BEFORE THE NATIONAL GREEN TRIBUNAL

SOUTHERN ZONE, CHENNAI

Original Application No. 34 of 2015 (SZ)

(Through Video Conference)

IN THE MATTER OF:

1.S. Pugazhendhi,
123, Meenavar Street,
Sangolikuppam Village,
Cuddalore Taluk & Dist.

2. S. Sivasankar,
8, East Street,
Semmankuppam Village,
SIPCOT Post, Cuddalore Tk & Dist.

3. G.K. Amirthalingam,
77, Mettu Street,
Echankadu Village,
SIPCOT Post, Cuddalore Tk & Dist. .. Applicants

Vs

1.Tamil Nadu State Pollution Control Board,
Thro. the Member Secretary,
76, Mount Salai, Guindy, Chennai – 32.

2. State Industries Promotion Corporation of Tamil Nadu,
Through the Managing Director,
19-A, Rukmani Lakshmipathy Road,
Egmore, Chennai – 8.

3.Cenral Pollution Control Board,
Through its Member Secretary,
East Arjun Nagar, New Delhi-110032.

4. Environment & Forest Department,
Government of Tamil Nadu,
Thro. Its Secretary,

Fort St. George, Chennai – 9.

5. Cuddalore SIPCOT Industries Association,
Rep. by its Secretary, H. Indra Kumar,
Cuddalore.
(R5 impleaded as per order dt. 16.11.2016
In M.A.249/2016) .. Respondents

Judgement reserved date: 2.2.2021

Judgment uploaded date: **5**.3.2021

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER

For Applicant(s): Mr. Ritwick Dutta

For Respondent(s): Sri. Kasirajan through
Ms. Kothai Muthu Meenal for R1
Mr. Sriram rep.
Mr. Ramesh Venkatachalapathy for R2
Mr.D.S. Ekambaram through
Mrs. P. Jayalakshmi for R3
Dr. V.R. Thirunarayanan for R4
Mr. K.S. Viswanathan for R5

Whether judgment is allowed to be published on the internet:Yes/No

Whether judgment is to be published in the All India NGT Reporter:Yes/No

JUDGMENT

Pronounced by Justice K. Ramakrishnan, Judicial Member

The above application was filed by the applicants viz., some of the residents living near the SIPCOT Industrial Estate, Cuddalore District. According to the applicants, the second respondent – State Industries Promotion Corporation of Tamil Nadu (SIPCOT) had developed an industrial estate in Cuddalore District for the purpose of providing infrastructure facility with a view to promote industrial growth in the State. The functions of the second respondent include development of industrial complexes, industrial parks and industrial estates, establishing sector specific Special Economic Zones and implementation of special infrastructure projects.

Currently, the second respondent has 20 industrial complexes in 12 Districts and 6 sector specific Special Economic Zones and Cuddalore is one such complex established by the second respondent. They had established heavy chemical, pharmaceutical and energy industries in Cuddalore Industrial Estate which is located 8 Kms south of Cuddalore Town on the seaward side of Cuddalore – Chidambaram Highway stretching from Pachaiyankuppam in the north to Sonanchavadi in the south of Cuddalore.

2. It is also known as global toxic hotspot, facing lot of criticism and concerns from the local communities especially with respect to industrialization and pollution. The report released by the SIPCOT Area Community Environmental Monitors (SACEM) in September, 2004 noted that the residential areas surrounding a number of chemical manufacturing facilities in the Cuddalore Industrial Estate documented extremely elevated levels of a large number of toxic chemicals in the air breathed by community members. The report showed concerns with regard to toxic and carcinogenic chemical levels exceeding the ambient air standards and the cumulative impacts of such large number of chemicals posing unacceptable health threats to the communities living in proximity to the industrial facilities. As per the findings of the report, a total number of 22 chemicals were found in air samples, 8 of these chemicals were known to cause cancer in animals and humans. Fourteen out of 22 chemicals, including trichloroethene, benzene, chloroform, carbon, teteachloride, acrolein, methylene chloride and hydrogen sulphide violated the United States Environmental Protection Agency's safety levels as per Annexure A-1 which is a report titled 'Gas Trouble Air Quality in SIPCOT, Cuddalore.

3.The Madras High Court, suo motu, took note of the above mentioned SACEM report of 2004 and directed registering of suo motu a writ petition

i.e., MEMBER SECRETARY V. STATE OF TAMIL NADU (W.P. No.27241 of 2004). In its order dated 29.8.2012, the Hon'ble High Court directed the Tamil Nadu Pollution Control Board to keep continuous air monitoring, including for toxic gases of the units in the SIPCOT Cuddalore and take necessary and suitable legal action against any errant or default unit as per law, evidenced by Annexure A-2.

4.Further, on account of the severe air pollution, residents had also complaining of falling water tables and the constantly degrading water quality in the region. The analysis of water samples conducted by the Tamil Nadu Pollution Control Board showed that ground water was available only at the depth of 800 feet or more in comparison to the older depth of 30 feet. Further indiscriminate extraction of ground water from the vulnerable coastal acquifer and discharge of solid and liquid effluents from the industries contaminating sub surface water. They are also dumping solid wastes and discharge toxic effluents on to the land within or outside their premises having large scale impact.

5.The State Human Rights Commission headed by the Retired Judge investigated the pollution issue in the area in 1998 and reported environment related human rights violations in SIPCOT and was over polluted and the peoples health and the local environment could not withstand the burden of new chemical industries, as evidenced by Annexure A3 report.

6.The Tamil Nadu Pollution Control Board in a reply under the Right to Information Act informed that it had taken 41 samples from at least 11 locations in and around SIPCOT between February, 2013 and April, 2014 and they were tested and also ascertained their potability etc. Nine out of the 11 locations were inside the premises of various factories in SIPCOT

complex. The report revealed that the water quality in that area was below the drinking water standards and containing Cadmium, Chromium, Lead and Iron etc in excess level than the permissible limit. The presence of heavy metals in the water would be having bad health impact in the people, including causing cancer disease in the people. On account of the over extraction of surface water and depletion of ground water level, the saline water intruded into the surface water in that area. Though the Pollution Control Board and other regulators were aware of such toxic substances in the water and the poor water quality, no serious actions were taken against the persons who were responsible for such contamination and pollution. Annexure A-4 and 5 reports would go to show the poor quality of water in that area. The SACEM has been constantly demanding clean drinking water at the cost of SIPCOT industries and remediation and restoration of the contaminated ground water, evidenced by Annexure A-6 newspaper report. They also provided certain remedial measures for restoring the water quality. Applying polluter pays principle, the respondents are having legal obligation to provide clean drinking water to the people and also have responsibility to restore the damage caused to environment under Section 9 of the Environmental (Protection) Act of 1986 and other provisions of the environmental laws such Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1984.

7.They also relied on the dictum laid down in the decisions reported in DR. B.L. WADEHRA V. UNION OF INDIA (1996)2 SCC 594, SUBHASH KUMAR V. STATE OF BIHAR & ORS (1991) 1 SCC 598), VIRENDER GAUR V. STATE OF HARYANA (1995) Suppl. (6) SCR 78), INDIAN COUNCIL FOR ENVIRO LEGAL ACTION V. UNION OF INDIA (1996) 5 SCC 281), M.C MEHTA V. KAMAL NATH & ORS (2000) 6 SCC 213), VELLORE CITIZENS

WELFARE V. UNION OF INDIA & ORS (1996) 5 SCC 647), INTELLECTUAL FORUM V. STATE OF A.P (2006) 3 SCC 549), M/S. IVORY TRADERS AND MANUFACTURERS ASSOCIATION AND ORS. VS. UNION OF INDIA AND ORS (AIR 1997 Delhi 267), G.R. SIMON V. LUNION OF INDIA (ASIR 1997 Delhi 301) and M.C. MEHTA V. UNION OF INDIA & ORS (2004) 12 SCC 118) in support of their case.

8.So the applicant filed the above application seeking the following reliefs:

"*Direct the Government of Tamil Nadu to investigate the lapses of the officials of the TNPCB in discharging their duties and take action, including prosecution of the officials, in a time bound manner.*

Direct the State Government to take immediate action towards the prosecution of the violators of Section 43, 44 and 45 of the Environmental (Protection) Rules, 1986 and against the SIPCOT industries and the concerned officials who have failed to discharge their obligations and duties under Section 15, 16 and 17(1) of the Environmental (Protection) Act of 1986 and Section 25(5) of the Water (Prevention and Control of Pollution) Act of 1974.

Direct the State Government to select an independent competent national or international agency, preferably selected after competitive bidding for undertaking immediate measures for assessment of the depth and spread of the contamination and for the remediation and restoration of the ground water in the region, hereafter. Until which time a moratorium be imposed with respect.

Direct the State Industries Promotion Corporation of Tamil Nadu to stop the discharge immediately and assist in the assessment, restoration and remediation of the ground water as per the polluter pays principle.

Direct the State Government to prepare based on suggestions of the applicants under point 4, 6 of this application a time bound detailed action plan for remediation and restoration of the groundwater in consultation with the residents and community members and make it available to the public at large."

9. The first respondent filed reply affidavit contending as follows:

The application is not maintainable. The SIPCOT Industrial Complex, Cuddalore was established during the year 1984, having Phase – I and Phase – II here textile processing, pharmaceuticals, dye chemicals, pesticides and miscellaneous industries were located. The SIPCOST Industrial Complex, Cuddalore is located along the Cuddalore – Chidambaram Highways (NH-45-A). SIPCOT Phase – I has a total extent of 518.79 aces and Phase – II has a total extent of 190.52 acres. They are having the following infrastructural facilities viz.,

Water supply .. Total number of bore wells – 10

Total yield – 3.1 MGD

Roads & Drains .. 18 m width road &

12 m width road

Total length .. 7 km

Post office, Fire Station, CSIA dispensary, Canteen are operated in this area. The SIPCOT Industrial Complex is surrounded by the following topography:

North .. Pachayankuppam village

East .. River Uppanar

South . Sonanchavadi village

West . NH 45-A (Cuddalore – Chidambaram)

The details of industries in SIPCOT, Cuddalore as on 28.2.2015:

Status	Phase-I	Phase-II	Total
Under operation	29	7	36
Proposed	7	3	10
Remain closed	6	Nil	6
Total	42	10	52

10.Out of the 36 operating units, 4 units are categorized as highly polluting units, 14 units were categorized as red/large category units, 3 units were categorized as red/medium category units, 7 units were categorized as Red/small category units and the remaining 8 units were categorised as orange and green category units. The details of the same are as follows:

11.Details of units generating trade effluent & disposal

Highly polluting industries (17 categories)

Name of the industries	Category	Classification
M/s.Clariant Chemicals (India) Ltd.,	R/L	1016-dyes and dye-Intermediates
M/s.Tagros Chemicals India Ltd. (Unit-I)	R/L	1058-Pesticides (Technical) Excluding formulation
M/s. Shasun Pharmaceuticals Ltd	R/L	1060-Pharmaceuticals (excluding formulation)

Shasun Pharmaceuticals Ltd.,	R/L	1060- Pharmaceuticals Excluding formulation

Red category industries (54 categories)

12.List of industries under operation

Name of the industries	Category	Classification
M/s.TANFAC Industries Ltd (AIF plant)	R/L	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
M/s.TANFAC Industries Ltd (synthetic organic chemicals)	R/L	1056-Organic chemicals Manufacturing
M/s. Asian Paints Ltd (Penta Dvn)	R/L	1056-Organic chemicals Manufacturing
M/s Asian Paints Ltd (power plant)	R/L	1066- power generation Plants (conventional<25 MW & DG set < 5 MVA
DEF PHARMA LLP	R/L	1056-Organic chemicals Manufacturing
M/s. Loyal Super Fabrics	R/L	1084-Yarn/textile Processing with bleaching Dyeing,printing, scouring
M/s.Packaging India Pvt Ltd	R/L	1038-Industr or process

		Involving metal surface Treatment
M/s.Indo International Fertilizers Ltd	R/L	1056-Organic chemicals Manufacturing
M/s.Morgan Industries Ltd	R/L	1078-synthetic resins
M/s.Omni cast precision Products Pvt Ltd	R/M	1035-Industry or process Involving foundry operations
M/s.TANFAC Industries Ltd Cryolite plant	R/M	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
M/s.Tagros Chemicals India Ltd.,	R/S	1005-basic chemicals/ Electro chemicals, its Derivatives including acids
M/s. Sudhakar Chemicals (P)Ltd	R/S	1056-organic chemicals Manufacturing
M/s.Tagros Chemicals India Ltd.,	R/S	Red/miscellaneous (pesticide formulation)
M/s. Kumar Chemical corpn	R/S	1005-basic chemicals/ Electro chemicals, its Derivatives including acids
M/s. Tamilnadu Pigments	R/S	1045-paints, varnishes,

Ltd		Pigments manufacturing
M/s.Pondicherry Alum & Chemicals Ltd	R/S	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
CUSECS	R/S	1014-common treatment And disposal facilities
M/s.TANFAC Industries Ltd	O/L	2018-DG set of capacity <1 MVA but <5 MVA
M/s. MAB Metals	O/S	2002-aluminium and Copper extraction from Scrap using oil fired Furnace
M/s.Morgan Propack	O/S	2999-Miscellaneous
M/s. Diamond Ice and Cold Storage	O/S	2011-Chilling plant, cold storage and ice making
M/s.Igloo Ice	O/S	2011-chilling plant, cold storage and ice making
M/s. Kousalya ice factory	O/S	2011-Chilling plant , cold storage and ice making
M/s. Coastal Packers Pvt Ltd	G/S	2999-miscellaneous-green
M/s. Arkema	R/L	1009-Chlorates,

		Perchlorates and peroxides
M/s. Bayer Material Science Pvt.Ltd	R/L	1078-Synthetic resins
M/s. Pionee Jellice India Pvt Ltd	R/L	1043-manufacturing of Glue and gelatine
M/s. Chemplast Sanmar Ltd	R/L	1078-synthetic resins
M/s. Chemplast Sanmar Ltd	R/L	1065-Ports & Harbours, Jetties& dredging operations
M/s. Pandian Chemicals Ltd	R/M	1009chlorates, perchlorates And peroxides
M/s. Pioneer Jellice India Pvt Ltd, GEN SET	O/S	2018-DG set of capacity <1MVA but <5MVA

13.Out of the 36 units, 21 industries were generating trade effluents and all of them had provided individual effluent treatment plant in their premises. In that, 11 units had provided additional system to maintain 'zero' discharge of trade effluent, remaining 10 industries were discharging their treated trade effluents into Bay of Bengal. Among 10 such units, 9 units were discharging treated effluent from their member industries for marine disposal into sea through CUSECS (Cuddalore SIPCOT Industries Common Utilities Ltd.,) a common collection, conveyance and disposal facility.

14.The CUSECS discharged the treated effluent directly into marine through a separate pipe line of 970 m into Bay of Bengal. Another one

unit viz., M/s. Clariant Chemicals India Ltd., discharged the treated effluent directly into marine through a separate pipe line of 1 km into Bay of Bengal. M/s. Chemplast Sanmar Ltd., PVC Division has provided desalination plant and discharged the desal reject into Bay of Bengal at a distance of 1 km into the sea.

15.The details of industries provided 'zero' liquid discharge system are as follows:

Name of the industries	Quantity In KLD	Point of discharge
M/s.Tagros Chemicals India Ltd Unit-1	60	ZLD
M/s.Tagros Chemicals India Ltd Unit-1I	15	ZLD
M/s. Shasun pharmaceuticals Ltd	51	ZLD
M/s. Shasun pharmaceuticals Ltd R&D block	10	ZLD
M/s. Asian Paints Ltd,	135	ZLD
M/s.DFE Pharma LLP Ltd	8	ZLD
M/s.Packaging India Pvt. Ltd.	5	ZLD
M/s.Chemplast Sanmar	4335	ZLD
M/s TANFAC Industries Ltd	135	ZLD
M/s. Indo lnternational Fertilizers	14.55	ZLD
M/s. Bayer Materials Science PvtLtd	5.0	ZLD

16. Details of industries discharging into Marine disposal.

Name of the industries	Quantity	Point of

		Discharge
M/s. Clariant Chemicals(I)Ltd	1000	Marine
M/s.TANFAC Industries Ltd-AIF PLANT	1212	CUSECS
M/s.TANFAC Industries Ltd Cryolite plant	363	CUSECS
M/s.TANFAC Industries Ltd GEN set	10	CUSECS
M/s. Loyal Super Fabrics	618	CUSECS
M/s. Pandian Chemicals Ltd	23	CUSECS
M/s. Arkema Peroxides India Pvt Ltd	85	CUSECS
M/s. Tamilnadu pigments Ltd	12	CUSECS
M/s. Pioneer Jellice India Ltd	1200	CUSECS
M/s Tagros Chemicals IndiaLtd	50	CUSECS

17. The major water body in that area is river Uppanar. Uppanar originates from Perumal Eri flows along the eastern boundary of SIPCOT industrial complex and joins with Bay of Bengal at Cuddalore Port. Fishing activity is carried out in that river. River Uppanar is filled with sea back waters with high TDS ad Chloride content. Water quality monitoring, marine disposal are being done as under:

River Uppanar is monitored monthly at the upstream and downstream side of the SIPOT area.

Marine water quality is monitored by the Board once in three months at the discharge point of CUSECS, M/s. Clariant Chemicals (I) Ltd., and DESAL reject discharge by M/s. Chemplast Sanmar Ltd.,

The report of analysis of ground water collected from the four locations viz., SIPCOT project office campus, Kudikadu OHT, M/s Tagros Chemicals India Ltd., and M/s. Chemplast Sanmar Ltd., upto the period 2014 revealed that TDS, Total Hardness ad Cadmium exceeds the drinking water standards. None of the industries located in the SIPCOT industrial complex are using Cadmium and Nickel as raw material or as finished products.

18. The details of the water quality for the period 2010 – 2011 are detailed as follows:

Name of the bore well	Parameters exceeding drinking Water standards Collected during The year 2010-11	Observations
SPIC BORE WELL	TDS, total Iron, Lead, Magnesium, Calcium & Cadmium	The quality of bore well water Remains same when compared With the samples collected during The period from 2006-2007 till 2010-11
Kudikadu bore well	TDS, total hardness total Iron, Lead, Magnesium, Calcium & Cadmium	The quality of bore well water Remains same when compared With the samples collected during The period from 2006-2007 till 2010-11
Sathya hand pump	TDS, Chlorides total hardness	The quality of bore well water Remains same when compared

	total Iron, Lead, Magnesium, Calcium & Cadmium	With the samples collected during The period from 2006-2007 till 2010-11

19. The monitoring mechanism of effluent generating from industries, the status of treated trade effluents generated by SIPCOT industries for various periods are given as follows:

Period	No.of Sample	No. Of CUSECS sump-6 samples exceeding marine Disposal standards					
		TSS Mg/L	BOD Mg/L	COD Mg/L	Sulphide Mg/L	Ammonical Nitro Gen Mg/L	TKN Mg/L
April 2011 To March 2012	45	3	8	22	Nil	4	2
April 2012 To Oct. 2012	22	3	6	14	Nil	4	Nil
Nov.	30	Nil	2	4	2	Nil	2

2012-Dec.2013							
Jan.to Dec.2014	40	2	Nil	Nil	4	Nil	Nil

20. The report of analysis of the treated trade effluent collected from SIPCOT industries for the period from April, 2011 to October, 201 is as follows:

Industries	No.of samples collected from Apr. 2011 To Mar. 2012	Para Meters Exceeding The limit	No. Of Samples Collected From April 2012 to Oct. 2012	Para Meters Exceed Ing the Limit
M/s.TANFAC Industries Ltd (cusecs)	11	Nil	7	Nil
M/s. Loyal Super Fabrics(cusecs)	12	Nil	6	Nil
M/s.Bayer Material Science Pvt ((cusecs)	12	Nil	7	Nil
M/s.Tamilnadu Pigments (P) Ltd (cusecs)	6	Nil	7	Nil
M/s. Pandian Chemicals Ltd	12	Nil	7	Sulpha Tes 1/7

(cusecs)				
M/s. Arkema Peroxides India Pvt. Ltd. (cusecs)	12	Sulpha Tes 1/12	7	Sulpha Tes 1/7
M/s. Sudhakar Chemicals Ltd (cusecs)	4	Sulpha Tes 1/44	7	Sulpha Tes 4/7
M/s. Pioneer Jelice India Pvt. Ltd (cusecs)	23	BOD-7/23 COD-9/23 TSS-2/23 AN-5/23 TKN 4/23	13	BOD-1/13 COD-4/13 TSS-1/13 AN-2/13 TKN Nil
M/s. Clriant Chem. (I) Ltd. (individual marine Discharge)	14	COD-1/14	7	Nil

21. The report of analysis of the treated trade effluent collected from SIPCOT industries for the period from Nove.2012 to Dec. 2013 is as follows:

Industries	No.of Samples Collected	Parameters Exceeding The limit

	From Nov.2012 to Dec.2013	
M/s.TANFAC Industries Ltd(cusecs)	17	Nil
M/s. Loyal Super Fabrics(cusecs)	15	Nil
M/s.Bayer Material Science Pvt (cusecs)	11	Nil
M/s.Tamilnadu Pigments (P)Ltd (cusecs)	2	Nil
M/s. Pandian Chemicals Ltd (cusecs)	12	TRC -1/12
M/s. Arkema Peroxides India Pvt. Ltd. (cusecs)	14	TRC -1/14
M/s. Sudhakar Chemicals Ltd(cusecs)	0	NOT IN opereation
M/s. Pioneer Jellice India Pvt. Ltd (cusecs)	14	COD-1/14 Sulphate-1/14 Sulphide-1/14
M/s. Clariant Chem. (I) Ltd. (individual marine Discharge)	13	Nil

22. The report of analysis of the treated trade effluent collected from SIPCOT industries for the period from Jan. 2014 to Dec.2014 is as follows:

Industries	No. Of	Parameters

	Samples Collected From Jan. 2014 to Dec.2014	Exceeding The limit
M/s.TANFAC Industries Ltd(cusecs)	12	Nil
M/s. Loyal Super Fabrics(cusecs)	12	Nil
M/s.Tamilnadu Pigments (P)Ltd (cusecs)	Not in Operation	Nil
M/s. Pandian Chemicals Ltd (cusecs)	12	Nil
M/s. Arkema Peroxides India Pvt. Ltd. (cusecs)	12	BOD-1/12 BOD-1/12 TRC-1/12
M/s. Sudhakar Chemicals Ltd(cusecs)	Not in Operation	Nil
M/s. Pioneer Jellice India Pvt. Ltd (cusecs)	12	Sulphide-1/12
M/s. Clariant Chem. (I) Ltd. (individual marine Discharge)	12	Nil

23. The details of air polluting industries in the area are as follows:

M/s. Clariant Chem. (I) Ltd.	Dye- Dye intermediate
M/s.TANFAC Industries Ltd	Chemical
M/s. Loyal Super Fabrics	Textile dyeing

M/s. Pandian Chemicals Ltd	Chemical
M/s.Bayer Material Science Pvt	Synthetic resins
M/s. Pioneer Jellice India Pvt. Ltd	Glue & gelatin
M/s.Tagros Chemicals India Ltd.Unit-1	Pesticide
M/s.Shasun Pharmaceuticals Ltd	Pharmaceuticals
M/s. Asian Paints Ltd	Chemical
M/s. DEF Pharma LLP	Chemical
M/s.Chemplast Sanmar Ltd PVC	PVC
M/s. Indo International Fertilisers Ltd	Chemical

24. Air quality monitoring system and status of the industries connected real time on-line monitoring data to Care Air Centre, TNPCB, Chennai etc were detailed as follows:

	Existing online sensors connected to CARE Air Centre		
Industries	Air		
	Ambient sensor	Stack sensor	Effluent
M/s. Clariant Chem. (I) Ltd.	TVOC-4nos	1.Chloronil Plant stack-Cl_2 2. Boiler (8T/hr) -SPM 3.Milling plant Stack-SPM 4.Process reactor stack-SO_2	1.ETP inlet Flow 2.effluent Discharge into Sea- Flow &pH
M/s.Indo	TVO-1no	Boiler (3T/hr-	STP outlet into

International Fertilizers Ltd		SO_2	CUSECS- Flow & pH
M/s. Pandian Chemicals Ltd		Electrolytic cell	ETP outlet Into CUSECS Flow & pH
M/s. Loyal Super Fabrics		Boil stack-SPM Thermic Heater SPM	ETP outlet Into CUSECS Flow & pH
M/s. Pioneer Jellice India Pvt. Ltd		Boiler stack SPM	ETP outlet Into CUSECS Flow & pH Temp-1 no
M/s. Arkema Peroxides India Pvt. Ltd.	Warehouse-II & IV-TVOC 1 no HCL 1 no. Ware House II, IV & V- Temperature Detector with Alarm system		ETP outlet Into CUSECS Flow & pH
M/s.Bayer Material Science Pvt	TVOC-1 no	Thermic fluid Heater – SO_2	ETP INLET– FLOW ETP outLET– FLOW & pH
M/s.CUSECS			Sump-6 outlet To sea-EMFM & pH

M/s. Asian Paints Ltd	Process plant Area, raw Material storage Area-TVOC-2nos.CAAQM Station-1 Nos.(SO_2 NO_x PM_{10} $PM_{2.5}$	Boiler stack (16 T/hr)-SPM SO_2 & NO_x	RO permeate For reuse-EMFM & pH
M/s.Tagros Chemicals India Ltd.	TVOC-4nos	Process Scrubber stack -SO_2 & Cl_2 Coal Boiler Stack-SPM & SO_2 Fire Wood Boil Ere – SPM	STP outlet-EMFM & pH
M/s.Shasun Pharmaceuticals Ltd	TVOC-4 nos	1.Scrubber stack-Mercaptan 2.Boiler (6 T/hr & 10 T/hr Common stack -SPM 3.Thermic Fluid heater Stack-SPM,SO_2 4.Production Block I&II	RO permeate For reuse EMFM & pH

		Common stack -HCI sensor 5.organic Emission (PB-1 &II)ACF filter- TVOC 6.Acid fumes (PB-III) scrubber Common stack -HCL sensor	
M/s.Shasun Pharmaceuticals Ltd R&D Block		Process stack -HCI	R&D Block Effluent outlet EMFM
M/s.Chemplast Sanmar Ltd PVC	1.VCM monitors -10 nos.2. CAAQM_SO_2 NO_x PM_{10} $PM_{2.5}$ Ozone ,CO,VCM & Benzene	1.Boiler (38T/hr Stack- SPM SO_2 & NO_x 2.PVC dryer Stack-SPM & VCM 3.VGA stack VCM	1.STP outlet EMFM & pH 2.RO permeate For reuse- EMFM & pH 3.Desal Reject to sea EMFM & pH
M/s.TANFAC Industries Ltd	TVOC- 1no	1.HF Plant CAS Stack-HF 2.AIF, plant CAS stack-HF 3.Speciality	ETP OUTLET Into CUSECS- EMFM & pH

		Fluoride plant 4. Scrubber Stack – HF 5. Sulphuric Acid plant (I&II) stacks- SO_2 6.Boiler stack (10T/hr)-SPM & SO_2 7. 2.5 MW HFO Generator Stack – SO_2	
M/s. DEF Pharma LLP	TVOC- 2 Nos.	Boiler common Stack (4 T/hr-2 Nos-SPM	Inlet to the ETP-EMFM,RO Permeate – EMFM,pH

25.The green belt development in that area showed that they were having adequate green belt as out of total area of 179 hectares, 67 hectares of land covering 37.4% of the area is developed with green belt with 1,58,001 number of trees. The details have been explained as follows:

Name of Unit	Total area Of site (hectares)	Extent of Area green Belt	Total no. Of trees developed	No. Of Trees Planted	Area (hectares)

		Developed (hectares)		outside	
M/s.SPIC	32.84	9.21	4700	Nil	Nil
M/s. Bayer	3.0352	1.053	1520	100	0.3
M/s. Arkema	22.93	15	29500	120	0.25
M/s. Asian Paints	11.818	8.82	13534	1500	0.5
M/s. Clariant	29.375	09.70	40900	200	--
M/s.Loyal	1.57	0.70	725	625	0.70
M/s. TANFAC	24.35	8.32	24600	480	1.20
M/s. Pandian	1.605	0.53	1242	180	0.4
M/s. Pioneer 10.295	10.295	2.829	5306	100	Nil
M/s.Chem Plast	27.3	9.1	32345	920	1.90
M/s.Omni Cast	0.874	0.3	98	Nil	Nil
M/s. Tagros	3.64	0.434	1294	790	1.98
M/s. Shasun	6.52	2.04	1971	527	0.30
M/s.DFE	1.82	0.554	146	60	0.20

Pharma					
M/s. Packaging India	0.81	0.3	120	20	Nil
Total	178.7822	66.89	158001	5622	7.73

26.The Comprehensive Environmental Pollution Index in that area is as follows:

The CEPI score are derived from concentration of the pollutants in respect of Ambient air quality ground water quality and treated trade effluent and from zero liquid discharge systems and marine outfall systems of industries with population criteria of SIPCOT Industrial Complex, Cuddalore.

27.The SIPCOT industrial complex, Cuddalore was categorised as critically polluted industrial cluster during the year 2009 and was assigned with a CEPI score 77.45.

Industrial area	Air	Water	Land	CEPI
SIPCOT, Cuddalore	54.00	65.25	64.00	77.45

28.The MoEF on 13.1.2010 imposed a moratorium on environmental clearance for new projects in the 43 critically polluted industrial clusters in order to stimulate environmental remediation/mitigation activities by industry and by the State Government concerned. Short term and Long term action plan were prepared by the Tamilnadu Pollution Control Board to monitor land improve the quality of Air and Water environment and steps were taken to implement the action plan.

29. The CEPI score after installation/commissioning of pollution control equipments/measures were calculated as 54.69 during August, 2011.

Industrial area	Air	Water	Land	CEPI
SIPCOT, Cuddalore	28.00	50.00	33.5	64.69

30.Based on the action taken by the TNPCB to implement the time bound action plan, MoEF had lifted the moratorium on 15.2.2011 in 8 more critically polluted areas which includes the SIPCOT, Cuddalore based on recommendations received from the CPCB.

31. The CEPI score calculated based on the analysis report for the period 2011-12 is as follows:

Industrial area	Air	Water	Land	CEPI
SIPCOT, Cuddalore	28.00	52.5	50	59.15

32.The CEPI score calculated based on the analysis report for the period 2013 is as follows:

Industrial area	Air	Water	Land	CEPI
SIPCOT, Cuddalore	28.00	32.5	30.00	38.17

33.The report for the year 2014 is under updation and will be completed before the end of March, 2015. So they prayed for accepting the contention and pass appropriate orders in the matter.

34.The Tamil Nadu Pollution Control Board, on the basis of the directions given by this Tribunal by order dated 7.9.2016 filed further reply affidavit dated 26.9.2016, contending as follows:

"Based on the Hon'ble NGT direction, fresh water samples from bore wells, piezo metric wells in and around SIPCOT industrial complex, Cuddalore and Uppanar river are collected on 9.9.2016 and 12.9.2016. The above said samples were collected by the TNPCB officials and analyzed in the Advanced Environmental Laboratory, Tamil Nadu Pollution Control Board, Cuddalore.

35. The ROA of the water samples is described below:

Status of water quality in the bore wells located outside the SIPCOT.

The details of bore well water samples collected outside of SIPCOT Industrial Complex, Cuddalore is detailed below:

Point of collection	Locations outside the SIPCOT
borewell	Alapakkam Panchayat Union Building, Alapakkam
Borewell	At the house of N. Sankar, Poondiyankuppam
Borewell	At the house of C. Anbarasu,Semmankuppam
Borewell	At the house of Kandan Sangolikuppam
Borewell	Public hand pump, VKJ Nagar,Panchiyankuppam
Borewell	At the house of Ramesh, Chellankuppam
Borewell	At the house of Devan, KTR Nagar, Cuddalore

36.There are 7 number of bore well water samples collected from the wells located outside SIPCOT Industrial Complex, Cuddalore. The report of analysis of above samples revealed that the parameters of Lead in all seven locations and iron in one location exceeded to the drinking water standards of accepted limit as prescribed in the IS 10500:2012.

Status of water quality in bore wells located inside the SIPCOT

37.The details of water sample collected in bore wells inside the SIPCOT Industrial Complex, Cuddalore is detailed below:

Point of collection	Type	Name of the industry
Near store	Borewell	M/s.Covestro India Ltd
Near Oseion plant	Borewell	M/s. Pioneer Jellice
KOHT	Borewell	Kudikadu overhead tank
Near Intermediate plant	Borewell	M/s. Clariant Chemicals
SIPCOT PROJECT Office	Borewell	Back side of SIPCOT
	Borewell	
	Borewell	

38.There are 6 number of bore well water samples collected from the wells located inside the SIPCOT industrial complex, Cuddalore. The report of analysis of above samples revealed that the parameters of lead and iron are exceeded in three locations and total hardness in two locations out of six locations exceeded to the drinking water standards of accepted limit as prescribed in the IS 10500:2012.Status of water quality in piezo metric wells located inside the SIPCOT

39.The details of water samples collected in piezo metric wells inside the SIPCOT industrial complex , Cuddalore is detailed below:

Point of collection	Type	Name of industry
Opposite to cold storage	Piezo-metric	M/s. Arkema Peroxides
Near fire water pump house	Piezo-metric	M/s.Chemplast Sankar
Near VCM tank	Piezo-metric	“
Near South of SLF	Piezo-metric	“

Behind boilere	Piezo-metric	M/s. Pandian chemicals
Backside of canteen	Piezo-metric	"
East of ETP	Piezo-metric	M/s. Asian Paints
Near boiler	Piezo-metric	"
Left of boiler	Piezo-metric	"
Near acetaldehyde storage	Piezo-metric	"
Near electro catalytic Reactor	Piezo-metric	M/s.Loyal Super Fab.
Near old boiler	Piezo-metric	Strides shasun Ltd
Opp. To MEE	Piezo-metric	"
East of marine pit	Piezo-metric	"
Backside of HW storage	Piezo-metric	M/s. TANFAC
South of HW storage	Piezo-metric	"
Near ETP	Piezo-metric	M/s. Packaging India
Near parking area	Piezo-metric	M/s. Vivin Tex
Near aeration tank	Piezo-metric	M/s. Topknit Mill
Near raw water tank	Piezo-metric	M/s.Thangamman Tex.
HW storage area	Piezo-metric	M/s. Tagros Chem.
Near DG set	Piezo-metric	M/s. R.K. Exports
Near ETP clarifier	Piezo-metric	M/s. SPIC Pharma
Near ETP sand filter	Piezo-metric	M/s. Kawman Pharma
Near MEE plant	Piezo-metric	"
Backside of boiler	Piezo-metric	"

40. There are 27 number of piezo metric bore well samples collected inside the industries located in SIPCOT industrial complex, Cuddalore. The report of analysis of above piezo metric well samples reveals that the parameters of nickel, lead and iron exceeded in 3, 15 and 5 locations out

of 27 locations respectively as per the drinking water standards of accepted limit as prescribed in the IS 10500:2-2012.And other general parameters of TDS, Chlorine and total hardness exceeded in 1, 1 and 7 locations out of 27 locations respectively. Status of water quality in river Uppanar located adjacent to SIPCOT

41. The Uppanar river is situated at Cuddalore 180 Km south of Chennai and 25 km south of Pondicherry. The river flows between Cuddalore town and most part of Chidambaram Taluk and confluences with Bay of Bengal through a mouth of Gadilam river. It runs behind the SIPCOT industrial complex, Cuddalore.l

42. The river water samples collected in the upstream and downstream of river Uppanar ast Poondiyanuppam village and Rasapet village (near sump – 6). The flow of river Uppanar water mainly consists of back water of sea water during high tide and low tide behind the SIPCOT industrial complex, Cuddalore and the storm water is being confluence during rainy season in the upstream of river Uppanar. The report of analysis of Uppanar river water revealed the presence of lead in traces level.

43. Conclusion; It was ascertained fro the report of analysis of bore well water samples collected outside the SIPCOT, inside the SIPCOT and Piezo metric well water samples collected inside the premises of industries revealed that the parameters lead and iron are commonly present in the water samples and are exceeding the drinking water standards of accepted limit as prescribed in the IS 10500:2012. The report of analysis of Uppanar river water revealed presence of traces level of lead."

44.The second respondent filed the counter affidavit contending as follows:

It is submitted that State Industries Promotion Corporation of Tamil Nadu formed in the year 1972 by the Government of Tamil Nadu to promote industrial growth in backward districts and now formed 20 industrial complexes/parks/growth centers as detailed in Annexure – 1.

45. So far as the present application is concerned, it relates to the SIPCOT Industrial complex, Cuddalore which was established in the year 1984 and developed in Phase – I, Phase – II and Phase – III. Phase – I over an extent of 518.79 acres in Kudikadu and Pachaaiankuppam villages. Phase – II over an extent of 154.72 in Semmankuppam village and Phase – III over an extent of 1934.41 acres in Periyapattu, Kayalpattu, Thiruchopuram and Andalmullipalayam villages which are located along Cuddalore-Chidambaram Highway. SIPCOT is providing the following infrastructure such as water supply, roads, drains and street lights apart from other allied service roads, cross roads etc. Apart from that Post Office, Fire Station, CSIA Dispensary and Canteen are being operated in the said area and in all 36 units including the Central Ware Housing Corporation are under operation and 16 are under construction. There are certain units which were sick and closed numbering about 17. Out of the 32 operating units, 13 units were categorized as red/large category units, 3 units were categorized as red/medium category units, 8 units were categorized as red/small category units and the remaining 8 units were categorized as orange and green category units. They were all shown in Annexures II, III & IV. The respondent is supplying water to the industries by having deep bore well and they were all drilled to a depth of 1000 feet and the water is drawn from the aquifer layer of depth 630 feet. By providing such a measure, the prevention of sea water seeping through and as such the ground water is being collected immediately on withdrawal.

46. It is submitted that a company known as Cuddalore SIPCOT Industries Common Utilities Limited was formed for collecting and discharging the treated effluent from member industries which is in turn disposed of into the Bay of Bengal through pipeline and at a distance of 970 m. Further, the discharge is to a depth of 8 m below the sea surface. This facility is in operation since January 2000. It is necessary to submit that the said CUSECS Ltd., obtained necessary no objection certificates under the various Acts like Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 and no objection certificates from the Pollution Control Board and Environmental Clearance under various notifications of the Central Government.

47.It is respectfully submitted that presently 12 units only are discharging their treated trade effluent through the said CUSECS. The other 10 units have provided zero discharge system. There are about 10 units which are not generating any trade effluents. There are two industries which are individually discharging their treated trade effluents into the sea as per the norms stated above. The zero discharging industries and the list of trade effluent discharging industries are shown in Annexure Nos. V,VI & VII.

48.It is further submitted that so far as the ground water in SIPCOT area is concerned, it is being monitored monthly by the 1st respondent. It is further a fact that none of the industries in the SIPCOT industrial complexes is discharging any solid waste So far as Air and Water Pollution Acts are concerned, necessary safeguard under the said Acts were done and the same is effectively controlled by the authorities constituted by the Tamil Nadu Pollution Control Board. In the above circumstances, it is respectfully submitted that all the allegations

contained in the application submitted by the three individuals are not correct. The said individuals are with a view to cause prejudice has come forward with these set of allegations which deserves to be rejected in limine.

49.It is a matter of fact that in an earlier suo motto writ petition in WP. No.27241 of 2004 all these factors were taken into consideration by the Hon'ble Division Bench of the Madras High Court and the same was disposed of on 29.8.2012. It would be seen that the applicants got themselves impleaded as respondents No.14, 15 and 16 in the said writ petition and ultimately the Division Bench had only directed the Tamil Nadu Pollution Control Board to keep continuous air monitoring including for toxic gases of the units of SIPCOT, Cuddalore and take necessary legal action etc. In the said writ petition, the specific claim made by the applicants to completely ban setting up of or expansion of any unit had been negatived. Therefore, it is clear that the present applicants are interested in closing down the SIPCOT by filing this application. It may not be out of place to submit that they have also filed similar application No.164 of 2014 before this Hon'ble Tribunal. Therefore, it is clear that the applicants are purposely targeting the industrial units of the SIPCOT for their personal gains or publicity more in the nature of political publicity.

50.So far as this respondent is concerned, while following up the strict norms, governing the pollution, conditions are attached to the very allotment order/lease deeds with conditions not to violate any of the pollution laws and every industries are abiding by the said conditions. It is further submitted that the government has already declared SIPCOT area, Phase – I and II as special and hazardous zone under the provisions of the Tamil Nadu Country and Town Planning Act as per

GOMsNo.1730 dt. 24.7.1974 which continues as on date. Therefore, any permission if at all granted, keeping it in view of the area is declared so. Therefore the entire allegations contrary to this is devoid of any merits.

51. The averments contained in para 2 and 3 relates to the forming of SIPCOT and its functions and the allied activities of the Pollution Control Board etc. The averments contained in para 4 with all sub paras traces the earlier history relating to the units at Cuddalore. The narration is only to pinpoint the pollution at Cuddalore by adding that it is because of the units in SIPCOT. It is respectfully submitted that as stated already as per the directions and as per the law governing the issue, every aspect of the matter is being monitored by the Pollution Control Board and other authorities and as a matter of fact the violations mentioned in the various paragraphs and the defects pointed out are not there at all. It is further submitted that this respondent is submitting the latest analyst reports by the authorities which may be read as part and parcel of this counter which will go to show that the entire averments contained in para 4 are not true. It is further submitted that so far as the presence of lead in the water, it is submitted that it cannot be attributed to the SIPCOT and the entire area in and around Cuddalore is having the same content in the water. Therefore, the presence of lead which is slightly above the prescribed limit is common to the area and as such this respondent cannot be said to be the cause for this. The entire averment by the petitioner was only to project this issue which is not due to the existence of the industrial units.

52.The averments contained in para 5 also general in nature and as such this respondent is conscience of legal obligations which they are discharging in letter and spirit. Though this respondent is not responsible for any of the shortcomings in the ground water, the

respondents have taken the task of providing various drinking water development in and around that area and supplying of drinking water to various villages which are all accepted by the local people. Therefore also the averments in para 5 are made without verifying the state of affairs on ground.

53.The ground No.(i) alleging that the discharge from the industries in SIPCOT is adversely affected the ground water for last two decades is factually incorrect and contrary to the reports of the Pollution Control Board. As stated already, the only few units which are discharging the treated trade effluents that too in the marine sub soil without even affecting the upper layer of the sea.

54.The ground No.(ii) is with reference to safeguard which will have to be followed for air pollution which we have already submitted that it has been taken care of and being monitored by the Pollution Control Board authorities periodically and as such there is no air pollution on the part of this respondent or the units in Cuddalore. Similarly the allegations in Ground (iii) alleging that the Pollution Control Board has not issued any notice under Water Pollution Act is totally without any basis as there is no discharge of any treated trade effluent except the mode stated above. Hence that ground also requires to be rejected.

55.The entire ground of attack seems to be that there are violations and difficulties on the part of the Pollution Control authorities in effectively enforcing the Act which is submitted is factually incorrect and the Pollution Control Board is taking effective steps as per the law as well as the directions issued by the Hon'ble Division Bench and as such the entire ground of attack on this ground requires no consideration and liable to be rejected.

56.The reliance placed on the judgment of the Apex Court is with the hidden motive of stopping the industrial growth which the very judgments are condemning and what is required is a balancing of industrial developments, urbanization without compromising the pollution. Therefore the quoting of various judgments in the ground with a view to enlarge the scope of application deserves to be rejected.

57.It is further submitted that so far as reading of the entire case laws referred to by them will only support the theory of balancing the State Industrial Growth which provides the job opportunity etc along with the maintenance of standards of life Therefore it is submitted that the entire application is made without any basis and verifying the status on ground and the same is liable to be rejected.

58.It is further submitted that so far as this respondent is concerned, being creature of a State and being registered as a company has got its own obligation of maintaining standards as well as growth of industry and has provided the following welfare measures directly as well as through its member units.

59. Drinking water supply to villages: Cuddalore SIPCOT Industries Association had contributed Rs. Seven lakhs to District Administration under self sufficient scheme towards water supply arrangement and drinking water is being supplied to nearby villages of Kudikadu, Sangolikuppam and Semmankuppam Panchayat.

60. Under Corporate Social Responsibility Scheme, SIPCOT had contributed Rs.91.00 lakhs to the District Administration under self sufficient scheme for the construction of 15 over head tanks and 13 school buildings class rooms to the nearby villages as per Annexure – VIII. M/s. Strides Shasun Pharmaceuticals Ltd, is providing drinking

water to the Kudikadu village & colony by tanker lorries on regular basis at every door step. M/s. Clariant Chemicals India Ltd, is providing water supply to Kudikadu Colony by piping system, besides M/s. Pioneer Jellice India Pvt. Ltd., and M/s. Arkema Peroxide India Pvt Ltd., are providing water supply to nearby villages at the entrance of their factory.

61.Medical Facilities: Cuddalore SIPCOT Industries Association is running a first aid center in SIPCOT premises by providing morning one doctor and one doctor in the evening to provide medical assistance to villagers. Cuddalore SIPCOT Industries Association is operating one ambulance service round the clock for providing transport facility for the villagers to go to government hospital. M/s. Chemplast Sanmar Ltd., is operating three dispensary with duty doctor at Semmankuppam, Nochikadu, Chittirapettai village to provide medical facilities to nearby villages. M/s Tagros chemicals India Ltd., is operating four dispensaries with duty doctor covering Pachiankuppam village, Sothikuppam village, Manakuppam, Thaikal Thoni Thurai. M/s. Strides Shasun Pharmaceuticals Ltd, is operating one dispensary with duty doctor at Kudikadu village to provide medical facilities to nearby villages. M/s Arkema Peroxide India Pvt. Ltd. Operating one dispensary with one duty doctor and one male nurse at Semmankuppam village to provide medical facilities to nearby villages. All the industries in SIPCOT industrial complex had spent approximately Rs.35 lakhs in providing medical equipments and now the government general hospital has obtained ANASBH accreditation.'

62.Corporate Social Responsibility activity: M/s. Rkema Peroxide India Pvt Ltd, distributed around 5 MT of rice to local village people during recent flood in November 2015. M/s. Chemplast Sanmar Ltd., distributed 34 tons of rice to local villages peoples during flood in

November, 2015. M/s. Coverstro India Pvt Ltd., distributed 2.0 Mt of rice distributed during recent flood in November, 2015.

63.For clean India movement, we have provided dust bins to Cuddalore Municipality for worth of around 3 lakhs. This respondent further submits that this apart as a corporate which owes social responsibility has provided the reliefs during the floods caused in November 2015. It is submitted that reliefs are being provided by this respondent as well as their member units in Thane cyclone, Tsunami and every time when the crisis arises. Therefore the directions sought for in the application to provide for such kind of facilities are already taken care of by this respondent which is admitted by the local people, presidents and villagers and the District Authorities. In the above circumstances, it is therefore prayed that this Hon'ble Tribunal may be pleased to dismiss the above application with cost.

64.The third respondent – Central Pollution Control Board filed their counter affidavit contending as follows:

The Central Pollution Control Board in collaboration with Indian Institute of Technology (IIT), Delhi formulated the criteria of Comprehensive Environmental Pollution Index (CEPI). Comprehensive environmental assessment was carried out in 88 prominent industrial clusters (identified in consultation with MoEF & CC) based on the developed CEPI criteria. Out of the 88 clusters, 43 industrial clusters with CEPI score 70 and above, have been identified as critically polluted areas (CPA) and Cuddalore was identified one such unit, having CEPI score 77.45. The MoEF & CC vide their Office Memorandum dated 13.1.2010 had imposed temporary moratorium on consideration of new projects/expansion of existing projects for environmental clearance to be

located in 43 CPAs, including Cuddalore. Further, MoEF & CC vide O.M dated 15.3.2010 notified the potential impact zones of Cuddalore CPA, as SPICOT Industrial Complex Phase – I and II. The MoEF & CC directed the concerned State Pollution Boards of 43 CPAs to formulate remedial action plans addressing all the environmental issues of the concerned areas. Accordingly, the Tamil Nadu Pollution Control Board formulated the action plan for Cuddalore CPA. The Tamil Nadu Pollution Control Board in coordination with the concerned stakeholders, were directed to implement the action plan so as to improve the environmental quality. For strict implementation of action plan, the Central Pollution Control Board has requested all the State Pollution Control Boards of 43 CPAs to constitute local committees to conduct field visits and review/verify the implementation of action plans and submit progress reports on bi-monthly basis to the Central Pollution Control Board. Simultaneously, the implementation of action plans in CPAs is also being periodically reviewed by the Technical Review Committee constituted at the level of Central Pollution Control Board. As the CEPI reflects the improvement in the environmental quality due to implementation of action plan, the Central Pollution Control Board is also carrying out periodical environmental quality monitoring based on which CEPI is being evaluated and the trend in the CEPI is being analysed for taking appropriate decision on lifting/re-imposition of moratorium. The MoEF & CC has initially adopted a policy of lifting of moratorium conditionally on submission of verified progress reports from concerned State Pollution Control Boards in the line of initiation/implementation of ground work towards implementation of action plans. On the basis of that policy, MoEF & CC lifted moratorium from Cuddalore vide their O.M dated 15.2.2011 upon receipt of progress report of implementation from the

Tamil Nadu Pollution Control Board. The environmental quality monitoring is being carried out by the Central Pollution Control Board through the approved environmental labs periodically and CEPI is being assessed based on the recorded monitoring data in the 43 CPAs. The evaluated CEPI reflects the environmental quality of the 43 CPAs and also serves as a yardstick to assess the progress achieved in the implementation of action plans.

65. So far, three rounds of monitoring have been undertaken by the Central Pollution Control Board for the years 2009, 2011 and 2013 based on which CEPI has been evaluated and the details of which for Cuddalore CPA are as follows:

Industrial cluster	2009	2011	2013
Cuddalore	77.45	78.41	70.12

2011 data:

Mercury exceeds in 1 out of 4 locations

Nickel exceeds in 1 out of 4 locations

Manganese exceeds in 2 out of 4 locations

Iron exceeds in out of 4 locations

2013 data:

Nickel exceeds in 1 out of 4 locations

Manganese exceeds in 2 out of 4 locations

Iron exceeds in 1 out of 4 locations

Boron exceeds in 1 out of 4 locations

The following measures were taken by the Central Pollution Control Board, MoEF & CC, Government to combat the deterioration of environmental quality i.e., air, surface water, ground water in various polluted industrial clusters across the country including Cuddalore and the following measures have been taken for that purpose:

66.The Chairman, Central Pollution Control Board requested all the Chief Secretaries of States in which CPAs are located to constitute State Level Committees under the Chairmanship of Chief Secretary to ensure regular review of implementation of action plans, thereby preventing the degradation of environmental quality of the CPAs. Technical review committee comprising of national level experts is being held regularly to review the implementation of action plans formulated for each of the 43 CPAs. MoEF & CC vide OM dated September 17, 2013 directed Central Pollution Control Board to undertake environmental quality monitoring in CPAs through a third party on biennial basis for computing CEPI. Accordingly, environmental quality monitoring in 10 CPAs namely Ankleshwar, Ghaziabad, Indore, Jharsuguda, Ludhiana, Panipet, Patancheru-Bollaram, Singrauli, Vastva and Vapi was undertaken by the Central Pollution Control Board during 2013-14 and monitoring in remaining 78 polluted industrial areas will be undertaken by the Central Pollution Control Board during 2014-15. Tendering process for the proposed monitoring is currently under progress. Directions have been issued by the Central Pollution Control Board to all the concerned State Pollution Control Boards of 43 CPAs for installation of Continuous Ambient Air Quality Monitoring Stations and Continuous Water Quality Monitoring Stations in each of the 43 CPAs. They have submitted that the contentions of the Central Pollution Control Board may be considered and appropriate order may be passed.

67. The fourth respondent has filed reply affidavit contending as follows:

"It is respectfully submitted that the applicants have prayed that this Hon'ble Tribunal to declare a moratorium on expansion and setting up of new industries in the SIPCOT region, owing to the existing levels of pollution and contamination and to direct the respondents to provide SIPCOT, Cuddalore residents with safe drinking water at the cost of the SIPCOT industries under the polluter pays principle and in accordance with the standards laid down in IS 10500(2012) as the quality of the available water is not only in violation of the national standards but also carcinogenic in nature and will cause irreparable damage to their health.

68.It is respectfully submitted that the SIPCOT INDUSTRIAL COMPLEX, CUDDALORE was established during the year 1984. The industrial complex has phase – I and phase – II where textile processing, pharmaceuticals, dye chemicals, pesticides and miscellaneous industries were located. The SIPCOST Industrial Complex, Cuddalore is located along the Cuddalore – Chidambaram Highways (NH-45-A). SIPCOT Phase – I has a total extent of 518.79 aces and Phase – II has a total extent of 190.52 acres.

69 They are having the following infrastructural facilities viz.,

Water supply	..	Total number of bore wells – 10
		Total yield – 3.1 MGD
Roads & Drains	..	18 m width road &
		12 m width road
Total length	..	7 km

Post office, Fire Station, CSIA dispensary, Canteen are operated in this area. The SIPCOT Industrial Complex is surrounded by the following topography:

North .. Pachayankuppam village

East .. River Uppanar

South . Sonanchavadi village

West . NH 45-A (Cuddalore – Chidambaram)

70.The details of industries in SIPCOT, Cuddalore as on 28.2.2015:

Status	Phase-I	Phase-II	Total
Under operation	29	7	36
Proposed	7	3	10
Remain closed	6	Nil	6
Total	42	10	52

71.Out of the 36 operating units, 4 units are categorized as highly polluting units, 14 units were categorized as red/large category units, 3 units were categorized as red/medium category units, 7 units were categorized as Red/small category units and the remaining 8 units were categorised as orange and green category units.

72. The details of the same are as follows:

Details of units generating trade effluent & disposal

Highly polluting industries (17 categories)

Name of the industries	Category	Classification

M/s.Clariant Chemicals (India) Ltd.,	R/L	1016-dyes and dye-Intermediates
M/s.Tagros Chemicals India Ltd. (Unit-I)	R/L	1058-Pesticides (Technical) Excluding formulation
M/s. Shasun Pharmaceutic als Ltd	R/L	1060-Pharmaceuticals (excluding formulation)
Shasun Pharmaceuticals Ltd.,	R/L	1060- Pharmaceuticals Excluding formulation

Red category industries (54 categories)

List of industries under operation

Name of the industries	Category	Classification
M/s.TANFAC Industries Ltd (AIF plant)	R/L	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
M/s.TANFAC Industries Ltd (synthetic organic chemicals)	R/L	1056-Organic chemicals Manufacturing
M/s. Asian Paints Ltd (Penta Dvn)	R/L	1056-Organic chemicals Manufacturing
M/s Asian Paints Ltd (power plant)	R/L	1066- power generation Plants (conventional<25 MW & DG set < 5 MVA

DEF PHARMA LLP	R/L	1056-Organic chemicals Manufacturing
M/s. Loyal Super Fabrics	R/L	1084-Yarn/textile Processing with bleaching Dyeing,printing, scouring
M/s.Packaging India Pvt Ltd	R/L	1038-Industr or process Involving metal surface Treatment
M/s.Indo International Fertilizers Ltd	R/L	1056-Organic chemicals Manufacturing
M/s.Morgan Industries Ltd	R/L	1078-synthetic resins
M/s.Omni cast precision Products Pvt Ltd	R/M	1035-Industry or process Involving foundry operations
M/s.TANFAC Industries Ltd Cryolite plant	R/M	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
M/s.Tagros Chemicals India Ltd.,	R/S	1005-basic chemicals/ Electro chemicals, its Derivatives including acids
M/s. Sudhakar Chemicals (P)Ltd	R/S	1056-organic chemicals Manufacturing

M/s.Tagros Chemicals India Ltd.,	R/S	Red/miscellaneous (pesticide formulation)
M/s. Kumar Chemical corpn	R/S	1005-basic chemicals/ Electro chemicals, its Derivatives including acids
M/s. Tamilnadu Pigments Ltd	R/S	1045-paints, varnishes, Pigments manufacturing
M/s.Pondicherry Alum & Chemicals Ltd	R/S	1005-Basic chemicals/ Electo chemicals, its Derivatives including acids
CUSECS	R/S	1014-common treatment And disposal facilities
M/s.TANFAC Industries Ltd	O/L	2018-DG set of capacity <1 MVA but <5 MVA
M/s. MAB Metals	O/S	2002-aluminium and Copper extraction from Scrap using oil fired Furnace
M/s.Morgan Propack	O/S	2999-Miscellaneous
M/s. Diamond Ice and Cold Storage	O/S	2011-Chilling plant, cold storage and ice making

M/s.Igloo Ice	O/S	2011-chilling plant, cold storage and ice making
M/s. Kousalya ice factory	O/S	2011-Chilling plant , cold storage and ice making
M/s. Coastal Packers Pvt Ltd	G/S	2999-miscellaneous-green
M/s. Arkema	R/L	1009-Chlorates, Perchlorates and peroxides
M/s. Bayer Material Science Pvt.Ltd	R/L	1078-Synthetic resins
M/s. Pioneer Jellice India Pvt Ltd	R/L	1043-manufacturing of Glue and gelatine
M/s. Chemplast Sanmar Ltd	R/L	1078-synthetic resins
M/s. Chemplast Sanmar Ltd	R/L	1065-Ports & Harbours, Jetties& dredging operations
M/s. Pandian Chemicals Ltd	R/M	1009chlorates, perchlorates And peroxides
M/s. Pioneer Jellice India Pvt Ltd, GEN SET	O/S	2018-DG set of capacity <1MVA but <5MVA

73. Out of the 36 units, 21 industries were generating trade effluents and all of them had provided individual effluent treatment plant in their premises. In that, 11 units had provided additional system to maintain 'zero' discharge of trade effluent, remaining 10 industries were

discharging their treated trade effluents into Bay of Bengal. Among 10 units, 9 units were discharging treated effluent from their member industries for marine disposal into sea through CUSECS (Cuddalore SIPCOT Industries Common Utilities Ltd.,) a common collection, conveyance and disposal facility.

74.The CUSECS discharged the treated effluent directly into marine through a separate pipe line of 970 m into Bay of Bengal. Another one unit viz., M/s. Clariant Chemicals India Ltd., discharged the treated effluent directly into marine through a separate pipe line of 1 km into Bay of Bengal. M/s. Chemplast Sanmar Ltd., PVC Division has provided desalination plant and discharged the desal reject into Bay of Bengal at a distance of 1 km into the sea.

75.The details of industries provided 'zero' liquid discharge system are as follows:

Name of the industries	Quantity In KLD	Point of discharge
M/s.Tagros Chemicals India Ltd Unit-1	60	ZLD
M/s.Tagros Chemicals India Ltd Unit-1I	15	ZLD
M/s. Shasun pharmaceuticals Ltd	51	ZLD
M/s. Shasun pharmaceuticals Ltd R&D block	10	ZLD
M/s. Asian Paints Ltd,	135	ZLD
M/s.DFE Pharma LLP Ltd	8	ZLD
M/s.Packaging India Pvt. Ltd.	5	ZLD
M/s.Chemplast Sanmar	4335	ZLD

M/s TANFAC Industries Ltd	135	ZLD
M/s. Indo lnternational Fertilizers	14.55	ZLD
M/s. Bayer Materials Science PvtLtd	5.0	ZLD

76. Details of industries dischasring into Marine disposal.

Name of the industries	Quantity	Point of Discharge
M/s. Clariant Chemicals(I)Ltd	1000	Marine
M/s.TANFAC Industries Ltd-AIF PLANT	1212	CUSECS
M/s.TANFAC Industries Ltd Cryolite plant	363	CUSECS
M/s.TANFAC Industries Ltd GEN set	10	CUSECS
M/s. Loyal Super Fabrics	618	CUSECS
M/s. Pandian Chemicals Ltd	23	CUSECS
M/s. Arkema Peroxides India Pvt Ltd	85	CUSECS
M/s. Tamilnadu pigments Ltd	12	CUSECS
M/s. Pioneer Jellice India Ltd	1200	CUSECS
M/s Tagros Chemicals IndiaLtd	50	CUSECS

77. The major water body in that area is river Uppanar. Uppanar originates from Perumal Eri flows along the eastern boundary of SIPCOT industrial complex and joins with Bay of Bengal at Cuddalore Port. Fishing activity is carried out in that river. River Uppanar is filled with

sea back waters with high TDS and Chloride content. The water is not used for any other activities.

River Uppanar is monitored monthly at the upstream and downstream side of the SIPOT area. Marine water quality is monitored by the Board once in three months at the discharge point of CUSECS, M/s. Clariant Chemicals (I) Ltd., and DESAL reject discharge by M/s. Chemplast Sanmar Ltd., The report of analysis of ground water collected from the four locations viz., SIPCOT project office campus, Kudikadu OHT, M/s Tagros Chemicals India Ltd., and M/s. Chemplast Sanmar Ltd.,

78. It is respectfully submitted that monitoring mechanism of effluent generating from industries are submitted as follows:

The treated trade effluent discharged by the industries for marine disposal is monitored once in a month by the Board. The CUSECS discharge into sea through final sump-6 is monitored once in a week during the year period 2012 to 2014 and twice in a month from December 2014 onwards. The treated effluent discharge by M/s. Clariant chemicals India Ltd., is being monitored by the Board once in a month. The desalination reject discharge by M/s. Chemplast Sanmar Ltd., PVC plant is being monitored by the Board once in a month. The units having Zero liquid discharge system are being monitored by the Board once in three months. All the units were requested to furnish the performance evaluation study report for the existing effluent treatment plant and air pollution control measures as done through competent external agencies and most of the industries have conducted the above study ad furnished the report to the Board. The performance evaluation study report reveals that the existing effluent treatment plants and air pollution control measures provided by the units are adequate and capable of achieving

the standards prescribed by the Board. All zero liquid discharge units were requested to computerize the EMFM readings to assess the quantity of effluent generation, quantity of treated water taken for reuse and the quantity of rejects generated and the industries having ZLD have computerized the EMFMs provided at the inlet to the ETP, RO FEED LINE, RO Permeate line and RO reject line. All red large units in SIPCOT have been provided online pH and TDS sensors in the storm water drain as advised by the Board so as to ensure that there is no contaminations occurred during rainy season.

79. It is respectfully submitted that air quality monitoring system in industries are submitted as follows:

Ambient air quality/stack/ambient noise level monitoring in the industrial premises are being done by the Board twice in a year. Solvent utilizing industries monitors VOC level in ambient air through MoEF & CC approved labs once in three months and submits the report to the Board. M/s. Chemplast Sanmar Ltd conducts ambient VCM monitoring using mobile GC at surrounding 7 villages during unloading of VCM from MTF to the unit site. VCM monitoring is done by the Board at emergency shutdown valve at land fall point, T-joint at land fall point near river Uppanar, emergency shutdown vale at VCM storage tank area and PVC drier area in the plant during unloading of VCM from ship to plant site. Ambient air quality survey is done by industries through external labs to monitor 12 ambient parameters as per MoEF notification 16.9.2011 once in three months and submitting the report to the Board. A continuous ambient air quality monitoring station was installed and operated by M/s. Chemplast sanmar Ltd., SIPCOT, Cuddalore to monitor SO_2 NO_x PM_{10} $PM_{2.5}$ Ozone, Benzene & VCM.

80. A continuous ambient air quality monitoring station was installed and operated by M/s. Asian Paints Ltd., SIPCOT, Cuddalore to monitor SO_2 NO_x PM_{10} $PM_{2.5.}$ Leak detection and repair monitoring study was conducted by M/s. Chemplast Sanmar Ltd. M/s. Asian Paints Ltd., M/s. Clariant Chemicals India Ltd., M/s. Shasun Pharmaceuticals Ltd and M/s. Tagros Chemicals India Ltd and M/s Indo International Fertilizers Ltd for the control of fugitive VOC emission and submitted the report to the Board.

81. It is respectfully submitted that status on the industries connected real time on line monitoring data to care air centre, TNPCB Chennai are submitted as follows:

All the industries in SIPCOT industrial complex have provided with air pollution control measures and the online sensors. The details of online sensors provided and connected with CARE, AIR Centre, TNPCB, Chennai is submitted as follows:

	Existing online sensors connected to CARE Air Centre		
Industries	Air		
	Ambient sensor	Stack sensor	Effluent
M/s. Clariant Chem. (I) Ltd.	TVOC-4nos	1.Chloronil Plant stack-Cl_2 2. Boiler (8T/hr) -SPM 3.Milling plant Stack-SPM 4.Process reactor stack-	1.ETP inlet Flow 2.effluent Discharge into Sea- Flow &pH

		SO_2	
M/s.Indo International Fertilizers Ltd	TVO-1no	Boiler (3T/hr-SO_2	STP outlet into CUSECS- Flow & pH
M/s. Pandian Chemicals Ltd		Electrolytic cell	ETP outlet Into CUSECS Flow & pH
M/s. Loyal Super Fabrics		Boil stack-SPM Thermic Heater SPM	ETP outlet Into CUSECS Flow & pH
M/s. Pioneer Jellice India Pvt. Ltd		Boiler stack SPM	ETP outlet Into CUSECS Flow & pH Temp-1 no
M/s. Arkema Peroxides India Pvt. Ltd.	Warehouse-II & IV-TVOC 1 no HCL 1 no. Ware House II, IV & V- Temperature Detector with Alarm system		ETP outlet Into CUSECS Flow & pH
M/s.Bayer Material Science Pvt	TVOC-1 no	Thermic fluid Heater – SO_2	ETP INLET– FLOW ETP outLET– FLOW & pH
M/s.CUSECS			Sump-6 outlet

			To sea-EMFM & pH
M/s. Asian Paints Ltd	Process plant Area, raw Material storage Area-TVOC-2nos.CAAQM Station-1 Nos.(SO_2 NO_x PM_{10} $PM_{2.5}$	Boiler stack (16 T/hr)-SPM SO_2 & NO_x	RO permeate For reuse-EMFM & pH
M/s.Tagros Chemicals India Ltd.	TVOC-4nos	Process Scrubber stack -SO_2 & Cl_2 Coal Boiler Stack-SPM & SO_2 Fire Wood Boil Ere – SPM	STP outlet-EMFM & pH
M/s.Shasun Pharmaceuticals Ltd	TVOC-4 nos	1.Scrubber stack-Mercaptan 2.Boiler (6 T/hr & 10 T/hr Common stack -SPM 3.Thermic Fluid heater Stack-SPM,SO_2	RO permeate For reuse EMFM & pH

		4.Production Block I&II Common stack -HCI sensor 5.organic Emission (PB-1 &II)ACF filter- TVOC 6.Acid fumes (PB-III) scrubber Common stack -HCL sensor	
M/s.Shasun Pharmaceuticals Ltd R&D Block		Process stack -HCI	R&D Block Effluent outlet EMFM
M/s.Chemplast Sanmar Ltd PVC	1.VCM monitors -10 nos.2. CAAQM_SO_2 NO_x PM_{10} $PM_{2.5}$ Ozone ,CO,VCM & Benzene	1.Boiler (38T/hr Stack- SPM SO_2 & NO_x 2.PVC dryer Stack-SPM & VCM 3.VGA stack VCM	1.STP outlet EMFM & pH 2.RO permeate For reuse- EMFM & pH 3.Desal Reject to sea EMFM & pH
M/s.TANFAC Industries Ltd	TVOC- 1no	1.HF Plant CAS Stack-HF 2.AIF, plant	ETP OUTLET Into CUSECS- EMFM & pH

		CAS stack-HF 3.Speciality Fluoride plant 4. Scrubber Stack – HF 5. Sulphuric Acid plant (I&II) stacks- SO_2 6.Boiler stack (10T/hr)-SPM & SO_2 7. 2.5 MW HFO Generator Stack – SO_2	
M/s. DEF Pharma LLP	TVOC- 2 Nos.	Boiler common Stack (4 T/hr-2 Nos-SPM	Inlet to the ETP-EMFM,RO Permeate – EMFM,pH

82. The green belt development in that area shows that they are having adequate green belt as out of total area of 179 hectares, 67 hectares of land covering 37.4% of the area is developed with green belt with 1,58,001 number of trees. The details have been explained as follows:

Name of Unit	Total area Of site	Extent of Area green	Total no. Of trees	No. Of Trees	Area (hectares)

	(hectares)	Belt Developed (hectares)	developed	Planted outside	
M/s.SPIC	32.84	9.21	4700	Nil	Nil
M/s. Bayer	3.0352	1.053	1520	100	0.3
M/s. Arkema	22.93	15	29500	120	0.25
M/s. Asian Paints	11.818	8.82	13534	1500	0.5
M/s. Clariant	29.375	09.70	40900	200	--
M/s.Loyal	1.57	0.70	725	625	0.70
M/s. TANFAC	24.35	8.32	24600	480	1.20
M/s. Pandian	1.605	0.53	1242	180	0.4
M/s. Pioneer 10.295	10.295	2.829	5306	100	Nil
M/s.Chem Plast	27.3	9.1	32345	920	1.90
M/s.Omni Cast	0.874	0.3	98	Nil	Nil
M/s. Tagros	3.64	0.434	1294	790	1.98
M/s. Shasun	6.52	2.04	1971	527	0.30

M/s.DFE pharma	1.82	0.554	146	60	0.20
M/s. Packaging India	0.81	0.3	120	20	Nil
Total	178.7822	66.89	158001	5622	7.73

83.The Comprehensive Environmental Pollution Index in that area is as follows:

The CEPI score are derived from concentration of the pollutants in respect of Ambient air quality ground water quality and treated trade effluent and from zero liquid discharge systems and marine outfall systems of industries with population criteria of SIPCOT Industrial Complex, Cuddalore.

84.The SIPCOT industrial complex, Cuddalore was categorised as critically polluted industrial cluster during the year 2009 and was assigned with a CEPI score 77.45.

Industrial area	Air	Water	Land	CEPI
SIPCOT, Cuddalore	54.00	65.25	64.00	77.45

85. The MoEF on 13.1.2010 imposed a moratorium on environmental clearance for new projects in the 43 critically polluted industrial clusters in order to stimulate environmental remediation/mitigation activities by industry and by the State Government concerned. Short term and Long term action plan were prepared by the Tamilnadu Pollution Control Board to monitor land improve the quality of Air and Water environment and steps were taken to implement the action plan. The CEPI score after

installation/commissioning of pollution control equipments/measures were calculated as 54.69 during August, 2011.

Industrial area	Air	Water	Land	CEPI
SIPCOT, Cuddalore	28.00	50.00	33.5	64.69

86. Based on the action taken by the TNPCB to implement the time bound action plan, MoEF had lifted the moratorium on 15.2.2011 in 8 more critically polluted areas which includes the SIPCOT, Cuddalore based on recommendations received from the CPCB.

87. It is respectfully submitted that status of water quality in river Uppanar located adjacent to SIPCOT is submitted as follows:

The Uppanar river is situated at Cuddalore N11^0 43'E:N 79^0 46'E) 180 km south of Chennai and 25 km south of Pondicherry. The river flows between Cuddalore town and most part of Chidambaram Taluk and confluences with the Bay of Bengal through a mouth of Gadilam river. It runs behind the SIPCOT industrial complex, Cudalore. The river water samples collected in the upstream and downstream of river Uppanar at Poondiyankuppam village and Rasapet village. The flow of river Uppanar water mainly consists of back water of sea water during high tide and low tide behind the SIPCOT Industrial Complex, Cuddalore and the storm water is being confluence during rainy season in the upstream of river Uppanar. The report of analysis of Uppanar river water reveals the presence of lead in traces level.

88.It was ascertained from the report of analysis of bore well water samples collected outside the SIPCOT inside the SIPCOT and Piezi metric well water samples collected inside the premises of industries reveals that the parameters of lead land iron are commonly present in the water

samples and are exceeding the drinking water standards of accepted limit as prescribed in the IS 10500:2012. The report of analysis of piezo metric well water samples reveals that the parameter of nickel is exceeds in 3 locations out of 27 locations to the drinking water standards of accepted limit as prescribed in the IS 10500:2012. The report of analysis of Uppanar river water reveals that presence of traces level of lead.

89. It is further submitted that based on the Hon'ble NHG (SZ) interim order dated 7.9.2016, SIPCOT has been supplying drinking water to the nearby villages of Sangolikuppam village in Sedapalayam Panchayat and Semmankuppam Panchayat villages such as Semmankuppam village Mettu Semmankuppam, Semmankuppam Colony, Vairankuppam village and Thatchan colony villages by 3 nos. of tranker loads daily from 14.10.2016 to till date They have incurred expenditure of Rs.25 lakhs as on date.

90. It is further submitted that SIPCOT industries Association, Cuddalore had contributed an amount of Rs.7 lakhs to the District Collector, Cuddalore on 20.4.2010 for providing water supply to the nearby villages 1 no. Deep bore well laws drilled at Kannarapettai and provided pipelines from Kannarapettai to Kudikadu, Eachankadu, Karaikadu, Sangolikuppam village and Semmankuppam village. After completion of the project water supply arrangement were made through piping system to the above villagers from 2012.

91.M/s. Strides Shasun Ltd., has been supplying of 4 nos. lorry tanker loads of 6000 litres capacity load to Kudikadu colony. R.O pant of 1500 lit capacity per hour was installed by M/s. Arkema Peroxides India Ltd., to Thatchan colony and Vairankuppam village and the RO plant has been functioning in good condition from November, 2017. RO Plant of

1500 lr capacity per hour was installed by M/s Asian paints Ltd., in Semmankuppam village and it is functioning in good condition from April, 2018. 1 no RO plant of 500 lr capacity was installed by M/s. Asian Paints Ltd. In Eachankadu village and it is functioning in good condition from 2017. SIPCOT had contributed Rs.91 lakhs to the Project Director, District Rural Development Authority, Cuddalore SIPCOT fund (91) lakhs with SSS scheme fund (182 lakhs) and including the total cost worked out to Rs.l273 lakhs. Under the above scheme 19 nos. of overhead tanks with various capacities were constructed in different villages and 8 nos of two class room buildings in Cuddalore Panchayat, Kurinjipadi Panchayat and Portonova Panchayat were constructed during the year 2014-15. It is respectfully submitted that using SIPOT funds and Government Fund Project DRDA has constructed the 15 nos over head tanks of different capacities in Kudikadu, Eachankadu, Pachiankppam, Thaikalthonithurai, Sangolikuppam and Vairankuppam. Under Kollidam Kuttu Kudineer Thittam, pipelines were laid in sumps were constructed in the Panayakuppam Panchayat, Kudikadu Panchayat, Sangolikuppam village and Semmankuppam Panchayat. M/s. Covestro India Ltd, has proposed to install one RO plant at Sangolikuppam village and recently they have received NOC from the Assistant Director Panchayat, Cuddalore. M/s Solara Active Pharma Ltd, has proposed to provide RO plant at Kudikadu village to supply drinking water to the Kudikadu village & Kudikadu colony. M/s. Tagros Chemicals India Ltd., has proposed to provide RO plant at Pachaiyankuppam village to supply drinking water to Pachiankuppam village. SIPCOT, Cuddalore has sent a proposal to the Managing Director, SIPCOT Ltd., Chennai -8 for providing bore well at Capper Hills/Kannarapettai, pipeline and pump set

arrangements for proposed to supply water to the nearby villages of SIPCOT to solve the permanent arrangements of water supply system."

92. Reply statement filed on behalf of respondent No.5 Cuddalore SIPCOT INDUSTRIES Association contending as follows:

At the outset, it is submitted that the above application is totally misconceived and has been filed based on incorrect fact and imaginary allegations seeking for far fetched reliefs without substantiating the causes for the same The allegations and other averments made in support of the application are totally denied as false and misleading. This respondent respectfully give below their reply to the allegations made in the applications para wise as under:

Developments as regards Phase I, II & III

93. It is submitted that State Industries Promotion Corporation of Tamil Nadu Ltd Phase – I was established in 1984 over an extent of 518.79 acres in Kudikadu and Pachaiyankuppam village vide G.OMs.No.1422 dt. 4.10.1980 ad the total saleable area of this complex is 442.41 acres in Phase-I. The remaining extent of 76.38 acres was reserved for infrastructures and amenity purpose such as road, water supply, police station, fire station, canteen building, telephone exchange, first aid centre, green belt development and administrative office building. The land has been allotted to 62 nos of industrsial units and at present 30 nos. of units are functioning. In phase –II land has been acquired to an extent of 154.72 acres in Semmankuppam village vide G.O.Ms.No.664/MIG-II/dt.26.11.1992. The land has been allotted to 9 nos of industrial units and at present 4 nos. of units are functioning. Most of the plots were allotted to chemical and pharmaceuticals industries.

94. SIPCOT also proposed to form an industrial park in Phase III vide GO.Ms.No.179 dt. 30.6.1997, 749 dt. 12.11.1998 and 838, dt. 17.11. 1999 and acquired the land of 1197.90 acres and 736.51 acres. This land has been allotted to 2 nos. of industries like Nagarjuna oil corporation ltd., is 1647.34 acres and South India Mills Association is 244.444 acres. The above land has been acquired at Periyapattu, Kayalpattu, Thiruchopuram and Andalmullipallam village in Cuddalore and Chidambaram Taluk.

95. Details of industries in SIPCOT, Cuddalore as on 10.3.2015

Status	Phase-I	Phase-II	Phase-III	Total
Under operation	30	3	0	33
Under construction	15	5	2	22
Sick Closed	17	0	0	17
Total	62	8	2	72

Out of the total no of industries allotted by SIPCOST, there are large scale industries, medium scale industries and small scale industries.

96. The list of industries in Phase-I & II are listed below:

Name of the unit	Extent (Acres)	Product
Tanfac Industries Ltd	60	Chemicals
Kumar Chemicals	1.03	Chemicals
M.A.B Metals	1.04	Aluminium Circles
Tagros Chemicals-I	2	Agro Chemicals
Tagros Chemicals-II	4	Agro Chemicals
Tagros Chemicals-III	2.16	Chemicals

Tagros Chemicals-IV	1	Chemicals
Tagros Chemicals-V	1.06	Chemicals
Splendid Udyog	1031	Textile garments
Pondicherry Alum &Chemicals	0.52	Alum
Kousalya Ice Factory	0.21	Ice Blocks
Coastal Packers Pvt Ltd	0.70	Corrugated box
Supreme Dyechem Pvt. Ltd	1.23	Pigments
Shasun Pharmaceuticals Ltd	5.73	Pharmaceuticals
Shasun Pharmaceuticals-I	5.37	Pharmaceuticals
Shasun Pharmaceuticals-II	5.01	Pharmaceuticals
Tasmac	2	Liquid storage
Indo International Fertilizer	1.40	Chemicals
Asian Paints	29.08	Chemicals
Igloo Ice Factory	0.30	Ice Blocks
Diamond Ice Factory	0.74	Cold Storage
Omni Coat Precision Products	2.16	Precision casting Components
Loyal Super Fabrics	3.31	Textile Processing
DFE Pharma India	4.15	Pharmaceuticals
Telephone Exchange	1.97	Telephone Exchange
Sudhakar Chemicals	1.15	Chemicals
Morgan Industries	10.37	Adhesive tape
Morgan Acids & Chemicals	3.83	Chemicals
Packaging India Ltd	2	Templates for printing
Tamil Nadu Pollution Control Board	1	Office
Thangamman Textiles Pvt Ltd	2.51	Textiles Processing

Top Knit Proessing Mills	5.5	Textiles Processing
RK Exports	6	Textiles Processing
Vivin Tex	3.50	Textiles Processing
	Phase-II	
Pandian Chemicals	4.37	Chemicals
Central Warehousing Corpn	4.13	Storage godown
Chemplast Sanmar	69.43	PVC resin
Units under construction		
Sai Annapurna Bio Proteins	6.35	Fish oil
Morgan Industries	7.55	Acitic acid
Clean Science & Tech Co	0.96	CNSL RESIN
Cain casre plastics	3	Chemicals
K.P. Manesh Global Ingredient	4.45	Pharmaceuticals
Yesua Bio Tech	1.74	Chemicals
Shasum Pharmaceuticals-III	1.90	Pharmaceuticals
Shasum Pharmaceuticals-IV	1.30	Pharmaceuticals
Kupps & Sachs	1.23	oil & Gas inhabitor
Vardhaman Life Science	55.15	Pharmaceuticals
Phase-II		
Narmadha Chemicals	3.93	Inorganic Chemicals
Golden Fish Meal & Fish Oil	1.55	Fish Meal & Fish Oil
Allied Silica Ltd	13.12	Chemicals
Aria Chemicals	10	Chemicals
Loyal Textiles	5.33	Garments
List of sick units Phase-I		
Swastic Ceramics	2	Fire bricks
Vijaya Industrial Products	2	Fish net

Spic Pharmaceuticals	64.49	Pencilin-G
Victory Chemicals	2.16	Chemicals
Southern Pigments	1.16	Organic pigments
Kumaran Carbonates	1.18	Chemicals
Square D Beverages	20.53	Chemicals
Maruthi Labs	2	Chemicals
Tantech Agro Chemicals	8.12	Chemicals
KJ Industries	1.06	Coir Fibre
BPN Dyes & Chemicals	1	Carbon black
Pentafour Products	5.50	Chemicals
Mayur Plastics	0.11	PVC pipes
Malang Enterprises	1.39	PVC pipes
Maruthi Synthetics	3.69	Chemicals
Indag Products	10.02	Chemicals
Indag Products	10	Chemicals

97.Water being supplied to the industries by SIPCOT from the 12 Nos. of deep bore wells dug within the complex. The bore wells were drilled to a depth of 1000 ft. With 12" dia 10"dia and 8" dia boreholes using with PVC casing plain and slotted pipes. The water is drawn from the aquifer layer of depth 630 ft. And supplied to the industries. The committed quantity and the average wader consumed by industries are listed below:

Name of the industry	Committed Quantity Of water Per day-M3	Average Consumed Quantity Of water

		Per day-M3
Tanfac Indusgtries Ltd	2272	1300
Kumar Chemicals	10	1
M.A.B Metals	5	4
Tagros Chemicals-I	950	400
Tagros Chemicals-II	40	12
Tagros Chemicals-III	22	3
Tagros Chemicals-IV	9	1
Tagros Chemicals-V	9	0
Splendid Udyog	50	2
Pondicherry Alum &Chemicals	3	15
Kousalya Ice Factory	18	12
Coastal Packers Pvt Ltd	17	3
Supreme Dyechem Pvt. Ltd	50	40
Shasun Pharmaceuticals Ltd	1250	375
Shasun Pharmaceuticals-I	1250	170
Shasun Pharmaceuticals-II	1250	3
Tasmac	40	8
Indo International Fertilizer	40	20
Asian Paints	2118	575
Igloo Ice Factory	25	20
Diamond Ice Factory	25	17
Omni Coat Precision Products	1	25
Loyal Super Fabrics	800	650
DFE Pharma India	400	250
Telephone Exchange	14	2
Sudhakar Chemicals	9	8

Morgan Industries	150	7
Morgan Acids & Chemicals	300	1
Packaging India Ltd	50	14
Tamil Nadu Pollution Control Bd	5	2
Clariant Chemicals	1000	115
RK Exports	500	30
Top Knit Processing	500	10
Vivin Tex	240	20
Thangamman Tex	1000	8
Phase-II		
Pandiyan Chemicals	70	40
Central Warehousing Corpn.	8	4
Chemplast Sanmar Ltd	1000	0

98. CUSECS:

State Industries Promotion Corporation of Tamilnadu has formed a company under 1956 Act with equity participation by SIPCOT and formed a company known as Cuddalore SIPCOT Industries Common Utilities Ltd., for collecting and discharging the treated effluent from the member industries into Bay of Bengal at a distance of 970 m. The company CUSECS started functioning from January 2000. The industries treated effluent are being collected by dedicated HDPE pipelines and discharged into Bay of Bengal at a distance of 970 M. Out of this 33 operating units, 21 industries are generating trade effluent.

99. All the industries have provided individual effluent treatment plant in their premises. Out of the above, 11 units have provided additional system to maintain zero discharge of trade effluent, remaining 10

industries are discharging their treated trade effluent into Bay of Bengal. Among 10 units, 9 units have been discharging treated effluent from their member industries for marine disposal into sea through CUSECS .

100. The CUSECS discharges the treated effluent directly into marine through a separate pipeline of 970 m into Bay of Bengal. The remaining unit M/s. Clariant Chemicals India Ltd, discharges the treated effluent directly into the marine through a separate pipe line of 1 km into Bay of Bengal. M/s. Chemplast Sanmar Ltd., PVC Division has provided desalination plant and discharges the diesel reject into Bay of Bengal at a distance of 1 km into the sea.

101. The Zero Discharging Industries are:

Tagros Chemicals-I, Tagros Chemicals-II, Tagros Chemicals-III, Bayere Material Science, Packaging India, Asian Paints, Shasun Pharmaceuticals I, II, Indo International Fertilier, DFE Pharma Inia and Chemplast Sanmar.

102. The trade effluent discharging industries through CUSECS are:

Tagros Chemicals-I, RO reject, Tagros Chemicals-I, Tanfac Ltd., Vivin Tex, Thangaman Tex., Loyal Super Fabrics, RK Exports, Pandiyan Chemicals, Pioneer Jellice India, Arkema Peroxide India and Supreme dye Chem. The Tamilnadu Pollution Control Board regularly monitors the discharge effluent let out by the industries and is also monitoring bore wells. No industries located in the SIPCOT industrial complex are using cadmium, chromium, lead and nickel as raw material or as finished products

103. Regarding para no.2: It is submitted that the averments in paragraph 2 relates to the status of the applicants in the area and this

respondent has no comments to offer on the same except that the industries in SIPCOT are not contributing to any ground water pollution in the area.

104. Regarding para no3:

It is submitted that State Industries Promotion Corporation of Tamil Nadu Ltd Phase – I was established in 1984 over an extent of 518.79 acres in Kudikadu and Pachaiyankuppam village vide G.OMs.No.1422 dt. 4.10.1980 ad the total saleable area of this complex is 442.41 acres in Phase-I. The remaining extent of 76.38 acres was reserved for infrastructures and amenity purpose such as road, water supply, police station, fire station, canteen building, telephone exchange, first aid centre, green belt development and administrative office building. The land has been allotted to 62 nos of industrial units and at present 30 nos. of units are functioning. In phase –II land has been acquired to an extent of 154.72 acres in Semmankuppam village vide G.O.Ms.No.664/MIG-II/dt.26.11.1992. The land has been allotted to 9 nos of industrial units and at present 4 nos. of units are functioning. Most of the plots were allotted to chemical and pharmaceuticals industries.

105. SIPCOT proposed to form an industrial park in Phase III vide GO.Ms.No.179 dt. 30.6.1997, 749 dt. 12.11.1998 and 838, dt. 17.11. 1999 and acquired the land of 1197.90 acres and 736.51 acres. This land has been allotted to 2 nos. of industries like Nagarjuna oil corporation ltd., is 1647.34 acres and South India Mills Association is 244.444 acres. The above land has been acquired at Periyapattu, Kayalpattu, Thiruchopuram and Andalmullipallam village in Cuddalore and Chidambaram Taluk.

106. Regarding para No.4.1: It is submitted that the averments are too general in nature. Status on the industries connected real time on line monitoring data to care air centre, STNPCB, Chennai. All the industries in SIPCOT industrial complex have provided air pollution control measures with online sensors. The details of online sensors provided and connected with Care Air Centre, TNPCB, Chennai like PH, flow, SPM, No_x, SO_2 TVOC, CHLORINE SENSORS, FLOW METER, pH meter conductivity meter, online BOD, COD and TSS meters etc TNPCB continuously monitoring online parameters on regular basis.

M/s.Clariant Chemicals	Dye & Dye Intermediate
M/s. TANFAC Industries Ltd	Chemical
M/s. Loyal Super Fabrics	Textile dyeing
M/s. Pandian Chemicals Ltd	Chemicals
M/s. Bayer Material Science Pvt	Synthetic resins
M/s. Pineer Jellice India Pvt.Ltd	Gelatin
M/s. Tagros Chemicals India	Agro Chemicals
M/s Strides Shasun Pharmaceuticals	Pharmaceuticals
M/s Asian Paints	Chemicals
M/s. DFE Phama	Pharmaceuticals

107.Whenever the air pollutants exceed the standards, the Joint Chief Environment Engineer, District Environmental Engineer of Tamil Nadu Pollution Control Board and the unit head receive the SMS alert as well as e mail from the CARE AIR Centre, Tamil Nadu Pollution Control Board, Chennai for the rectification of the same immediately. Immediately, the unit authorities rectify the fault and inform the status

of corrective action to the Joint Chief Environment Engineer, District Environmental Engineer of Tamilnadu Pollution Control Board.

108. Regarding para No.4.l2:

The Cuddalore SIPCOT Industries Common utilities Ltd., was formed to collect the treated trade effluent let out from its member units and dispose of into Bay of Bengal through underground pipeline at a distance of 970 m into the sea. The facility is in operation since January, 2000. The facility comprises of collection sumps & interconnecting pipelines of various sizes to a total length of 9.7 km. The pipeline passes across river Uppanar followed by land and into sea. At the final disposal point into sea, the pipeline is anchored by concrete blocks with diffuser arrangements to disperse the effluent into sea at a depth of 8 m below sea surface.

109. The Hon'ble High Court of Madras in its order dated 29.8.2012 in W.PNo.27241 of 2004 has directed the Board to keep continuous air monitoring, including for toxic gases of the units in SIPCOT, Cuddalore and to take necessary and suitable legal action against any errant or default unit as per law. Also it has stated that we do not see any reason to lift the ban imposed by us on the functioning of CUSECS. However, it is made clear that if CUSECS complies with the required legal criteria by the authorities concerned like TNPCB, it is for the authorities concerned to pass appropriate orders on the request of CUSECS. M/s. CUSECS LTD., has applied for consent of the Board on 24.6.1996 under the Water (P&CP) Act, 1974 and Air (P&CP) Act, 1981 and has obtained NOC from the Board vide Lr.No.T5/TNPCB/F-9051/CUD/W/A/96 dt. 28.6.2004 for the above said facility. The unit has obtained Environmental Clearance

under CRZ notification from MoEF , GOI vide Lr.No.J16011/24/2003-1A dt. 30.11.2005.

110. Consent to operate was issued on 10.5.2013 for a period valid upto 30.9.2013 The consent has been renewed upto 30.6.2015. M/s. CUSECS has applied for renewal of consent under Air & Water act and consent was received vide Proceedings No.F.013CUD/RS/TNPCB/CUD/A/2016 dt. 13.8.2016 and F. 013CUD/RS/TNPCB/CUD/W/2016 dt. 13.8.2016 and the consent is valid upto March, 2021.

111.Presently 10 units are discharging their treated trade effluent and one unit discharges the treated sewage through CUSECS for marine disposal and also consented by the Board. The details are as follows:

Name of the industries	Quantity-KLD	Point of discharge
M/s. TANFAC INDUSRIES	1440	CUSECS
M/s. RK Exports	248	CUSECS
Topknit Processing Mills	499	CUSECS
M/s. Loyal Super Fabrics	618	CUSECS
M/s. Pandian Chemials	23	CUSECS
M/s. Arkema Peroxides India (P) Ltd	85	CUSECS
M/s. Supreme Dye Chem	12	CUSECS
Vivin tex Processing	186	CUSECS
M/s. Pioneer Jellice India	1200	CUSECS
M/s. Tagros Chemicals	50	CUSECS
M/s. Thangaman Tex	260	CUSECS

The designed pumping capacity of the system CUSECS sump -6 is 500 m^3 hr presently they CUSECS discharges maximum of 125 m^3 hr.

112.Regarding para No.4.3:

The allegations contained in this paragraph are strongly denied. The applicant sees to rely on the alleged report of SACEM which is self serving. Presently, the ground water in SIPCOT area is monitored monthly by Tamil Nadu Pollution Control Board at the following four locations. Bore well located within the premises of SIPCOT project office campus. Kudikadu OHT – the bore well is located outside SIPCOT boundary in the western direction.Bore well located within the premises of M/s Tagros Chemicals India Ltd., Bore well located at M/s Chemplast Sanmar Ltd., SIPCOT collects bore well water samples and tested at TWAD BOARD Lab.

113. It is submitted that none of the industries located in the SIPCOT industrial complex are using cadmium, chromium, lead and nickel as raw material or as finished products. None of the industries located in the SIPCOST industrial complex are discharging their solid waste as well as liquid waste into the land inside as well as outside the premises.

114. Regarding para No.4.4.1.

It is submitted that allegations in this paragraph are made on unsubstantiated data. As stated already, industries in SIPCOT complex are not contributing towards any alleged contamination of ground water in the area. The drinking water is being supplied by the District Administration to all the nearby surrounding villages SIPCOT is supplying water to the industries only from the bore wells drilled in SIPCOT industrial complex

115. Regarding para No.4.4.2:

The allegations regarding presence of chemicals in the ground water is based on unsubstantiated data. No industries located in the SIPCOT industrial complex are using cadmium, chromium, lead and nickel as raw material or as finished products.

116. Regarding para Nos.4.4.3 and 4.4.4:

The allegations that are made in this paragraph are against the regulatory agencies and this respondent has no comments to offer on the same. Suffice it to state that water is being supplied to all the industries in Phase – I & II by SIPCOT from the bore wells drilled within the SIPCOT industrial complex. No industries located in the SIPCOT industrial complex are using cadmium, chromium, lead and nickel as raw material or as finished products. None of the industries located in the SIPCOST industrial complex are discharging their solid waste as well as liquid waste into the land inside as well as outside the premises.

117. Regarding para Nos.4.5 & 4.6:

It is submitted that the demand of SACEM for supply of clean drinking water at the cost of SIPCOT Industries is not well founded and based on incorrect reports. None of the industries located in the SIPCOST industrial complex are discharging their solid waste as well as liquid waste into the land inside as well as outside the premises. Therefore, SIPCOST industries cannot be said to be contributing towards any deterioration of ground water quality in the area. The applicant must make an effort to understand that is the collective responsibility of all concerned to have clean drinking water for Cuddalore residents rather than blaming the SIPCOT industries without any credible data.

18. Drinking water is being supplied by the District Administration to all the nearby surrounding villages. SIPCOT is supplying water to the industries only from the bore wells drilled in SIPCOT industrial complex.

119. Regarding para No.4.6:

It is submitted that reliance has been placed on their own report by the applicant that has no scientific basis no scientific report has been furnished by the applicant.

120.Rearding para No.4.6.1:

It is submitted that the allegations are baseless and the demand is unjustified. To the knowledge of this respondent routine checks are being carried out and pollution levels of air and water are being constantly monitored by the authorities.

121. Regarding para No.4.6.2:

It is submitted that drinking water is being supplied by the District Administration to all the nearby surrounding villages. SIPCOT is supplying water to the industries only from the bore wells drilled in SIPCOT industrial complex. Now, the District Collector, Cuddalore has also announced that a combined water supply scheme to provide piped drinking water supply is being implemented and nearly 50% of the work has already been completed.

122.Regarding Para 4.6.3:

It is submitted that in so far as the industries located in the SIPCOT industrial complex are concerned they are discharging their solid waste as well as liquid waste in a scientific and environment friendly manner as already mentioned supra.

123.Regarding para 4.6.4:

It is submitted that SIPCOT is supplying water to the industries only from the bore wells drilled in SIPCOT Industrial complex that will not have any bearing on the ground water quality in the nearby areas. It is submitted that it is a policy decision that would be taken based on scientific data collected as regards any moratorium for new industries in SIPCOT. As on date, water is available in sufficient quantity for the industrial units in the SIPCOT complex.

124. Regarding para No4.6.6:

As regards the issue of recycling of water that is raised by the applicant, it is submitted that out of the 36 operating units, 21 industries are generating trade effluents. All the industries have provided individual effluent treatment plant in their premises. Out of this, 11 units have provided additional system of RO plant with multiple effect evaporator to maintain zero discharge of trade effluent there by recycling part of the water for industrial purposes.

125. Regarding para No.4.6.7:

The allegation/averment in this paragraph is purely imaginary and not based in any scientific data. There is lno change in water level and SIPCOT is drawing water from the deep bore wells (1000 ft.)drilled and there is no change in water and quality.

126. Regarding para No.4.6.8:

It is submitted that SIPCOT industries are not contributing any contamination of ground water even if the allegations made by the applicant regarding contamination are found to be correct based on scientific data. None of the industries located in the SIPCOT industrial

complex are discharging their solid waste as well as liquid waste into the land inside as well as outside the premises.

127. Regarding para No.4.6.9:

It is submitted that the question of remediation will arise only if the ground water is found to be polluted and that too on account of any industrial development in the area.

128. Regarding para No5.1:

The averments made in paragraphs 5.1 to 5.6 do not require any reply except stating that they are general in nature and the statutory authorities are performing their obligations sincerely. In so far as the SIPCOT industries are concerned, the authorities are constantly monitoring their industrial activities in order to safeguard the environment. The units that are within the purview of the Environment Impact Assessment Notification, 2006 are furnishing half yearly compliance reports to the statutory authorities regularly.

129. As regards the grounds raised in the application, it is submitted at the risk of repetition that none of the industries located in the SIPCOT industrial complex are discharging their solid waste as well as liquid waste into the land inside as well as outside the premises. None of the industries are operating without valid consent from Tamilnadu Pollution Control Board. Tamilnadu Pollution Control Board officials are discharging their duties with stringent action as per the provisions of the available acts and Rules from time to time. The Tamilnadu Pollution Control Board is monitoring the industries located in SIPCOT industrial complex regularly. In addition to this, Tamilnadu Pollution Control Board District Office is functioning at SIPCOT industrial complex with effect from 1.8.2014. The industries are meeting the norm and

discharging the air emission and water discharge as per the guidelines of Tamilnadu Pollution Control Board from time to time. All the industries are operating in SIPCOT Industrial Complex, Cuddalore with valid consent from Tamilnadu Pollution Control Board. As stated already the units attracting the Environment Impact Assessment Notification 2006 are furnishing the half yearly compliance report to the statutory authorities regularly. Industries generation solid waste are sending their waste regularly to Tamil Nadu waste Management Ltd., Gummidipoondi after obtaining valid consent from the Tamil Nadu Pollution Control Board.

130. This respondent has read the reply statement filed by the 2nd respondent SIPCOT which has also recorded the vide spectrum of CSR activities being carried on by the member industries located in the SIPCOT complex. That apart this respondent viz., Cuddalore SIPCOST Industries Association has contributed Rs.7 lakhs to the District Administration under self sufficient scheme for water supply and distribution and is also running a First Aid medical centre in SIPCOT premises for timely medical assistance to villagers. The welfare of the villagers is paramount to the Association and the villagers have always recognized the services of the Association and the member industries in taking care of their drinking water needs, medical aid, schools etc. This respondent and the industries individually and collectively ensured that SIPCOT industrial area remains environmentally a safe place for the villagers ad their families even as they contribute towards industrial development in the area. This respondent seeks liberty to produce all available materials regarding the wide range of CSR activities done by the SIPCOT industries in the area during the hearing of this application.

This respondent states that all environmental concerns expressed by the applicant have been addressed and continued to be attended to by this respondent association and its member industries in the SIPCOT industrial complex under the guidance and supervision of the statutory authorities like the TNPCB and the District administration. The industries have stood by the villagers and provided appropriate reliefs at times of natural calamities like tsunami and Thane cyclones etc'. It is respectfully submitted that therefore the claims made in the application as though the SIPCOT industries complex area has suffered serious environmental damage and requires radiation at the cost of member industries etc. Based on some archaic reports and unsubstantiated allegations that are far from truth are baseless and motivated and deserve strongest condemnation. The applicant in seeking prosecution of officials without providing any credible data to substantiate his allegations against them and for accusing the industries for any alleged deterioration of drinking water quality in the SIPCOT Industrial complex area without an iota of evidence to substantiate the same must be taken to task for abuse of process of court. It is therefore prayed that this Hon'ble court may be pleased to dismiss Application No.34/2015 with costs and thus render justice.

131. The applicant filed rejoinder to the reply submitted by the second respondent, reiterating their contentions in the application and further reiterating the allegations regarding the poor quality of environment, affecting the water quality in that area and also regarding the directions issued by the Tribunal, directing to supply drinking water and also denying the various allegations made against them regarding the bonafides on their part in filing the application.

132. They reiterated the suo motu action taken by the Madras High Court in W.P.27241 of 2004 and the directions issued thereon by judgment dated 29.8.2012, directing the pollution control Board to monitor the ambient air quality and take appropriate steps to arrest the pollution that is being happening in that area. The request made by the respondents 14 to 16 in that writ petition viz., the present applicant to ban the setting up or expansion of units in Cuddalore SIPCOT industries was not acceptable and the applicant had reiterated that that will not prevent them from filing this application regarding the poor quality of water pollution caused, as that aspect has not been considered by the High Court in the writ petition mentioned above. So they reiterated their relief for allowing the application.

133.As per order dated 7.9.2016, this Tribunal had considered the report submitted by the Pollution Control Board regarding the nature of pollution caused to the ground water and directed the fourth respondent to make immediate arrangement for the purpose of supply of drinking water facilities to all the residents in the SIPCOT, Cuddalore area and directed the State Pollution Control Board to conduct fresh analysis of the water samples and file a status report.

134. As per order dated 29.9.2016 this Tribunal had considered the report submitted by the Pollution Control Board wherein they have stated that the comparison of the analysis of water samples taken outside the SIPCOT industrial complex as well as inside SIPCOT industrial complex showed that the parameters of Lead and Iron are commonly present in excess of the prescribed standards. The presence of Nickel was not mentioned and so the Pollution Control Board was directed to file further report.

135. As per order dated 1.2.2019, this Tribunal had considered the pleadings and also various reports filed by the Pollution Control Board and appointed a Joint Committee comprising of the Central Pollution Control Board and Tamil Nadu State Pollution Control Board to collect the samples from the bore wells and shallow aquifers, peizo metric wells in and around SIPCOT Industrial Complex, Cuddalore and Uppanar river and furnish a report to this Tribunal within one month. The Committee was also directed to ascertain the status of functioning of ETPs or other effluent treatment devices used by the industries and further directed to ascertain as to how much quantity of drinking water must be supplied to the inhabitants. The SIPCOT association which is supplying the drinking water may suitably increase the quantity of water, having regard to the needs of the inhabitants and viability of water availability.

136. As per order 8.7.2019, this Tribunal has considered the Report of the Joint Committee and also the objections filed by the applicant and observed that out of 28 samples taken from the piezo metric wells situated within the industrial area, 9 were found exceeding the acceptable limit of TDS of 500 mg.L. The concentration of Calcium and Magnesium hardness in water while the other parameters were found acceptable within limits of standard of drinking water. This Tribunal also expressed its dissatisfaction regarding the functioning of ETPs, as the samples for both the inlet and outlets had not been taken and tested and the adequacy of the pollution control devices examined.

137. So this Tribunal directed the Joint Committee to draw a Terms of Reference regarding the following aspects and submit a report viz.,

(i)To take the samples from the inlet and outlet of all the ETPs to ascertain as to whether the effluent are within the prescribed limit;

(ii)To ascertain the source of the heavy metal pollutants like Nickel, Cadmium, Manganese, Iron and Lead etc.

(iii)To ascertain the adequacy of the pollution control devices installed by the industry.

(iv)After such tests, to assess the environmental compensation to be paid by the individual units for the default on their part.

The committee was also directed to ascertain as to whether the action plan had been implemented and if so whether there has been any improvement of the situation in the area. The Committee was also directed to assess the environmental damage caused to the area and submit the report.

138. The Joint Committee submitted the report dated 25.3.2019. The committee also annexed the status of functioning of ETPs of different industries as Annexure 4-b.

139. On the basis of the directions issued by this Tribunal, the Joint Committee has filed the report dated **11.11.2019** which reads as follows:

"Details of inspection and samples collected:

Totally 45 industries in SIPOT indusrial complex, Cudalore were inspected by the above team of officials in the presence of applicants during July 3- - August 1, 2019. During insection, samples of the trade effluents were collected at inlet and outlet of the effluent treatment plant in the individual industries based on the mode of final discharge and type of treatment system provided. The scenario of mode of final disposal of treated effluents from industries of SIPCOT are as follows:

Fourteen industries have installed ZLD systems and recovering water through RO system and re-using the treated effluents in their process.

The RO reject being concentrated through Multi Effect Evaporator/solar evaporator and recovering salt. In these industries samples were collected at inlet of ETP, RO reject which is taken to concentrate through MEE/Solar Evaporator and MEE concentrte.

Fifteen industries are treating the effluents and disposing it to the common marine disposal system. In these industries samples were collected at inlet and outlet of ETP.

Two industries namely M</s Clarient Chemicals Ltd., is having its own marine disposal system for disposing its treated effluent into the sea and whereas M/s. Chemplast Sanar Ltd is having is own marine disposal for disposing desalinated water. In these industries also samples were collected.

M/s. Cuddalore SIPCOT Industries Common Utilities Ltd. Collects the treated effluents from the individual member industries through pipelines in a common sump in the SIPCOT industrial complex. From there it is pumped into the sea through a single marine outlet pipeline laid for 1 km length in the sea bed. The sample of the combined effluent from this marine pipeline was collected and analysed.

No. Of Industries Treat & re-Use the Effluent/ Disposal Through Solar	No. Of Industries Treat the Effluent and Send to Common Marine Disposal	No. Of Industries With their Own marine Disposal system	CUSECS	No. Of Industries Not Generating Trade effluent

evaporation	system			
14	15	2	1	14

The member industries of CUSECs and industries having their own marine disposal system have installed online sensors to monitor the parameter pH, TSS, BOD, COD and flow rate at their outlet points. The industries installed ZLD system has installed flow meters and pH sensors. All these monitors are connected to the effluent monitoring centre. Water Quality Watch at Tamil Nadu Pollution Control Board Head Office, Chennai which is continuously recorded. These online monitoring systems were also inspected during the time of the collection of samples.

Sedimen samples collected from the bed of Uppanar:

The applicants of this case have requested the committee to collect samples of soil from the bed of river Uppanar so as to find out any concentration of pollutants in the soil. As per their request, the committee decided to collect soil samples from Uppanar river passing adjacent to SIPCOT industrial complex.

Four number of soil samples were collected from the bed of Uppanar at four different places in the stretch adjacent to SIPCOT industrial complex in the presence of the applicants.

The above soil samples were analysed with respect to heavy metals as well as pesticides.

Results of analysis of samples taken from industries and their compliance status;

He detailed individual inspection report and its status of functioning of pollution control measures operated by the industries are presented in Annexure – 2&3

The compliance status of industries istalled ZLD system:

Out of the 45 indussries, 14 industries hae installed ZLD system and in these industries the committee has collected samples from raw effluent tank, RO reject which was fed to either MEE solar evaporation pans to cross verify the efficiency of RO system and also taken MEE concentreate to verify the efficiency of reject management. The status of compliance of industries installed ZLD system are listed as follows:

Name of The industry	Status of ETP	Status of Efficiency Of RO and Reject Manage Ment System	Remarks
Tagros Chem-I	ETP & ZLD System was in operation	The unit Claims That RO Permeate Being Recycled In the Process However the MEE	Based on ROA, it is Observed that except Traces of iron, Copper and Nickel no other heavy metals Observed in raw effluent As well as in MEE Concentrate. The Concentration of TDS in MEE inlet and outlet Reveals that the solid
Tagros Chem-II	The effluent is Being sent To plant-1 ETP		

		Efficiency Was Found <50% reused	Concentration is increased From 7.5 – 13.04% which Confirms the poor Operation of MEE
Solara Active Pharma Sciences	ETP & ZLD System was in Operation	The unit Claims That RO Permeate Being Recycled In the Process, However The MEE Efficiency Was found <50%	Based on ROA, it is Observed that except Traces of iron, Copper and Nickel no other heavy metals Observed in raw effluent As well as in MEE Concentrate. The Concentration of TDS in MEE inlet and outlet Reveals that the solid Concentration is increased From 1.55 – 8.1% which Confirms the poor Operation of MEE
Solara Active Pharma Sciences R&D black	ETP & ZLD System was in operation		
TANFAC	The unit not in operation since last 2 years		
Asian Paints (Penta Dvn)	ETP & ZLD System was in Operation	The unit Claims That RO Permeate Being Recycled In the Process,	Based on ROA, it is Observed that the TDS in inlet – 13182 mg/L and MEE inlet/RO reject – 13748 mg/L and MEE concentrate – 88140 mg/L,except the efficiency of RO and MEE were found very poor the unit is required to
Asian Paints Power plant	The effluent is Being sent To plant-		

	1 ETP	However The Efficiency Of RO and MEE were found Very poor	improve the efficiency of RO and MEE to recover the salt efficiently. It is also observed that except Traces of iron, Copper and Nickel no other heavy metals Observed in raw effluent As well as in MEE Concentrate.
DFE pharma	ETP & ZLD System was in Operation	The unit Claims That RO Permeate Being Recycled In the Process, However The Efficiency Of RO and MEE were found Very poor	From the above results of analysis , it is observed that the TDS in inlet – 1050mg/L, RO inlet – 1158 mg/L and MEE inlet/RO reject – 3172 m/L and MEE cocentrate – 12676 mg/L, the efficiency of RO and MEE were found very poor the unit required to be improve the efficiency of RO and MEE to recover the salt efficiently. It is also observed that except Traces of iron, zinc, Copper and Nickel no other heavy metals Observed in raw effluent As well as in MEE concentrate
Amcor Flexibles	ETP & ZLD System was in	The unit Claims That RO	Based on ROA, it is observed That RO efficiency (based on TDS concentration) was found

	Operation	Permeate Being Recycled In the Process, However The Efficiency Of RO also found good	<90% which confirms that less generation of RO reject which is being taken for solar Evaporation pond. The high Concentration of Copper (99.89 ml/g and Nickel (15.13mg/G) were reported in RO reject, since the unit is disposing RO reject to solar Pond, close monitoring is required.
M/s.Coves Tro India	The unit was not in operation and no effluent generated to verify the adequacy of ZLD system.		
Chemplast	ETP & ZLD System was in Operation	The unit Claims That RO Permeate Being Recycled In the Process, However The Efficiency Of RO also found good	From the above result it is observed that all the parameters of desalination plant reject which is discharged through own marine disposal system found Meeting with prescribed standards. However, the Concentration of TDS in MEE Inlet and outlet reveals that The solid concentration is Increased from 1.34% to 10.97% which indicates that Poor reject management.
Crimsun	The unit was not in operation and no effluent generated		

Organics	to verify the adequacy of ZLD system. The unit recently Obtained CTO for manufacturing of pesticides, the unit is under lab scale trail.
Kawman Pharma	The unit was not in operation and no effluent generated to verify the adequacy of ZLD system. The unit recently Obtained CTO for manufacturing of bulk drugs and the unit is under lab scale trail.
Golden fish Meal	The unit was not in operation and no effluent generated to verify the adequacy of ZLD system. The unit operates intermittently based on the availability of fish.

M/s. Chemplast Sanmar has proided ZLD system for its trade effluent, however the unit is taking sea water and desalinates it for its process and other uses and disposing the desalinated reject to sea through its own marine disposal system.

From the above tabe, out of 14 industries 5 industries were not in operation during committee visit. Except one unit namely M/s. Amcor Flexible, other units are having MEE for reject management, however all MEE efficiency were found poor. The RO efficiency of M/s. Asian Paints and M/s. DFE Phasrma also found poor.

It is observed that only in RO reject of M/s. Amcor Flexible the high concentration of Copper (99.89 mg/L) and Nickel (15.13 mg/L) were reported in RO reject, since the unit is disposing the RO reject to solar pan, close monitoring is required.

In other eight working units, except traces of Iron, Zinc copper and Nickel no other heavy metals observed in raw effluent as well as in MEE concentrate and also observed that the concentration of above mentioned

parameters were found lesser than the prescribed standards for marine disposal.

The compliance status of industries discharging the treated effluent through common marine disposal system:

Out of 45 industries 16 industries are members to CUSECS and discharging their treated effluent through the common marine disposal system. In these industries the committee has collected samples from raw effluent tank and treated effluent tank to verify the compliance w.r.t marine disposal standards. The status of compliance of industries discharging treated effluent through common marine disposal system are listed as follows:

M/s. TANFAC Industries ALF-3 plant	ETP was in Operation	Based on ROA It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	No traces of heavy Metals observed in Raw as well as in Treated effluent
M/s. TANFAC Industries HFO Genset	The Effluent Sent to ETP of ALF3 Plant		
M/s. TANFAC Industries Cryolite plant			
Loyal Super Fabrics	ETP was In	Based on ROA It is observed	Except traces of Nickel, Iron & Copper

	operation	That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	(less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
Vivin Tex	ETP was In operation	Based on ROA It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	Except traces of Nickel, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
RK.Exports	ETP was In operation	Based on ROA It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	Except traces of Nickel, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
Topknit	During inspection the unit was not in operation and Informed that the unit is closed since 2018		
M/s.Arkema	ETP was	Based on ROA	Except traces of

	In operation	It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	Zinc, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
M/s. Pioneer Jellice India	ETP was In operation	Based on ROA It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	Zinc, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
TATA Chem	ETP was In operation	Based on ROA It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	Zinc, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
Thangam Man	ETP was In	Based on ROA It is observed	Nickel, Iron & Copper (less than prescribed

	operation	That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	Standard) other Heavy metals were Found less than Minimum Detectable limit
Pandian Chem.	ETP was In operation	Based on ROA It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	Zinc, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
Sudhakar Chem	The unit was not in operation and no effluent Generated to verify the adequacy of ETP		
Supreme Dye Chem.	ETP was In operation	Based on ROA It is observed That the Effluent sent to CUSECS was Found meeting With prescribed Standards of TNPCB	The concentration of Copper (6.65 m/L against limit of 3mg/L) Was found high in Treated effluent

Panda Bio Proteins	The unit was not in operation due to non availability of fish and no effluent Generated to verify the adequacy of ETP

From the above table, out of 15 industries, 3 industries were not in operatin during committee visit.

Eleven industries were meeting with prescribed standards of marine diposal. Except traces of Zinc, Nickel, Iron and Copper other heay metals were found less than minimum detectable limit in treated effluent of all eleven units.

In one unit namely M/s. Supreme Dye Chem the concentration of copper (6.65 mg/L) against the limit of 3.0 mg/L was found high.,

The compliance status of industries discharging the treated effluent through own marine disposal system.

Only two industries viz., M/s. Clariant Chemicals has its own marine disposal system for disposing its treated effluent into the sea, M/s. Chemplast Sanmar Ltd., is having its own marine disposal system to discharge the desalination plant reject into sea. In these industries the committee has taken samples from raw effluent tank and treated effluent tank to verify the compliance w.r.t marine disposal standards. The status of compliance of industries discharging treated effluent into sea are as below:

Name of Industry	Standard of ETP	Status of Compliance	Remarks
Chemplast	ETP was in	Desalination	Except traces of

Sanmar (PVC) -2930KLD	Operation for its Process effluent. Desalination plant Reject is sent thro Pipeline for marine Disposal	Reject is sent to Sea disposal thro its own Marine discharge System	Nickel, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit
Clariant Chemicals	ETP was in Operation	Treated trade effluent is sent to Sea disposal thro its own Marine discharge System	Except traces of Nickel, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit

From the above table, both industries are meeting the prescribed standards of marine disposal in these units except traces of Zinc, Nickel and copper less than prescribed standards) other heavy metals are found less than minimum detectable limit.

The compliance status of M/s. Cuddalore SIPCOT industries Common Utilities Ltd.

CUSECS is collecting the treated effluents from the individual member industries (16) through pipelines in a common sump in the SIPCOT industrial complex. From there it is pumped into the sea through a single marine outlet pipeline laid for 1 km length in the sea bed. The CUSECS required to ensure the marine disposal standards while receiving the treated effluent from members as well as discharging the combined effluent into sea. The committee has collected samples from the common sump to verify the compliance w.r.t marine disposal standards. The status of compliance of CUSECS is as below:

Name of industry	Status of ETP	Disposal of Treated effluent	Exceeding Parameters
M/s.Cuddalore SIPCOT Indust Ries Common Utilities Ltd. (common Marine Disposal System)	In operation	Based on ROA, it Is observed that The effluent sent To Marine Disposal was Found meeting The prescribed Standards of TNPCB	Except traces of Nickel, Iron & Copper (less than prescribed Standard) other Heavy metals were Found less than Minimum Detectable limit

From the above table, the combined effluent discharged into sea was found meeting with prescribed standards of marine disposal except traces of Nickel, Iron and Copper other heavy metals were found less than minimum detectable limit.

The compliance status of industries not generating trade effluent

Tagros Chemicals	No trade Effluent	During inspection the unit was Not under operation. However, This unt is engaged in Formulation of pesticides and No trade effluent generated
Clariant Medical Specialities India Ltd	No trade Effluent	The unit is involved in Producing Cannister, it is dry Process and hence no effluent Generated
TANFAC Industries	No trade Effluent	The unit was not in operation Since two years. This unit was No trade effluent Engaged in formulation of per Acetic acid and no trade Effluent generated
Pioneer Jellice India (diesel power plant)	No trade Effluent	The unit is stand by power Generating plant by using Diesel as fuel and no effluent Generated
Pioneer Jellice India (bio gas power plant)	No trade Effluent	The unit is generating power By using bio gas generated from Their USSBR of main plant and No effluent generated from this Unit
Chemplast Sanmar	No trade Effluent	It is a marine terminal facility For transferring materials from The ship to the plant through pipeline system and no effluent Generated from this activity

Coastal Packers	No trade Effluent	Permanently closed unit
Morgan propack	No trade Effluent	The unit engaged in manufactur Ing of adhesive tape and no Effluent generated. However, the Unit was not in operation during Inspection
Morgan Industries	No trade Effluent	The unit engaged in manufactu Ring of PVC and BOPP taps and No effluent generated however the Unit was not in operation during Inspection
Diamond Ice and Cold Storage	No trade Effluent	The unit engaged in manufactur Ing of white ice and no trade Effluent generated
Igloo Ice	No trade Effluent	The unit engaged in manufactur Ing of white ice and no trade Effluent generated hower the Unit was not in operation during Inspection
Kowsalya Ice Co.	No trade Effluent	The unit engaged in manufactur Ing of white ice and no trade Effluent generated
MAB metals	No trade Effluent	The unit engaged in melting And manufacturing of Aluminium utensils and no Effluent generated
Pondicherry Alum and	No trade	Engaed in manufacturing of

Chem	Effluent	Ferric Alum and non Ferric Alum and no effluent generated. Unit was not in operation during Inspection

From the above table, out of 14 industries, l7 industries were not in operation during committee visit. Remaining 7 units are engaged in dry process and not generating any trade effluents.

All units provided required air pollution control devices.

Sediment samples collected from the bed of Uppanar

Sedient samples were collected at 4 different places in the bed of river Uppanar. These samples were analysed for the heavy metals and pesticide parameters separately The results are expressed in gm per kg of the soil sample. The detailed analysis results of sediment samples with respect to heavy metals are tabulated as below:

Para meters	Unit	Semman Kuppam Lat 11.3832 Lan 79,4428	Poondiyan Kuppam Lat 11.3744 Lon 79.4356	Notchi Kadu Lat 11.3855 Lon 79.4417	Thaikal Thoni Thurai Lat 11.4129 Lon 79.4557
Manganese	g/kg	0.34	1.14	0.59	0.16
Ammoniacal Nitrogen	g/kg	0.34	0.2	0.17	017
Total	g/kg	<0.05	<0.05	<0.05	<0.05

Chromium					
Copper	g/kg	0.08	0.13	0.17	0.18
Zinc	g/kg	0.02	0.08	0.11	0.14
Lead	g/kg	0.05	0.1	0.1	0.1
Nickel	g/kg	0.11	0.42	0.29	0.04
Cadmium	g/kg	0.004	0.02	0.01	0.002
Iron	g/kg	1.15	1.71	0.59	1.17
Pesticides	g/kg	BDL	BDL	BDL	BDL

From the above table, traces of heavy metals were observed in all sediment samples and no abnormal concentrations were observed in any sample. The analysis report of pesticides for lthe above sediment samples are enclosed in Annexure -4.Pesticides were found less than below detectable limit in all samples.

Status of implementation of CEPI action plan recommended in 2009.

The SIPCOT INDUSTRIAL COMPLEX, Cuddalore was categorised as critically polluted industrial cluster since the estimated CEPI score of this industrial cluster was 77.45 in 2009 and the MoEF & CC has imposed moratorium vide their letter January, 13, 2010 for consideration of projects for Environment Clearance. It was envisaged that during the period of moratorium, time bound action plans were prepared by the Tamil Nadu Pollution Control Board for improving the environmental quality in the industrial clusters/areas As per the direction of CPCB, TNPCB formed local stake holder committee and convened the meeting with the SIPCOT members and local stake holders to implement the action plans to the environmental quality in the critically polluted asrea. In accordance with interim assessment of SIPCOT industrial complex,

Cuddalore by CPCB through monitoring and information provided by TNPCB during 2011, the CEPI score was reestimated and found reduced from 77.45 to 54.69 Based on the action taken by TNPCB and decrease in CEPI score MoEF & CC of India lifted the moratorium in February 15, 2011.

The year wise CEPI score as per assessment conducted by CPCB is as below:

Year of CPI Assessment Conducted By CPCB	Individual environmental pollution index and Comprehensive pollution index			
	Air	Water	Land	CEPI Score
2009	54.00	65.25	64.00	77.45
2011	28.00	50	33.50	54.69
2013	45.50	53.50	60.50	70.12
2018	25.00	58.25	41.25	62.56

As per the action plan recommended in 2010, 14 industries were directed to implement the recommended pollution control measures. The committee verified the implementation of action plan recommended in these industries the detailed status of implementation of pollution control measures are given in Annexure – 2 & 3, it was observed that all 14 industries were found implemented the recommended pollution control measures. The action plans were also recommended to take measures/actions w.r.t hazardous waste raw material, semi processed material, process waste lying in 6 closed industries. The committee observed that out of 6 closed industries, 5 industries had taken measuresto dispose their waste/raw materil semi processed material

however still process residues i.e Barite mud is till lying in one closed industry namely M/s. Victory Chemicals. As per the hazardous and other waste Rule, 2016, he Barite mud is not a hazardous waste hence TNPCB has given permission to utilize the same for further beneficial use.

Based on assessment conducted in 2018, the air & land environment found improved but no improvement observed in the water environment w.r.t CEPI score. TNPCB communicated meeting with stake holders and is in the process of preparing action plan to improve the environmental quality of Cuddalore SIPCOT industrial complex.

Final observations and conclusions of Committee: As per the joint monitoring of industries as well as sediment samples collected from Uppanar river following are the conclusions:

Out of 14 industries which are having ZLD system, 5 industries were not in operation. Efficiency of RO and MEE found not satisfactory in two industries namely M/s. Asian Paints and M/s. DFE Pharma.

All working units which have provided MEE as a part of ZLD system were found not satisfactory and not achieving desirable soil concentration.

High concentration of Copper (99.89 mg/L) and Nickel (15.13 mg/L) were observed in RO reject of M/s. Amcor Flexible. The unit is taking RO reject to solar pond hence close monitoring is required.

Out of 15 industries which ae members to CUSECS, 14 industries are comply with the all parameters of marine disposal standards, only one unit namely M/s. Supreme Dye Chem discharging treated effluent having high concentration of copper (6.65 mg/L) against limit of 3.0 mg/L.

The two industries having own marine disposal system found meeting with prescribed standards or marine disposal.

M/s. CUSECS has provided continuous monitoring system in their receiving pipelines and for pH, BOD, COD, TSS and temperature in the final discharge pumping line to sea, to ensure the quality of treated effluent w.r.t marine disposal standards. The samples collected from the common sump of CUSECS confirms the compliance w.r.t marine disposal standards.

The industries which are not generating trade effluent but are generating domestic sewage are disposing through Septic tank/soak pit.

As per analysis of samples of samples taken from different industries, the heavy metal pollutants like Nickel, Cadmium, Manganese, Iron and Lead found well within the prescribed standards except above mentioned two industries.

Based on the results of analysis of sediment samples taken from the Uppanar river, traces of heavy metals and no traces of Pesticides were observed.

All 14 industries were found implemented the recommended pollutin control measures as per CEPI action plan of 2010.

As observed in the field and by the analysis water samples and sediment samples, no significant environmental damages have been observed

The SIPCOT authority has dug 10 bore wells to supply water to the industries of SIPCOT. These bore wells were dug before 1995 whereas no permission was mandatory during that period. No permission is given to industries of SIPCOT to dig their own bore wells.

The two industries M/s Pioneer Jellice India and M/s. Clariant chemicals are functioning in their own land and has bore wells in their premises and obtained NOC from PWD.

Recommendations of Joint Monitoring Committee:

All industries which are having ZLD system required to improve their tertiary treatment system viz, RO and MEE/VTFD/ASTFD.

The unit M/s Amcor Flexible which is a source of Copper and Nickel shall be directed to provide elevated solar evaporation pan with acid proof linings and the unit shall be monitored very closely.

All industries shall be directed to install real time monitoring system and connected to TNPCB water quality watch as below:

Based on existing treatment Facility and final discharge	Recommended monitoring/real Time monitoring system
The member industries of CUSECS and discharging their Effluent into sea	Flow, pH, BOD, COD and specific Parameter based on the process Involved
Industries having own marine disposal system	
The industries achieving ZLD	Flow meter & TDS monitoring system at inlet o ETP, RO feeder RO reject, MEE feeder, web camera to ensure ZLD. Maintenance proper records of salts recovered and disposed.
The industries not generating	Flow meters to record the quantity

Effluent	of water received and consumed, the domestic sewage management Plan

They have also annexed the inspection report of individual units and the observations regarding their functioning along with the report."

140. The Pollution Control Board also filed the status report as directed by this Tribunal signed on **3.10.2016** which reads as follows:

"The SIPCOT Industrial Complex, Cuddalore was established during the year 1984, having Phase – I and Phase – II here textile processing, pharmaceuticals, dye chemicals, pesticides and miscellaneous industries were located. The SIPCOST Industrial Complex, Cuddalore is located along the Cuddalore – Chidambaram Highways (NH-45-A). SIPCOT Phase – I has a total extent of 518.79 aces and Phase – II has a total extent of 190.52 acres. They are having the following infrastructural facilities viz.,

Water supply .. Total number of bore wells – 10

Total yield – 3.1 MGD

Roads & Drains .. 18 m width road &

12 m width road

Total length .. 7 km

Post office, Fire Station, CSIA dispensary, Canteen are operated in this area. The SIPCOT Industrial Complex is surrounded by the following topography:

North .. Pachayankuppam village

East .. River Uppanar

South . Sonanchavadi village

West . NH 45-A (Cuddalore – Chidambaram)

The details of industries in SIPCOT, Cuddalore as on 15.9.2016:

Status	Phase-I	Phase-II	Total
Under operation	35	9	44
Proposed	4	4	8
Remain closed	6	Nil	6
Total	45	13	58

10.Out of the 44 operating units, 5 units are categorized as highly polluting units, 19 units were categorized as red/large category units, 4 units were categorized as red/medium category units, 9 units were categorized as Red/small category units and the remaining 6 units were categorised as orange and one industry is categorised as green category units. The details of the same are as follows:

11.Details of units generating trade effluent & disposal system:

Highly polluting industries (17 categories) under operation:

Name of the industries	Category	Classification
M/s.Clariant Chemicals (India) Ltd.,	R/L	1016-dyes and dye-Intermediates
M/s.Tagros Chemicals India Ltd. (Unit-I)	R/L	1058-Pesticides (Technical) Excluding formulation

M/s. Strides Shasun Ltd	R/L	1060-Pharmaceuticals (excluding formulation)
M/s. Strides Shasun Ltd	R/L	1060-Pharmaceuticals (excluding formulation)
M/s. Kawman Pharma	R/L	1060-Pha rmaceuticals (excluding formulation)

Red category industries (54 categories)

12.List of industries under operation

Name of the industries	Category	Classification
M/s.TANFAC Industries Ltd (AIF plant)	R/L	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
M/s.TANFAC Industries Ltd (synthetic organic chemicals)	R/L	1056-Organic chemicals Manufacturing
M/s. Asian Paints Ltd (Penta Dvn)	R/L	1056-Organic chemicals Manufacturing
M/s Asian Paints Ltd (power plant)	R/L	1066- power generation Plants (conventional<25 MW & DG set < 5 MVA
DEF PHARMA LLP	R/L	1056-Organic chemicals

		Manufacturing
M/s. Loyal Super Fabrics	R/L	1084-Yarn/textile Processing with bleaching Dyeing,printing, scouring
M/s.Packaging India Pvt Ltd	R/L	1036-Industr or process Involving metal surface Treatment
M/s.Indo International Fertilizers Ltd	R/L	1056-Organic chemicals Manufacturing
M/s.Morgan Industries Ltd	R/L	1078-synthetic resins
M/s.TANFAC Industries Ltd HFO gen set	R/L2018	2018-DG set of capacity<1 MVA but <5MVA
Vivin Tex	R/L	1084-yarn/textile processing with bleaching, dyeing, printing, scouring
R.K. Exports	R/L	1084-Yarn/textile Processing with bleaching Dyeing,printing, scouring
M/s.Topknit Processing	R/L	1084-Yarn/textile Processing with bleaching Dyeing,printing, scouring

M/s.Omni cast precision Products Pvt Ltd	R/M	1035-Industry or process Involving foundry operations
M/s.TANFAC Industries Ltd Cryolite plant	R/M	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
M/s. Thangamman Tex	R/M	1084-Yarn/textile Processing with bleaching Dyeing,printing, scouring
M/s.Tagros Chemicals India Ltd.,	R/S	1005-basic chemicals/ Electro chemicals, its Derivatives including acids
M/s. Sudhakar Chemicals (P)Ltd	R/S	1056-organic chemicals Manufacturing
M/s.Tagros Chemicals India Ltd.,	R/S	Red/miscellaneous (pesticide formulation)
M/s. Kumar Chemical corpn	R/S	1005-basic chemicals/ Electro chemicals, its Derivatives including acids
M/s. Supreme Dye Chem	R/s	1045-paints, varnishes, Pigments manufacturing Excl. Blending/mixing

M/s.Pondicherry Alum & Chemicals Ltd	R/S	1005-Basic chemicals/ Electro chemicals, its Derivatives including acids
CUSECS	R/S	1014-common treatment And disposal facilities
M/s.TANFAC Industries Ltd	O/L	2005-DG set of capacity <1 MVA but <5 MVA
M/s. MAB Metals	O/S	2002-aluminium and Copper extraction from Scrap using oil fired Furnace
M/s.Morgan Propack	O/S	2999-Miscellaneous
M/s. Diamond Ice and Cold Storage	O/S	2011-Chilling plant, cold storage and ice making
M/s.Igloo Ice	O/S	2011-chilling plant, cold storage and ice making
M/s. Kousalya ice factory	O/S	2011-Chilling plant , cold storage and ice making
M/s. Coastal Packers Pvt Ltd	G/S	3999-miscellaneous-green
M/s. Arkema	R/L	1009-Chlorates, Perchlorates and peroxides

M/s. Covestro India Ltd	R/L	1078-Synthetic resins
M/s. Pioneer Jellice India Pvt Ltd	R/L	1043-manufacturing of Glue and gelatin

M/s. Chemplast Sanmar Ltd	R/L	1078-synthetic resins
M/s. Chemplast Sanmar Ltd	R/L	1065-Ports & Harbours, Jetties& dredging operations
M/s. Llied Silica Ltd	R/L	1005-basic chemicals/ Electro chemicals, its Derivatives including acis
M/s. Pandian Chemicals Ltd	R/M	1009chlorates, perchlorates And peroxides
M/s. Pioneer Jellice India Pvt Ltd, GEN SET	O/S	2018-DG set of capacity <1MVA but <5MVA
M/s. Glolden Fish Meal & fish oil co	O/S	2027-fish feed, poultry Feed and cattle feed

Disposal system of the treated effluent: Out of this 44 operatig units, 29 industries are generating trade effluent. All the industries have provided individual effluent treatment plant in their premises. In that 12 units have provided additional system to maintain zero discharge of trade effluent, 15 industries are dischasring their treated trade effluent into Bay of Bengal through CUSECS, a common collection, conveyance and

disposal facility. The CUSECS discharges the treated effluent directly into marine through a separate pipe line of 970 M into Bay of Bengal. The another one unit M/s Clariant Chemicals India Ltd. Discharges the treated effluent directly into marine through a separate pipe line of 1 km into Bay of Bengal. M/s. Chemplast Sanmar Ltd., PVC Dvn has provided desalination plant. The desal reject is discharged into Bay of Bengal at a distance of 1 KM into the sea through a separate pipe line.

The details of industries provided 'zero' liquid discharge system are as follows:

Name of the industries	Quantity In KLD	Point of Discharge
M/s.Tagros Chemicals India Ltd Unit-1	60	ZLD
M/s.Tagros Chemicals India Ltd Unit-1I	15	ZLD
M/s. Shasun pharmaceuticals Ltd	51	ZLD
M/s. Shasun pharmaceuticals Ltd R&D block	10	ZLD
M/s. Asian Paints Ltd,	135	ZLD
M/s.DFE Pharma LLP Ltd	8	ZLD
M/s.Packaging India Pvt. Ltd.	5	ZLD
M/s.Chemplast Sanmar	3450	ZLD

M/s TANFAC Industries Ltd	135	ZLD
M/s. Indo lnternational Fertilizers	14.55	ZLD
M/s. Bayer Materials Science PvtLtd	5.0	ZLD
M/s. Golden Fish Oil and fish meal	25	ZLD

16. Details of industries discharging into Marine disposal.

Name of the industries	Quantity	Point of Discharge
M/s.TANFAC Industries Ltd-AIF PLANT	1212	CUSECS
M/s.TANFAC Industries Ltd Cryolite plant	363	CUSECS
M/s.TANFAC Industries Ltd GEN set	10	CUSECS
M/s. Loyal Super Fabrics	618	CUSECS
M/s. Pandian Chemicals Ltd	23	CUSECS
M/s. Arkema Peroxides India Pvt Ltd	85	CUSECS
M/. Supreme Dye Chem Ltd	12	CUSECS
M/s. Sudhakar Chemicals Ltd	4.15	CUSECS
M/s. Pioneer Jellice India Ltd	1200	CUSECS

M/s Tagros Chemicals IndiaLtd	50	CUSECS
M/s. Vivin Tex	186	CUSECS
RK Exports	248	CUSECS
M/s. Thangaman Tex	260	CUSECS
Topnit Mills	500	CUSECS
M/s. Kawman Pharma	17.5	CUSECS
Clariant Chemicals	1000	Marine
Chemplast Sanmar	4335	Marine

The Uppanar river is situated at Cuddalore, 180 KM south of Chennai and 25 Km south of Pondicherry. The river flows between Cuddalore town and most pasrt of Chidambaram Taluk and confluences with the Bay of Bengal at Cuddalore Port through a mouth of Gadilam river.It runs behind the SIPCOT Industrial complex, Cuddalore. Water quality monitoring: Surface water:

River Uppanar is monitored monthly at the following locations:

At the upstream side of the SIPCOST Phase – II area in Poondiyankuppam village. At the downstream side of the SIPOT Phase-I area in the Rasapettai village.

Marine water monitoring:

Marine water quality is monitored by the Board once in three months at the following points namely at Bay of Bengal:

At the discharge point of CUSECS, M/s. Clariant Chemicals (I) Ltd., and DESAL reject discharge by M/s. Chemplast Sanmar Ltd.,

Ground water monitoring: The ground water quality is being monitored monthly at the following four locations viz., SIPCOT project office campus, Kudikadu OHT, M/s Tagros Chemicals India Ltd., and M/s. Chemplast Sanmar Ltd.

Monitoring Mechanism of effluent generating from industries:

The treated tade effluent discharged by the industries for marine disposal is monitored once in a month by the Board. The CSECS discharge into sea through final sump-6 is monitored bi month. The treated effluent discharge by M/s. Clariant Chemicals India Ltd is being monitored b the Board once in a month. The desalination reject discharge by M/s. Chemplast Sanmar Lt, PVC plant is being monitored by the Board one in a month. The units having zero liquid discharge system are being monitored by the Board once in three months.

The direction by the Hon'ble National Green Tribunal by order dated 7.9.2016 as follows: "In these circumstances, we direct the SPCB to make a fresh analysis of the water samples ad file a status report.

Based on the Hon'ble NGT diection, fresh water samples from bore wells piezo metgric ells in and around SIPCOT and Uppanar river are collected on 9.9.2016 and 12.9.2016. The above said samples were collected by the TNPCB officials and analyzed in the advanced environmental laboratory, TNPCB, Cuddalore. The report of analysis of the water samples is described below:

Status of water quality in the bore wells located outside the SIPCOT:

Point of Collection	Locations outside the SIPCOT
borewell	Alapakkam Panchayat Union Building, Alapakkam
Borewell	At the house of N. Sankar, Poondiyankuppam
Borewell	At the house of C. Anbarasu,Semmankuppam
Borewell	At the house of Kandan Sangolikuppam
Borewell	Public hand pump, VKJ Nagar,Panchiyankuppam
Borewell	At the house of Ramesh, Chellankuppam
Borewell	At the house of Devan, KTR Nagar, Cuddalore

36.There are 7 number of bore well water samples collected from the wells located outside SIPCOT Industrial Complex, Cuddalore. The report of analysis of above samples revealed that the parameters of Lead in all seven locations and iron in one location exceeded to the drinking water standards of accepted limit as prescribed in the IS 10500:2012.

Status of water quality in bore wells located inside the SIPCOT

37.The details of water sample collected in bore wells inside the SIPCOT Industrial Complex, Cuddalore is detailed below:

Point of collection	Type	Name of the industry
Near store	Borewell	M/s.Covestro India Ltd
Near Oseion plant	Borewell	M/s. Pioneer Jellice
KOHT	Borewell	Kudikadu overhead tank

Near Intermediate plant	Borewell	M/s. Clariant Chemicals
SIPCOT PROJECT Office	Borewell	Back side of SIPCOT

38.There are 6 number of bore well water samples collected from the wells located inside the SIPCOT industrial complex, Cuddalore. The report of analysis of above samples revealed that the parameters of lead and iron are exceeded in three locations and total hardness in two locations out of six locations exceeded to the drinking water standards of accepted limit as prescribed in the IS 10500:2012.Status of water quality in piezo metric wells located inside the SIPCOT

39.The details of water samples collected in piezo metric wells inside the SIPCOT industrial complex , Cuddalore is detailed below:

Point of collection	Type	Name of industry
Opposite to cold storage	Piezo-metric	M/s. Arkema Peroxides
Near fire water pump house	Piezo-metric	M/s.Chemplast Sankar
Near VCM tank	Piezo-metric	“
Near South of SLF	Piezo-metric	“
Behind boiler	Piezo-metric	M/s. Pandian chemicals
Backside of canteen	Piezo-metric	“
East of ETP	Piezo-metric	M/s. Asian Paints
Near boiler	Piezo-metric	“
Left of boiler	Piezo-metric	“

Near acetaldehyde storage	Piezo-metric	“
Near electro catalytic Reactor	Piezo-metric	M/s.Loyal Super Fab.
Near old boiler	Piezo-metric	Strides shasun Ltd
Opp. To MEE	Piezo-metric	“
East of marine pit	Piezo-metric	“
Backside of HW storage	Piezo-metric	M/s. TANFAC
South of HW storage	Piezo-metric	“
Near ETP	Piezo-metric	M/s. Packaging India
Near parking area	Piezo-metric	M/s. Vivin Tex
Near aeration tank	Piezo-metric	M/s. Topknit Mill
Near raw water tank	Piezo-metric	M/s.Thangamman Tex.
HW storage area	Piezo-metric	M/s. Tagros Chem.
Near DG set	Piezo-metric	M/s. R.K. Exports
Near ETP clarifier	Piezo-metric	M/s. SPIC Pharma
Near ETP sand filter	Piezo-metric	M/s. Kawman Pharma
Near MEE plant	Piezo-metric	“
Backside of boiler	Piezo-metric	“

40. There are 27 number of piezo metric bore well samples collected inside the industries located in SIPCOT industrial complex, Cuddalore. The report of analysis of above piezo metric well samples reveals that the

parameters of nickel, lead and iron exceeded in 3, 15 and 5 locations out of 27 locations respectively as per the drinking water standards of accepted limit as prescribed in the IS 10500:2-2012.And other general parameters of TDS, Chlorine and total hardness exceeded in 1, 1 and 7 locations out of 27 locations respectively. Status of water quality in river Uppanar located adjacent to SIPCOT

41. The Uppanar river is situated at Cuddalore 180 Km south of Chennai and 25 km south of Pondicherry. The river flows between Cuddalore town and most part of Chidambaram Taluk and confluences with Bay of Bengal through a mouth of Gadilam river. It runs behind the SIPCOT industrial complex, Cuddalore.l

42. The river water samples collected in the upstream and downstream of river Uppanar ast Poondiyanuppam village and Rasapet village (near sump – 6). The flow of river Uppanar water mainly consists of back water of sea water during high tide and low tide behind the SIPCOT industrial complex, Cuddalore and the storm water is being confluence during rainy season in the upstream of river Uppanar. The report of analysis of Uppanar river water revealed the presence of lead in traces level.

43. Conclusion; It was ascertained fro the report of analysis of bore well water samples collected outside the SIPCOT, inside the SIPCOT and Piezo metric well water samples collected inside the premises of industries revealed that the parameters lead and iron are commonly present in the water samples and are exceeding the drinking water standards of accepted limit as prescribed in the IS 10500:2012. The report of analysis of Uppanar river water revealed presence of traces level of lead."

141. The applicant filed objection to the report dated 27.3.2019 which reads as follows:

"That the above titled application has been filed before the Southern Zone Bench of this Hon'ble Tribunal highlighting the issue of continuous water pollution being caused in the State Industries Promotion Corporation of Tamil Nadu area of Cuddalore district in Tamil Nadu. The residents in the SIPCOT Cuddalore have been suffering from poor water quality due to chemical contamination along with rapidly falling water tables, caused due to the inadequate and improper infrastructure of the industries operating in this chemical industrial complex. The constant pollution of the ground surface water caused by industries in the region not only puts human health at severe risk but also amounts to gross violation of the provisions of the Environment (Protection) Act, 1986 and the Water (Prevention and Control of Pollution) Act, 1974.

142. Thus the applicants sought the following relief from this Hon'ble Tribunal:

"*Direct the Government of Tamil Nadu to investigate the lapses of the officials of the TNPCB in discharging their duties and take action, including prosecution of the officials, in a time bound manner.*

Direct the State Government to take immediate action towards the prosecution of the violators of Section 43, 44 and 45 of the Environmental (Protection) Rules, 1986 and against the SIPCOT industries and the concerned officials who have failed to discharge their obligations and duties under Section 15, 16 and 17(1) of the Environmental (Protection) Act of 1986 and Section 25(5) of the Water (Prevention and Control of Pollution) Act of 1974.

Direct the State Government to select an independent competent national or international agency, preferably selected after competitive bidding for undertaking immediate measures for assessment of the depth and spread of the contamination and for the remediation and restoration of the ground water in the region, hereafter. Until which time a moratorium be imposed with respect.

Direct the State Industries Promotion Corporation of Tamil Nadu to stop the discharge immediately and assist in the assessment, restoration and remediation of the ground water as per the polluter pays principle.

Direct the State Government to prepare based on suggestions of the applicants under point 4, 6 of this application a time bound detailed action plan for remediation and restoration of the groundwater in consultation with the residents and community members and make it available to the public at large."

143. That several orders have been passed by his Hon'ble Tribunal in the present matter, highlighting the critical situation in SIPCOT Industrial Area, Cuddalore. During the pendency of the case, the Southern Bench of this Hon'ble Tribunal was pleased to pass an interim order dt. 7.9.2016 in light of the huge water pollution problem faced by the SIPCOT, Cuddaloe residents based on the analysis of the samples taken by the Tamil Nadu Pollution Control Board. The relevant part of the order is reproduced hereunder.:

It is seen from the study made in September, 2014 in respect of ground water quality in SIPCOT, Cuddalore based on the analysis of the samples taken by the Tamil Nadu Pollution Control Board that the ground water in and around SIPCOT Industrial Estate is heavily

contaminated including cadmium and is not suitable for drinking or other purposes involving contact with humans or cattle.

The samples taken from 10 out of 11 localities show that Cadmium level was 5 to 128 above permissible limits in samples collected from SIPCOT Project Office; it was 3 to 125 times above limits in samples collected from Kudikadu overhead tank; it was 3 to 130 times above limits in samples collected from M/s.Tagros and it was 3-128 times above limits

That pursuant to the said orders, the compliance of the same has been dismal and the residents have been suffering due to erratic availability of potable drinking water. In fact, noticing such irregularities and non compliance, this Hon'ble Tribunal had passed a subsequent direction on 12 May, 2017 recording the submission that only 3 out of 21 villages was being supplied with drinking water. The Hon'ble Bench had then directed the SIPCOT and SIPCOT Industries Association to file a status report in this regard with respect to compliance of the 7.9.2016 order. The said order is reproduced hereunder:

"In the order dated 07.09.2016 we have directed the 4th respondent SIPCOT, Cuddalore to make immediate arrangements for supply of drinking water facilities to all residents in SIPCOT, Cuddalore area and file a Status Report. The learned counsel appearing for the applicants submits that adequate drinking water has not been supplied.

In our order dated 16.11.2016, we have taken note of the submissions made by Mr.Ritwick Dutta, learned counsel appearing for the applicant that out of 21 villages only 3 villages are supplied with adequate water and we have also directed SIPCOT to file a Report about the quality of water being supplied as well as the quantity of water apart from the study that all the villages are supplied with drinking water.

Mr.K.S.Viswanathan, learned counsel appearing for 5th respondent, SIPCOT Industries Association submits that all the villages are supplied with adequate drinking water and in fact the said Association is making payments to SIPCOT for the purpose of implementing the said order. Both the Association and SIPCOT shall file a Status Report on the next date of hearing.

Post this application on 26.07.2017.

144. When the matter was taken up on 1.2.2019 the Hon'ble Tribnal noted as follows:

"Having regard to the importance of access to clean water, it is necessary to ensure that all precautionary and remedial measures are taken against water pollution. It is especially so in the present case when the area is having red/large category units which include highly polluting units (17 category), as noticed in the report of the TNSPCB.

Accordingly, before we proceed further, we consider it necessary to have an updated status of the water quality in the area.

Let a joint team comprising representatives of the Central Pollution Control Board (CPCB) and the TNSPCB collect samples from Bore wells and shallow aquifers, Peizo-metric wells in and around SIPCOT Industrial Complex, Cuddalore and Uppanar River and furnish a report to this Tribunal within one month by e-mail at ngt.filing@gmail.com.

The Committee may also ascertain the status of functioning of ETPs or other effluent treatment devices used by the industries. The Committee may also report as to how much the quantity of drinking water must be supplied to the inhabitants. The TNSPCB will be the nodal agency for coordination and compliance.

A copy of this order be sent to the TNSPCB by e-mail for compliance.

The SIPCOT association which is supplying the drinking water may suitably increase the quantity of the water, having regard to the needs of the inhabitants and viability of water availability.

Put up for consideration of the report on 27.03.2019.

145. Thus, it is clear that the joint inspection team was directed to:

collect samples from Bore wells and shallow aquifers, Peizo-metric wells in and around SIPCOT Industrial Complex, Cuddalore and Uppanar River, ascertain the status of functioning of ETPs or other effluent treatment devices used by the

industries. The Committee may also report as to how much the quantity of drinking water must be supplied to the inhabitants.

That the Joint Inspection Team submitted its report dated 25.3.2019 to this Hon'ble Tribunal through the TNPCB. The applicants have perused the same and the contents of the said report are denied unless specifically admitted or is part of record. It is submitted that the Joint Inspection Team has failed to comply ith the directions of this Hon'ble Tribunal and has not submitted a report highlighting the true state of affairs in SIPCOT Indurial area, Cuddalore.

146. Before responding to the findings and recommendations of the report dated 25.3.2019, it is important to state the conclusions of the Joint Inspection Team.

3. Conclusions:

"As per the joint team monitoring of Bore wells, Piezo meteric wells in and around SIPCOT Industrial complex and Uppanar river, following are the conclusions;

i. **Water quality of samples taken Piezo metric wells :** Out of 28 samples from piezo metric wells, 9 samples were found exceeding the acceptable limit of TDS of 500 mg/L. The TDS concentration in samples taken from piezometric well nos. SIP 2G (Inside premises of M/s Covestro India Ltd.,) and SIP 37 G (Inside premises of M/s Topknit Mill) and were found high (1652 & 1800 mg/L). In these two samples Chloride and Sulphate concentration also found high. Other parameters were found within acceptable limit of drinking water standards in all peiezometric wells. However close monitoring of ground water in this area is required to observe the seasonal variation of ground water quality in the area and early prediction of pollution if any .

ii. **Water quality of samples taken from Bore wells inside the SIPCOT :** out of 6 samples taken from bore wells, 2 samples (SIP 3 G & 14 G) were reported high concentration of TDS and Chloride. However, no heavy metals reported in any samples.

iii. **Water quality of samples taken from Bore wells outside the SIPCOT :** out of 4 samples taken from bore wells, 2 samples (SIP 7G & 31 G) were found exceeding the acceptable standards of 500 mg/L. The concertation of Chloride also found

exceeding the acceptable standards of 250 mg/L. The concentration of copper (0.388 mg/L) was found high in bore well no SIP 7G. Other parameters in all 4 bore wells were found in within prescribed standards of drinking water quality.

iv. **Water quality of Uppanar river in up stream and down stream :** From the above table, the water quality parameter confirms the intrusion of sea water into Uppanar river, however the concentration of copper in u/s of Uppanar river was found high in concentration compare to down stream.

The copper concentration in one of the bore well in out side SIPCOT and upstream of Uppanar river was observed as high as 0.806 mg/L against the acceptable limit of 0.05 mg/L, hence regular monitoring is suggested for early prediction of pollution if any.

v. **Status of functioning of ETPs or other effluent treatment devices used by the industries :** All 26 industries are having treatment plant, 16 industries are members to Cuddalore Sipcot Industries Common Utilities Limited (CUSECS) and discharging their treated effluent into sea. 2 industries are discharging their treated effluent into through their own marine disposal system 3 industries doesn't produce trade effluent. 5 industries have provided ZLD system and generating sludge and salt in the tune of 4.45 T/Day and 16.72T/Day respectively. The sludge and the salt are disposed to the common TSDF.

Out of 26 units, 22 units installed online monitoring system to monitor pH, &Flow and 4 units has online monitoring system to monitor pH, Flow, BOD, COD.

vi. **The Quantity of drinking water supplied to the inhabitants :** There are 4 Panchayat in and around the SIPCOT, 6 villages belongs to Kudikadu and Sedapalayam Panchayat, 3 villages under Pachayankuppam and 6 villages under Semmankuppam. Drinking water to these villages being supplied through Tanker Lorries, OHTs and R.O Plants. As per the information provided concerned Panchayat office, KudiKadu Panchayat and Sedapalyam Panchayat are supplied 23% more than the required water supply. However two panchayats viz. Pachayankuppam (- 49%) and Semmankuppam(-54%) are supplied with less than the required water supply.

147. The applicants would like to make the following submissions in response to the Joint Inspection Report dated 25.3.2019.

On the samples collected from bore wells:

That it is submitted that this Hon'ble Tribunal had categorically directed that samples be collected from bore wells and shallow aquifers, peizo metric wells in and around ASIPCOST Industrial Complex, Cuddalore and Uppanar River. The analysis of the samples of piezometric wells and bore wells inside SIPCOT clearly show that the following parameters are exceeding in most of the samples:

TDS – 8 out of 12 exceeding

Iron – 7 out of 12

Chloride – 4 out of 12 exceeding standards

Alkalinity – 8 out of 12 exceeds

Calcium – 3 out of 12

Magnesium – 5 out of 12

Copper - 2 out of 12

It is unclear and questionable as to how the reports show that nickel, cadmium are below detectable levels even after the findings of the CPCB as well as he applicant in 2014. It is pertinent to note that these reports had also highlighted that levels of manganese and mercury are also exceeding acceptable standards. However, the joint inspection team did not even analyse the samples or the said to hazardous contaminants.'

148. On the issue of status of effluent treatment plants and other effluent treatment devices:

It is submitted that the most glaring issue in the joint inspection report is that the qualitative analysis of the performance of the ETP of the inspected industries or the CEPT. The report merely states the status of the ETP. No samples have been taken at the inlet or outlet of the said

ETPs. Thus, the report has failed to comply with the basis direction of this Hon'ble Tribunal. The report at Annexure 4a and 4b simply lists out the industries which have been inspected and along with the details of the said industries and describes the process of the respective ETP. Thus, it is clear that the report is completely lacking .

149. That another critical observation of the joint inspection team is that the source of water is ground water which is withdrawn through bore wells. It is pertinent to note that the ground water levels have been consistently declining in Cuddalore District. Despite this, the joint inspection team failed to look into the issue whether these industries had valid NOC from the CGWA and whether the guidelines of 2015 were being followed. It is pertinent to note that water intensive industries cannot be permitted to extract ground water in over exploited areas.

150 That further it is submitted that the joint inspection team has not even considered the compliance status of the conditions of the consent regarding effluent treatment of any of the ETPs. In fact, the report notes that the consent of several industries are to expire on 313.2019. However, no action has been taken against the said industries for non renewal and operating without valid consent by these industries.

151. It is pertinent to note that the joint inspection team has failed to consider the earlier report of high level pollution and contamination in the SIPCOT area which has also been recorded by this Hon'ble Tribunal in the order dated 7.9.2016 wherein the TNPCB's findings are categorically recorded that ground water quality in SIPCOT, Cuddalore based on the analysis of the samples taken by the Tamil Nadu Pollution Control Board that the ground water in and around SIPCOT Industrial Estate is heavily contaminated including cadmium and is not suitable for drinking or other purposes involving contact with humans or cattle.

The samples taken from 10 out of 11 localities show that Cadmium level was 5 to 128 above permissible limits in samples collected from SIPCOT Project Office; it was 3 to 125 times above limits in samples collected from Kudikadu overhead tank; it was 3 to 130 times above limits in samples collected from M/s.Tagros and it was 3-128 times above limits in samples collected from samples collected from the premises of M/s.Chemplast Sanmar

Further, CPCB had also reported high levels nickel, manganese, Mercury and iron in its 2013 report. There has been no change in the situation as was prevailing between the time of these findings and the present joint inspection team. Therefore, it is questionable if the findings are reliable in the light of this non application of mind by the joint inspection team Further, the applicant had also put on record 2014 analysis by the applicants. It is pertinent to note that Cuddalore is already categorised as a critically polluted area in 2009 and the condition has only worsened over the years. It is submitted that the applicants had filed the above titled application seeking assessment of the environmental damage and for remediation of the area. In fact, even in the order dated 1.2.2019 this Hon'be Tribunal had noted as follows:

"Having regard to the importance of access to clean water, it is necessary to ensure that all precautionary and remedial measuresare taken against water pollution. It is especially so in the present case when the area is having red/large category units which include highly polluting units (17 category), as noticed in the report of the TNSPCB.

However, this issue has been completely ignored by the joint inspection team which has recommended measure which would in no manner support remediation of the already contaminated ground water. In this regard, it is important to note that the CPCB has issued guidelines for remediating contaminated sites in India. However, these guidelines were never considered by the Joint Inspection Team.

152. On the issue of drinking water:

In this regard, the applicants submit that the joint inspection team has stated that two panchayats are getting more water than the requirement. However, the source of this information has not been mentioned. In fact, the joint inspection team failed to consult the residents of these villages regarding the availability of water. If this exercise was conducted by the joint inspection team, it would have been clear that the situation is very critical It is pertinent to note that the applicants had filed a status report dated 7.9.2018 wherein details of each village was given with regard to the actual availability of drinking water. The applicant would like to rely on the contents of the same and the same is not being repeated for the sake of brevity. The applicants had also raised serious concern regarding construction of RO systems since the ground water itself is highly polluted and contaminated. Thus it is submitted that the Joint Inspection Report dated 25.3.2019 has completely failed to comply with the directions of this Hon'ble Tribunal dated 1.2.2019 and it is requested that the findings of the same be rejected."

153. The applicant also filed objection the Joint Inspection Report dated 11.11.2019 which reads as follows:

"That the above titled application has been filed before the Southern Zone Bench of this Hon'ble Tribunal highlighting the issue of continuous water pollution being caused in the State Industries Promotion Corporation of Tamil Nadu area of Cuddalore District in Tamil Nadu. The residents in the SIPCOT Cuddalore have been suffering from hazardous water quality due to chemical contamination along with rapidly falling water tables, caused due to the inadequate and improper infrastructure of the industries operating in this chemical industrial complex. The constant pollution of the round surface water caused by industries in the region not only puts human health at severe risk but

also amounts to gross violation of the provisions of the Environment (Protection) Act of 1986 and the Water (Prevention and Control of Pollution) Act of 1974.

154. That the applicants have specifically sought directions with respect of time bound independent assessment of the extent of environmental damage as well as plan for restoration and remediation of the groundwater which is admittedly contaminated due to the industrial activities by the member industries of SIPCOT Cuddalore. It is submitted that until then, there must be a moratorium with respect to expansion and setting up of new industries, so as to prevent further environmental damage. The applicants had also sought directions for prosecution of the responsible officers of the TNPCB who have not taken any action against the violators under the provisions of the Water (Prevention and Control of Pollution) Act of 1974.

155.That even though the above titled application was filed in 2015, with several documents which showed that the ground water in the entire Cuddalore area is contaminated with presence of heavy metals. Over the course of the proceedings, there have been several reports of the TNPCB which have also confirmed presence of heavy metals in the ground water in the area in question. However, till date there has been no assessment of the extent of damage and no time bound remediation plan has been prepared. Further, the residents living around the SIPCOT complex in Cuddalore are suffering due to the contaminated and toxic ground water which is adversely impacting their health. It is further submitted that the joint committee has failed to consider this back ground while dealing with entire issue and submitting the report.

156. That when the matter was taken up on 1.2.2019 the Hon'ble Tribunal noted as follows:

> "*Having regard to the importance of access to clean water, it is necessary to ensure that all precautionary and remedial measures are taken against water pollution. It is especially so in the present case when the area is having red/large category units which include highly polluting units (17 category), as noticed in the report of the TNSPCB.*
>
> *Accordingly, before we proceed further, we consider it necessary to have an updated status of the water quality in the area.*
>
> *Let a joint team comprising representatives of the Central Pollution Control Board (CPCB) and the TNSPCB collect samples from Bore wells and shallow aquifers, Peizo-metric wells in and around SIPCOT Industrial Complex, Cuddalore and Uppanar River and furnish a report to this Tribunal within one month by e-mail at ngt.filing@gmail.com.*
>
> *The Committee may also ascertain the status of functioning of ETPs or other effluent treatment devices used by the industries. The Committee may also report as to how much the quantity of drinking water must be supplied to the inhabitants. The TNSPCB will be the nodal agency for coordination and compliance.*
>
> *A copy of this order be sent to the TNSPCB by e-mail for compliance.*
>
> *The SIPCOT association which is supplying the drinking water may suitably increase the quantity of the water, having regard to the needs of the inhabitants and viability of water availability."*

That in purported compliance of the Hon'ble Tribunal's directions, the TNPCB filed a joint inspection report dated 27.3.2019. The said report had also found contamination in the ground water samples. The following findings are relevant:

TDS – 8 out of 12 exceeding

Iron – 7 out of 12

Chloride – 4 out of 12 exceeding standards

Alkalinity – 8 out of 12 exceeds

Calcium – 3 out of 12

Magnesium – 5 out of 12

Copper - 2 out of 12

However, the report was completely lacking with respect to the directions and terms of reference issued by this Hon'ble Tribunal and the applicants had pointed out several lacunae as well as non-compliance of the directions of this Hon'ble Tribunal dated 1.2.2010 in their response to the said report.

156. That this report was considered by the Hon'ble Tribunal on 8.7.2019 wherein it was noted that the report was unsatisfactory. The following observations are noteworthy:

> *"As regards the status of functioning of ETPs, we do not find the report to be adequate in as much as the samples for both the inlet and outlets had not been taken and tested and the adequacy of the pollution control devices examined.*
>
> *The Committee has also not expressed as to whether the ground water extraction by the industry was with proper authorization obtained from the CGWA.*
>
> *For the aforesaid reasons, we deem it necessary to refer the matter once again to the Joint Committee to do the following and submit a*

report;

To take the samples from the inlet and outlet of all the ETPs to ascertain as to whether the effluent are within the prescribed limit;

To ascertain the source of the heavy metal pollutants like Nickel, Cadmium, Manganese, Iron and Lead, etc.

To ascertain the adequacy of the pollution control devices installed by the industry.

After such tests, to assess the environmental compensation to be paid by the individual units for the default on their part.

It is a matter of record that the area had been declared as a Critically Polluted Area in the year 2009 and an action plan for remediation had also been prepared. Let the Committee also report as to whether the action plan had been implemented and if so, whether there has been any improvement of the situation in the area. There is also a need to assess the environmental damage caused to the area.

157. That the applicants have now received a report dated 11.11.2019 submitted by the TNPCB purportedly in compliance of the order dated 8.7.2019. At the outset the applicants would like to make the following submissions:

Non Compliance with TOR by joint inspection committee.

That despite noting and acknowledging the fact that the SIPCOT industrial area is severely polluted, the Joint Inspection team completely failed to comply with most of the TOR issued by this Hon'ble Tribunal; Ascertain the source of the heavy metal

pollutants like Nickel, Cadmium, Manganese, Iron and Lead etc., assess extent of damage to environment, assess the environmental compensation to be paid by the individual units for the default on their part. Industries had prior notice of the inspection: That at the outset, it is submitted that the inspection was conducted after prior notice to the industries therefore, the appellants have serious concerns regarding the fact that the analysis results may not show the actual situation persisting in SIPCOT area. In fact, this issue was even pointed out to the joint committee that had inspected these industries and this was even admitted. It is submitted that the since the industries had prior notice of the inspection, a few of them were not even operating on the date of inspection. Failure to take ground water samples from surrounding villages and analysed the same for contamination and tack of cumulative impact assessment: That further, the issue at hand is with respect to continuous and increasing ground water contamination around the entire SIPCOT complex. With respects to this, it was imperative that the joint committee take samples of ground water as well as drinking water sources in the affected villages and have them analyzed for heavy metal presence and conduct a cumulative impact assessment of the entire chemical industrial complex on the ground water in the region. However, this exercise was never undertaken b the Joint Inspection Committee.

158. ZLD systems ineffective and in poor condition:

That the report gives the following findings with respect to the

ineffective operation of the ZLD systems. Out of 14 units that have installed their own ZLD systems. 5 units were not in operation so their ZLD systems could not be tested. In the remaining 9 units the committee observed in the report that the ZLD system – Multi Effect Evaporator was poor or very poor.

The report finds iron, copper, nickel and zinc in the raw effluent and MEE concentrate.

159. The committee in the later part of the report in the remarks of the functioning of the effluent treatment plants has observed or all the units- "The unit also required to maintain proper records of salt recovered and track records of quality disposed. It is a matter of serious concern if the companies are not maintaining proper records of salt recovered and their disposal. Salt recovered from the ZLD system is highly toxic and hazardous in nature and has to be disposed of in a TSDF. It is submitted that irresponsible disposal of this waste could lead to further contamination of the water No details regarding status of hazardous waste disposal have been given in the report and whether these industries have valid authorization under the Hazardous Waste Management Rules, 2016.

160. That with respect to the M/s Cuddalore SIPCOST Industries Common Utilities Ltd., it was found that the effluents contained traces of zinc, nickel, copper and iron. However, it is submitted that while the committee observed that all traces of heavy metals were within the prescribed limits of each individual

unit, the committee did not conduct any cumulative assessment of heavy metals released by the entire cluster. Hence it is difficult to ascertain of the cumulative load of all the effluents was at levels that pose no hazard to health or environment. Alarming CEPI score with respect to water pollution confirms he toxic situation in the area: One of the most critical findings of the joint inspection committee was that the CEPI score with respects to water environment has not improved at all. In fact, it is pertinent to note that MoEF & CC has imposed a moratorium on further industrial activity in 2009 on the basis of the CEPI score of 65.25 which was lifted in 2011 on the basis of the submission of the TNPCB that there was an improvement in the situation and the CEPI score had become 50.00. However, the report itself admits that as per latest assessment in 2018, the CEPI score has again reached alarming levels of 58.25. Thus, there is a need for immediate steps to remediate the entire area and affix responsibility on the violating industries. However, even after such an alarming finding, the report states that all industries were found implemented the recommended control measures as per CEPI action plan on 2010. This is highly contradictory.

161. Depleting levels of ground water in the area which is notified as over exploited:

Another important issue which has come to light is the status of ground water in the area.

162. It is pertinent to note that the committee has given the

following findings:

Out of 14 industries which are having ZLD system, 5 industries were not in operation. Efficiency of RO and MEE found not satisfactory in two industries namely M/s. Asian Paints and M/s. DFE Pharma.

All working units which have provided MEE as a part of ZLD system were found not satisfactory and not achieving desirable soil concentration.

High concentration of Copper (99.89 mg/L) and Nickel (15.13 mg/L) were observed in RO reject of M/s. Amcor Flexible. The unit is taking RO reject to solar pond hence close monitoring is required.

Out of 15 industries which ae members to CUSECS, 14 industries are comply with the all parameters of marine disposal standards, only one unit namely M/s. Supreme Dye Chem discharging treated effluent having high concentration of copper (6.65 mg/L) against limit of 3.0 mg/L.

The two industries having own marine disposal system found meeting with prescribed standards or marine disposal.

M/s. CUSECS has provided continuous monitoring system in their receiving pipelines and for pH, BOD, COD, TSS and temperature in the final discharge pumping line to sea, to ensure the quality of treated effluent w.r.t marine disposal standards. The samples collected from the common sump of CUSECS confirms the compliance w.r.t marine disposal standards.

The industries which are not generating trade effluent but are generating domestic sewage are disposing through Septic tank/soak pit.

As per analysis of samples of samples taken from different industries, the heavy metal pollutants like Nickel, Cadmium, Manganese, Iron and Lead

found well within the prescribed standards except above mentioned two industries.

Based on the results of analysis of sediment samples taken from the Uppanar river, traces of heavy metals and no traces of Pesticides were observed.

All 14 industries were found implemented the recommended pollutin control measures as per CEPI action plan of 2010.

As observed in the field and by the analysis water samples and sediment samples, no significant environmental damages have been observed

The SIPCOT authority has dug 10 bore wells to supply water to the industries of SIPCOT. These bore wells were dug before 1995 whereas no permission was mandatory during that period. No permission is given to industries of SIPCOT to dig their own bore wells.

The two industries M/s Pioneer Jellice India and M/s. Clariant chemicals are functioning in their own land and has bore wells in their premises and obtained NOC from PWD.

Recommendations of Joint Monitoring Committee:

All industries which are having ZLD system required to improve their tertiary treatment system viz, RO and MEE/VTFD/ASTFD.

The unit M/s Amcor Flexible which is a source of Copper and Nickel shall be directed to provide elevated solar evaporation pan with acid proof linings and the unit shall be monitored very closely.

All industries shall be directed to install real time monitoring system and connected to TNPCB water quality watch as below:

Based on existing treatment	Recommended monitoring/real

Facility and final discharge	Time monitoring system
The member industries of CUSECS and discharging their Effluent into sea	Flow, pH, BOD, COD and specific Parameter based on the process Involved
Industries having own marine disposal system	
The industries achieving ZLD	Flow meter & TDS monitoring system at inlet o ETP, RO feeder RO reject, MEE feeder, web camera to ensure ZLD. Maintenance proper records of salts recovered and disposed.
The industries not generating Effluent	Flow meters to record the quantity of water received and consumed, the domestic sewage management Plan

They have also annexed the inspection report of individual units and the observations regarding their functioning along with the report."

163. It is pertinent to note that the area in question is situated on the coast of Tamil Nadu. As per circular dated 2.7.2010 of the PWD of Government of Tamil Nadu no ground water extraction is permissible within 10 ms of the coast The relevant part of the said circular is reproduced hereunder:

"Recently an application for the award of ground water availability certificate was received in this office from a location in the coastal

area, the proposed ground water drawal structure of which has been located at just 1 km from the sea. At the outset itself such applications are to be rejected outrightly as there is an imminent danger of sea water ingress into the land happening surely and rapidly in the coastal area leading towards the energized drawal structure when once such a drawal structure is permitted for pumping of ground water in large quantities as requested by the firms/industries/organizations for their usage Obviously, such a proposition simply cannot be entertained by such a costly price of damaging our invaluable resources of land and water in the coastal area perennially. Now the question here is how from the sea coasts we must prohibit the establishment of such ground water development by any firm/industry/organization for its running. Therefore, in order to be very practical and reasonable the border line or the line of separation of zones is hereby safely fixed at a perpendicular distance of 10 m from the sea coast beyond which on an ground water drawal proposal should be considered for processing and all other ground water development falling within the 10 km range from the sea coast should be rejected at the outset.

164.Further, the Cudalore Taluk wherein the industrial complex is situates has been notified as an over exploited zone with respect to ground water as per G.O dated 1.10.2018. It is submitted that no ground water extraction is permissible for industrial activities as per the said G.O. Further, it is submitted that as per the 2015 guidelines of the CGWA on issuance of NOC

with respect to ground water extraction, even existing industries are mandated to obtain NOC from the Central Ground Water Authority. The following provision is noteworthy:

Issuance of NOC to existing industries: All existing industries/projects which are drawing ground water and have not obtained NOC for ground water withdrawal from Central Ground Water Authority, either due to its coming into existence prior to formation of CGWA or due to Central Ground Water Authority, Government of India exemption from obtaining NOC as per earlier guidelines shall apply to CGWA for NOC for ground water withdrawal with immediate effect. This would be applicable to States/UTs in which regulation of ground water withdrawal is being done by CGWAS. The application has to be submitted online. The grant of NOC would be considered as per prevailing guidelines It would be mandatory for these industries/projects o submit water quality report of effluent, if any, veted by competent authority. The industry/project should have valid EC or consent to operate under Water Act or referral letter issued by the State/Central regulatory authority.

165. It is submitted that these issues have not been even considered by the joint inspection committee. In fact, as per recent new article titled "22 districts in Tamil Nadu now in red category as ground water levels continue to plummet. Published in the New Indian Express on 16.8.2019 it has been clearly reported that in a month's time three districts – Cuddalore, Thoothukudi and Tirunelveli have recorded a decrease in ground

water levels and have been marked under the red category by the government. With these three, the number of districts with a declining trend in ground water levels has gone upto 22 from 19 since April.

166. That with respect to the issue of analyzing soil samples for contamination, it is pertinent to note that the joint committee has only analysed the same for presence of pesticides and have found that there is no presence of any pesticides. While such a finding shows that the source of contamination is not agricultural activities, the committee has not analysed the soil samples for presence of pollutants which arise due to industrial pollutants, including heavy metals thus frustrating he entire purpose of the exercise.

167. That this Hon'ble Tribunal has taken a very strict view with respect to industrial pollution in the past and have issued several coercive orders in this regard. In the matter of Meera Shukla V Municipal Corporation, Gorahpur & ors. (O.A.No.116 of 2014) vide order dt. 23.8.2018, this Hon'ble Tribunal has observed as follows:

"We are thus of the view that there is undoubtedly failure of the administration for preventing pollution which has resulted in death of children as already noted. There is continued violation of environmental norms for which action is not being taken. In spite of direction in the last four years very little and insignificant steps have been taken and the result is that the pollution still continues. In such an emergent situation the stand of the authorities of shifting the burden of the responsibility from one department to another is against the spirit of the Constitution. They have to come together and take immediate steps to prevent any further damage and also to reverse the damage already done. Those responsible for failure have to be made accountable. Those who have suffered need to be rehabilitated.

19. All applications seeking waiver of the cost imposed are without any substance and are earlier rejected. The authorities dealing with the matters are liable to be proceeded against for

their negligence and failure of duties in appropriate civil and criminal proceedings in accordance with law.

20. In the above crises situation of failure of law, the Tribunal is left with no alternative but to constitute a 8 Item No. 06 August 23, 2018 HB & DV credible mechanism to oversee planning and execution of further steps in the matter on urgent basis. A Monitoring Committee is accordingly constituted as follows:-

i. Justice Devi Prashad Singh, former Judge, Allahabad High Court – Chairman.

ii. Senior Representative of Central Pollution Control Board.

iii. Senior Representative of Uttar Pradesh State Pollution Control Board.

iv. Dr. A.B. Akolkar, Ex-Member Secretary, Central Pollution Control Board, Delhi.

v. Representative of Uttar Pradesh Jal Nigam.

21. The technical/scientific members of the Monitoring Committee shall collect samples, cause analysis of such samples at Central Pollution Control Board Laboratory. They shall also carry out joint inspection of industries and other entities viz. ETPs, STPs, MSW site etc to ascertain contribution to environment degradation. The Central Pollution Control Board shall be the convenor of technical and scientific team, which shall submit its report to the Chairman of Monitoring Committee.

22. The Chief Secretary of Uttar Pradesh is directed to provide logistic support to the Monitoring Committee and determine their remuneration in consultation with them. All concerned authorities will co-operate with the Committee and comply with such directions as may be issued by the Committee, subject to any further orders in the matter by the Tribunal.

23. The Committee will have an action plan prepared for 9 Item No. 06 August 23, 2018 HB & DV the steps required for setting up of Municipal Solid Waste plant, ETPs/CETPs or other urgent step sat the earliest possible. The action plan may provide for strict timelines. The Committee may also secure information from the concerned authorities as to whether the ETPs already installed are functioning.

24. It is stated by leaned Counsel for the applicant that polluting industries have hidden pipelines and the effluents are being discharged through such pipelines instead of being treated in the ETPs.

25. The Committee may also oversee the steps for availability of potable water for the inhabitants. The names of the persons responsible for dealing with the situation in Gorakhpur representing UPPCB, Nagar Nigam, Jal Nigam, GIDA to be displayed on the respective websites for information of all concerned.

26. The Committee may also oversee the rehabilitation programme for compensating the victims who have suffered on account of pollution caused. The Committee may also oversee that all effluents are directed to the ETPs, CETPs and STPs for treatment."

168. Further, in the matter of Janardan Kundalik Rao Pharande & ors Vs. MoEF & ors. (O.A.No.7/2014) (WZ) vide order dated 11.7.2019 this

Hon'ble Tribunal considered the methodology for assessment of environmental compensation upon recommendation of the committee comprising representatives of MoEF & CC, CPCB and IIT, Mumbai. Following methodology was formulated for assessment of compensation:

Step I	*Collection of data for the concerned village and data tabulation as shown in table 12*
Step II	*Collection of actual data of victim/farmer and determination of actual yield and data tabulation as shown in Table 13*
Step III	*Calculation of difference in agriculture productivity (d_{ijk}) using the formula:* $d_{ijk} = (Y_{ij} - Y_{ij})*A_{ijk}$
Step IV	*Calculated of cumulative loss in productivity (D_{ik}) using the formula:* $D_{ik} = \sum d_{tjk}$
Step V	*Calculation of cumulative compensation ($\sum L_{ik}$) using the formula:* $\sum L_{ik} = D_{ik} \times M$

169. This was done in view of order dated 20.2.2019 of the Tribunal which directed constitution of a committee to assess the amount required for remediation of environment and for compensating he victims. It is submitted that the said case was with respect to compensation to farmers who were victims of pollution. In the present case, there is a need to look at the cumulative assessment of the adverse impact and the extent of the same and methodology to remediate the area as well as compensate the residents.

170. That the applicants submit that the industries in SIPCOT have been contaminating the environment since late 1990s. The present application as filed in 2015 with respect of remediation of the contaminated ground water in the villages around SIPCOST units. It is submitted that the report dated 11.11.2019 is completely lacking as it has restricted its inspection to the units currently in operation in SIPCOT but has not done any analysis or test of the ground water quality in and around the villages of SIPCOT. The committee has simply recommended that for further improvement of environmental quality of Cuddalore SIPCOT industrial complex, a revised

CEPI action plan is to be prepared and implemented in a time bound manner. Further, no cumulative impact has been assessed by the committee with respect to the damage to the environment. Thus, the committee has undertaken a lackadaisical exercise and has not fully complied with the directions of this Hon'ble Tribunal.

Therefore, in light of the above made submissions, this Hon'ble Tribunal may be pleased to grant the prayers in the Original Application.

171.The second respondent filed additional reply which reads as follows:

"I submit that the present relief which is sought for in the response filed to the joint inspection report dt 11.11.2019 is beyond the scope of the prayer sought for in the O.A.No.34 of 2015. Besides the question of getting NOC or permission from the CGWA need not arise in view of the fact that the 2nd respondent has dug borewells. During the year 1984 to 1995 and has been supplying water prior to the commencement of ACGWA 1995. Therefore the relief now sought for is not maintainable in law and the same is liable to be dismissed.

172. I submit that the applicant has filed the above O.A.No.34 of 2015 and in the above O.A, the only grievance raised by the applicant was this respondent was not supplying water to the nearby villages and as a villager, he was affected by the non supply of water by this respondent. This respondent has filed a detailed counter affidavit stating that the list of industries functioning at SIPCOT Industrial Complex at Cuddalore and how water is supplied to the nearby villages with the supporting documents. The grievance of the applicant is that the industries functioning in the industrial complex, Cuddalore are polluting the villages which are wild allegations and without any basis and supporting

documents. This Hon'ble Tribunal was pleased to direct the Central Pollution Control Board and Tamil Nadu Pollution Control Board to conduct three inspections at various levels during various dates and the report of the joint inspection was also filed before this Hon'ble Tribunal. A perusal of the report would go to show that the industries are treating their trade effluent generated to the best standards available, economic viability and comply with standards prescribed by TNPCB from time to time. Some of the major industries had gone for zero liquid discharge system and they are not letting out any effluent. Industries which are generating trade effluent and treat their effluent by the individual industries to the best standards and discharge through CUSECS for marine disposal. The tested water samples at various stages of raw effluent, treated effluent were inspected along with the submitted documents filed by TNPCB. Hence it is evident from these documents that the industries are not contributing any water pollution so as to damage ground water/soil in the surrounding area. None of the industries located in the SIPCOST Industrial complex are using Cadmium Chromium Lead and Nickel as raw material or as finished products and this has been stated in our counter affidavit filed during the year 2015.

173. The Joint Committee comprising of CPCB & TNPCB officials had inspected the units and submitted the report to the Hon'be National Green Tribunal, as per the guideline laid. This respondent is supplying sufficient drinking water by tanker loads to the surrounding villages of SIPCOT such as Vairankuppam, Thatchan colony, Semmankuppam,Sangolikuppam, Eachankadu, Kuikadu, Pachiankuppam and the photographic evidence were submitted to this Hon'ble Tribunal. I further submit that the joint committee comprising of

CPCB & TNPCB officials had inspected the units and the effluent treatment system and collected samples of raw effluent and final treated effluent and submitted the report of analysis to this Hon'ble Tribunal as per the guidelines laid.

174. I submit that based on the information provided in the report, now the applicant is accusing this respondent for drawing water and supplying without obtaining permission from the Central Ground Water Authority. In this context whether the state has the power to regulate the extraction of ground water which was subject matter of batch of writ petitions filed before this Madras High Court. The learned single Judge upheld the validity of G.O.Ms.142 where the CGWA was also a party respondent and against the same the batch of writ appeals are filed which are still pending. So the issue of obtaining license/permission/NOC for existing bore well units is pending before High Court and as o date the existing units are still functioning with the interim orders granted by the High Court. At this juncture it is to be noted SIPCOT being a state owned corporation does not require any permission to extract water from existing bore wells.

175. It is pertinent to state that the SIPCOT Industrial Complex sat Cuddalore was set up in the year 1984 and during that period itself borewells were installed. The Central Ground Water Authority was constituted under Section 3(3) of the Environment Protection Act, 1995. It is submitted that the Central Ground Water Authority is regulating withdrawal of ground water by industries/projects in 802 over exploited and 169 Critical Assessment Units. List of these critical areas has been circulated to the State Pollution Control Boards and MOEF which refer the new industries/projects to CGWA for obtaining permission:

(1)CGWA has notified 162 critically /overexploited areas in parts of NCT Delhi, Haryana, Punjab, Andhra Pradesh, Rajasthan, MP, Gujarat West Bengal, Uttar Pradesh, Karnataka, Tamil Nadu, UT of Puducherry and UT of Die for control and regulation of development of ground water resources. For enforcement of the regulatory measures in these areas, concerned Deputy Commissioners/District Magistrates have been directed under Section 5 of Environment (Protection) Act, 1986 to regulate ground water development in these notified areas.

(ii)Construction of new ground water structures is prohibited in the notified areas. Permission of drilling tube wells is being granted only to the Govt agencies responsible for drinking water supply.

176. A perusal of the notification issued b the CGWA would got to show that the District of Cuddalore is not a 'critical zone' or 'over exploited zone' and the ground water level is in the 'safe zone'. Therefore, the question of getting permission from the CGWA does not arise. I submit that the 2nd respondent is drawing water from their deep borewell and also supplying water to the industries from the year 1984. I further submit that at that point of time, authorization was not required from Central Ground Water Authority. The Central Ground Water Authority does not issue No Objection Certificate for the ground water withdrawal in the States of Andhra Pradesh, NCT Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Tamil Nadu, Telangana and West Bengal and in Union Territories of Chandigarh, Puducherry and Lakshadweep.

177. I submit that the 2nd respondent has been drawing water from 12 numbers of deep aquifer layer bore wells. The 2nd respondent is supplying water to all the industries for the last 35 years and there is no

decline in ground water level – quantity & quality in water. The 2nd respondent had drilled all bore wells before the year 1995 and the 2nd respondent had drilled all bore wells before the circular issued by the Chief Engineer, Chennai in Circular No.CE-5/2010/DD(G)/2.7.2010. It is pertinent to state that the above G.O is exclusively meant for Panchatti village in Thiruvalur District. The reference to the G.O will have not application to the present case. Since Thiruvallur District has been classified as a critical zone by the Central Ground Water authority and after 2015 floods, the ground water level has increased in all part of States of Tamil Nadu and the G.O referred cannot be a yardstick because of the frequent changes of the ground water table depending on the monsoon and rains of every year.

178. I submit that the 2nd respondent has come to know that there is a proposal pending with the Government side for regularization of borewells drilled before the year 2010. The 2n respondent was requested to take up this issue and regularize their bore wells from State Government Ground Water Authorities and to get No Objection Certificate from the State Ground Water Authorities, Chennai at the earliest. However, in view of the recent developments, I humbly submit that the 2nd respondent has proposed 20 MLD desalination plant for Cuddalore SIPCOT and the work order was issued Lr. to the Tamilnadu Water Investment Company Ltd., vide Lr.No.CW/CUD/TWIC/Desalination plant/2018 dt. 9.8.2019. The detailed study for installation of desalination plant work is under progress. I further state that none of the industries in the 2n respondent industrial complex have dug any individual bore well in their premises and only the 2nd respondent is supplying water and catering the needs to all the industries for the land allotted by them. I further submit that

most of the pharma & pesticide industries have gone for zero liquid discharge and had reduced their water intake.

179. I submit that the 2nd respondent is supplying drinking water to the nearby villages by tanker loads on daily basis. The industries had also installed RO water systems in the following villages namely Vairankuppam, Thatchan Colony, Semankuppam, Semmankuppam Colony, Sangolikuppam, Eachankadu, Kudikadu and Thaikal Thoni Thurai in three panchayats. I further submit that M/s. Solara Active Pharma is supplying drinking water by tanker loads to the Kudikadu Colony. There are to numbers of RO plant installation is under progress in Sangolikuppam Meenavar Street, Sangolikuppam Colony and Semmankuppam Village. The 2nd respondent has not received any complaint of water shortage from the local village public up to this date.

180. I submit that the 2nd respondent and its industries Association had drilled bore well at Sedapalayam village panchayat and providing pipeline from the bore well to Sangolikuppam village & Semmankuppam Village to supply drinking water and the or is under process. I submit that the entire villages around he SIPCOT Industrial Complex at Cuddalore have been benefited by this respondent. The petitioners being few villagers, cannot be an aggrieved party since they enjoys the benefit of safe drinking water supplied by this respondent along with the people of their village. The attitude of the applicant is only to fish out information and create trouble to the existing industries in the industrial complex and as such there is neither public interest or environmental issue involved it eh above O.A. The report of the joint committee is absolutely or clearly state that with regard to the treatment of effluents by the industries are very clear as such the grievance of the applicant is answered. It is evident that the State has provided sufficient check and

balance effectively between the industries and the villagers and co existence of industries and the life of the people in the villages have been well maintained. As a lonely public, the applicants have come before this Hon'ble Tribunal with most unclean hand and the intention is only to threaten the industries or create trouble to the industries so that the job opportunities and market of the manufactured products mainly pharmacy products prevalent in that region goes to other States and Countries.

181. In the above circumstances, taking note of the fact that there is no effluent untreated by this respondent and any of the industries in the industrial complex and the fact that this respondent is supplying water regularly without affecting the ground water level to all the neighbouring villages under the scheme is to protect the industries ad he livelihood of the villagers and is done only as a method of welfare State and the applicants have got no right to interfere in the welfare measure created by the State.

182. It is also to be noted that as per the instruction of District Administration, 2nd respondent and the industries have jointly put lot of efforts and implemented desilting projects throughout the District in order to maintain the water table. The approximate total volume of desilting done in various water bodies by the SIPCOT industries in surrounding villages of Cuddalore District is 1,00,000 M^3 at a cost of Rs.133.lakhs.

183. It is submitted that all the grievances raised in the application have been answered and therefore the application field deserves no merits. It is prayed that this Hon'ble Tribunal may be pleased to dismiss the above application."

184. The fifth respondent filed reply to the response submitted by the applicant to the Joint Committee report which reads as follows:

"The fifth respondent is SIPCOT Industries Association is an association formed for the purpose of promotion of the interest of various member industries in the SIPCOT a Industrial Complex, Cuddalore. The SIPCOT complex in Cuddalore has been established in the year 1984 and has been developed in phases. The infra structure required for the operation of industries within the complex sare provided by SIPCOT. The industries within the complex come under Chemical, Pharmaceutical land textiles categories. Water supply to the industries is through deep bore wells by SIPCOT. The industries within the complex have been discharging treated trade effluents through a company called Cuddalore SIPCOT Industries Common Utilities Ltd which company had been formed for the purpose of collecting and discharging treated effluents from the member industries. The company had established and is maintaining a 970 m long pipeline system to dispose of the treated effluents into the Bay of Bengal. The discharge point in about 8 m below the surface level of the sea so as to ensure the safety and sustenance of the marine species.

185. It is submitted that the claim of the applicant that continuous water pollution is being caused by industries in SIPCOT is purely baseless and unscientific. Cuddalore SIPCOT is pioneer in implementing zero liquid discharge facility for the factories situated at their location. Around 20 years back, i.e., January, 2000, a common effluent discharge facility viz., CUSECS was established to discharge the treated effluent to deep sea where he dilution is 1000 times. All the 14 major industries in SIPCOT have zero liquid discharge facility and the waste water generated is treated and reused in their process. All other industries are treating

their effluent as per the Marine standards and discharge through common effluent HDPE pipe line at a distance of 1 KM away from the high tide line. M/s. Chemplast Sanmar Ltd is having their own marine discharge facility for the Desal reject and uses the same for discharging the treated effluent into sea. TNPCB officials have taken surprise samples from various industries and marine discharge points in order to ensure the quality of the treatment system With this, it is clear that there is no possibility of discharging untreated water to the ground by any of the industries and therefore the claim by the applicant is false and without any basis.

186. It is submitted that SIPCOT is drawing water from confined aquifer through deep bore well to supply water to the member industries. This source is well below the ground water table mentioned by the applicant and which is separated from unconfined aquifers by an impermeable layer. Unconfined aquifers are those into which water seeps from the ground surface directly above the aquifer. Confined aquifers are those in which an impermeable dirt/rock layer exists that prevents water from keeping into the aquifer from the ground surface located directly above. Further to this, all the industries are taking effective water conservation measures with guidance of TNPCB and the water consumption shows a reducing trend year by year. So the decline of ground water is not attributable to any industrial activity. The decline in the ground water table mentioned in the New Indian Express and relied upon by the applicant does not mention the cause to be any industrial activity.

187. In so far as the industries are concerned, they are treating their trade effluent generated to the best standards available, economic viability and comply with the standards prescribed by TNPCB from time

to time Some of the major industries had gone for zero liquid discharge system and they are not letting out any effluent. Industries which are generating trade effluent treat their effluent to the bet standards available and discharge through dedicated individual HDPE pipelines and discharge into CUSECS for marine disposal. SIPCOT is drawing water and supplying to the industries. SIPCOT has been drawing water from the deep aquifer layer. SIPCOT is supplying water to the industries for the last 35 years and there is no decline in ground water level either in quality or in quantity. None of the industries are discharging their treated effluent/untreated effluent on the ground. So there is no question of ground water pollution by the industries.

188. It is submitted that already TNPCB & CPCB have conducted three inspections at various times and collected water samples, raw effluent, treated effluent and inspected the industries and the report have been submitted to this Hon'ble Tribunal. It must be stated that the industries are not contributing to any water pollution so as to damage ground water/soil in the surrounding area at any time CEPI moratorium was imposed in Cuddalore SIPCOT industries during January 2010. Short term and long term action plan were prepared by the Tamil Nadu Pollution Control Board to monitor and improve the quality of air and water environment and steps were taken to implement the action plan by the industries. The moratorium has been lifted on 15th February 2011 in 8 more critically polluted areas based on recommendations received from the CPCB. These are: Ludiana (Punjab), Varanasi – Mirzapur (UP), Agra (UP), Bhavnagar (Gujarat), Cuddalore (Tamil Nadu), Dombivalli (Maharashtra), Aurangabad (Maharashtra) and Navi-Mumbai (Maharashtra). It is submitted that none of the industries located in the SIPCOT Industrial Complex are using Cadmium, Chromium, Lead and

Nickel as raw material or as finished products and this has been state in the affidavit filed by the industries association in 2015 itself. The joint committee comprising of CPCB & TNPCB had inspected the units and submitted the report to this Hon'ble Tribunal as per the prevailing guidelines and the report does not state that any of the industries are using the above chemicals as raw material or any such chemical comes out as a finished product.

189. It is submitted that SIPCOT is supplying sufficient drinking water by tanker loads to the surrounding villages near SIPCOT. Industries have also provided RO plant in the surrounding villages of SIPCOT such as Vairankuppam, Thatchan colony, Semmankuppam, Sangolikuppam, Eachankadu, Kudikadu, Pachiankuppam ad photographic evidence is available for the same. It is important to note that no complaint has been made by the local body regarding the water supply to these local villages. Only NGOs with vested interest are making false complaints with an ulterior motive. Recently, as per the order of this Hon'ble Tribunal, the Joint Committee comprising of CPCB & TNPCB had inspected the units and the effluent treatment system and collected samples of raw effluent and final treated effluent and submitted the report of analysis to this Hon'ble Tribunal as per the guidelines laid.

190. It is submitted that already TNPCB & CPCB has conducted three inspections at various times and collected water samples raw effluent, treated effluent and inspected the industries and submitted their report to this Hon'ble Tribunal. None of the industries located in the SIPCOT industrial complex are using Cadmium, Chromium Lead and Nickel as raw material or as finished products and this has been stated in our affidavit file during the year 2015.

‘ 191. Regarding the complaint of non compliance with TOR by the joint inspection committee it is submitted that already joint inspection committee comprising of TNPCB & CPCB had conducted three inspections at various times and collected water samples, raw effluent, treated effluent and inspected the industries and submitted their report. None of the industries located in the SIPCO industrial complex are using Cadmium, Chromium, Lead and Nickel as raw material or as finished products and this has been stated in our affidavit filed during the year 2015. TNPCB had not given prior notice of inspection to the industries and inspection carried out without intimation. Only the applicants were informed and to be present during the industries inspection, and three applicants were present all the time during joint inspection. The industries always maintain the housekeeping and operate full fledged ETP operation at all times. The industries were in operation as per the marketing demand/constraints and raw material availability. It is a natural phenomenon that all the industries will not be operating 365 days a year.

192. As regards the allegation regarding failure to take ground water samples from surrounding villages or not doing cumulative impact assessment, it is submitted that already ground water samples had been collected and analysis report of the same has been submitted to the Hon’ble Tribunal. The applicant had informed that 5 units were not in operation during the time of joint committee inspection. M/s Tanfac Industries was not in operation during the time of inspection and the industry had informed to TNPCB vide Lr.dt. Nov. 2017. M/s. Crimsun organics had obtained consent to operate recently from TNPCB but the unit is operating only on pilot scale. As regards M/s. Covetro India Pvt. Ltd., due to low market demand, the unit is operating approximately 15

days a month and letter was submitted to TNPCB As regards M/s. Kawman Pharma, based on the market demand and order, the unit operate intermediately. Regarding M/s. Golden Fish, due to rough weather fish catchment is poor, and the unit could not get fish, so the unit was not in operation.

193. As regards the remark on ZLD system being ineffective and in poor condition, it is submitted that in all the industries Multiple Effect Evaporator are in operation as per the supplier technical specifications It is submitted that the principle underlying the MEE operation is evaporating the effluent under vacuum in different stages and the separate the water in vapour form which is then condensed as water and reused in the plant operations. The concentrated effluent is further dried in mechanical drier and the salt is collected is sent to TSDF, Gummidipoondi. Since the plant is operated in different stages the grab samples may not represent the right characteristics of the sample. Further, the efficiency of the MEE is decided by percentage reduction of TDS in condensate when compared with feed TDS rather than the percentage of TDS concentrate. The industries explained this to the TNPCB and as directed by the Board lr.dt. 23.1.2020, the industries engaged an external lab approved by MoEF and NABL. The samples were taken as composite sample for an 8 hour duration and a detailed report has been submitted. The report shows that percentage reduction of TDS in condensate is more than 90% all the cases. Hence from the above report it is clear that the ZLD system is working efficiently as per the specification. In Multiple effect Evaporator the effluent is evaporated and the condensate is collected for further reuse and the concerted residue is further treated in a drier. The dry salt generated from the drier is send to Tamil Nadu Waste Management Ltd. Gummidipoondi – TSDF approved

by TNPCB. Hence there is no question of heavy metal contamination arising at all. The generation and disposal of the salt is monitored by TNPCB through hazardous waste manifest and all the records are submitted by the industries to TNPCB as per the records are submitted by the industries to TRNPCB as per the HWM Rule 2016. The presence of iron, copper, nickel and zinc in MEE concentrate are collected as power are baggage, stored and sent to TSF at Gummidipoondi for disposal. So there is no question of presence of any heavy metals as alleged. From the statement by the applicant itself it is clear that presence of heavy metals are in traces and within the prescribed limit. Therefore, when all the parameter are well within the limits, the question of cumulative assessment does not arise.

194. Regarding the CEPI SCORE, it is submitted that CPCB has authorized a third party to conduct survey and collect samples. Third party had conducted air survey at four locations water quality at four locations and surface water at four locations. They have collected water samples in the Uppanar which will have high TDS chlorides and Sulphates. It is preferable that CPCB authorized third party ought to have collected water samples in lakes or ponds or river water, so the parameters will be normal and CEPI ranking will be below 40. Recently TNPCB has conducted a parallel survey with reputed agencies and it is understood that the CEPI score was found well below 35.

195. Regarding Zero Liquid System Performance Study, it is submitted that Tamil Nadu Pollution Control Board had issued letters to individual ZLD units to study the performance of Multiple Effect Evaporator and submit the report. Based on the letter issued to ZLD units, Cuddalore SIPCOT Industries Association took the study collectively ad engaged M/s. Glens Innovations Labs Pvt Ltd. Chennai to carry out the study on

the ZLD units and to submit a detailed report on the performance of Multiple Effect Evaporator System in the ZLD units and to submit a detailed report on the performance of Multiple Effect Evaporator system in the ZLD units. Based on the work order issued to M/s. Glens Innovations Labs Pvt. Ltd, Chennai conducted a thorough study on the ZLD units and submitted a report. The copy of the report is produced as an annexure to this rejoinder. To summarize it is submitted that all the industries in SIPCOT are operating their units within the prescribed regulations laid down by TNPCB at all time. It is therefore prayed that the Hon'ble Tribunal may be pleased to dismiss Application No.34/2015 as devoid of merits."

196. They have also produced the report prepared by Glens Innovations Labs Pvt Ltd., Chennai regarding the efficiency of Multiple Effect Evaporator Efficiency Study of Cuddalore Industries to show that the multiple effect evaporator efficiency system adopted by them are effective.

197. Heard Mr. Ritwick Dutta, learned counsel for the applicant. Mr. C. Kasirajan through Ms. Kothai Muthu Meenal, counsel for the first respondent, Mr. Sriram representing Mr. Ramesh Venkatachalapathy, counsel for the second respondent, Mrs. Jayalakshmi, representing Mr. D. Ekambaram, counsel for the third respondent, Dr. V.R. Thirunarayanan for fourth respondent and Mr. K.S. Viswanathan, counsel for the fifth respondent.

198. The learned counsel appearing for the applicant submitted that the application was filed in the year 2015 alleging that the water quality in SIPCOT Industrial Complex, Cuddalore is highly polluted, having certain heavy metals like Cadmium, Nickel, Iron Manganese, Lead etc

and earlier on the basis of the Pollution Index prepared by the Central Pollution Control Board, this area was declared as one of the Critically Polluted Area out of 43 such industrial clusters identified by the Central Pollution Control Board and certain directions were given. On the basis of that, moratorium for starting new industries and expansion of the existing industries, was imposed by the MoEF & CC and thereafter due to certain improvements, the same was lifted and an action plan was directed to be prepared and the industries were directed to implement the same and directed the Pollution Control Board to monitor and submit reports regarding the improvements to consider the question of lifting of moratorium either partially or totally. It is on the basis of the report of the Pollution Control Board, later it was lifted. The learned counsel also submitted that on the basis of the report of the Pollution Control Board and also the newspaper report, the Hon'ble Madras High Court had taken *suo motu* proceedings in which the present applicants were also joined and the Hon'ble Madras High Court, after considering the pleadings and reports submitted by the Pollution Control Board, disposed of the matter, directing the Pollution Control Board to conduct periodical monitoring and take action against the industries which was not complying with the pollution norms. The learned counsel also argued that the various reports submitted by the Pollution Control Board and the Joint Committee appointed by this Tribunal will also go to show that though there was some improvement but it was not effective and the contamination of water in those areas still continue. However, the Joint Committee has come to the conclusion that none of the industries were using Nickel, Chromium or Lead or Cadmium as raw material. Further, the report submitted by the Joint Committee will go to show that the Multiple Effect Evaporators used by the industries were not upto the

mark and they require improvement. The learned counsel also argued that the Committee has not complied with the directions issued by this Tribunal by order dated 8.7.2019. The Committee also did not conduct the scope of health hazards in that area and they have not conducted any cumulative study of the effect of pollution of water on account of the functioning of the industries in that area. They did not also trace out the source of contamination containing heavy metals like Cadmium, Chromium etc., though in some of the samples heavy metals were present both inside and outside the SIPCOT Industrial Complex. According to the learned counsel, applying the 'polluter pays' principle, the industries are bound to do the remediation work to make the water quality potable in that area and till then they will have to supply drinking water to the people of the locality. He has also contended that though there were complaints regarding health problem on account of the pollution caused in that area, no such study was conducted to ascertain the reason for such health problem in that area. So the learned counsel also submitted that the Committee has not considered the efficiency of the RO system provided by them in some of the villages for meeting the drinking water needs and how the waste water that is being discharged from the RO system are being utilised and what are all the heavy metals that are present has not been mentioned. So the learned counsel submitted that the following reliefs will have to be granted to the applicant which reads as follows:

"*Direct payment of environmental compensation as per the assessment of the CPCB for the damage caused to the environment by the polluting industries in the SIPCOT Cuddalore region as per the polluter pays principle.*

Direct the assessment of extent of damage and cost of remediation of the ground water in SIPCOT Cuddalore area by an independent agency such as the Environment and Water Resources Division, IIT, Madras.

Direct that the cost of such assessment and remediation is borne by the industries operating in SIPCOT as well as SIPCOT in terms of the polluter pays principle.'

Direct that the CEPI action plan to be prepared by TNPCB be prepared after proper consultation with stakeholders including the affected communities.

Direct for a proper assessment of health impacts on the communities residing around the SIPCOT Cuddalore region i.e., the 27 affected villages by an independent agency such as the Department of Community Medicine, JIPMER, Pondicherry.

Until such an exercise of assessment and remediation takes place, water be supplied to all affected villages for their drinking and domestic use.

199.The learned counsel for the applicant also relied on the decisions reported in A.P. POLLUTION CONTROL BOARD V. PROF. M.V. NAYUDU (RETD) AND OTHERS (1999) 2 SCC 718, HOSPITALITY ASSOCISATION OF MUDUMALAI VS. IN DEFENCE OF ENVIRONMENT AND ANIMALS & OTHERS (2020) 10 SCC 589, HIMACHAL PRADESH BUS STAND MANAGEMENT AND DEVELOPMENT V. CENTRAL EMPOWERED COMMITTEE & OTHERS 2021 SCC Online SC 15 in support of his submission.

200.The learned counsel appearing for the second respondent submitted that the SIPCOT Industrial Estate was established long ago

and all necessary precautions have been taken by the industries to avoid pollution and that is being properly monitored by the second respondent Corporation as well. Though there were certain deficiencies found during 2011- 2014, on the basis of the action plan prepared by the Pollution Control Board, the probable polluting industries have implemented the recommendations of the Pollution Control Board and they are not discharging any trade effluents generated within the industrial complex into the ground, as all the industries are having their own Zero Liquid Discharge System and they are using the water that is being discharged as effluents without letting the same into the ground either into drain or in the water body. Further, the trade effluents that has been generated by some of the industries are being collected by STP and after treatment discharging the same into the Bay of Bengal. So it cannot be said that the industries were responsible for any contamination of water in that area. Since the committee report shows that none of the industries were using Lead, Magnesium or Chromium, Cadmium, Nickel as raw material, they cannot be mulcted with the liability for the presence of heavy metals in the ground water. The learned counsel also submitted that they are committed to protect environment and all necessary steps have been taken for that purpose and they are spending huge amount as Corporate Social Responsibility to meet the needs of the people, including drinking water being supplied, considering the quality of water in that area. Since none of the industries were responsible for any particular type of pollution, they cannot be mulcted with the liability of payment of environmental compensation, applying the principle of 'polluter pays'. So the learned counsel submitted that there is no necessity for any further direction to be issued and if at all, the same periodical monitoring can be

done by the Pollution Control Board to resolve the issue whenever such pollution is being detected by them.

201.The learned counsel appearing for the Pollution Control Board submitted that none of the industries were discharging the trade effluents into the drain or water body and regular monitoring is being done by them and whenever any deficiency is found, they used to take action against the industries and they will abide by any of the directions of this Tribunal in this regard.

202.The learned counsel appearing for the fourth respondent submitted that the State Government is taking all necessary precautions to avoid pollution being caused on account of the operation of the industries in SIPCOT Industrial Complex, Cuddalore and other complex. They are ready to abide by any direction of this Tribunal to improve the situation, if required and even prepared to take study as per the directions of this Tribunal.

203. The learned counsel appearing for the fifth respondent submitted that the attempt of the applicant to enhance the scope of the litigation attempted to show that there is water contamination caused on account of the operation of the units in SIPCOT Industrial Complex, Cuddalore. In fact, the report of the Joint Committee will go to show that none of the industries were letting the trade effluents generated either into the ground or drain or water body so as to make them responsible for any ground water contamination. Further, the Joint Committee report also will go to show that none of the industries were using any of the heavy metals found in the ground water analysis as raw material and as such they cannot be held responsible for the alleged contamination of the presence of the heavy metals mentioned in the report. Further, huge

amounts have been spent by the industries on the basis of the directions issued by the Pollution Control Board as part of the action plan prepared by them as directed by the MoEF & CC and Central Pollution Control Board will serve the online index that is being found on the basis of analysis of air and water during the earlier days and on account of the implementation of the directions and the action plan by the industries improvement has been caused in that area and it cannot be treated as a critically polluted area inspite of the fact that all the industries were operating in that area. Since the Committee has come to the conclusion that there is no degradation caused and there is no necessity for imposing environmental compensation, there is no necessity for appointing any fresh committee to go into the issue except directing the Pollution Control Board to monitor the functioning of the units and take action against the erring units if there is any violation found. The grievance of the applicant has been considered by the Madras High Court in the writ petition mentioned by the applicant and came to the conclusion that none of the reliefs claimed by the applicants who were arrayed as respondents 14 to 16 in that writ petition cannot be granted and rejected their contention that no more expansion or new industries are allowed to be started in the industrial complex and the Hon'ble High Court had only directed the Pollution Control Board to conduct periodical inspection and take appropriate action against the industries, if any violation is found except the direction that no more further direction or study need be conducted as claimed by the counsel for the applicant and he prayed for dismissal of the application.

204. The points that arise for consideration are:

(i)Whether the relief of appointing committee or restraining any new industries to be established or expansion of the existing industries in SIPCOT Industrial Complex can be granted, as claimed by the applicant?

(ii)Whether the allegation that there was water contamination caused on account of the operation of the units in SIPCOT Industrial Complex is correct?

(iii)Whether the allegation that on account of operation of the units causing pollution resulted in health hazards in that area, as claimed by the applicant is correct?

(iv)Whether any remediation methods to be adopted for the purpose of improving the water quality in that area and if so whether any further study may be directed to be conducted by appointing any committee?

(v)What are all the directions to be issued by this Tribunal for the purpose of protecting environment or alleged degradation caused to environment as claimed by the applicants.

205. This Tribunal felt that, before going to the merits of the case, the precedents on this aspect can be considered. In the decision reported in SUBHASH KUMAR VS.STATE OF BIHAR AND OTHERS (1991 SCC 598), the Hon'ble Apex Court held that the right to life is a fundamental right Under Article 21 of the Constitution and it includes the right of enjoyment of pollution free water and air for full enjoyment of life. If anything endangers or impairs that quality of life in derogation of laws, a citizen has right to have recourse to Article 32 of the Constitution for removing the pollution of water or air which may be detrimental to the quality of life. A petition Under Article 32 for the

prevention of pollution is maintainable at the instance of affected persons or even by a group of social workers or journalists.

206.In the decision reported in VELLORE CITIZENS VS. UNION OF INDIA & OTHERS (1996 (5) SCC 647) the Apex Court has considered the concept of sustainable development precautionary principle and inter generational equity and also the responsibility of the Government both Central and State to protect environment under the provisions of the Environment Protection Act, 1986 and observed as follows:

> *10. The traditional concept that development and ecology are opposed to each of her, is no longer acceptable. "Sustainable Development is the answer. In the International sphere "Sustainable Development" as a concept came to be known for the first time in the Stockholm Declaration of 1972. Thereafter, in 1987 the concept was given a definite shape by the World Commission on Environment and Development in its report called Court Common Future. The Commission was chaired by the then Prime Minister of Norway Ms. G.H. Brundtland and as such the report is popularly known as "Brundtland Report" 1991 the World Conservation Union, United Nations Environment Programme and World Wide Fund for Nature, jointly came out with a document called "Caring for the Earth" which is a strategy for sustainable living. Finally, came the Earth Summit held in June, 1992 at Rio which saw the largest gathering of world leaders ever in the history - deliberating and chalking out a blue pring for the survival of the planet. Among the tangible achievements of the Rio Conference was the signing of two conventions, one on biological diversity and another on climate change. These conventions were signed by 153 nations. The delegates also approved by consensus three non binding documents namely, a Statement on Forestry Principles a declaration of principles on environmental policy and development and initiatives and Agenda 21 a programme of action into the next century in areas like poverty, population and pollution. during the two decades from Stockholm to Rio "sustainable Development" and came to be accepted as a viable concept to eradicate poverty and improve the quality of human life while living within the carrying capacity of the supporting eco-systems. "sustainable Development: as defined by the Brundtland Report means "Development that meets the needs of the present without compromising the ability of the future generations to meet their own needs". We have no hesitation in holding that "Sustainable Development' As a balancing concept between eclogy and development has been accepted as a part of the Customary International Law though its salient feature have yet to be finalised by the International Law Jurists.*

> *11. Some of the salient principles of "Sustainable Development", as culled-out from Brundtland Report and other international documents, are Inter-Generational Equity, Use and Conservation of Nature Resources, Environmental Protection, the Precautionary Principle, Polluter Pays principle, Obligation to assist and cooperate, Eradication of Poverty and Financial Assistance to the developing countries. We are, however, of the vies that "The Precautionary Principle" and "The Polluter Pays" principle are essential features of "Sustainable Development". The "Precautionary Principle" - in the context of the municipal law - means.*

(i) Environment measures - by the State Government and the statutory Authorities must anticipate, prevent' and attack the causes of environmental degradation.

(ii) Where there are threats of serious and irreversible damage lack of scientific certainly should not be used as the reason for postponing, measures to prevent environmental depredation.

(iii)The "Onus of proof" is on the actor or the developer/industrial to show that his action is environmentally benign.

12. "The Polluter Pays" principle has been held to be a sound principle by this Court Indian Council for Enviro- Legal Action vs. Union of India J.T. 1996 (2) 196. The Court observed, "We are of the opinion that any principle evolved in this 'behalf should be simple practical and suited to the conditions obtaining in this country". The Court ruled that "Once the activity carried on is hazardous or inherently dangerous, the person carrying on such activity is liable to make good the loss caused to any other person by his activity irrespective of the fact whether he took reasonable care while carrying on his activity. The rule is premised upon the very nature of the activity carried on". Consequently the polluting industries are "absolutely liable to compensate for the harm caused by them to villagers in the affected area, to the soil and to the underground water and hence, they are bound to take all necessary measures to remove sludge and other pollutants lying in the affected areas". The "Polluter Pays" principle as interpreted by this Court means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental degradation. Remediation of the damaged environment is part of the process of "Sustainable Development" and as such polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology.

13. The precautionary principle and the polluter pays principle have been accepted as part of the law of the land. Article 21 of the Constitution of India guarantees protection of life and personal liberty. Articles 47, 48A and 51A(g) of the Constitution are as under:

"47. Duty of the State to raise the level of nutrition and the standard of living and to improve public health. The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and in particular, The State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health. 48A. (g) Protection and improvement of environment and safeguarding of forests and wild life. The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

51A.(g) To protect and improve the natural environment including forests, takes, rivers and wild life, and to have compassion for living creatures."

Apart from the constitutional mandate to protect and improve the environment there are plenty of post independence legislations on the subject but more relevant enactments for our purpose are: The Water (Prevention and Control of Pollution Act 1974 (the Water Act), The Air (Prevention and Control of Pollution) Act, 1981 (the Air Act) and the Environment Protection Act 1986 (the Environment Act). The Water Act provides for the constitution of the Central Pollution Control Board by the Central Government and the constitution of one State Pollution Control boards by various State Governments in the country. The Boards function under the control of the Governments concerned. The Water Act prohibits the use or streams and wells for disposal of polluting matters. Also provides for restrictions

on outlets and discharge of effluents without obtaining consent from the Board. Prosecution and penalties have been provided which include sentence of imprisonment. The Air Act provides that the Central Pollution Control Board and the State Pollution Control Boards constituted under the later Act shall also perform the powers and functions under the Air Act. The main function of the Boards, under the Air Act, is to improve the quality of the air and to prevent. control and abate air pollution in the country. We shall deal with the Environment Act in the later part of this judgement.

14. In view of the above mentioned constitutional and statutory provisions we have no hesitation in holding that the precautionary principle and the polluter pays pcinciple are part of the environmental law of the country.

15. Even otherwise once these principles are accepted as part of the Customary International Law there would be no difficultly in accepting them as part of the domestic law. It is almost accepted proposition of law that the rule of Customary International Law which are not contrary to the municipal law shall be deemed to have been incorporated in the domestic law and shall be followed by the Courts of Law. To support we may refer to Justice H.R. Khanna's opinion in Addl. Distt. Magistrate Jabalpur vs Shivakant Shukla (AIR 1976 SC 1207) Jolly George Varghese's case (AIR 1980 SC 470) and Gramophone Company's case (AIR 1984 SC 667).

16. The Constitutional and statutory provision protect a persons right to fresh air, clean water and pollution free environment, but the source of the right is the inalienable common law right of clean environment. It would be useful to quote a paragraph from Blackstone's commentaries on the Laws of England (Commentaries on the Laws of England of Sir Willian Blackstone) Vol.III, fourth edition published in 1876. Chapter XIII, "Of Nuisance" depicts the law on the subject in the following words :

"Also, if a person keeps his hogs, or other noisome animals, 'or allows filth to accumulate on his premises, so near the house of another, that the stench incommodes him and makes the air unwholesome, this is an injurious nuisance, as it tends to deprive him of the use and benefit of his house. A like injury is, if one's neighbour sets up and exercises any offensive trade; as a tanner's, a tallow chandler's, or the like; for though these are lawful and necessary trades, yet they should be exercised in remote places; for the rule is, sic utere "tuo, ut alienum non laedas;" this therefore is an actionable nuisance. 'And on a similar principle a constant ringing of bells in one's immediate neighbourhood may be a nuisance ..... With regard to other corporeal heriditaments; it is a nuisance to stop or divert water that used to run to another's meadow or mill; to corrupt or poison a water-course, by erecting a due house or a lime-pit, for the use of trade, in the upper part of the stream; 'to pollute a pond. from which another is entitled to water his cattle: to obstruct a drain; or in short to do any act in common property, that in its consequences must necessarily tend to the prejudice of one's neighbour. So closely does the law of England enforce that excellant rule of gospel-morality, of "doing to others. as we would they should do unto ourselves ."

17. Our legal system having been founded on the British Common law the right of a person to pollution free environment is a part of the basic jurisprudence of the land.

18. The Statement of Objects and Reasons to the Environment Act, inter alia, states as under :

"The decline in environmental quality has been evidenced by increasing pollution, loss of vegetal cover and biological diversity, excessive concentrations of harmful

chemicals in the ambient atmosphere and in food chains, growing risks of environmental accidents and threats to life support systems. The world community's resolves to protect and enhance the environmental quality found expression in the decisions taken at the United Nations Conference on the Human Environment held in Stock hold in June, 1972. Government of India participated in the Conference and strongly voiced the environmental concerns. While several measures have been taken for environmental protection both before and after the Conference, the need for a general legislation further to implement the decisions of the Conference has become increasingly evident ..... Existing lass generally focus on specific types of pollution or on specific categories of hazardous substances. Some major areas of environmental hazardous are not covered. There also exist uncovered gaps in areas of major environmental hazards. There are inadequate linkages in handling matters of industrial and environmental safety. Control mechanisms to guard against slow, insidious build up of hazardous substances, especially new chemicals, in the environment are weak. Because of a multiplicity of regulatory agencies, there is need for an authority which can. Assume the lead role for studying, planning and implementing long-term requirements of environmental safety and to give direction to, and co-ordinate a system of speedy and adequate response to emergency situations threatening the environment ..... In view of what has been state above, there is urgent need for the enactment of a general legislation on environmental protection which inter alia, should enable co- ordination of activities of the various regulatory agencies, creation of an authority or authorities with adequate powers for environmental protection, regulation of discharge of environmental pollutants and handling of hazardous substances, speedy response in the event of accidents threatening environment and deterent punishment to those who endanger human environment, safety and health".

Sections 3, 4, 5, 7 and 8 of the Environment Act which are relevant are as under :

"3. Power of Central Government to take measures to protect and improve environment - (1) Subject to the provisions of this Act the Central, Government shall have till power to take all such measures as it deems necessary or expedient for the purpose of protecting improving the quality of the environment and preventing controlling and abating environmental pollution. (2) In particular, and without prejudice to the Generality of the provisions of section (1), such measures may include measures with respect to all or any of the following matters, namely :-

(i) co-ordination of actions by the State Governments, officers and other authorities -

(a) under tis Act, or the rules made thereunder, or

(b) under any other law for the time being in force which is relatable to the objects of this Act;

(ii) planning and execution of a nation-wide programme for the prevention, control and abatement of environmental pollution;

(iii) laying down standards for the quality of environment in its various aspects;

(iv) laying down standards for the emission or discharge of environmental pollutants from various sources whatsoever : Provided that different standards for emission or discharge may be laid down under this clause from different sources having regard to the quality or composition of the emission or discharge of environmental pollutants from such sources :

(v) restriction of areas in which any industries, operation or processes or class of industries, operations or processes shall not be carried out or shall be carried out object to certain safeguards;

(vi) laying down procedures and safeguards for the prevention of accidents which may cause environmental pollution and remedial measures for such accidents;

(vii) lying down procedures and safeguards for the handling of hazardous substances;

(viii) examination of such manufacturing processes, materials and substances as are likely to cause environmental pollution;

(ix) carrying out and sponsoring investigations and research relating to problems of environmental pollution;

(x) Inspection of any premises, plant, equipment, machinery, manufacturing or other processes, material or substances and giving, by order, of such direction to such authorities, officers or persons as it may consider necessary to take steps for the prevention, control and abatement of environmental pollution;

(xi) establishment or recognition or environmental laboratories and institutes to carry out the functions entrusted to such environmental laboratories and institutes under this Act;

(xii) collection and dissemination of information in respect of matters relating to environmental pollution;

(xiii) preparation of manuals, codes or guides relating to the prevention, control and abatement of environmental pollution;

(xiv) such other matters as the Central Government deems necessary or expedient for the purpose of securing the effective implementation of the provisions of this Act.

(3) The Central Government may, if it considers it necessary or expedient so to do for the purposes of this Act, by order, published in the powers and functions (including the power to issue directions under Section 5) of the Central Government under this act and for taking measures with respect to such of the matters referred to in sub-section (2) as may be mentioned in the order and subject to the supervision and control of the Central government and the provisions of such order, such authority or authorities may exercise the powers or perform the functions or take the measures so mentioned in the order as if such authority or authorities had been empowered by this Act to exercise those powers or perform those functions or take such measures.

4. Appointment or officers and their powers and functions (1) without prejudice to the provisions of sub-section (3) of section 3, the Central Government may appoint officers with such designations as it thinks fit for the purposes of this Act and may entrust to them such of the powers and functions under this Act as it may deem fit. (2) The officers appointed under sub-section (1) shall be subject to the general control and direction of the Central Government or, if so directed by that Government, also of the authority or authorities, if any, constituted under sub-section (3) of section 3 of any other authority or officer".

5. Power to give directions. - Notwithstanding anything contained in any other law but subject to the provisions of this Act, the Central Government may, in the exercise of its powers and performance of its functions under this Act, issue direction in writing to any person, officer or any authority and such person, officer or authority shall be bound to comply with such directions.

Explanation. - for the avoidance of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct ---

(a) the closure, prohibition or regulation of any industry, operation or process; or

(b) stoppage or regulation of the supply of electricity or water or any other service.

7. Persons carrying on industry, operation etc. not to allow emission or discharge of environmental pollutants in excess of the standards. No. person carrying on any

industry, operation or process shall discharge or emit or permit to be discharged or emitted any environmental pollutant in excess of such standards as may be prescribed.

8. Persons handling hazardous substances to comply with procedural safeguards. - No person shall handle or cause to be handled any hazardous substance except in accordance with such procedure end after complying with such safeguards as may be prescribed".

19. Rule 3(1), 3(2), and 5(1) of the Environment (Protection) Rules 1986 (the Rules) are as under:

"3. Standards for emission or discharge of environmental pollutants. - (1) For the purposes of protecting and improving the quality of the environmental and preventing and abating environmental pollution, the standards for emission or discharge of environmental pollutants from the industries, operations or processes shall be as specified in Schedule I to IV)

3(2) Notwithstanding anything contained in sub-rule(l), the Control Board or a State Board may specify more stringent standards from those provided in (Schedule to IV) in respect of any specific industry, operation or process depending upon the quality of the recipient system and after recording reasons, therefore, in writing.

5. Prohibition and restriction on the location of industries and the carrying on processes and operations in different areas - (1) The Central Government may take into consideration the following factors while prohibiting or restricting the location of industries and carrying on of processes and operations an different areas :

(i) Standards for quality of environment in its various aspects laid down for an area.

(ii) The maximum allowable limits of concentration of various environment pollutants (including noise) for an area.

(iii) The likely emission or discharge of environmental pollutants from an industry, process or operation proposed to be prohibited or restricted.

(iv) The topographic and climatic features of an area.

(v) The biological diversity of the area which, in the opinion of the Central Government, needs to be preserved.

(vi) Environmentally compatible land use.

(vii) Net adverse environmental impact likely to be caused by an industry, process or operation proposed to be prohibited or restricted.

(viii) Proximity to a protected area under the Ancient Monuments and Archaeological Sites and Remains Act, 1958 or a sanctuary, National Park, game reserve or closed area notified, as such under the Wild Life (Protection) Act, 19/2, or places protected under any treaty, agreement or convention with any other country or countries or in pursuance of any decision made in any international conference, association or other body.

(ix) Proximity to human settlements

(x) Any other factors as may be considered by the Central Government to be relevant to the protection of the environment in an area".

20. It is thus obvious that the Environment Act contains useful provisions for controlling pollution. The main purpose of the Act is to create an authority or authorities under Section 3(3) of the Act with adequate powers to control pollution and protect the environment. It is a pity that till date no authority has been constituted by the Central Government. The work which is required to be done by

an authority in terms of Section 3(3) read with other provision of the Act is being done by this Court and the other Courts in the country. It is high time that the Central Government realises its responsibility and statutory duty to protect the degrading environment in the country. If the conditions in the five districts of Tamil Nadu, where tanneries are operating, are permitted to continue then in the near future all rivers/canals shall be polluted, underground waters contaminated, agricultural lands turned barren and the residents of the area exposed to serious diseases. lt is, therefore, necessary for this Court to direct the Central Government to take immediate action under the provisions of the Environment Act.

207. In the decision reported in DR. B.L. WADEHRA VS. UINION OF INDIA AND OTHERS (1996) 2 SCC 594, the Apex Court had considered the responsibility of the Government and the Local Bodies to protect environment, including the responsibility of disposal of garbage and waste generated within their Municipality. The non availability of funds, inadequacy or inefficiency of staff, insufficiency of machinery etc cannot be pleaded as grounds for non performance of their statutory obligations.

208. In MUNICIPAL COUNCIL, RATLAM V. VARDICHAN (1980) 4 SCC 162, the question before the Apex Court was whether the order of the Trial Court as upheld by the Hon'ble High Court, directing the Ratlam Municipality to draft a plan within six months for the removal of nuisance caused by the open drains and public excretion by the nearby slum dwellers and held that it could be sustained. The Apex Court speaking through Krishna Iyer, J dismissed the appeal of the municipality and held as under:

"*Why drive common people to public interest action? Where Directive Principles have found statutory expression in Do's and Dont's the court will not sit idly by and allow municipal government to become a statutory mockery. The law will relentlessly be enforced and the plea of poor finance will be poor alibi when people in misery cry for justice. The dynamics of the judicial process has a new 'enforcement' dimension not merely through some of the provisions of the Criminal Procedure Code*

(as here), but also through activated tort consciousness. The officers in charge and even the elected representatives will have to face the penalty of the law if what the Constitution and follow-up legislation direct them to do are defied or denied wrongfully. The wages of violation is punishment, corporate and personal.

Reminding the State Government of its duties under the Constitution of India, Krishna Iyer, J. observed as under :

We are sure that the State Government will make available by way of loans or grants sufficient financial aid to the Ratlam Municipality to enable it to fulfill its obligations under this order. The State will realise that Article 47 makes it a paramount principle of governance that steps are taken 'for the improvement of public health as amongst its primary duties'. The municipality also will slim its budget on low priority items and elitist projects to use the savings on sanitation and public health. It is not our intention that the ward which has woken up to its rights alone need be afforded these elementary facilities. We expect all the wards to be benefited without litigation.

209. In the decision reported in A.P. POLLUTION CONTROL BOARD V.L PROF. M.V. NAYUDU (Retd) & ORS (1999) 2 SCC 718 the Apex Court has considered the burden of proof to the environmental studies and observed that reversal of the burden of proof based on precautionary principle should be that the onus of proof must be on the person who want to change the status quo and discussed as follows:

In matters regarding industrial pollution and in particular, in relation to the alleged breach of the provisions of the Water (Prevention and Control of Pollution) Act, 1974, its rules or notifications issued thereunder, serious issues involving pollution and related technology have been arising in appeals under Article 136 and in

writ petitions under Article 32 of the Constitution of India filed in this Court and also in writ petitions before High Courts under Article 226. The cases involve the correctness of opinions on technological aspects expressed by the Pollution Control Boards or other bodies whose opinions are placed before the Courts. In such a situation, considerable difficulty is experienced by this Court or the High Courts in adjudicating upon the correctness of the technological and scientific opinions presented to the Courts or in regard to the efficacy of the technology proposed to be adopted by the industry or in regard to the need for alternative technology or modifications as suggested by the Pollution Control Board or other bodies. The present case illustrates such problems. It has become, therefore, necessary to refer to certain aspects of environmental law already decided by this Court and also to go into the above scientific problems, at some length and find solutions for the same.

Environment Courts/Tribunals - problems of complex technology;

23. *The difficulty faced by environmental courts in dealing with highly technological or scientific data appears to be a global phenomenon.*

2 4 . *Lord Woolf, in his Garner lecture to UKELA, on the theme "Are the Judiciary Environmentally Myopic?" (See 1992 J.Envtl. Law Vol. 4, No. 1, P 1) commented upon the problem of increasing specialisation in environmental law and on the difficulty of the Courts, in their present form, moving beyond their traditional role of detached "Wednesbury" review. He pointed out the need for a Court or Tribunal. having a general responsibility for overseeing and enforcing the safeguards provided for the protection of the environment.... The Tribunal could be granted a wider discretion to determine its procedure so that it was able to bring to bear its specialist experience of environmental issues in the most effective way.*

Lord Woolf pointed out the need for: a multi-faceted, multi-skilled body which would combine the services provided by existing Courts, Tribunals and Inspectors in the

environmental field. It would be a 'one stop shop', which should lead to faster, cheaper and the more effective resolution of disputes in the environmental area. It would avoid increasing the load on already over burdened lay institutions by trying to compel them to resolve issues with which they are not designed to deal. It could be a forumin which the Judges could play a different role. A role which enabledthem not to examine environmental problems with limited vision. It could however be based on our existing experience, combining the skills of the existing inspectorate, the Land Tribunal and other administrative bodies. It could be an exciting project. According to Lord Woolf, "while environmental law is now clearly a permanent feature of the legal scene, it still lacks clear boundaries." It might be 'preferable that the boundaries are left to be established by Judicial decision as the law developed. After all, the great strength of the English Law has been its pragmatic approach".Further, where urgent decisions are required, there are often no easy options for preserving the status quo pending the resolution of the dispute. If the project is allowed to go ahead, there may be irreparable damage to the environment; if it is stopped,

there may be irreparable damage to an important economic interest. (See Environment Enforcement: The need for a specialised court - by Robert Cranworth QC (Jour of Planning & Environment, 1992 p, 798 at 806). Robert Cranworth advocates the constitution of a unified tribunal with a simple procedure which looks to the need of customers, which takes the form of a Court or an expert panel, the allocation of a procedure adopted to the needs of each case - which would operate at two levels -first tier by a single Judge or technical person and a review by a panel of experts presided over by a High Court Judge - and not limited to Wednesbury' grounds.

25. *In the USA the position is not different. It is accepted that when the adversary process yields conflicting testimony on complicated and unfamiliar issues and the participants cannot fully understand the nature of the dispute, Courts may not be competent to make reasoned and principled decisions. Concern over this problem led the Carnegie Commission of Science & Technology (1993) and the Government to undertake a study of the problems of science and technology in Judicial decision making. In the introduction to its final report, the Commission concluded: The Courts' ability to handle complex science- rich cases has recently been called into - question, with widespread allegations that the Judicial system is increasingly unable to manage and adjudicate science and technology (S&T) issues. Critics have objected that Judges cannot make appropriate decisions because they lack technical training, that the Jurors do not comprehend the complexity of the evidence they are supposed to analyze, and that the expert witnesses on whom the system relies are mercenaries whose biased testimony frequently produces erroneous and inconsistent determinations. If these claims go unanswered, or are not dealt with, confidence in the Judiciary will be undermined as the public becomes convinced that the Courts as now constituted are incapable of correctly resolving some of the more pressing legal issues of our day. The uncertain nature of scientific opinions:*

2 6 . *In the environment field, the uncertainty of scientific opinions has created serious problems for the courts. In regard to the different goals of science and the law in the ascertainment of truth, the U.S. Supreme Court observed in Daubert v.*

Merrel Dow Pharmaceuticals Inc. (1993) 113 SCt. 2786, as follows:

...there are important differences between the quest for truth in the Courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly.

2 7 . *It has also been stated by Brian Wynne in ' Uncertainty and Environmental learning, (2. Global Envtl. Change 111) (1992): Uncertainty, resulting from inadequate date, ignorance and indeterminacy, is an inherent part of science. Uncertainty becomes a problem when scientific knowledge is institutionalized in policy making or used as a basis for decision-making by agencies and courts. Scientists may refine, modify or discard variables or models when more information is available; however, agencies and Courts must make choices based on existing scientific knowledge. In addition, agency decision making evidence is generally presented in a scientific form that cannot be easily tested. Therefore,*

inadequacies in the record due to Uncertainty or insufficient knowledge may not be properly considered. (The Status of the precautionary Principle in Australia: by Charmian Barton (Vol. 22) (1988) (Harv. Envtt. Law Review p. 509 at pp 510-511).

2 8 . *The inadequacies of science result from identification of adverse effects of a hazard and then working backwards to find the causes. Secondly, clinical tests are performed, particularly where toxins are involved, on animals and not on humans, that is to say, are based on animals studies or short-term cell testing. Thirdly conclusions based on epidemiological studies are flawed by the scientist's inability to control or even accurately assess past exposure of the subjects. Moreover, these studies do not permit the scientist to isolate the effects of the substance of concern. The latency period of many carcinogens and other toxins exacerbates problems of later interpretation. The timing between exposure and observable effect creates intolerable delays before regulation occurs. (See Scientific Uncertainly in Protective Environmental Decision making - by Alyson C. Flournay (Vol. 15) 1991 Harv. Envtt. Law Review P.327 at 333-335).*

29. *It is the above uncertainty of science in the environmental context, that has led International Conferences to formulate new legal theories and rules of evidence. We shall presently refer to them. The Precautionary Principle and the new Burden of Proof - The Vellore Case:*

30. *The 'uncertainty' of scientific proof and its changing frontiers from time to time has led to great changes in environmental concepts during the period between the Stockholm Conference of 1972 and the Rio Conference of 1992. In Vellore Citizens' Welfare Forum v. Union of India and Ors. MANU/SC/0686/1996 : AIR1996SC2715 , a three Judge Bench of this Court referred to these changes, to the 'precautionary principle' and the new concept of 'burden of proof in environmental matters. Kuldip Singh, J. after referring to the principles evolved in various international Conferences and to the concept of 'Sustainable Development', stated that the precautionary Principle, the Polluter-Pays Principle and the special concept of Onus of Proof have now emerged and govern the law in our country too, as is clear from Articles 47, 48- A and 51-A(g) of our Constitution and that, in fact, in the various environmental statutes, such as the Water Act, 1974 and other statutes, including the Environment*
(Protection) Act, 1986, these concepts are already implied. The learned Judge declared that these principles have now become part of our law. The relevant observations in the Vellore case in this behalf read as follows: In view of the above-mentioned constitutional and statutory provisions we have no hesitation in holding that the Precautionary Principle and the Polluter Pays Principle are part of the environmental law of the country. The Court observed that even otherwise the above-said principles are accepted as part of the Customary International Law and hence there should be no difficulty in accepting them as part of our domestic law. In fact on the facts of the case before this Court, it was directed that the authority to be appointed under Section 3(3) of the Environment (Protection) Act, 1986. shall implement the

'Precautionary Principle' and the 'Polluter Pays Principle'. The learned Judges also observed that the new concept which places the Burden of Proof on the Developer or Industrialist who is proposing to alter the slants quo, has also become part of our environmental law.

31. *The Vellore judgment has referred to these principles briefly but, in our view, it is necessary to explain their meaning in more detail, so that Courts and tribunals or environmental authorities can properly apply the said principles in the matters which come before them. The precautionary Principle replaces the Assimilative Capacity principle:*

3 2 . *A basic shift in the approach to environmental protection occurred initially between 1972 and 1982. Earlier the concept was based on the 'assimilative capacity rule as revealed from Principle 6 of the Stockholm Declaration of the U.N. Conference on Human Environment, 1972. The said principle assumed that science could provide policy-makers with the information and means necessary to avoid encroaching upon the capacity of the environment to assimilate impacts and it presumed that relevant technical expertise would be available when environmental harm was predicted and there would be sufficient time to act in order to avoid such harm. But in the 11th principle of the U.N. General Assembly Resolution on World Charter for Nature, 1982, the emphasis shifted to the 'precautionary Principle', and this was reiterated in the Rio Conference of 1992 in its Principle 15 which reads as follows: Principle 15: In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage; lack of full scientific certainty shall not be used as a reason for proposing cost-effective measures to prevent environmental degradation.*

33. *In regard to the cause for the emergence of this principle, Charmian Barton, in the article earlier referred to in Vol. 22, Harv. Envtt. L. Rev. (1998) P. 509 at (p. 547) says: There is nothing to prevent decision makers from assessing the record and concluding there is inadequate information on which to reach a determination. If it is not possible to make a decision with "some" confidence, then it makes sense to err on the side of caution and prevent activities that may cause serious or irreversible harm. An informed decision* *can be made at a later stage when additional data is available or resources permit further research. To ensure that greater caution is taken in environmental management, implementation of the principle through Judicial and legislative means is necessary. In other words, inadequacies of science is the real basis that has led to the precautionary principle of 1982. It is based on the theory that it is better to err on the side of caution and prevent environmental harm which may indeed become irreversible.*

34. *The principle of precaution involves the anticipation of environmental harm and taking measures to avoid it or to choose the least environmentally harmful activity. It is based on scientific uncertainty. Environmental protection should not only aim at protecting health, property and economic interest but also protect the environment for its own sake. Precautionary duties must not*

only be triggered by the suspicion of concrete danger but also by (Justified) concern or risk potential. The precautionary principle was recommended by the UNEP Governing Council (1989). The Bomako Convention also lowered the threshold at which scientific evidence might require action by not referring to "serious" or "irreversible" as adjectives qualifying harm. However, summing up the legal status of the precautionary principle, onecommentator characterised the principle as still "evolving" for though it is accepted as part of the international customary law, "the consequences of its application in any potential situation will be influenced by the circumstances of each case". (See First Report of Dr. Sreenivasa Rao Pemmaraju, Special - Rapporteur, International Law Commission dated 3.4.1998 paras 61 to 72). The Special Burden of Proof in Environmental cases:

35. *We shall next elaborate the new concept of burden of proof referred to in the Vellore case at p. 658 MANU/SC/0686/1996 : AIR1996SC2715 . In that case, Kuldip Singh, J. stated as follows: The 'onus of proof is on the actor or the developer/industrialist to show that his action is nvironmentally benign.*

3 6 . *It is to be noticed that while the inadequacies of science have led to the 'precautionary principle', the said 'precautionary principle' in its turn, has led to the special principle of burden of proof in environmental cases where burden as to the absence of injurious effect of the actions proposed, is placed on those who want to change the status quo (Wynne, Uncertainty and Environmental Learning, 2 Global Envtl. Change 111 (1992) at p. 123). This is often termed as a reversal of the burden of proof, because otherwise in environmental cases, those opposing the changes would be compelled to shoulder the evidentiary burden, a procedure which is not fair. Therefore, it is necessary that the party attempting to preserve the status quo by maintaining a less-polluted state should not carry the burden of proof and the party who wants to alter it, must bear this burden. (See James M. Olson, Shifting the Burden of Proof, 20 Envtl. Law p.891 at 898 (1990). (Quoted in Vol. 22 (1998) Harv. Env. Law Review p. 509 at 519, 550).*

37. *The precautionary principle suggests that where there is an identifiable risk of serious or irreversible harm, including, for example, extinction of species, widespread toxic pollution in major threats to essential ecological processes, it may be appropriate to place the burden of proof on the person or entity proposing the activity that is potentially harmful to the environment. (See Report of Dr. Sreenivasa* *Rao Pemmaraju, Special Rapporteur, International Law Commission, dated 3.4,1998,para 61).*

3 8 . *It is also explained that if the environmental risks being run by regulatory inaction are in some way "ascertain but non-negligible", then regulatory action is justified.. This will lead to the question as to what is the non-negligible risk'. In such a situation, the burden of proof is to be placed on those attempting to alter the status quo. They are to discharge this burden by showing the absence of a 'reasonable ecological or medical concern. That is the required standard of proof. The result would be that if insufficient evidence is presented by them to alleviate concern about the level of*

uncertainty, then the presumption should operate in favour of environmental protection. Such a presumption has been applied in AshburtonAcclimatization Society v. Federated Fanners of New Zealand [1988] 1 NZLR 78. The required standard now is that the risk of harm to the environment or to human health is to be decided in public interest, according to a 'reasonable persons' test. (See Precautionary Principle in Australia by Charmian Barton) (Vol. 22) (1988) Harv. Env. L. Rev. 509 at 549). Brief Survey of Judicial and technical inputs in environmental appellate authorities/tribunals:

210. In the decision reported in RESEARCH FOUNDATION FOR SCIENCE TECHNOLOGY NATIONAL RESOURCE POLICY V. UNION OF INDIA & ANR (2005) 10 SCC 510), the Apex Court has considered the necessity of effecting ecology, applying precautionary principle and polluter pays principle as concept of sustainable development as follows:

The legal position regarding applicability of the precautionary principle and polluter pays principle which are part of the concept of sustainable development in our country is now well settled. In ***Vellore Citizens' Welfare Forum v. Union of India and Ors. MANU/SC/0686/1996 :***

AIR1996SC2715, *a three Judge Bench of this Court, after referring to the principles evolved in various international conferences and to the concept, of "sustainable development", inter alia, held that the precautionary principle and polluter pays principle have now emerged and govern the law in our country, as is clear from Articles 47, 48A and 51A(g) of our Constitution and that, in fact, in the various environmental statutes including the Environment (Protection Act, 1986, these concepts are already implied. These principles have been held to have become part of our law. Further, it was observed in* ***Vellore Citizens' Welfare Forum's case*** *that these principles are accepted as part of the customary international law and hence there should be no difficulty in accepting them as part of our domestic law. Reference may also be made to the decision in the case of* ***A.P. Pollution Control Board v. Prof. M.V. Nayudu (Retd.) and Ors. [(1996) 5 SCC 718]*** *where, after referring to the principles noticed in* ***Vellore Citizens' Welfare Forum's Case,*** *the same have been explained in more detail with a view to enable the Courts and the Tribunals or environmental authorities to properly apply the said principles in the matters which come before them. In this decision, it has also been observed that the principle of good governance is an accepted principle of international and domestic laws. It comprises of the rule of law, effective State institutions, transparency and accountability and public affairs, respect for human rights and the*

meaningful participation of citizens in the political process of their countries and in the decisions affecting their lives.

Reference has also been made to Article 7 of the draft approved by the

working group of the International Law Commission in 1996 on Prevention of Trans-boundary Damage from Hazardous Activities" to include the need for the State to take necessary "legislative, administrative and other actions" to implement the duty of prevention of environmental harm. Environmental concerns have been placed at same pedestal as human rights concerns, both being traced to Article 21 of the Constitution of India. It is the duty of this Court to render justice by taking all aspects into consideration. It has also been observed that with a view to ensure that there is neither danger to the environment nor to the ecology and, at the same time, ensuring sustainable development, the Court can refer scientific and technical aspects for an investigation and opinion to expert bodies. The provisions of a covenant which elucidate and go to effectuate the fundamental rights guaranteed by our Constitution, can be relied upon by Courts as facets of those fundamental rights and hence enforceable as such {see ***People's Union for Civil Liberties v. Union of India and Anr. MANU/SC/0274/1997 :*** *AIR1997SC1203 } The Basel Convention, it cannot be doubted, effectuates the fundamental rights guaranteed under Article 21. The rights to information and community participation for protection of environment and human health is also a right which flows from Article 21. The Government and authorities have, thus to motivate the public participation. These well – shrined principles have been kept in view by us while examining and determining various aspect and facets of the problems in issue and the permissible remedies."*

In that case, after considering these aspects issued several directions for implementation of action plan for disposal of hazardous waste and other waste generated.

211. In the decision reported in M.C. MEHTA VS. UNION OF INDIA & ORS (2004) 12 SCC 118, the Apex Court has considered the principle of sustainable development and the yard stick to be applied for that purpose. While considering the question of mining activity observed as follows:

The-natural sources of air, water and soil cannot be utilized if the utilization results in irreversible damage to environments. There has been accelerated degradation of environment primarily on account of lack of effective enforcement of environmental laws and non-compliance of the statutory norms. This Court has repeatedly said that the right to live is a fundamental right under Article 21 of

the Constitution and it includes the right to enjoyment of pollution-free water and air for full enjoyment of life. (See ***Subhash Kumar v. State of Bihar MANU/SC/0106/1991 : [1991]1SCR5*** *). **4 6 .** Further, by 42nd Constitutional Amendment. Article 48A was inserted in the Constitution in Part IV stipulating that the State shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country. Article 51A, inter alia, provides that it shall be the duty of every citizen of India to protect and improve the natural environment including forest, lakes, rivers and wildlife and to have compassion for living creatures. Article 47 which provides that it shall be the duty of the State to raise the level of nutrition and the standard of living and to improve public health is also relevant in this connection. The most vital* *necessities, namely, air, water and soil, having regard to right of life under Article 21 cannot be permitted to be misused and polluted so as to reduce the quality of life of others. Having regard to the right of the community at large it is permissible to encourage the participation of Amicus Curiae, the appointment of experts and the appointments of monitory committees. The approach of the Court has to be liberal towards ensuring social justice and protection of human rights. In* ***M.C. Mehta v. Union of India MANU/SC/0396/1987 : [1988]1SCR279****, this Court held that life, public health and ecology has priority over unemployment and loss of revenue. The definition of 'sustainable development' which Brandt land gave more than 3 decades back still holds good. The phrase covers the development that meets the needs of the present without compromising the ability of the future generation to meet their own needs. In* ***Narmada Bachao Andolan v. Union of India and Ors. MANU/SC/0732/2000 : (2002)10SCC408****t his Court observed that sustainable development means the type or extent of development that can take place and which can be sustained by nature/ecology with or without mitigation, in these matters, the required standard now is that the risk of harm to the environment or to human health is to be decided in public interest, according to a "reasonable person's" test. (See Chairman Barton : The Status of the Precautionary Principle in Australia : (Vol. 22) (1998) (Harv. Envtt. Law Review, p. 509 at p.549-A) as in* ***AP Pollution Control Board v. Prof. M.V. Nayuder (Retd) and Ors. MANU/SC/0032/1999 : [1999]1SCR235*** *).*

47. *The mining operation is hazardous in, nature, it impairs ecology and people's right of natural resources. The entire process of setting up and functioning of mining operation require utmost good faith and honesty on the part of the intending entrepreneur. For carrying on any mining activity close to township which has tendency to degrade environment and are likely to effect air water and soil and impair the qualify of life or inhabitants of the area, there would be greater responsibility on the part of the entrepreneur. The fullest disclosures including the potential for increased burdens on the environment consequent upon possible increase in the quantum and degree of pollution, has to be made at the outset so that public and all those concerned including authorities may decide whether the permission can at all be*

granted for carrying on mining activity. The regulatory authorities have to act with utmost care in ensuring compliance of safeguards, norms and standards to be observed by such entrepreneurs. When questioned, the regulatory authorities have to show that the said authorities acted in the manner enjoined upon them. Where the regulatory authorities, either connive or act negligently by not taking prompt action to prevent, avoid or control the damage to environment, natural resources and peoples' life, health and property, the principles of accountability for restoration and compensation have to be applied.

48. *The development and the protection of environments are not enemies, if without degrading the environment or minimising adverse effects thereupon by applying stringent safeguards, it is possible to carry on development activity applying the principles of sustainable development, in that eventuality, the development has to go on because one cannot lose sight of the need for development of industries, irrigation resources and power projects etc. including the need to improve employment opportunities and the generation of revenue. A balance has to be struck. We may note that to stall fast the depletion of forest, series of orders have been passed by this Court in* ***T.N. Godavarman's case*** *regulating the felling of trees in all the forests in the country. Principle 15 of Rio Conference of 1992 relating to the applicability of precautionary principle which stipulates that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as* *a reason for proposing effective measures to prevent environmental degradation is also required to be kept in view. In such matters, many a times, the option to be adopted is not very easy or in a straight jacket. If an activity is allowed to go ahead, there may be irreparable damage to the environment and if it is stopped, there may be irreparable damage to economic interest. In case of doubt, however, protection of environment would have precedence over the economic interest. Precautionary principle retires anticipatory action to be taken to prevent harm. The harm can be prevented even on a reasonable suspicion. It is not always necessary that there should be direct evidence of harm to the environment. Considering the question of imposing environmental compensation for causing pollution and environmental degradation observed as follows: para* ***8 to 12***

212. In the decision reported in INTELLECTUALS FORUM, TIRUPATHI VS. STATE OF A.P & ORS (2006) 3 SCC 549, the Apex court has considered the question regarding the protection of water body and the responsibility of the State on this aspect as follows:

> "*We have given our thoughtful and careful consideration to the sensitive issues raised in the appeals by the appellants and countered by the respective respondents with reference to the*

pleadings, the documents, annexures filed and judgment of the High Court. We have also carefully perused the report submitted by the Expert Committee and also considered the rival submissions made by the respective counsel. In our opinion, the nature of the question in this case is twofold. Firstly, the jurisprudential issues. In the event of conflict between the competing interests of protecting the environment and social development, this Court in the case of ***M.C. Mehta v. Kamal Nath MANU/SC/1007/1997 :*** *(1997)1SCC388 held as under: The issues presented in this case illustrate the classic struggle between those* *members of the public who would preserve our rivers, forests, parks and open lands in their pristine purity and those charged with administrative responsibility, who under the pressures of the changing needs of an increasingly complex society find it necessary to encroach to some extent upon open lands heretofore considered inviolate to change. The resolution of this conflict in any given case is for the legislature and not for the Courts. If there is a law made by Parliament or the State Legislatures, the Courts can serve as an instrument for determining legislative intent in the exercise of powers of judicial review under the Constitution. But, in the absence of any legislation, the executive acting under the doctrine of public trust cannot abdicate the natural resource and convert them into private ownership or commercial use. The aesthetic use and the pristine glory of the natural resources, the environment and the ecosystems of our country cannot be permitted to be eroded for private, commercial or any other use unless the Courts find it necessary, in good faith, for the public and in public interest to encroach upon the said recourses.*

55. The responsibility of the state to protect the environment is now a well-accepted notion in all countries. It is this notion that, in international law, gave rise to the principle of "state responsibility" for pollution emanating within one's own territories [Corfu Channel Case, ICJ Reports (1949) 4]. This responsibility is clearly enunciated in the United Nations Conference on the Human Environment, Stockholm 1972 (Stockholm Convention), to which India was a party. The relevant Clause of this Declaration in the present context is Paragraph 2, which states: The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate. Thus, there is no doubt about the fact that there is a responsibility bestowed upon the Government to protect and preserve the tanks, which are an important part of the environment of the area.

Sustainable Development

56. *The respondents, however, have taken the plea that the actions taken by the Government were in pursuance of urgent needs of development. The debate between the developmental and economic needs and that of the environment is an enduring one, since if environment is destroyed for any purpose without a compelling developmental cause, it will most probably run foul of the executive and judicial safeguards. However, this Court has often faced situations where the needs of environmental protection have been*

pitched against the demands of economic development. In response to this difficulty, policy makers and judicial bodies across the world have produced the concept of "sustainable development". This concept, as defined in the 1987 report of the World Commission on Environment and Development (Brundtland Report) defines it as "Development that meets the needs of the present without compromising the ability of the future generations to meet their own needs". Returning to the Stockholm Convention, a support of such a notion can be found in Paragraph 13, which states: In order to achieve a more rational management of resources and thus to improve the environment, States should adopt an integrated and coordinated *approach to their development planning so as to ensure that development is compatible with the need to protect and improve environment for the benefit of their population. Subsequently the Rio Declaration on Environment and Development, passed during the Earth Summit at 1992, to which also India is a party, adopts the notion of sustainable development. Principle 4 of the declaration states: In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.*

5 7 . *This Court in the case of* ***Essar Oil v. Halar Utkarsh Samiti MANU/SC/0037/2004 :*** *AIR2004SC1834 was pleased to expound on this. Their Lordships held: This, therefore, is the sole aim, namely, to balance economic and social needs on the one hand with environmental considerations on the other. But in a sense all development is an environmental threat. Indeed, the very existence of humanity and the rapid increase in population together with the consequential demands to sustain the population has resulted in the concreting of open lands, cutting down of forests, filling up of lakes and the pollution of water resources and the very air that we breathe. However there need not necessarily be a deadlock between evelopment on the one hand and the environment on the other. The objective of all laws on environment should be to create harmony between the two since neither one can be sacrificed at the altar of the other. A similar view was taken by this Court in Indian Council for* ***Environ-Legal Action v. Union of India MANU/SC/1189/1996 :*** *(1996)5SCC281 where their Lordships said: While economic development should not be allowed to take place at the cost of ecology or by causing widespread environmental destruction and violation; at the same time the necessity to preserve ecology and environment should not hamper economic and other developments. Both development and environment should go hand in hand, in other words, there should not be development at the cost of environment and vice versa, but there should be development while taking due care and ensuring the protection of the environment. The concept of sustainable development also finds support in the decisions of this Court in the cases* ***M.C. Mehta v. Union of India (Taj Trapezium Case)*** *(1997) 2 SCC 653,* ***State of Himachal Pradesh v. Ganesh Wood Products*** *MANU/SC/0038/1996 : AIR1996SC149 and****N armada Bachao Andolan v. Union of India MANU/SC/0206/2005 :*** *AIR2005SC2994 .*

58. *In light of the above discussions, it seems fit to hold that merely asserting an intention for development will not be enough to sanction the destruction of local ecological resources. What this Court should follow is a principle of sustainable development and find a balance between the developmental needs which the respondents assert, and the environmental degradation, that the appellants allege.*

Public Trust Doctrine

59. *Another legal doctrine that is relevant to this matter is the Doctrine of Public Trust. This doctrine, though in existence from Roman times, was enunciated in its modern form by the US Supreme Court in* ***Illinois Central Railroad Company v.People of the State of Illinois*** *(1892) 146 US 537 where the Court held: The bed or soil of navigable waters is held by the people of the State in their character as sovereign, in trust for public uses for which they are adapted. [...] the state holds the title to the bed of navigable waters upon a public trust, and no alienation or disposition of such property by the State, which does not recognize and is not in execution of this trust is permissible. What this doctrine says therefore is that natural resources, which includes lakes, are held by the State as a "trustee" of the public, and can be disposed of only in a manner that is consistent with the nature of such a trust. Though this doctrine existed in the Roman and English Law, it related to specific types of resources. The US Courts have expanded and given the doctrine its contemporary shape whereby it encompasses the entire spectrum of the environment.*

60. *The doctrine, in its present form, was incorporated as a part of Indian law by this Court in the case of* ***M.C. Mehta v. Kamal Nath*** *(supra) and also in* ***M.I. Builders v . Radhey Shyam Sahu*** ***MANU/SC/0999/1999 :****[1999]3SCR1066 . In* ***M.C. Mehta****, Kuldip Singh J., writing for the majority held: [our legal system] includes the public trust doctrine as part of its*

jurisprudence. The state is the trustee of all natural resources which are by nature meant for public use and enjoyment. [...] The state as a trustee is under the legal duty to protect the natural resources. [Para 22]

The Supreme Court of California, in the case of ***National Audubon Society v. Superior Court of Alpine Country*** *33 Cal.419 also known as the Mono Lake case summed up the substance of the doctrine. The Court said: Thus the public trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the State to protect the people's common heritage of streams, lakes, marshlands and tidelands., surrendering the right only in those rare cases when the abandonment of the right is consistent with the purposes of the trust This is an articulation of the doctrine from the angle of the affirmative duties of the State with regard to public trust. Formulated from a negatory angle, the doctrine does not exactly prohibit the alienation of the property held as a public trust. However, when the state holds a resource that is freely available for the use of the public, it provides for a high degree of judicial scrutiny upon any action of the Government, no matter how consistent with the existing legislations, that attempts to restrict such free use. To properly scrutinize such actions of the Government, the Courts must make a distinction*

between the government's general obligation to act for the public benefit, and the special, more demanding obligation which it may have as a trustee of certain public resources, [Joseph L. Sax "The public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention", Michigan Law Review, Vol.68 No. 3 (Jan.1970) PP 471-566)]. According to Prof. Sax, whose article on this subject is considered to be an authority, three types of restrictions on governmental authority are often thought to imposed by *the public trust doctrine [ibid]:*

1 . *the property subject to the trust must not only be used for a public purpose, but it must be held available for use by the general public;*

2. *the property may not be sold, even for fair cash equivalent*

3 . *the property must be maintained for particular types of use. (i) either*

traditional uses, or (ii) some uses particular to that form of resources.

In the instant case, it seems, that the Government Orders, as they stand now, are violative of principles 1 and 3, even if we overlook principle 2 on the basis of the fact that the Government is itself developing it rather than transferring it to a third party for value. Therefore, our order should try to rectify these defects along with following the principle of sustainable development as discussed above.

61. *Further the principle of "Inter-Generational Equity" has also been adopted while determining cases involving environmental issues. This Court in the case of* ***A.P. Pollution Control Board*** *v.* ***Prof. M.V. Nayudu and Ors. MANU/SC/0032/1999 :*** *[1999]1SCR235 held as under:*

The principle of inter-generational equity is of recent origin. The 1972 Stockholm Declaration refers to it in principles 1 and 2. In this context, the environment is viewed more as a resource basis for the survival of the present and future generations.

Principle 1 - Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for the present and future generations....

Principle 2 - The natural resources of the earth, including the air, water,

lands, flora and fauna and especially representative samples of natural

ecosystems, must be safeguarded for the benefit of the present and future generations through careful planning or management, as appropriate.

6 2 . *Several international conventions and treaties have recognized the above principles and, in fact, several imaginative proposals have been submitted including the locus standi of individuals or groups to take out actions as representatives of future generations, or appointing an ombudsman to take care of the rights of the future against the present (proposals of Sands and Brown Weiss referred to by Dr. Sreenivas Rao Permmaraju, Special Rapporteur, paras 97 and 98 of his report).*

63. *The principles mentioned above wholly apply for adjudicating matters concerning environment and ecology. These principles must,*

therefore, be applied in full force for protecting the natural resources of this country. Article 48A of the Constitution of India mandates that the State shall endeavour to protect and improve the environment to safeguard the forests and wild life of the country. Article 51A of the Constitution of India, enjoins that it shall be the duty of every citizen of India, inter alia, to protect and improve national environment including forests, lakes, rivers, wild life and to have compassion for living creatures. These two Articles are not only fundamental in the governance of the country but also it shall be the duty of the State
to apply these principles in making laws and further these two articles are to be kept in mind in understanding the scope and purport of the fundamental rights guaranteed by the Constitution including Articles 14, 19 and 21 of the Constitution of India and also the various laws enacted by the Parliament and the State Legislature.

64. *On the other hand, we cannot also shut our eyes that shelter is one of the basic human needs just next to food and clothing. Need for a National Housing and Habitat Policy emerges from the growing requirements of shelter and related infrastructure. These requirements are growing in the context of rapid pace of urbanization, increasing migration from rural to urban centers in search of livelihood, mis-match between demand and supply of sites and services at affordable cost and inability of most new and poorer urban settlers to access formal land markets in urban areas due to high costs and their own lower incomes, leading to a non-sustainable situation. This policy intends to promote sustainable development of habitat in the country, with a view to ensure equitable supply of land, shelter and services at affordable prices.*

65. The World has reached a level of growth in the 21st Century as never before envisaged. While the crisis of economic growth is still on, the key question which often arises and the Courts are asked to adjudicate upon is whether economic growth can supersede the concern for environmental protection and whether sustainable development which can be achieved only by way of protecting the environment and conserving the natural resources for the benefit of the humanity and future generations could be ignored in the garb of economic growth or compelling human necessity. The growth and development process are terms without any content, without an inkling as to the substance of their end results. This inevitably leaves us to the conception of growth and development which sustains from one generation to the next in order to secure 'our common future'. In pursuit of development, focus has to be on sustainability of development and policies towards that end have to be earnestly formulated and sincerely observed. As Prof. Weiss puts it, "conservation, however, always takes a back seat in times of economic stress." It is now an accepted social principle that all human beings have a fundamental right to a healthy environment, commensurate with their well being, coupled with a corresponding duty of ensuring that resources are conserved and preserved in such a way that present as well as the future generations are aware of them equally. The Parliament has considerably responded to the call of the Nations for conservation of environment and natural resources and enacted suitable laws.

66. *The Judicial Wing of the country, more particularly, this Court has laid down a plethora of decisions asserting the need for environmental protection and conservation of natural resources. The environmental protection and conservation of natural resources has been given a status of a fundamental right and brought under Article 21 of the Constitution of India. This apart, the Directive Principles of State Policy as also the fundamental duties enshrined in Part IV and Part IVA of the Constitution of India respectively also stresses the need to protect and improve the natural environment including the forests, lakes, rivers and wild-life and to have compassion for living creatures.*

67. *This Court in* ***Dahanu Taluka Environmental Protection Group and Ors.*** *v.* ***Bombay Suburban Electricity Supply Co. Ltd. and Ors.*** *MANU/SC/0574/1991 : (1991)2SCC539 held that the concerned Government should "consider the importance of public projects for the betterment of the conditions of living people on one hand and the necessity for preservation of social and ecological balance and avoidance of*
deforestation and maintenance of purity of the atmosphere and water free from pollution on the other in the light of various factual, technical and other aspects that may be brought to its notice by various bodies of laymen, experts and public workers and strike a balance between the two conflicting objectives."

213. In the decision reported in INDIAN COUNCIL FOR ENVIRO LEGAL ACTION V. UNION O INDIA & ORS (1996) 5 SCC 281, the Apex Court considered the validity of Coastal Regulation Zone Notification 1991 as amended in 1994 and reiterated the responsibility of the State Government to protect environment and strike a balance between development and environment as part sustainable development considering the economic development but without compromising the necessity for protecting environment.

214. In the decision reported in HIMACHAL PRADESH BUS STAND MANAGEMENT AND DEVELOPMENT AUTHORITY V. CENTRAL EMPOWERED COMMITTEE & ORS (2021 SCC OnLine SC 15) the Apex Court has considered the scope of environment protection, powers of the National Green Tribunal and the role of courts in protecting environment involving a new environmental jurisprudence and observed as follows:

"NGT acted within its mandate in a case of this nature, where the Appellant actively allowed the perpetration of a structure in breach of environmental norms. Not looking askance at the construction of the Hotel-cum-Restaurant structure, in an area which the NGT rightly describes as the "lap of nature", will put us on the path of judicially sanctioned environmental destruction.

I.1 Environmental Rule of law

46. *In a constitutional framework which is intended to create, foster and protect a democracy committed to liberal values, the Rule of law provides the cornerstone. The Rule of law is to be distinguished from Rule by the law. The former comprehends the setting up of a legal regime with clearly defined Rules and principles of even application, a regime of law which maintains the fundamental postulates of liberty, equality and due process. The Rule of law postulates a law which is answerable to constitutional norms. The law in that sense is accountable as much as it is capable of exacting compliance. Rule by the law on the other hand can mean Rule by a despotic law. It is to maintain the just quality of the law and its observance of reason that Rule of law precepts in constitutional democracies rest on constitutional foundations. A Rule of law framework encompasses Rules of law but it does much more than that. It embodies matters of substance and process. It dwells on the institutions which provide the are of governance. By focussing on the structural norms which guide institutional decision making, Rule of law frameworks recognise the vital role played by institutions and the serious consequences of leaving undefined the norms and processes by which they are constituted, composed and governed. A modern Rule of law framework is hence comprehensive in its sweep and ambit. It recognises that liberty and equality are the focal point of a just system of governance and without which human dignity can be subverted by administrative discretion and absolute power. Rule of law then dwells beyond a compendium which sanctifies Rules of law. Its elements comprise of substantive principles, processual guarantees and institutional safeguards that are designed to ensure responsive, accountable and sensitive governance.*

47. *The environmental Rule of law, at a certain level, is a facet of the concept of the Rule of law. But it includes specific features that are unique to environmental governance, features which are sui generis. The environmental Rule of law seeks to create essential tools - conceptual, procedural and institutional to bring structure to*
the discourse on environmental protection. It does so to enhance our understanding of environmental challenges - of how they have been shaped by humanity's interface with nature in the past, how they continue to be affected by its engagement with nature in the present and the prospects for the future, if we were not to radically alter the course of destruction which humanity's actions have charted. The environmental Rule of law seeks to facilitate a multi- disciplinary analysis of the nature and consequences of carbon footprints and in doing so it brings a shared understanding between science, regulatory decisions and policy perspectives in the field of environmental protection. It recognises that the 'law' element in the environmental Rule of law does not make the concept peculiarly the preserve of lawyers and judges. On the contrary, it seeks to draw within the fold all stakeholders in formulating strategies to deal with current challenges posed by environmental degradation, climate change and the destruction of habitats. The environmental Rule of law seeks a

unified understanding of these concepts. There are significant linkages between concepts such as sustainable development, the polluter pays principle and the trust doctrine. The universe of nature is indivisible and integrated. The state of the environment in one part of the earth affects and is fundamentally affected by what occurs in another part. Every element of the environment shares a symbiotic relationship with the others. It is this inseparable bond and connect which the environmental Rule of law seeks to explore and understand in order to find solutions to the pressing problems which threaten the existence of humanity. The environmental Rule of law is founded on the need to understand the consequences of our actions going beyond local, state and national boundaries. The rise in the oceans threatens not just maritime communities. The rise in temperatures, dilution of glaciers and growing desertification have consequences which go beyond the communities and creatures whose habitats are threatened. They affect the future survival of the entire eco-system. The environmental Rule of law attempts to weave an understanding of the connections in the natural environment which make the issue of survival a unified challenge which confronts human societies everywhere. It seeks to build on experiential learnings of the past to formulate principles which must become the building pillars of environmental Regulation in the present and future.

The environmental Rule of law recognises the overlap between and seeks to amalgamate scientific learning, legal principle and policy intervention. Significantly, it brings attention to the rules, processes and norms followed by institutions which provide regulatory governance on the environment. In doing so, it fosters a regime of open, accountable and transparent decision making on concerns of the environment. It fosters the importance of participatory governance - of the value in giving a voice to those who are most affected by environmental policies and public projects. The structural design of the environmental Rule of law composes of substantive, procedural and institutional elements. The tools of analysis go beyond legal concepts. The result of the framework is more than just the sum total of its parts. Together, the elements which it embodies aspire to safeguard the bounties of nature against existential threats. For it is founded on the universal recognition that the future of human existence depends on how we conserve, protect and regenerate the environment today.

***48.** In its decision in Hanuman Laxman Aroskar v. Union of India (supra), this Court, speaking through one of us (D.Y. Chandrachud, J.) recognized the importance of protecting the environmental Rule of law. The court observed:*

***142.** Fundamental to the outcome of this case is a quest for environmental governance within a Rule of law paradigm. Environmental governance is founded on the need to promote environmental sustainability as a crucial*
enabling factor which ensures the health of our ecosystem.

143.** Since the Stockholm Conference, there has been a dramatic expansion in environmental laws and institutions across the globe. In many instances, these laws and institutions have helped to slow down or reverse environmental degradation. However, this progress is also accompanied, by a growing understanding that there is a considerable implementation gap between the requirements of environmental laws and their implementation and enforcement -- both in developed and developing countries alike **...

156. *The Rule of law requires a regime which has effective, accountable and transparent institutions. Responsive, inclusive, participatory and representative decision making are key ingredients to the Rule of law. Public access to information is, in similar terms, fundamental to the preservation of the Rule of law. In a domestic context, environmental governance that is founded on the Rule of law emerges from the values of our Constitution. The health of the environment is key to preserving the right to life as a constitutionally recognised value Under Article 21 of the Constitution. Proper structures for environmental decision making find expression in the guarantee against arbitrary action and the affirmative duty of fair treatment Under Article 14 of the Constitution.*

4 9 . *In its first global report on environmental Rule of law in January 2019, the United Nations Environment Programme ("UNEP") has presciently stated4: If human society is to stay within the bounds of critical ecological thresholds, it is imperative that environmental laws are widely understood, respected, and enforced and the benefits of environmental protection are enjoyed by people and the planet. Environmental Rule of law offers a framework for addressing the gap between environmental laws on the books and in practice and is key to achieving the Sustainable Development Goals. Successful implementation of environmental law depends on the ability to quickly and efficiently resolve environmental disputes and punish environmental violations. Providing environmental adjudicators and enforcers with the tools that allow them to respond to environmental matters flexibly, transparently, and meaningfully is a critical building block of environmental Rule of law.*

50. *The need to adjudicate disputes over environmental harm within a Rule of law framework is rooted in a principled commitment to ensure fidelity to the legal framework regulating environmental protection in a manner that transcends a caseby- case adjudication. Before this mode of analysis gained acceptance, we faced a situation in which, despite the existence of environmental legislation on the statute books, there was an absence of a set of overarching judicially recognized principles that could inform environmental adjudication in a manner that was stable, certain and predictable. In an Article in the Asia-Pacific Journal of Environmental Law (2014), Bruce Pardy describes this conundrum in the following terms5:*

Environmental Regulations and standards typically identify specific limits or

prohibitions on detrimental activities or substances. They are created to reflect the principles and prohibitions contained in the statute under which they are promulgated. However, where the contents of the statute are themselves indeterminate, there is no concrete Rule or set of criteria to apply to formulate the standards. Their development can therefore be highly political and potentially arbitrary.

...

Instead of serving to protect citizens' environmental welfare, an indeterminate environmental law facilitates a utilitarian calculus that allows diffuse interests to be placed aside when they are judged to be less valuable than competing considerations.

51. *However, even while using the framework of an environmental Rule of law, the difficulty we face is this - when adjudicating bodies are called on to adjudicate on environmental infractions, the precise harm that has taken place is often not susceptible to concrete quantification. While the framework provides valuable guidance in relation to the principles to be*

kept in mind while adjudicating upon environmental disputes, it does not provide clear pathways to determine the harm caused in multifarious factual situations that fall for judicial consideration. The determination of such harm requires access to scientific data which is often times difficult to come by in individual situations.

5 2 . *In an Article in the Georgetown Environmental Law Review (2020), Arnold Kreilhuber and Angela Kariuki explain the manner in which the environmental Rule of law seeks to resolve this imbroglio[6]: One of the main distinctions between environmental Rule of law and other areas of law is the need to make decisions to protect human health and the environment in the face of uncertainty and data gaps. Instead of being paralyzed into inaction, careful documentation of the state of knowledge and uncertainties allows the regulated community, stakeholders, and other institutions to more fully understand why certain decisions were made. The point, therefore, is simply this - the environmental Rule of law calls on us, as judges, to marshal the knowledge emerging from the record, limited though it may sometimes be, to respond in a stern and decisive fashion to violations of environmental law. We cannot be stupefied into inaction by not having access to complete details about the manner in which an environmental law violation has occurred or its full implications. Instead, the framework, acknowledging the imperfect world that we inhabit, provides a roadmap to deal with environmental law violations, an absence of clear evidence of consequences notwithstanding.*

53. *In the case before us, it is not possible for us to determine in quantifiable terms the exact effect of the construction of the Hotel-cum-Restaurant structure by the Appellant and the second Respondent on the ecology of the area. Both of them have tried to argue that the number of trees felled by them, in the case of the present construction, is what it would have been, had they only built a bus stand and a parking space. However, what we can record a determination on is the way in which the Appellant and second Respondent have gone about achieving this object. Specifically, the parties have engaged in the construction without complying with the plans drawn by the Appellant's third-party consultants, which were agreed to by them*

in the RFP. The construction proceeded even when the TCP Department tried to halt it, refusing to approve its plans. Even the post facto refusal by the MOEF for changing the nature of the diverted forest land was not enough to stop the parties. Ultimately, when they were forced to halt the construction by the CEC, they proceeded with it under the guise of an order of this Court which permitted only legal construction. A combination of these circumstances highlights not only conduct oblivious of the environmental consequences of their actions, but an active disdain for them in favour of commercial benefits. While the second Respondent was a private entity, they were actively supported in these efforts by the Appellant. Hence, it is painfully clear that their actions stand in violation of the environmental Rule of law. Whatever else the environmental Rule of law may mean, it surely means that construction of this sort cannot receive our endorsement, no matter what its economic benefits may be. A lack of scientific certainty is no ground to imperil the environment.

I.2 Role of courts in ensuring environmental protection

5 4 . *In a recent decision of this Court in Bengaluru Development Authority v. Sudhakar Hegde, this Court, speaking through one of us (D.Y. Chandrachud, J.) held:*

107. *The adversarial system is, by its nature, rights based. In the quest for justice, it is not uncommon to postulate a winning side and a losing side. In matters of the environment and development however, there is no trade-off between the two. The protection of the environment is an inherent component of development and growth...*

108. *Professor Corker draws attention to the idea that the environmental protection goes beyond lawsuits. Where the state and statutory bodies fail in their duty to comply with the regulatory framework for the protection of the environment, the courts, acting on actions brought by public spirited individuals are called to invalidate such actions...*

109. *The protection of the environment is premised not only on the active role of courts, but also on robust institutional frameworks within which every stakeholder complies with its duty to ensure sustainable development. A framework of environmental governance committed to the Rule of law requires a regime which has effective, accountable and transparent institutions. Equally important is responsive, inclusive, participatory and representative decision making. Environmental governance is founded on the Rule of law and emerges from the values of our Constitution. Where the health of the environment is key to preserving the right to life as a constitutionally recognized value Under Article 21 of the Constitution, proper structures for environmental decision making find expression in the guarantee against arbitrary action and the affirmative duty of fair treatment Under Article 14 of the Constitution. Sustainable development is premised not merely on the redressal of the failure of democratic institutions in the protection of the environment, but ensuring that such failures do not take place.*

55. *In Lal Bahadur v. State of Uttar Pradesh MANU/SC/1742/2017 : (2018) 15 SCC 407, this Court underscored the principles that are the cornerstone of our environmental jurisprudence, as emerging from a settled line of precedent: the precautionary principle, the polluter pays principle and sustainable development. This Court further noted the importance of judicial intervention for ensuring environmental*
protection. In a recent decision in State of Meghalaya and Ors. v. All Dimasa Students Union MANU/SC/0877/2019 : (2019) 8 SCC 177, this Court reiterated the key principles of environmental jurisprudence in India, while awarding costs of Rs. 100 crores on the State of Meghalaya for engaging in illegal coal mining.

56. *The UNEP report (supra) also goes on to note7: Courts and tribunals must be able to grant meaningful legal remedies in order to resolve disputes and enforce environmental laws. As shown in Figure 5.12, legal remedies are the actions, such as fines, jail time, and injunctions, that courts and tribunals are empowered to order. For environmental laws to have their desired effect and for there to be adequate incentives for compliance with environmental laws, the remedies must both redress the past environmental harm and deter future harm.*

57. *In its Global Judicial Handbook on Environmental Constitutionalism, the UNEP has further noted8: Courts matter. They are essential to the Rule of law. Without courts, laws can be disregarded, executive officials left unchecked, and people left without recourse. And the environment and the human connection to it can suffer. Judges stand in the breach.*

58. *The above discussion puts into perspective our decision in the present appeals, through which we shall confirm the directions given by the NGT in its impugned judgment. The role of courts and tribunals cannot be*

overstated in ensuring that the 'shield' of the "rule of law" can be used as a facilitative instrument in ensuring compliance with environmental Regulations.

I.3 Illegal activities on forest land

***59.** We are not traversing unexplored territory. In the past, this Court has clamped down on illegal activities on reserved forest land specifically, and in violation of environmental laws more generally, and taken to task those responsible for it. In a recent three-judge bench decision of this Court in the case of Hospitality Association of Mudumalai v. In Defence of Environment and Animals, this Court was confronted with a situation involving illegal commercial activities taking place in an elephant corridor. Justice S. Abdul Nazeer, speaking for the Court, held as follows:*

***42.**.. the "Precautionary Principle" has been accepted as a part of the law of our land. Articles 21, 47, 48A and 51A(g) of the Constitution of India give a clear mandate to the State to protect and improve the environment and to safeguard the forests and wild life of the country. It is the duty of every citizen of India to protect and improve the natural environment including forests and wild life and to have compassion for living creatures. The Precautionary Principle makes it mandatory for the State Government to anticipate, prevent and attack the causes of environmental degradation.*

***60.** In Goel Ganga Developers India Pvt. Ltd. v. Union of India MANU/SC/0841/2018 : (2018) 18 SCC 257, this Court dealt with a situation in which the project proponent had engaged in construction that was contrary to the environmental clearance granted to it. Coming down on the project proponent, a two-judge bench, speaking through Justice Deepak Gupta, held as follows:*

***64.** Having held so we are definitely of the view that the project proponent who has violated law with impunity cannot be allowed to go scot-free. This Court has in a number of cases awarded 5% of the project cost as damages. This is the general law. However, in the present case we feel that damages should be higher keeping in view the totally intransigent and unapologetic behaviour of the project proponent. He has manoeuvred and manipulated officials and authorities. Instead of 12 buildings, he has constructed 18; from 552 flats the number of flats has gone up to 807 and now two more buildings having 454 flats are proposed. The project proponent contends that he has made smaller flats and, therefore, the number of flats has increased. He could not have done this without getting fresh EC. With the increase in the number of flats the number of persons residing therein is bound to increase. This will impact the amount of water requirement, the amount of parking space, the amount of open area, etc. Therefore, in the present case, we are clearly of the view that the project proponent should be and is directed to pay damages of Rs. 100 crores or 10% of the project cost, whichever is more.*

***61.** In M.C. Mehta v. Union of India MANU/SC/0967/2018 : (2018) 18 SCC 397, a two judge Bench of this Court held that the land notified under Punjab Land Preservation Act, 1900 in the Kant Enclave was to be treated as "forest land". As a result, any construction made on the land or its utilization for "non-forest purposes" without Central Government approval was violative of the Forest Act and therefore illegal. The relevant excerpt of this Court's decision, speaking through Justice Madan B. Lokur, is as follows:*

***132.**.. R. Kant & Co. and the Town and Country Department of the State of Haryana being fully aware of the statutory Notification dated 18-8-1992 and*

the restrictions placed by the notification. R. Kant & Co. and the Town and Country Department of the State of Haryana were also fully aware that Kant Enclave is a forest or forest land or treated as a forest or forest land, and therefore any construction made on the land or utilisation of the land for non-forest purposes, without the prior approval of the Central Government, would be illegal and violative of the provisions of the Forest (Conservation) Act, 1980. Notwithstanding this, constructions were made (or allowed to be made) in Kant Enclave with the support, tacit or otherwise, of R. Kant & Co. and the Town and Country Department of the State of Haryana. They must pay for this.

62. *In the present set of appeals, the forest land was allowed to be used by the MOEF for the specific purposes of constructing a 'parking space' and 'bus stand' in McLeod Ganj. MOEF made a conscious decision not to modify the terms of this permission, even when granted an opportunity to do so. Hence, any construction undertaken by the second espondent, even with the tacit approval of the Appellant being a statutory authority under the HP Bus Stands Act, will be illegal.*

I.4 Jurisdiction of NGT

63. *An ancillary issue now remains for our consideration, which is whether the NGT could have adjudicated upon a violation of the TCP Act, which is not an Act present in Schedule I of the NGT Act. In a recent two-judge Bench decision of this Court in State of M.P. v. Centre for Environment Protection Research & Development MANU/SC/0647/2020 : (2020) 9 SCC 781, one of us speaking for the Court (Justice*

Indira Banerjee), held as follows:

4 1 . *The Tribunal constituted under the NGT Act has jurisdiction Under Section 14 of the said Act to decide all civil cases where any substantial question relating to environment including enforcement of any right relating to environment is involved and such question arises out of the implementation of the enactments specified in Schedule I to the said Act, which includes the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986.*

42. *In view of the definition of "substantial question relating to environment" in Section 2(1)(m) of the NGT Act, the learned Tribunal can examine and decide the question of violation of any specific statutory environmental obligation, which affects or is likely to affect a group of individuals, or the community at large.*

43. *For exercise of power Under Section 14 of the NGT Act, a substantial question of law should be involved including any legal right to environment and such question should arise out of implementation of the specified enactments.*

44. *Violation of any specific statutory environmental obligation gives rise to a substantial question of law and not just statutory obligations under the enactments specified in Schedule I. However, the question must arise out of implementation of one or more of the enactments specified in Schedule I.*

215. So it is clear from this that court has always had a responsibility to protect environment while considering the question of sustainable development and wherever it is necessary and when

it is found that there were pollution caused on account of certain industrial activities or other activities which were established as part of improving economic development, applying the principle of 'sustainable development and if any pollution has been caused on account of their activity to any water body or affecting the quality of air and water, then courts have got power to apply the 'polluter pays' principle and impose environmental compensation and even direct remedial measures to be taken to restore the damage caused to environment, applying the reverse burden of proof on the persons who are responsible for contributing to the pollution and making them liable for such expenses incurred for restoring the damage caused to environment. The Apex Court has also considered the question of duty and responsibility of the State Government to protect environment as part of life as enshrined under Article 21 of the Constitution of India and protecting environment, providing clean water and air. It is also a constitutional obligation under Article 48-A and 51-A(g) of the Constitution of India and also on the basis of the powers under the provisions of the Environment (Protection) Act 1986 and the National Green Tribunal has also got the power to issue certain directions, applying the 'precautionary' principle to restore the damage caused to environment, apart from imposing environmental compensation against the persons who were responsible for the probability of causing pollution on account of their activity without strict proof of such cause being contributed by the particular industry or activity of the alleged violator as

contemplated under Section 14, 15 and 20 of the National Green Tribunal Act, 2010.

216. With these principles in mind, the case in hand has to be considered. It is an admitted fact that the second respondent Corporation was constituted for the purpose of promoting industrial development in the State of Tamil Nadu and in discharging their object of forming such Corporations, they were establishing industrial complexes in several parts of the State and one such industrial complex was established in Cuddalore by Phase – I and Phase – II, housing textile processing, pharmaceuticals, dye chemicals, pesticides and other industries. This complex is located 8 kms south of Cuddalore Town on the seaward side of the Cuddalore – Chidambaram Highways, stretching from Pachaiyankuppam in the north to Sonanchavadi in the south. It is also an admitted fact that that it is one of the critically/severely polluted industrial cluster, identified by the Central Pollution Control Board. In the year 2004, a study was conducted regarding the pollution that is being caused on account of the emission that is being discharged from the industrial units in Cuddalore District and it was found to be critically polluted industrial cluster. There was a newspaper report published in 'The Hindu' regarding this aspect, projecting SIPCOT Industrial Complex, Cuddalore as critically air polluted city affecting the health of the people. It is an admitted fact that on the basis of the newspaper report a suo motu case was registered by the Hon'ble Madras High Court as

W.P.No.27241 of 2004 and the Madras High Court disposed of the matter by judgment dated 29.8.2012 as follows:

> ***"1 .*** *The State Industries Promotion Corporation of Tamil Nadu Limited (SIPCOT) was established in the year 1971 to develop industrial growth in Tamil Nadu. To ensure a good impact with the available limited resources, SIPCOT has created Industrial Complexes and Parks, strategically located in Nineteen places and Twelve Districts in the State, including one at Cuddalore. Respondents 4 to 11 and 17 to 23 are some of such industrial units established in Cuddalore SIPCOT area at different points of time. It is seen from the materials on record that the residents of the Cuddalore SIPCOT area themselves have formed SIPCOT Area Community Environmental Monitors (SACEM) and brought out several reports in respect of the pollution in SIPCOT area. One such report titled 'Gas Trouble' Air quality in SIPCOT, Cuddalore was published by The Hindu' on 21.9.2004, under the caption 'villages in Cuddalore industrial estate toxic hot spot' stating that twenty thousand residents of 10 villages and several hamlets around the over two decade old SIPCOT industrial estate near Cuddalore town are exposed to high levels of 22 Volatile Organic Compounds (VOCs) including eight cancer causing ones, mostly released by factories in the complex. According to the said report, the levels of some of the chemicals in the SIPCOT area were at least 1,000 times higher than those prevailing in South Africa, Thailand and the Philippines. The report also justified the villagers' demands for continuous air monitoring, including for toxic gases, an aggressive air pollution elimination programme, long-term health monitoring, specialised health care facilities for residents and a ban on the setting up or expansion of any polluting facility in the complex.*
>
> ***2.*** *This news item was ordered to be taken as a writ petition by the then Honourable Chief Justice. During pendency of this writ petition, not only the community residents (like respondents 14 to 16) but also the above mentioned industrial units in the Cuddalore SIPCOT (Respondents 4 to 11 and 17 to 23) have been brought on record.*
>
> ***3 .*** *It is to be mentioned that Cuddalore SIPCOT Industries Common Utilities Ltd. (CUSECS) has been operating in SIPCOT Industrial Complex, Cuddalore since 2001. The infrastructure for effluent collection and disposal in the SIPCOT industrial complex was commissioned in 2001, 19 years after the complex was established. It is the collection and forwarding system for allegedly "treated effluent" from industries in SIPCOT. The effluent is said to be forwarded through a network of pipelines and sumps to the sea off the coast of Rasapettai village. Initially 19 industries registered*

> *as members of CUSECS; currently, only 8 industries are members. They are:*
>
> ***1.*** *Arkema Peroxides Ltd (Respondent No. 18)*
> ***2.*** *Aurobindo Pharma Ltd. (Respondent No. 5)*
> ***3.*** *Bayer Material Sciences Pvt. Ltd. (Respondent No. 19)*
> ***4.*** *Loyal Super Fabrics*
> ***5.*** *Pandian Chemicals Ltd. (Respondent No. 22)*

6. *Pioneer Jellice India Pvt. Ltd (Respondent No. 20)*
7. *SPIC Pharmaceuticals Ltd (Respondent No. 9)*
8. *TANFAC Industries Ltd (Respondent No. 17)*
4 . *According to TNPCB, some industries terminated their membership with CUSECS after achieving "zero discharge" or setting up independent mechanisms to dispose their effluents to the sea.*
5. *The allegations against CUSECS by the residents/respondents 14 to 16 are that the quality of effluents discharged by the CUSECS into the sea is in violation of the standards prescribed by Environment Protection Rules and the Central Pollution Control Board norms and that this is not the first time such violations have been noticed in the effluent quality of CUSECS. It has also been alleged that CUSECS is operating since 2000 on a mere NoC from TNPCB with no consent to establish and operate till date and even the Coastal Regulatory Zone clearance was obtained post facto in November, 2005 and at least five show cause notices have been served on the unit since the year 2000 for violations of effluent standards and that from 2004 there are many incidents of effluent leak from CUSECS on land or in the river.*
6. *Taking into consideration all these aspects, during the course of earing, we posed a specific question to the learned standing counsel for the Tamil Nadu Pollution Control Board as to under which authority the said CUSECS is functioning. For this the learned standing counsel for the Tamil Nadu Pollution control Board has produced before us a letter addressed to him by the Tamil Nadu Pollution Control Board on 3.9.2010, which is available at Page No. 105 of the typed set of papers filed by respondents 14 to 16. From this letter it is clear that CUSECS Ltd. has obtained only a 'No Objection Certificate' from the Board vide Lr. No. T5/TNPCB/F-9051/ CUD/W/A/96, dated 28.6.2004 and has obtained clearance from the Ministry of Environment and Forest, Government of India vide letter No. J-16011 of 24 of 2003- 1A III, dated 30.11.2005. It is also seen that though this Unit has applied for consent of the TNPCB under the Water (Prevention and control of pollution) Act, the same has not yet been issued by TNPCB for want of compliance of No Objection Certificate conditions for discharge of effluent quality to Marine disposal standards.*
7. *Considering this aspect, this Court, by the order dated 21.9.2010 has ordered that the said Unit has no right to function till the grant of consent by the TNPCB, after compliance of the NoC conditions and the TNPCB has also been directed to stop the functioning of the said CUSECS Ltd. and consider the feasibility of granting renewal of consent to those industries which had paid the fees in accordance with law. Pursuant to the said order, CUSECS Ltd. has been closed. Thereafter, R. 17 to R.21*
came forward to file implead petitions and the said petitions having been allowed on
20.10.2010, they have come on record as party respondents.
8 . *It is the strong case of CUSECS Ltd. that their member companies are not using any VOC chemical and that CUSECS is transferring and discharging the treated effluent received from its member industries into the sea about 1 km. away from the seashore through HDP pipeline with end point fitted with specially designed diffuser which dispense the treated effluent in all the directions simultaneously to provide very quick dilution and within a very short time the effluent*

reaches harmless state at the point of discharge itself and as a consequence of the same, the effluent discharged into the sea is absolutely harmless to marine flora, fauna and aquatic life and have requested to permit them to commence their operation.

9. *It is seen from the records that the National Environmental Engineering Research Institute (NEERI) has conducted a study in August, 2007 at the SIPCOT area of Cuddalore and has filed a report before this Court. This report pointed out the presence of VOCs. at different locations including CUSECS, Alapakkam, Kudikadu, Pachayankuppam, Karaikadu and Echangadu villages.*

1 0 . *In the year 2009, the Central Pollution Control Board and the Ministry of Environment and Forests have conducted a study in selective industrial clusters of the country 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. For this, a total of 88 industrial areas or clusters have been selected by the Central Pollution Control Board in consultation with the Ministry of Environment and Forests, Government of India, including Coimbatore, Cuddalore, Erode, Manali, Mettur, Tiruppur and Vellore Industrial areas in Tamil Nadu and brought out its report in the month of December, 2009.*

1 1 . *This report found that there are 43 industrial areas/clusters out of 88 to be critically polluted with respect to one or more environmental component and such critically polluted areas include the Cuddalore SIPCOT area. Following this report, the Ministry of environment and Forests, Government of India, imposed a moratorium on 43 industrial clusters, including Cuddalore SIPCOT area, requiring the Tamil NaduPollution Control Board to monitor the situation by initiating time-bound action plans for improving the environmental quality in those industrial clusters/areas. Even though the initial order of moratorium was till August 2010, for Cuddalore it was extended till 31.10.2010 due to delay in finalizing the action plans. Later, on 26.10.2010, the Ministry of Environment and Forest, Government of India further extended its moratorium on setting up new industries or expansion of existing units*

in Cuddalore till March, 2011. Thereafter, the said moratorium was lifted on 15.2.1011 by the Government of India, based on the information provided by the Tamil Nadu Pollution Control Board and the Central Pollution Control Board to Ministry of Environment and Forest that the revised action plans submitted by the respective SPCBs have been reviewed and approved by them and that the implementation of the action plan has been initiated. This action of the Government - in lifting the moratorium - came under strong criticism by SACEM, requesting to impose further moratorium on expansion of existing facility and setting up of new units in SIPCOT Cuddalore. SACEM, has based this request on a critique (prepared in April, 2011) of TNPCB's action plan for Cuddalore, which formed the basis for lifting of the moratorium.

1 2 . *In this background, since from the year 2007, the year in which NEERI has conducted a study in this area, there are lot of changes with some industries acquiring 'zero discharge' and some industries*

closing down for various reasons and to have information with regard to the latest position in the area, this Court, by the order dated 18.11.2010, has directed NEERI to inspect the area with regard to the extent of air and water pollution (alleged to have been) caused by the respondents 4 to 13 and 17 to 23 and the industries mentioned in Chapter III, page 3.1 of the final report filed by NEERI in August 2007 and submit a report to this Court, after giving opportunity to the industries as well as their counsel. To carry on this study, this Court, vide order dated 22.12.2010, has directed respondents 4 to 11 and 17 to 23 to deposit a sum of Rs. 1 lakh each to the credit of NEERI, Chennai within a period of one week.

13. *Accordingly, a five member team, constituted by the Director, NEERI inspected the industries/R-4 to R.11 and R.17 to R.23 in SIPCOT, Cuddalore and submitted its report in April, 2011. In this report, NEERI has focussed on ground water quality of surrounding villages, surface water quality, marine disposal site, ambient air quality and VOC in industries premises. In this report, NEERI has stated that hysicochemical characteristics of some of the bore wells water in SIPCOT area do not conform to the limits prescribed for drinking water purpose with respect to turbidity, TDS and total hardness. On the whole, it can be concluded that the impact of industrial emissions from SIPCOT Industries, uddalore on ambient air quality is within limits as compared to ambient air quality standards with respect to PM10, PM2.5, SO2, NOx and NH3. Concentrations of five HAPs. namely Acrolein, Benzene, Formaldehyde, Acetaldehyde and Propionaldehyde have been found to exceed standard/screening/guideline values.*

14. *For better understanding, we re-produce hereunder the differences between the two reports submitted by NEERI in 2007 and 2011:*

15. *The above report of NEERI makes it clear that the quality of ground water and river water do not conform to the prescribed standards and some of the discharged effluents are within the prescribed limits and some are not. Therefore, a question would arise as to whether the respondent industries are to be blamed for such falling standards in the quality of environment.*

16. *On the part of CUSECS, the above report of NEERI has been commented as has no application to their member units. It has been averred by this respondent that there is no possibility of VOCs from its premises and hence no such test was being conducted in the premises of the 21st respondent, even by the TNPCB as it is not applicable to this respondent. It has further been stated that despite this respondent is not emitting any air pollution, the sample taken from the atmosphere situated in various places including the 21st respondent premises, which has no manufacturing activity, have shown excess to the standards prescribed by some foreign countries viz. Ontario (Canada) and New Zealand in respect of Acrolein, Formaldehyde, Acetaldehyde and Propionaldehyde; that there is no standard prescribed by India, except Benzene; that the above referred hazardous pollutants are mainly emerged as evaporative emissions from un-burnt or partially unburnt hydro carbons mostly from vehicular exhaust, fuel filling station, fuel adulteration, domestic firewood,*

municipal waste, dumping etc; that NEERI has also taken a sample test at the point S-11 viz.

Yogiram Inn, which is 13 km. away from the SIPCOT Industrial complex; that the said reading of parameter itself is sufficient to establish that the industrial emissions, if any, are not the cause for the alleged excess of Acrolein, Benzene, Formaldehyde, Acetaldehyde and Propionaldehyde; that the sources of atmosphere PAHs are both natural and anthropogenic; that the natural sources are forest fire, volcanic activities and bacterial decay of organic materials; that the anthropogenic sources are industries, automobiles, combustion of fossil fuels and households, municipal waste dumping etc.; that in fact, the industries in the SIPCOT industrial complex are situated very near to the highways and Cuddalore town municipal wastes are dumped in the adjacent site to the SIPCOT industrial complex and the vehicular exhaust, fire wood usage of villagers, municipal waste decay and organic material decay are the main source of VOCs in the said locality and therefore, according to this respondent, NEERI ought not to have taken the standard prescribed for two countries situated in both North and South Poles since the standard is more stringent than any other country.

17. *Be that as it may, the fact lies that CUSECS is not having the necessary consents from the authorities concerned, except a 'No Objection Certificate' from TNPCB, which has also been kept in abeyance by TNPCB for the reason that CUSECS has not adhered to the conditions attached thereto. When the very inception of CUSECS is not in accordance with law, having no legal sanctity and further the possibility of leakage through its pipeline cannot be ruled out (as no clean chit has been given to CUSECS by TNPCB or any other competent authority), we do not see any reason to lift the ban imposed by us on the functioning of CUSECS. However, it is made clear that if CUSECS complies with the required legal criteria by the authorities concerned, like TNPCB, it is for the authorities concerned to pass appropriate orders on the request of CUSECS.*

18. *There is some force in the contentions raised by some of the units that they alone cannot be blamed for the pollution since there are many adding factors like burning of garbage and vehicular traffic contributing very much to the air pollution. In the absence of any technical data provided before us by either NEERI or TNPCB to distinguish or differentiate the pollution because of units or the other factors, we are unable to either justify or reject the contentions raised by such units that they cannot alone be blamed. However, being a statutory body to maintain environment, the burden lies with the Tamil Nadu Pollution Control Board and also the Central Pollution Control Board to take all necessary steps to combat pollution, in any form it may be, in the manner known to law.*

19. *Some of the impleaded units like respondents 6, 20 and 22 have urged before us that their emissions are well within the prescribed limits and even the Tamil Nadu Pollution Control Board has either given consent or renewed the consent granted to them and hence they are not at all necessary parties to the present proceedings. Materials have also been placed before us by the said units stating that their emissions are within the prescribed limits and that no legal action has been initiated against them by the authorities concerned. If*

that is the case, while appreciating such of the actions of the Units in taking all steps to combat pollution, we also direct the Tamil Nadu Pollution Control Board to continuous air monitoring, including for toxic gases of the units and if any violation is found, to take necessary legal action against the errant unit/units as per law.

20. *Even with regard to the other units, where violations are reported, we direct the Tamil Nadu Pollution Control Board to keep continuous air monitoring, including for*

toxic gases of the units in SIPCOT Cuddalore and take necessary and suitable legal action against any errant or default unit, as per law. Though a direction has been sought for on the part of respondents 14 to 16 to completely ban on the setting up or expansion of any unit in the Cuddalore SIPCOT, we make it clear that such blanket orders cannot be passed by us since it is for the authorities like the Pollution Control Board and the Ministry of Environment and Forest to assess each individual case and grant or reject such permissions/renewals and all the units cannot be put together and branded as 'violators', without verifying the individual cases. Therefore, this request of the respondents 14 to 16 is rejected.

217. The additional respondents 14 to 16 in that case are the present applicants and the prayer for closing down the industries in Cuddalore Industrial Complex viz., SIPCOT was not accepted by the High Court and the Hon'ble High Court only directed the Pollution Control Board to monitor the industrial activities in that area and directed them to take action against the erring units which are not complying with the norms in accordance with law. In fact, that case was suo motu taken cognizance by the Hon'ble High Court purely on the basis of the pollution that has been projected in the newspaper report published in 'The Hindu" based on the report prepared by SIPCOT Area Community Environmental Monitors under the caption 'Gas Trouble' Air Quality in SIPCOT, Cuddalore. In that report it was found that as nearly as 22 toxic chemicals were detected in the areas which were prone to cause severe respiratory problem, skin, cardiac, kidney, reproductive system and other diseases. The report was based on the situation prevailing

during 2004. It was, thereafter, that the present application has been filed during 2015 alleging large scale water pollution in that area.

218. It is also seen from the orders of this Tribunal that during 2014 a study was conducted in respect of the ground water quality in SIPCOT Cuddalore on the basis of the analysis of the samples taken by the Tamil Nadu Pollution Control Board and it was found that the ground water in and around the industrial estate was heavily contaminated including Cadmium and it was not suitable for drinking or other purposes including human or cattle.

219. It was also considered by this Tribunal in the order dated 7.9.2016 that 10 out of 11 locations where the samples were taken and analysed showed that Cadmium level 5 to 128 above permissible limit in the samples collected from SIPCOT Project Office, 3 to 125 times above limits in samples collected from Kudikadu over head tank, 3 to 130 times above limits in samples collected from M/s. Tagros and it was 3 to 128 times above limits in samples collected from the premises of M/s. Chemplast Sanmar. The environment quality monitoring carried out by CPCB during 2011 and 2013 showed that Mercury, Nickel, Manganese and Iron level exceed the permissible limit at least in one or two locations. The CPCB had requested all the Chief Secretaries of States in which CPAs were located to constitute State Level Committees under the Chairmanship of Chief Secretary to ensure regular review of implementation of Action Plans, thereby preventing the degradation of environmental quality of the

Critically Polluted Areas.

220. After considering these aspects and also considering the report submitted by the Tamil Nadu Pollution Control Board of March, 2015 that though TDS, total hardness and Cadmium exceeds the drinking water standards, none of the industries in SIPCOT Industrial Complex were using Cadmium and Nickel as raw material or as finished products, the Tribunal had directed the Pollution Control Board to conduct further inspection and submit the report. The fourth respondent was directed to make arrangement for the supply of drinking water to the residents in SIPCOT Industrial Complex area and directed to file a compliance report in this regard.

221. Thereafter, this Tribunal had taken up the matter on 29.6.2019 and considered the report submitted by the Pollution Control Board wherein it was mentioned that out of 27 samples collected inside the SIPCOT Industrial complex, Cuddalore and analysed, at least in 3 samples presence of Nickel, Lead and Iron were in excess of prescribed parameters. But with regard to the analysis of the samples taken from outside the SIPCOT Industrial Complex as well as inside SIPCOT Industrial Complex, it was stated that the parameters of Lead and Iron were commonly present in excess of the prescribed standards. But the excess presence of Nickel was not mentioned. So the District Environmental Engineer was directed to file a fresh report.

222. Again it was taken up on 18.10.2016 and it was ascertained from the report of the analysis that the borewell water

samples collected outside SIPCOT and inside SIPCOT and piezo metric well water samples collected inside the premises of industries revealed that the parameters of Lead and Iron were commonly present in the water samples and were exceeding the drinking water standards of accepted limit as prescribed in IS 10500:2012. The report of analysis of piezo metric well water samples revealed that parameter of Nickel, Lead and Iron were exceeded in 3 locations out of the 27 locations as per the drinking water standards of acceptable limit prescribed. The report of the analysis of Uppanar river water revealed presence of traces of Lead.

223.Thereafter, as per order dated 1.2.2019, after considering the pleadings and reports that were filed, this Tribunal had constituted a Joint Committee representing the Central Pollution Control Board and Tamil Nadu Pollution Control Board to collect samples from the borewells and shallow aquifers, peizo metric wells in and around SIPCOT Industrial Complex, Cuddalore and Uppanar river and furnish a report. The committee was also directed to ascertain the status of functioning of ETPs or other effluent treatment devices used by the industries. The committee was also directed to report as to how much quantity of drinking water was supplied to the inhabitants. The Tamil Nadu Pollution Control Board was designated as the Nodal Agency for coordination and compliance. The SIPCOT was directed to increase the quantity of water having regard to the needs of the inhabitants and viability of water availability and

posted the case for consideration of report.

224. This Tribunal has considered the report submitted by the committee and the objections raised by the applicants on 8.7.2019. It is seen from the report that out of 28 samples taken from the piezo metric wells situated within the industrial area, 9 were found exceeding the acceptable limit of TDS of 500 mg/L. The concentration of calcium and Magnesium were found high indicating high Calcium and Magnesium hardness in water while the other parameters were found acceptable within limits of standard of drinking water. The samples of inlet and outlets were not taken and tested and the adequacy of the pollution control devices examined and not mentioned about the excess ground water extraction by the industries and whether the same were drawn after obtaining necessary permission. So this Tribunal directed the Joint Committee to analyse further aspects viz.,

(i)To take the samples from the inlet and outlet of all the ETPs to ascertain as to whether the effluent are within the prescribed limit;

(ii)To ascertain the source of the heavy metal pollutants like Nickel, Cadmium, Manganese, Iron and Lead etc;'

(iii)To ascertain the adequacy of the pollution control devices installed by the industry;

(iv)After such tests, to assess he environmental compensation to be paid by the individual units for the default on their part.

(v)Further, this Tribunal also considered the fact that in the year 2009 this Cuddalore Industrial area was declared as critically

polluted area and an action plan for remediation was prepared and so directed the committee to ascertain as to whether the action has been implemented and if so whether there has been an improvement of the situation in the area.

225.The Joint Committee, as per order dated 1.2.2019 filed the report on 25.3.2019 which reads as follows:

JOINT INSPECTION REPORT OF TAMIL NADU POLLUTION CONTROL BOARD (TNPCB) AND CENTRAL POLLUTION CONTROL BOARD (CPCB) IN THE MATTER OF ORIGINAL APPLICATION NO. 184 OF 2018(EARLIER OA NO. 34/2015 (SZ)), FILED BY SRI.S. PUGAZHENDHI & ORS. Vs TAMIL NADU POLLUTION CONTROL BOARD & ORS., SUBMITTED BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI, AS PER ORDERS DATED 01st FEBRUARY, 2019.

1.0 Preamble

In the matter of Application No. 184 of 2018 (Earlier OA No. 34/2015 (SZ)), Sri S. Pugazhendhi & Ors. Vs Tamil Nadu Pollution Control Board & Ors., the National Green Tribunal, Principal Bench, New Delhi has passed an order dated 01st February, 2019 ***(Annexure – 1)*** and directed that *"Joint team comprising representatives of the Central Pollution Control Board (CPCB) and the TNSPCB collect samples from Bore wells and Shallow aquifers, Piezo-metric wells in and around SIPCOT industrial complex, Cuddalore and Uppanar River and furnish a report to this tribunal within one month by e-mail at ngt.filing@gmail.com.*

The Committee may also ascertain the status of functioning of ETPs or other Effluent treatment devices used by the industries. The Committee may also report as to how much quantity of drinking water must be supplied to the inhabitants. The TNSPCB will be the nodal agency for co-ordination and compliance".

In compliance of above mentioned order, The Member Secretary, Tamil Nadu Pollution Control Board, Chennai, constituted a Committee comprising the following officials from TNPCB and CPCB. The Committee members were communicated vide proceedings dated February 08, 2019 **(Annexure – 2).**

i. Thiru. G. Gopalakrishnan, Joint Chief Environmental Engineer, TNPCB, HO,Chennai.
ii. Thiru R. Seralathan, District Environmental Engineer, TNPCB, Cuddalore
iii. Thiru.Sabapathy, Asst. Director, Adv.Env.Lab, TNPCB, H.O,Chennai.
iv. Mrs. H.D. Varalaxmi, Scientist E /AD, CPCB, Regional Directorate, Bengaluru.

The Committee mutually decided to visit the site during February 21 - 22, 2019**.** Apart from the above, Mr.P.Anantha Narayanan, AE,TNPCB, Cuddalore, Mr.Balasubramaniam and Mr.Rajaraman, Environmental Scientists, Advanced Environmental Laboratory, TNPCB, Cuddalore, Mr.S. Iqbal, Sr. Technician CPCB, and Mr.K.Indrakumar, representative of Cuddalore SIPCOT Industries Association were also participated during the above inspection and sample collections.

The SIPCOT industrial estate is located in between the East Coast road connecting Cuddalore-Chidambaram and Bay of Bengal. This Estate is first formed as Phase I and extended as Phase II and then extended as Phase III.

2.0 Details of Joint Inspection.

As per the Hon'ble NGT order, the Committee carried out following works:

(a) Collection of water samples from 5 Bore wells & 26 peizo-metric wells inside the SIPCOT Industrial Estate, 7 Bore wells from outside the SIPCOT Estate, and 2 samples from Uppanar River which passes adjacent to the SIPCOT industrial Estate. The samples were collected and given to the Advanced Environmental Laboratory, TNPCB, Cuddalore for analysis.

(b) The joint team inspected 26 industries located inside the SIPCOT industrial Estate to ascertain the status of functioning of ETPs operated by the industries.

(c) The joint committee also obtained information with respect to drinking water supplied to habitations in and around SIPCOT (Kudikadu, Kudikadu Colony, Echankadu, Rasapettai, Sangolikuppam, ThaikalThonithurai, Panchayankuppam, Sothikuppam, Semmankuppam & Madhukarai, MettuSemankuppam, Semmankuppam Colony, Vairankuppam, Thatchan Colony, Sonanchavadi, Sangolikuppam, Sangolikuppam Colony) to verify the quantity of drinking water supplied.

4. Field Observations:

i. Location of water samples taken:

a. **Peizo-metric wells inside the SIPCOT Complex:** The Peizo-metric wells located inside the industries of SIPCOT Industrial Complex were used for only ground water monitoring purpose. Water samples were collected from the 26 Piezo-metric wells of the industries at an average depth of 6 Meters.

b. Bore wells located inside the SIPCOT Complex:Water samples are collected from 5 number of bore wells located inside the SIPCOT industrial complex in which 3 borewells are located inside 2 industries which is used for their industrial purposes. Remaining 2 bore wells are located in public places which are used for domestic purposes by the village people.

b. Bore wells located outside the SIPCOT (surrounding villages): Water samples were also collected from 7 number of Bore wells located outside the SIPCOT which are used for domestic purposes by the inhabitants of the villages. The details of sample locations are tabulated in **Annexure -3**.

c. Uppanar River: The Uppanar River starts in Cuddalore at (Lat - 11°43'N; Long - 79°46'E) 180 KM South of Chennai and 25 km South of Pondicherry. The river flows towards north and passes adjacent to SIPCOT Industrial Estate and finally Confluences with the Bay of Bengal in Cuddalore (Old Town) through a mouth of Gadilam River. The flow of Uppanar River mostly consist of back water of sea during tidal flows, and storm water confluences during rainy season in the upstream of river Uppanar. Due to the flow of sea water into Uppanar River, the water is saline and

hence the Uppanar river water is not used for domestic purposes. Two water samples were collected from the upstream and downstream side of the Uppanar River.

Maps showing the locations of Samples Collected from Peizometric/ Bore wells inside and outside the SIPCOT complex.

Peizo metric wells inside the SIPCOT complex

Bore wells Inside the SIPCOT

Bore well outside the SIPCOT

ii. **Inspection of Industries carried out in SIPCOT:** SIPCOT Industrial Complex Cuddalore consists of 45 numbers of industries, out of which 5 industries belongs to 17 category, 29 industries are under red category, 7 industries are orange category and 4 industries aregreen category**.** The joint team inspected 26 industries located inside the SIPCOT industrial complex to ascertain the status of functioning of ETPs or other effluent devices used by the industries. Out of the remaining 19 industries 3 units were not in operation and 16 were not generating trade effluent from their process.

The details of the industries and its status of functioning of ETP with its online continuous effluent monitoring devices are presented in **Annexure – 4a & 4b.**

iii. **Inhabitants in and around SIPCOT:** The Uppanar River is located on the Eastern side of SIPCOT Industrial Estate. The Pachayankuppam village is located on the Northern side of the SIPCOT Estate.Kudikadu, Sangolikuppam, Semmankuppam, Poondiyankuppam are located within the SIPCOT Estate. These four panchayats comprises of 17 Villages. The details of name of the villages, it's population, drinking water requirements and the existing drinking water supply schemes to these villages are tabulated in **Annexure – 5.**

The map showing the locations of the villages and Uppanar River is as below;

Map showing the villages and Uppanar River

5. Monitoring Results & Discussions and other specific observations :

i. **Monitoring of Piezo-metric wells, Bore wells in and around the SIPCOT:** The team collected a total of 40 samples from Piezo-Metric wells, Bore wells in and around the SIPCOT as well as from Uppanar River on February 21 & 22, 2019. The samples were taken and analysed as per the standard procedure.

The consolidated report of analysis of samples taken from Peizometric wells, Bore wells and Uppanar river are depicted in **Table no. 1 – 4**.

Consolidated Report of Analysis of Piezometric Well and Borewells collected inside SIPCOT on 21.02.2019 & 22.02.2019

Table no. 1: Consolidated Report of Analysis of Piezometric Well collected on 21.02.2019.

Sl. No.	PARAMETER	UNIT	Sample Code No											
			SIP -1G	SIP -2G	SIP - 4G	SIP -5G	SIP - 6G	SIP - 10 G	SIP - 11 G	SIP - 12 G	SIP - 13 G	SIP – 16 G	SIP – 17 G	SIP-
1	Color	Physical Obser	Colourless	Colourless	Colourless	Colourless	Colourless	Light Bro	Colourless	Colourless	Colourless	Brown Col	Colourless	No water available on th at
2	Odour	Physical Observation	Un-Objectionable	Un-Objectionable	Un-Objectionable	Un-Objectionable	Un-Objectionable	Un-Objecti ona	Objectionable	Un-Objecti ona	Un-Objecti ona	Un-Objecti ona	Un-Objecti ona	
3	Turbidity	NTU	2	2			3	2	2	2	2	3	2	
4	pH @ 25°C	No.	6.40	7.23	7.43	7.12	6.43	6.94	6.81	6.24	7.28	7.33	7.18	
5	Conductivity	µMho /cm	1066	2540	576	580	603	914	857	980	935	798	807	
6	Total Dissolved	mg/L	692	1652	374	378	392	594	558	642	610	520	526	
7	Chloride as Cl	mg/L	230	450	115	120	150	250	200	170	250	105	120	
8	Sulphate as	mg/L	140	240	68	56	72	102	80	34	118	89	62	
9	Fluoride as F	mg/L	0.352	0.501	0.355	0.369	0.375	0.36	0.36	0.50	0.54	0.34	0.27	
10	Total	mg/L	<MDL	0.211	<MDL	<MDL	0.175	<MDL	<MDL	0.45	<MDL	0.14	<MDL	
11	Total Residual	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	
12	Total Alkalinity as	mg/L	252	440	32	20	252	280	204	272	280	264	276	
13	Phenolphthalein Alkalinity as	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	
14	Calcium as Ca	mg/L	72.14	96.19	36.07	48.10	260.52	64.1	36.0	44.0	56.1	36.0	76.9	
15	Magnesium as	mg/L	4.86	155.5	9.72	12.15	51.03	43.7	12.1	24.3	211.	31.5	22.3	
16	Nitrate nitrogen as	mg/L	0.40	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	
17	Nitrate nitrogen as	mg/L	1.19	7.11	0.66	1.13	0.520	1.35	1.94	2.74	1.67	1.37	2.25	
18	Free Ammonia	mg/L	<MDL	<MDL	<MDL	<MDL	0.122	<MDL	<MDL	<M	<M	<M	<M	
19	Copper as Cu	mg/L	<MDL	<MDL	0.631	0.383	<MDL	<MDL	<MDL	<M	<M	<M	<M	
20	Zinc as Zn	mg/L	<MDL	0.398	0.108	0.404	<MD	0.11	0.11	<M	0.12	<M	<M	
21	Lead as Pb	mg/L	<MDL	<MDL	<MDL	<MDL	<MD	<M	<M	<M	<M	<M	<M	
22	Total	mg/L	<MDL	<MDL	<MDL	<MDL	<MD	<M	<M	<M	<M	<M	<M	
23	Cadmium as	mg/L	<MDL	<MDL	<MDL	<MDL	<MD	<M	<M	<M	<M	<M	<M	
24	Nickel as Ni	mg/L	<MDL	<MDL	<MDL	<MDL	<MD	<M	<M	<M	<M	<M	<M	
25	Iron as Fe	mg/L	1.383	3.351	0.403	0.236	<MD	<M	<M	33.2	2.23	5.68	0.83	
26	Sulfide as S	mg/L	<MDL	<MDL	<MDL	<MDL	<MD	<M	<M	<M	<M	<M	<M	

Table no. 1 : Consolidated Report of Analysis of Piezometric Wells collected on 22.02.2019.

Sl. No.	*Parameters*	*Unit*	*SIP-19G*	*SIP-20G*	*SIP-21G*	*SIP-22G*	*SIP-23G*	*SIP-25G*	*SIP-26G*	*SIP-27G*	*SIP-29G*	*SIP-30G*	*SIP-34G*	*SIP-35G*	*SIP-36G*	*SIP-37G*	*SIP-39G*	*SIP-40G*	*SIP-41G*
1	Color	Physical observation	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless

2	Odour	Physical observation	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable
3	Turbidity	NTU	3 NTU	3 NTU	2 NTU	2 NTU	3 NTU	3 NTU	3 NTU	3 NTU	3 NTU	3 NTU	2 NTU	3 NTU	3 NTU	2 NTU	3 NTU	3 NTU	3 NTU	3 NTU
4	pH @ 25°C	-	7.09	7.19	7.27	7.15	6.89	6.95	6.86	7.17	6.78	6.67	7.32	7.28	6.96	7.03	6.93	7.72	7.56	
5	Conductivity	µmho/cm	789	911	785	778	774	620	907	638	746	518	710	706	615	2770	590	962	450	
6	Total Dissolved Solids @ 180° C	mg/L	518	592	510	516	512	410	590	420	490	310	464	460	400	1800	384	628	294	
7	Chloride as Cl	mg/L	240	190	210	205	180	170	185	115	195	115	180	130	140	610	120	220	115	
8	Sulphate as SO4	mg/L	116	150	120	164	145	120	130	68	147	32	80	68	80	252	38	130	16	
9	Fluoride as F	mg/L	<MDL	0.235	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.372	0.395	0.378	0.4	0.343	0.355	0.389	
10	Total Phosphate as PO4	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	0.111	<MDL	0.136	<MDL	<MDL	<MDL	0.33	<MDL	<MDL	<MDL	0.193	<MDL	
11	Total Residual Chlorine	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	
12	Total Alkalinity as CaCO3	mg/L	268	284	560	184	100	96	136	204	44	68	64	48	136	184	136	276	148	
13	Phenophthalein Alkalinity as CaCO3	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	
14	Calcium as Ca	mg/L	76.15	56.11	72.14	92.18	104.21	22.44	12.02	36.07	64.13	40.08	44.09	76.15	8.02	120.24	16.03	12.02	24.05	
15	Magnesium as Mg	mg/	9.72	24.3	2.43	29.16	24.3	4.86	2.43	29.16	12.15	2.43	29.16	43.71	14.58	143.37	26.73	14.58	21.87	

		L																	
16	Nitrite Nitrogen as NO2-N	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
17	Nitrate Nitrogen as NO3-N	mg/L	1.13	1.22	1.94	1.79	1.72	2.36	2.47	1.95	10.35	2.72	1.56	1.22	2.86	3.52	2.29	1.5	1.94
18	Free Ammonia as NH3	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
19	Copper as Cu	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
20	Zinc as Zn	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
21	Lead as Pb	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
22	Total Chromium as Cr	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
23	Cadmium as Cd	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
24	Nickel as Ni	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
25	Iron as Fe	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.294	<MDL	3.822	0.27	<MDL	<MDL	<MDL	<MDL	0.358	<MDL
26	Sulfide as S	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

- From the above table, it is observed that out of 28 samples from piezometric wells, 9 samples were found exceeding the acceptable limit of TDS of 500 mg/L. The TDS concentration in samples taken from piezometric well nos. SIP 2G (Inside premises of M/s Covestro India Ltd.,) and SIP 37 G (Inside premises of M/s Topknit Mill) and were found very high (1652 & 1800 mg/L). In these two samples Chloride and Sulphate concentration also found high.

- The concentration of calcium and magnesium found high in samples taken from piezometric wells no. SIP 2G & SIP 37 G which indicates the high calcium and magnesium hardness in water.
- Other parameters were found within acceptable limit of drinking water standards in all piezometric wells.

Table 2 : Report of Analysis of the Borewells collected inside SIPCOT

Report of Analysis of Bore Well collected on 21.02.2019 and 22.02.2019.								
Sl. No.	**Parameters**	**Unit**	**Sample Code No.**					
			SIP-3G	**SIP-9G**	**SIP-14G**	**SIP-15G**	**SIP-24G**	**SIP-28G**
1	Color	Physical observation	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless
2	Odour	Physical observation	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable
3	Turbidity	NTU	2 NTU	2 NTU	2 NTU	2 NTU	3 NTU	3 NTU
4	pH @ 25°C	-	6.74	7.24	6.94	6.91	6.65	7.29
5	Conductivity	µmho/cm	2150	1031	3990	923	809	521
6	Total Dissolved Solids @ 180°C	mg/L	1398	670	2594	600	526	340
7	Chloride as Cl	mg/L	320	290	1250	245	140	105
8	Sulphate as SO4	mg/L	140	116	296	80	102	52
9	Fluoride as F	mg/L	<MDL	0.358	0.26	<MDL	<MDL	<MDL
10	Total Phosphate as PO4	mg/L	<MDL	2.124	0.105	0.145	<MDL	<MDL
11	Total Residual Chlorine	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
12	Total Alkalinity as CaCO3	mg/L	196	288	268	264	104	164
13	Phenophthalein Alkalinity as CaCO3	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
14	Calcium as Ca	mg/L	144.29	80.16	46.49	88.18	44.09	32.06
15	Magnesium as Mg	mg/L	43.74	9.72	22.36	31.59	26.73	7.78
16	Nitrite Nitrogen as NO2-N	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
17	Nitrate Nitrogen as NO3-N	mg/L	11.12	2.64	10.63	4.14	1.21	1.7
18	Free Ammonia as NH3	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
19	Copper as Cu	mg/L	<MDL	0.443	<MDL	<MDL	<MDL	<MDL
20	Zinc as Zn	mg/L	0.398	0.119	0.12	0.108	<MDL	<MDL
21	Lead as Pb	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
22	Total Chromium as Cr	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
23	Cadmium as Cd	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
24	Nickel as Ni	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
25	Iron as Fe	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	0.303

26	Sulfide as S	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

- From the above Table, Out of 6 samples taken from Bore wells , 2 samples (SIP 3 G & 14 G) were reported high concentration of TDS and Chloride.
- Other parameters were found within prescribed standards for acceptable limit of drinking water standards.

Table 3: Report of Analysis of the Borewells collected outside SIPCOT

Sl. No.	***Parameters***	***Unit***	***Sample Code No.***			
			SIP-7G	***SIP-31G***	***SIP-32G***	***SIP-33G***
1	Color	Physical observation	Colourless	Colourless	Colourless	Colourless
2	Odour	Physical observation	Un-objectionable	Un-objectionable	Un-objectionable	Un-objectionable
3	Turbidity	NTU	2 NTU	3 NTU	3 NTU	3 NTU
4	pH @ 25°C	-	6.92	6.86	6.81	6.72
5	Conductivity	µmho/cm	1879	1430	720	769
6	Total Dissolved Solids @ 180°C	mg/L	1222	928	450	480
7	Chloride as Cl	mg /L	430	400	180	190
8	Sulphate as SO4	mg /L	116	150	70	85
9	Fluoride as F	mg /L	<MDL	<MDL	0.32	0.358
10	Total Phosphate as PO4	mg /L	<MDL	0.112	<MDL	0.273
11	Total Residual Chlorine	mg /L	<MDL	<MDL	<MDL	<MDL
12	Total Alkalinity as CaCO3	mg /L	116	120	228	192
13	Phenophthalein Alkalinity as CaCO3	mg /L	<MDL	<MDL	<MDL	<MDL
14	Calcium as Ca	mg /L	128.3	72.14	36.07	20.04
15	Magnesium as Mg	mg /L	24.3	11.66	12.15	24.3
16	Nitrite Nitrogen as NO2-N	mg /L	<MDL	<MDL	<MDL	<MDL
17	Nitrate Nitrogen as NO3-N	mg /L	1.91	1.71	1.79	2.36
18	Free Ammonia as NH3	mg /L	<MDL	<MDL	<MDL	<MDL
19	Copper as Cu	mg /L	0.388	<MDL	<MDL	<MDL
20	Zinc as Zn	mg /L	0.121	<MDL	<MDL	<MDL
21	Lead as Pb	mg /L	<MDL	<MDL	<MDL	<MDL
22	Total Chromium as Cr	mg /L	<MDL	<MDL	<MDL	<MDL
23	Cadmium as Cd	mg /L	<MDL	<MDL	<MDL	<MDL
24	Nickel as Ni	mg /L	<MDL	<MDL	<MDL	<MDL
25	Iron as Fe	mg /L	<MDL	<MDL	<MDL	<MDL
26	Sulfide as S	mg /L	<MDL	<MDL	<MDL	<MDL

- From the above table, out of 4 samples, the TDS concentration in two samples taken from bore well no SIP 7G & 31 G was found exceeding the acceptable standards of 500 mg/L. The concertation of Chloride also found exceeding the acceptable standards of 250 mg/L in above mentioned two bore wells.
- The concentration of copper (0.388 mg/L) was found high in bore well no SIP 7G. Other parameters in all 4 bore wells were found in within prescribed standards of drinking water quality .

Table 4: Report of Analysis of Uppanar river

Sl. No.	*Parameters*	*Unit*	*Sample Code no.*	
			SIP-8G	***SIP-38G***
1	Color	Physical observation	Colourless	Colourless
2	Odour	Physical observation	Un-objectionable	Un-objectionable
3	Turbidity	NTU	2 NTU	3 NTU
4	pH @ 25°C	-	7.72	7.8
5	Conductivity	µmho/cm	6180	35900
6	Total Dissolved Solids @ 180°C	mg /L	4018	23336
7	Chloride as Cl	mg /L	1899	13196
8	Sulphate as SO4	mg /L	610	1227
9	Fluoride as F	mg /L	0.571	0.366
10	Total Phosphate as PO4	mg /L	<MDL	<MDL
11	Total Residual Chlorine	mg /L	<MDL	<MDL
12	Total Alkalinity as CaCO3	mg /L	184	268
13	Phenophthalein Alkalinity as CaCO3	mg /L	<MDL	<MDL
14	Calcium as Ca	mg /L	112.22	288.58
15	Magnesium as Mg	mg /L	134.14	845.64
16	Nitrite Nitrogen as NO2-N	mg /L	<MDL	<MDL
17	Nitrate Nitrogen as NO3-N	mg /L	7.47	1.54
18	Free Ammonia as NH3	mg /L	<MDL	<MDL
19	Copper as Cu	mg /L	0.806	0.206
20	Zinc as Zn	mg /L	0.612	0.881
21	Lead as Pb	mg /L	<MDL	<MDL
22	Total Chromium as Cr	mg /L	<MDL	<MDL
23	Cadmium as Cd	mg /L	<MDL	<MDL
24	Nickel as Ni	mg /L	<MDL	<MDL
25	Iron as Fe	mg /L	0.237	<MDL
26	Sulfide as S	mg /L	<MDL	<MDL
27	Dissolved Oxygen	mg /L	6.2	6

Note : SIP - 8G --Uppanar River U/s, Poondiyankuppam, SIP - 38G - Uppanar River D/s Surface water near M/s. Cusecs Pump House, Rasapettai, Kudikadu , Cuddalore

- From the above table, the water quality parameter confirms the intrusion of sea water into Uppanar river, however the concentration of copper in u/s of Uppanar river was found high in concentration compare to down stream.

ii. **Status of Functioning of ETPs of industries in SIPCOT:** The Joint team conducted inspection of all industries, it's pollution control measures, the status of operation of ETPs, sludge generation, mode of disposal of treated effluents and the effluent monitoring devices installed by individual industries are presented in **Annexure – 4a & 4b.**

Following are the significant observations made during inspection;

a. SIPCOT Supplies water for all the industries in the Estate, except one industry M/s.Chemplast Sanmar Ltd (PVC Division), which is taking water from the sea and uses it for its process and domestic purposes after desalination in an R.O. Plant and disposing the desalination reject water into the sea.

b. The source of water for SIPCOT is ground water which is withdrawn though bore wells.

c. The total water consumption by all the industries is 23660.64 KLD.

d. In this estate 16 industries are members of M/s. CUSECS which have obtained permission to discharge their treated effluents to the sea through M/s. CUSECS Ltd. However 5 numbers of industries have installed Zero Liquid Discharge System and not discharging their treated effluent through CUSECS. The remaining 16 units are discharging their treated effluent / sewage after achieving the marine standards through M/s. CUSECS. It is reported that presently the treated effluent discharged into sea through this common marine disposal system is 10590.95 KLD.

e. Two units in this Industrial Estate are discharging the treated trade effluent through their own individual marine disposal facilities and during the inspection days the cumulative discharge of treated effluent from these two industries was 8322 KLD.

f. 5 industries have provided ZLD system and generating sludge and salt in the tune of 4.45 T/Day and 16.72T/Day respectively. The sludge and the salt are disposed to the common TSDF and for CO – Processing in the Cement Industries.

g. Online Effluent Analysers: All the trade effluent generating units have installed Online Effluent Monitoring Systems in their effluent outlet pipes and connected to "Water Quality Watch" centre in the Head office of TNPCB Chennai. The details are enclosed vide Annexure 4a.

iii. **Details of drinking water supply to inhabitants:** There are 17 villages located in and around the SIPCOT Industrial Complex. The population of the villages and the present water supply provided by the SIPCOT and estimated quantity of water requirement as per standard LPCD are tabulated in **Annexure - 5** in detail. The abstract of the water requirement and the present supply of water are presented below.

Sl. No.	Name of the Panchayat	Name of the villages	Total Water requirement based on population and standard LPCD of 55 litre for Rural Areas (As per TWAD Board Norms). (Lt/Day)	Present quantity of drinkingwater supplied to the villages through Tanker Lorries, OHTs and R.O Plants. (Lt/Day)
1 & 2	Kudikadu and Sedapalayam	Kudikadu, Kudikadu Colony, Echankadu, Rasapettai, Sangolikuppam, Sangolikuppam Part, Sangolikuppam Colony	327800	404000
3	Pachayankuppam	Panchayankuppam, ThaikalThonithurai, Sothikuppam	872355	452000
4	Semmankuppam	Semmankuppam & Madhukarai, MettuSemankuppam, Semmankuppam Colony, Vairankuppam, Thatchan Colony, Sonanchavadi	240680	111000

From the above table it is observed that KudiKadu Panchayat and Sedapalyam Panchayat are supplied 23% more than the required water supply. However two panchayats viz. Pachayankuppam (- 49%) and Semmankuppam(-54%) are supplied with less than the required water supply.

6. Conclusions:

As per the joint team monitoring of Bore wells, Piezo meteric wells in and around SIPCOT Industrial complex and Uppanar river, following are the conclusions;

i. **Water quality of samples taken Piezo metric wells :** Out of 28 samples from piezo metric wells, 9 samples were found exceeding the acceptable limit of TDS of 500 mg/L. The TDS concentration in samples taken from piezometric well nos. SIP 2G (Inside premises of M/s Covestro India Ltd.,) and SIP 37 G (Inside premises of M/s Topknit Mill) and were found high (1652 & 1800 mg/L). In these two samples Chloride and Sulphate concentration also found high. Other parameters were found within acceptable limit of drinking water standards in all peiezometric wells. However close monitoring of ground water in this area is required to observe the seasonal variation of ground water quality in the area and early prediction of pollution if any .

ii. **Water quality of samples taken from Bore wells inside the SIPCOT :** out of 6 samples taken from bore wells, 2 samples (SIP 3 G & 14 G) were reported high concentration of TDS and Chloride. However, no heavy metals reported in any samples.

vii. **Water quality of samples taken from Bore wells outside the SIPCOT :** out of 4 samples taken from bore wells, 2 samples (SIP 7G & 31 G) were found exceeding the acceptable standards of 500 mg/L. The concertation of Chloride also found exceeding the acceptable standards of 250 mg/L. The concentration of copper (0.388 mg/L) was found high in bore well no SIP 7G. Other parameters in all 4 bore wells were found in within prescribed standards of drinking water quality.

viii. **Water quality of Uppanar river in up stream and down stream :** From the above table, the water quality parameter confirms the intrusion of sea water into Uppanar river, however the concentration of copper in u/s of Uppanar river was found high in concentration compare to down stream.

The copper concentration in one of the bore well in out side SIPCOT and upstream of Uppanar river was observed as high as 0.806 mg/L against the acceptable limit of 0.05 mg/L, hence regular monitoring is suggested for early prediction of pollution if any.

ix. **Status of functioning of ETPs or other effluent treatment devices used by the industries :** All 26 industries are having treatment plant, 16 industries are members to Cuddalore Sipcot Industries Common Utilities Limited (CUSECS) and discharging their treated effluent into sea. 2 industries are discharging their treated effluent into through their own marine disposal system 3 industries doesn't produce trade effluent. 5 industries have provided ZLD system and generating sludge and salt in the tune of

4.45 T/Day and 16.72T/Day respectively. The sludge and the salt are disposed to the common TSDF.

Out of 26 units, 22 units installed online monitoring system to monitor pH, &Flow and 4 units has online monitoring system to monitor pH, Flow, BOD, COD.

x. **The Quantity of drinking water supplied to the inhabitants :** There are 4 Panchayat in and around the SIPCOT, 6 villages belongs to Kudikadu and Sedapalayam Panchayat, 3 villages under Pachayankuppam and 6 villages under Semmankuppam. Drinking water to these villages being supplied through Tanker Lorries, OHTs and R.O Plants. As per the information provided concerned Panchayat office, KudiKadu Panchayat and Sedapalyam Panchayat are supplied 23% more than the required water supply. However two panchayats viz. Pachayankuppam (- 49%) and Semmankuppam(-54%) are supplied with less than the required water supply.

7. Recommendations Of Joint Monitoring Committee:

a. As per the joint team monitoring of peizometric wells, Bore wells in and around the SIPCOT, 2 piezometric wells & 4bore wells reported High TDS and copper concentration in one bore well and upstream of the Uppanar river was observed exceeding the acceptable standards, hence it is recommended to regular monitoring of ground water in and around the SIPCOT and to carryout trend analysis for early prediction of pollution if any in the area.

b. All industries shall be directed to install online monitoring systems and connected to TNPCB water Watch Centre as per below:

Sl. No	Based on treatment facility and final discharge	Online monitoring system
1	The industries member to CUSECs and discharging their effluent into sea	Flow, pH, BOD, COD and any other specific parameter based on the process involved
2.	The industries having own marine disposal system	
3.	The industries achieving Zero Liquid Discharge	Flow meter & TDS monitoring system at Inlet of ETP, RO feeder, RO reject, RO permeate, MEE feeder. Salt recovered record, disposal records

c. To reduce fresh water consumption in the industries (Textile dying units and other units), it is suggested to direct the industries to install adequate RO system to recover water and reuse in the process.

d. All units shall be directed to take steps to explore possible options to reduce fresh water consumption and to adopt recover and recycle the treated effluent in their process as well as utilities in time bound manner.

e. To direct concerned local authority to ensure adequate water supply to two panchayats namely Pachayankuppam and Semmankuppam.

Signature of TNPCB Officials	**Signature of CPCB official**
G. Gopalakrishnan,JCEE, TNPCB, HO	
R. Seralathan, DEE, TNPCB, Cuddalore	H. D. Varalaxmi, Sc. E/AD CPCB, Regional Directorate, Bengaluru
M. Sabapathy, Asst, Director. TNPCB, HO	

226.The committee also annexed the status of functioning of ETPs of different industries as Annexure 4-b which reads as follows:

Joint Inspection report on status of functioning of ETPS or other effluent treatment devices used by the Industries in SIPCOT Industrial Complex, Cuddalore, Tamil Nadu

There are 45 industries were exist in SIPCOT Industrial complex, Cuddalore, Tamilnadu, out of which 5 industries belongs to 17 category, 29 industries are red category, 7 industries are orange category and 4 industries are green category. The joint team inspected 26 industries located inside the SIPCOT industrial complex to verify the status of functioning of ETPs or other effluent devices used by the industries. Out of remaining 19 industries, 3 units were not in operation (due to seasonal operation) and 16 industries were involved in dry process and not generating trade effluent from their process.

The brief reports of joint monitoring team on 26 individual industries are as follows;

1. **M/s. Tagros Chemicals India Limited [UNIT - I], S.F. No. 54 and Plot No.A4/1-3, Pachayakuppam Village, Cuddalore Taluk and Cuddalore District.**

The unit has valid Consent upto 31.03.2019 and engaged in manufacturing the products viz.i) Hexaconazole/Propiconazole/Di camba/Tricyclazole - 7 TPM, ii) Metaphenoxy Benzyl Alcohol - 20 TPM iii) D V Acid Chloride - 7.5 TPM, iv) Cypermethrin / Alphacypermethrin/ Permethrin - 100 TPM, v) Quinopyromine Sulphate-1.75 TPM, vi) Oxyclozanide - 2 TPM, vii) Deltamethrin-7.5 TPM. The unit is producing by product of a) Hcl Acid - 239.52 TPM, b) Spent Sulphuric Acid - 0 TPM, c) Sodium Sulphite Solution - 743.39 TPM, d) Sodium Sulphite Powder - 0 TPM, e) Hydrogen Bromide Solution - 0 TPM, f) Aluminum Chloride Solution - 23.55 TPM, g) Ammonium Chloride - 190.64 TPM .During inspection on 22.02.2019 the unit was under operationat 95 % of consented capacity.

During inspection the reported water consumption of the unit was 375 KLD and the water is being supplied by SIPCOT through pipeline. The reported trade effluent generation from process was 170 KLD against the consented quantity of 171KLD, out of which 100 was Low TDS effluent and 70 KLD was High TDS effluent.

The High TDS effluent being treated in the ETP comprises of collection tank, Equalisation tank, Neutralisation, Lamella Plate Filter, MEE followed by Vertical thin film drier for salt recovery. During inspection, the ETP was in operation, the team witnessed the salt recovery from Vertical Thin Film (VTF) drier. The condensate from the MEE and VTF being collected and reduced its temperature through cooler and treated along with Low TDS effluent. The concentrated effluent being fed to VTF to recover salt in the tune of 14.4 MT/day.

The Low TDS effluent being treated in ETP comprises of collection tank, Flash mixer, Floculator, Lamella Plate Filter, Bio-aeration, clarifier dual Media Filter and RO System.

The chemical sludge from combined waste water treatment is 5397 T/Annum and disposed to Tamilnadu Waste Management Ltd. During the time of inspection the unit was generating salt at the rate of 14.4 T/Day and sludge 0.5 T/Day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow, BOD, COD, TSS and connected to "Water Quality Watch" at TNPCB, Chennai and CPCB New Delhi.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation and the multiple effect evaporator and Vertical thin film dryer were also found under operation. To ensure Zero liquid discharge system the unit is required to be install online monitoring system to monitor Flow and TDS concentrations before RO feeder, RO reject and MEE feeder. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.The unit also required to maintain proper records of salt recovered and track records of quantity disposed.

Photo graphs showing ETP and Salt recovery system

View of ETP ***View of MEE Plant***

2. <u>M/s. Tagros Chemicals India Limited, (Unit-II), Plot A-4/3, SIPCOT Complex, Cuddalore</u>.

The unit has valid Consent upto 31.03.2021 and the unit is engaged in manufacturing of products viz.i) Ammonium Chloride - 56 TPM, ii) Cupric Hydroxide -1 TPM, iii) Sodium Sulphite -99 TPM, iv) Meta Phenoxy Benzyl Alcohol 36 TPM. During inspection on 22.02.2019 the unit was under operationat 92 % of consented capacity.

As per the consented capacity, the water requirement of the unit is 21.9KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was20 KLD and generating trade effluent of 16.9 KLD against the consented quantity of 19 KLD.

The unit is located in the same premises of unit- 1 and having separate consent under the Air and Water act. The effluent generated being sent to Unit – 1 to treat the effluent.

Remarks of the committee on functioning of effluent treatment plant:

Since the unit is not having separate ETP and sending their effluent into unit 1, to ensure the same the unit is required to be install online monitoring system to monitor Flow and TDS concentrations for both streams i.e. Low TDS as well as High TDS. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.

3. **M/s. Tagros Chemicals India Limited (Unit-III), Plot No. A-3/2,3/3,4/5, SIPCOT Industrial Complex, Cuddalore**

The unit has valid Consent upto 31.03.2026 and the unit isengaged informulation of products viz., i)Cypermethrin EC 300 MT/M, ii) Permethrin EC 300 MT/M, iii) Deltamethrin EC 300 MT/M, iv) Alphamethrin EC 300 MT/M, v) Hexaconazole EC 300 MT/M, vi) Chloropyrifos EC 300 MT/M, vii) Lamdacyhalothirn EC 300 MT/M, viii) Imidacloprid SL 300 MT/M, ix) Propiconazole EC 300 MT/M, x) Delta tablets 7.5 MT/M. During inspection on 22.03.2019 the unit was not under operation and hence no production was observed.

During inspection the reported water consumption of the unit was 30 KLD, the water is being supplied by SIPCOT through pipeline.The water is used for formulation of the pesticides. Reported that no trade effluent is generated from its process

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was not under operation and found no trade effluent is generated from the process.

4. **M/s. Solara Active Pharma Sciences, (Formerly known as M/s. Strides Shasun Limited)Plot No A1/A, A1/B,A1/C, A2/B,A2/C,A2/D, SIPCOT Industrial Complex, Cuddalore - 607 005.**

The unit has valid Consent upto 31.03.2020. As per consent the unit is engaged in manufacturing ofbulk drugs (32 Nos) as main products, Sodium salt of Methyl Mercaptan (40 TPA), Sulphuric Acid (120 TPA), Hydrochloric Acid (60 TPA) as by products.During inspection on 21.02.2019the unit was under operation at 0.02%of consented capacity.

As per the consented capacity, the waterrequirement of the unit is 918 KLD, the water is supplied by SIPCOT through pipeline. During inspection it was reported water consumption was452 KLD and generating trade effluent of 322 KLD against the consented quantity of 322 KLD, out of which 123.9 was Low TDS effluent and 42.5 KLD was High TDS effluent.

The Low TDS effluent being treated in ETP comprises of Equalization tank - 1, Equalization tank-2,Flocculator -1,Primary clarifier, Aeration tank-1, Secondary clarifier-1, Aeration tank-2, Secondary clarifier-2,Sintexstorage tank,Flocculator-2, Tertiary clarifier, Treated water storage tank,The condensate water from MEE & ATFD being added in the bio-aeration system. The secondary treated effluent being treated through RO system to recover RO permeates which is being used in the boiler. The RO reject from the RO system being fed to MEE for concentrate.

The High TDS effluent being treated in the ETP comprises of collection tank, Equalisation tank, Coagulation tank (PAC), Coagulation tank (PE),Clarifier, MEE followed by Agitated Thin Film Drier(ATFD) for salt recovery.

The domestic effluent is treated in the Sewage Treatment Plant and the treated sewage is utilized for gardening process.

The unit reported that they are generating chemical sludge in the tune of 2068 T/Annum and salt at the rate of 1 – 1.5 T/Day which is disposed to Tamilnadu Waste Management Ltd. The unit is not discharging trade effluent to the CUSECS Ltd.The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow and connected to “Water Quality Watch” of TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation and the multiple effect evaporator and agitated thin film dryer were also found under operation. To ensure Zero liquid discharge system the unit is required to be install online monitoring system to monitor Flow and TDS concentrations before RO feeder, RO reject and MEE feeder. The online monitoring shall be connected to “Water Quality Watch” of TNPCB, Chennai. The unit also required to maintain proper records of salt recovered and track records of quantity disposed.

Photo graphs showing ETP and Salt recovery system

View of Aeration Tank ***View of solids generated from MEE***

5. **M/s. Solara Active Pharma Sciences (R & D Block), PLOT NO A1 B, SIPCOT Industrial Complex, Cuddalore - 607 005**

The unit has valid Consent upto 31.03.2019 and engaged in manufacturing bulk drugs (8 Nos) as Main Products. During inspection on 21.02.2019the unit was under operation.

The water requirement of the unit is 13 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 5 KLD and generating trade effluent of 0.01 KLD against the consented quantity of 10 KLD, and 0.01 KLD was High TDS effluent.

The unit is located in the same premises of unit- 1 and having separate consent under the Air and Water act. The effluent generated during R& D activity being sent to Unit – 1 to treat the effluent.

Remarks of the committee on functioning of effluent treatment plant:

Since the unit is not having separate ETP and sending their effluent into unit 1, to ensure the same the unit is required to be install online monitoring system to monitor Flow and TDS concentrations for both streams i.e. Low TDS as well as High TDS. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.

6. M/s. Clariant Chemicals India Limited, Kudikadu Village, SIPCOT Industrial Complex, Cuddalore - 607 005.

The unit has valid Consent upto 31.03.2023and engaged in manufacturing of products viz.i) Blue Pigments - 275 T/M, ii) Intermediates - 115 T/M. The unit is producing by-products viz. a) Spent Sulphuric Acid - 2700 T/M, b) Spent Hydrocholoric acid - 600 T/M, c) Sodium Hypo Chlorite (Impure) - 700 T/M.During inspection on 22.02.2019 the unit was under operation at 52.17 % of consented capacity.

The water requirement of the unit is 2156 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 1027 KLD and generating trade effluent of 840 KLD against the consented quantity of 1177 KLD.

The unit has ETP Comprising Equalization Tank, Lime Preparation Tank – 3, Flash Mixer-3Primary Clarifloculator, Clarifloculator, Equalization Basin, Aeration Tank-1, Aeration Tank-2, Secondary clarifier- 2, Marine pit – 1, Impervious Pond and Holding Tank -1.The treated effluent of 700 KLD being discharged into sea through its own marine disposal system.

It is reported that thechemical sludge of 4500 T/Annum from the ETP is disposed to M/s.Ramco Cements, Alathiyur for co – processing. During the time of inspection the unit was generating chemical sludge at the rate of 10 T/Day. The unit has installed Online

Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow, TDS, BOD, COD, TSS, Cr and connected to “Water Quality Watch” of TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation and found discharging their effluent in the tune of 495 KLD having pH 6.38, BOD of 35.25 mg/L, COD of 93 mg/L, TSS of 28.5 mg/L and Cr. of 0.02 mg/L.

Photo graphs showing ETP Components

View of Aeration Tank ***View of Flowmeter***

7. <u>M/s. Clariant Medical Specialties India Ltd., S.NO.170/5, 170/3, 169/1, Kudikadu Village, Cuddalore Taluk, Cuddalore District</u>

The unit has valid Consent upto 31.03.2023 and engaged in manufacturing of products viz. i)Cannister - 1g Dessicant 11600000 nos/month,ii)Cannister- 2g & 3g Dessicant 15000000 nos/month. During inspection on 22.02.2019 the unit was under operation.

During inspection the reported water consumption of the unit was 25 KLD for domestic and other utility purpose, the water is being supplied by SIPCOT through pipeline.It is reported that the process is not involved any water and not generating any trade effluent.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was under operation and found no trade effluent is generated from the process.

8. <u>M/s. KawmanPharma, PLOT NO. B 2, SIPCOT Industrial Complex, Cuddalore - 607 005.</u>

The unit has valid Consent upto 31.03.2020 and engaged in manufacturing bulk drugs (40 Nos) as products.During inspection on 21.02.2019 the unit was under operation and producing bulk drugsat 0.1 %of consented capacity.

The water requirement of the unit is 128 KLD, the water is supplied by SIPCOT through pipeline. During inspection, reported water consumption was 35 KLD and generating trade effluent of 2.8 KLD (High TDS) against the consented quantity of 48.5 KLD.

The domestic Sewage 6 KL is treated through Sewage Treatment Plant and disposed for gardening purpose.

The effluent is treated through effluent treatment plant comprisingof stripper column, Lamella clarifier, SBR-1(Sequence Batch Reactor), Treated collection storage tank, sand filter, carbon filter, MEE and Pusher Centrifuge.

It is reported that theETP chemical sludge of 300 T/Annum is Disposed to Tamilnadu Waste Management Ltd. During the time of inspection the unit was generating salt at the rate of 200Kg/Month. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow, BOD,COD, TSS, TDS, CCTV and connected to "Water Quality Watch Centre" TNPCB, Chennai and CPCB.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation and the multiple effect evaporator and agitated thin film dryer were also found under operation. To ensure Zero liquid discharge system the unit is required to be install online monitoring system to monitor Flow and TDS concentrations before RO feeder, RO reject and MEE feeder. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai. The unit also required to maintain proper records of salt recovered and track records of quantity disposed.

Photo graphs showing ETP and Salt recovery system

View of Effluent Treatment Plant ***View of Multiple Effect Evaporator***

9. M/s. TANFAC Industries Ltd (AIF3 Plant), Plot No 14, SIPCOT Industrial Complex, Cuddalore - 607 005

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of products viz.Aluminium Fluoride of 1550 MTPM, Hydrofluoric Acid of 1650 MTPM, Biomass Gas of 66000 CUM/Day, Captive Power of 2.5 MW, Sulphuric acid &oleumof 7750 MTPM. The unit also producing Anhydrite Calcium Sulphate of 5950 MTPM, Hydro Fluo Silicic Acidof 75 MTPM as By Products.During inspection on 22.02.2019 the unit was under operationat76.4 % of consented capacity.

The water requirement of the unit is 1680KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was1590 KLD and generating trade effluent of 340 KLD against the consented quantity of 1212 KLD.

The effluent was treated through combined effluent treatment plant comprising of Collection tank, Neutralization tank,Clariflocculator, Treated water tank, Softener plant regeneration watercollection tank, Clarifier, Filter press, Flocculent Tank, Collection tank Overflow sump, Plant washing collection sump, Sludge Drying beds, Alumina cum sand bed, Guard Pond -1 to CUSECS, Sand filter,Softener, Guard Pond – 2 No for reuse, Lime preparation tank.

After treatment the effluent is disposed through M/s.CUSECS Ltd. The chemical sludge from wastewater treatment 1800 T/Annum is disposed for Co Processing in cement kilns (M/s. ACC Ltd. and M/s. Ultra Tech Cement Ltd.). During inspection the unit was generating sludge at the rate of 2.5 T/day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. To ensure prescribed standards for marine disposal, the unit is required to be install online monitoring system to monitor Flow, pH, BOD and COD for final treated effluent. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.

Photo graphs showing ETP

View of ETP ***View of Clarifier***

10. M/s. TANFAC Industries Ltd (Synthetic organic Chemicals) 14, SIPCOT Industrial Complex, Cuddalore.

The unit has valid Consent upto 31.03.2019. As per consent the unit is engaged in manufacturing of 4-isobutyl acetophenoneof 417 MTPM andAcetic acid - 172.80 MTPM as By Product.During inspection on 22.02.2019 the unit was not under operation.

The water consumption of the unit is 319 KLD and the water is supplied by SIPCOT through its Borewell through pipeline. During inspection the unit is not under operation.

The trade effluent generation is 134.8 KLD. Since the unit was not under operation from October 2017, no trade effluent has been generated.

The effluent was treated through combined effluent treatment plant comprising of 1) Flash mixer, 2) Filter water tank, 3) Multiple effect evaporator, 4) MEE stripper column 3 effect evaporator, ATFT dryer, 5) Clarifier water tank, 6) Parallel plate Separator, 7) Neutralisaion tank, 8) Screen chamber,9) Collection tank, 10) Dosing tank for alum, 11) Dosing tank for lime, 12) Dual media filter, 13) Sludge drying beds.

After treatment the effluent is disposed through M/s.CUSECS Ltd. The chemical sludge from wastewater treatment 360 T/Annum disposed to common landfill -TSDF, Gummidipoondi. During the time of inspection the unit was not under operation and hence no trade effluent has been generated from the unit.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the effluent treatment plant was not under operation since October 2017.

11. <u>M/s. TANFAC Industries Ltd (HFO GEN SET) 14, SIPCOT Industrial Complex, Cuddalore - 607 005.</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in generating Electric power of 2.50 MW by using Furnace oil as a Fuel .During inspection on 22.02.2019 the unit was under operation.

The water requirement of the unit is 72.6 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 10 KLD and generating trade effluent of 2 KLD against the consented quantity of 10 KLD.

The unit is located in the same premises of unit- 1 and having separate consent under the Air and Water act. The effluent generated being sent to Unit – 1 to treat the effluent.

Remarks of the committee on functioning of effluent treatment plant:

Since the unit is not having separate ETP and sending their effluent into unit 1, to ensure the same the unit is required to be install online monitoring system to monitor Flow and the same shall be connected to "Water Quality Watch" of TNPCB, Chennai.

12. M/s. TANFAC Industries Ltd (Cryolite Plant), Plot No.14, SIPCOT Industrial Complex, Cuddalore

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing the products viz. Potassium fluoride 60 MTPM, Potassium fluoborate 20 MTPM, Potassium bi fluoride 60 MTPM, Fluoboric acid 30 MTPM, Lead ,copper and tin fluoborates 3 MTPM, Sodium mono fluoro phosphate 2 MTPM, Poly Aluminium Fluoride 1 MTPM, Potassium Titanium Fluoride 40 MTPM, Sodium silico fluoride 60 MTPM, Sodium (Alkaline) Fluoride 5 MTPM, Ammonium bi fluoride 30 MTPM, Electronic grade HF 1 MTPM, Magnesium (Alkaline earth) Fluoride 20 MTPM, Potassium silico fluoride 30 MTPM, Potassium Zirconium fluoride 20 MTPM, Hexafluoro phosphoric acid 25 MTPM, Potassium tetra/penta borate 30 MTPM, Tetra butyl ammonium fluoride 0.50 MTPM, BF3 Etherate /Complex 30 MTPM, Specility fluorides- total (sl no 1 to 19) 467.50 MTPM, Poly Aluminium Chloride (Various grades on 18% basis) 3000 MTPM. The unit is producing Silica 5 MTPM as By Product.During inspection the unit was under operationat15.5 % of consented capacity.

The water requirement of the unit is 447KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 90 KLD and generating trade effluent of 57 KLD against the consented quantity of 344 KLD.

The effluent was treated through combined effluent treatment plant comprising of 1) Collection tank 3 2) Lime preparation tank and Flocculent tank 3. Clariflocculator 4. Filter press 5. Sludge drying bed2 6. Treated effluent collection tank 7. Guard pond -1 to CUSECS 8. Alumina cum sand bed 9.sand filter 10. softener 11. Guard pond -II for reuse

The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. To ensure prescribed standards for marine disposal, the unit is required to be install online monitoring system to monitor Flow, pH, BOD and COD for final treated effluent. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.

13. M/s. TANFAC Industries Ltd (Per Acetic Acid) Plot No.14, SIPCOT Industrial Complex, Kudikadu, Cuddalore

The unit has valid Consent upto 31.03.2022. As per consent the unit is engaged in manufacturing the following products: Peracetic acid (Various grades on 15% basis) 360 MTPM and By Product – Nil.During inspection the unit was not under operation.

The water consumption of the unit is 1.2 KLD and the water is supplied by SIPCOT through its Borewell through pipeline. Since, the unit was not under operation, no trade effluent has been generated from the unit.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the unit was not under operation no trade effluent is generated from the process.

14. M/s. Asian Paints Limited (Penta Division) Plot No B5 to B10, SIPCOT Industrial Complex, Cuddalore 607 005

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing the following productsvizPentaErythritols 560 MTPM, Formaldehyde 675 MTPM and producing Sodium Formate 336 MTPM as By -Product.During inspection on 21.02.2019 the unit was under operationat 75 % of consented capacity.

.

The water requirement of the unit is 690 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 646 KLD and generating trade effluent of 71 KLD against the consented quantity of690 KLD.

The effluent is treated through combined effluent treatment plant comprising of Equalization tank, Settling Tank, Chemical reaction tank/Nutrient addition tank, Aeration Tank, Primary Clarification, Treated effluent collection tank, Guard Pond, WTP/CT effluent collection tank, Buffer tank, Secondary clarifier, Lamella filter, Clear water collection tank, UF Filterate tank, RO Permeate tank, Sludge drying bed, RO2 Feed tank, MEE feed tank, RO Stage-1, RO Stage-2, MEE, ATFD.

After treatment the effluent is recycled in the process. The chemical sludge generated from ETP in the tune of 62.40 T/Annum is disposed to cement plants for co processing in cement kiln. The RO Reject is treated in MEE and ATFD and Salt is recovered. During the time of inspection the unit was generating salt at the rate of 80Kg/day. The unit has installed

Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flowconnected to “Water Quality Watch Centre” TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation and the multiple effect evaporator and Vertical thin film dryer were also found under operation. To ensure Zero liquid discharge system the unit is required to be install online monitoring system to monitor Flow and TDS concentrations before RO feeder, RO reject and MEE feeder. The online monitoring shall be connected to “Water Quality Watch” of TNPCB, Chennai. The unit also required to maintain proper records of salt recovered and track records of quantity disposed.

Photo graphs showing ETP and Salt recovery system

View of Clarifier ***View of Agitated Thin Film Dryer***

15. <u>M/s. Asian Paints Limited (Power Plant), 129, 137, Kudikadu, SIPCOT Complex, Cuddalore – 5.</u>

The unit has valid Consent upto 31.03.2019. As per consent the unit is engaged in generating Steam 16 MT/hour, Captive Power 1.5 MW/hour by using Coal as fuel. During inspection the unit was under operation.

The water requirement of the unit is 387KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 51 KLD and generating trade effluent of 1 KLD against the consented quantity of 1 KLD.

The unit is located in the same premises of unit- 1 and having separate consent under the Air and Water act. The effluent generated being sent to M/s. Asian Paints Limited (Penta Division) to treat the effluent.

Remarks of the committee on functioning of effluent treatment plant:

Since the unit is not having separate ETP and sending their effluent into M/s. Asian Paints Limited (Penta Division).

16. <u>M/s. DFE Pharma (I) LLP Plot No.B 4, SIPCOT Industrial Complex, Cuddalore</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing the productsvizMicro Crystalline Cellulose (MCC) 200 MT/Month,Sodium Carboxy Methyl Cellulose(SCMC) 100 MT/Month.During inspection on 21.02.2019 the unit was under operation.

The water requirement of the unit is 273KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 202 KLD and generating trade effluent of 90 KLD against the consented quantity of 141 KLD.

The effluent is treated through Individual effluent treatment plant comprising of Equalization, Flash Mixer, Primary Clariflocculator, Aeration tank, Sludge Holding tank, Filter Press, Activated Carbon Filter, RO-I Feed tank, RO Stage-1, RO Stage-2,Ro-II Reject tank, HRSCC (High rate Solid contact Clarifier), Pressure Sand Filter (PSF), RO Stage-3, RO-III Reject tank, RO Permeate tank , Solar Evaporation pan, Additional MBR tank, MEE, MBR, ATFD.

After treatment the treated effluent is recycled back to the process. The chemical sludge from waste water treatment 90.5 T/Annum is disposed to common landfill - TSDF, Gummidipoondi. The Ro Reject is treated through MEE and ATFD and salt is recovered, during the time of inspection the unit was generating salt at the rate of 150 Kg/Day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow which is connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation and the multiple effect evaporator and Vertical thin film dryer were also found under operation. To ensure Zero liquid discharge system the unit is required to be install online monitoring system to monitor Flow and TDS concentrations before RO feeder, RO reject and MEE feeder. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai. The unit also required to maintain proper records of salt recovered and track records of quantity disposed.

Photo graphs showing ETP and Salt recovery system

View of Aeration Tank ***View of Multiple Effect Evaporator***

17. <u>M/s. Loyal Super Fabrics, Plot No C 7/1, SIPCOT Industrial Complex, Cuddalore - 607 005.</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing the products viz.Processed Fabrics (Bleached / Mercerised /Dyed - Woven and Knitted Fabrics 579 Ton/Month. During inspection on 21.02.2019 the unit was under operation at 48 % of consented capacity.

The water requirement of the unit is 788 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 600 KLD and generating trade effluent of 550 KLD against the consented quantity of 600 KLD.

The effluent is treated through Individual effluent treatment plant comprising of Collection Tank, Effluent Collection Tank, Equalization Tank, Chlorine Contact Feed Tank, Chlorine Contact Tank, ECR Reactors, Hopper Tank(Settling Tank), Primary Clarifier, Cascade Reactor Module, Air Diffusion Tank-I, Air Diffusion Tank-II, Bio Tower Feed Tank, Bio Tower A Stage, Bio Tower A Stage-II, Bio Tower B Stage-I, Bio Tower B Stage-II, Surface Aerator –I, Surface Aerator –II, Secondary Clarifier, Sludge Thickener Tank, Guard Pond, Treated Effluent tank, Dual Media Filter, Chlorine SafetyHood Neutralization Tank, Sludge Drying Bed, Sludge Drying Bed, Sludge Drying Bed, Sludge Drying Bed, Sludge Drying Bed.

After treatment the treated effluent is disposed to M/s. CUSECS Ltd. The chemical sludge generatedfrom wastewater treatment 129.6 T/Year is disposed to TSDF Gummidipoondi and 200 Kg/Month of Chemical Sludge to Ultratech Limited Ariyalur for co processing into cement kiln.

During the time of inspection the unit has 34.86 T of accumulated sludge. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow connected to “Water Quality Watch Centre” TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. The unit is procuring 600 KLD of water from SIPCOT, if the unit install RO, partial requirement of water may be met from RO permeate which reduces fresh water consumption. Hence the unit may be directed install RO system so as to conserve water and to reduce the fresh water consumption. And also the unit is required to install online monitoring system to monitor flow, pH, COD and BOD to ensure the treated effluent quality to ensure prescribed standards of marine discharge.

Photo graphs showing ETP

View of Effluent Treatment Plant ***View of Diffused Aeration Tank***

18. <u>M/s. Amcor Flexibles India PvtLtd ., A 9-2, SIPCOT, Cuddalore - 607 005</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturingof Rotogravure Printing Rollers – 40 Rollers/Day.During inspection on 22.02.2019 the unit was under operation.

The water requirement of the unit is 12KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 0.92 KLD and generating trade effluent of 0.92 KLD against the consented quantity of 5 KLD.

The effluent is treated through Individual effluent treatment plant comprising of Collection Cum Equalization Sump,Mgo Preparation Tank, Precipitation Tank, Clear Water Sump, Pressure Sand Filter, Pressure Activated Carbon Filter, Sludge Drying Bed, Settling Tank/Plate Settlers, Membrane Technology using Reverse Osmosis, Ro Permeate Tank, RO Feed Tank, Mechanical Filter Press and Solar Evaporator.

After treatment the treated effluent was recycled to the process. The chemical sludge from wastewater treatment 5 T/Annum is disposed for landfilling at TSDF of M/s. TNWML, Gummidipoondi. During the time of inspection the unit was generating sludge at the rate of 100 Kg/Month. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow, TDS connected to “Water Quality Watch Centre” TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. To ensure Zero liquid discharge system the unit is required to be install online monitoring system to monitor Flow and TDS concentrations before RO feeder, RO reject and RO permeate. The online monitoring shall be connected to “Water Quality Watch” of TNPCB, Chennai.

Photo graphs showing ETP, RO System and Sludge Drying Bed

View of RO Plant *View of Sludge Drying Bed*

19. <u>M/s. Vivin Tex, Plot No A8/C, Phase-I, SIPCOT Industrial Complex, Cuddalore - 607 005.</u>

The unit has valid Consent upto 31.03.2020. The unit is engaged in manufacturing of Bleached cotton hosiery fabric 33.600 T/M, Dyed cotton hosiery fabric 16.800 T/M, Bleached cotton yarn 54.068 T/M, Dyed cotton yarn 64.848 T/M.During inspection on 22.02.2019 the unit was under operation at84 % of consented capacity.

The water requirement of the unit is 224.8KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 190 KLD and generating trade effluent of 16.9 KLD against the consented quantity of 186.8 KLD.

The water consumption of the unit is 224.8 KLD and the water is supplied by SIPCOT through pipeline. During inspection the unit is consuming 190 KLD water and generating trade effluent in the tune of 186.8 KLD.

The effluent is treated through Individual effluent treatment plant comprising of Guard Pond, Screen Chamber, Collection Tank, Equalization Tank, Anaerobic Digester, Aeration Tank, Clarifier- Biological Treatment, Treated Effluent Collection Tank-1, Treated Effluent Collection Tank-2, Chemical Mixing and Flocculator, Clarifier-Chemical Treatment, Sludge Holding Tank, Filter Press, Sludge Drying Beds, Pressure Sand Filter, Activated CarbonFilter, Final Treated Collection Tank.

After treatment the treated effluent is disposed to M/s. CUSECS Ltd. The chemical sludge from wastewater treatment 193.2 Tons/Year being sent to M/s Ultratech Limited Ariyalur for co processing in cement kiln.

During the time of inspection the unit was generating sludge at the rate of 190 Kg/day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow, TDS connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. The unit is procuring 600 KLD of water from SIPCOT, if the unit install RO, partial requirement of water may be met from RO permeate which reduces fresh water consumption. Hence the unit may be directed install RO system so as to conserve water and to reduce the fresh water consumption. And also the unit is required to install online monitoring system to monitor

flow, pH, COD and BOD to ensure the treated effluent quality to ensure prescribed standards of marine discharge.

Photo graphs showing ETP and Salt recovery system

View of Aeration Tank *View of Clarifier*

20. <u>M/s. R K Exports KARUR PVT Ltd. Plot No A-8/B, SIPCOT Industrial Complex, Cuddalore - 5</u>

The unit has valid Consent upto 31.03.2020. The unit is engaged in process ofBleaching, Dyeing & Printing OfCotton Woven Fabric 166.4 T/M, Bleaching & Dyeing of Cotton Yarn 39.0 T/M.During inspection on 22.02.2019 the unit was under operation92 % of consented capacity.

The water requirement of the unit is 522 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 404 KLD and generating trade effluent of 230 KLD against the consented quantity of 366 KLD.

The effluent was treated through Individual effluent treatment plant comprising of Collection Tank, Collection Tank, Aeration Tank, Tertiary Treated Tank,Multigrade Filter, Raw Water Tank, Collection Tank, Secondary Clarifier, Secondary Treated Tank, Activated Carbon Filter, Sludge Thickner, Filter Press, Flash Mixer,Flocculator, TertiaryClarifier,) Guard Pond, Sludge Drying Bed.

After treatment the treated effluent is disposed to M/s. CUSECS Ltd. The chemical sludge from waste water treatment 90 T/Annum disposed to cement plants for co processing in cement kiln.

During the time of inspection the unit was generating sludge at the rate of 250 Kg/day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow, TDS connected to “Water Quality Watch Centre” TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. The unit is procuring 600 KLD of water from SIPCOT, if the unit install RO, partial requirement of water may be met from RO permeate which reduces fresh water consumption. Hence the unit may be directed install RO system so as to conserve water and to reduce the fresh water consumption. And also the unit is required to install online monitoring system to monitor flow, pH, COD and BOD to ensure the treated effluent quality to ensure prescribed standards of marine discharge.

Photo graphs showing ETP and Salt recovery system

View of Aeration ***View of Clarifier***

21. M/s. Topknit Processing Mill PvtLtd.,Plot No A8/A, SIPCOT Industrial Complex, Cuddalore-607 005

The unit has valid Consent upto 31.03.2019. The unit is engaged in process ofFabric Dyeing 390 Tons/Month.During inspection the unit was not under operation.

During inspection the reported water consumption of the unit was 464.1KLD, the water is being supplied by SIPCOT through pipeline.The water is used for formulation of the pesticides. Reported that no trade effluent is generated from its process

The water requirement of the unit is 464.1KLD, the water is supplied by SIPCOT through pipeline. The effluent generation is 450.5 KLD. Since, the unit was not under operation from October 2017, no trade effluent has been generated from the unit.

The effluent was treated through Individual effluent treatment plant comprising of Collection tank Bar screen, Rc Feed circular tank, Secondary clarifier circular tank, Treated watercircular tank, Equalization circular tank, filter feed circular tank, Aeration circular tank, Reactivated clarifer circular tank, sludge holding circular tank, Sipcot water circular tank,Sipcot water circular tank.

After treatment the treated effluent is disposed to M/s. CUSECS Ltd.The chemical sludge from waste water treatment 90 T/Annum disposed to cement plants for co processing in cement kiln.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was not in operation. The unit is procuring water from SIPCOT, if unit install RO, partial requirement of water may be met from RO permeate which reduces fresh water consumption. Hence the unit may be directed install RO system so as to conserve water and to reduce the fresh water consumption before commencement of operation. The unit is also required to install online monitoring system

to monitor flow, pH, COD and BOD to ensure the treatedeffluent quality to ensure prescribed standards of marine discharge.

22. <u>M/s. Arkema Peroxides India Private Limited, Semmankuppam Village, Cuddalore Taluk, Cuddalore - 607 005.</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of products viz.Speciality Chemicals as Organic Peroxides 400 Tons /Month, Cross linking agent formulation 16 Tons / Month, Lauryl Chloride 50 Tons/Month.The unit is producing Benzoic Acid 0.83 Tons/Month, Phosphoric Acid 60 Tons/Annum, Sulphuric Acid 80 Tons/ Month as By Products.During inspection on 21.02.2019 the unit was under operationat65% of consented capacity.

The waterrequirement of the unit is 132KLD, the water is supplied by SIPCOT through pipeline. During inspection, reported water consumption was108 KLD and generating trade effluent of 68 KLD against the consented quantity of 85 KLD.

The effluent is treated through effluent treatment plant comprising of Collection cum Equilisation Tank, Neutralisation Tank, Equilisation Tank, Anaerobic Tank, Diffused Aeration tank, Clarifier, Treated Effluent Collection tank, Pressure Sand Filter, Carbon Filter, Sludge drying Bed, Intermediate Anerobic tank and Guard pond. The treated effluent is disposed to M/s. CUSECS Ltd.

The chemical sludge generated from wastewater treatment 20 T/Annum is disposed into landfill at TSDF of M/s. TNWML, Gummidipoondi. During inspection, the unit was generating sludge at the rate of 40 kg/Day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH,Flow,BOD,COD,TSS connected to “Water Quality Watch Centre” TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was in operation. The unit shall be directed to explore possibility of recycling of treated effluent to reduce fresh water consumption.

Photo graphs showing ETP and Online monitoring system

View of Effluent Treatment plant ***View of online sensors***

23. <u>M/s. Covestro India Pvt. Ltd Semmankuppam Village, Cuddalore Taluk, Cuddalore District</u>

The unit has valid Consent upto 31.03.2027. The unit is engaged in manufacturing of Thermoplastic Polyurethane resin and compound500 Tons per month.During inspection on 21.02.2019 the unit was under operationat 97.38 % of consented capacity.

The water requirement of the unit is 70KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was20 KLD and generating trade effluent of 1.5 KLD against the consented quantity of 5.0 KLD.

The effluent is treated through effluent treatment plant comprising of Collection tank, Permeate tank, Clarifier, Air blower, Oil separator, Oxidation tank, Sand filter, Neutralisation tank, Aeration tank, Settling tank, Tube settler, Sand filter, Pressure plate filter, Biological tank, Sludge drying tank, RO feed tank, RO reject tank, Evaporator, Condenser and back wash, RO flushing Tank.

After treatment the treated effluent is recycled to the process. The chemical sludge from wastewater treatment 1 T/Annum is disposed to TSDF of M/s. TNWML, Gummidipoondi. During the time of inspection the unit was generating sludge at the rate of 0.25 Kg/day.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the operation of effluent treatment plant was in operation. To ensure Zero liquid discharge system the unit is required to be install online monitoring system to monitor Flow and TDS concentrations before RO feeder, RO reject and RO permeate. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai. The unit also required to maintain proper records of salt recovered and track records of quantity disposed.

Photo graphs showing ETP and RO System

View of RO plant ***View of collection tank***

24. <u>M/s. Pioneer Jellice India P. Limited ,S.F.No. 65,66,67&69(part), Semmankuppam Village, Cuddalore Taluk and Cuddalore District.</u>

The unit has valid Consent upto 31.03.2021. The unit is engaged in manufacturing ofOssein 800 MT/Month, Di-Calcium Phosphate 1700 MT/Month andGelatine 300 MT/Month.During inspection on 21.02.2019 the unit was under operation50% of consented capacity.

The water requirement of the unit is 5195KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was1312 KLD and generating trade effluent of 1295 KLD against the consented quantity of 5000 KLD.

The effluent is treated through effluent treatment plant comprising of Bone washing effluent Collection Tank, Bonewashing Pretreatment Clarifier, Bone Washing pH Correction Sump, Bone washing Flash Mixer, Bone washing Primary Clarifier, Bone washing Filter Press, Ossein plant, Collection Tank for pretreatment, Gelatine plant effluent Collection Pit, Gelatine effluent Storage Tank for pretreatment, Ossein&Gelatine

Effluent Collection Tank, 11) Ossein Plant Primary Clarifier, Ossein Plant Filter Press, Screw Press forGelatine Waste, Equalisation tank, Buffer tank, UASBR, Gas Holder forUASBR, De-Nitrification Tanks, Aeration tank, Secondary Clarifier, PSF, UF Feed Tank, RO Feed Tank, RO Permeate Collection tank, Sludge Drying Beds, Decanter UF, UF, RO, RO, DCP plant effluent Collection Tank, DCP effluent pretreatment Clarifier, DCP pre-treated effluent Collection tank, DCP Aeration tanks, DCP Secondary Clarifier, Screw Blowers, Sludge Bio-digester, Slurry preparation Tank, Sludge Tank, Gas Holder for Sludge Digester.

After treatment, the treated effluent is disposed to M/s. CUSECS Ltd. The unit is generatingbiological sludge. No chemical sludge is generated from the process. Bio sludge generated is disposed for further use. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow, BOD, COD, TSS connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection, the effluent treatment plant was in operation. The unit shall be directed to explore possibility of recycling of treated effluent to reduce fresh water consumption.

Photo graphs showing ETP and RO System

View of Aeration Tank *View of RO System*

25. M/s. Pioneer Jellice India Private Limited, (Furnace Oil Power Generator - 1238 KVA) , S.F.No. 65,66,67 & 69(PART), SemmankuppamVillage, Cuddalore Taluk and Cuddalore District

The unit has valid Consent upto 31.03.2021. The unit is engaged in generatingElectric Power of 1238 KVA and steam of450 Kgs / Hr. by using Furnace Oilas fuel.During inspection on 21.02.2019 the unit was under operation.

The reported water consumption of the unit is 2.24 KLDand the water is supplied by SIPCOT through pipeline. No trade effluent is generator from process.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was under operation and found no trade effluent is generated from the process.

26. M/s.Pioneer Jellice India Private Limited, Biogas Power Generation Plant - 1169 KW, S.F No. 65 (PART), Semmankuppam Village, Cuddalore Taluk, Cuddalore District

The unit has valid Consent upto 31.03.2022. The unit is engaged in manufacturing the following products: 1) Electric Power 28056 KWHr/Day. The unit is producing 1) Exhaust Flue Gas 4335 NM3/Hr as By Product.During inspection on 21.02.2019 the unit was under operation.

The water consumption of the unit is 0.2 KLD (Domestic use) and the water is supplied by SIPCOT through pipeline. No trade effluent is generator from process.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the unit was under operation no trade effluent is generated from the process.

27. M/s. Chemplast Sanmar Limited (PVC), SIPCOT Industrial Complex, Phase-II, Semmankuppam, Cuddalore.

The unit has valid Consent upto 31.03.2022. The unit is engaged in manufacturing of PVC Resins 300000 Tons/Annum.During inspection on 21.02.2019 the unit was under operation at 70.5% of consented capacity.

.

The water consumption of the unit is 4970 KLD and the water is taken from sea. During inspection the unit is consuming 4000 KLD water.

The trade effluent generation is 2930 KLD. During inspection the unit is generating effluent to the tune of 1800 KLD.

The effluent is treated through combined effluent treatment plant comprising of 1) Pressure Sand Filter, 2) Basket Strainers, 3) Ultra Filtration – Skid, 4) Ultra Filtration Membrane, 5) Ultra Filtration – Skid, 6) Ultra Filtration Membrane, 7) UF Permeate Tank, 8. UF Permeate Tank 9. Micron Catridge Filter for RO 10. RO I Stage 32 11. RO I Stage 32 12. RO Membrane 192 13. RO Permeate Collection Tank 14. RO Reject Tank 15.HP Pumps for RO-2 16.RO II Stage 8 17.RO II Membrane 48 18. RO PermeateCollection Tank, 19) Final RO Reject Tank, 20) Evaporator – Three stage, 21)Nutch Filter, 22) Settling Tank, 23)Equalisation Tank, 24) Flash Mixer, 25) High Rate Solid Contact Clarifier (SWD), 26) Sludge Sump, 27) Centrifuge, 28) Clarifier Water Storage Tank, 29) Filter feed/Chlorination tank, 30) Filter backwash Tank.

After treatment the treated effluent is recycled to the process. The chemical sludge from wastewater treatment 2456 T/Annum is disposed at TSDF of M/s. TNWML, Gummidipoondi. Duringthe time of inspection the unit was generating sludge at the rate of 2 T/Day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters pH, Flow, connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the effluent treatment plant was under operation and the multiple effect evaporatorswere under operation.

Photo graphs showing ETP and RO System

View of Aeration Tank ***View of Multiple Effect Evaporator***

28. <u>M/s. ChemplastSanmar Limited (MTF), Chithirapettai, Thiyagavalli Village, Cuddalore Taluk, Cuddalore District.</u>

The unit has valid Consent upto 31.03.2022. The unit is engaged in manufacturing the following products: 1) Receiving and transfer of Vinyl Chloride Monomer (VCM) to the PVC Plant site at SIPCOT, Cuddalore 316000 T/Annum.
During inspection on 21.02.2019 the unit was under operation.

The water consumption of the unit is 410.4 KLD and the water is taken from sea. Water has been withdrawn from sea (for firefighting purpose). No trade effluent is generator from process.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the unit was under operation no trade effluent is generated from the process.

29. <u>M/s. TATA Chemicals Ltd., (Formerly M/s. Allied Silica Ltd) Plot No.10, SIPCOT Industrial Complex, Phase II, Semmankuppam Village, Cuddalore Taluk, Cuddalore District.</u>

The unit has valid Consent upto 31.03.2023. The unit is engaged in manufacturing ofPrecipitated Silica 900 Tons/Month.During inspection on 21.02.2019 the unit was under operation at 24 % of consented capacity.

The waterrequirement of the unit is 1350 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was460 KLD and generating trade effluent of 146.9 KLD against the consented quantity of 1140 KLD.

The effluent was treated through effluent treatment plant comprising of Equalization Tank, Clariflocculator Depth, Clarified Effluent Tank and Treated Effluent Tank, the treated effluent is being sent to CUSECS.

Since unit was recently installed there is no sludge generation. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow, connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was in operation. The unit is procuring water from SIPCOT, if the unit install RO, partial requirement of water may be met from RO permeate which reduces fresh water consumption. Hence the unit may be directed install RO system so as to conserve water and to reduce the fresh water consumption. And also the unit is required to install online monitoring system to monitor flow, pH, COD and BOD to ensure the treated effluent quality to ensure prescribed standards of marine discharge.

Photo graphs showing ETP

View of ETP ***View of Flow meter***

30. <u>M/s. Thangamman Textile Private Ltd, Plot No A 6 A, SIPCOT Industrial Complex, Cuddalore - 607 005.</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in process of Dyed Cotton Hosiery Fabric 258.44 Tones/Month.During inspection on 22.02.2019 the unit was under operationat 85 % of consented capacity.

The water requirement of the unit is 1783KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was 550 KLD and generating trade effluent of 350 KLD against the consented quantity of 783 KLD.

The effluent is treated through effluent treatment plant comprising of Aeration tank, Secondary clarifier, Treated effluent tank, Flash mixer, RO permeate tank, Collection tank, Sludge Thickener, Collection tank, Tertiary clarifier, Filter press Pla, RO feed tank, RO reject tank, Anaerobic digester, Sludge drying beds, Pressure sand filter, Activated carbon filter, Reverse osmosis plant.

After treatment, the treated effluent is disposed to M/s. CUSECS Ltd. The chemical sludge from waste water treatment 96 T/Annum disposed to M/s. Ultratech cement Limited, Ariyalur for co processing into Cement kiln. During the time of inspection the unit was generating sludge at the rate of 300 kg/Day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. The unit is procuring water from SIPCOT, if the unit install adequate capacity of RO, partial requirement of water may be met from RO permeate which reduces fresh water consumption. Hence the unit may be directedto install RO system so as to conserve water and to reduce the fresh water consumption. And also the unit is required to install online monitoring system to monitor flow, pH, COD and BOD to ensure the treated effluent quality to ensure prescribed standards of marine discharge.

Photographs showing ETP

View of ETP ***View of Flow meter***

31. <u>M/s. Pandian Chemicals Ltd., Plot No 4 Part 1, SIPCOT Industrial Complex, Phase-II, Cuddalore Taluk and District.</u>

The unit has valid consent upto 31.03.2019. The unit is engaged in manufacturing of Sodium Chloride of 18.12 TPM and Ammonium Perchlorate of 37.50 TPM.During inspection on 21.02.2019 the unit was under operation at 60 % consented capacity.

As per the consented capacity, the water requirement of the unit is 70KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was60 KLD and generating trade effluent of 12 KLD against the consented quantity of 23 KLD.

The effluent was treated through effluent treatment plant comprising of Collection Equalization cum Neutralization Tank, Primary Clarifier, Sludge Drying Bed,Treated Effluent Collection Sumpand Pressure Sand Filter.

After treatment the treated effluent is disposed to M/s. CUSECS Ltd. The chemical sludge generated from wastewater treatment 0.04 T/Annum disposal for landfill at TSDF of M/s. TNWML, Gummidipoondi. During the time of inspection the unit was generating sludge at the rate of 120 kg/Annum. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. To ensure prescribed standards for marine disposal, the unit is required to be install online monitoring system to monitor Flow, pH, BOD and COD for final treated effluent. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.

Photographs showing ETP

View of ETP ***View of Flow meter***

32. <u>M/s. Sudhakar Chemicals Private Limited B 12/1, SIPCOT Industrial Complex, Cuddalore - 607 005</u>

The unit has valid Consent upto 31.03.2018. The unit is engaged in manufacturing ofOrthophenyleneDiamine 20 T/M. During inspection the unit was not in operation since 2013

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the unit was not in operation and no trade effluent is generated from the process.

33. <u>M/s. Supreme Dye Chem Private Ltd, A-6/3, SIPCOT Industrial Complex, Cuddalore.</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of Alpha Blue 5.25 TPM, Beta Blue 5 TPM, andFerrous Sulphate 79 TPM.During inspection on 22.02.2019 the unit was under operation at 75% of consented capacity.

The waterrequirement of the unit is 28.5 KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was23 KLD and generating trade effluent of 10 KLD against the consented quantity of 12 KLD,

The effluent is treated through Individual effluent treatment plant comprising of Oil & Grease Trap Tank, Collection Sump (Rcc), Collection Sump, Neutralization Tank (MS With Rubber Lined), Clarifier (Filter Press), Aeration Tank (Surface), Sand Filter, Treated Effluent Tank, Filter Press, Filtrate Tank and Cusecs Tank.

After treatment, the treated effluent is disposed to M/s. CUSECS Ltd. The chemical sludge generated from wastewater treatment 150 T/Annum is disposedat TSDF of M/s. TNWML, Gummidipoondi. During the time of inspection the unit was generating sludge at the rate of 400 kg/Day. The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the effluent treatment plant was under operation. To ensure prescribed standards for marine disposal, the unit is required to be install online monitoring system to monitor Flow, pH, BOD and COD for final treated effluent. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.

34. M/s. Pondicherry Alum & Chemicals Limited Plot No A-3/1, SIPCOT Industrial Complex, Cuddalore

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of Ferric Alum 600 Tons/month, and Non Ferric Alum 150 Tons/month. During inspection on 22.02.2019 the unit was not under operation.

The water requirement of the unit is 25KLD, the water is supplied by SIPCOT through pipeline. During inspection reported water consumption was10KLD for processing of products. No effluent is generated from the process.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit wasnotin operation and no trade effluent was generated from the unit.

35. M/s. CUDDALORE SIPCOT INDUSTRIES COMMON UTILITIES LIMITED (CUSECS Ltd.), SIPCOT Industrial Complex, Cuddalore - 607 005 Cuddalore District

The facility has valid Consent upto 31.03.2021. This facility has infrastructure Facilities for Common Marine Disposal System, the facility comprises of six nos. of collection sumps

and inter connecting pipelines to a total length of 2.2 Kms. The pipeline passes across the river Uppannar followed by land and into sea. At the final point into sea, the pipeline is anchored by Concrete blocks with diffuser arrangements to dispose the effluent into sea at a depth of 8 mts below sea surface.16 units are members to this common disposal facility.

The main function of this facility is to ensure the quality of treated effluent received from different industries before pumping these effluent into marine out fall and routine maintenance of marine out fall. During the time of inspection the treated effluent from the CUSECS collection tank was pumping at the rate of 500 KL/hr into marine out fall.

The common facility has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

To ensure prescribed standards for marine disposal, the CUSEC is required to be install online monitoring system to monitor Flow, pH, BOD and COD for final treated effluent. The online monitoring shall be connected to "Water Quality Watch" of TNPCB, Chennai.

36. <u>M/s. Panda Bio Proteins Pvt. Ltd. Plot No.A-14A, SIPCOT Industrial Complex, Cuddalore</u>

The unit has valid Consent upto 31.03.2024. The unit is engaged in manufacturing of FISH MEAL 40 MT/DAY and FISH OIL 15 MT/DAY.During inspection on 22.02.2019 the unit was under operation.

The water consumption of the unit is 39 KLD and the water is supplied by SIPCOT through pipeline. During inspection the unit is not under operation. 3

The source of trade effluent generation is from process 10 KLD. During inspection the unit is not generating any trade effluent.

The unit has installed Online Monitoring system to monitor the quality of treated effluent for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the effluent treatment plant was under operational condition.

37. <u>M/s. Crimsun Organics Pvt. Ltd., S.F. No. 138 Par, Plot No.C 10, Kudikadu Village, Cuddalore.</u>

The unit has valid Consent upto 31.03.2020. The unit is engaged in manufacturing of Fipronil 5% SC 30.0 T/m, Isoprothiolane 40% EC 30.0 T/m, Acetamiprid 20% SP 30.0 T/m, Imidacloprid 17.8% SL 30.0 T/m, Indoxacarb 15.8% EC 30.00 T/m.During inspection the unit was under operation.

The reported water consumption of the unit is 5.0 KLD (Domestic use) and the water is supplied by SIPCOT through pipeline. No trade effluent is generated from any of its process.

The unit has installed Online Monitoring system to monitor the quality of treated sewage for the parameters and pH, Flow connected to "Water Quality Watch Centre" TNPCB, Chennai.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the unit was under operation no trade effluent is generated from the process.

38. M/s. Golden Fish Meal and Fish Oil Company PLOT NO.1A, SF.NO.68pt and 69pt,SIPCOT Industrial Complex, Semmankuppam village, Cuddalore District.

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of FISH MEAL 45 MT/DAY and FISH OIL 5 MT/DAY.During inspection on 21.02.2019 the unit was not under operation.

The water consumption of the unit is 24.5 KLD and the water is supplied by SIPCOT through pipeline. During inspection the unit was not under operation.

The trade effluent generation is from process 25 KLD. During inspection the unit is not generating any trade effluent.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was not under operation no trade effluent is generated from the process.

39. M/s. Morgan Propack Ltd., C-3 to C-6, SIPCOT Industrial Complex Cuddalare Taluk, Cuddalore District - 607 005

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing ofPaper Core, Tubes & Containers, Paper Drum, Paper edge protector – 140 T/Month.The unit is not in operation since2018.Since the process is dry, no trade effluent generated.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was under operation no trade effluent is generated from the process.

40. M/s. Morgan Industries Ltd., Plot No C 2, SIPCOT Industrial Complex, Cuddalore 607 005

The unit has valid Consent upto 31.03.2018. The unit is engaged in manufacturing ofCorrugated Boxed of210 T/Month. The unit is not in operation since 2018.The process involved is not required any water and not generating any effluent.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the unit was not in operation.

41. M/s. Kumar Chemicals Corporation, A-4/4, SIPCOT Industrial Complex, Pachayankuppam Village, Cuddalore - 607 005.

The unit has valid Consent upto 31.03.2021. The unit is engaged in manufacturing of Aluminiumsulphates 75 MT/M and metallic stearates 5 MT/M.During inspection the unit was notin operation. It is reported that the unit was closed since 2018.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was closed and not effluent generated.

42. M/s. Diamond Ice and Cold storage, C-8-3/A ,SIPCOT Industrial Complex Kudikadu, Cuddalore District.

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of White Ice - 600 T/Month.During inspection on 21.02.2019 the unit was under operation.

The reportedwater consumption of the unit is 24 KLD and the water is supplied by through pipeline. No trade effluent is generator from any of its process.

Remarks of the committee on functioning of effluent treatment plant:

During the time of inspection the unit was under operation no trade effluent is generated from the process.

43. M/s. Igloo Ice, C8A, SIPCOT Industrial Complex, Kudikadu, Cuddalore.

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing ofWhite Ice Bar 210 T/Month.During inspection on 21.02.2019 the unit was under operation.

The reportedwater consumption of the unit is 8 KLD and the water is supplied by SIPCOT through pipeline. No trade effluent is generator from any of its process.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was under operation no trade effluent is generated from the process.

44. M/s. Kowsalya Ice company, A3-1/B, SIPCOT Industrial Complex, Pachankuppam, Cuddalore

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of White Ice Bar 200 MT/Month. During inspection the unit was under operation.

Thereported water consumption of the unit is 8 KLD and the water is supplied by SIPCOT through pipeline. No trade effluent is generator from any of its process.

Remarks of the committee on functioning of effluent treatment plant:

During inspection the unit was under operation no trade effluent is generated from the process.

45. <u>M/s. MAB Metals, A-3-4 SIPCOT Industrial Complex, Pachayankuppam, Cuddalore - 607 003</u>

The unit has valid Consent upto 31.03.2019. The unit is engaged in manufacturing of Aluminum Circles – 3 T/Month and domestic utensils – 2 T/Month..During inspection on 22.02.2019 the unit was under operation.

The reportedwater consumption of the unit is 1 KLD and the water is supplied by SIPCOT through pipeline. No trade effluent is generated from any of its process.

Remarks of the committee on functioning of effluent treatment plant:

During inspection, the unit was under operation no trade effluent is generated from the process.

227.Further, it is seen from the report dated 25.3.2019 that the water quality were not up to the mark and certain heavy metals like Nickel, Manganese, Cadmium, Chromium, Lead etc were found. The Committee also gave certain recommendations in para 6 of the report as follows:

8. Recommendations Of Joint Monitoring Committee:

f. As per the joint team monitoring of peizometric wells, Bore wells in and around the SIPCOT, 2 piezometric wells & 4bore wells reported High TDS and copper concentration in one bore well and upstream of the Uppanar river was observed exceeding the acceptable standards, hence it is recommended to regular monitoring of ground water in and around the SIPCOT and to carryout trend analysis for early prediction of pollution if any in the area.

g. All industries shall be directed to install online monitoring systems and connected to TNPCB water Watch Centre as per below:

Sl. No	Based on treatment facility and final discharge	Online monitoring system
1	The industries member to CUSECs and discharging their effluent into sea	Flow, pH, BOD, COD and any other specific parameter based on the process involved
2.	The industries having own marine disposal system	
3.	The industries achieving Zero Liquid Discharge	Flow meter & TDS monitoring system at Inlet of ETP, RO feeder, RO reject, RO permeate, MEE feeder. Salt recovered record, disposal records

h. To reduce fresh water consumption in the industries (Textile dying units and other units), it is suggested to direct the industries to install adequate RO system to recover water and reuse in the process.

i. All units shall be directed to take steps to explore possible options to reduce fresh water consumption and to adopt recover and recycle the treated effluent in their process as well as utilities in time bound manner.

j. To direct concerned local authority to ensure adequate water supply to two panchayats namely Pachayankuppam and Semmankuppam.

228. Further, as per report dated 11.11.2019 certain industries were inspected which were already extracted in the earlier paragraphs.

229. It is seen from the report that the source of Copper and Nickel is from M/s. Amcor Flexible (I) Ltd., and close monitoring was directed to be conducted. It is also seen from the report that though there was certain improvements in respect of air quality but there was no much improvement in the water pollution. It is also observed in the report that for further improvement of environmental quality of Cuddalore SIPCOT industrial complex, a revised CEPI action plan is to be prepared and implemented in a time bound manner. So the report shows that there is a necessity for a further study to be conducted in respect of comprehensive

environment pollution index and further action plan has to be prepared for that purpose.

230. It may be mentioned that the Principal Bench of the National Green Tribunal in O.A.1038 of 2018 which was suo motu case taken on the basis of the news paper item titled "CPCB to rank industrial units on pollution levels" authored by Mr. Sanjay Kaw published in the Asian Age dated 6.12.2018. By order dated 13.12.2018 the Principal Bench considered the CEPI criteria tabulated by the Pollution Control Board in respect of 43 critically pollution areas and 32 severely polluted areas and extracted the same in para 4 of the order which reads as follows:

S.No.	***Name of States***	***Clusters with CEPI >70*** ***(43 Critically polluted Areas)***	***Clusters with CEPI 60-70*** ***(32 Severely polluted areas)***
1.	*Andhra Pradesh*	*Vishakhapatnam (70.82)*	*Vijayawada (60.57)*
2.	*Bihar*	*--*	*West Singhbhum (67.30)*
3.	*Chhattisgarh*	*Korba (83.00)*	*Raipur (65.45)*
4.	*Delhi*	*Najafgarh-Drain Basin (79.54) including Anand Parbat, Naraina, Okhla, Wazirpur*	*--*
5.	*Gujarat*	*Ankleshwar (88.50), Vapi (88.09), Ahmedabad (75.28), Vatva (74.77),*	*Vadodara (66.91), Rajkot (66.76)*

		Bhavnagar (70.99), Junagarh (70.82)	
6.	*Haryana*	*Faridabad (77.07), Panipat (71.99)*	*--*
7.	*Himachal Pradesh*	*--*	*Baddi (69.07), Kala Amb (68.77), Parwanoo (63.83)*
8.	*Jharkhand*	*Dhanbad (78.63)*	*Jamshedpur (66.06), Saraikela (65.38), Ramgarh (65.11), Bada jamtara (64.47)*
9.	*Karnataka*	*Mangalore (73.68), Bhadravati (72.33)*	*Raichur (68.07), Bidar (67.64), Pinia (65.11)*
10.	*Kerala*	*Greater Kochin (75.08)*	*--*
11.	*Madhya Pradesh*	*Indore (71.26)*	*Dewas (68.77), Nagda-ratlam (66.67), Pitampur (65.09)*
12.	*Maharashtra*	*Chandrapur (83.88), Dombivalli (78.41), Aurangabad (77.44), Navi Mumbai (73.77), Tarapur (72.01)*	*Nashik (69.25), Chembur (69.19), Pimpari – Chinchwad (66.06)*
13.	*Orissa*	*Angul Talchar (82.09), IB-Valley (74.00) Jharsugula (73.34)*	*Pardeep (69.26)*
14.	*Punjab*	*Ludhiana (81.66), Mandi Govindgarh (75.08)*	*Batala (68.59), Jalandhar (64.98)*
15.	*Rajasthan*	*Bhiwadi (82.91), Jodhpur (75.19), Pali (73.73)*	*Jaipur (66.82)*
16.	*Tamil Nadu*	*Vellore-North Arcot (81.79), Cuddalore (77.45), Manali (76.32), Coimbatore(72.38)*	*Tirupur(68.38), Mettur (66.98)*
17.	*Telangana*	*Patancheru- Bollaram (70.07)*	*--*
18.	*Uttar Pradesh*	*Ghaziabad (87.37), Singrauli (81.73), Noida (78.90), Kanpur (78.09), Agra (76.48), Varanasi-Mirjapur (73.79)*	*Moradabad (64.71), Aligarh (63.83), Ferozabad (60.51)*
19.	*Uttarakhand*	*--*	*Haridwar (61.01)*

20.	*West Bengal*	*Haldia (75.43), Howrah (74.84), Asansole (70.20)*	*Durgapur (68.26)*

"

In this, Cuddalore was termed as 'Critically Polluted Area' having CEPI Index of 77.45. Further, the same was considered by the Principal Bench on 10.7.2019 wherein the report submitted by the Central Pollution Control Board was considered and observed that based on the CEPI-2016 criterion, CPCB carried out further monitoring in the year 2017-18 where it was found that number of identified polluted industrial clusters went up to 100. The said number includes 38 critically polluted, 31 severely polluted and remaining 31 as other polluted areas. Thereafter, this Tribunal has considered the copy of the letter dated 17.5.2019 indicating the latest CEPI scores for 100 polluted industrial areas/clusters monitored during 2018 and that table was extracted in para 11 of the order which reads as follows:

The CEPI Scores in descending order for Industrial Areas/Clustersmonitored during 2018

Sl. No.	Name of Polluted Industrial Areas (PIAs)	Air	Water	Land	* CEPI Score	# Status of Environment
1.	Tarapur(Maharashtra)	72.00	89.00	59.25	93.69	Ac_Wc_Ls
2.	Najafgarh-Drain basin including Anand Parbat, Naraina, Okhla, Wazirpur(Delhi)	85.25	86.00	55.75	92.65	Ac_Wc_Ls
3.	Mathura(Uttar Pradesh)	86.00	81.00	45.00	91.10	Ac_Wc_Ln
4.	Kanpur(Uttar Pradesh)	66.00	85.00	45.00	89.46	Ac_Wc_Ln
5.	Vadodara(Gujarat)	82.00	80.75	48.75	89.09	Ac_Wc_Ln
6.	Moradabad(Uttar Pradesh)	76.00	71.50	68.75	87.80	Ac_Wc_Lc
7.	Varanasi-Mirzapur(Uttar Pradesh)	67.50	80.00	39.63	85.35	Ac_Wc_Ln
8.	Bulandsahar-Khurza(Uttar Pradesh)	79.50	76.00	36.75	85.23	Ac_Wc_Ln
9.	Gurgaon(Haryana)	70.00	80.00	36.75	85.15	Ac_Wc_Ln
10.	Manali (Tamil Nadu)	59.75	72.25	71.75	84.15	As_Wc_Lc

11.	Panipat(Haryana)	66.00	72.75	60.00	83.54	Ac_Wc_Lc
12.	Firozabad(Uttar Pradesh)	76.00	72.00	32.50	81.62	Ac_Wc_Ln
13.	Udham Singh Nagar (Uttarakhand)	33.00	79.50	26.00	81.26	An_Wc_Ln
14.	Jodhpur (Rajasthan)	67.00	66.00	65.00	81.16	Ac_Wc_Lc
15.	Pali (Rajasthan)	66.00	65.00	65.50	80.48	Ac_Wc_Lc
16.	Ankleshwar (Gujarat)	72.00	57.50	51.00	80.21	Ac_Ws_Ls
17.	Gajraula Area(Uttar Pradesh)	71.00	70.00	45.00	80.14	Ac_Wc_Ln
18.	Vapi (Gujarat)	66.00	75.00	30.00	79.95	Ac_Wc_Ln
19.	Siltara Industrial Area (Chhattisgarh)	76.00	51.75	31.75	79.94	Ac_Ws_Ln
20.	Bhiwadi (Rajasthan)	66.50	71.00	44.75	79.63	Ac_Wc_Ln
21.	Vellore -North Arcot (Tamil Nadu)	49.00	75.00	35.75	79.38	An_Wc_Ln
22.	Sanganer Industrial Area (Rajasthan)	65.00	71.88	39.50	79.10	Ac_Wc_Ln
23.	Byrnihat (Assam)	67.00	70.50	39.50	78.31	Ac_Wc_Ln
24.	Peenya(Karnataka)	41.00	66.00	70.00	78.12	An_Wc_Lc
25.	Jaipur (Rajasthan)	61.88	71.88	31.75	77.40	Ac_Wc_Ln
26.	Surat (Gujarat)	46.00	68.25	56.00	76.43	An_Wc_Ls
27.	Chandrapur (Maharashtra)	75.00	23.75	23.75	76.41	Ac_Wn_Ln
28.	Agra(Uttar Pradesh)	60.00	66.88	47.00	76.22	Ac_Wc_Ln
29.	Pattancheru Bollaram	56.00	70.00	32.25	75.42	As_Wc_Ln

	(Telangana)					
30.	Jalandhar (Punjab)	53.50	66.88	44.50	74.76	As_Wc_Ln
31.	Ludhiana (Punjab)	53.50	71.00	16.00	73.48	As_Wc_Ln
32.	Tiruppur (Tamil Nadu)	33.00	65.00	64.00	72.39	An_Wc_Lc
33.	Ghaziabad(Uttar Pradesh)	57.50	66.00	32.25	72.30	As_Wc_Ln
34.	Mettur (Tamil Nadu)	41.25	19.38	69.38	71.82	An_Wn_Lc
35.	KIADB Industrial Area, Jigini, Anekal (Bengaluru)	52.00	66.00	28.25	70.99	As_Wc_Ln
36.	Vatva(Gujarat)	57.00	66.00	25.50	70.94	As_Wc_Ln
37.	Raipur (Chhattisgarh)	67.00	45.75	25.00	70.77	Ac_Wn_Ln
38.	Rajkot(Gujarat)	51.75	61.50	45.75	70.62	As_Wc_Ln
39.	Aurangabad(Maharashtra)	45.00	65.38	28.75	69.85	An_Wc_Ln
40.	Dombivali (Maharashtra)	62.00	63.50	27.25	69.67	Ac_Wc_Ln
41.	Nashik(Maharashtra)	56.50	60.00	42.00	69.49	As_Wc_Ln
42.	Batala (Punjab)	63.00	62.75	25.50	68.92	Ac_Wc_Ln
43.	Noida(Uttar Pradesh)	59.75	62.75	27.00	68.76	As_Wc_Ln
44.	Baddi(Himachal Pradesh)	63.00	63.75	19.75	68.26	Ac_Wc_Ln
45.	Vijayawada(Andhra Pradesh)	60.50	49.25	38.75	68.04	Ac_Wn_Ln
46.	Bandel (West Bengal)	59.50	47.00	42.75	67.64	As_Wn_Ln
47.	Ramgarh(Jharkhand)	56.75	50.00	46.25	66.75	As_Ws_Ln
48.	Kukatpally (Telangana)	43.75	61.00	32.00	66.46	An_Wc_Ln
49.	Ib-Valley (Orissa)	48.75	59.00	36.75	66.35	An_Ws_Ln
50.	Tuticorin (Tamil Nadu)	29.75	46.00	61.00	66.34	An_Wn_Lc
51.	Navi Mumbai(Maharashtra)	56.00	63.00	16.00	66.32	As_Wc_Ln
52.	Meerut(Uttar Pradesh)	52.00	65.00	6.00	66.09	As_Wc_Ln
53.	Parwanoo(Himachal Pradesh)	19.00	61.88	53.75	65.77	An_Wc_Ls
54.	Kala Amb(Himachal Pradesh)	17.00	64.00	27.75	65.70	An_Wc_Ln
55.	Bidar(Karnataka)	31.00	60.00	45.50	65.64	An_Wc_Ln
56.	Durgapur (West Bengal)	62.50	43.50	18.75	65.56	Ac_Wn_Ln
57.	Aligarh(Uttar Pradesh)	56.25	61.88	11.88	64.42	As_Wc_Ln
58.	Hajipur(Bihar)	57.50	41.13	39.25	64.36	As_Wn_Ln
59.	Hazaribagh(Jharkhand)	61.00	20.00	41.00	64.20	Ac_Wn_Ln
60.	Coimbatore (Tamil Nadu)	47.25	53.75	45.25	63.64	An_Ws_Ln
61.	Singrauli (UP & MP)	45.00	57.25	27.75	62.59	An_Ws_Ln
62.	Cuddalore (Tamil Nadu)	25.00	58.25	41.25	62.56	An_Ws_Ln
63.	Faridabad(Haryana)	55.25	53.75	28.75	62.17	As_Ws_Ln
64.	Bhavnagar (Gujarat)	61.00	15.50	15.50	61.94	Ac_Wn_Ln
65.	Howrah (West Bengal)	60.50	20.00	16.00	61.76	Ac_Wn_Ln
66.	Paradeep (Orissa)	43.00	57.50	17.00	60.61	An_Ws_Ln
67.	Erode (Tamil Nadu)	34.13	47.00	52.75	60.33	An_Wn_Ls
68.	Saraikela (Jharkhand)	57.75	17.50	34.00	60.26	As_Wn_Ln

69.	Kattedan(Telangana)	42.25	50.75	45.25	60.17	An_Ws_Ln
70.	Dhanbad(Jharkhand)	43.00	57.50	12.50	59.78	An_Ws_Ln
71.	Indore(Madhya Pradesh)	18.50	56.88	20.75	58.53	An_Ws_Ln
72.	Bhadravati(Karnataka)	45.00	52.00	30.00	58.48	An_Ws_Ln
73.	Mandideep (Madhya Pradesh)	56.00	55.25	10.00	58.43	As_Ws_Ln
74.	Mangalore(Karnataka)	15.00	54.50	54.25	58.20	An_Ws_Ls
75.	Barajamda(Jharkhand)	51.88	25.63	46.75	57.64	As_Wn_Ln
76.	Korba (Chhattisgarh)	43.75	17.75	54.00	57.57	An_Wn_Ls
77.	Ahmedabad(Gujarat)	53.50	48.50	16.00	57.11	As_Wn_Ln
78.	Haridwar (Uttarakhand)	50.75	52.38	13.75	55.70	As_Ws_Ln
79.	Asansol (West Bengal)	54.00	16.25	13.75	55.03	As_Wn_Ln
80.	Chembur(Maharashtra)	52.25	50.75	10.00	54.67	As_Ws_Ln
81.	Morbi (Gujarat)	51.00	47.25	14.00	54.24	As_Wn_Ln
82.	Mandi Govindgarh (Punjab)	23.75	53.75	1.50	53.91	An_Ws_Ln
83.	Raichur(Karnataka)	32.75	47.88	32.50	53.42	An_Wn_Ln
84.	West Singhbhum(Jharkhand)	51.88	25.88	11.25	53.28	As_Wn_Ln
85.	Greater Kochin (Kerala)	47.38	35.88	29.50	52.94	An_Wn_Ln
86.	Pimpari-Chinchwad(Maharashtra)	52.00	6.25	5.25	52.16	As_Wn_Ln
87.	Gwalior (Madhya Pradesh)	50.00	43.13	7.75	51.67	As_Wn_Ln
88.	Junagarh (Gujarat)	47.00	25.00	35.00	51.64	An_Wn_Ln
89.	Jajpur (Orissa)	43.50	26.25	41.25	49.62	An_Wn_Ln
90.	Nagda –Ratlam (Madhya Pradesh)	12.00	47.00	28.00	48.78	An_Wn_Ln
91.	Jamshedpur(Jharkhand)	46.00	19.25	20.25	48.10	An_Wn_Ln
92.	Mahad(Maharashtra)	41.00	35.75	29.00	47.12	An_Wn_Ln
93.	Bhillai-Durg (Chhattisgarh)	43.00	32.75	19.75	46.69	An_Wn_Ln
94.	Angul Talchar (Orissa)	44.75	13.25	23.00	46.43	An_Wn_Ln
95.	Haldia (West Bengal)	45.00	35.00	3.75	45.72	An_Wn_Ln
96.	Vishakhapatam (Andhra Pradesh)	27.25	12.75	42.75	44.74	An_Wn_Ln
97.	Dewas (Madhya Pradesh)	28.00	31.63	31.75	37.79	An_Wn_Ln
98.	Jharsuguda (Orissa)	36.00	21.50	8.75	37.20	An_Wn_Ln
99.	Digboi (Assam)	23.50	25.25	6.50	26.39	An_Wn_Ln
100.	Pithampur (Madhya Pradesh)	13.50	19.50	6.75	20.23	An_Wn_Ln

It is seen from the report that Cuddalore was show as Serial No.62 in the table and the air pollution index 25.00, water pollution index 58.25 and land pollution index 41.25 and total CEPI score as 62.56

which was based on the CEPI score ascertained during 2019 on the basis of the inspection conducted by the Central Pollution Control Board after evaluating the reports of the State Pollution Control Board. The CEPI index of Cuddalore as per the report that it was severely polluted, though not critically polluted area.

231. Thereafter, this Tribunal has passed the following order:

> 20. In view of water pollution caused by absence/dysfunctional CETPs/ETPs/STPs, the Tribunal has, in the case of *Aryavart Foundation Vs. M/s Vapi Green Enviro Ltd. & Ors.*[18], directed all defaulting industries, other than green and white category, connected

[15] Order dated 25.05.2018

[16] O.A 200/2014, order dated 14.05.2019

[17] *Ibid* at Para 16 & 17

[18] O.A 95/2018, order dated 11.01.2019

with CETP, to make deposits with the CPCB towards interim environmental compensation, pending assessment of actual compensation and further action [19], on the following scale:

(i) Large Industries – Rs. 1 crore each
(ii) Medium Industries – Rs. 50 Lakhs each
(iii) Small Industries – Rs. 25 Lakhs each

21. In the present case, in view of massive exercise already done byCPCB, it is not necessary to require any further verification about the existence of pollution in the said PIAs. The Tribunal can direct that the polluting activities cannot be allowed to continue till adequate measures are taken as the Tribunal is bound to apply the 'Sustainable Development'[20], 'Precautionary'[21] and 'Polluter Pays'[22] principle under Section 20 of the National Green Tribunal Act, 2010 to protect the environment and the victims. The statutory regulatory bodies can be required to straightaway identify the particularindustrial units in the said PIAs that are causing pollution, particularly those units which fall under the red and orange category and take action against them by way of closing the polluting activity, initiating prosecution and assessing and recovering compensation.

Pending such assessment, interim compensation may be recovered onthe scale adopted by this Tribunal in the case of Vapi industrial area[23].

[19] Para 55, of O.A 95/2018, order dated 11.01.2019

[20] M.C Mehta Vs. Union of India (1997) 2 SCC 353, where the Supreme Court of India held – The development of industry is essential for the economy of the country, but at the same time the environment and the ecosystems have to be protected. The pollution created as a consequence of development must be commensurate with the carrying capacity of our ecosystem.

[21] M.C Mehta vs. Union of India & Ors., (2009) 6 SCC 142, at para 23, 30 & 46, the Supreme Court addressed the issue of wide threat to forest ecology vis-à-vis the mining activities in the Aravalli hills and explained that it is important to evoke the precautionary principle to impose complete ban on mining in the Aravalli Range in state of Haryana.

[22] Indian Council for Enviro Legal Action & Ors. Vs. Union of India & Ors., (1996) 3 SCC 212 Para 16, Vellore Citizens Welfare Forum Vs. Union of India & Ors. (1996) 5 SCC 647 Para 12-18 – holding that "Polluter Pay" principle is 'accepted principle and part of environmental law of the country, even without specific statute.

M.C Mehta Vs. Union of India & Ors., W.P (C) No. 13029/2015 order dated 24.10.2017 of the Supreme Court of India., O.A 95/2018, order dated 11.01.2019 & O.A No. 593/2017, order dated 03.08.2018: The Tribunal directed CPCB to take penal action against those accountable for failure in setting up CETPs/STPs/STPs and to recover compensation for damage to the environment,

[23] *Supra 15*

22. CPCB has compiled data of industrial clusters which are polluting in terms of air, water and other norms together. Under the law, even air pollution or water pollution or other pollution, are independent offences. The sustainable development and precautionary principle require any polluting activity to be prohibited and compensation recovered for damage caused from polluters. If there is air pollution, actionable under the Air Act, even if there is no violation of Water Act or EPA Act, such pollution cannot be ignored. There has to be prosecution, stopping of polluting activity and recovery of compensation for restoration of the environment. We have seen that even when norms of air, water and other pollution are being violated,prosecution, stopping of polluting activities compensation is not taking place for which there is no justification. Likewise action to prohibit polluting activity, initiating prosecution and recovery of compensation is required not merely for the PIAsbased on violation of norms under all the heads, but also for areas where air, water or other pollution is found individually. Thus areas not covered by PIAs are also required to be governed by our directions for enforcing the law by way of stopping polluting activity and taking other steps. The fact that such pollution is taking place is evidencedby there being acknowledged pollution in the form of 351 polluted river stretches[24] and 102 non-attainment cities[25].

23. CPCB must compile data of polluted industrial areas not confined to more than one parameters as is now being done, but also with respect to polluted areas based on water, air or other pollution individually. Compiling data for

categorizing areas as polluted areas based on water pollution alone, or air pollution or other pollution

[24] O.A. 673/2018, News Item Published in 'The Hindu' authored by Shri. Jacob Koshy titled "More riverstretches are now critically polluted: CPCB", Order dated 20.09.2018

[25] O.A. 681/2018, News Item Published In 'The Times of India' Authored by Shri. Vishwa Mohan Titled "NCAPwith Multiple Timelines to Clear Air in 102 Cities to be released around August 15" order dated 08.10.2018

alone may be a step in the right direction. Let this be now done in the next three months, with the assistance of State PCBs/PCCs or other experts. In this regard we may note that dealing with the industrial water pollution, this Tribunal directed the CPCB to compile its monitoring report with reference to 97 CETPs installed in different states as this was linked to 100 PIAs also.[26]

26. Needless to state that there is no right to carry on business in violation of pollution norms and right of statutory authorities is coupled with duty. Such right, does not carry any unlimited discretion of not taking action when pollution norms are violated.

27. In view of the material compiled by the CPCB, with the assistance of SPCBs/PCCs, in respect of polluted industrial areas, where action is not being taken by statutory authorities, the Tribunal has to exercise its jurisdiction of directing performance of statutory functions and duties by the State boards/committees, following similar direction by

28. Accordingly, we direct the CPCB in coordination with all State PCBs/PCCs to take steps in exercise of statutory powers under the Air (Prevention and Control of Pollution) Act, 1981, Water (Prevention

1986 or any other law to prohibit operation of polluting activities in

the said CPAs and SPAs within three months and furnish a

compliance report to this Tribunal. The Central Pollution Control Board, in coordination with the State Boards/PCBs may make

[26] O.A No. 593/2017, order dated 19.02.2019, Paryavaran Suraksha Samiti & Anr. Vs. Union of India & Ors.

[27] M.C Mehta (Calcutta Tanneries' Matter) Vs. Union of India & Ors., (1997) 2 SCC 411, at para 17, the Supreme Court directed the Board to take action against defaulting tanneries which, including those which had not complied with the conditions under Water Act as mentioned in their consents. In M.C Mehta Vs. Union of India & Ors., (2004) 6 SCC 588, paras 37,48, 517 69, the Supreme Court passed direction on closure of industrial units which were illegally operating and were in violation of the Master Plan.

assessment of compensation to be recovered from the said polluting units for the period of last 5 years, taking into account the cost of restoration and cost of damage to the public health and environment and the deterrence element. The scale of deterrence may be related to the period and the frequency of defaults. Such other factors as may be found relevant may also be taken into account. No further industrial activities or expansion be allowed with regard to 'red' and 'orange' category units till the said areas are brought within the prescribed parameters or till carrying capacity of area is assessed and new units or expansion is found viable having regard to the carrying capacity of the area and environmental norms. Pending assessment ofcompensation, interim compensation be recovered at the scaleadopted by this Tribunal in the case of Vapi Industrial area as mentioned in para 22 above.

29. We further direct CPCB, with the assistance of SPCBs/PCCs or other experts, to compile information with regard to polluted industrial areas based on water pollution norms separately, air pollution norms separately and other pollution norm separately and notify such information on public domain within three months. On completing this exercise, action against identified individual polluters may be initiated on the same pattern on which direction have been issued in para 28 and furnish a report to this Tribunal in this regard also, before the next date.

30. We direct the MoEF&CC to take steps for enforcement of action planfor improvement of the situation.

31. We may also mention that hearing individual industrial unit is not considered necessary for passing the above order as the CPCB/State PCBs must exercise their respective statutory powers by following the procedure prescribed under the statute even without intervention of this Tribunal. The Tribunal is only requiring such statutory bodies to perform their duties to uphold the law without going into an individual case[28]. Direction is with reference to data compiled, or to be compiled, by the said bodies only.

32. It is made clear that white and green or non-polluting industries except that the parameters thereof may be monitored with a view to see that under the garb of label of white/green or otherwise, the polluting activity is not continued.

which are not causing any pollution will not be affected by this order

33. We direct that the CPCB will be at liberty to have an appropriate panel of Experts to augment its capacity, in case the available man- power is found to be inadequate to execute the above order and for this purpose utilise the environment funds available under the environmental compensation head. In this regard, reference may also be made to order dated 22.01.2019, of this Tribunal in O.A No. 101/2019, *Central Pollution Control Board Vs. Assam State Pollution Control Board & Ors.* which enables CPCB to utilise the environment fund for the purpose.

The matter was again taken up on 14.11.2019 and considered the report filed by the Central Pollution Control Board which was extracted in para 6 of the order which reads as follows:

Status report dated 01.11.2019 has been filed by the CPCB as follows:

"2.0 Action taken by CPCB

Actions taken for complying Hon'ble NGT orders in the matter of OA No. 1038/ 2018 are as follows:

- *Since CEPI report including CEPI score, industrial areas covered under CPA & SPA, list of critical pollutants in*

CPA & SPA etc. is under consideration of MoEF&CC, CPCB requested MoEF&CC vide letter dated 9/9/2019 seeking approva sharethe information with SPCBs ***(Annexure V).***

- *To comply point no. (i) to (iii) of order dated 10/7/2109, CPCB requested all concerned SPCBs/PCCs vide letter dated 23/9/2019, to ensure that environmental surveillance mechanism is in place particularly in polluted industrial areas and steps taken against polluting activities not- complying with prescribed norms* ***(Annexure-VI).*** *Further, CPCB requested all concerned SPCBs/PCCs vide letter dated 25/10/2019, to provide the updated status on the action taken for compliance of Hon'ble NGT Order* ***(Annexure-VII).***

- *To comply point no. (iv) of the order dated 10/7/2019, CPCB compiled information with regard to polluted industrial areas based on water pollution norms separately, air pollution norms separately and ground water pollution norm separately and the list was submitted to MoEF&CC on 26/9/2019 for consideration and approval.*

- *To comply point no. (iii) of the order dated 23/8/2019, CPCB has requested MoEF&CC vide letters dated 13/9/2019 and 3/10/2019 to devise an appropriate mechanism to ensure that new legitimate activity or expansion can take place after due precautions are taken in the areas in question by Red and Orange category of units and circulate to SPCBs/PCCs for implementation* ***(Annexure-VIII & IX).***

- *MoEF&CC vide letter dated 9/10/2019 asked CPCB to hold a consultation meeting with stakeholders to finalise mechanism. Accordingly, a meeting was organised with concerned stakeholders to consult draft mechanism prepared by MoEF&CC for environmental management of Critically Polluted Areas (CPAs) and Severely Polluted Areas (SPAs) and consideration of projects listed in Red & Orange categories in those areas. The minutes of the meeting along with mechanism evolved after consultation with stakeholders were sent to MoEF&CC vide letter dated 18/10/2019 for necessary action.*

- *MoEF&CC vide letter dated 24/10/2019 asked CPCB to share the mechanism with the State /UT Govts. and SPCB/PCCs for implementation* ***(Annexure-X).*** *Accordingly, CPCB vide letter dated 25/10/2019 communicated the mechanism to the concerned State /UT Govts. and SPCB/ PCCs for necessary action* ***(Annexure-XI).***

*MoEF&CC also asked CPCB that report regarding CEPI*and EPI assessment study may be put up to Ministry for further deliberation, which has been done ***(Annexure-XII).****"*

Thereafter, passed the following order:

1. Mechanism circulated by the CPCB by letter dated 24.10.2019 proposes environmental management of CPAs and SPAs and the mitigation measures proposed.

2. As already noted, while every mitigation measures must be taken, this cannot be ground not to take any legal action for violation of law. The status report does not refer to compliance of directions for taking coercive measures for enforcement of the Air Act, the Water Act and the EPA Act by prohibiting operation of polluting activities and assessing and recovering compensation on 'Polluter Pays' principle, including interim compensation of which scale was specified in the said order.

3. In view of the above, since the data compiled so far shows increasing trend of air, water and soil pollution, meaningful action must result in reversing such trend and the violators of law cannot be allowed to have a free run at the core of environment and public health. Inaction by the statutory authorities is also at the cost of Rule of Law which is the mandate of the Constitution and is necessary for meaningful enforcement of legitimate constitutional rights of citizens and basic duty of a welfare State under the Constitution.

4. We may note the observation of the Hon'ble Supreme Court in the subject of accountability of authorities for failing to discharge their duties. In **M.C. Mehta v. UOI & Ors.,** W.P Civil No. 13029/1985 vide order dated 04.11.2019, the Hon'ble Supreme Court observed:

".....Obviously, it is writ large that ***the State*** **Governments, Government of NCT of Delhi and civic bodies have miserably failed to discharge their liability as per the directive principles of State Policy which have found statutory expression, they are being made statutory mockery and also the directions of this Court and High Courts in this regard are being violated with impunity.**

.... Time has come when we have to fix the accountability for this kind of situation which has arisen and is destroying right to life itself in gross violation of Article 21 of the Constitution of India.

.... ***Everybody has to be answerable including the top*** **state machinery percolating down to the level of gram panchayat. The very purpose of giving administration power up to the panchayat level is that there has to be proper administration and there is no room for such activities.** *The action is clearly* tortuous one and is clearly punishable under statutory provisions, besides the violation of the Court's order."

In **Techi Tagi Tara vs. Rajendra Singh Bhandari and Ors., (2018)11SSC734,** it was observed:

"2.... . ***There can be no doubt that the protection and*** **preservation of the environment is extremely vital for all of us and unless this responsibility is taken very seriously, particularly by the State Governments and the SPCBs**, *we are inviting trouble that will have adverse* consequences for future generations. Issues of sustainable development, public trust and intergenerational equity are not mere catch words, but are concepts of great importance in environmental jurisprudence.

4. One of the principal attributes of good governance is the establishment of viable institutions comprising professionally competent persons and the strengthening of such institutions so that the duties and responsibilities conferred on them are performed with dedication and sincerity in public interest. This is applicable not only to administrative bodies but more so to statutory authorities- more so, because statutory authorities are the creation of a law made by a competent legislature, representing the will of the people."

5. The Tribunal has thus no option except to reiterate that meaningful action has to be taken by the State PCBs/PCCs as already directed and action taken report furnished showing the number of identified polluters in polluted

industrial areas mentioned above, the extent of closure of polluting activities, the extent of environmental compensation recovered, the cost of restoration of the damage to the environment of the said areas, otherwise there will be no meaningful environmental governance. This may be failure of rule of law and breach of trust reposed in statutory authorities rendering their existence useless and burden on the society. On default, the Tribunal will have no option except to proceed against the Chairmen and the Member Secretaries of the State PCBs/PCCs by way of coercive action under Section 25 of the National Green Tribunal Act, 2010 read with Section 51 CPC. Such action may include replacement of persons heading such PCBs/PCCs or direction for stopping their salaries till meaningful action for compliance of order of this Tribunal. The Tribunal may also consider deterrent compensation to be recovered from the State PCBs/PCCs. Such action taken reports strictly in terms of law and order of this Tribunal referred to above may be furnished by the State PCBs/PCCS on or before 31.01.2020 to the CPCB. The CPCB may prepare a tabulated analysis of the same and file a consolidated report before this Tribunal before February 15, 2020 by email at judicial-ngt@gov.in. The CPCB may also revise its mechanism for expansion and new activities by red and orange category of industries in critically/ severely polluted areas consistent with the spirit of the earlier orders of this Tribunal and principles of environmental law to bring down the pollution load and ensure that activities do not further add to such load.

232. The order passed by the Principal Bench of the National Green Tribunal was challenged before the Hon'ble Apex Court by certain parties viz., (CHAMBER OF SMALL SCALE INDUSTRIES ASSOCIATION VS. CENTRAL POLLUTION CONTROL BOARD) by filing Civil Appeal Diary No.8478/2020 and GUJARAT CHAMBER

OF COMMERCE AND INDUSTRIES VS. CENTRAL POLLUTION CONTROL BOARD) (Civil Appeal Diary No.19271/2020) and the Hon'ble Apex Court condoned the delay in filing the appeals and notice was issued and the operative portion of the orders dated 13.12.2018, 10.7.2019, 28.3.2019 and 14.11.2019 of the Principal Bench, National Green Triunal which were extracted above by this Tribunal in the earlier paragraphs were stayed and this case was directed to be posted along with Civil Appeal No.2218 and 2219 of 2020. Since it was stayed by the Hon'ble Apex Court, this Tribunal cannot rely on the operative portion of the orders of the Principal Bench. But at the same time, there is nothing wrong in relying on the details collected for arriving at such conclusion by the regulating authorities like Central Pollution Control Board and State Pollution Control Boards in respect of the comprehensive Environmental Pollution Index of critical/severely polluted industrial clusters in India. The study conducted by the regulators even during 2018 – 19 also showed that CIPCOT, Cuddalore Industrial Complex was falling under the category 'severely polluted area', though not critically polluted area, as identified during 2011-2014. During 2009 – 2014 during which period certain moratorium was declared by the MoEF & CC even for establishing new units or allowing expansion of the existing units and subsequently some improvement had happened on the basis of the implementation of the action plan suggested by the State Pollution Control Board and certain relaxations were made and moratorium was lifted either partially or wholly considering the improvements based on the

report of the State Pollution Control Board and Central Pollution Control Board.

233. In the report dated 11.11.2019 also, the functioning of the ETP of the industrial units were inspected by the Committee and they found certain deficiencies in the system in respect of at least some of the industries and suggested for some improvement. Further, the Joint Committee report dated 11.11.2019 also shows that further fresh study regarding Comprehensive Environment Pollution Index has to be conducted in this area for the purpose of ascertaining further action plan to be prepared for mitigating the circumstances prevailing in that area. That also shows that the question of pollution has not been completely eradicated or removed in that area.

234. It is true that certain study conducted by the fifth respondent Association through a private agency viz., Glens Innovations Labs Pvt. Ltd. Chennai which was produced before this Tribunal, received on 19.3.2020 shows that the Multiple Effect Evaporators Efficiency Study in respect of MEE reject by the industries are to the maximum extent satisfactory. But that report also shows that some of the units are having some deficiency in achieving the standard and they were achieving only upto 70% to 80%. Even the study conducted by them in respect of contents shows that the samples contained Chromium, Barium, Mercury and Lead. In case of Solara Active Pharma it showed presence of Barium. In respect of Tagros Chemicals India Pvt. Ltd, presence of Chromium and Barium were noted. In respect of Crimsun Organics

Pvt. Ltd., the presence of Chromium, Cadmium and Barium were noted. In respects of DFE Pharma India Pvt. Ltd, presence of Chromium, Barium and Mercury were noted. In respect of Chemplast Cuddalore Vinls Ltd., presence of Barium and Chromium were noted.

235. They have not mentioned about the other industries. Further, there is nothing to show that any tests have been conducted in respect of identifying the presence of Nickel in any of these industries. There was no cumulative effect of the presence of such heavy metals on environment which has been considered by the Committee. Unless cumulative study of all these metals on the water quality is conducted, it cannot be said that a proper study has been conducted so as to come to a conclusion that none of the industries were responsible for such contamination. Further, it is clear that these improvements were found in these units only after it was declared as 'critically polluted' area and moratorium was imposed and certain action plans were prepared and directed to be implemented in order to make them ZLD units so as to avoid discharge of untreated water/effluent into the ground. So the act of all these units which were discharging sludge earlier into the ground and the impact of such discharge on water quality has not been ascertained. Unless such a deep study has been conducted, it cannot be said that none of the units were responsible for causing pollution on environment. Further, most of the industries which were accommodated in that complex are either possibly polluted industries of 17 categories identified and 'red' category industries

which are prone to produce polluting materials which is likely to affect either air or water.

236. It will be seen from the newspaper report regarding the death caused on account of pollution, there is a trend of increase in the mortality rate that is being caused on account of air pollution or water pollution. In spite of that, no effective health study has been conducted by any of the Departments to identify the reason for such mortality and the remedial measures to be taken for the purpose of mitigating the circumstances and reduce the mortality rate on account of such pollution.

237. So under these circumstances, it cannot be said that the contention of the fifth respondent Association that they cannot be mulcted the liability of environmental compensation as the report shows that none of the industries were using Nickel, Cadmium, Lead etc either as raw material or by-product is correct and it cannot be accepted in toto. There is no attempt made for the purpose of ascertaining the source of such heavy metal in the water exceeding the permissible limit, making the water below the standard of drinking water and it did not mention the remedial measures to be taken for the purpose of mitigating the cause of pollution and make the water quality to the extent of potable limit by the Committee appointed by this Tribunal though the purpose of appointing that Committee was to make such study and submit the remedial measures to restore the water quality in that area. Further, though it is mentioned by the applicant as well as the sixth respondent that certain RO systems were established in some

of the villages for the purpose of providing clean water , no attempt was made by the Committee to ascertain the nature of quality of water that is being used in such RO system and how the sludge generated are being disposed of by the persons who are responsible for operating the same as well.

237. So under these circumstances, there is no merit in the submission made by the second respondent as well as the fifth respondent that no further study need be conducted and there is no necessity for any remedial measures to be taken for meeting the situation and the application has to be closed by this Tribunal.

238. As an environment court, this Tribunal has got a responsibility, when it is found that the place continues to be a severely polluted area, at least in respect of water pollution, then applying the 'precautionary' principle and 'polluter pays' principle and 'intergenerational equity' to take measures to remedy the situation and give necessary direction to the persons who are responsible to carry out such directions to meet the situation.

239. Further, under Section 3 and 5 of the Environment (Protection) Act, 1986, the Central Government and State Governments are having equal responsibility to protect environment and take remedial measures by preparing necessary action plan for restoring the damage caused to environment on account of pollution due to some activities of industries or otherwise the cause and source cannot be traced out, as per the constitutional mandate of Article 48-A and 21 of the Constitution of India to protect

environment and also to provide clean environment, as it is declared to be part of 'right to life' as enshrined under Article 21 of the Constitution of India.

240. So under these circumstances, we feel that it is necessary to give certain directions while considering the question of 'sustainable development' to protect 'economic development' vis-a-vis the necessity to protect environment and without compromising the environment protection which is necessary for the purpose of promoting 'inter generational equity' and 'public trust' doctrine.

241. So this Tribunal feels that it is necessary to appoint a comprehensive committee to conduct an elaborate comprehensive study in respect of the SIPCOT, Cuddalore viz. Water pollution, the source of heavy metals, remedial measures to be taken and identify the persons responsible for such degradation and collect environmental compensation from those persons who are responsible for such act, by applying 'polluter pays' principle and also to conduct health study impact of such things on the health of the people in that locality and provide necessary remedial measures to resolve the issue permanently, suggesting recommendations and the persons who are expected to carry out such recommendations and implementation of the action plan in an effective manner. Further, an indepth study will have to be conducted by comparing the situation prevailing prior to the establishment of the industrial complex and post establishment to ascertain the environment degradation, by applying the reverse engineering or relate back

theory to ascertain the source and probable reason and person responsible to the same.

242. So it is also necessary to conduct investigation, applying related back theory of the condition of water and soil in that area before the establishment of the industrial complex and whether there was any impact caused on account of the activities of the units in the industrial complex. The reason for the contamination of water and air in that area after the establishment of the units and what are the remedial measures to be taken for rectifying the same permanently. It is also necessary to conduct health survey, as world-wide examination of mortality rate by the health organisation, shows that there is increase in the mortality rate on account of pollution being caused to atmosphere. The nature of disease, reason for increase and the remedial measures to be taken for curtailing the same are also necessary for the purpose of mitigating the circumstances of any alleged possible industrial pollution being caused on account of the existence of those units in that industrial complex are also to be gone into by this Tribunal for which data will have to be taken by appointing a proper committee and directing the committee that has been appointed by this Tribunal to go into those aspects and suggest the source, remedial measures, fixing the responsibility, assessing compensation etc.

243.So under these circumstances, this Tribunal feels that it is necessary to appoint a Joint Committee, comprising of a (1) Senior Scientist from Central Pollution Control Board (2) Senior Scientist from Tamil Nadu Pollution Control Board (3) an Expert having

expertise in Chemical Engineering, including Organic Substances from National Institute of Technology, Tiruchirappalli, a Scientist from Indian Institute of Science, Bangalore, having expertise in industrial pollution, an Expert in Health Services from the Rajiv Gandhi Government General Hospital and Research Centre, Chennai and District Collector, Cuddalore to inspect the SIPCOT Industrial Complex, Cuddalore and the surrounding villages which are likely to be affected on account of the activities (the surrounding villages which are in the close proximity to the Industrial Complex and the probable villages which are likely to be affected on account of its activities including the area of operation of CUSECS) and its operation and conduct relate back environmental study or reverse engineering process to ascertain the pre-existing conditions of water, air and soil quality in those areas before the establishment of SICOT Industrial Complex, Cuddalore and the comparative changes occurred on environment, including quality of air, water and soil for the pre and post period of time during the alleged improvement is achieved at least to the extent of air pollution, the sources of presence of heavy metals like Arsenic, Cadmium, Nickel, Chromium, Barium etc in the air, water and soil and the possible contributory industry of such heavy metals and also to ascertain as to whether this is due to geomorphological change in the nature or soil who were responsible for such presence of heavy metals or contribution of industrial pollution and suggest remedial measures, conduct health study regarding health of the people in that area as to whether the increase in mortality rate or

nature of disease affecting the health of the people prior to and after establishment of Industrial Complex, the remedial measures to be taken for the purpose of mitigating the circumstances and retrieving the damage caused to water, and soil to its original position and assess the environmental compensation to be recovered from the responsible/possible polluting industries. After getting such report, the State Government as well as the regulators and the SIPCOT, fifth respondent Association have to implement the action plan to be prepared by the Committee to resolve the issue permanently in an effective manner so as to protect health of the people and continue to take steps to improve the situation in that area permanently. The Pollution Control Board is directged to initiate action against the industries identified and impose environmental compensation against them, after following the procedure in accordance with law.

244. The expenses for conducting the study by the Committee has to be met by the SIPCOT and the fifth respondent Association and if necessary the Government will have to provide necessary financial assistance for this purpose of implementing the action plan as directed as protection of life of the people by providing clean environment which includes right to get pollution free air and water as part of life as contemplated under Section 21 of the Constitution of India apart from the constitutional mandate of protecting environment under Article 48-A of the Constitution of India. The Committee is also given the liberty to co opt any other Expert of their choice if they feel necessary for the purpose of preparing a

proper action plan and suggest remedial measures to resolve the issue permanently in that area. The Committee is also directed to conduct study regarding the functioning of RO system provided and if any improvement is required , suggest the same as well.

245. So the application is disposed of as follows:

(i)A comprehensive committee comprising of (i) a Senior Scientist from the Central Pollution Control Board (2) a Senior Scientist from the State Pollution Control Board (3) an Expert in Chemical Engineering, especially Organic Chemicals with industrial knowledge, probably from National Institute of Science, Tiruchirappalli (4) Scientist having knowledge of Industrial Pollution with Inorganic Chemistry background from the Indian Institute of Science, Bangalore (5) Senior Health Officer from Rajiv Gandhi Government General Hospital, Chennai, (6) District Collector, Cuddalore is appointed to inspect the SIPCOT Industrial Complex and the villages proximity to the same and probable villages likely to be affected on account of such industrial activities and prepare a comprehensive action plan to remedy the situation. The Committee is directed to conduct the following study for preparing the action plan for resolving the issue of water pollution and restore the water quality

(a) Conduct study, applying reverse engineering or relate back theory to the condition of air, water and soil in Cuddaloe prior to the establishing of the SIPCOT Industrial Complex and subsequent to the same

(b) The reason for the presence of heavy metals like Chromium, Nickel, Cadmium, Lead, Iron and other heavy metals and the reason for high TDS and hardness of water quality and relative study has to be conducted as to whether this was due to the any of the activities of the industrial units in the area due to generation of natural reasons prevailing in that area.

(c) Conduct Health Study as to whether there was any increase in the mortality rate or increase in the nature of disease prior to and after the establishment of the SIPCOT Industrial Complex.

(d) The remedial measures to be taken for the purpose of resolving the issue permanently.

(e) Identify the units/industry on account of whose probable activity that such contamination has been caused.

(f) Suggestions and recommendations to be carried out by the industrial units or other establishment so as to resolve the issue permanently and take the water quality to the extent of potable limit to provide clean water to the people of the locality. The Committee is also directed to conduct study regarding the functioning of RO system provided and if any improvement is required , suggest the same as well.

(ii)The Committee shall prepare a Comprehensive Action Plan with recommendation of temporary and long term measures to resolve the issue and assess the environmental compensation, fixing the responsibility of the persons responsible for the same and provide

necessary data and method of calculation of assessment of environmental compensation.

(iii) The Committee is given the liberty to coopt any other expert of their choice to conduct the study and prepare action plan.

(iv) The expenses for conducting the said study shall be borne by the SIPCOT and fifth respondent, apart from the State Government of providing necessary funds if necessary for meeting the situation.

(v) Till such study is completed and action plan implemented the present arrangement of providing drinking water to the affected villages by SIPCOT and fifth respondent Association shall continue.

(vi)The District Collector, Cuddalore will be the Nodal Officer for providing necessary logistics and coordination for the Committee to inspect and prepare the report.

(vii) The Committee is directed to complete the study and prepare the report within a period of six months and submit the same to the State Government and also this Tribunal by e-filing in the form of Searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per Rules

(viii)The State Government, SIPCOT, fifth respondent Association and State Pollution Control Board are directed to evolve the methodology of implementing the action plan and direct the responsible persons to implement the Action Plan so as to remedy the situation in an effective and time bound manner.

(ix) This Tribunal shall consider the report and pass appropriate

direction if any required at a later stage on receipt of the report from the Committee.

(x) The Pollution Control Board is directed to initiate action against the industries identified and impose environmental compensation against them, after following the procedure in accordance with law.

(xi) Considering the circumstances, the parties are directed to bear their respective costs in this application.

(xii) The office is directed to communicate this order to the Members of the Committee, Chief Secretary, State of Tamil Nadu, Secretary to Government, Health Department, Secretary to Government, Industries and Environment Department and also the official respondents by e-mail immediately so as to enable them to comply with the direction of this Tribunal.

(xiii) The office is directed to place the report if any received as directed for consideration of this Tribunal and also for issuing any further direction in future if necessary as and when the report is received without delay.

With the above directions and observations, the application is disposed of.

.....J.M.
(Justice K. Ramakrishnan)

.....E.M.
(Shri. Saibal Dasgupta)

O.A. No.34/2015
5.3. 2021
kkr