage is being discharged and disposed all along River Noyyal through various sewage outfalls without any treatment by Corporation of Tiruppur.

In the light of the above said facts and in exercise of the powers conferred under section 33 A of the Water (P&CP) Act, 1974 as amended in 1988, it is decided to issue directions to the Tiruppur Corporation, Tiruppur to take necessary action against the discharge and disposal of untreated sewage outfall all along River Noyyal.

Hence, in exercise of the powers conferred under Section 33 A of the Water (P&CP) Act, 1974 as amended in 1988, it is hereby directed that

- (1) The Tiruppur Corporation shall take immediate action to plug the untreated sewage outfalls all along the River Noyyal.

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Fax : 044 - 22353068
Email : tnpceb@md3.vsnl.net.in Web : www.tnpceb.gov.in

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(2) The Tiruppur Corporation shall provide STP for treating the remaining untreated sewage within Tiruppur Corporation limit and furnish time bound action plan within a month.

(3) The action taken in this regard shall be informed to the Board within a period of one month.

Failure to comply with the above said directions will attract action in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988.

The receipt of the proceedings may be acknowledged and the action taken in this regard may also be intimated to this office early.

[Signature]
19.6.19
For Chairman
19.6.19

To

The Commissioner,
Tiruppur Corporation,
Kumaran Road,
State Highway 169,
Noyyal, Tiruppur – 641 604
E-mail: commr.tiruppur@tn.gov.in

Copy to:

1. The Joint Chief Environmental Engineer(Monitoring),
Tamil Nadu Pollution Control Board,
Coimbatore.
- ✓ 2. The District Environmental Engineer,
Tamil Nadu Pollution Control Board,
Tiruppur(North).
3. The District Environmental Engineer,
Tamil Nadu Pollution Control Board,
Tiruppur (South).
4. Technical File

Direction issued to Tiruppur Corporation regarding dumping of Municipal Solid Wastes in abandoned quarries dated 06.05.2019.

By Speed Post



TAMIL NADU POLLUTION CONTROL BOARD

Proceedings No. T1/TNPCB/F.10520/SWM/TPN/2019/ dated:06.05.2019

Sub: TNPCB – Solid Waste Management Rule, 2016 – Tiruppur Corporation – Dumping of municipal solid wastes without any segregation in abandoned quarries located at Mudalipalayam and Kallankadu of Tiruppur Corporation – Certain Directions under Section 5 of the Environmental (Protection) Act, 1986 as amended – Issued – Reg.

Ref: 1. Solid Waste Management Rules, 2016 notified by the Ministry of Environment Forest and Climate Change, Government of India vide notification No. S.O. 1357(E). 8th April, 2016
2. Letter. No. F.Tech-35/DEE/TNPCB/TPN/2019 dt.26.04.2019

Whereas the Ministry of Environment Forest and Climate Change, Government of India, in exercise of the powers conferred by section 3, 6, and 25 of the Environment (Protection) Act, 1986 (29 of 1986), and in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000, has notified the Solid Waste Management Rules, 2016. As per Rule 15 of Solid Waste Management Rules, the role of local body has been specified for the implementation of solid waste management in the respective local bodies.

Whereas Tiruppur Corporation has 60 wards with 4 zones and has a population of around 10.0 lakhs and generate around 460 T/D of Municipal solid waste and 94.4 MLD Sewage. Tiruppur Corporation has no MSW handling facility as per Solid Waste Management Rules, 2016. The Municipal Solid Wastes generated are dumped in abandoned quarries without any segregation located at Mudalipalayam and Kallankadu.

Whereas the said dumping sites were inspected by the TNPCB officials on 16.03.2019, 18.03.2019, 23.03.2019, 26.03.2019 and 11.04.2019 along with the collection of water samples collected from bore wells located around these dump sites and reported the following:

- Many abandoned defunct quarries are located in and around the Mudalipalayam village.
- One of the defunct quarry is completely filled with municipal solid waste by the Corporation. These abandoned quarries are located in patta lands.
- Stagnated water sample was collected from one of the defunct quarry located on the southern side of the Mudalipalayam MSW site. The ROA reveals that the parameters TDS, Chloride, Sulphate, Alkalinity, Total hardness, Calcium and

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Magnesium are exceeding the drinking water standards. The levels of TDS and chlorides are 89160 ppm and 34642 ppm respectively.

- The report of analysis of the bore well water sample collected from 3 bore well and one open well on all directions of the dumpsite revealed that the parameters TDS, Chloride, Sulphate, Alkalinity, Total hardness, Calcium and Magnesium are exceeding the drinking water standards.
- Similarly, the Kallangadu dumpsite is also an abandoned defunct quarry
- This quarry is surrounded by residential habitations in all the directions.
- The entire quarry is now filled with MSW.
- Adjacent to this quarry on its southern side Thiru. Kumarasamy has established a garment unit named M/s.Abi Sourcings. He dug a bore well to a depth of 50 feet in his land. Dark brown colored water with unpleasant odour gushes out from this bore well continuously even without pumping
- Based on complaint received, the site was inspected on 18.03.2019 & 11.04.2019 and it was observed that dark brown colored water with highly unpleasant odor was gushing out continuously from this bore well without any pumping. It was reported that the dark brown colored water is gushing out from this bore well for the past three months.
- The land owner diverted this water to Sangilipallam odai which joins with River Noyyal.
- The ROA of the sample collected from Thiru. Kumarasamy's bore well on 18.03.2019 revealed that the parameters such as TDS, Chloride, Sulphate, Total hardness, Calcium and Magnesium are exceeding the drinking water standards in multiple folds. The DEL, Tiruppur has recorded the color of this water sample was dark brown and level of alkalinity could not be assessed. The levels of TDS and chlorides are 19900 ppm and 5879 ppm respectively.
- Again the bore well sample was collected on 11.04.2019 and the results revealed that the parameters such as TDS, Chloride and Sulphate are exceeding the drinking water standards. The levels of TDS and chlorides are 22270 ppm and 10870 ppm respectively.
- Similarly, the Report of Analysis of the bore well water sample collected on 23.03.2019 from 5 bore wells and 1 open wells viz., Thiru. Kumarasamy's bore well on the southern side, Thiru. Pandian's bore well on south-east side, M/s. Sri Balaji Impex bore well on the eastern side Thiru. Muthurathinam's bore well on the south east side, Arunkumar's bore well (Thambi Thottam) on the northern side, Thiru. Arunkumar's open well on the northern side of the Kallankadu MSW dump site reveals that the parameters TDS, Chloride, Sulphate, Total hardness, Calcium and Magnesium are exceeding the drinking water standards.
- With respect to the disposal of sewage, Tiruppur Corporation has provided UGDSS connection for 19 Wards out of 60 wards. The Sewage generated from



TAMIL NADU POLLUTION CONTROL BOARD

19 wards is connected to Sewage Treatment Plant (STP) provided at Sarkar Periapalayam Village with a capacity 15 MLD. The treated sewage is disposed into River Noyyal. Another Sewage Treatment Plant of capacity 1.5 MLD is installed at Sarkar Periyapalayam village near Nanjarayan Tank and the same is not in operation.

- A sample was collected at sewage confluence point in Nallaru River near M/s. Angeripalayam CETP on 26.03.2019 and the results revealed that the parameter values TSS and BOD are 164 ppm and 142 ppm respectively.

In view of the violations observed with respect to the dumping of Municipal Solid waste in defunct quarries in Mudalipalayam and Kallankadu without adopting the scientific landfill / disposal procedures as per the Solid Waste Management Rules, 2016 which ultimately leads to ground water contamination.

Based on the above, DEE, TNPCB, Tiruppur(North) has recommended for the issue of Directions under Section 5 of the Environment (Protection) Act, 1986 to the Tiruppur Corporation.

Therefore, in exercise of powers conferred under Section 5 of the Environmental (Protection) Act, 1986 as amended, the Board issues the following Directions to the Commissioner, Tiruppur Corporation for compliance of the following:

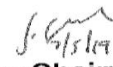
1. The Corporation shall stop dumping of solid waste at abandoned quarries located at Mudalipalayam and Kallankadu.
2. The Corporation shall provide action plan for the removal of legacy waste and scientific closure of the dumpsite within a month and the same shall be completed within 3 months by following the protocol without affecting the environment.
3. The Corporation shall provide leachate collection drains, tanks and treatment facilities for the leachate generated from the dumpsite within a month in order to avoid groundwater pollution. The treated leachate shall comply with the disposal standards for treated leachates as per Schedule II(B) of the Solid Waste Management Rules, 2016.
4. The Corporation shall furnish short and long term action plan for the effective and scientific management of solid waste management as per Solid Waste Management Rules, 2016 and remediation of the existing dumpsite.
5. The Corporation shall establish decentralized facilities for processing of biodegradable wastes through Micro Compost Centers (MCCs) / compost yards, biomethanation plant etc. and shall obtain Authorisation under Solid Waste Management Rules, 2016.

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6. The Corporation shall establish Material Recovery Facilities at suitable place so as to collect non-biodegradable waste such as plastics, glasses, paper etc. and hand over the same to suitable recyclers and end users.
7. The Corporation shall ensure that the waste generated by the bulk waste generators such as hotels, restaurants, apartments, gated communities & institutions (> 5000 sq.m) shall process, treat and dispose biodegradable waste through composting or bio-methanation within their premises and the residual waste shall be sent to the suitable recyclers.
8. The Corporation shall comply with the provisions of Solid Waste Management Rules 2016.

Failure to comply with the above said directions, will attract action as per provisions of section 5 (Issue of Directions), 15 (Penalty provision) and 17 (Offences and punishment to Head of Government Departments) of Environment (Protection) Act, 1986 as amended.

The receipt of this proceeding shall be acknowledged.


For Chairman
Mally
7.5.2019

To

The Commissioner,
Tiruppur Corporation,
Commissioner's Quarters,
College Road,
Tiruppur – 641 602

Copy To

1. The Commissioner of Municipal Administration,
Urban Administrative Building Society,
Raja Annamalai Puram,
MRC Nagar,
Chennai – 600 026
2. The Joint Chief Environmental Engineer (Monitoring), Coimbatore zone
Tamilnadu Pollution Control Board
Coimbatore
3. The District Environmental Engineer
Tamilnadu Pollution Control Board
✓ Tiruppur (North)
4. File Copy

8.0 CEPI SCORE FOR THE POST MONSOON 2019

Tiruppur , Tamil Nadu – CEPI 2019

Air Quality Analysis Report

Pollutant	Group	A1	A2	A (A1xA2)
PM10	B	2	High	
PM2.5	B	0.5		
As	C	1		
		3.5	4	14

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
PM10	68.896	100	0.68896	0	8	0	L	0
PM2.5	40.167	60	0.6694	0	8	0	L	0
As	0	6	0	0	8	0	L	0
B score = (B1+B2+B3)							B	0

C	0	<5%
D	0	A-A-A
AIR EPI	(A+B+C+D)	14.0

Surface Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1xA2)
NH4-N	A	1	High	
Phenols	C	1		
TP	B	0.5		
		2.5	4	10.0

Pollutants	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no.of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
NH4 - N	0	1.5	0	0	10	0	L	0
Phenols	0.0005	0.01	0.05	0	10	0	L	0
TP	0.0802	0.3	0.2674	0	10	0	L	0
B value = (B1+B2+B3)							B	0

C	0	<5%
D	0	A-A-A

WATER EPI	(A+B+C+D)	10.0
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Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	
TDS	A	0.25	High	A (A1xA2)
T Hard	A	0.25		
Phenols	C	3		
		3.5	4	14.0

Pollutant s	Avg (1)	Std (2)	EF[(3) = 1/2]	No of samples Exceeding (4)	Total no. of samples (5)	SNLF Value [(6) = 4/5x3]	SNLF Score (B)	
TDS	3025.37	2000	1.512685	5	8	0.4139	M	4.75
T Hard	983.75	600	1.64	5	8	0.381	M	4.5
Phenols	0.0005	0.002	0.25	0	8	0	L	0
B value = (B1+B2+B3)							B	9.25

C	0	<5%
D	0	A-A-A

GW EPI	(A+B+C+D)	23.25
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AIR 14.00
WATER 10.00
GROUND WATER 23.25
CEPI SCORE 24.32

9.0 CONCLUSION

Air Environment

CPCB has conducted AAQ survey at eight locations during 2018 in which two are within the CEPI core area and 3 are in impact zone of 5 KM CEPI area and the remaining 3 are in buffer zone of 10 KM CEPI area. Hence to find out the Ambient Air Quality within the core area 5 new locations were identified and survey was conducted.

The total number of Ambient Air Quality monitoring location during 2018 by CPCBs CEPI monitoring is eight of which three locations are out of CEPI area and this three locations can be placed inside the core area based on the meteorological conditions.

In the present Ambient Air Quality monitoring, the downwind PM₁₀ and PM_{2.5} concentration is 68.89 & 40.16 µg/m³ respectively. Based on the emission load and the average stack height, the PM load to the Ambient is very minimum and proportionately the Ambient Air Quality PM₁₀ concentration will also be less. During CPCB's 2018 CEPI monitoring few of the Ambient Air Quality location showed more than the limit value which may be due to localized sources like vehicular emission, construction activity etc., Moreover, all the Boilers are provided with Air pollution control measures connected to stack of adequate height to control PM and gaseous emission.

Water Environment

As per CPCB's, CEPI monitoring of surface water during 2018 the parameters selected were Phenol, Ammonical Nitrogen & Total Phosphorous. All the industries in Tiruppur have provided ZLD system and no effluent is discharged into any water body. Since the River Noyyal is predominantly flows with domestic waste water and sewage of 86.9 MLD generated from Tiruppur Corporation, it clearly indicates that the concentration of total Phenol, Ammonical Nitrogen & Total Phosphorous are from this sewage which is the main contributing factor. Moreover, all the poultry and meat waste are being dumped on the bank of River Noyyal. The leachate of the same also contributes to increase in the above parameters.

During CPCB 2018 CEPI monitoring the surface water samples were collected at eight locations of which seven locations are selected only on the River Noyyal at different points. Actually in the River Noyyal we need to take one upstream and one downstream sample and one in the middle of the core area.

The CPCB during its 2018 CEPI monitoring has collected samples of water in River Noyyal at locations near poultry waste dumping (on the River bank), near meat waste dumping (on the River bank) and near sewage intrusion points due to which the presence of total Phenol, Ammonical Nitrogen & total Phosphorous might have shown higher values.

The contribution from the industries for the above parameters may not be possible, since all the units in Tiruppur have provided ZLD system and no effluent either treated or untreated is discharged into any water body.

To avoid similar sample in River Noyyal alone new surface water sample locations were identified during 2019 Post monsoon at the locations namely Andipalayam Lake, Moolikulam Tank and Manickapuram Lake which are being fed by River Noyyal and Nanjarayan Lake which is fed by Nallaru odai.

Four new surface water locations were identified across the core area to avoid similar samples at River Noyyal itself.

In general River Noyyal is not a perennial river. It receives flood discharge only during monsoon season which is stored in the tanks adjacent to the river and is being used for irrigation activities. The sewage generated from Tiruppur Corporation limit and from the nearby villages is being discharged directly into the River Noyyal without any treatment.

Land Environment

During CPCB monitoring of CEPI 2018 eight ground water sampling locations were identified in which 2 number of wells are unused wells.

Presently new regularly used wells were identified nearby the existing unused wells and samples were collected and analyzed. The result shows well below the limit of IS 10500 Drinking water standards.

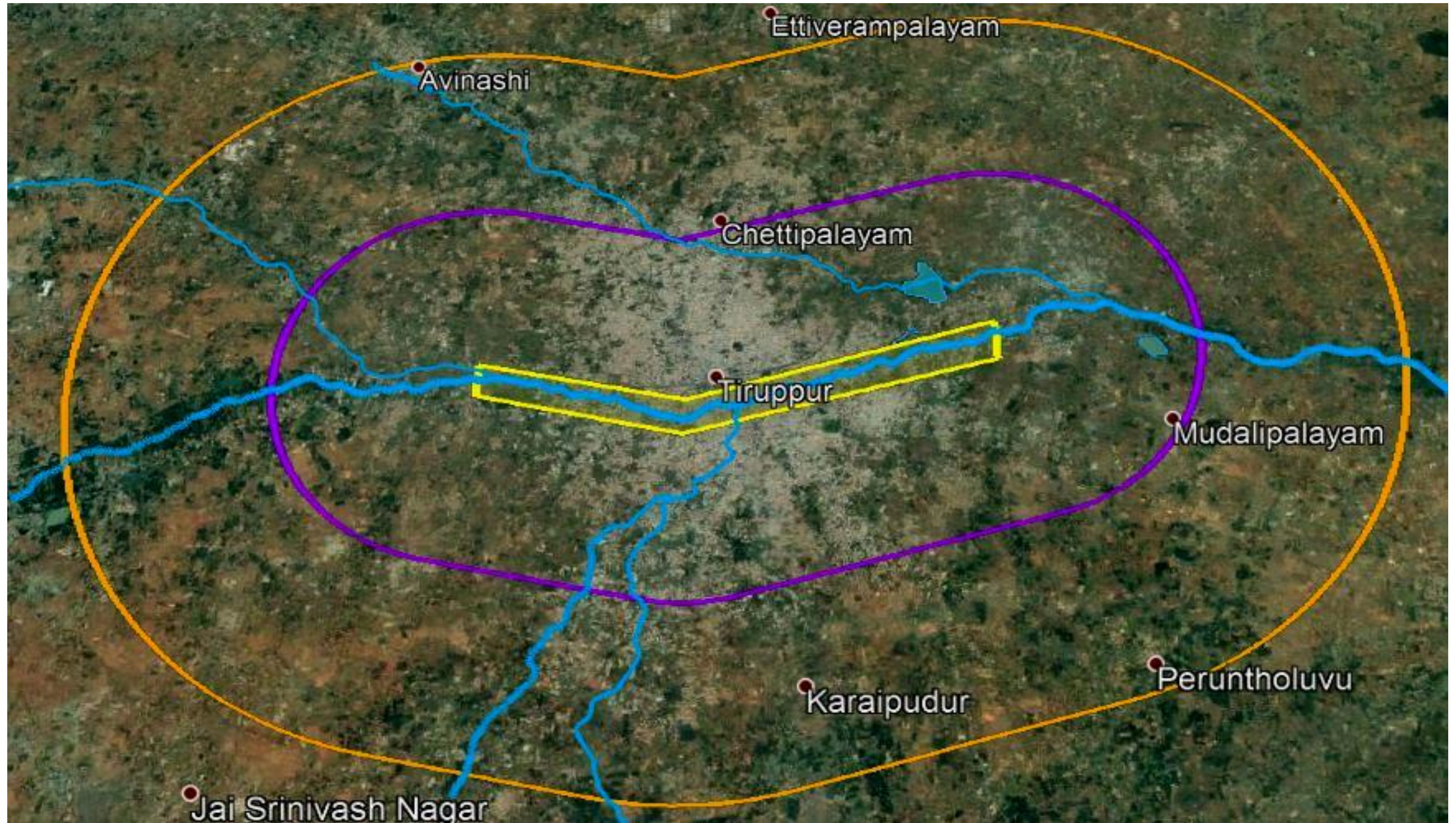
Moreover, the chemical sludge generated from the industries were being stored in the open yard previously, which may be the cause of ground water contamination and the same was reflected in the CEPI monitoring by CPCB during 2018.




Due to continuous efforts from Tamil Nadu Pollution Control Board all the solid waste generating units have provided covered shed with concrete flooring. Also, the chemical waste is disposed to cement industries for co-processing. So far about 85,511 T of sludge generated from all the Textile Dyeing and Bleaching units located in the Tiruppur District has been transported to cement industries for co-processing.

Other solid waste namely Biological sludge and mixed salt are being stored under covered shed provided with concrete flooring/ HDPE sheets lined flooring. Thus the leachate of any waste is completely stopped and the ground water contamination is totally avoided.

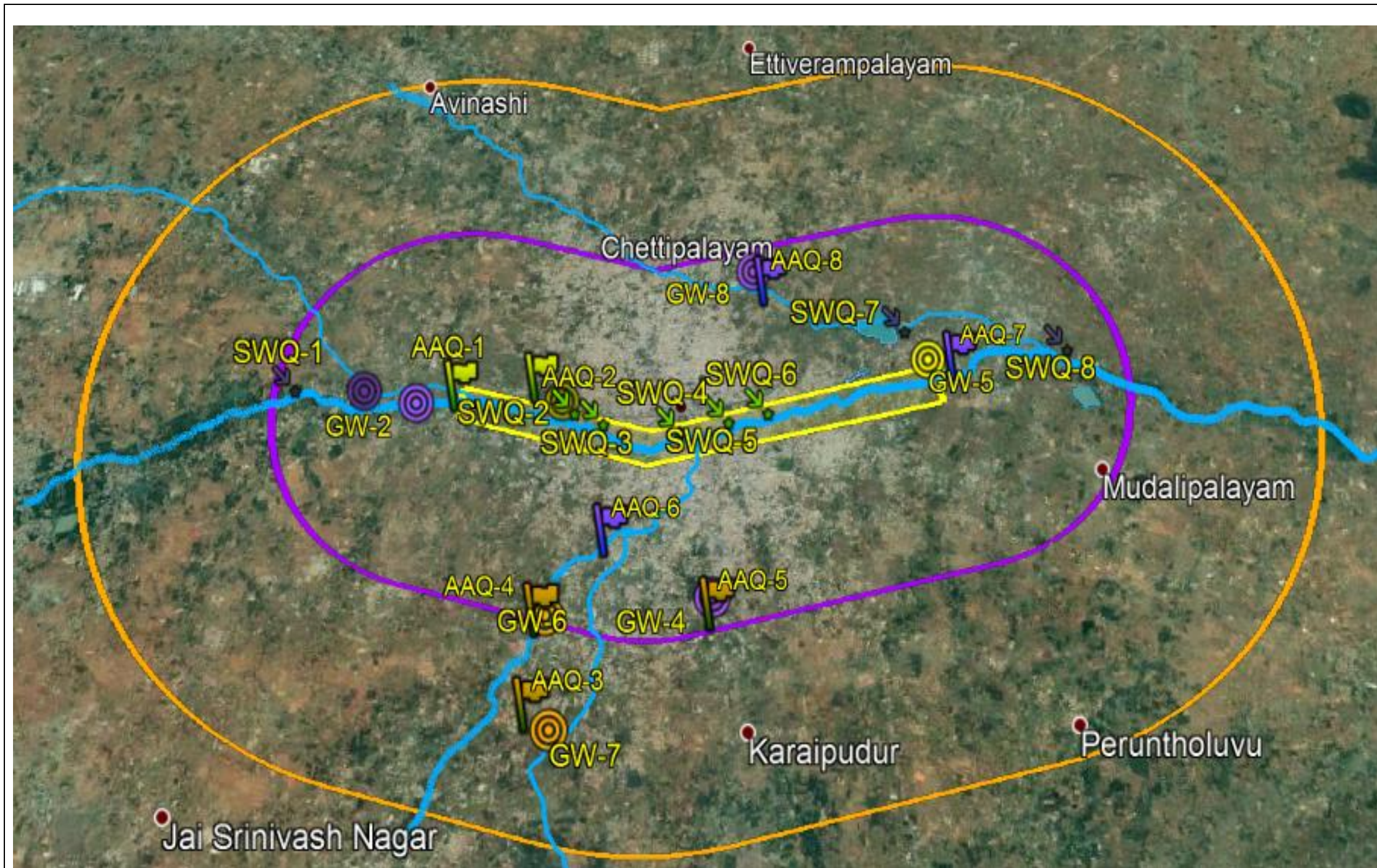
ANNEXURE

A1 - CEPI MAP SHOWING BOUNDARIES OF CORE ZONE 12SQKM, IMPACT ZONE (5KM) AND BUFFER ZONE (10KM) OF CEPI AREA – TIRUPPUR

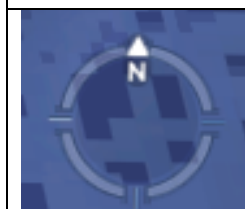


	CEPI CORE ZONE 12 SQKM
	CEPI IMPACT ZONE (5KM)
	CEPI BUFFER ZONE (10KM)

A2 - MAP SHOWING BOUNDARIES OF CORE ZONE, IMPACT ZONE (5KM) AND BUFFER ZONE (10KM) OF CEPI AREA AND SAMPLE LOCATIONS OF SURFACE WATER, GROUND WATER AND AAQ SURVEY – TIRUPPUR-2018



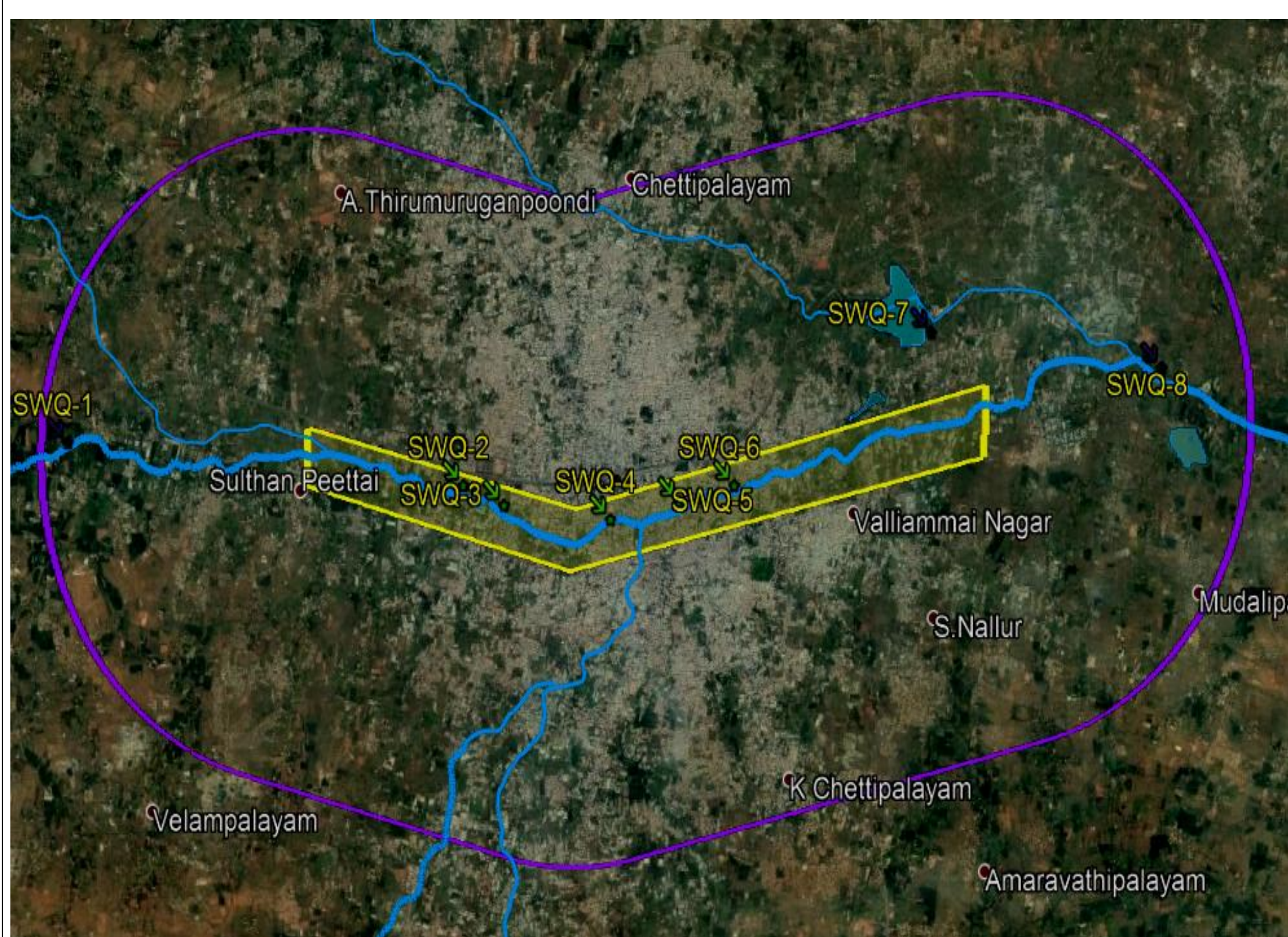
Surface Water Sampling Locations	
SWQ-1	Agraharapudur, Noyyal
SWQ-2	Andipalayam(Anaipalayam), Opp to Andipalayam CETP
SWQ-3	S.R.Nagar North Periyandipalayam
SWQ-4	Jamunai Odai
SWQ-5	Manthirivaikkal
SWQ-6	Sangallipallam Odai
SWQ-7	Nallar Odai
SWQ-8	Anaipalayam(SIDCO)
Ground Water Sampling Locations	
GW-1	Muthurathinam-Open Well
GW-2	M/S.Thirumalai Textile Process-Open Well
GW-3	Formerly M/s.Southern Dyeing Open Well
GW-4	Corporation Bore well-Veerapandi Bus Stop
GW-5	Mr.Murugasamy Gounder Bore Well
GW-6	Mr. Ramasamy Open Well Gobalan Thottam
GW-7	Mr.Rajamani's Bore Well
GW-8	Mr.Boopathy's Rasi Thottam Open Well
Ambient Air Quality Monitoring stations	
AAQ-1	M/s. Velumurugan Dyeing unit
AAQ-2	M/s. Algendra Dyeing Unit
AAQ-3	Mr. Saravanamani's House, Arulpuram
AAQ-4	Mr.Ramasamy's House Director , M/s. Karipudur CETP
AAQ-5	M/s. Ess Kam Colours Washing Unit
AAQ-6	M/s.G.K.M Colours
AAQ-7	Mr.Kathirvel's House Mudalipalayam, SIDCO
AAQ-8	Mr.Jaya Prakash house, Pitchampalayam pudur



	Surface Water Sampling Locations
	Ground Water Sampling Locations
	Ambient Air Quality Monitoring stations


	CEPI CORE ZONE 12 SQKM
	CEPI IMPACT ZONE (5KM)
	CEPI BUFFER ZONE (10KM)




MAP SHOWING SURFACE WATER SAMPLING LOCATIONS - TIRUPPUR 2018



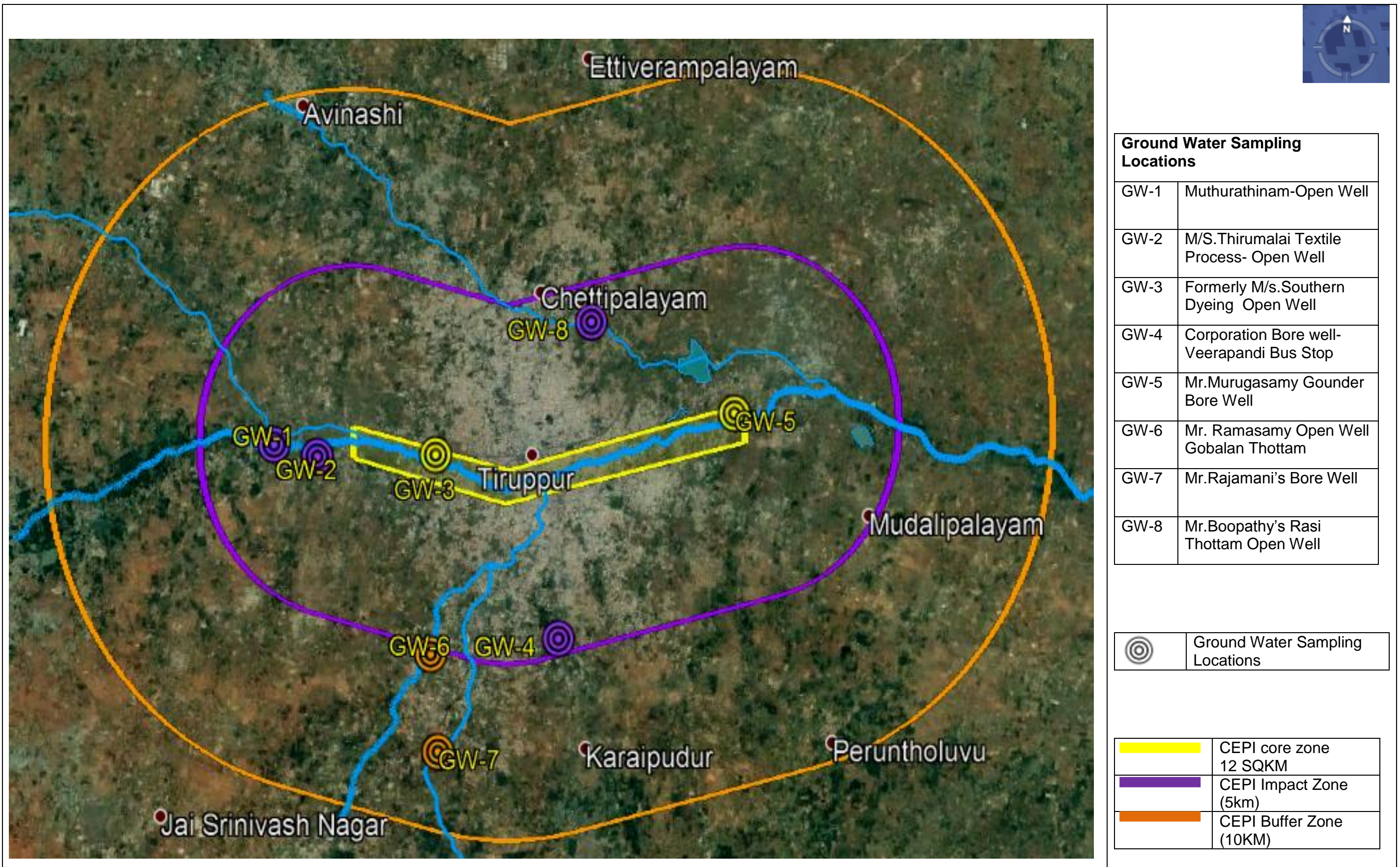
Surface Water Sampling Locations

SWQ-1	Agraharapudur, Noyyal
SWQ-2	Andipalayam(Anaipalayam), Opp to Andipalayam CETP
SWQ-3	S.R.Nagar North Periyandipalayam
SWQ-4	Jamunai Odai
SWQ-5	Manthirivaikkal
SWQ-6	Sangallipallam Odai
SWQ-7	Nallar Odai
SWQ-8	Anaipalayam(SIDCO)

	Surface Water Sampling Locations
---	----------------------------------

	CEPI core zone 12 SQKM
	CEPI Impact Zone (5km)
	CEPI Buffer Zone (10KM)

MAP SHOWING GROUND WATER SAMPLING LOCATIONS - TIRUPPUR 2018

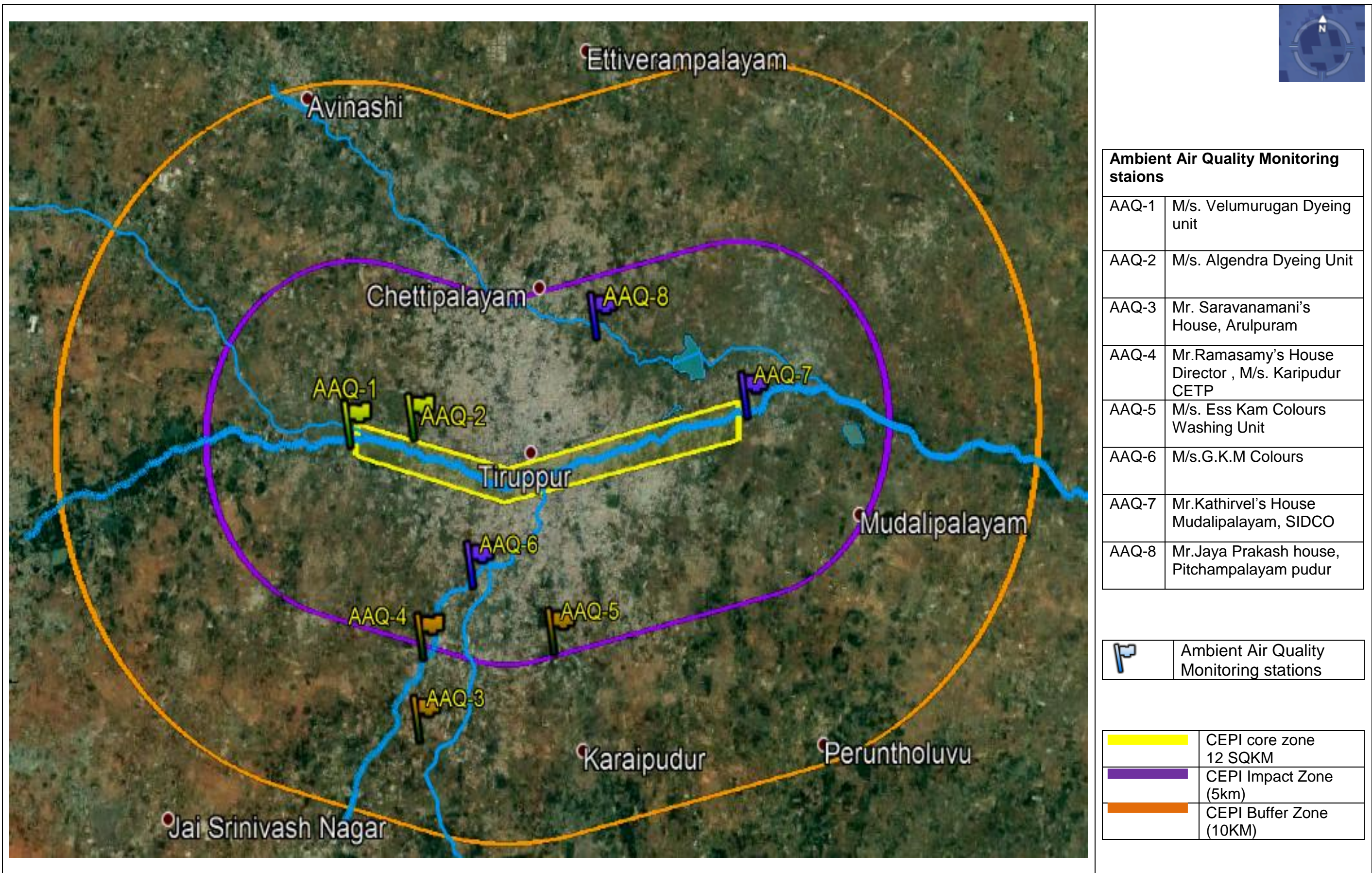


Ground Water Sampling Locations	
GW-1	Muthurathinam-Open Well
GW-2	M/S.Thirumalai Textile Process- Open Well
GW-3	Formerly M/s.Southern Dyeing Open Well
GW-4	Corporation Bore well- Veerapandi Bus Stop
GW-5	Mr.Murugasamy Gounder Bore Well
GW-6	Mr. Ramasamy Open Well Gobalan Thottam
GW-7	Mr.Rajamani's Bore Well
GW-8	Mr.Boopathy's Rasi Thottam Open Well

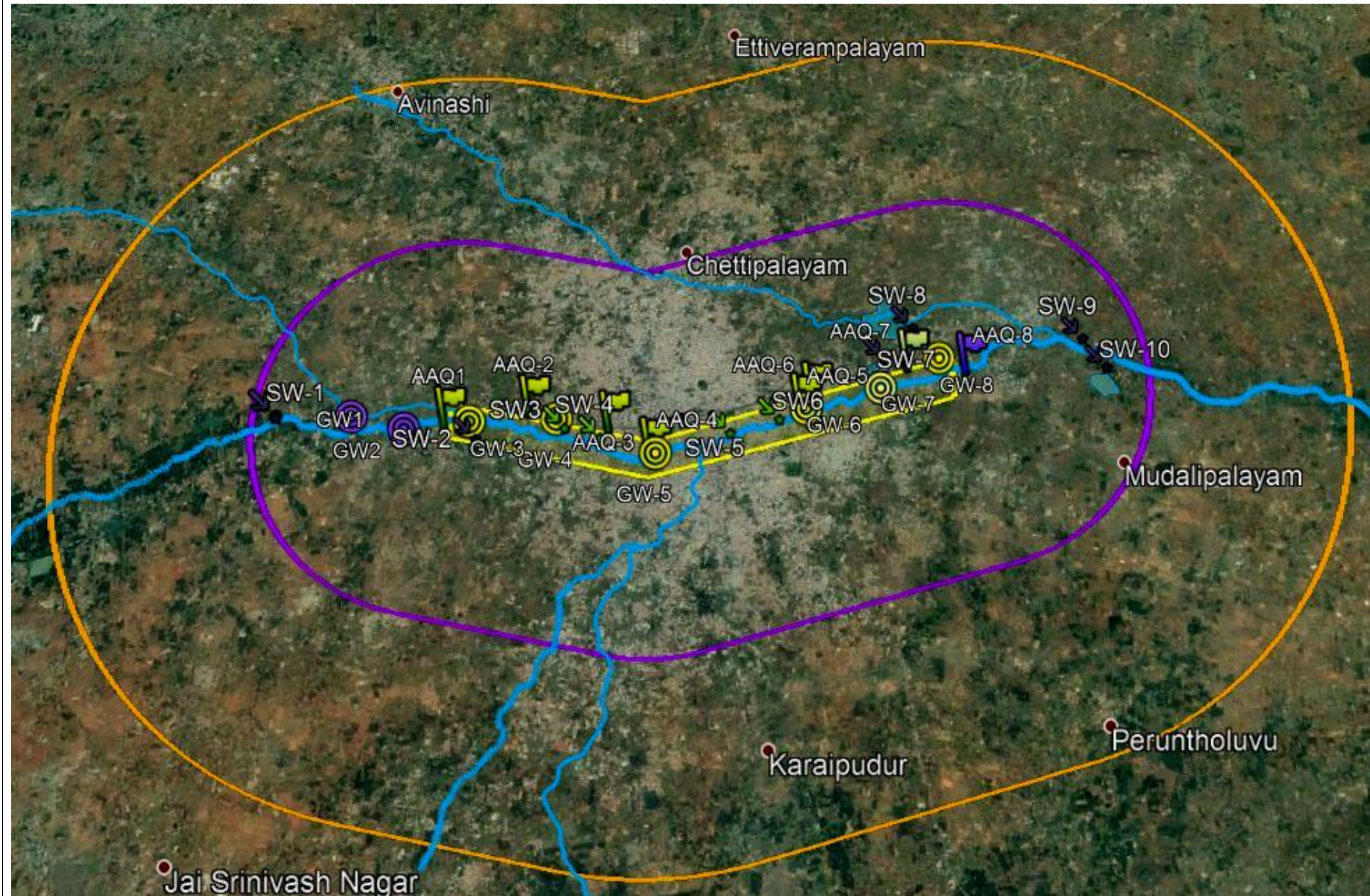
	Ground Water Sampling Locations
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	CEPI core zone 12 SQKM
	CEPI Impact Zone (5km)
	CEPI Buffer Zone (10KM)

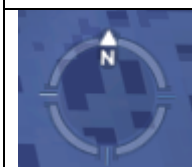
MAP SHOWING THE LOCATION OF AMBIENT AIR QUALITY MONITORING STATIONS - TIRUPPUR 2018



**MAP SHOWING BOUNDARIES OF CORE ZONE, IMPACT ZONE (5KM) AND BUFFER ZONE (10KM) OF CEPI AREA AND
SAMPLE LOCATIONS OF SURFACE WATER, GROUND WATER AND AAQ SURVEY – TIRUPPUR-2019**



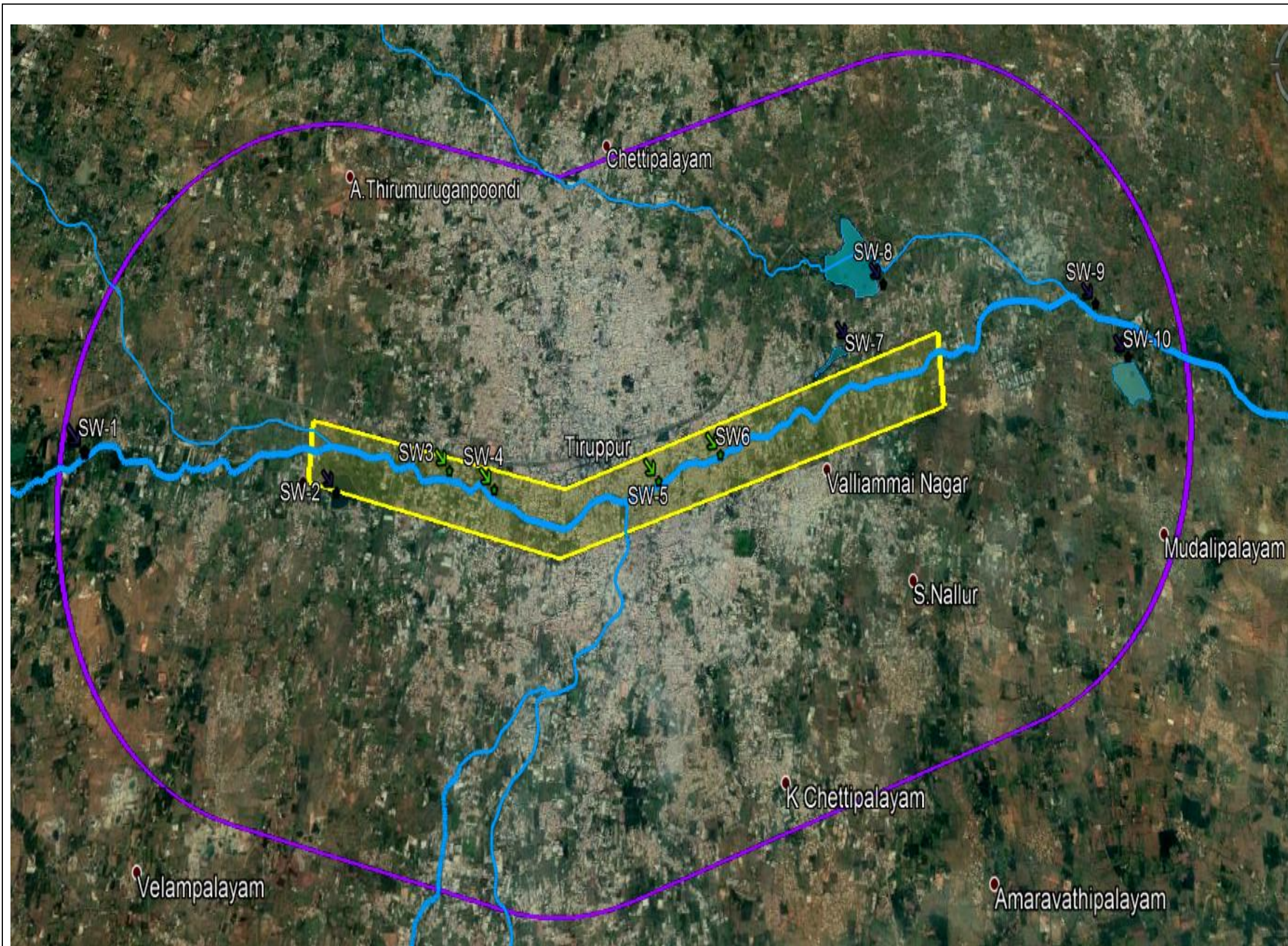
Surface Water Sampling Locations	
SW-1	Agraharapudhur Bridge @ Noyyal
SW-2	Andipalayam Lake
SW-3	Anaipalayam Andipalayam @ Noyyal
SW-4	Near M/sVishnu Clothing Company @ Noyyal
SW-5	Manthirivaikal Junction @ Noyyal
SW-6	Sugumar Nagar New Noyyal Road @ Noyyal
SW-7	MooliKulam
SW-8	Nanjarayan Kulam
SW-9	Anaipalayam SIDCO
SW-10	ManikapuramKulam
Ground Water Sampling Locations	
GW-1	Thiru Gurunathan's Open Well
GW-2	M/s Thirumalai Textile Process Open Well
GW-3	Thiru Selvaraj's Open Well
GW-4	M/s Southern Dyeing Bore Well
GW-5	M/s Venkateswara Rice Mill Open Well
GW-6	M/s Rohini Textiles Open Well
GW-7	M/s Colour Park Bore well
GW-8	Thiru. Murugasami Gounder's Bore Well
Ambient Air Quality Monitoring stations	
AAQ-1	M/s Velmurugan Dyeing
AAQ-2	M/s Azhagendra Dyeing
AAQ-3	M/s Golden Textile Process
AAQ-4	M/s T.R.Ruby Colours
AAQ-5	M/s Rohini Textile Industry
AAQ-6	M/s Fashion Knit Process
AAQ-7	M/s Spencer Apearal Hostel
AAQ-8	Thiru.Kathirvelan 's House



	Surface Water Sampling Locations
	Ground Water Sampling Locations
	Ambient Air Quality Monitoring stations

	CEPI CORE ZONE 12 SQKM
	CEPI IMPACT ZONE (5KM)
	CEPI BUFFER ZONE (10KM)

MAP SHOWING SURFACE WATER SAMPLING LOCATIONS - TIRUPPUR 2019

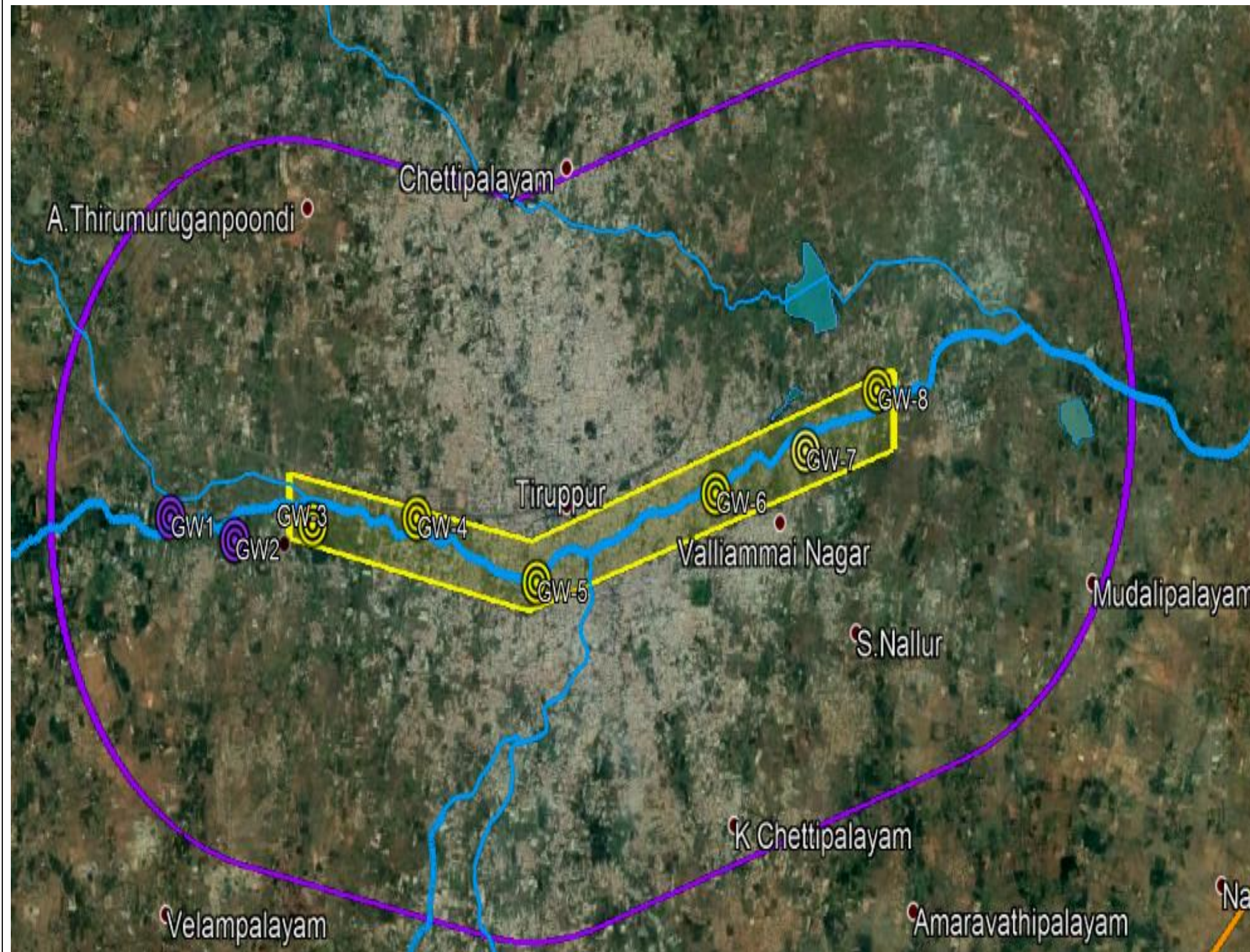


Surface Water Sampling Locations	
SW-1	Agraharapudhur Bridge @ Noyyal
SW-2	Andipalayam Lake
SW-3	Anaipalayam Andipalayam @ Noyyal
SW-4	Near M/sVishnu Clothing Company @ Noyyal
SW-5	Manthirivaikal Junction @ Noyyal
SW-6	Sugumar Nagar New Noyyal Road @ Noyyal
SW-7	MooliKulam
SW-8	Nanjarayan Kulam
SW-9	Anaipalayam SIDCO
SW-10	ManikapuramKulam

Surface Water Sampling Locations


	CEPI core zone 12 SQKM
	CEPI Impact Zone (5km)
	CEPI Buffer Zone (10KM)

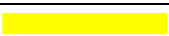


MAP SHOWING GROUND WATER SAMPLING LOCATIONS - TIRUPPUR 2019



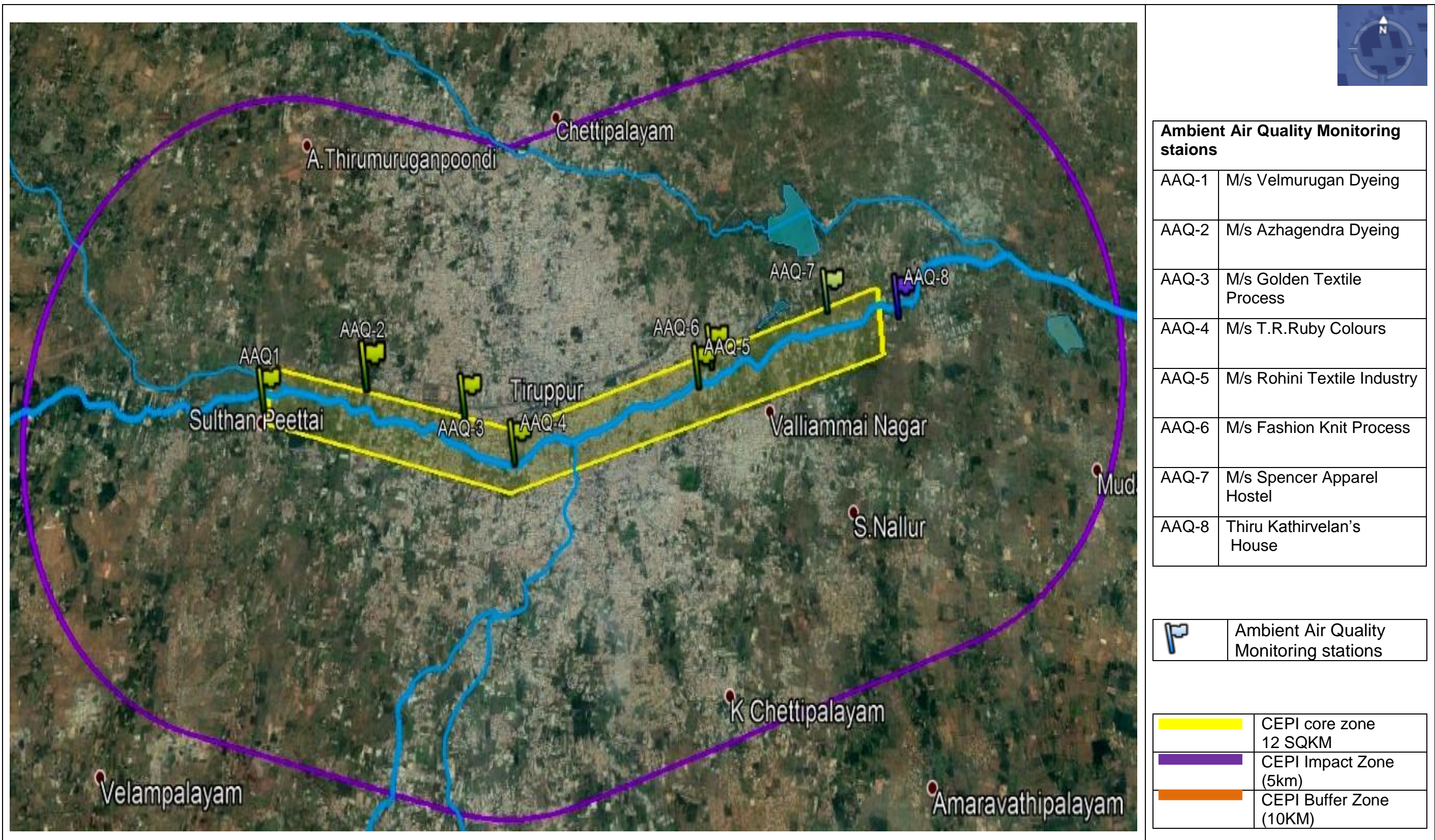
Ground Water Sampling Locations

GW-1	Thiru Gurunathan's Open Well
GW-2	M/s Thirumalai Textile Process Open Well
GW-3	Thiru Selvaraj's Open Well
GW-4	M/s Southern Dyeing Bore Well
GW-5	M/s Venkateswara Rice Mill Open Well
GW-6	M/s Rohini Textiles Open Well
GW-7	M/s Colour Park Bore well
GW-8	Thiru. Murugasami Gounder's Bore Well

	Ground Water Sampling Locations
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	CEPI core zone 12 SQKM
	CEPI Impact Zone (5km)
	CEPI Buffer Zone (10KM)

MAP SHOWING THE LOCATION OF AMBIENT AIR QUALITY MONITORING STATIONS - TIRUPPUR 2019



A3. Health data obtained from Hospitals

Annexure – B

INFORMATION ON HEALTH STATISTICS IN PIA

1. Name of the Polluted Industrial Area (PIA) : Tiruppur North
2. Name of the major health center/
organization : **Govt. Head quarters Hospital,
Tiruppur**
3. Name of the designation of the contact
person :
4. Address : **Govt. Head quarters Hospital,
Dharapuram Road, Tiruppur**

Sl.No.	Air Borne Diseases	No of patients reported for the years				
		2017-2016	2016-2015	2015-2014	2014-2013	2013-2012
1.	Asthma	56	65	83	78	67
2.	Acute Respiratory Infection	775	817	806	628	637
3.	Bronchitis	460	426	442	451	397
4.	Cancer	15	13	14	25	23
	Water Borne Diseases					
5.	Gastroenteritis	56	63	55	57	67
6.	Diarrhea	734	538	612	547	623
7.	Renal diseases	548	571	451	263	278
8.	Cancer	-	-	-	-	-

5. Year of establishment : 1976

Annexure – B

INFORMATION ON HEALTH STATISTICS IN PIA

1. Name of the Polluted Industrial Area (PIA) : Tiruppur North
2. Name of the major health center/
organization : Tiruppur Medical Foundation
Tiruppur
3. Name of the designation of the contact
person :
4. Address : Tiruppur Medical Foundation Pvt Ltd,
Sabapathi Puram, Tiruppur - 1

Sl.No.	Air Borne Diseases	No of patients reported for the years				
		2017-2016	2016-2015	2015-2014	2014-2013	2013-2012
1.	Asthma	78	64	58	52	33
2.	Acute Respiratory Infection	84	73	66	43	38
3.	Bronchitis	-	-	-	-	-
4.	Cancer	-	-	-	-	-
5.	Gastroenteritis	48	53	35	67	43
6.	Diarrhea	125	110	183	204	193
7.	Renal diseases	-	-	-	-	-
8.	Cancer	-	-	-	-	-

5. Year of establishment : 1991

A4. Photos of improvements carried out by Industries & other initiative works in CEPI Area

1. M/s. Mangalam Common Effluent Recycling Technologies India (P) Ltd



Clarifier



BIOT



RO Plant



Green Belt

2. M/s. Sirupooluvapatti Common Effluent Treatment Plant Private Limited



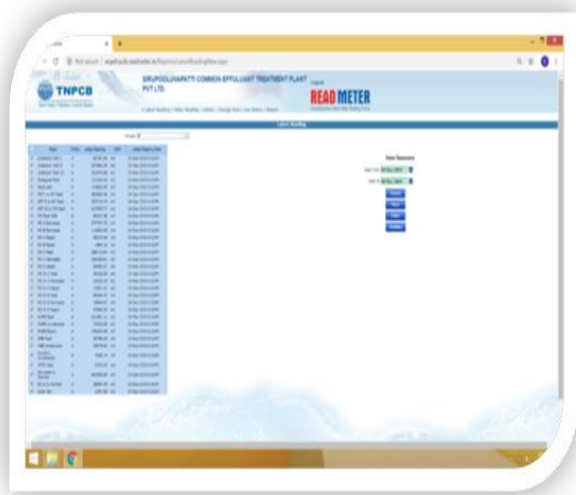
Clarifier



BIOT



Agitated Thin Film Dryer (ATFD)



Online Water Quality Monitoring

3. M/s. Andipalayam Common Effluent Treatment Plant Pvt.Ltd



Clarifier



Ultra Filtration Plant



RO Plant



**Multiple Effect Evaporator –
Falling Film**

4.M/s. Rayapuram Common Effluent Treatment Plant Pvt Ltd



High Pressure RO



RO system



Multiple Effect Evaporator (MEE)



Nano Filtration

5.M/s. Mannarai Common Effluent Treatment Plant (P) Limited



Collection Tank



BIOT



Multiple Effect Evaporator



Agitated Thin Film Dryer



Green belt



Green belt

6. M/s. Kasipalayam Common Effluent Treatment Plant Private Limited



Collection cum Homogenization Tank



Multipel Effect Evaporator



Agitated Thin Film Dryer (ATFD)



Salt recovery

7.M/s. Eastern Common Effluent Treatment Company Private Limited



BIOT



Multiple Effect Evaporator



RO Plant



Filter press

8. M/s Santhosh Textile Process



RO Plant



Aeration Tank



Agitated Thin Film Dryer



Green belt

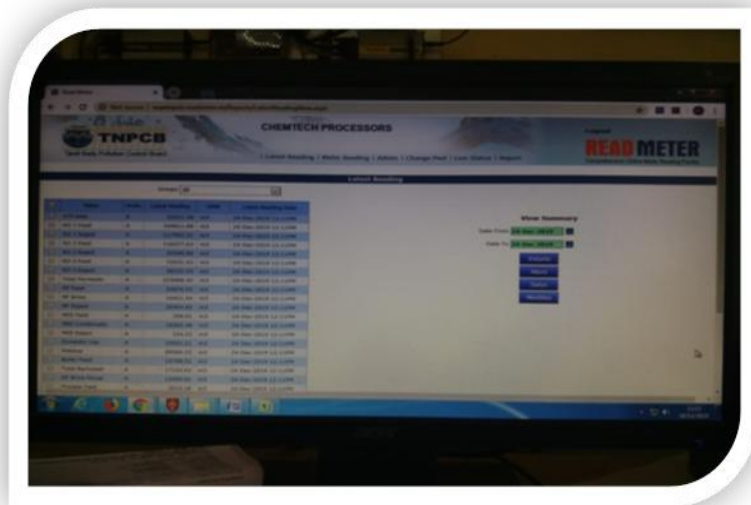
9. M/s. Chem Tech Processors



Multiple Effect Evaporator (MEE)



ATFD



Online Water Quality Monitoring

10. Poomer Textile Process



Anaerobic Tank



Aeration & secondary clarifier



RO Plant



**Multiple Effect Evaporator with Agitated
Thin Film Dryer**

A5. Analysis Report for the present CEPI score (Post Monsoon ,November, 2019)

Tamil Nadu Pollution Control Board CEPI Calculation of Tiruppur for Post Monsoon

Comprehensive Environmental Pollution Index (CEPI) Working Sheet as per revised Formula given by CPCB Vide Lr No. B-29012/ESS (CPA)/2015-16/ Dated 26.4.2016

Hazard = Pollutant Source, Pathway and Receptor

1. Air Environment:

A: Source:

Factor A1- Presence of Toxins:

1. Criteria pollutants: (PM10)

Pollutant	Measured Mean Concentration	Score
Group-B–PM10(Pollutant that are probable carcinogens)	68.896 µg/m ³	2
Score of Criteria Pollutant = Maximum Score of criteria pollutant (3)		2

2. Secondary Pollutants: (PM2.5, As)

Group-B–PM2.5(Pollutant that are probable carcinogens)	40.167 µg/m ³	0.5
Group-C - Arsenic (Pollutant that are known carcinogens)	0 ng/m ³	1
Score of secondary pollutant = Sum of all sec. pollutant score		1.5

A1 = Criteria pollutant score + Secondary pollutant score =		3.5
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Factor A2- Scale of industrial activities:

Tiruppur CEPI core area:8 Nos. of Red Large Category units, 4 Red Medium Category units, 137 Nos. of Red small Category units & 6 Nos. of Orange Small Category units are located

A2 (As per guideline) =		4
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Score A = A1 x A2 =		14
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B: Pathway:

1. Primary Pollutants:

Level of Exposure is to be calculated using SNLF and the value given Table. SNLF refers to Surrogate number.

SNLF = (No. of samples exceed / total No. of samples) X (Exceedance factor)

Exceedance Factor = Observed mean concentration of pollutant/Standard **1.1**

Primary Pollutant: - PM10

PM10: Observed Mean concentration ($\mu\text{g}/\text{m}^3$) = 24 hrs Average	68.896	-
PM10: Standard ($\mu\text{g}/\text{m}^3$) Annual Average	100	-
PM10: Exceedance Factor = (Observed concentration of pollutant/Standard)	0.6889	-
No.of samples exceed the standard =	0	-
Total no. of samples =	8	-
SNLF (PM10) = (No.of samples exceed / total No.of samples) X (Exceedance factor)	0	-

EF < 0.75, SNLF = 0. Hence the Level of exposure Category of PM10: Low, Value (From Table) = 0		0
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Contribution of Primary Pollutant = B1 = Maximum Score of criteria pollutant	0
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2. Secondary Pollutants:

Secondary Pollutant: - PM2.5

PM2.5: Observed mean concentration ($\mu\text{g}/\text{m}^3$) =	40.167	-
PM2.5: Standard ($\mu\text{g}/\text{m}^3$)=	60	-
PM2.5: Exceedance Factor= Observed mean concentration of pollutant/Standard	0.6694	-
PM2.5: No.of samples exceed the standard =	0	-
Total no. of samples =	8	-
SNLF (PM2.5) = (No.of samples exceed / total No.of samples) X (Exceedance factor)	0	-
EF < 0.75, SNLF = 0. Hence the Level of exposure Category of PM2.5: Low, Value = 0		0

Secondary Pollutant: As

As: Observed mean concentration (ng/m ³) =	0	-
As: Standard (ng/m ³)=	6	-
As: Exceedance Factor =	0	-
Total no. of samples =	8	-
As: No.of samples exceed the standard =	0	-
SNLF (As) = (No.of samples exceed / total No.of samples) X (Exceedance factor)	0	-

EF < 0.75, SNLF = 0. Hence the Level of exposure Category of As: Low, Value = 0		0
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Contribution of Secondary Pollutant Sum of the score of secondary pollutants = B2	0
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B = B1 + B2 =	0
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C: Receptor:

It is relevant to Impact on Human Health - Based on the previous 5 years' records of 3-5 major hospitals of the area. For Air Environment, total number of cases related to Asthma, Bronchitis, Cancer, Acute Respiratory infections etc are to be considered. The values are taken from the Table given by CPCB	
As per the CPCB 2018 CEPI report, C value is taken as =0	0

D: Additional High Risk Element:

The industries in the CEPI area have provided air pollution control measures connected to a stack of adequate height. All the textile dyeing, bleaching, printing and washing industries located in the CEPI core area have provided ETP with Zero Liquid Discharge (ZLD) system. Hence there is no effluent disposal from any of the textile processing industries.

Hence D (From CPCB Guidelines) =

0

Sub-Index Score (Air) = (A+B+C+D) =

14

2. Water Environment:

Surface Water Source taken up for study: Samples were collected in the River Noyyal from Agraharapudur to Anaipalayam SIDCO covering the core area along with other surface water bodies Andipalayam Tank, Moolikulam Tank and Manickapuram Tank fed by Noyyal River.

A: Source:

Factor A1- Presence of Toxins:

1. Criteria pollutants: - (Ammonical Nitrogen-NH4-N)

Pollutant	Measured Mean Concentration	Score
Group-A - Ammonical Nitrogen-NH4-N (Pollutant not assessed as acute or systemic)	0	1
Score of Criteria Pollutant = Maximum Score of criteria pollutant (1)		1

2. Secondary Pollutants: - (Phenol, Total Phosphorous)

Pollutant	Measured Mean Concentration	Score
Group C - Phenol (Pollutant that are known carcinogens)	0.0005	1
Group-B– Total Phosphorous (Pollutant that are probable carcinogens)	0.0802 mg/l	0.5

Score of secondary pollutants = sum of score of sec. pollutants =		1.5
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A1 = Criteria pollutant score + Secondary pollutants score =		2.5
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Factor A2- Scale of industrial activities:

Tiruppur CEPI core area:8 Nos. of Red Large Category units, 4 Red Medium Category units, 137 Nos. of Red small Category units & 6 Nos. of Orange Small Category units are located		
A2 (As per guideline) =		4

Score A = A1 x A2 =		10
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B: Pathway

1. Primary Pollutants:

1.1 Primary Pollutant: - Ammonical Nitrogen-NH4-N

SNLF = (No. of samples exceed / total No. of samples) X (Exceedance factor)

Ammonical Nitrogen-NH4-N: Observed Mean Concentration (mg/L) =	0 mg/l	-
Ammonical Nitrogen-NH4-N: Standard :Class- B Desirable CPCB 2002,Water Quality Criteria & Goals- MINARS Series;MINARS/17/2001-2002)	1.5 mg/l	-
Ammonical Nitrogen-NH4-N: Exceedance Factor =	0	-
Ammonical Nitrogen-NH4-N: Total no. of samples =	10	-
Ammonical Nitrogen-NH4-N: No.of samples exceed the standard =	0	-
SNLF (Ammonical Nitrogen-NH4-N) = (No.of samples exceed / total No.of samples) X (Exceedance factor)=	0.00	-

EF < 0.75, SNLF = 0. Hence the Level of exposure Category of Ammonical Nitrogen-NH4-N: Low, Value = 0		0
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Contribution of Primary Pollutant = B1 = Maximum Score of criteria pollutant (0)		0
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2. Secondary Pollutant:

Secondary Pollutant: - Phenol

Phenol: Observed Mean Concentration (mg/L) =	0.00 05	-
Phenol: Standard :Class- B Desirable CPCB 2002,Water Quality Criteria & Goals- MINARS Series;MINARS/17/2001-2002)	0.01	-
Phenol: Exceedance Factor =	0.05	-
Phenol: Total no. of samples =	10	-
Phenol: No.of samples exceed the standard =	0	-
SNLF (Phenol) = (No.of samples exceed / total No.of samples) X (Exceedance factor)=	0	-

EF <0.75, SNLF = 0. Hence the Level of exposure Category of Phenol:LOW, Value = 0		0
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Secondary Pollutant: - Total Phosphorous

Total Phosphorous: Observed mean concentration (mg/L) =	0.0802	-
Total Phosphorous (mg/L) : Standard :Class- B Desirable CPCB 2002,Water Quality Criteria & Goals- MINARS Series;MINARS/17/2001-2002)	<0.3	-
Total Phosphorous: Exceedance Factor	0.26 74	-
Total no. of samples =	10	-
Total Phosphorous: No.of samples exceed the standard =	0	-
SNLF (Total Phosphorous) = (No.of samples exceed / total No.of samples) X (Exceedance factor)	0	-

EF < 0.75, SNLF = 0, The Level of exposure Category of Total Phosphorous: Low, Value = 5		0
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Score of Secondary pollutants = sum of score of secondary. pollutants = B2	0
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B = B1 + B2 =	0
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C: Receptor:

It is relevant to Impact on Human Health - Based on the previous 5 years' records of 3-5 major hospitals of the area. For Air Environment, total no. of cases related to Asthma, Bronchitis, Cancer, Acute Respiratory infections etc. are to be considered. The values are taken from the Table given by CPCB

As per the CPCB 2018 CEPI report, C value is taken as =0	0
---	----------

D: Additional High Risk Element:

The industries in the CEPI area have provided air pollution control measures connected to a stack of adequate height. All the textile dyeing, bleaching, printing and washing industries located in the CEPI core area have provided ETP with Zero Liquid Discharge (ZLD) system. Hence there is no effluent disposal from any of the textile processing industries.

Hence D (From CPCB Guidelines) =	0
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Sub-Index Score (Water) = (A+B+C+D) =	10
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3. Land Environment:

Ground Water Quality is considered to represent Land Environment

A: Source:

Factor A1- Presence of Toxins:

1. Criteria pollutants: - (Phenol)

Pollutant	Measured Mean Concentration	Score
Group C - Phenol (Pollutant that are known carcinogens)	0.0005mg/l	3
Score of Criteria Pollutant = Maximum Score of criteria pollutant (1)		3

2. Secondary Pollutants: - (TDS, Total Hardness)

Pollutant	Measured Mean Concentration	Score
Group A –TDS (Pollutant not assessed as acute or systemic)	3025.37	0.25

Group A – Total Hardness (Pollutant not assessed as acute or systemic)	983.75	0.25
Score of secondary pollutants = sum of score of sec. pollutants =		0.5

Score A1 = (sum of score of Primary pollutant and secondary pollutants)		3.5
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Factor A2- Scale of industrial activities:

Tiruppur CEPI core area:8 Nos. of Red Large Category units, 4 Red Medium Category units, 137 Nos. of Red small Category units & 6 Nos. of Orange Small Category units are located		
A2 (As per guideline) =		4

Score A = A1 x A2 =		14
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B: Pathway

1. Primary Pollutants:

1.1 Primary Pollutant: -Phenol

SNLF = (No. of samples exceed / total No. of samples) X (Exceedance factor)

Phenol: Observed Mean Concentration =	0.0005	-
Phenol: Standard :	0.002 mg/l	-
Phenol: Exceedance Factor =	0.25	-
Phenol: Total no. of samples =	8	-
Phenol: No.of samples exceed the standard =	0	-
SNLF (Phenol) = (No.of samples exceed / total No.of samples) X (Exceedance factor)=	0	-

EF <0.75 SNLF = 0 Hence the Level of exposure Category of Phenol: Low, Value = 0		0
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Max contribution of Primary Pollutant = B1		0
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2. Secondary Pollutant:

Secondary Pollutant: -TDS

SNLF = (No. of samples exceed / total No. of samples) X (Exceedance factor)

TDS: Observed Mean Concentration =	3025.37	-
TDS: Standard : Standard IS: 10500-1991 (mg/L) =	2000	-
TDS: Exceedance Factor =	1.51	-
TDS: Total no. of samples =	8	-
TDS: No.of samples exceed the standard =	5	-
SNLF (TDS) = (No.of samples exceed / total No.of samples) X (Exceedance factor)=	0.4139	-

SNLF 0.4 to <0.45 SNLF =0.438 Hence the Level of exposure Category of TDS: MODERATE, Value = 4.75		4.75
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Secondary Pollutant: - Total Hardness

Total Hardness Observed Mean Concentration(mg/L)=	983.75	-
Total Hardness : Standard IS: 10500-1991 (mg/L) =	600	-
Total Hardness : Exceedance Factor =	1.64	-
Total Hardness: Total no. of samples =	8	-
Total Hardness: No.of samples exceed the standard =	5	-
SNLF (Total Hardness) = (No.of samples exceed / total No.of samples) X (Exceedance factor)=	0.381	-

SNLF 0.35 <0.4 SNLF = 0.381 Hence the Level of exposure Category of Total Hardness: MODERATE, Value = 4.5		4.5
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Score of Secondary pollutants = sum of score of secondary pollutants = B2	9.25
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B = B1 + B2 =	9.25
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C: Receptor:

It is relevant to Impact on Human Health - Based on the previous 5 years' records of 3-5 major hospitals of the area. For Air Environment, total no. of cases related to Asthma, Bronchitis, Cancer, Acute Respiratory infections etc. are to be considered. The values are taken from the Table given by CPCB	
As per the CPCB 2018 CEPI report, C value is taken as =0	0

D: Additional High Risk Element:

The industries in the CEPI area have provided air pollution control measures connected to a stack of adequate height. All the textile dyeing, bleaching, printing and washing industries located in the CEPI core area have provided ETP with Zero Liquid Discharge (ZLD) system. Hence there is no effluent disposal from any of the textile processing industries.	
Hence D (From CPCB Guidelines) =	0

Sub-Index Score (Water) = (A+B+C+D) =	23.25
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Aggregated CEPI Score:

$$CEPI = im + [(100-im) * (i2/100) * (i3/100)]$$

Where,
im: maximum sub index; and i2 and i3 are sub-indexes for other media

Sub-Index of Air = 14, Sub-Index of Water = 10, Sub-Index of Land = 23.25

Hence im	=	23.25
CEPI	=	24.32
CEPI of Tiruppur	=	24.32

Annexure IV:

National Ambient Air Quality Standards, 2009



The Gazette of India

EXTRAORDINARY PART III-Section 4 PUBLISHED BY AUTHORITY
NEW DELHI, WEDNESDAY, **NOVEMBER 18, 2009** No. B-29016/20/90/PCI-I

National Ambient Air Quality Standards: Central Pollution Control Board

In exercise of the powers conferred by Sub-section (2) (h) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No.14 of 1981), and in suppression of the Notification No(s). S.O.384(E), dated 11th April, 1994 and S.O.935(E), dated 14th October, 1998, the **Central Pollution Control Board** hereby notify the National Ambient Air Quality Standards **with immediate effect**, namely:

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Areas	Ecologically Sensitive Areas (Notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO ₂) µg/m ³	Annual *	50	20	– Improved West and Gaeke – Ultraviolet fluorescence
		24 hours **	80	80	
2	Nitrogen Dioxide (NO ₂) µg/m ³	Annual *	40	30	– Modified Jacob & Hochheiser (Na-Arsenite) – Chemiluminescence
		24 hours **	80	80	
3	Particulate Matter (size less than 10 µm) or PM ₁₀ µg/m ³	Annual *	60	60	– Gravimetric – TOEM – Beta attenuation
		24 hours **	100	100	
4	Particulate Matter (size less than 2.5 µm) or PM _{2.5} µg/m ³	Annual *	40	40	– Gravimetric – TOEM – Beta attenuation
		24 hours **	60	60	
5	Ozone (O ₃) µg/m ³	8 hours **	100	100	– UV photometric – Chemiluminescence – Chemical Method
		1 hour **	180	180	
6	Lead (Pb) µg/m ³	Annual *	0.50	0.50	– AAS/ICP method after sampling on EPM 2000 or equivalent filter paper – EDXRF using Teflon filter
		24 hours **	1.0	1.0	
7	Carbon Monoxide (CO) mg/m ³	8 hours **	02	02	– Non Dispersive Infra Red (NDIR) spectroscopy
		1 hour **	04	04	
8	Ammonia (NH ₃) µg/m ³	Annual *	100	100	– Chemiluminescence – Indophenol blue method
		24 hours **	400	400	
9	Benzene (C ₆ H ₆) µg/m ³	Annual *	05	05	– Gas Chromatography based continuous analyzer – Adsorption and Desorption followed by GC analysis
10	Benzo (a) Pyrene (BaP) – particulate phase only, ng/m ³	Annual *	01	01	– Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As) ng/m ³	Annual *	06	06	– AAS/ICP method after sampling on EPM 2000 or equivalent filter paper.
12	Nickel (Ni) ng/m ³	Annual *	20	20	– AAS/ICP method after sampling on EPM 2000 or equivalent filter paper.

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2 % of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note: Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SANT PRASAD GAUTAM, Chairman, Central Pollution Control Board [ADVT-III/4/184/09/Exty.]

Note: The notifications on National Ambient Air Quality Standards were published by the Central Pollution Control Board in the Gazette of India. Extraordinary vide notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998.

µg/m³: micro-gram/m³ i.e. 10⁻⁶gm/m³

ng/m³: nano-gram/m³ i.e. 10⁻⁹gm/m³

Annexure V:**Drinking Water Specification-IS 10500:1991**

S.No	Parameters	Desirable limits mg/l	Permissible limits mg/l
Essential Characteristics			
1	Colour Hazen unit	5	25
2	Odour	Unobjectionable	-
3	Taste	agreeable	-
4	Turbidity (NTU)	5	10
5	pH	6.5-8.5	No relaxation
6	Total Hardness, CaCO ₃	200	600
7	Iron (Fe)	0.3	1.0
8	Chloride (Cl)	250	1000
9	Residual Free Chlorine	0.2	-
10	Fluoride (F)	1.0	1.5
Desirable Characteristics			
11	Dissolved Solids	500	2000
12	Calcium (Ca)	75	200
13	Magnesium (Mg)	30	100
14	Copper (Cu)	0.05	1.5
15	Manganese (Mn)	0.1	0.3
16	Sulphate (SO ₄)	200	400
17	Nitrate (NO ₃)	45	100
18	Phenolic compounds	0.001	0.002
19	Mercury (Hg)	0.001	No relaxation
20	Cadmium (Cd)	0.01	No relaxation
21	Selenium (Se)	0.01	No relaxation
22	Arsenic (As)	0.05	No relaxation
23	Cyanide (CN)	0.05	No relaxation
24	Lead (Pb)	0.05	No relaxation
25	Zinc (Zn)	5.0	15
26	Hexavalent Chromium	0.05	No relaxation
27	Alkalinity	200	600
28	Aluminum (Al)	0.03	0.2
29	Boron (B)	1.0	5.0
30	Pesticides	Absent	0.001

MINUTES OF THE COMMITTEE MEETING CONSTITUTED FOR CEPI ACTION PLAN OF TIRUPPUR LOCATED IN TAMILNADU HELD ON 09.01.2020 IN THE CHAMBER OF PRINCIPAL SECRETARY ENVIRONMENT & FORESTS DEPARTMENT, SECRETARIAT, CHENNAI.

Present:

1. Thiru. Shambhu Kallolika I.A.S.,
Principal Secretary to Government,
Environment & Forests Department, Secretariat, Chennai.
2. Thiru. A.V.Venkatachalam, I.F.S,
Chairman,
Tamil Nadu Pollution Control Board, Chennai.
3. Dr. S.Selvan
Chief Environmental Engineer,
Tamil Nadu Pollution Control Board, Chennai
4. Dr.A.Viswanathan, JD (Acts)
O/o the Directorate of Medical & Rural Health Services
5. Tmt.H.Prabhavathy, GM (PI) i/c
Representative of State Industries Promotion Corporation of
Tamilnadu (SIPCOT)
6. Thiru.A.Sohail Ahmed,
Technical Expert (GP), O/o Chief Engineer, PWD, W.R.O.,
State Ground & Surface Water Resources Data Centre,
Taramani, Chennai – 600 113.
7. Other TNPCB Officials.



The Chief Environmental Engineer, Tamil Nadu Pollution Control Board welcomed the committee members and officials of TNPCB and briefed about the new CEPI methodology adopted by CPCB.

Dr.S.Suresh Kumar from G lens Innovations Labs Pvt Ltd on behalf of AC Tech, Chennai (hired as third party by TNPCB for analysis and assessment of CEPI – post monsoon 2019) detailed the the concept of CEPI and briefed about the individual CEPI scores of CPCB in 2018 in Tamilnadu

and the present post monsoon scores in 2019 with regard to Air, Water and Land Environment in the 8 industrial clusters of Vellore, Manali, Coimbatore, Erode, Mettur, Tuticorin, Tiruppur, and Cuddalore.

With regard to Tiruppur CEPI area, Dr.S.Suresh Kumar briefed the following

1. The CEPI scores for the last two periods are as follows

Period	CEPI Score
CEPI Score 2018-2019 Post monsoon	24.32
CEPI Score 2018 CPCB monitoring	72.39

2. In the aggregated CEPI score of 2018, it has been reported that the Sub Index values for Air is 33, Water is 65 and Land is 64, thus the CEPI score was **72.39**, whereas in the present aggregated CEPI score during 2019 for the Sub Index values for Air is 14, Water is 10 and Land is 23.25, thus the CEPI score has reduced to **24.32**.
3. It has been distinguished for the high CEPI score in 2018 and for low CEPI score in 2019.

The main reasons attributed for high CEPI score include,

- a. Eight sampling locations were identified in CEPI 2018, in which PM10 and PM2.5 exceeded in few of the AAQM locations. Most of the locations were placed nearby roadways, contributing vehicular emission or by localized sources.
- b. Eight ground water sampling locations were identified during CEPI 2018, in which maximum no. of samples exceeded TDS, TH and Phenols. Out of the 8 locations, two are unused wells showing high concentrations.
- c. The total number of surface water sampling locations considered during 2018 by the CPCB's CEPI monitoring is eight. Out of which seven locations are in River Noyyal showing almost the same results everywhere.

- d. Total Phenol, Ammonical Nitrogen and Total Phosphorus have exceeded in all locations of Noyyal River due to presence of sewage, poultry wastes, meat waste dumping on the river banks.

The main reasons for less CEPI score in 2019 include,


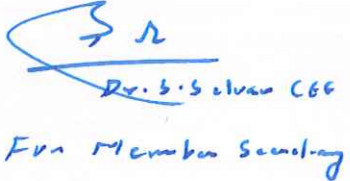
- i. The total quantity of trade effluent generated is 37.26 MLD and this is entirely reused by ZLD systems
- ii. No disposal of treated trade effluent or sewage generated by the industries into the nearby water bodies. The higher concentration of Phenol, Ammonical Nitrogen and Total Phosphorus in the results may be due to the discharge of sewage generated from Tiruppur Corporation and from the nearby villages.
- iii. In the present Ambient Air Quality monitoring downwind PM10 and PM2.5 concentration is 68.89 & 40.16 $\mu\text{g}/\text{m}^3$ respectively. Based on the emission load and the average stack height the PM load to the Ambient Air is minimum and proportionately the Ambient Air Quality PM10 & PM2.5 concentration will also be less.
- iv. Presently new regularly used wells were identified nearby the existing unused wells and samples were collected and analyzed, which showed low TDS and TH values, since these wells are regularly used.
- v. The ETP / chemical sludge generated from the industries were being stored in the open yard previously, which may be the cause of ground water contamination and the same was reflected in the CEPI monitoring by CPCB during 2018.
- vi. The ETP /chemical sludge is presently disposed to cement industries for co-processing. So far about **85,511Tons** of sludge generated from all the Textile Dyeing & Bleaching units

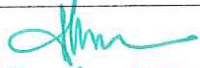

located in the entire Tiruppur district have been transported to cement industries for co-processing.

vii. All the CETPs, IETPs, Printing and washing units have installed ZLD System to achieve Zero Discharge Liquid.

4. To the queries raised by the Principal Secretary, it was clarified that the critical parameters and locations identified by CPCB during 2018 was also followed while sampling during 2019. Representative of Chief Engineer, PWD, W.R.O. wanted to know whether other parameters could be included for CEPI assessment, for which it was replied that the protocol followed by CPCB had to be adopted for harmonious CEPI calculation every year. To the representative of Director of Medical & Rural Health Services, it was clarified that as per the direction issued by CPCB on 26.04.2016, the air and water borne diseases to be considered in the health data are Asthma, Bronchitis, Cancer, Acute respiratory infections, Gastroenteritis, Diarrhea, renal (kidney) malfunction cancer etc
5. After detailed discussion the committee members decided to approve the CEPI action Plan prepared for Tiruppur in Tamil Nadu and to submit to CPCB, New Delhi

With the above, the meeting came to an end.

S.No.	Members	Signature
1.	Thiru. Shambhu Kallollikar IAS., (Chairman of Committee) Principal Secretary to Government, Environment & Forests Department	
2.	Member Secretary, Tamilnadu Pollution Control Board, Chennai	 Dr. S. S. Sivasubramanian For Member Secretary

3.	Director of Medical & Rural Health Services	 Dr. A. VISWANATHAN, MB JD (Acts)
4.	Representative of State Industries Promotion Corporation of Tamilnadu (SIPCOT)	K. Prathapathy CH. PRABHAVATHI G.MCPI, i/c, SIPCOT
5.	Chief Engineer, PWD, W.R.O., State Ground & Surface Water Resources Data Centre, Taramani, Chennai - 600 113	 A. SUMAN (HWS) Technical Expert (Geology) Of the Chief Engineer, PWD, S/SWRDC, Chennai - 600113

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