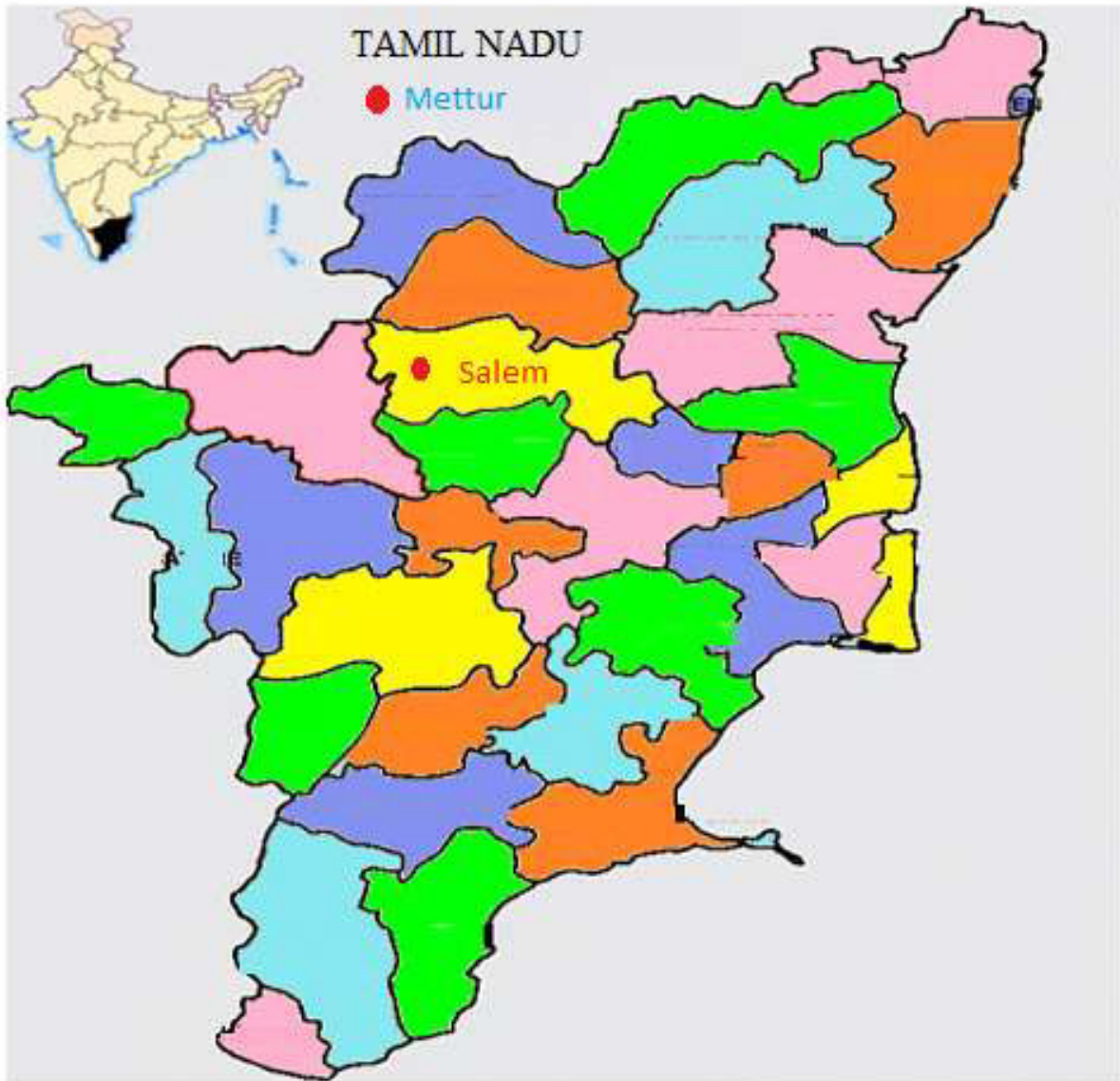


**EVALUATION OF CEPI SCORE & ACTION PLAN FOR  
CEPI AREA OF METTUR, SALEM DISTRICT**



**SUBMITTED  
JANUARY 2020**



**TAMILNADU POLLUTION CONTROL BOARD**

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## **EXECUTIVE SUMMARY**

The Mettur Industrial Cluster, Salem district was monitored with respect to Ambient Air Quality, Ground and Surface Waters quality calculated for revised CEPI score. CPCB and TNPCB have finalized the location of samplings for both AAQM and Water quality monitoring stations. The monitoring was undertaken during 2018.

Thereafter, the CPCB has updated CEPI scores for all 100 PIAs. Based on the study report conducted during that period, the CEPI score as per the revised guidelines is -71.82 (Ambient Air -41.25, Water- 19.38, Land -69.38 (An\_Wn\_Lc). Hence, the Mettur cluster falls into the Critically Polluted Area (CPA) from the Severely Polluted Area (SPA).

Hence, a Post Monsoon study was carried with Ambient Air Quality survey in the eight sampling stations located in the CEPI core area. Further, in addition to the existing two sampling stations located in the core zone, one more surface water sampling station was identified in the CEPI core area. As far as the ground water samples are concerned additional 4 sampling locations were identified in the CEPI core and impact area. The sampling and analysis were carried out as per the CPCB/EPA/ APHA / IS / ASTM standard methods.

CEPI Evaluation the CPCB and TNPCB has identified the following 8 locations based on the type, location of industries and wind pattern since there were no previous data with respect to the sampling stations. Further during the post monsoon survey conducted by the TNPCB on 2019. The industries emits PM, NO<sub>x</sub>, SO<sub>2</sub>, Cl<sub>2</sub>, F and VOC either by combustion sources or from the process emissions. All the stacks of the 17 category industries are connected with sensor analysers and the data is being transmitted to CPCB/SPCB by which industries are monitored for their emissions.

During 2018 CEPI monitoring, 8 locations were identified across the Mettur industrial area. Out of which 4 AAQ locations have exceeded PM<sub>10</sub>. This may be due to MTPS power plant stack emissions in which coal is used as a primary fuel. In general the flyash contains arsenic which may be the source of arsenic presence in the AAQ. The bottom ash contains arsenic of 0.296 mg/Kg. Now a direction has been issued to the MTPS-I to improve their ESP performance efficiency with which PM and arsenic concentration emissions will be controlled.

All the other industries emission sources have provided adequate air pollution control devices due to which their emissions are controlled. Based on the 2019 Post monsoon Monitoring the AAQ concentration in all the locations are well below within the limit except one location i.e the

reason for exceedance of the parameter is due to the contribution of Mettur Thermal Power Station-I and II.

During CPCB CEPI monitoring 2018 two surface water samples collected in the upstream and downstream. Both upstream and downstream sample results for Total phosphorous, Total Hardness and Phenol which are well below within the limit of IS 10500 drinking water standards. No sewage from the industries was discharged into the Cauvery River. The unit of M/s.Mettur Thermal Power Station Plant I and Plant II's cooling tower blow down which is passed through the ash dyke pond and finally discharged into surplus course of river Cauvery. It has been observed that no pollution in the river was observed because of the discharge of the cooling tower water from MTPS I & II.

During CPCB CEPI sampling 8 ground water sampling locations are identified and all of the locations are open well. It has been observed that all the said wells are unused wells and combined with waste materials. Hence, there is a possibility of detection of the parameters BOD, TKN and Phenol with high concentration. Hence along with these unused locations additionally 4 more locations were included. The samples were collected in those wells observed very low concentration of BOD and Phenol and these parameters were not detected in any of these samples except for TKN. During 2019 Post monsoon sample collection on the same 12 locations in which all the CEPI parameters are well within the limits of IS 10500 drinking water standards which clearly indicates that there is improvement in the ground water quality.

The regional office of Tamil Nadu Pollution Control Board has taken various initiatives in reducing the CEPI Score of 66.98 of 2009 to 20.77 of 2019 post monsoon for that all the 17 category units and Red Large units have taken efforts in reducing pollution load. Six Red large industries have installed Zero Liquid Discharge System.

Based on the study results the CEPI score as per the revised guidelines of CEPI, 2016, the CEPI index of Post-Monsoon during December 2019-Ambient Air is 18.5 Surface Water is 9.38 and Ground Water is 19.38 respectively. The overall CEPI score for Mettur during the Post Monsoon study conducted in 2019 is 20.77.

**District Environmental Engineer  
Tamil Nadu Pollution Control Board  
Salem**

# 1 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.

The concept of Comprehensive Environmental Pollution Index (CEPI) was evolved by Central Pollution Control Board (CPCB) during 2009-10 as a tool for comprehensive environmental assessment of prominent industrial clusters and formulation of remedial Action Plans for the identified critically polluted areas. CEPI is a rational number between 0 and 100, assigned to a given location to characterize the environmental quality following the algorithm of source, pathway and receptor. Out of identified 88 prominent industrial clusters, 43 industrial clusters in 16 States having CEPI score of 70 and above are identified as Critically Polluted Industrial Clusters. Further, 32 industrial clusters with CEPI scores between 60 & 70 are categorized as severely polluted areas. Thereafter, Ministry of Environment & Forests (Govt. of India) had imposed temporary moratorium vide O. M. 13.01.2010 on consideration of developmental projects in critically polluted industrial cluster/areas including the projects in the pipeline for Environmental Clearance.

Later-on proposals were received from the SPCBs, State Governments, and Industrial Associations and concerned Stakeholders for revisiting the criteria of assessment under CEPI concept. After careful examination and consideration of the suggestions of concerned stakeholders, it was decided to prepare the revised concept of CEPI by eliminating the subjective factors but retaining the factors which can be measured precisely.

The present study in CEPI area is carried out in Mettur which comprises M/s. Chemplast group of companies, M/s. Mettur Thermal Power stations and Mettur SIDCO.

### 1.1. CEPI Area Boundary Details

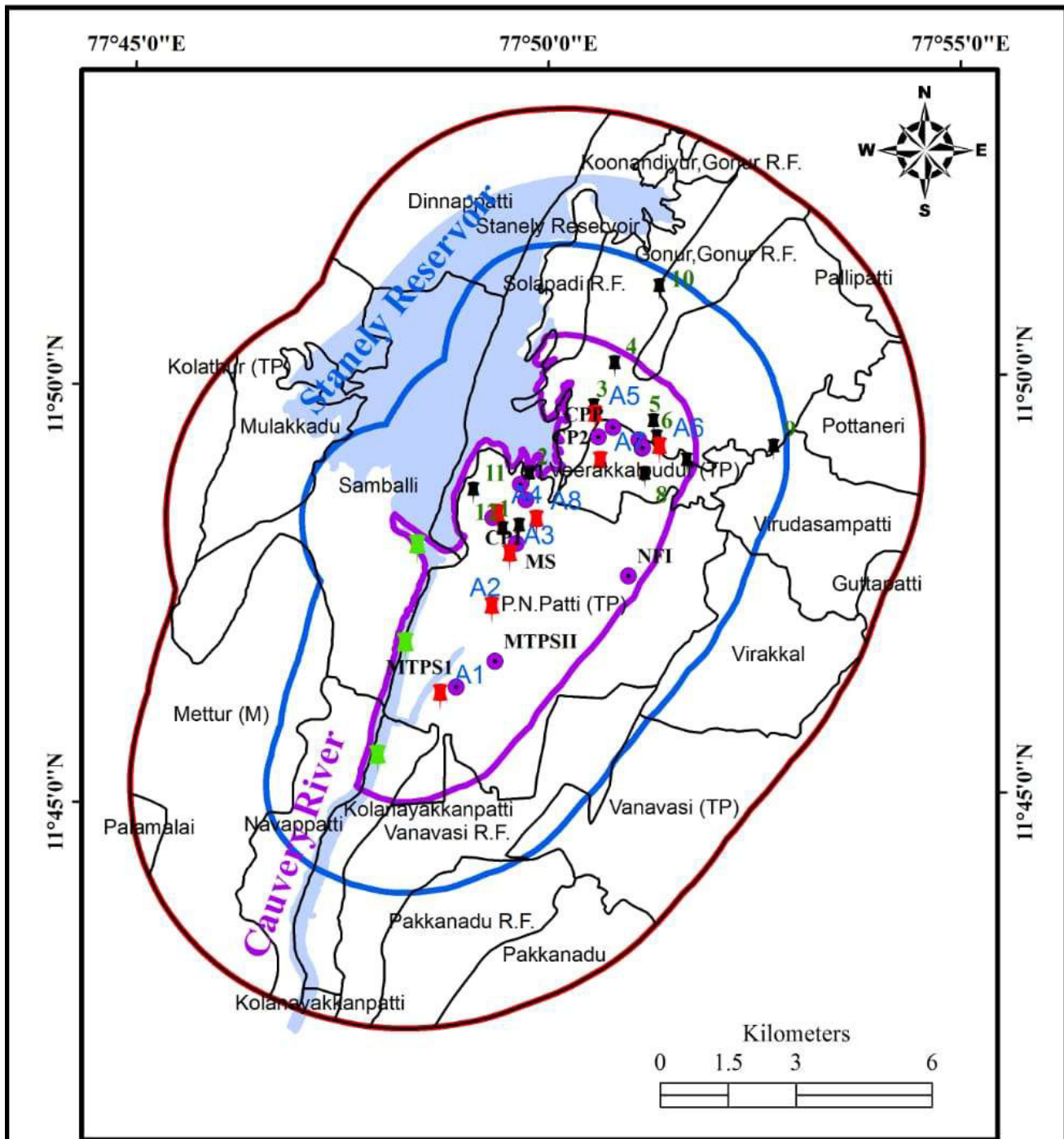
For Mettur there is no specific predefined boundary map earlier. So the CEPI core area has been demarcated by considering the Air, Ground Water and Surface Water sampling locations carried out during the year 2018. Further a 2 KM impact zone and 5 KM buffer zone has been provided along the demarcated area core area. The areas covered in different zones are tabulated below.

Map Showing the Area Demarcation is given in *Fig 1.0*.

S.No	Description	Core Zone	Impact Zone (2 KM)	Buffer Zone (5KM)
1	Area ( SqKm)	38.5	72.02	149.62

S.No	Directions	Core Zone
1	North	11°49'38.13"N 77°50'29.88"E
2	South	11°45'12.63"N 77°47'45.89"E
3	East	11°47'38.70"N 77°51'3.52"E
4	West	11°47'58.91"N 77°48'20.67"E





**Legend**

- Ambient Air Quality Locations
- GroundWater Sample Locations
- Surface Water Sample Locations
- Industries
- Village Boundary
- WaterBodies
- Core Industrial Area - 38.55 sq.km
- Industrial Area 2 km Buffered Zone - 72.02 sq.km
- Industrial Area 5 km Buffered Zone - 149.62 sq.km

*Mettur CEPI AREA- Location of Industries and Zones.*

## 1.2. Habitation details in CEPI Area

The following villages/hamlets are located within 2 km of the impact zone

Sl.No.	Name of the Villages	Population
1	Gonur,Gonur R.F.	18766
2	P.N.Patti (TP)	25133
3	Solapadi R.F.	0
4	Samballi	2134
5	Veerakkalpudur (TP)	16665
6	Virudasampatti	6545
7	Kolanayakkanpatti	5894
8	Mettur (M)	52813
9	Navappatti	8693
10	Vanavasi R.F.	6704

The following villages/hamlets are located within 2 km of the impact zone

Sl.No.	Name of the Villages	Population
2	Dinnappatti	2145
3	Gonur,Gonur R.F.	18766
4	P.N.Patti (TP)	25133
5	Solapadi R.F.	0
6	Mulakkadu	3716
7	Samballi	2134
8	Pottaneri	6160
9	Veerakkalpudur (TP)	16665
10	Virudasampatti	6545
11	Virakkal	1254
12	Kolanayakkanpatti	1365
13	Vanavasi (TP)	7130
14	Mettur (M)	52813

15	Navappatti	3124
16	Vanavasi R.F.	0
17	Pakkanadu R.F.	1065

### **1.3. Eco-Geological Features.**

There are no eco-geological features within 5 Km radius from the Mettur CEPI Area.

#### **1.3.1. Major Water Bodies:**

River Cauvery on her course lays Stanley Reservoir in Mettur, where the dam has been constructed. While passing through Erode, two more tributaries merge. Thirumanimutharu joins it in a village called Kududurai in Namakkal District. Noyyal and Amaravathi join it in Karur district before it reaches Tiruchirapalli district.

#### **1.3.2. The details of Stanley Reservoir**

Stanley Reservoir (also known as Mettur dam) is one of largest fishing reservoirs in South India. Its main source of water is the River Cauvery (Cauvery). Three minor tributaries – Palar, Chennar and Thoppar – enter the Cauvery on her course above Stanley Reservoir. The water is retained by the Mettur Dam, Tamil Nadu. Its total capacity is more than 93,470,000,000 cubic feet (93.47 Tmcf).(2,146,071 acre ft)

The Stanley Reservoir is one of the largest of its kind in India. It was completed in 1934. The creation of the reservoir caused the submersion of two villages, all of whose inhabitants were relocated to Mettur.

The total length of the dam is 1700 meters. The Metturhydro electric power project is also quite large. The dam, the park, the major hydroelectric power stations and hills on all sides make Mettur a tourist attraction.

#### **1.3.3. 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 5Km radius from the Mettur CEPI Area.

#### **1.3.4. Monuments of Historical/archaeological importance**

No Monuments of Historical/Archaeological importance were present within 5Km radius from the Mettur CEPI Area.

#### 1.4. Industries details in CEPI Area

S.No	Category	Red	Orange
1	17 Category	6	
2	Large	4	
3	Medium	-	1
4	Small	57	24
<b>5</b>	<b>Total</b>	<b>67</b>	<b>25</b>
<b>6</b>	<b>Total No of Industries</b>	<b>92</b>	

*Note: The list of units along with type and categorization are given in Annexure. There were 3 Nos. of Thermal Power Plants, 4 Nos. large-scale and 57 Nos. of small scale Chemical industries*

#### 1.5. Green Belt Development details in CEPI Area

- Nearly 760 tree saplings were done during 2018-19 in all Sanmar plants of Mettur
- MTPS I total Plant area is 1340.53 Acres. The green belt area had been developed to an extent of 184.60 Acres. To fulfill the norms of 33% of the total area with indigenous native tree species in accordance with CPCB guidelines, further Green belt development has been proposed in an additional area of 346 Acres in co-ordination with local forest department
- 5240 tree saplings have been planted at MTPS - I premises during the month of June, July and August of this year 2019.
- In MTPS-II nearly 7500 saplings are planted (Inclusive of 6500 saplings) and are maintained

#### 1.6. CEPI score declared by CPCB 2018

##### Air Quality Analysis Report

Pollutant	Group	A1	A2	A
PM10	B	0.5	Moderate	A1*A2
As	C	3		
PM2.5	B	0.5		
		4	2.5	10

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		
PM10	111.41	100	1.11	12	24	0.56	H	16.5	
As	6.93	6	1.16	14	24	0.67	M	4.75	
PM2.5	40.76	60	0.68	0	24	0.00	L	0	
<b>B = B1+B2+B3</b>								<b>21.25</b>	

C	10	>10%
D	0	A-A-A

<b>AIR EPI</b>	<b>(A+B+C+D)</b>	<b>41.25</b>
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### Water Quality Analysis Report

Pollutant	Group	A1	A2	A
TP	B	0.5	Moderate	A1*A2
Total Hardness	A	0.25		
Phenols	C	3		
		3.75	2.5	9.375

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		
TP	0.131	0.3	0.44	0	3	0.00	L	0	
T.Hard	162.33	600	0.27	0	3	0.00	L	0	
Phenols	0.0005	0.01	0.05	0	3	0.00	L	0	
<b>B = B1+B2+B3</b>								<b>0</b>	

C	10	>10%
D	0	A-A-A

<b>WATER EPI</b>	<b>(A+B+C+D)</b>	<b>19.375</b>
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### Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	A
BOD	B	0.5	Moderate	A1*A2
TKN	A	0.25		
Phenols	C	3		
		3.75	2.5	9.375

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		
BOD	11.75	3	3.92	18	24	2.94	C	10	
TKN	4.31	1	4.31	15	24	2.69	C	10	
Phenols	0.06	0.001	60.0	21	24	52.50	C	30	
B = B1+B2+B3								50	

C	10	>10%
D	0	A-A-A

<b>GROUNDWATER EPI</b>	<b>(A+B+C+D)</b>	<b>69.375</b>
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$$\text{CEPI SCORE} = i_{\max} + \{(100 - i_{\max}) * (i_2/100) * (i_3/100)\} = 71.82$$

## 2 AIR ENVIRONMENT

The Mettur Industrial Cluster, Salem district was monitored with respect to Ambient Air Quality and calculated for revised CEPI score. CPCB and TNPCB have finalized the location of samplings for Ambient Air Quality Monitoring stations based on the location of industries and wind direction. The monitoring was undertaken during 2018.

### 2.1 Primary and Secondary Pollutants considered for AEPI:

Based on the monitoring results CPCB has considered PM<sub>10</sub> as primary pollutant and Arsenic, PM<sub>2.5</sub> as secondary pollutants.

### 2.2 Air Quality Sampling Locations:

During the CEPI Evaluation the CPCB and TNPCB has identified the following 8 locations based on the type, location of industries and wind pattern since there were no previous data with respect to the sampling stations. Further during the post monsoon survey conducted by the TNPCB on 2019 the same sampling stations were retained.

Table 2.1

Sample Code	Name of the Monitoring Location	Latitude	Longitude
AAQ-1	Chemplast Unit-I, Mettur	11°48'21.36''N	77°19'18.97''E
AAQ-2	Chemplast Unit-III (Housing Colony), Mettur	11°49'07.98''N	77°51'17.56'' E
AAQ-3	Metro Chemical SIDCO(KarumalaiKudal), Mettur	11°48'16.70''N	77°49'47.51'' E
AAQ-4	Mettur Thermal Power Plant- Top of Fire Water Pump House, Mettur	11°46'12.32''N	77°48'36.10'' E
AAQ-5	ChemplastSanmar-II -Top of Guest House, Mettur	11°47'14.59''N	77°49'14.56'' E
AAQ-6	Raman Nagar- Mr.Krishnamoorthy's House, No.7/1-159, Mettur	11°49'31.78''N	77°50'30.71'' E
AAQ-7	SIDCO-Sivasakthi Industries KarumalaiKudal, Mettur	11°48'58.52''N	77°49'47.51'' E
AAQ-8	Mettur Thermal Poweer Station- I,Top of Continuous Ambient Air Quality Station- MTPS-I, Mettur	11°48'16.70''N	77°49'27.67'' E

### 2.3 Status of AAQ in 2018 in CEPI Area:

Ambient Air Quality survey was carried out on 24 hrs basis for three days i.e during 17<sup>th</sup> February to 4<sup>th</sup> march 2018. The mean concentration of the survey results carried out are tabulated below;

**Table 2.2**

SI. NO	POLLUTANT	UNIT	MEAN VALUE	National Ambient Air Quality Standards (NAAQs) in industrial/residential/rural and other areas	
				24 Hours	Annual
1	PM <sub>10</sub>	µg/m <sup>3</sup>	111	100	60
2	PM <sub>2.5</sub>	µg/m <sup>3</sup>	40.8	60	40
3	Arsenic	ng/m <sup>3</sup>	6.93	-	06

From the above results it is observed that the value PM<sub>10</sub> has exceeded in 4 location and for Arsenic has exceeded in 5 locations out of 8 locations than the NAAQ standards.

### 2.4 Industries Stack Emission details:

InMettur CEPI area there were 3 Nos. of Thermal Power Plants and 5 Nos. large-scale chemical industries are under operation. In addition to that there are 54 Nos. of small scale chemical units are operating in the CEPI area. The large scale industries which emit PM, NO<sub>x</sub>, SO<sub>x</sub>, Cl<sub>2</sub> for which online sensors are installed in the stacks. The industries with particular emissions like chlorine, fluorine and VOC have installed particular sensors in their premises. Detailed stack monitoring results for the 17 category and Red/large Industries are tabulated below for the period 2017-2018 and 2018-2019 and some of the unit in which survey conducted are furnished in the **Table 2.3**



**Table 2.3-Stack Monitoring Results of 17 Category and Red/Large Industries**

**1. M/s. CHEMPLAST SANMAR LIMITED, PLANT-I**

**Stack Monitoring – 2017-2018**

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	F mg/Nm <sup>3</sup>	Pollution load Kg/day
Boiler	7476	62	11.13	229	41.1	10.1	1.82	-	-	-	-
Hf-Scrubber	107.31	35	0.09	-	-	-	-	0.546	0.005	0.58	0.005

**Stack Monitoring – 2018-2019**

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	F mg/Nm <sup>3</sup>	Pollution load Kg/day
Boiler	18657	96	43	139	62.3	6.6	2.96	-	-	-	-
Hf-Scrubber	346	44	0.37	-	-	-	-	0.46	0.004	0.56	0.005

## 2. M/s. CHEMPLAST SANMAR LIMITED, PLANT-II PVC

### Stack Monitoring – 2017-2018

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/ Nm <sup>3</sup>	Pollution load Kg/day	Acid Mist mg/ Nm <sup>3</sup>	Polluti on load Kg/ day
RE 1 cy- Monomer Cracking Furnace	2313	21	1.17	56	3.11	5.7	0.32	<0.001	0		
RE 2 cy- Monomer Cracking Furnace	2070	18	0.89	72	3.58	7.8	0.39	<0.001	0		
RE 4 cy- Monomer Cracking Furnace	3398	21	1.71	67	5.46	6.1	0.5	<0.001	0		
NIRO Dryer I	12222	23	6.75	<0.5	0.15	0.87	0.26	-	-	-	-
NIRO Dryer III	28078	19	12.80	<0.5	0.34	0.96	0.65	-	-	-	-
NIRO Dryer V	38063	16	14.62	<0.5	0.46	0.69	0.63	-	-	-	-
HCL Scrubber	2306	19	1.05	-	-	-	-	<0.001	0.00	<0.5	0.03

**Stack Monitoring – 2018-2019**

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/ Nm <sup>3</sup>	Polluti on load Kg/day	Acid Mist Mg /Nm <sup>3</sup>	Polluti on load Kg/day
Waste Organic	4186	16	1.61	77	7.74	10.3	1.03	-	-	-	-
RE 3 cy-Monomer Cracking Furnace	6712	44	7.09	69	11.12	8.8	1.42	-	-	-	-
NIRO Dryer-II	34134	21	17.20	0.92	0.75	0.5	0.41	-	-	-	-
RE 1 cy-Monomer Cracking Furnace	2379	19	1.08	53	3.03	6.6	0.38	<0.001	0	-	-
RE 2 cy-Monomer Cracking Furnace	2026	22	1.07	64	3.11	8.7	0.42	<0.001	0	-	-
RE 4 cy-Monomer Cracking Furnace	3341	42	3.37	74.6	5.98	7.6	0.61	-	-	-	-
NIRO Dryer I	13300	29	9.26	<0.5	0.16	0.8	0.26	<0.001	0.00	<0.5	0.03
NIRO Dryer III	28847	23	15.92	<0.5	0.35	0.91	0.63	-	-	-	-
NIRO Dryer V	36636	37	32.53	<0.5	0.44	0.62	0.55	-	-	-	-
HCL Scrubber	2231	31	1.66	-	-	-	-	<0.001	0.00	<0.5	0.003

### 3. M/s. CHEMPLAST SANMAR LIMITED, PLANT-III CAUSTIC CHLOR

#### Stack Monitoring – 2017-2018

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Acid Mist mg/Nm <sup>3</sup>	Pollution load Kg/day
Ergo dyne Boiler	16923	48	19.50	29	11.78	10.6	4.31	-	-	-	-
Caustic Fusion Plant	4648	24	2.68	8	0.89	14.5	1.62	-	-	-	-
Hf-Scrubber	451	31	0.34	-	-	-	-	1	0.01	<0.005	0.00

#### Stack Monitoring – 2018-2019

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	F mg/Nm <sup>3</sup>	Pollution load Kg/day
Ergo dyne Boiler	840818	29	585.21	32	645.75	9.97	201.19	-	-	-	-
Caustic Fusion Plant	5446	21	2.74	2.7	0.35	11.58	1.51	-	-	-	-
HF-Scrubber	314	45	0.34	-	-	-	-	1.19	0.01	<0.005	0.00

#### 4. M/s. CHEMPLAST SANMAR LIMITED - PLANT-IV

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/ Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/ Nm <sup>3</sup>	Pollution load Kg/day	F mg/ Nm <sup>3</sup>	Pollution load Kg/day
Solvent Recovery	868	15	0.3	0	0.00	2.9	0.06	0.5	0.01	-	-

#### 5. M/s. CABOT SANMAR LIMITED.,

##### Stack Monitoring – 2017-2018

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	Cl <sub>2</sub> mg/ Nm <sup>3</sup>	Pollution load Kg/day
Thermic Fluid Heater	622	42	0.63	69	1.03	6.48	0.10	-	-
Silicon Tetra Chloride( SILTET ) Fume Extraction System	5510	18	2.38	<0.5	0.07	1.29	0.17	0.63	0.08
Fumed Silicon System ( Dust Extraction Scrubber)	5841	24	3.36	<0.5	0.07	0.37	0.05	<0.001	0.00
Fumed Silicon Dust Extraction System (Extended Calciner)	4564	28	3.07	<0.5	0.05	1.122	0.12	0	0.00

### Stack Monitoring – 2018-2019

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Polluti on load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollutio n load Kg/day	Cl <sub>2</sub> mg/ Nm <sup>3</sup>	Pollution load Kg/day
Silent Scrubber ( Silent Plant)	1551	27	1.005	<0.5	0.019	0.12	0.004	0.308	0.011
Caustic Scrubber FS Plant	806	22	0.426	<0.5	0.010	0.059	0.001	<0.001	0.000
Extraction Hygiene Scrubber Siltet	2203	26	1.375	<0.5	0.026	0.059	0.003	<0.001	0.000
Dust Extraction Hygiene Scrubber FS	4416	27	2.862	<0.5	0.053	0.42	0.045	<0.001	0.000
Fumed silica dust extraction extended calcination	4089	29	2.846	<0.5	0.049	0.985	0.097	<0.001	0.000
Furnace Diesel – I ( Thermic Fluid heater)	628	36	0.543	77.3	1.165	7.69	0.116	-	-
DG Set	1707	18	0.737	43	1.762	33	1.352	-	-
Fumed Extraction Hygiene scrubber siltet	3859	23	2.130	<0.5	0.046	1.18	0.109	0.528	0.049
Dust extraction hygiene scrubber- FS	5122	28	3.442	<0.5	0.061	0.37	0.045	<0.001	0.000
Furnace Diesel – II( Thermic Fluid heater)	1268	38	1.156	66.7	2.030	7.1	0.216	-	-
Caustic scrubber – FS Plant	261	20	0.125	<0.5	0.003	0.095	0.001	<0.001	0.000

## 6. M/s. CHEMPLAST LIMITED, COAL POWER PLANT

### Stack Monitoring – 2017-2018

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day
Common Chimney for 2 Nos of Boilers-each capacity 130 T/Hr	132550	36	114.523	229.33	729.545	10.45	33.2435

### Stack Monitoring – 2018-2019

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day
Common Chimney for 2 Nos of Boilers-each capacity 130 T/Hr	188706	39	176.63	232	1050.71	16.2	73.36

## 7. M/s. METTUR THERMAL POWERSTATION-I

### Stack Monitoring – 2017-2018

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day
Unit –I Duct A&B ( Boiler/Power Generation Unit )	694136	177	2948.7	187	3115.3	21	349.8
Unit –II Duct A&B ( Boiler/Power Generation Unit )	491365	169	1993.0	160	1886.8	17.3	204.0
Unit –III Duct A&B ( Boiler/Power Generation Unit )	563872	182	2463.0	200	2706.6	22.2	300.4
Unit –IV Duct A&B ( Boiler/Power Generation Unit )	561278	204	2748.0	227	3057.8	23.5	316.6

**Stack Monitoring – 2018-2019**

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day
Unit –I Duct A&B ( Boiler/Power Generation Unit )	391290	138	1296.0	186	1746.7	20	187.8
Unit –II Duct A&B ( Boiler/Power Generation Unit )	282695	327	2218.6	203	1377.3	24	162.8
Unit –III Duct A&B ( Boiler/Power Generation Unit )	377973	371	3365.5	230	2086.4	25	226.8
Unit –IV Duct A&B ( Boiler/Power Generation Unit )	287796	280	1934.0	192	1326.2	22	152.0

**8. M/s. METTUR THERMAL POWERSTATION II**

**Stack Monitoring – 2017-2018**

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day
Boiler:1700 T/Hrs Steaming Capacity ( Duct A&B )	1833311	57	2507.96	184	8095.90	18.3	805.19



### Stack Monitoring – 2018-2019

Stack details	Flow Rate (m <sup>3</sup> /hr)	PM mg/Nm <sup>3</sup>	Pollution load Kg/day	SO <sub>2</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day	NO <sub>x</sub> mg/Nm <sup>3</sup>	Pollution load Kg/day
Boiler:1700 T/Hrs Steaming Capacity ( Duct A&B )	6349942	38	5791.14	189	28803.39	18.8	2865.09

## 2.5 Quantification of Stack Emission Load

S.No	Company Name M/s.	Emission Sources	APC Measures provided	Stack Height Mtrs	Pollution load Kg/day (2017-2018)					Pollution load Kg/day (2018-2019)				
					PM	SO2	Nox	CL2	F	PM	SO2	Nox	CL2	F
1	ChemplastSanmar Limited, Plant-I	Boilers-1 T/Hr and 4.765 T/Hr	Stack	30	11.13	41.1	1.82	-	-	43	62.3	2.96	-	-
		HF Filling Section	Scrubber with Stack	9	0.09	-	-	0.005	0.005	0.37	-	-	0.004	0.005
2	ChemplastSanmar Limited, Plant-II PVC	EDC cracking furnace(RE-1C)	Stack	10.65	1.71	2.91	0.34	0	-	1.08	3.03	0.38	0	-
		EDC cracking furnace(RE-2C)	Stack	21	1.41	2.77	0.36	0	-	1.07	3.11	0.42	0	-
		EDC cracking furnace (RE-3C)	Stack	47	-	-	-	-	-	7.09	11.12	1.42	-	-
		EDC cracking furnace(RE-4C)	Stack	35	2.25	4.49	0.48	0	-	3.37	5.98	0.61	-	-
		Bag filter- primary Exhaust blower (NIRO I)	Bag Filters with stack	23.5	10.21	0.16	0.2	-	-	9.26	0.16	0.26	0	0.03
		Bag Filter- Primary Exhaust Blower (NIRO II)	Bag Filters with stack	21.5	-	-	-	-	-	17.2	0.75	0.41	-	-
		Bag filter - primary Exhaust blower (NIRO III)	Bag Filters with stack	25.4	18	0.35	0.45	-	-	15.92	0.35	0.63	-	-
		Bag filter - primary Exhaust blower (NIRO IV)	Bag Filters with stack	25.4	18.46	0.44	0.42	-	-	32.53	0.44	0.55	-	-
		Stack Attached with Dowtherm furnace -I- HCL Scrubber	Stack	23	0.8	-	-	0	0	1.66	-	-	0	0.003
Scrubber attached to waste organic Incinerator	Wet scrubber with stack	30	1.17	3.11	0.32	0	-	-	-	-	-	-		
3	ChemplastSanmar Limited, Plant-III Caustic Chlor	Ergodyne Boiler	Stack	26.76	19.5	11.78	4.31	-	-	585.21	645.75	201.19	-	-
		Caustic Fusion Furnace	Stack	33	2.68	0.89	1.62	-	-	2.74	0.35	1.51	-	-

		Hydro Chloric Acid Plant vent	Stack	23.5	0.34	-	-	0.01	0	0.34	-	-	0.01	0
4	Cabot Sanmar Limited	Siltet Scrubber (ST Plant)	Wet scrubber with stack	24	2.38	0.07	0.17	0.08	-	1.005	0.019	0.004	0.011	-
		Caustic Scrubber FS plant	Wet scrubber with stack	24	-	-	-	-	-	0.426	0.01	0.001	0	-
		Fume Extraction Hygiene Scrubber Siltet	Wet scrubber with stack	12	-	-	-	-	-	1.375	0.026	0.003	0	-
		Dust Extraction Hygeine Scrubber FS	Wet scrubber with stack	12	-	-	-	-	-	2.862	0.053	0.045	0	-
		Fumed Silica Dust Extraction system Ext. Calcin.	Wet scrubber with stack	12	3.07	0.05	0.12	0	-	2.846	0.049	0.097	0	-
		Furnace (Diesel)	Stack	11	-	-	-	-	-	0.543	1.165	0.116	-	-
		Fume extraction hygiene scrubber - Siltet	Wet scrubber with stack	12	-	-	-	-	-	2.13	0.046	0.109	0.049	-
		Dust extraction hygiene scrubber-FS	Wet scrubber with stack	12	3.36	0.07	0.05	0	-	3.442	0.061	0.045	0	-
		Furnace (Diesel)	Wet scrubber with stack	11	0.63	1.03	0.1	-	-	1.156	2.03	0.216	-	-
		Caustic scrubber-FS plant	Wet scrubber with stack	24	-	-	-	-	-	0.125	0.003	0.001	0	-
5	ChemplastSanmar Limited, Plant IV	Solvent Recovery unit-2	Stack	15	-	-	-	-	-	0.312	0.001	0.060	0.010	-
6	Chemplast Limited, Coal Power Plant	Boilers-2 Nos (130-TPH each)	ESP with stack	95	114.523	729.545	33.2435	-	-	176.63	1050.71	73.36	-	-
7	Mettur thermal Power Station I	2 No. Boilers. Steaming Capacity each 700T/Hr(Max)	ESP with stack	130	2948.69	3115.28	349.84	-	-	1295.95	1746.72	187.82	-	-
					1992.98	1886.84	204.01	-	-	2218.59	1377.29	162.83		
		2 No. Boilers. Steaming Capacity each 700T/Hr(Max)	ESP with stack	220	2462.99	2706.59	300.43	-	-	3365.47	2086.41	226.78	-	-
					2748.02	3057.84	316.56	-	-	1933.99	1326.16	151.96		
8	Mettur Thermal PowerStation II	Boiler steaming capacity of 1700 T/hr	ESP with stack	275	2507.96	8095.9	805.19	-	-	5791.14	28803.39	2865.09	-	-
		Total Load ( Kg/Day)		1273.71	12872.3	19661.2	2020.0	0.1	0.0	15518.8	37127.5	3878.9	0.1	0.0

## 2.6 Consolidated Stack Emission Load in CEPI Area

The consolidated report of analysis of the stack monitoring survey carried out by the Board in the industries located in Mettur CEPI Area is summarized below

S. No	Emission load	Total Stack Height Mtrs	Pollution load Kg/day (2017-2018)					Pollution load Kg/day (2018-2019)				
			PM	SO <sub>2</sub>	NO <sub>x</sub>	Cl <sub>2</sub>	F	PM	SO <sub>2</sub>	NO <sub>x</sub>	Cl <sub>2</sub>	F
1	Total in Kg/Day	1273.71	12872.3	19661.2	2020.0	0.1	0.0	15518.8	37127.5	3878.9	0.1	0.0

$$\begin{aligned} \text{Average stack height (m)} &= \text{Total Stack height/No of stacks} \\ &= (1273.3/30) \\ &= 42.45 \text{ m} \end{aligned}$$

Ground level concentration of pollutants at a distance =  $42.45 \times 10 = 424.5 \text{ m}$

## 2.7 Status of AAQ during November/December, 2019

In Mettur CEPI area Post Monsoon monitoring during the month of December 2019 was carried out in the 8 locations where the CPCB has monitored during the period of 2018 and the mean concentrations of PM 2.5, PM10, SO<sub>2</sub>, NO<sub>x</sub> is given below;

S. No	Name of the Monitoring Location	Direction	Pollution Concentration ug/m <sup>3</sup>				
			PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	As (ng/m <sup>3</sup> )
1	Chemplast Unit-I, Mettur	SWW	29	75	17	30	BDL(DL:2.0)
2	Chemplast Unit-III (Housing Colony), Mettur	WNW	14	50	32	42	BDL(DL:2.0)
3	Metro Chemical SIDCO(KarumalaiKudal), Mettur	SW	47	145	21	27	BDL(DL:2.0)
4	Mettur Thermal Power Plant- Top of Fire Water Pump House, Mettur	NE	32	92	15	30	BDL(DL:2.0)
5	Chemplast Sanmar-II -Top of Guest House, Mettur	NE	20	62	12	25	BDL(DL:2.0)
6	Raman Nagar-	N	30	76	12	26	BDL(DL:2.0)

	Mr.Krishnamoorthy'shouse, No.7/1-159, Mettur						
7	SIDCO-Sivasakthi Industries KarumalaiKudal, Mettur	S	23	67	9	19	BDL(DL:2.0)
8	MTPS-I,Top of Continuous Ambient Air Quality Station- MTPS-I, Mettur	SW	31	87	29	45	BDL(DL:2.0)
	<b>Mean Concentration</b>		28.25	81.75	18.375	30.5	BDL(DL:2.0)

## 2.7 (a) Inference of the ROA

Based on the ROA of the monitoring done, the following inference is given below;

### Ambient Air Quality Monitoring:

The presence of PM<sub>10</sub> and Arsenic concentrations were exceeded in the Ambient Air as per the CPCB report 2018. Hence Ambient Air Quality survey was conducted during December 2019 in the existing eight sampling stations and the results are as follows;

#### 1. Particulate Matter(PM<sub>10</sub>)

All the results for PM<sub>10</sub> are observed lower than the standard limit of 100 µg/m<sup>3</sup> except in the monitoring locations A3 and A4. The mean concentration on 24 hourly basis indicates that the value has exceeded in location A3. However the total mean concentration is 82 µg/m<sup>3</sup> which is below the prescribed standards.

#### 2. Particulate Matter(PM<sub>2.5</sub>)

All the results for PM<sub>2.5</sub> are observed lower than the standard limit of 60 µg/m<sup>3</sup>. It ranges between 9 µg/m<sup>3</sup> to 29 µg/m<sup>3</sup>.

#### 3. Arsenic:

Based on the AAQ survey carried out during the post monsoon period of December 2019 in 8 locations the arsenic value is below 2.0 ng/m<sup>3</sup>. The standard limit for Arsenic is 6ng/m<sup>3</sup>. During the study period 2018 the results were in the range of 2.9 ng/m<sup>3</sup> to 11.4ng/m<sup>3</sup>. Further, the source of Arsenic in the ambient air may be from the Thermal power plants (3 Nos) located in the CEPI area that is due to the presence of Arsenic in Coal naturally.

## 2.7(b) Online Monitoring Systems provided in the industries

S. No.	Name of Unit	Stack Emission	
		Parameters required to be connected	Actual parameters connected to Care Air Centre of TNPCB
<b>17 Category Industries</b>			
1	M/s. ChemplastSanmar Limited, Plant –III, Chlor Alkali,	Cl <sub>2</sub> , HCL	HCL & Chlorine
2	M/s.ChemplastSanmar ltd, Coal Power Plant ,	PM, SO <sub>2</sub> , NO <sub>x</sub> , Hg	PM, SO <sub>2</sub> , NO <sub>x</sub>
3	M/s.Mettur Thermal Power Station-I (MTPS-I),	PM, SO <sub>2</sub> , NO <sub>x</sub> ,Hg	SO <sub>x</sub> , NO <sub>x</sub> , SPM
4	M/s. Mettur Thermal Power Station – II (MTPS-II),	PM, SO <sub>2</sub> , NO <sub>x</sub> , Hg	PM,SO <sub>2</sub> &NO <sub>x</sub>
<b>Other Red Large Industries</b>			
1	M/s. ChemplastSanmar Ltd., Plant-I	-	HF monitors
2	M/s. ChemplastSanmar Ltd., Plant-II,	-	Chlorine,VOC,VCM
3	M/s. ChemplastSanmar Ltd., Plant-IV,	-	VOC
4	M/s. Cabot Sanmar Limited Plant – V	-	Chlorine

## 2.8 Conclusion:

The industries emits PM, NO<sub>x</sub>, SO<sub>2</sub>, Cl<sub>2</sub>, F and VOC either by combustion sources or from the process emissions. All the stacks of the 17 category industries are connected with sensor analysers and the data is being transmitted to CPCB/SPCB by which industries are monitored for their emissions.

During 2018 CEPI monitoring, 8 locations were identified across the Mettur industrial area. Out of which 4 AAQ locations have exceeded PM<sub>10</sub>. This may be due to MTPS power plant stack

emissions in which coal is used as a primary fuel. In general the flyash contains arsenic which may be the source of arsenic presence in the AAQ. The bottom ash contains arsenic of 0.296 mg/Kg. Now a direction has been issued to the MTPS-I to improve their ESP performance efficiency with which PM and arsenic concentration emissions will be controlled.

All the other industries emission sources have provided adequate air pollution control devices due to which their emissions are controlled.

Based on the 2019 Post monsoon Monitoring the AAQ concentration in all the locations are well below within the limit except one location i.e the reason for exceedance of the parameter is due to the contribution of Mettur Thermal Power Station-I and II.

### 3 WATER ENVIRONMENT

The Mettur Industrial Cluster, Salem district was monitored with respect to Ambient Air Quality, Ground and Surface Waters quality calculated for revised CEPI score. CPCB and TNPCB have finalized the location of samplings for Ambient Air Quality Monitoring, Surface Water and Ground Water Quality monitoring stations. The monitoring was undertaken during 2018.

#### 3.1 Primary and Secondary Pollutants considered for WEPI:

Based on the monitoring results CPCB has considered Phenol as primary pollutant and Total Phosphorous (TP) and Total Hardness as secondary pollutants.

#### 3.2 Surface Water Quality Sampling Locations:

During the CEPI evaluation the surface water samples have been collected from the upstream and downstream of River Cauvery. Further during the post monsoon survey conducted by the TNPCB on 2019 the same sampling stations were retained along with additional sampling location in between the upstream and downstream locations.

Sample Code	Name of the Monitoring Location	Latitude	Longitude
SWQ-1	Mettur Upstream, Mettur	11°47'58.91"N	77°48'20.63"E
SWQ-2	Mettur Downstream, Mettur	11°45'28.06"N	77°47'50.22"E

#### 3.3 Details of Effluent generation from major industries in CEPI Area

There are 8Nos of major trade effluent generating industries in Mettur CEPI Area. The total trade effluent generation in these industries is 46063 KLD. These industries have provided adequate effluent treatment systems in their premises individually for the treatment of trade effluent. Out of eight industries six industries has provided Zero Liquid Discharge System and the other 2 Nos namely M/s. Mettur Thermal Power Station I and M/s. Mettur Thermal Power Station II are discharging their cooling tower blow down into the ash dyke pond and the overflow is being discharged into the surplus course of River Cauvery.. The list of trade effluent generating units and the source and quantity of generation of trade effluent by the individual industries are furnished in the Table: 3.1. The trade effluents after treated by the industrial units in their ETP are disposed in the following methods.

- a. Reused in their process after treatment in their individual effluent treatment systems.
- b. Discharged into the surplus course of River Cauvery



**Table 3.1**

<b>Sl. No</b>	<b>Name of the Industry</b>	<b>Sources of Trade Effluent</b>	<b>Quantity KLD</b>	<b>Disposal method</b>
1	Chemplast Sanmar Limited, Plant-I	Cooling tower and Boiler blow downs and Floor wash	15	Recycled in their process
2	Chemplast Sanmar Limited, Plant-II PVC	Cooling tower b/d,DM regeneration, Monomer/polymer	1150	Common ZLD
3	Chemplast Sanmar Limited, Plant-III Caustic Chlor	CT blow down, Floor washing, regeneration effluent	397	Common ZLD
4	Chemplast Sanmar Limited - Plant-IV	Trade Effluent	300	Common ZLD
5	Cabot Sanmar Limited	Trade Effluent	29	Recycled in their process
6	Chemplast Limited, Coal Power Plant	DM Water Regeneration, Cooling tower Blow Down, Waste water from filtration unit, Boiler Blow Down water	312	Common ZLD
7	Mettur thermal power Station-I	Cooling tower blow down, DM plant, Ash dyke and other utility area.	35100	Surplus Course of River Cauvery
8	Mettur thermal power Station II	Cooling tower blow down and other utility area.	8760	Surplus Course of River Cauvery
<b>Total</b>			<b>46063</b>	

### **3.4 Domestic Waste Water Generation and Disposal in CEPI Area**

In Mettur CEPI area total quantity of sewage generated from major industries is 1058.5 KLD and in which treated sewage 1019.5KLD is used on land for gardening / irrigation purposes and the remaining is disposed off through septic tank and soak pit arrangements. There is no discharge of sewage into River Cauvery from the Industries. These industries have provided individual STP for the treatment of sewage and others have provided septic tank and soak pit arrangements. The details of mode of disposal treated sewage & trade effluent by the individual industries are stated in the Table-3.2

**Table-3.2**

Sl. No	Name of the Industry M/s.	Source	Sewage KLD	Disposal method
1.	Chemplast Sanmar Limited, Plant-I	Toilet & canteen	5.0	Septic tank & soak pit
2.	Chemplast Sanmar Limited, Plant-II PVC	Toilet & canteen	300.0	On land for gardening
3.	Chemplast Sanmar Limited, Plant-III Caustic Chlor	Toilet & canteen	103.0	On land for gardening
4.	Chemplast Sanmar Limited - Plant-IV	Toilet & canteen	16.5	On land for gardening
5.	Cabot Sanmar Limited	Toilet & canteen	16.0	Septic tank & soak pit
6.	Chemplast Limited, Coal Power Plant	Toilet & canteen	18.0	Septic tank & soak pit
7.	Mettur thermal power Station-I	Toilet & canteen	300.0	On land for gardening
8.	Mettur thermal power Station II	Toilet & canteen	300.0	On land for gardening
<b>Total</b>			<b>1058.5</b>	

### 3.5 Industrial and Domestic Wastewater impact on Surface Water Bodies:

#### Trade Effluent:

- Total Trade effluent disposed is 43860 KLD (MTPS I & II).
- Out of Major 8 Nos of industries 6Nos of industries are generating trade effluent of 2203 KLD. In the entire quantity of 2203 KLD is being treated through a ZLD system and reused in the process. There is no discharge of effluent from the 6 Nos. of M/s. Chemplast Sanmar Group of industries.
- The trade effluent generated from the M/s. Mettur Thermal Power Stations I (MTPS-I) and M/s. Mettur Thermal Power Stations II (MTPS-II) are being discharged into the ask dyke pond and the overflow from the pond is being discharged into the surplus course of River Cauvery which confluence with the River. However the parameters are well within the inland surface water standards prescribed by the Board.

## Sewage:

- There is no sewage discharge into River Cauvery from the industries. Out of Major 8 Nos of industries 5Nos of industries have provided individual sewage treatment plant/common STP to treat and dispose the treated sewage for on land irrigation/gardening. Remaining units have provided septic tank and soak pit arrangements thus the industries does not dispose sewage into the River.

### Pollution Control Measures Installed by the Industries

The trade effluent generated by the industries is treated in the individual effluent treatment systems and the methodology of treatment is based on the characteristic of the effluent. The treatment components of the effluent treatment plants provided by the industrial units are mentioned for each industrial unit's separately.

#### 1. M/s. Chemplast Sanmar Limited, Plant-I

Treatment Status: Name of the STP Treatment Unit Components			
S.No	Name of the Treatment Unit	No. of Units	Dimension
1	Septic Tank	4	3.5x4.5x2.25
2	Soak Pit	4	1.5x1.5x1.5

Treatment Status: Individual ETP			
S.No	Name of the Treatment Unit	No. of Units	Dimension
1	Neutralisation Tank	1	5.9x4.27x0.96
2	Settling Tank	2	3.1x2.95x1
3	Treated effluent collection tank	1	3.15x6x1

#### 2. CHEMPLAST SANMAR LIMITED, PLANT-II

S.No	STP Components	Qty in Nos	Dimensional Details in Meters
1.	Scooter shed sewage sump	1	4.5x3.0x1.7
2.	Hostel/lorry shed sewage sump	1	11.0x8.0x2.5
3.	Canteen Sewage sump	1	8.6x6.0x2.0
4.	Raw sewage collection tank	1	2.05 diax2.70
5.	Aeration tank	1	11x11x2.5
6.	Sewage water Clarifier	1	6.0diax2.45
7.	Clarifier overflow collection sump	1	2.44x3.0x0.95

8.	Pressure Sand filter	1	1.8Diax2.0
9.	Treated sewage collection tank	1	9.4diax6.00
10.	Sewage sludge drying pit	1	7.7x5.35x0.90

### ETP COMPONENTS

S. No	ETP Components	Qty in Nos	Dimensional Details in Meters
1	Settling tank	7	2.4x0.9x2
2	Effluent collection tank	3	3.63x1.2x1.2
3	Equalisation Tank	2	11x4x2
4	Flash mixer	1	1.37x1.37x1.2
5	Lime dosing tank	2	1.6Diax1.1
6	PAC dosing tank	1	1.2Diax1.1
7	Flocculator	1	3.2Diax1.8
8	Poly electrolyte dosing tank	1	1.6Diax1.1
9	Primary clarifier	1	8Diax2.5
10	Secondary clarifier	1	10Diax3.75
11	Secondary clarifier overflow sump (tank)	1	3.4x2x1.5
12	Pressure sand filter old	1	1.7Diax2.4
13	Pressure sand filter	1	1.6Diax2.5
14	Pressure sand filter New	1	1.6Diax2.5
15	Thickener	2	4.25Diax3.05
16	Sludge drying bed with leachate collection	2	8.1x4.2x0.6
17	Sludge drying bed with leachate collection	2	8.5x4.5x0.6
18	Sludge drying bed with leachate collection	2	6.2x4.5x0.6
19	FBD Effluent holding tank	1	4.65x2x1.75
20	FBD pressure sand filter	1	1.8Diax2
21	Treated effluent storage tank	1	2.5x3
22	Effluent holding tank	5	12x7.5x1.8
23	Polishing clarifier -Flash mixer	1	2x1x2
24	Polishing clarifier - Flocculator	1	4x2x2
25	Alum dosing tank	1	1.6Diax1.25
26	Poly electrolyte dosing tank	1	1.6Diax1.25
27	Lye dosing tank	1	2.6Diax1.25
28	Soda ash dosing tank	1	1.6Diax1.1
29	Polishing clarifier	1	10 Diax3.5
30	Treated effluent holding tank	2	12x7.4x1.8
31	Sludge drying bed with leachate	2	10x4.5x1

	collection		
32	Sludge drying bed with leachate collection	1	7.15x4.5x1.1
33	Sludge drying bed with leachate collection	1	8.65x4.5x1.1
34	ZLD COMPONENTS		
35	Equalisation tank	1	8x8x3.2
36	Coagulant dosing system- DAF complete with tank	1	1 Diax1 L
37	Polymer dosing system- DAF complete with tank	1	1 Diax1 L
38	Stripper feed tank	1	4x4x3.2
39	Stripping tower	1	1.5Diax6.4 L
40	Stripper catch tank	1	8x4x3.2
41	Lime preparation tank	1	3.5x3.5x1.5
42	Lime dosing tank	1	3.5x3.5x1.5
43	Soda preparation tank	1	2.5x2.5x1.5
44	Soda dosing tank	1	2.5x2.5x1.5
45	Soild contact clarifier & Mechanism for solid cont	1	10 Diax4.5 SWD
46	Filter Feed tank	1	4x4x3.2
47	Thickener & Mechanism	1	5 Diax4.5 SWD
48	Coagulant dosing system- SCC complete with tank	1	1 Diax1 L
49	Polymer dosing system- SCC complete with tank	1	1 Diax1 L
50	Hypochlorite dosing system-SCC complete with tank	1	1.2 Diax1.5 L
51	Polymer dosing system- thickener complete with tank	1	1 Diax1 L
52	Backwash water tank	1	6x6x3.2
53	Sludge collection tank	1	4x4x2
54	PH correction dosing system (Acid) at filter inlet	1	1.0Diax1 L
55	Pressure filter stage I	2	3.6Diax2 L
56	Pressure filter stage II	2	3.0Diax2.5 L
57	Sodium meta bisulfate dosing system with tank	1	1Diax1L
58	Softener Unit	2	2.6Diax2.5 L
59	Hardness removal unit	2	2.0Diax3 L
60	Regenerant Acid system for HRU unit complete tank	1	1.6Diax1.5 L
61	Regenerant Alkali system for HRU unit complete tank	1	1.6Diax1.5 L
62	Regenerant Brine system for HRU unit complete tank	1	2 Diax2.2 L

63	PH correction dosing system(Acid)at degasser tower	1	1.2Diax1.5 L
64	Degasser tower	1	1.4Diax3.3 L
65	Degassed water storage tank	1	4 Diax6 L
66	PH correction dosing system(Caustic) at HERO inlet	1	1 Diax1 L
67	RO clean up tank with agitator	1	2 Diax2.2 L
68	PH correction dosing system(Acid)at HERO permeate	1	1 Diax1 L
69	Distillate stripping tower	1	0.6Diax 5 L
70	Reject water storage tank	1	2x2x3
71	Waste recycle tank	1	8x8x3.2
72	RO Stage -I	1	8 Inch - 10modules
73	RO stage-II	1	8 Inch -5 Modules
74	Mechanical Vapour Compression (MVC) Evaporator	2	132 KL per day Each

### 3. CHEMPLAST SANMAR LIMITED, PLANT-III CAUSTIC CHLOR

S. No.	ETP Components	Qty in Nos	Dimensional Details in Meters
1.	Equalisation tank	2	7.0 X 5.0 X 3.0
2.	Sodium Hydroxide storage tank	1	5.0 Cubic meter
3.	Clarifier	1	5.0 Dia X 3.0 Ht
4.	Pumps to ZLD	2	20 m3 /hr capacity
5.	ETP Collection pit	1	8.20 X 6.10 X 1.30
6.	Auto pH equipment	1	--
7.	Final collection tank	6	6.40 X 5.20 X 1.80
8.	pumps	7	15 m3 /hr capacity
9.	Hydrochloric acid storage tank	1	5.0 Cubic meter
10.	Sludge Drying beds	5	9.85 X 4.45 X 1.47
11.	Sludge Drying Beds	2	5.30 X 4.50 X 1.0
<b>STP Components</b>			
1.	Primary collection tank	1	9.5 X 8.5 X 2.5
2.	Aeration tank	1	12.0 X 5.0 X 3.0

3.	Clarifier	1	5.0 X 3.0
4.	Collection tank	1	5.0 X 4.3 X 3.9
5.	Final collection tank	1	4.0 X 4.0 X 2.0
6.	Activated carbon filter	1	1.0 Dia x 2.0 Ht
7.	Sand filter	1	1.0 Dia X 2.0 Ht
8.	Sludge drying bed	4	2.0 X 2.0 X 1.0
9.	Intermediate Treated water tank	1	4.3*2.5*2.75
10.	Filter Press	2	Capacity- 2 Ton each

#### 4.CHEMPLAST SANMAR LIMITED - PLANT-IV

S. No	Name of the STP Treatment Unit Components	Qty in Nos	Dimensional Details in Meters
1.	Septic Tank.	2	2.0*5.50*2.5
2.	Soak Pit	03	2.0 dia*3.0 depth

#### ETP COMPONENTS

S. No.	ETP Components	Qty in Nos	Dimensional Details in Meters
1.	Equalization tanks	2	7.0x5.0x1.75
2.	Flocuculent dosing tank	1	1 dia x1.5
3.	Filter feed tank	1	1.46 Dia x 2.1
4.	Filter water receiving tank	2	2 Dia x 4.0
5.	Filter press	1	40 Plates (915 mm)
6.	Collection cum neutralization tank	1	4.45x4.15x1.4
7.	Reactor ash storage	1	4.45x4.15x1.4
8.	Reactor tank	1	1.8 dia x2.0
9.	Caustic Dosing tank	1	1.75 Dia x2.15

## 5. CABOT SANMAR LIMITED

S. No	Name of the STP Treatment Unit Components	Qty in Nos	Dimensional Details in Meters
1.	Septic tank	1	5.5 x2.5 x1.5
2.	septic tank	1	3 x1.5 x 1.5
3.	soak pits	2	1.5 dia x 1.5 depth

## ETP COMPONENTS

S.No.	Effluent Treatment Plant Components	Quantity	Dimension details
1.	Equalization tank	2	7 x5 x1.75
2.	Reaction tank	1	1.8 x2
3.	caustic dosing tank	1	1.75 x2.15
4.	Flocculent dosing tank	1	1 x1.5
5.	Filter feed tank	1	1.46 x2.1
6.	Filter water receiving tank	2	2x4.04 ; 2 x1.5
7.	Filter press - 40 plates	2	915 mm x915 mm
8.	collection cum neutralization tank for silica gel	1	6.35 x3.6 x2.4
9.	Reactor ash storage pit	1	4.45 x4.15 x1.4

## 6. CHEMPLAST LIMITED, COAL POWER PLANT

S. No.	ETP Components	Qty in Nos	Dimensional Details in Meters
1.	Neutralization pit	2	6.5x5.0x3.75
2.	pre-treatment pit	1	18x17.2x10.8
3.	ZLD Plant common facility	1	127mx65m

## Sewage Treatment Plant equipment details

S. No.	STP Components	Qty in Nos	Dimensional Details in Meters
1.	Septic Tank 1	1	5x2x2.5
2.	Septic tank 2	1	4x4x2.5



## 7. METTUR THERMAL POWER STATION-I

S. No.	STP Components	Qty in Nos	Dimensional Details in Meters
1.	Septic tank	10	3.00x2.00x2.80
2.	Septic tank	4	3.75 x2.30x2.30
3.	Septic tank	4	3.50x2.00x2.50
4.	soak pit	18	2.00x2.00x1.00

### Treatment status: Individual STP

S. No.	STP Components	Qty in Nos	Dimensional Details in Meters
1.	Bar Screen Chamber	1	1.00x0.50x0.80
2.	Aeration tank	1	3.00x1.50x3.30
3.	Equalisation tank	1	3.00x2.00x3.30
4.	Settling tank	1	3.00x1.50x3.30
5.	Filter Feed tank	1	3.00x1.50x3.30
6.	Sludge drying bed	1	2.00x1.00x1.00
7.	Filter water tank	1	3.00x2.00x1.50
8.	Septic tank	1	6.10 x 2.40 x 3.00
9.	Septic tank	1	12.85x3.40x3.00
10.	Pressure sand filter	1	1.30 x 1.80( diaxh)
11.	Activated Carbon filter	1	1.30 x 1.80( diaxh)

### Combined ETP Components

S. No.	ETP Components	Qty in Nos	Dimensional Details in Meters
1.	Lamella Clarifier	1	4x5.5x4.5
2.	Non oily Sludge pit	1	2.6x2.6x1.5
3.	oily sludge pit	1	1.5x2.3x1.6
4.	Tilted plate interceptor	2	0.75x1.2
5.	Central monitoring basin	2	30x30x2.25

## 8.METTUR THERMAL POWER STATION-II

S. No.	STP Components	Qty in Nos	Dimensional Details in Meters
1.	Septic tank	1	1.5x0.75x1.05
2.	Anaerobic upflow filter	1	1.8x2.0x1.4
3.	Treated water collection tank	1	1.5x1.0x1.0
4.	Common treated water collection tank	1	12x6x2.5

### Combined ETP Components

S. No.	ETP Components	Qty in Nos	Dimensional Details in Meters
1.	Lamella Clarifier	1	4x5.5x4.5
2.	Non Oily Sludge Pit	1	2.6x2.6x1.5
3.	Oily Sludge pit	1	1.5x2.3x1.6
4.	Tilted Plate Interceptor	2	0.75x1.2
5.	Central Monitoring Basin	2	30x30x2.25

### STATUS OF ONLINE CONTINUOUS EFFLUENT MONITORING SYSTEM

S. No.	Name and address of Unit	Effluent Quality Monitoring	
		Parameters required to be connected	Actual parameter connected to Water Quality Watch Centre of TNPCB
<b>17 Category Industries</b>			
1	M/s. Chemplast Sanmar Limited, Plant –III, Chlor	pH, TSS	Combined ZLD system with IP Camera
2	M/s.Chemplast Sanmar ltd, Coal Power Palnt	pH, TSS, Temperature	IP Camera for monitoring of ZLD status & Flow meters readings
3	M/s.Mettur Thermal Power Station-I (MTPS-I),	pH, TSS, Temperature	pH, TSS, Temperature
4	M/s. Mettur Thermal Power Station – II (MTPS-II),	pH, TSS, Temperature	Flow, pH, TSS & Temperature

<b>Other Red Large Industries</b>			
1	M/s. Chemplast Sanmar Ltd., Plant-I	-	Flow meters with computer recording
2	M/s. Chemplast Sanmar Ltd., Plant-II,	-	ZLD system with IP Camera
3	M/s. Cabot Sanmar Limited Plant – V		Flow meters

### 3.6 Common Treatment Facilities details:

There are no common treatment facilities for trade effluent and sewage generated from industries in the Mettur CEPI area.

### 3.7 Status of Surface Water Quality in 2018 in CEPI Area:

Surface Water Quality Monitoring was carried out in two locations for three days i.e during 18<sup>th</sup> February to 23<sup>rd</sup> February 2018. The mean concentration of the monitoring results pertaining to the specific parameters considered for evaluation of CEPI score is tabulated below;

SI. NO	PARAMETER	UNIT	MEAN	Standards
1	Total Phosphorous	mg/l	<b>0.131</b>	<b>0.3</b>
2	Total Hardness	mg/l	<b>162.33</b>	<b>600</b>
3	Phenols	mg/l	<b>BDL</b>	<b>0.01</b>

From the above results it is observed that the values are well within the standards. Thus the surface water quality has not been affected due to the industries located in the CEPI area.

### 3.8 Status of Surface Water Quality during November/December, 2019

During the post monsoon survey conducted by the TNPCB on 2019 the same sampling stations were retained along with additional sampling location in between the upstream and downstream locations

Code	Location	Latitude	Longitude
SW1	River Cauvery – Mettur Dam Up Stream	11°47'58.91"N	77°48'20.63"E
SW2	River Cauvery – Mettur Dam Down Stream	11°45'28.06"N	77°47'50.02"E
<b>Additional Sampling location</b>			
SW3	MTPS Raw water pump house	11°46'28.8"N	77°48'08.7"E

Based on the analysis report the values of the specific parameters are given below;

SI. NO	Parameter	Unit	Mean	Standards
1	Total Phosphorous as P	mg/l	0.0065	0.3
2	Total hardness	mg/l	108.33	600
3	Phenols	mg/l	BDL	0.01

### 3.9 Inference of the ROA

Based on the ROA of the monitoring done, the following inference is given below;

#### A. Surface Water Quality:

In the surface water, the concentration total phosphorous, Total Hardness and Phenolic compounds were considered to calculate the score. However as per the CPCB's evaluation all the sampling locations were within the prescribed limits. In addition to the existing two sampling stations located in the impact zone, one more surface water sampling station was identified in the CEPI corezone which was already given in the table above.

Water analysis Results are compared against CPCB, 2002, Water Quality Criteria and Goals, Monitoring of Indian National Aquatic Resources Series: MINARS/17/2001-2002).and Drinking Water Standards IS: 10500-1991

#### 1) Total Phosphorous:

Total phosphorous in the surface water collected in 3 samples was found to be in below detectable limit. The prescribed standard is 0.3 mg/L

#### 2) Total Hardness:

Total hardness in the surface water collected in 3 samples was found to be in below prescribed standard value of 600 Mg/L.

#### 3) Phenolic compounds:

Phenolic compounds in the surface water in 3 samples were found to be in below detectable limit. The prescribed standard is 0.01 mg/L

### **3.10 Conclusion:**

During CPCB CEPI monitoring 2018 two surface water samples collected in the upstream and downstream. Both upstream and downstream sample results for Total phosphorous, Total Hardness and Phenol which are well below within the limit of IS 10500 drinking water standards. No sewage from the industries are discharged into the Cauvery River. The unit of M/s.Mettur Thermal Power Station Plant I and Plant II's cooling tower blow down which is passed through the ash dyke pond and finally discharged into surplus course of river Cauvery. It has been observed that no pollution in the river was observed because of the discharge of the cooling tower water from MTPS I & II.

## 4. LAND ENVIRONMENT

The Mettur Industrial Cluster, Salem district was monitored with respect to Ambient Air Quality, Ground and Surface Waters quality calculated for revised CEPI score. CPCB and TNPCB have finalized the location of samplings for Ambient Air Quality Monitoring, Surface Water and Ground Water Quality monitoring stations. The monitoring was undertaken during 2018.

### 4.1 Primary and Secondary Pollutants considered for GWEPI:

Based on the monitoring results CPCB has considered Phenol as primary pollutants and BOD and TKN as secondary pollutant.

### 4.2 Ground Water Quality Sampling Locations:

During the CEPI Evaluation 8 Nos of ground water sampling locations have been identified based on the location of the industries and public grievance in which 3 Nos are openwell and 5 Nos are borewell samples. Those 3 Nos of openwells are unused wells due to which all the criteria parameter has exceeded. In the 5 Nos of borewell sampling locations BOD has got detected since there is no drinking water standard and hence cannot be used for calculate CEPI. Further during the post monsoon survey conducted by the TNPCB on 2019 the additional sampling location was added to the existing locations. The locations of the ground water samples collected during 2018 is given below;

Sample Code	Name of the Monitoring Location	Latitude	Longitude
GWQ-1	Mottur - Konur Village Bore Well Water, Mettur	11°19'27.04'' N	77°51'13.31'' E
GWQ-2	SIDCO- Karumalai Kudal (KSB Paramasivam Water Service Station) Bore Well Water, Mettur	11°48'13.10'' N	77°49'34.67'' E
GWQ-3	Kozhi Pannai ( Mr.Maari Gounder's House) Open well Water, Mettur	11°49'38.05'' N	77°50'29.92'' E
GWQ-4	Vellakal Maduvu (Thippam Patti - Sellammal) Bore Well Water, Mettur	11°50'08.80'' N	77°50'45.37'' E
GWQ-5	Mottur Karungaradu (Mr. Andiyappan Goundar's House) Open well Water, Mettur	11°49'15.22'' N	77°15'15.37'' E

GWQ-6	Chittangadu (Mr. Kunian S/O Angappan's House) Bore Well Water, Mettur	11°48'58.57'' N	77°51'36.97'' E
GWQ-7	Kunjandiyur ( Mr.Markandeyan S/O Ardhanari Goundar's House) Bore Well Water, Mettur	11°48'49.01'' N	77°51'06.50'' E
GWQ-8	Mettur Ramamoorthi Nagar Open well Water, Mettur	11°48'59.99'' N	77°49'44.85'' E

### 4.3 Status of Ground Water Quality Locations in 2018:

Ground Water Quality Monitoring was carried out in 8 locations for 4 days i.e between 17<sup>th</sup> February to 23<sup>rd</sup> February 2018. The mean concentration of the monitoring results pertaining to the specific parameters considered for evaluation of CEPI score is tabulated below;

SI. NO	PARAMETER	UNIT	MEAN	Standards
1	BOD	mg/l	<b>11.75</b>	<b>3.92</b>
2	Total kjeldal Nitrogen	mg/l	<b>4.31</b>	<b>1.00</b>
3	Phenols	mg/l	<b>0.06</b>	<b>0.001</b>

From the above results it is observed that the values TKN and Phenols have exceeded the drinking water standards.

### 4.4 Status of Ground Water Quality during November/December, 2019

During the post monsoon survey conducted by the TNPCB on 2019 the same sampling stations were retained along with additional 4 Nos of sampling location were identified in which 2 Nos of, locations falls in impact zone

Sl.No	Location- Ground Water	Latitude	Longitude
GW1	Openwell at KarumalaiKudal	11°48'13.104''N	77°49'34.668''E
GW2	Openwell at Ramamoorthy Nagar,	11°48'50.226''N	77°49'42.384''E
GW3	Openwell at Kozhipannai	11°49'38.046''N	77°50'29.928''E
GW4	Openwell at Vellakalmaduvu	11°50'8.802''N	77°50'45.372''E
GW5	Borewell at Mottur Village	11°49'27.036''N	77°51'13.314''E
GW6	Openwell at MotturKarungaradu	11°49'15.222''N	77°51'15.372''E

GW7	Openwell at Chittangadu	11°48'58.572"N	77°51'36.972"E
GW8	Openwell at Kunjandiyur	11°48'49.014"N	77°51'6.504"E
<b>Additional Sampling Locations</b>			
GW9	Open well at Uthandivalavu, Virudasampatti, Mechery Town Panchayat	11.8112948	77.8753994
GW10	Open well owned by Thiru.Ponnusamy	11.8467645	77.8480965
GW11	Bore well owned by Thiru. Murugan, Kavipuram	11.8064718	77.8169376
GW12	Bore well at Periyarnagar, Thangamuripattinam	11.7950942	77.8203973

Based on the analysis report the values of the specific parameters are given below;

Sl. NO	Parameter	Unit	Mean	Standards
1	BOD	mg/l	<b>BDL</b>	<b>3.00</b>
2	Total kjeldal Nitrogen	mg/l	<b>1.6</b>	<b>1.00</b>
3	Phenols	mg/l	<b>BDL</b>	<b>0.001</b>

From the monitoring results it is observed that all the values are well within the standard limits.

#### 4.4(a) Inference of the ROA

Based on the ROA of the monitoring done, the following inference is given below;the parameters which are compared with IS 10500:1991 Drinking water specifications.

##### 1. **BOD**

The values are observed to be below detectable limit of <2 mg/L wherein the standard limit (3 mg/L)

##### 2. **TKN:** The values are observed to be exceeded theprescribed standard limit (1.0 mg/l.)in all the samples

##### 3. **Phenolic compounds**Phenolic compounds in the ground water were found to be in below detectable limit.



#### 4.5 Management of Hazardous Wastes in CEPI Area:

The Industries which are generating hazardous wastes in the CEPI area has been issued with Authorization under Hazardous Waste Management Rules..

The details of the individual industries for 2017 – 2018 are listed as below

S. No	Hazardous Wastes Management 2017-2018										
	Name of the Industry	Category	Type	Authorised	Quantity Generated	Quantity accumulated	Quantity Disposed	Type of Disposal			
								Onsite SLF	TSDF -SLF	Recyclable	Incinerable
1	Chemplast Sanmar Limited, Plant-I	35.3	Chemical Sludge from waste water treatment	25	0	0	0	0	0	0	0
2	Chemplast Sanmar Limited, Plant-II -PVC	5.1	Used or Spent Oil	25	8.69	0	8.69	0	0	8.69	0
		22.2	Process Residues	1800	1493.32	32.07	1461.25	0	0	0	1461.25
		35.3	Chemical Sludge from waste water treatment	250	123.11	0	123.11	123.11	0	0	0
		22.1	Spent Catalysts	2	0	5.95	5.95	5.95	0	0	0

3	Chemplast Sanmar Limited, Plant-III - Caustic Chlor Alkali	16.3	Brine Sludge	2100	1401.85	0	1401.85	1401.85	0	0	0
		35.3	Chemical Sludge from waste water treatment	30	18.61	0	18.61	18.61	0	0	0
		20.3	Distillation residue	185	116.57	0	116.57	0	0	0	116.57
		5.1	Used Spent Oil	30	4.66	0	4.66	0	0	4.66	0
4	Cabot Sanmar Limited	17.1	Residue, Dust Filter cakes	175	48.79	0	48.79	48.79	0	0	0
		5.1	Used /Spent Oil	10	1.47	0	1.47	0	0	1.47	0
5	Mettur Thermal Power station-I	5.1	Used /Spent Oil	10	4.66	0	4.66	0	0	4.66	
6	Mettur Thermal Power station-II	5.1	Used /Spent Oil	10	5.809	0	5.809	0	0	5.809	0
			Total		3276.329	38.02	3250.209	1647.1	0	25.289	1577.82

Hazardous Wastes Management 2018-2019											
S. No	Name of the Industry	Category	Type	Authorized	Quantity Generated	Quantity accumulated	Quantity Disposed	Type of Disposal			
								Onsite SLF	TSDF-SLF	Recyclable	Incinerable
1	ChemplastSanmar Limited, Plant-I	35.3	Chemical Sludge from waste water treatment	25	0	0	0	0	0	0	0
2	ChemplastSanmar Limited, Plant-II - PVC	5.1	Used or Spent Oil	25	11.65	0	11.65	0	0	11.65	0
		22.2	Process Residues	1800	1437.1	71.8	1365.3	1365.3	0	0	0
		35.3	Chemical Sludge from waste water treatment	250	136.21	0	136.21	136.21	0	0	0
		22.1	Spent Catalysts	2	5.92	0	5.92	0	0	0	5.92
3	ChemplastSanmar Limited, Plant-III -Caustic Chlor Alkali	16.3	Brine Sludge	2100	1417.49	15.64	1401.85	0	1401.85	0	0
		35.3	Chemical Sludge from waste water treatment	30	18.87	0	18.61	0	18.61	0	0
		20.3	Distillation residue	185	110.24	0	116.57	0	0	0	116.57

		5.1	Used Spent Oil	30	3.38	0	4.66	0	0	4.66	0
		17.1	Residue, Dust Filter cakes	175	60.05	0	60.05	60.05	0	0	0
4	Cabot Sanmar Limited	5.1	Used /Spent Oil	10	1.47	0	1.47	0	0	1.47	0
5	Mettur Thermal Power station-I	5.1	Used /Spent Oil	10	4.66	0	4.66	0	0	4.66	0
6	Mettur Thermal Power station-II	5.1	Used /Spent Oil	10	4.718	0	4.718	0	0	4.718	0
			<b>Total</b>		<b>3271.808</b>	<b>87.44</b>	<b>3191.718</b>	<b>1621.61</b>	<b>1420.46</b>	<b>27.158</b>	<b>122.49</b>

### **Sources of Soil Contamination:**

The industries located within Mettur are storing their hazardous & other wastes in a proper container in a closed dedicated shed to prevent the leachates reaching the aquifer. M/s.Chemplast samar group has provided onsite SLF and they are disposing their hazardous wastes in the SLF. Now these units have proposed to send the Hazardous wastes to TSDF.

### **4.6 Management Bio Medical Wastes in CEPI area**

The Hospitals located in the Mettur CEPI area and some clinics are located in that area were disposing their biomedical wastes to the common bio medical waste treatment facility for final treatment and disposal.

### **4.7 Management of Municipal Solid Waste in CEPI area:**

There is no Municipal Solid Waste disposal facility within CEPI core area. The proper scientific way of door to door collection, segregation, disposal facilities is to be provided so as to improve the status of air Quality, ground water quality and general aesthetic condition of industrial areas.

### **Electronic waste:**

No industry generates E-waste in considerable quantity in the . However, all the industries which generate E-waste in small quantities are disposing to authorized recyclers only.

### **4.8 Details of STPs/ETPs/CETPs:**

There is no common treatment plant facilities for the total quantity of sewage /trade effluent generated from the industries in CEPI area

### **4.9 Conclusion:**

During CPCB CEPI sampling 8 ground water sampling locations are identified and all of the locations are openwell. It has been observed that all the said wells are unused wells and combined with waste materials. Hence, there is a possibility of detection of the parameters BOD, TKN and Phenol with high concentration. Hence along with these unused locations additionally 4 more locations were included. The samples were collected in those wells observed very low concentration of BOD and Phenol and these parameters were not detected in any of these samples except for TKN. During 2019 Post monsoon sample collection on the same 12 locations in which all the CEPI parameters are well within the limits of IS 10500 drinking water standards which clearly indicates that there is improvement in the ground water quality.

## 5. INFORMATION ON HEALTH STATISTICS IN PIA

### 5.1 Hospital Details in CEPI Area:

The following are the list of hospitals located in Mettur CEPI Area

- a) Government Head Quarters Hospital, Mettur
- b) Government Primary Health Centre, Kolathur
- c) Government Urban Primary Health Centre, Mettur Dam
- d) Government Urban Primary Health Centre, Komburankadu
- e) Sri Balaji Hospital
- f) Sathya Hospital
- g) Thagavelu Hospital

### 5.2 Health Statistics Report obtained in and around the Mettur Area

S.No	Details	Particulars						
1	Name of the polluted industrial area (PIA)	Mettur Thermal Power Plant, Mettur Dam						
2	Name of the major health center / organization	GPHC, Kolathur						
3	Name and designation of the contact person	DR.S.Vimala, MBBS, The Block Medical Officer						
4	Address	UGPHC, Kolathur						
5	Year of establishment	1962						
Sl. No	Air Borne Diseases	No. of patients reported for the years						
		2018-2019	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013
1.	Asthma	44	43	22	24	21	25	24
2.	Acute Respiratory Infection	3	4	34	35	32	28	26
3.	Bronchitis	55	58	27	28	25	24	21
4.	Cancer	0	0	nil	nil	nil	nil	nil
	<b>Water Borne Diseases</b>							
5.	Gastroenteritis	48	52	29	26	27	25	24
6.	Diarrhea	22	24	35	34	32	21	28
7.	Renal diseases	0	0	nil	nil	nil	nil	nil
8.	Cancer	0	0	nil	nil	nil	nil	nil

S.No	Details	Particulars						
1	Name of the polluted industrial are (PIA)	Mettur Thermal Power Plant,Mettur Dam						
2	Name of the major health center / organization	UPHC,Mettur dam						
3	Name and designation of the contact person	Dr.S.Govindan ,MBBS, The Medical Officer						
4	Address	UPHC,Mettur dam						
5	Year of establishment	2012						
Sl. No	Air Borne Diseases	No. of patients reported for the years						
		2018-2019	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013
1.	Asthma	22	24	22	24	21	25	24
2.	Acute Respiratory Infection	1	2	34	35	32	28	26
3.	Bronchitis	33	41	27	28	25	24	21
4.	Cancer	0	0	nil	nil	nil	nil	nil
	<b>Water Borne Diseases</b>							
5.	Gastroenteritis	35	36	29	26	27	25	24
6.	Diarrhea	11	12	35	34	32	21	28
7.	Renal diseases	0	0	nil	nil	nil	nil	nil
8.	Cancer	0	0	nil	nil	nil	nil	nil

### 5.3 Analysis of Data & Conclusion

From the above table it is observed that based on the consolidation of Air borne diseases and Water Borne diseases it reveals that there is a decrease in number of patients in both cases with an average percentile of 6 %.

S.No	Type of Diseases	2018-2019	2017-2018	Decrease in %
1	Air Born Diseases	158	172	8.86
2	Water Borne Diseases	116	124	6.90

## **6. ACTION TAKEN DURING 2018-2019 & 2019-2020**

### **6.1 Action taken by Industries in CEPI Area for the improvement of Pollution Control Measures**

#### **a) Environmental Improvements carried out by M/s. Chemplast Group of Companies at Mettur**

1. Process Safety Audit was carried out at Plant-I and III during 2018-19 and the recommendations were implemented at the cost of Rs.465 Lacs
2. Environmental surveillance Study covering Air, Water and Soil survey has been carried out by an External Agency (having MoEF accreditation) to assess the “Signature presence” of raw materials/intermediates/ product manufactured by Chemplast units in the surround area of the plants to the radius of 2 KM..
3. Nearly 760 tree saplings were done during 2018-19 in all Sanmar plants of Mettur
4. Chemplast Sanmar Plant-III has started disposing its hazardous wastes to TSDF at Virudhunagar from Feb -2019 onwards (Quantity disposed in 2018-19: 970 MT)
5. Chemplast Sanmar Plant-II has installed two VCM monitors at the working area to monitor fugitive emission of VCM
6. Chemplast Sanmar Plant-I has incinerated R-23 thus averting 204984t of CO<sub>2</sub> emission during 2018-19
7. Chemplast Sanmar Plant-III has implemented ZERO GAP technology in its membrane plant for Caustic soda production thus reducing the energy to the tune of 34818 GJ during 2018-19
8. Chemplast Sanmar Plant IV has installed 2 Nos of Ambient VOC sensors in its premises.
9. Installation of micro-turbine in Caustic soda process steam line during 2018-19 , thus generation of low voltage power of 225 kWh with zero heat addition resulted 34818 GJ energy saving.
10. Quantitative Risk Assessment has been carried out at Cabot Sanmar& the recommendations have been implemented
11. Spent Catalyst stored at Plant-II has been disposed to TSDF at Gummidipoondi after getting approval from the Board.

#### **b) Environmental Improvements carried out by Mettur Thermal Power Station- I**

- The total Plant area of MTPS - I is 1340.53 Acres.
- The green belt area had been developed to an extent of 184.60 Acres.
- The present green belt area is 13.77% of the total area.
- To fulfill the norms of 33% of the total area with indigenous native tree species in accordance



with CPCB guidelines, further Green belt development has been proposed in an additional area of 346 Acres in co-ordination with local forest department .

➤ The target plan:

Area to be developed	Year
100 Acres	2019-2020
100 Acres	2020-2021
146 Acres	2021-2022

- 5240 tree saplings have been planted at MTPS - I premises during the month of June, July and August of this year 2019.
- 300 tree saplings have been planted at the employees residential quarters areas to mark the Independence day celebrations 2019.
- The continuous online Effluent monitoring system has been installed at the effluent outlet of MTPS-I. It is being continuously monitored for the parameters pH,TSS and temperature and the datas are continuously uploaded online to the WATR CARE WATCH CENTRE/TNPCB/CHENNAI
- One no. CAAQMS is kept at the Northern end within the Plant. Another CAAQMS is kept at the SW direction outside the Plant to monitor the PM10, PM2.5, SO2, NOx parameters on 24 x 7 basis.
- Measures are being taken to dispose the fly ash generated

**c) Environmental Improvements carried out by Mettur Thermal Power Station- II**

- Planting of tree saplings for / around 35 acres (27% of total area) for the development of green belt is completed (against the Env. Clr. target) and are maintained.
- Nearly 7500 saplings are planted (Inclusive of 6500 saplings) and are maintained

**6.2 Other initiative in CEPI Area:**

- Mass tree plantation has been carried out in the Mettur Thermal Power Plant –I , Plant – II and M/s. Chemplast Sanmar Groups
- Monitoring of Ambient Air Quality in the Mettur CEPI at two locations under the NAMP .
- Monitoring of Piezometric wells are being carried out around the captive SLF of M/s. Chemplast Sanmar Groups.

## 7. PROPOSED ACTION PLAN

### 7.1 Proposed Short Term Action Plan

<b>a) Mettur Thermal Power Station - I</b>		
<b>S. No.</b>	<b>Action Plan</b>	<b>Target</b>
1.	The unit shall install additional CAAQMS in the vicinity of the premises	Before December 2020
<b>b) Mettur Thermal Power Station - II</b>		
<b>S. No.</b>	<b>Action Plan</b>	<b>Target</b>
1.	The unit shall install additional Nos of CAAQMS in the vicinity of the premises	Before December 2020
<b>c) M/s.ChemplastSanmar Limited Plant I</b>		
<b>S. No.</b>	<b>Action Plan</b>	<b>Target</b>
1	The unit shall dispose their further generated hazardous waste in captive SLFs and to send to Common TSDF	Before December 2020.
2	The unit shall provide STP to treat sewage arising from plant, colony and guest house.	Before December 2020.
<b>d) M/s.Chemplast Sanmar Limited Plant II</b>		
<b>S. No</b>	<b>Action Plan</b>	<b>Target</b>
1	The industry shall stop disposing their hazardous waste in captive SLFs and to send to Common TSDF	Before December 2020.

**e) M/s.Chemplast Sanmar Limited Plant III**

S.No	Action Plan	Target
1	The industry shall stop disposing their hazardous waste in captive SLFs and to send to Common TSDF	Before December 2020..

**f) M/s.CabotSanmar Limited Plant V**

S.No	Action Plan	Target
1	The industry shall stop disposing their hazardous waste in captive SLFs and to send to Common TSDF	Before December 2020.
2	The unit shall provide STP to treat sewage	Before June 2020.

**7.2 Proposed Long-Term Action Plan****a) Mettur Thermal Power Station - I**

S.No.	Action Plan	Target
1.	The unit shall provide and maintain adequate dust extraction / suppression system in coal handling, ash handling areas and material transfer points to control fugitive emission.22Nos of Coal handling Plant area and coal transfer points in which only 3 nos of dust extraction system are provided with bag filter arrangements	Installation of 19 Nos of dust extraction system before December 2021.
2.	The unit shall develop green belt cover of 40% of the total area in and around the premises as per the NGT order for the units located in CPA's.	Green belt covers of 40% of the total area before March 2022.
3.	The unit shall comply with the MoEF&CC Notifications on Fly Ash Utilization S.O, 763(E) dated 14.09.1999, S.O.979 (E) dated	As on date the accumulated fly ash in the dyke is about $19 \times 10^6$ Tonnes. The unit has been disposing the daily

	27.08.2003, S.O.2804 (E) dated 3.11.2009, and S.O.254 (E) dated 25.01.2016 as amended from time to time.	generated ash to Cement Companies and other SSI units. However the unit is yet to dispose the accumulated ash in ash dyke. To be completed before December 2025.
4.	As per the MoEF&CC notification dated 07.12.2015 the SPM should be 100 mg/Nm <sup>3</sup> . Wherein the in MTPS-I has exceeded the limit and the SPM ranges from 350-400 mg/Nm <sup>3</sup> .	To provide new ESP electrodes before December 2021 to improve the ESP performance efficiency.
5.	As per the MoEF&CC notification dated 07.12.2015 the SO <sub>x</sub> should be 600 mg/Nm <sup>3</sup> . As per the CPCB direction dated 11.12.2017 immediately. The unit has been directed to install Flue Gas Desulphurization (FGD) system based on Lime / Ammonia dosing to capture sulphur in the flue gases to meet the SO <sub>2</sub> emission standard of 600 mg/Nm <sup>3</sup>	Installation of Semi Dry FGD system to be completed within December 2022.

#### **Mettur Thermal Power Station - II**

<b>S. No.</b>	<b>Action Plan</b>	<b>Target</b>
1.	The unit shall develop green belt cover of 40% of the total area in and around the premises as per the NGT order for the units located in CPA's.	Green belt cover of 40% of total area before December 2021.
2.	As per the MoEF&CC notification dated 07.12.2015 the NO <sub>x</sub> should be 600 mg/Nm <sup>3</sup> . Further the CPCB has also issued directions vide B-33014/07/2017-18/IPC-H/TPP/ dated 11.12.2017 to install Selective Catalytic Reduction (SCR) system or the selective Non- Catalytic reduction (SNCR) system or Low NO <sub>x</sub> Burners with Over Fire Air (OFA) system to achieve NO <sub>x</sub> emission	Installation of Low Nox Burners for the reduction of NO <sub>x</sub> before December 2022.

	standard of 600 mg/Nm <sup>3</sup> by year 2022	
<b>b) M/s.Chemplast Sanmar Limited Plant II</b>		
<b>S. No</b>	<b>Action Plan</b>	<b>Target</b>
1	The unit shall provide Ambient Air Quality monitoring stations (CAAQM) in two directions around the Plant – II, III, IV, V and Power Plant. The unit shall monitor PM10, SOx1, NOx1, Chlorine and VOC.” air within three months.	Installation of CAAQM before March 2022.
2	The unit shall provide online monitoring system for pH and TDS to ensure the natural quality of storm Water/surface water runoff.	Installation of Online monitoring before March 2021.
<b>M/s.Chemplast Sanmar Limited Plant IV</b>		
<b>S. No.</b>	<b>Action Plan</b>	<b>Target</b>
1	The unit shall carryout the construction of sewage treatment plant works of the plant-IV	Commissioning of sewage treatment plant before June 2021.

## 8. CEPI SCORE FOR THE POST MONSOON –December 2019

### Air Quality Analysis Report

Pollutant	Group	A1	A2	A
PM10	B	2	Moderate	A1*A2
As	C	1		
PM2.5	B	0.5		
		3.5	2.5	8.75

Pollutants	Avg(1)	STD(2)	EF{(3)=1/2}	No of Samples Exceeding (4)	Total No of Samples	SNLF Value {(6)=4/5x3}	SNLF Score		
							M		
PM10	82	100	0.82	1	8	0.10	M	9.75	
As	2	6	0.33	0	8	0.00	L	0	
PM2.5	28.25	60	0.47	0	8	0.00	L	0	
<b>B = B1+B2+B3</b>								<b>9.75</b>	

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

<b>AIR EPI</b>	<b>(A+B+C+D)</b>	<b>18.5</b>
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### Water Quality Analysis Report

Pollutant	Group	A1	A2	A
TP	B	0.5	Moderate	A1*A2
T.Hard	A	0.25		
Phenols	C	3		
		3.75	2.5	9.375

Pollutants	Avg(1)	STD(2)	EF{(3)=1/2}	No of Samples Exceeding (4)	Total No of Samples	SNLF Value {(6)=4/5x3}	SNLF Score		
							L		
TP	0	0.3	0.00	0	3	0.00	L	0	
T.Hard	108.33	600	0.18	0	3	0.00	L	0	
Phenols	0	0.01	0.00	0	3	0.00	L	0	
<b>B = B1+B2+B3</b>								<b>0</b>	

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

<b>WATER EPI</b>	<b>(A+B+C+D)</b>	<b>9.38</b>
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## Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	A
BOD	B	0.5	Moderate	A1*A2
TKN	A	0.25		
Phenols	C	3		
		3.75	2.5	9.375

Pollutants	Avg (1)	STD (2)	EF {(3)=1/2}	No of Samples Exceeding (4)	Total No of Samples	SNLF Value {(6)=4/5x3}	SNLF Score		
BOD	1	3	0.33	0	12	0.00	L	0	
TKN	1.6	1	1.60	12	12	1.60	C	10	
Phenols	0	0.001	0.00	0	12	0.00	L	0	
B = B1+B2+B3									10

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

<b>GROUND WATER EPI</b>	<b>(A+B+C+D)</b>	<b>19.38</b>
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**CEPI Score**  $im + \{(100 - im) \cdot (i2/100) \cdot (i3/100)\}$

**20.77**

Below given Table shows aggregated CEPI of present report in comparison with the CEPI Score 2018 and CPCB report (2009).

Year	Industrial Cluster/ Area	AIR	WATER	LAND	CEPI Score
2009	Mettur (Tamil Nadu)				<b>66.98</b>
2018		41.25	19.38	69.38	71.82
2019-Post Monsoon		18.5	9.38	19.38	20.77

**The result shows that the CEPI score of the present report is 20.77.**

This is lower than the CEPI score of 2018 studies (71.82), and CPCB report 2009 (66.98).

However, it should also be noticed over here that TNPCB's efforts through the formulation of action plans and effective implementation of Zero Liquid Discharge (ZLD) System /Pollution Control Measures by the industries and development of greenbelt and other infrastructural facilities decreased the overall concentration of pollutants in all aspects.

## 9. Conclusion

The industries emit PM, NO<sub>x</sub>, SO<sub>2</sub>, Cl<sub>2</sub>, F and VOC either by combustion sources or from the process emissions. All the stacks of the 17 category industries are connected with sensor analysers and the data is being transmitted to CPCB/SPCB by which industries are monitored for their emissions.

During 2018 CEPI monitoring, 8 locations were identified across the Mettur industrial area. Out of which 4 AAQ locations have exceeded PM<sub>10</sub>. This may be due to MTPS power plant stack emissions in which coal is used as a primary fuel. In general the flyash contains arsenic which may be the source of arsenic presence in the AAQ. The bottom ash contains arsenic of 0.296 mg/Kg. Now a direction has been issued to the MTPS-I to improve their ESP performance efficiency with which PM and arsenic concentration emissions will be controlled.

All the other industries emission sources have provided adequate air pollution control devices due to which their emissions are controlled. There are 81 Nos. of tiny/small scale industries located in SIDCO, Mettur area which is coming under the CEPI core area. In Mettur CEPI area PM<sub>10</sub> is considered as primary pollutant and Arsenic, PM<sub>2.5</sub> are considered as secondary pollutant with respect to the Air. Phenol is considered as primary pollutant and Total phosphorus & Total hardness are considered as secondary pollutants with respect to the surface water. Likewise, Phenol is considered as primary pollutant and TKN & BOD are considered as secondary pollutants with respect to ground water. In SIDCO Mettur area, there is no industry which contributes the above said pollutants to the Air, surface water and ground water.

Based on the 2019 Post monsoon Monitoring the AAQ concentration in all the locations are well below within the limit except one location i.e the reason for exceedance of the parameter PM<sub>10</sub> is due to the contribution of Mettur Thermal Power Station-I and II.

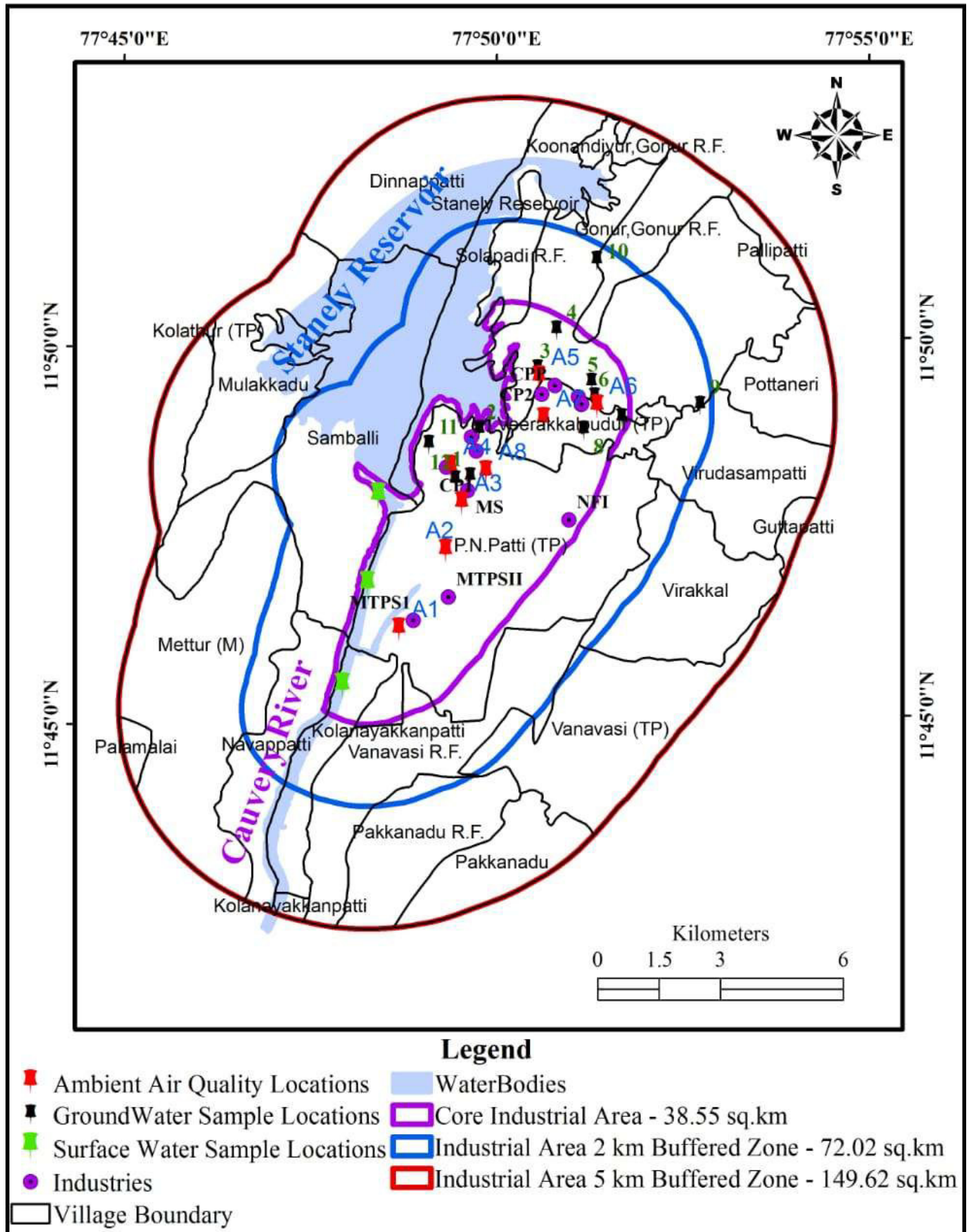
During CPCB CEPI monitoring 2018 two surface water samples collected in the upstream and downstream. Both upstream and downstream sample results for Total phosphorous, Total Hardness and Phenol which are well below within the limit of IS 10500 drinking water standards. No sewage from the industries are discharged into the Cauvery River. The unit of M/s.Mettur Thermal Power Station Plant I and Plant II's cooling tower blowdown which is passed through the ash dyke pond and finally discharged into surplus course of river Cauvery. It has been observed that no pollution in the river was observed because of the discharge of the cooling tower water from MTPS I & II.

During CPCB CEPI sampling 8 ground water sampling locations are identified and all of the locations are open well. It has been observed that all the said wells are unused wells and combined with waste materials. Hence, there is a possibility of detection of the parameters BOD, TKN and Phenol with high concentration. Hence along with these unused locations additionally 4 more locations were included. The samples were collected in those wells observed very low concentration of BOD and Phenol

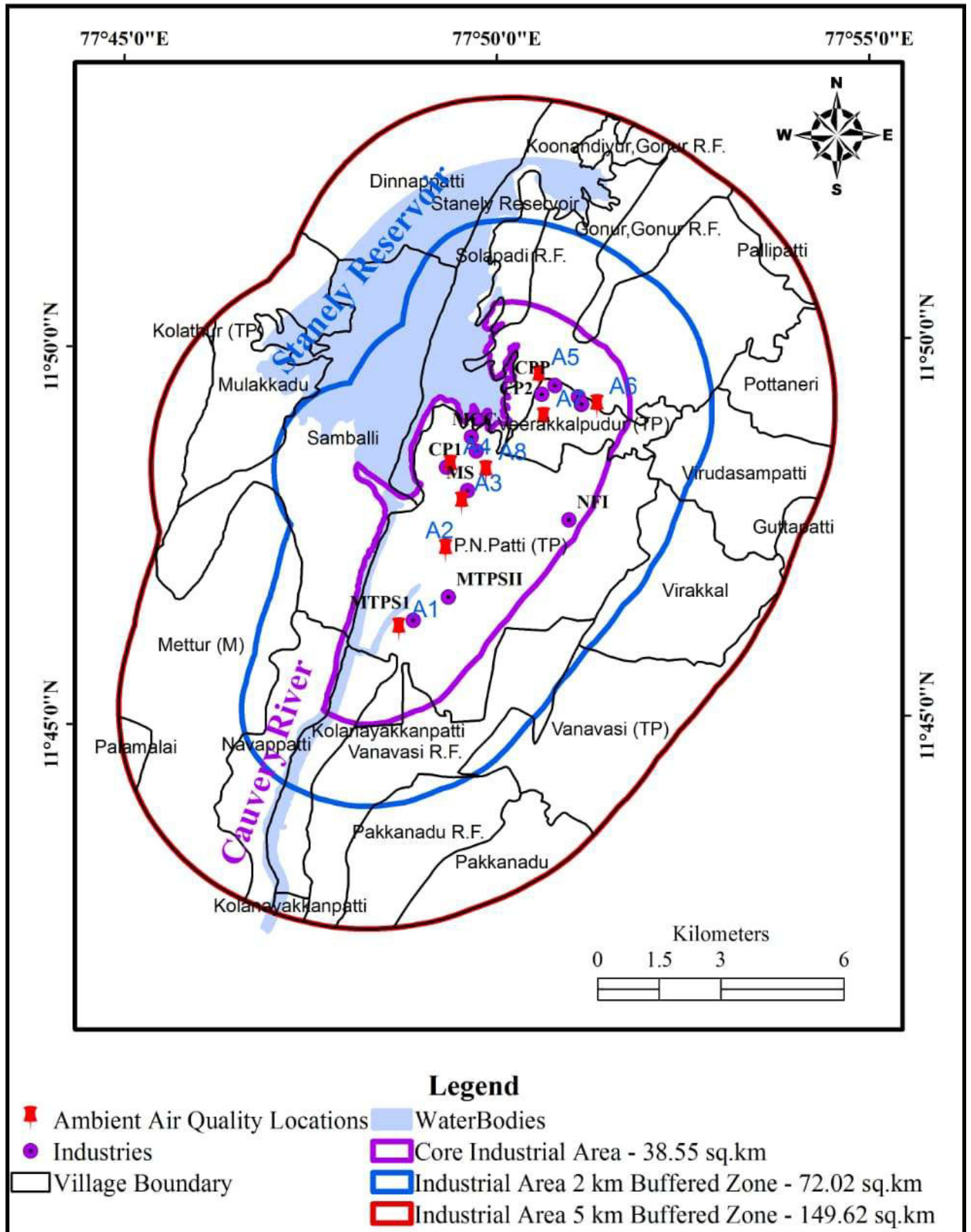


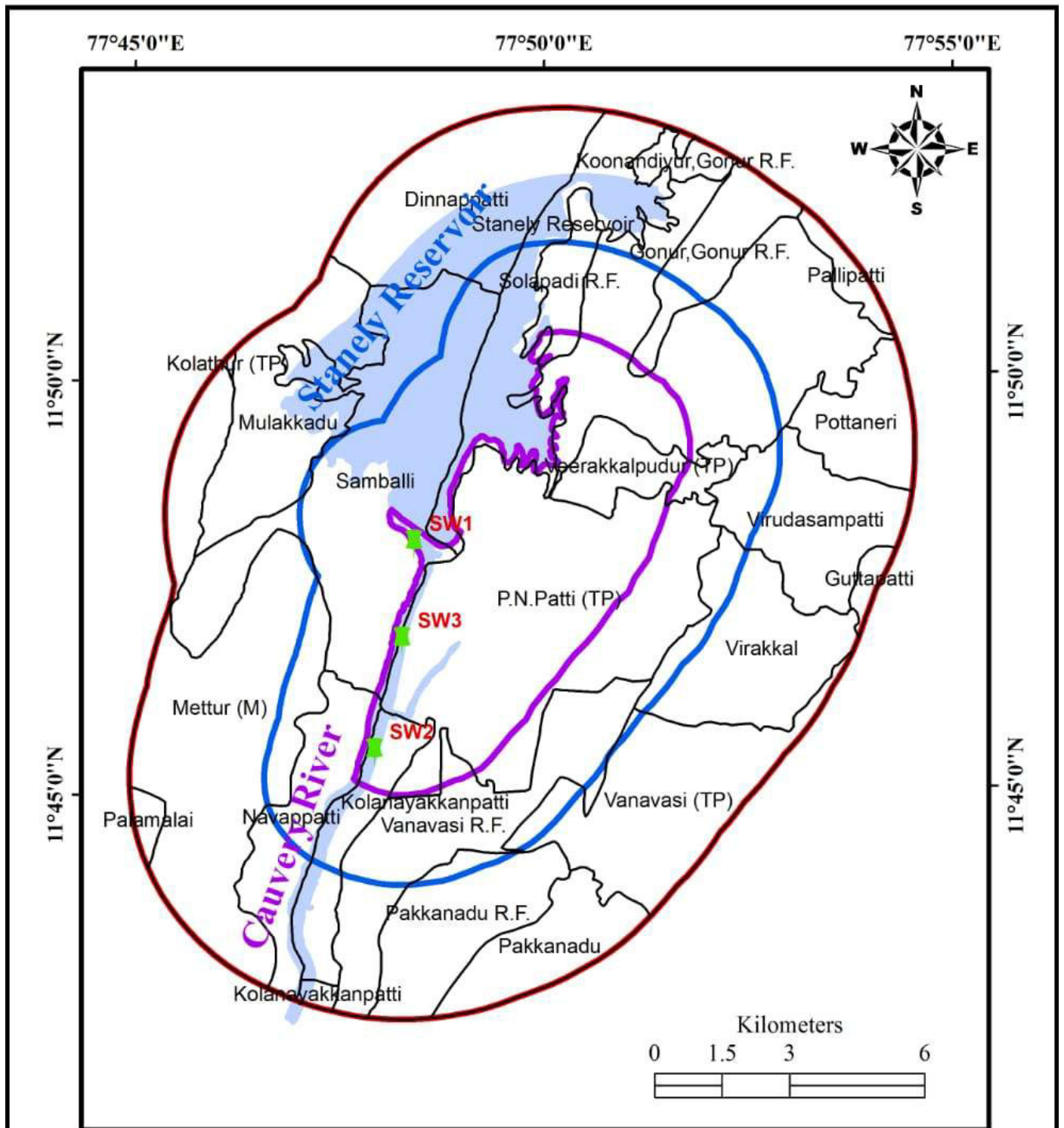
and these parameters were not detected in any of these samples except for TKN. During 2019 Post monsoon sample collection on the same 12 locations in which all the CEPI parameters are well within the limits of IS 10500 drinking water standards which clearly indicates that there is improvement in the ground water quality.

**Annexure I- CEPI Boundary Map showing Core Zone, Impact Zone & Buffer Zone and sampling locations of Air, Water, ground Water in CEPI area**



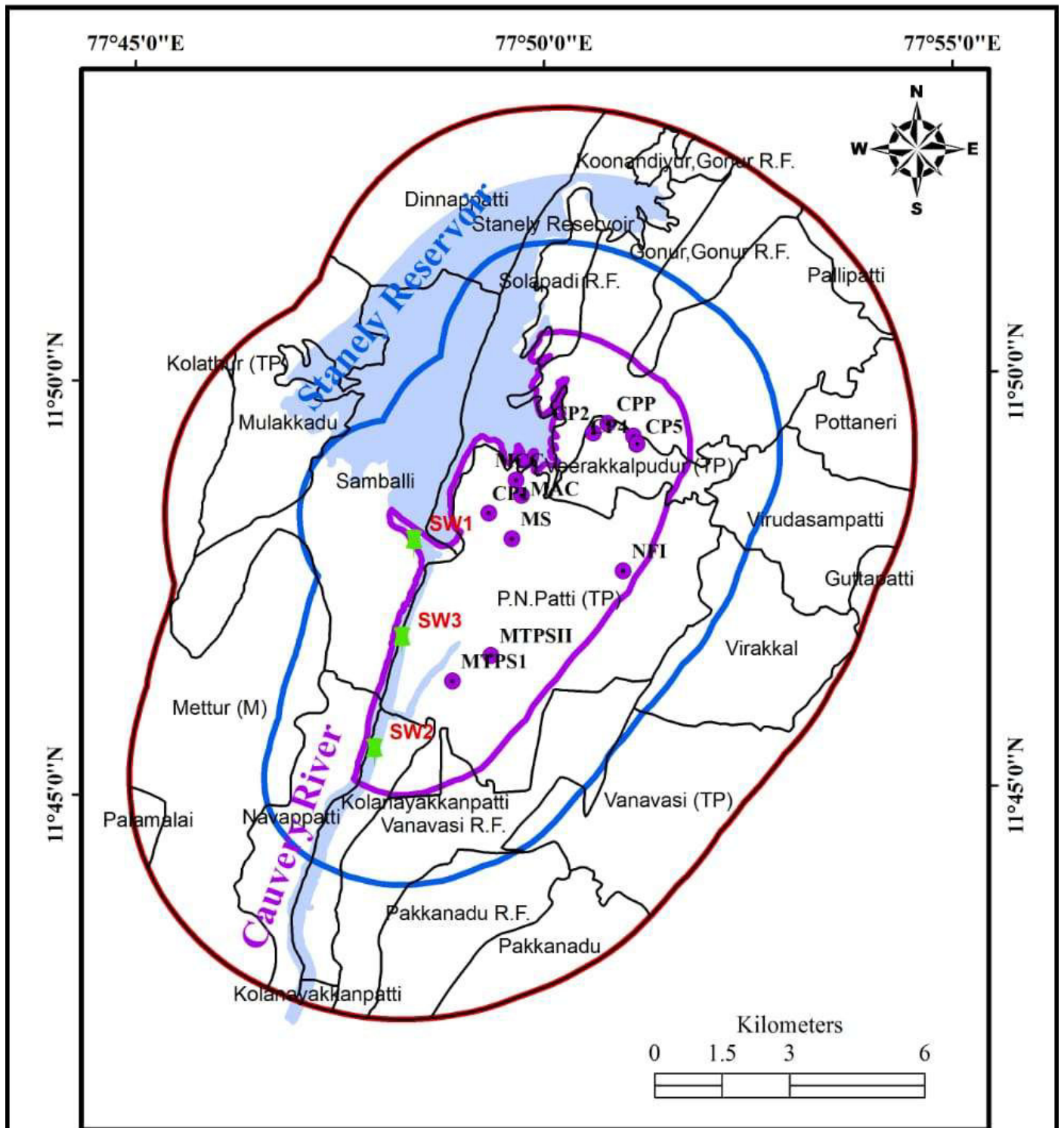
**Annexure II- CEPI Boundary Map sampling locations of Air, Water, ground Water in CEPI area**





**Legend**

- Surface Water Sample Locations
- WaterBodies
- Village Boundary
- Core Industrial Area - 38.55 sq.km
- Industrial Area 2 km Buffered Zone - 72.02 sq.km
- Industrial Area 5 km Buffered Zone - 149.62 sq.km



### Legend

- Surface Water Sample Locations
- WaterBodies
- Industries
- Village Boundary
- Core Industrial Area - 38.55 sq.km
- Industrial Area 2 km Buffered Zone - 72.02 sq.km
- Industrial Area 5 km Buffered Zone - 149.62 sq.km

### Annexure III- Health Statistics

S.No	Details	Particulars
1	Name of the polluted industrial area (PIA)	Mettur Thermal Power Plant, Mettur Dam
2	Name of the major health center / organization	GPHC, Kolathur
3	Name and designation of the contact person	DR.S.Vimala, MBBS, The Block Medical Officer
4	Address	UGPHC, Kolathur
5	Year of establishment	1962

Sl. No	Air Borne Diseases	No. of patients reported for the years						
		2018-2019	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013
1.	Asthma	44	43	22	24	21	25	24
2.	Acute Respiratory Infection	3	4	34	35	32	28	26
3.	Bronchitis	55	58	27	28	25	24	21
4.	Cancer	0	0	nil	nil	nil	nil	nil
	<b>Water Borne Diseases</b>							
5.	Gastroenteritis	48	52	29	26	27	25	24
6.	Diarrhea	22	24	35	34	32	21	28
7.	Renal diseases	0	0	nil	nil	nil	nil	nil
8.	Cancer	0	0	nil	nil	nil	nil	nil

S. No	Details	Particulars
1	Name of the polluted industrial are (PIA)	Mettur Thermal Power Plant, Mettur Dam
2	Name of the major health center / organization	UPHC, Mettur dam
3	Name and designation of the contact person	Dr.S.Govindan ,MBBS, The Medical Officer
4	Address	UPHC, Mettur dam
5	Year of establishment	2012

Sl. No	Air Borne Diseases	No. of patients reported for the years						
		2018-2019	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013
1.	Asthma	22	24	22	24	21	25	24
2.	Acute Respiratory Infection	1	2	34	35	32	28	26
3.	Bronchitis	33	41	27	28	25	24	21
4.	Cancer	0	0	nil	nil	nil	nil	nil
	<b>Water Borne Diseases</b>							
5.	Gastroenteritis	35	36	29	26	27	25	24
6.	Diarrhea	11	12	35	34	32	21	28
7.	Renal diseases	0	0	nil	nil	nil	nil	nil
8.	Cancer	0	0	nil	nil	nil	nil	nil

**Annexure – IV- Photos of improvements carried out by Industries & other initiative works in CEPI area**

**Mettur Thermal Power Plant-I**



**STP in MTPS-I**

**Mettur Thermal Power Plant - II**



**ESP in MTPS-II**





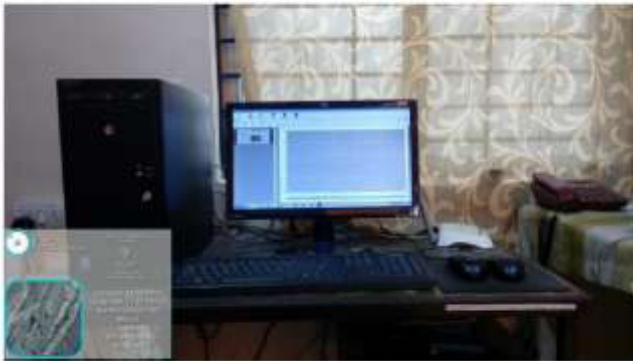
**Coal yard covered with sheets-MTPS II**



**Dust Extraction system- MTPS II**

**Mettur Thermal Power Plant II**

**1.1 Continuous Emission Monitoring System For Stack**



**1.2 SPM Analyzer**



**1.3 SO<sub>2</sub> & NO<sub>x</sub> Analyzer**



**1.4 LED Display For SPM, SO<sub>2</sub> and NO<sub>x</sub>**



**3.1 Effluent Analyzer of MTPS-II**



**3.3 Electro Magnetic Flow Meter at ETP of MTPS - II**



**M/s.Chemplast Sanmar Limited Plant –I**



**Boiler Stack**



**Scrubber Vent**



**ETP**



**Green Belt**

**M/s.ChemplastSanmar Limited Plant –I**



**ETP Pics**



**ETP Pics**



**Bag filter \_secondary Exhaust blower(NIRO III**

**Annexure V: Analysis Report for the present CEPI score (Post Monsoon ,November, 2019**



**TAMILNADU POLLUTION CONTROL BOARD,  
ADVANCED ENVIRONMENTAL LABORATORY,  
SALEM – 636 004.**



Accredited by NABL – (ISO/IEC 17025:2005)

**AMBIENT AIR QUALITY SURVEY (CEPI)**

**Report No.1/44/AEL-SLM/AAQS/2019 – 20 DL07.12.2019**

1. Name of the Industry : METTUR CEPI AREA
2. Address of the Industry : METTUR, SALEM-Dt.
3. Date of survey : 05.12.2019 & 06.12.2019
4. Duration of survey : 24 Hours
5. Category : Red/Large
6. Land use classification : Industrial
7. Matrix : Ambient Air
8. Date of Analysis : 07.12.2019

**METEOROLOGICAL CONDITIONS:-**

Ambient Temperature (°C)	Min	Max	Relative Humidity (%)	Min	Max
	25.0	31.4		32.0	84.0
Weather Condition	Clear Sky		Rainfall (mm)	NIL	
Predominant Wind Direction	NE→SW, NW →SE		Mean Wind Speed (Km/hr)	--	

**Ambient Air Quality survey Results**

Sl. No.	Location	Direction *	Height from GL (m)	Pollutants Concentration (µg/m <sup>3</sup> ) (24 Hours)			
				PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
01.	MTPS Top of Fire Water Pump House Mettur.	SWW	7	29	75	17.0	30.0
02.	MTPS Online Station Mettur.	WNW	4	14	50	32.0	42.0
03.	SIDCO – Sivasakthi, Mettur.	SW	5	47	145	21.0	27.0
04.	Chemplast Unit I Mettur.	NE	5	32	92	15.0	30.0
05.	Chemplast Guest House II, Mettur	NE	8	20	62	12.0	25.0
06.	Chemplast Unit II Housing Colony, Mettur	N	4	30	76	12.0	26.0
07.	Raman Nagar, Mettur	S	5	23	67	9.0	19.0
08.	SIDCO Metro Chemical, Mettur	SW	7	31	87	29.0	45.0

**Note:**

- \* With respect to major emission sources
- All the values are restricted to the sampling period of 24.00 Hrs.

**Test method:**

- Respirable Particulate Matter (PM<sub>10</sub>) : IS 5182: (Part 23) – 2006
- Sulphur Dioxide (as SO<sub>2</sub>) : IS 5182: (Part 2) – 2001
- Oxides of Nitrogen (as NO<sub>x</sub>) : IS 5182: (Part 6) – 2006
- Sampling Procedure : AEL/SLM/SOP/G-08

Dy.C.S.O

ASSISTANT DIRECTOR (LAB)  
 AEL - TNPCB- SALEM.

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**ADVANCED ENVIRONMENTAL LABORATORY,  
TAMILNADU POLLUTION CONTROL BOARD, SALEM – 636 004.  
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ULR- TC - 68741900002196 P to  
ULR- TC - 68741900002200 P

Sl. No.	Parameters	Ground Water							Test Method
		Nature of samples	Open well at Chittankadu	Open well at Uthandivalavu, Virudasampatti, Mechery Town Panchayat	Bore well at Mottur village	Open well at Mottur Karnagaradu	Open well at Vellakal maduvu		
	Date of Collection	06.11.2019 at 03.00 pm	06.11.2019 at 03.30 pm	06.11.2019 at 03.45pm	06.11.2019 at 04.10 pm	06.11.2019 at 04.10 pm	06.11.2019 at 05.00 pm		
	Date & Time of Receipt	07.11.2019 at 10.15 am							
	DEE Code	GW7	GW7(1)	GW5	GW6	GW4			
	Lab Code	1416	1417	1418	1419	1420			
15	Total Nitrogen*	1.933	2.276	2.883	2.265	2.688		APHA 23 <sup>rd</sup> Edi. 2017 4500 - NH2 -B	
16	Total Kjeldahl Nitrogen.	1.12	2.24	1.68	1.68	2.24		APHA 23 <sup>rd</sup> Edi. 2017 4500 - N <sub>org</sub> B	
17	Copper*	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015		APHA 23 <sup>rd</sup> Edi. 2017 3111. B	
18	Zinc	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015		APHA 23 <sup>rd</sup> Edi. 2017 3111. B	
19	Lead*	<0.015	<0.015	<0.015	<0.015	<0.015		APHA 23 <sup>rd</sup> Edi. 2017 3111. B	
20	Cadmium	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008		APHA 23 <sup>rd</sup> Edi. 2017 3111. B	
21	Total Chromium	<0.05	<0.05	<0.05	<0.05	<0.0015		APHA 23 <sup>rd</sup> Edi. 2017 3500-Cr B	
22	Nickel*	<0.0015	<0.0015	<0.006	<0.006	<0.006		APHA 23 <sup>rd</sup> Edi. 2017 3111. B	
23	Arsenic*	<0.01	<0.01	<0.01	<0.01	<0.01		APHA 23 <sup>rd</sup> Edi. 2017 - 3114 B	
24	Mercury*	<0.003	<0.003	<0.003	<0.003	<0.003		APHA 23 <sup>rd</sup> Edi. 2017 - 3112 -B	

Note: 1) < = Indicates Less than Minimum Detectable Limit.  
2) \*\*The parameter marked with an \* are not accredited by NABL\*.  
- End of Test Report -

*(Signature)*  
Assistant Director (Lab)  
AEL-TNPCB-SALEM.

Dy.CSO



**ADVANCED ENVIRONMENTAL LABORATORY,  
TAMILNADU POLLUTION CONTROL BOARD, SALEM - 636 004.  
Accredited by NABL - (ISO/IEC 17025:2005)**



ULR- TC - 68741900002196 P to  
ULR- TC - 68741900002200 P

Sl. No.	Parameters	Parameters Analyzed for Water Samples - Salem District.								Test Method				
		Ground Water												
		Nature of samples	Point of Collection	Date of Collection	Date & Time of Receipt	DEE Code	Lab Code	Number	Value					
1	pH at 25°C		Open well at Chittankadu	06.11.2019 at 03.00 pm	07.11.2019 at 10.15 am	GW7	1416	7.22	4	4	20	6.85	1420	APHA 23rd Edi. 2017 4500-H
2	TSS at 103°C - at 105°C		Open well at Uthandivalavu, Virudasampatti, Mecheriy Town Panchayat	06.11.2019 at 03.30 pm		GW7(1)	1417	7.05	4	1856	972	6.86	1419	APHA 23rd Edi. 2017- 2540 - D
3	TDS at 180°C		Bore well at Mottur village	06.11.2019 at 03.45pm		GW5	1418	6.86	20	170	1120	7.14	1420	APHA 23rd Edi. 2017- 2540 - C
4	Chloride as Cl		Open well at Mottur Karngaradu	06.11.2019 at 04.10 pm		GW6	1419	7.14	4	286	286	87	1420	APHA 23rd Edi. 2017- 4500-CIB
5	Sulphates as SO4		Open well at Vellakal maduvu	06.11.2019 at 05.00 pm		GW4	1420	6.85	20	132	132	132	1420	APHA 23rd Edi. 2017- 4500-E
6	Oil & Grease								<4	<4	<4	<4		APHA 23rd Edi. 2017- 5520-D
7	BOD (at 27°C for 3 days)								<2	<2	<2	<2		IS3025 (P44) 1993 Reaffirmed 2009
8	COD								24	24	24	24		APHA 23rd Edi. 2017 5220
9	Ph. Compounds								BDL	BDL	BDL	BDL		APHA 23rd Edi. 2017 5530 C
10	Fluoride as F								1.944	0.704	1.927	1.523		APHA 23rd Edi. 2017 4500-F-D
11	Total Hardness as CaCO3								720	1340	700	1020		APHA 23rd Edi. 2017 2340 C
12	Dissolved Phosphate as PO4								<0.5	<0.5	<0.5	<0.5		APHA 23rd Edi. 2017 4500-P E
13	Hexavalent Chromium.								<0.05	<0.05	<0.05	<0.05		APHA 23rd Edi. 2017 3500-Cr B
14	Iron Total as Fe								3.68	<0.05	<0.05	<0.05		APHA 23rd Edi. 2017 3500-Fe B



ADVANCED ENVIRONMENTAL LABORATORY,  
TAMILNADU POLLUTION CONTROL BOARD, SALEM - 636 004.  
Accredited by NABL - (ISO/IEC 17025:2005)



ULR- TC - 68741900002189 P to  
ULR- TC - 68741900002191 P

Sl. No.	Parameters	Parameters Analyzed for Water Samples - Salem District.				Test Method
		Nature of samples	Trade Effluent	Surface Water	Surface Water	
	Point of Collection	MTPS 1 Dyke Pond Discharge	Reddiyur Pumping Station	MTPS Power Station		
	Date of Collection	04.11.2019 at 04.10 pm	04.11.2019 at 04.40 pm	04.11.2019 at 05.00 pm		
	Date & Time of Receipt	05.11.2019 at 10.20 am				
	DEE Code	CEPI -01	CEPI -02/SW2	CEPI -03		
	Lab Code	1409	1410	1411		
	Number	7.44	7.55	7.42		
1.	pH at 25°C	4	4	12		APHA 23rd Edi.2017- 4500-H
2	TSS at 103°C - at 105°C	296	196	184		APHA 23rd Edi.2017- 2540 - D
3	TDS at 180°C	60	31	32		APHA 23rd Edi.2017- 2540 - C
4	Chloride as Cl	40	<5	<5		APHA 23rd Edi.2017- 4500-CIB
5	Sulphates as SO4	<4	<4	<4		APHA 23rd Edi.2017- 4500-E
6	Oil & Grease	<2	<2	<2		APHA 23rd Edi.2017- 5520-D
7	BOD (at 27°C for 3 days)	16	16	16		ISS025 (P44) 1993 Reaffirmed 2009
8	COD	BDL	BDL	BDL		APHA 23rd Edi. 2017 5220
9	Ph. Compounds	1.287	1.056	0.756		APHA 23rd Edi. 2017 5530 C
10	Fluoride as F	176	110	102		APHA 23rd Edi. 2017 4500-F-D
11	Total Hardness as CaCO3	0.403	<0.5	<0.5		APHA 23rd Edi. 2017 2340 C
12	Dissolved Phosphate as PO4	<0.05	<0.05	<0.05		APHA 23rd Edi. 2017 4500-PE
13	Hexavalent Chromium	<0.05	<0.05	<0.05		APHA 23rd Edi. 2017 3500-Cr B
14	Iron Total as Fe	<0.05	<0.05	<0.05		APHA 23rd Edi. 2017 3500-Fe B



ADVANCED ENVIRONMENTAL LABORATORY,  
TAMILNADU POLLUTION CONTROL BOARD, SALEM - 636 004.  
Accredited by NABL - (ISO/IEC 17025:2005)



ULR- TC - 68741900002189 P to  
ULR- TC - 68741900002191 P

Sl. No.	Parameters	Nature of samples			Test Method	
		Trade Effluent	Surface Water	Surface Water		
		MTPS 1 Dyke Pond Discharge	Reddiyur Pumping Station	MTPS Power Station		
		Date of Collection	04.11.2019 at 04.10 pm	04.11.2019 at 04.40 pm	04.11.2019 at 05.00 pm	
		Date & Time of Receipt	05.11.2019 at 10.20 am			
		DEF Code	CEPI-01	CEPI-02/SW2	CEPI-03	
		Lab Code	1409	1410	1411	
15	Total Nitrogen*	mg/l	1.143	1.140	1.132	APHA 23 <sup>rd</sup> Edi. 2017 4500 - NH2 -B
16	Total Kjeldahl Nitrogen	mg/l	1.12	1.12	1.12	APHA 23 <sup>rd</sup> Edi. 2017 4500 - N <sub>org</sub> -B
17	Copper*	mg/l	<0.0015	<0.0015	<0.0015	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
18	Zinc	mg/l	<0.0015	<0.0015	<0.0015	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
19	Lead*	mg/l	<0.015	<0.015	<0.015	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
20	Cadmium	mg/l	<0.0008	<0.0008	<0.0008	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
21	Total Chromium	mg/l	<0.05	<0.05	<0.05	APHA 23 <sup>rd</sup> Edi. 2017 3500-Cr B
22	Nickel*	mg/l	<0.006	<0.006	<0.006	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
23	Arsenic*	mg/l	<0.01	<0.01	<0.01	APHA 23 <sup>rd</sup> Edi. 2017 - 3114 B
24	Mercury*	mg/l	<0.003	<0.003	<0.003	APHA 23 <sup>rd</sup> Edi. 2017 - 3112 -B

Note: 1) < = Indicates Less than Minimum Detectable Limit.  
2) \*\*The parameter marked with an \* are not accredited by NABL".  
- End of Test Report -

Dy.CSO

*[Signature]*  
Assistant Director (Lab)  
AEL-TNPCC-SALEM.





ADVANCED ENVIRONMENTAL LABORATORY,  
TAMILNADU POLLUTION CONTROL BOARD, SALEM - 636 004.  
Accredited by NABL - (ISO/IEC 17025:2005)



ULR- TC - 68741900002201 P to  
ULR- TC - 68741900002205 P

Sl. No.	Parameters	Nature of samples	Ground Water			Surface water	Ground Water	Test Method
			Open well owned by Thiru Ponnusamy	Open well at Ramamoorthy nagar	Bore well owned by Thiru. Murugan, Kavipuram			
		Date of Collection	06.11.2019 at 05.20 pm	06.11.2019 at 06.00 pm	06.11.2019 at 06.20 pm	06.11.2019 at 07.00 pm	06.11.2019 at 07.10 pm	
		Date & Time of Receipt	07.11.2019 at 10.15 am					
		DEE Code	GW4(1)	GW2	GW2(1)	SW1	GW1(1)	
		Lab Code	1421	1422	1423	1424	1425	
15	Total Nitrogen*	mg/l	2.17	2.814	1.876	1.136	2.069	APHA 23 <sup>rd</sup> Edi. 2017 4500 - NH2 -B
16	Total Kjeldahl Nitrogen	mg/l	1.12	1.68	1.12	1.12	1.12	APHA 23 <sup>rd</sup> Edi. 2017 4500 - N <sub>org</sub> B
17	Copper*	mg/l	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
18	Zinc	mg/l	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
19	Lead*	mg/l	<0.015	<0.015	<0.015	<0.015	<0.015	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
20	Cadmium	mg/l	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
21	Total Chromium	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	APHA 23 <sup>rd</sup> Edi. 2017 3500-Cr B
22	Nickel*	mg/l	<0.006	<0.006	<0.006	<0.006	<0.006	APHA 23 <sup>rd</sup> Edi. 2017 3111. B
23	Arsenic*	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	APHA 23 <sup>rd</sup> Edi. 2017 - 3114 B
24	Mercury*	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	APHA 23 <sup>rd</sup> Edi. 2017 - 3112 -B

Note: 1) < = Indicates Less than Minimum Detectable Limit.  
2) \*\* The parameter marked with an \* are not accredited by NABL.  
- End of Test Report -

*D. Mahalingam*  
Assistant Director (Lab)  
AEL-TNPCCB-SALEM.

Dy.CSO



ADVANCED ENVIRONMENTAL LABORATORY,  
TAMILNADU POLLUTION CONTROL BOARD, SALEM - 636 004.  
Accredited by NABL - (ISO/IEC 17025:2005)



ULR- TC - 68741900002201 P to  
ULR- TC - 68741900002205 P

Sl. No.	Parameters	Parameters Analyzed for Water Samples - Salem District.						Test Method
		Ground Water			Surface water	Ground Water		
		Nature of samples	Point of Collection	Date of Collection	Date & Time of Receipt	River Cauvery - Mettur Dam up stream	Bore well at Periyar nagar Thangannuripattinam	
				07.11.2019 at 10.15 am				
		DEE Code	GW4(I)	GW2	GW2(D)	SW1	GW1(D)	
		Lab Code	1421	1422	1423	1424	1425	
		Number	6.92	6.79	6.83	7.65	7.69	
1	pH at 25°C							APHA 23rd Edi.2017 4500-H
2	TSS at 103°C - at 105°C		4	4	4	4	4	APHA 23rd Edi.2017- 2540 - D
3	TDS at 180°C		936	1082	936	192	756	APHA 23rd Edi.2017- 2540 - C
4	Chloride as Cl		175	185	150	24	155	APHA 23rd Edi.2017- 4500-CIB
5	Sulphates as SO4		55	40	80	<5	7	APHA 23rd Edi.2017- 4500-E
6	Oil & Grease		<4	<4	<4	<4	<4	APHA 23rd Edi.2017- 5520-D
7	BOD (at 27°C for 3 days)		<2	<2	<2	<2	<2	ISS025 (P44) 1993 Reaffirmed 2009
8	COD		16	16	16	16	16	APHA 23rd Edi. 2017 5520
9	Ph.Compounds		BDL	BDL	BDL	BDL	BDL	APHA 23rd Edi. 2017 5530 C
10	Fluoride as F <sup>-</sup>		1.079	1.160	1.373	0.842	1.194	APHA 23rd Edi. 2017 4500-F-D
11	Total Hardness as CaCO3		660	690	420	89	390	APHA 23rd Edi. 2017 2540.C
12	Dissolved Phosphate as PO4		<0.5	<0.5	0.727	<0.5	<0.5	APHA 23rd Edi. 2017 4500-P E
13	Hexavalent Chromium		<0.05	<0.05	<0.05	<0.05	<0.05	APHA 23rd Edi. 2017 3500-Cr B
14	Iron Total as Fe		<0.05	<0.05	<0.05	<0.05	<0.05	APHA 23rd Edi. 2017 3500-Fe B

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

**Present:**

1. Thiru. Shambhu Kallollikar 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 Mettur CEPI area, Dr.S.Suresh Kumar briefed the following

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

<b>Period</b>	<b>CEPI Score</b>
CEPI Score 2019	20.77
CEPI Score 2018	71.82

2. In the aggregated CEPI score of 2018, it has been reported that the Sub Index values for Air is 41.25, Water is 19.4 and Land is 69.4, thus the CEPI score was **71.82**, whereas in the present aggregated CEPI score during 2019 for the Sub Index values for Air is 13.25, Water is 9.38 and Land is 19.4, thus the CEPI score has reduced to **20.77**.
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. Out of 8 AAQM locations, 4 locations exceeded PM10 values and 5 locations exceeded Arsenic.
- b. Most of the exceeded locations are nearby MTPS (generating PM, Arsenic, etc.) and that may be the major sources apart from vehicular emissions.
- c. Eight ground water locations were selected and all are open wells. All these wells are unused and almost stagnated water with lot of wastes in them. Due to stagnation and other wastes (waste plants, dead animals etc), it has given rise to BOD, TKN and Phenols.
- d. The health statistics score for water and air borne diseases were as high as 10.

The main reasons for less CEPI score in 2019 include,

- i. All industries have provided proper APCD (dust collectors, wet scrubbers etc) and the same are monitored through online monitoring system.
  - ii. MTPS improved their ESP efficiency and still needs to improve their PM emissions.
  - iii. Identified alternate used wells in the same locations where 2018 sampling locations were identified by CPCB. Phenol, TKN and BOD values on the new used wells are below the limiting values.
  - iv. Due to these improvements CEPI Sub Index score for Land is 19.4 in which now the health statistic is zero.
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 Mettur, Salem District 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. J. Selvan L66 Member Secretary.
3.	Director of Medical & Rural Health Services	 Dr A. VISWANATHAR. MS (JDC ACS)
4.	Representative of State Industries Promotion Corporation of Tamilnadu (SIPCOT)	H. Prabhavathy (H. PRABHAVATHY) G.M (PI) i/c SIPCOT
5.	Chief Engineer, PWD, W.R.O., State Ground & Surface Water Resources Data Centre, Taramani, Chennai - 600 113	 (A. Suthan Arumey) Technical Expert (Geophysics) of the Chief Engineer, PWD S/W RDC, Chennai 600113