

**BEFORE THE NATIONAL GREEN TRIBUNAL**  
**SOUTHERN ZONE BENCH**  
**CHENNAI**

**APPLICATION NO. 376 of 2013 (SZ)**

And

**APPLICATION NO.102 of 2015 (SZ)**

**APPLICATION NO. 376 OF 2013 (SZ)**

**IN THE MATTER OF:**

*SUO MOTO*

Letter from

CEE TEE Palaniyappan,

No.7, Perumal Kovil North,

Karaikudi

AND

1. District Collector  
Sivagangai
2. The Commissioner  
Karaikudi Municipality  
Karaikudi, Sivagangai District
3. The District Environmental Engineer  
Tamil Nadu Pollution Control Board  
Karaikudi

**...Respondents**

**Counsel for the Respondents**

1. Mr. M. K. Subramanian - Counsel for respondent No. 1
2. M/s. K. Elilselvi &  
G.V. Vairam Santha - Counsel for respondent No.2
3. Mrs. Rita Chandrasekar - Counsel for respondent No. 3

**APPLICATION NO. 102 OF 2015**

**IN THE MATTER OF**

RM. Arun Swaminathan

No.14/6, Mutoorani East

Karaikudi, Sivagangai District

**...Applicant**

AND

1. The Commissioner  
Municipal Administration and Water Board  
Elizhagam, Chepauk  
Chennai-5
2. The Member Secretary  
Tamil Nadu Pollution Control Board  
TNPCB Building, Arumbakkam  
Chennai
3. The District Collector  
Sivagangai District  
Sivagangai
4. Assisstant Executive Engineer  
Public Works Department  
Water Recourse Organisation  
Manimutharu Sub Division  
Karaikudi
5. The Superintending Engineer  
Tamil Nadu Water Supply and Drainage Board  
Sivagangai
6. The District Environmental Engineer  
Tamil Nadu Pollution Control Board  
Sivagangai
7. The Commissioner  
Karaikudi Municipality  
Karaikudi  
Sivagangai District
8. The President  
Sangarapuram Panchayat  
Karaikudi

Sivagangai District

9. The President

Kovillur Panchayat

Karaikal

10. The Managing Director

Tamil Nadu Chemicals Private Ltd. (TCP)

Kovillur, Karaikudi Taluk

Sivagangai District

11. The General Manager

Tamil Nadu State Transport Corporation

Karaikudi

Sivagangai District

12. The Officer incharge/ Scientist

Pollution Division

The Central Electro Chemical Research Institute

Karaikudi

Sivagangai District

...Respondents

**Counsel for the Applicant**

Mr. Kamalesh Kannan and Mr.Sai sathyajith , Taaurs Associates

**Counsel for the Respondents**

1. M/s. Abdul Saleem, S. Saravanan and Vidyalakshmi - Counsel for respondents No. 1, 4 and 7
2. Smt. H. Yasmeen Ali - Counsel for respondents No. 2 and 6
3. Mr. M.K. Subramanian - Counsel for respondent No. 3
4. M/s. S.Thamizharasi - Counsel for respondent No.5
5. Mr. T Mohan and Mr. Yogeshwaran for M/s. Maithreyi Canthaswamy Sharma - Counsel for respondent No.9
6. M/s. Satish Parasaran, Rahul Balaji, R.Parthasarathy, Madhan Babu & Vishnu Mohan - Counsel for respondent No. 10
7. M/s. R. Annamalai, & P. Kannan Kumar - Counsel for respondent No. 11
8. M/s. T. Ravi Kumar - Counsel for respondent No. 12

## ORDER

### QUORAM

Hon'ble Justice Dr. P. Jyothimani (Judicial Member)

Hon'ble Professor Dr. R. Nagendran (Expert Member)

---

Delivered by Hon'ble Justice. Dr. P. Jyothimani dated 26<sup>th</sup> April, 2016

---

- 1) Whether the judgement is allowed to be published on the internet ----- yes / ~~no~~
- 2) Whether the judgement is to be published in the All India NGT Report -----yes / ~~no~~

### Application 376 of 2013

1. One CEE.TEE Pazhaniappan residing at No. 7, Perumal Koil, West Street, Karaikudi in his letter dated 20-11-2013 has brought to the notice of this Tribunal that 90% of the water in Sambai Ootru situated in Koviloor Road which is the source of drinking water for the people living in Karaikudi has been polluted. This Tribunal has taken up the matter *suo motu* on the basis of the said letter and numbered as Application No.376 of 2013 by making the District Collector, Sivagangai, Commissioner Karaikudi Municipality, Karaikudi and District Environmental Engineer, Tamil Nadu Pollution Control Board (TNPCB), Karaikudi as respondents directing them to file their reply. In the complaint it is stated that in spite of regulatory orders issued by the District Collector in banning establishment of commercial complex, automobile service centres, timber saw mills etc., within a radius of 500 m of the said Ootru, the same has not been effectively implemented which results the water source to become highly polluted, unfit for drinking and sought intervention of the Tribunal to preserve the pristine nature of Sambai spring water source.
2. The 1<sup>st</sup> respondent District Collector in his reply has stated that in the land located in Karaikudi- Koviloor Road comprised in S.No. 39/2B-0.43.5 ha and S. No.40/1-0.26.0 ha in the Sambai Ootru just adjacent to Karaikudi Municipal limit, the Karaikudi Municipality has put up 7 bore wells for supplying water to the people of Karaikudi Municipality and the said bore wells are the main source of drinking water to the people of Karaikudi. He has stated that he made an inspection on 12-11-2014 of the Sambai

Ootru and adjacent area with RDO, Devakottai, Tahsildar, Karaikudi, Municipal Commissioner, Karaikudi Municipality and Municipal Engineer, Karaikudi Municipality.

There were a large number of residential and commercial buildings situated within 500 m radius of Sambai Ootru and it includes the commercial establishments, automobile workshops and other activities. According to the 1<sup>st</sup> respondent, the automobile workshops, service station, automobile painting, tinkering units and lathe works situated within 500 m radius from Sambai Ootru are a threat to Sambai Ootru as the auto mobile units let out washing water, spillage of oil, grease from automobile works which pollutes the ground water. The Karaikudi Municipality is periodically analysing the Sambai Ootru water sample through Tamil Nadu Water Supply and Drainage Board and the test reports of August and September 2014 reveal that water is potable and the existing automobile service shall be directed to follow norms prescribed by TNPCB to safeguard Sambai Ootru, which is the source of drinking water to the people of Karakudi.

3. The 2<sup>nd</sup> respondent Karaikudi Municipality has also reiterated what is stated by the District Collector in his affidavit.
4. The Joint Chief Environmental Engineer of TNPCB has stated that Karakudi is a Municipality and also a Taluk Head Quarters of Sivagangai District and it has 36 wards with a total population in the town of 86,422. The daily water requirement for the town is 7.95 MLD out of which 5.8 MLD is met from the bore wells in Sambai Ootru and the balance from bore wells located in O. Siruvayal village. It is stated by the Board that in Sambai Ootru, the Karaikudi Municipality is having 3.95 acres of land where 7 bore wells are located and the water drawn from the said bore wells is supplied to the Municipality. It is also stated that a number of developmental activities have taken place near Sambai Ootru including commercial establishments, automobile workshops and other activities.
5. It is stated that Consumers Association, Karaikudi Town has filed a writ petition in W.P. No. 17544 of 1995 on the file of the High Court of Madras against the District Collector and others for a direction not to grant sanction to build any house or building within a radius of 500 m of Sambai Ootru in Karaikudi limit. The said writ petition was disposed of on 11-07-2002 with a direction to the respondents to consider the representation of the petitioners therein dated 20-03-1992 and 30-03-1995 as well as any other persons who

are affected and such exercise shall be completed within 3 months. Accordingly, the District Collector in the proceedings dated 08-12-2013 directed not to permit any construction activity in the area. It is further stated that in 2014 one Mr. C. Meyyar and another filed writ petition W.P. (MD) No.2523 of 2014 in Madurai Bench of Madras High Court to direct the respondents to initiate appropriate action to ensure that an area covering a radius of 500 m around the Sambai Ootru, Karaikudi is maintained for safe drinking water by not permitting any new constructions and also to remove the existing unauthorised constructions. The High Court in the order dated 18-02-2014 disposed the writ petition with a direction against the authority to consider the representation and also any third party who may be affected and after hearing them in order to avoid the allegations of violation of natural justice, pass orders in accordance with law.

6. After the filing of the present application before the Tribunal and as per its direction dated 23-09-2014, an inspection was carried out by the District Environmental Engineer and Assistant Engineer, TNPCB on 01-10-2014 and following were observed in the inspection:

1. *“There are lot of developments including commercial establishments, automobile sales and service centres belong to branded companies like Hyundai, Maruthi, Hero Honda and other small scale four wheelers & two wheelers service centres which include water washings, automobile painting and tinkering units, lathe works located along the Karaikudi-Madurai Road (Koviloor Road) and within 500 metres of Sambai Ootru. There are twenty four units identified at the time of inspection.*
2. *The units which are carrying out water washing are simply letting out the effluent either into septic tank or on land for open percolation. This will ultimately pollute the ground water.*
3. *Some of the units are carrying out automobile repairing works which include oil service, painting, tinkering etc. In these units, spillages of oil and grease were noticed. During rain, there are chances for seepage of oil into ground and leads contamination of the ground water”.*

7. **Application No. 102 of 2015**

In the meantime, Mr. R.M. Arun Swaminathan has filed the above Application No. 102 of 2015 praying for a direction against the District Collector, Sivangangai District-respondent No.3 and the Commissioner, Karaikudi Municipality, Karaikudi -respondent No.7 to direct all the respondents to ensure public health and safety in order to prevent water impurity in Karaikudi municipal limit particularly at Sambai Ootru and consequently direct the respondents to take all actions as per various Acts to protect and

control water effluence. According to the applicant, the High Court of Madras has directed on two occasions to consider the representation. He has stated that as per section 17 of the Water (Prevention and Control of Pollution) Act 1974, the PCB should make a comprehensive program for prevention, control and abatement of pollution of streams and wells and the Municipality has got a statutory duty to maintain water catchment area and such duty cannot be wriggled out on the ground of financial constraint. He also stated that a study made by CECRI (Central Electro-Chemical Research Institute) conducted in the year 2004 states that a stagnant sample of water collected from the lead channel near bridge in Koviloor road had high proportion of sodium and sulphate and high levels of ammonia, chemical oxygen demand and faecal coliform. No follow up action has been done by the Government of Tamil Nadu to whom the report has been sent. The PWD as well as PCB have also not taken any step.

8. The 4<sup>th</sup> respondent PWD in its reply has stated that the Sambai Ootru and the area surrounded it including the catchment area are not maintained by the Public Work Department or Water Resources Organization. It is a type of bore well and natural source of water body fully maintained by the Karaikudi Municipality. It is also stated that the water catchment area of Sambai Ootru falls within the limit of Koviloor Panchayat and Sankarapuram. The water from Sambai Ootru is not used for irrigation purposes. It is also suggested by the PWD that appropriate suggestion would be the creation of an underground drainage system for wastewater disposal by the Karaikudi Municipality.
9. The District Environment Engineer of TNPCB who is the 6<sup>th</sup> respondent in his reply dated 6<sup>th</sup> July 2015 stated that the total population of Karaikudi Municipal Town is 86492 and daily water requirement for the town is 7.95 MLD out of which 5.85 MLD water is met from the bore well in Sambai Ootru and remaining from bore wells in O. Siruvayal village. The Sambai Ootru is located in Karaikudi-Madurai road outside the Karaikudi Municipal limit and falls within the administrative jurisdiction of Sankarapuram Panachayat of Sakkottai union. It is stated that Karaikudi Municipality is having 3.95 acres of land in which 7 bore wells are in operation. It is also stated in the reply filed by the Board that in Karaikudi-Madurai Road enormous developments have taken place with commercial buildings, automobile work shops, car/two wheeler sales and service showrooms. The workshops carrying on water servicing of vehicles are discharging

wastewater generated on land resulting in open percolation. 24 such automobile units were identified and show cause notice were issued on 09-10-2014 under Water (Prevention and Control of Pollution) Act 1974.

10. It is further stated that water samples were collected on 09-06-2015 for analysis in 3 points

1. Bore well owned by Karaikudi Municipality at Sambai Ootru
2. Bore well owned by M/s. TCP Ltd., at Sambai Ootru
3. Bore well owned by Koviloor Panchayat

The analysis report shows the parameters at various levels which are as follows:

SI. No	Parameters	Bore well owned by Karaikudi Municipality at Sambai Ootru	Bore well owned by M/s. TCP limited	Bore well owned by Koviloor Panchayat	Drinking Water Standard
1	pH	5.28	5.15	5.45	6.5 to 8.5
2	Total Dissolved Solids (mg/L)	404	268	458	500
3	Chlorides (mg/L)	136	48	89	250
4	Sulphates (mg/L)	41	32	48	200
5	Total Alkalinity (mg/L)	104	50	154	200
6	Total Hardness (mg/L)	212	110	184	300
7	Nitrate Nitrogen (mg/L)	11.41	9.70	35.06	45
8	Fluoride (mg/L)	0.13	0.22	0.85	1.0

Accordingly, the water samples were found to be slightly acidic and apart from that all other parameters were within the drinking water specification (IS 10500: 991)

11. It is also stated that M/s. TCP Ltd., Koviloor has provided tri salt plant to recover salts from wastewater by evaporation technique based on the directions issued by the Board and the tri salt plant is put into operation to its 100% efficiency since May 2015 and no wastewater is discharged outside the premises. It is further stated that the wastewater samples from Koviloor Periya Kanmoi were collected on 09-06-2015 and analysed in the Advanced Environmental Laboratory of TNPCB, Madurai. The report is elicited as follows:



SI. No.	Parameters	Values (mg/L)	Tolerance limits for inland surface water subject to pollution. IS 2296-1982 for irrigation purpose.
1	pH	8.50	-
2	Total Suspended Solids	256	-
3	Total Dissolved Solids	6004	2100 mg/L
4	Chlorides	269	600 mg/L
5	Sulphates	2303	1000 mg/L
6	Oil & Grease	4	-
7	BOD	124	-
8	COD	536	-
9	Sulphides	3.2	-
10	Percent Sodium	98%	60%

Since the parameters regarding TDS and sulphates are higher than the permissible limit, a closure order and disconnection of power supply was passed by the Board on 16-02-2015 against TCP Ltd. After the unit rectified its short falls, the closure order was revoked temporarily up to 31-12-2015 for monitoring its operation.

12. The 7<sup>th</sup> respondent Commissioner of Karaikudi Municipality in its reply dated 13<sup>th</sup> October 2015 while narrating the historical nature of the Municipality stated to have been started in 1928 which was subsequently upgraded as a special grade Municipality in the year 2013, has stated that the Municipal limit is comprised in 13.75 sq km. While admitting about the existence of 7 bore wells and 6 additional bore wells and that drinking water is supplied to the people in Karaikudi Municipal limit it is stated that there are many residential and commercial buildings in and around 500 m radius of Sambai Ootru and residential as well as commercial businesses such as timber, mechanical workshop, automobile work shop, petrol bunk, welding shop, wine shop etc., are stated to be situated. Based on an order of the Hon'ble High Court of Madras dated 11-07-2002 passed in W.P.NO.17554 of 1995 directing to consider the representation, the Municipality passed a resolution on 31-12-2003 resolving to send a proposal to the Director of Town and Country Planning to prohibit construction activities around 500 m radius from the water spring and declare it as 'prohibited used zone' under Tamil Nadu Town and Country Planning Act, 1971.

13. It is stated that the 12<sup>th</sup> respondent has conducted an inspection in 2004 and filed a report to the Secretary to Government and the same was also forwarded to the 4<sup>th</sup> respondent. The report of the 12<sup>th</sup> respondent has found the origin of pollution from 4 sources namely, a). Oil, grease and wash water pollution from the Automobile work shop b). Fertilizer runoff from farms c). SO<sub>2</sub>/ sulphite release from TCP Ltd., d).Sewage from the Karaikudi

town. According to the 7<sup>th</sup> respondent Commissioner Municipality, the Municipality has taken all effective steps to prevent water pollution and all efforts are taken to have periodic meeting and inspection. The Municipality has also resolved on 29-10-2013 to extend the Municipal boundary limit including the villages like Sankarapuram, Koviloor, Kottaiyur, A. Puthur, Devakotai Rasta in which Sambai Ootru is located. It is also stated that the 11<sup>th</sup> respondent Tamil Nadu State Transportation Corporation is also discharging its old wastes in open area and the Municipality is unable to curtail the same. It is further stated that the 10<sup>th</sup> respondent Tamil Nadu Chemicals Pvt. Ltd., is discharging their chemical wastes since 1980 to Koviloor Periya Kanmoi which belongs to the 9<sup>th</sup> respondent Panchayat.

14. The 9<sup>th</sup> respondent Panchayat in its reply dated 13-09-2015 has stated that the 10<sup>th</sup> respondent industry has been continuously letting out effluent causing pollution and contaminating water bodies, ground water, and agricultural land. The 10<sup>th</sup> respondent unit is stated to be located on the boundary of Sankarapuram and Koviloor Panchayat and lands behind and at the side of industry belong to 9<sup>th</sup> respondent Panchayat. It is stated that the effluent discharged by 10<sup>th</sup> respondent industry runs through the adjacent land and joins the Periya Kanmoi. The water from the Periya Kanmoi runs into Konneri Kanmoi and then merges with the Thenaaru and joins Karaikudi Kanmoi which is on the Sambai Ootru and that is the principal source of drinking water to Karaikudi Town. It is stated that the water sources in Panchayat have been severely polluted and the test report also shows contamination. It is also stated that as per the report of the Board the water in the region is acidic. The villages in the area and the lands therein have become unfit for agriculture and lay fallow. According to 9<sup>th</sup> respondent there are various ailments caused to the people and an epidemiological study has to be done. According to the Panchayat, the Board has not filed any inspection report on status of the ETP of the 10<sup>th</sup> respondent unit and it is impossible to achieve zero liquid discharge.

15. The 10<sup>th</sup> respondent Tamil Nadu Chemicals Pvt Ltd., in the reply dated 13-08-2015, while denying every averments made in the application has stated that the 10th respondent which has established a plant for manufacturing sodium hydrosulphite and the plant is situated at Colony vassal village in Koviloor near Karaikudi having been commissioned in 1997 as joint venture Public Ltd Co., with Tamil Nadu industrial Development

Corporation (TIDCO) which subsequently became subsidiary of TIDCO in 1978 and it was in 1986 the present management has taken over the affairs of the Company consequent to the disinvestment of TIDCO share in its favour. The product manufactured by the 10<sup>th</sup> respondent has a wide application to various Industries like textile, sugar/jaggery, pharmaceutical, paper, clay, VAT dyes application, soap and tanning of leather.

16. The 10<sup>th</sup> respondent has raised an issue of maintainability stating that the application filed by the applicant is in effect under section 14 of NGT Act and on the admitted cause of action which as per the applicant arose in the year 2004, the present application filed in 2015 is thus barred by limitation. It is further stated that pollution in Sambai Ootru has been a matter decided by the High Court.

17. On the merits of the case, it is stated that the 10<sup>th</sup> Respondent has obtained clearance from the Board and conditions imposed by the Board and environmental norms and standards have been followed. It is also stated by the 10<sup>th</sup> Respondent that based on the permission granted by the 7<sup>th</sup> respondent on 13-05-1971, the said respondent has dug 4 bore wells in its Plant at Koviloor. It is stated that the water pollution in Koviloor Periya Kanmoi is not caused by of the 10<sup>th</sup> respondent who has provided tri salt recovery plant for the recovery of salt from wastewater by evaporation since 2003 and the said installation was as per the direction of the Board and is fully operational. In that regard the said respondent has spent nearly Rs.3 Crores in installing recovery plant and since March 2015 there has been additional improvements to the Plant in order to become 100% zero discharge unit. The 10<sup>th</sup> respondent has also referred to the water quality report of the Board based on the sample collected on 09-06-2015 which is within the prescribed standard. The 10<sup>th</sup> respondent has stated that there has been no discharge of effluent to the nearby water bodies for a period 12 years after commissioning of Salt recovery Plant and in any event there is no possibility of over flow of water from Koviloor Kanmoi into Sambai Ootru since the distance between the two water bodies are over 2 km. It is also stated that the closure order issued by the Board earlier has nothing to do with the pollution but it occurred due to accidental crack of SO<sub>2</sub> and there are no causalities and suffocation. That was the only incident which has happened in the 10<sup>th</sup> respondent unit and thereafter the unit has strictly complied with all the directions of Board and therefore

the closure order came to be revoked periodically. The 10<sup>th</sup> respondent has also listed out the steps taken to comply with the directions of the Board dated 26-03-2015 as below:

SI.No.	Conditions	Compliance
1.	Solar Evaporation Pans shall be cleaned and emptied and dismantled within one month	Complied with
2.	The low lying area with pits in the northern compound wall shall be filled up with soil to prevent stagnation (within one month)	Complied with
3.	Tri-salt Plant: (i) The tri-salt Plant shall be operated with 100% efficiency (ii) Each stage of MEE shall have online temperature and pressure gauges with computer recording facility ( within two months) (iii) EMFM to be provided at the inlet of MEE < MEE condensate, MEE reject and connect the same to computer recording arrangement within 2 months	Operating with 100% efficiency  Temperature and pressure Gauges fixed for each stage. Online computer recorder provided.  EMFM provided at the inlet of MEE and MEE condensate and connected to computer recording
4.	Sewerage treatment plant to be provided online EMFM at the inlet and outlet STP and connected to computer recording arrangement within 2 months	EMFM provided at the inlet and outlet of STP
5.	The unit shall provide online dissolved oxygen (DO) meter in the aeration tank with computer recording arrangement within 2 months.	Purchase order placed for procurement of DO and will be installed with computer recording arrangements. The work will be completed within 10 days of receipt
6.	Public liability insurance shall be renewed for further period from 01.04.2014 within 1 month	Public liability insurance renewed up to 30.03.2016
7.	Bio-mass shall not be stored outside the exiting shed under any circumstances	The bio-mass is stored in existing storage shed and will avoid open storage in future. We are also extending the existing storage shed
8.	New SEP near the boiler house for RO reject to be commissioned immediately	New solar evaporation pond is being used for boiler blow down water collection. The quantity and the frequency of blow down is drastically reduced due to usage of RO water to boiler. As our RO reject is irrigable quality, it is used directly for gardening
9.	The unit shall conduct safety audit through a competent authority during the temporary operational period and submit the report to the TNPCB for compliance.	Safety audit done through a competent safety audit report and compliance report submitted
10.	The unit shall be operated and maintain the tri-salt plant continuously and efficiently so as to achieve Zero discharge from the process. The unit shall furnish the salt recovery details month wise.	The tri-salt plant is being run continuously and efficiently. We will submit the salt recovery details month wise as directed.
11.	The unit shall operate and maintain the STP continuously and efficiently and shall ensure that the treated sewerage is utilized for	Condition complied with.

	gardening inside the premises.	
12.	The unit shall collect the entire residue from the existing solar evaporation pans and dispose the same to TSDF Gummudipoondi after obtaining authorization under HW(MH & TM) rules from TNPCB	TCP is registered with Industrial Waste Management Association. Waste sample for analysis has been sent to TN waste management facility at Gummudipoondi and further agreement has been entered with for disposal of residue to the said facility. The residue will be disposed after authorization under HW (MH & TM ) rules.
13.	The unit should furnish an affidavit to the TNPCB that no wastewater will be discharged directly/indirectly outside the unit premises within one week.	Complied with.
14.	The unit shall operate and maintain the liquid SO <sub>2</sub> plant with utmost care to prevent any SO <sub>2</sub> leakage and public complaint in future.	Directions will be strictly followed.

18. The Tribunal has taken into consideration a report of the Superintending Engineer of Directorate of Municipal administration dated 30-08-2004 pointing out certain sources of pollution which are stated to be as follows:

- A) "Pollution from buildings that have developed near the Sambai Ootru head works in Koviloor Road, viz., Automobile workshops and service stations belonging to the Tamil Nadu State Transport Corporation and private owners, in Karaikudi to Koviloor Road.
- B) Pollution from an agricultural farm located along the Koviloor Road.
- C) Industrial Wastewater pollution from Tamil Nadu Chemicals Private Ltd, in Koviloor Road.
- D) Wastewater pollution from the street drains of Karaikudi Town carrying sludge/domestic wastewater,"

and also the remedial measures suggested which are as follows:

*"Remedial measures:*

*The following remedial measures are suggested.*

*Short term measures:*

- i) *A detailed sanitary survey for Sambai Ootru source may be conducted once in every 3 months and the results may be documented periodically for appropriate evaluation for the intensity of pollution in the water source. The Municipality may have a tie-up with TWAD CERI & Karaikudi Alagappa University for undertaking a study of the changes in water quality characteristics to build water quality data bank for suggesting suitable measures to prevent contamination of the water body.*
- ii) *TNPCB May be requested to inspect all automobile shops periodically and suggest suitable norms for removal of oil & grease wastes emanating from these units and ensure such measures are implemented within a time frame.*
- iii) *Unauthorised constructions within 500 m radius of the head works site and in Karaikudi-Koviloor road should be removed. The 500m extent in and around Sambai Ootru may be declared as a notified zone. The administration control of the notified zone may be vested with District Collector.*
- iv) *As the Bore well sources have been drilled with M.S. Casting pipe, it is presumed that the life of the Bore well sources has already been exhausted. It is observed that the pH value is around 6.5 in the acidic sample and the iron*

*content in the BW water is around 0.8 mg/L. Alternate borewells using PVC casting pipe may be drilled within headworks premises, after due geographical survey.*

- v) *Check dams may be constructed across Athalai Kanmoi channel & PWD supply channel so as to intercept & divert the wastewater emanating from Karaikudi Kanmoi, either by gravity or by pumping system as required. Desilting arrangements viz., screen wells & grit wells may be provided upstream of these check dams.*
- vi) *A mass cleaning campaign may be undertaken by the Municipality & PWD to desilt & clean the Athalai Channel Kanmoi & PWD supply channel. The confluence point of this channel with Karaikudi Kanmoi may be cleaned & widened. The control reaches may be bottom lined & sidelined with appropriate rivetments.*
- vii) *The encroachments within Karaikudi Kanmoi may be removed.*
- viii) *A comprehensive sewerage scheme to Karaikudi town is to be implemented for preventing sewerage pollution of Karaikudi Kanmoi 7 peripheral areas of Sambai Ootru. Investigation work for a comprehensive sewerage scheme may be taken up immediately and a DPR may be got prepared through TWAD Board within a period of 4 months. An awareness campaign on environmental sanitation and protection of Karaikudi Kanmoi & Sambai Ootru water source may be launched among the public highlighting to risk factors & action needed for protection of their precious drinking water source.*

*Long term Measures:*

- i) *A comprehensive sewerage scheme has to be provided to the town before March, 2006.*
- ii) *Entire Karaikudi Kanmoi & Sandstone aquifer underlying Kadaiapar to Karaikudi Kanmoi should be declared as prohibitive zone, as to preserve the aquifer as a long standing water source for the people of the locality, in and around Karaikudi Town.*
- iii) *Adequate RWH structures may be constructed in the periphery of the aquifer zone for constant recharge of the source.*
- iv) *Tertiary treatment methodologies such as installation of R.O Plant may be insisted to be provided in the TCP Industrial premises”.*

19. Accordingly, we have directed in our order dated 14<sup>th</sup> September 2015, the CPCB to inspect the Sambai Ootru including Karaikudi Periya Kanmoi and other water bodies, making a detail analysis of the samples taken in various places and file its report. We have also directed the CPCB that if there is any water pollution, to state the source of the same apart from stating about the adequacy of measures taken by the Tamil Nadu Chemicals Pvt Ltd., namely, the 10<sup>th</sup> respondent.

20. The CPCB has filed its report on 17<sup>th</sup> November 2015. The representatives from the CPCB and TNPCB are stated to have visited the Sambai Ootru, M/s. Tamil Nadu Chemical Pvt Ltd., Periya Kanmoi, Sekarathi Kanmoi, Koviloor Panchayat water source, Athalai Kanmoi and other water sources of Karaikudi Municipality. According to the report, the drinking water source of Karaikudi town is ground water and it has 4 natural tanks namely, Periya Kanmoi, athalai Kanmoi, Sekarathi Kanmoi and Karakudi Kanmoi apart from one natural spring tank called Sambai Ootru. The water from 4 Kanmois are

used for irrigation purposes and maintained by PWD. The Sambai Ootru is spread over 1500 m<sup>2</sup> and located in north side of Karakudi Kanmoi. Karakudi Municipality has 11 bore wells in Sambai Ootru premises and 3 bore wells in MSW dumping premises and from these bore wells around 12.10 MLD water is being pumped and supplied to Karaikudi residences. As per the report, 103 commercial and residential activities are located within 500 m radius to the Sambai Ootru and the main water polluting commercial activities are automobile workshops and vehicle service stations most of which are not having proper collection tank. It is stated that in automobile work shop the oil/grease spilled during repair is not being properly collected and spread over the land. Regarding the status of the activities of Tamil Nadu Chemical Products Ltd., the 10<sup>th</sup> respondent, the report of CPCB states that the chemical industry is located in Karaikudi on the south side of Periya Kanmoi and 1.5 km from the Sambai Ootru. As per survey conducted by CPCB team, the storm water from the industry premises is joining the Periya Kanmoi. However, it is stated that the existence of these outlets, discharge storm water from process area and contaminated water from old solar ponds may not be ruled out. While speaking about the status of water quality in Sambai Ootru and other Kanmoi relating to Sambai Ootru it is stated that it is totally covered with weeds and lotus plant and the maintenance of Ootru comes under Karaikudi Municipality and it was found to be very poor. It is stated that there are no Kanmoi directly interlinked with this Ootru. On the one side of the Ootru, Karaikudi Kanmoi exists and on the other side the drain which carries domestic sewage. Periya Kanmoi which is stated to be located at a distance of 1.5 km from Sambai Ootru, adjacent to this Kanmoi M/s. TN Chemical Pvt. Ltd., exists. The storm water from the industry premise and surface run off from solar evaporation ponds are let into catchment area of this Kanmoi. During inspection, the water level in Periya Kanmoi was very less and there was no over flow and the water stagnated in Periya Kanmoi was found to be highly alkaline in nature. It was observed that in seepages as well as in outlet pipe from the TCP compound wall, the coloured water having pH > 10 was found stagnated in many places of catchment area. There was an open well existing in catchment area filled with green coloured water. Regarding the Karaikudi Kanmoi it is stated that it is totally covered by aquatic weeds, part of domestic sewage from Karaikudi town is also joining through storm water drain upstream of Karaikudi Kanmoi. The

CPCB team is stated to have collected water sample from Sambai Ootru, Periya Kanmoi, Athalai Kanmoi, Shekarathi Kanmoi and Karakudi Kanmoi on 15-10-2015 and analysed the same in CPCB Laboratory, Bengaluru. The analysis results are as follows:

Sl.No.	Parameters (all in mg/L except pH and EC)	Sampling Location				
		Periya Kanm oi	Athalai Kanmoi	Shekarathi Kanmoi	Karaikudi Kanmoi	Sambai Ootru
1	pH	9.9	7.2	6.7	7.2	7.5
2	EC $\mu$ s/cm	6400	3330	209	1440	807
3	TDS	4444	2136	112	800	500
4	BOD	513	--	--	48	05
5	COD	1600	214	28	115	91
6	alkalinity	1980	624	112	376	144
7	Total Hardness	57	336	74	222	212
8	Calcium	4.0	102	10.8	78.0	52.4
9	Magnesium	11.4	19.7	11.4	6.6	19.7
10	Chloride	188	245	7.8	229	143
11	Fluoride	2.3	0.71	0.13	0.87	0.76
12	Sulphate	1426	670	01	21	29
13	Sodium	1400	500	6.0	143	75
14	Potassium	16	20	7.0	24	6.7
15	Nitrate	--	--	0.3	0.02	0.02
16	Nitrite	--	--	0.22	0.03	0.03
17	Sulphide	5.3	0.6	0.03	2.04	0.2
18	Sodium percent	97.5	75.1	13.6	55.2	42.5
19	SAR	80.7	11.9	0.3	4.2	2.2



The report further states that as seen in the table pH, TDS, BOD, COD, alkalinity and sulphate contents were high in Periya Kanmoi which is located at the back side of 10<sup>th</sup> respondent Company and the contamination is due to the discharge of effluents from TCP.

21. In respect of Sambai Ootru, the report says that except COD and BOD other parameters are found within limits of drinking water Standard. Adjacent to this Ootru, the storm water drain carrying domestic sewage from commercial activities was found joining this Ootru on the other side and this may be contributing to COD and BOD in the Ootru. It is also stated that the percentage of Sodium (42.5) and SAR (2.2) indicated the good quality of water for irrigation purposes. Regarding the status of ground water quality in Karaikudi Municipality, in samples taken from pumping station (2) located in the Sambai Ootru, Pumping station (1) at MSW site and Koviloor water Supply, except TDS whose concentration was slightly higher than drinking water standard from the sample collected from pumping station (2) and the pumping station near MSW site near Sambai Ootru, the parameters are found within the permissible limit for drinking water. Regarding water supplied to Koviloor village, the COD was found to be slightly higher which may be due to the seepage of water from Thennar which is carrying contaminated water from Periya Kanmoi during rainy period.

22. While stating on the status of water quality in TCP bore wells it is reported as follows:

SI No	Parameters (all in mg/L except pH and EC)	Sampling Location		
		TCP Bore well -1	TCP bore well -2	TCP Bore well-3
1	pH	6.7	6.8	6.5
2	EC $\mu$ s/cm	611	620	614
3	TDS	376	376	384
4	COD	2.0	2.4	1.2
5	Alkalinity	124	112	120
6	Total Hardness	165	161	158
7	Fluoride	0.56	0.46	0.45
8	Sulphate	23.9	26.5	33.9

9	Chloride	84	80	78
10	Nitrate	0.23	0.4	0.25
11	Nitrite	BDL	0.1	BDL
12	Sulphide	BDL	--	0.03

23. Regarding status of water quality in bore wells in Koviloor Panchayat it is stated that it shows very high TDS, BOD, COD, alkalinity, sulphate, copper, iron and zinc and this may due to discharge of effluent from TCP.

24. It is also stated that the drain carrying domestic sewage from Karaikudi town and industrial effluent shows there is slight contamination. As per analysis, drain water near Karaikudi bus stand and drain joining Athalai Kanmoi shows high concentration of TDS, COD, BOD and sulphate on the outside of TCP compound wall. The CPCB report gives the following over all findings and conclusion:

- (a) As per the observations of CPCB Team, Periya Kanmoi and other Kanmoies were found totally covered with water weeds and silt, no proper maintenance in place.
- (b) The analysis results of samples collected from Periya Kanmoi confirms the severe contamination due to either direct discharge of effluent or due to seepages from earthen ponds/solar ponds which were used for storage of untreated/treated effluent during 1977-March 2015 in TCP unit. Even during visit, team observed seepages from TCP Compound walls and slight flow from their out let pipes which was meant for discharge of storm water from the premises. This Kanmoi water quality almost resembles the effluent quality of TCP unit; this water is not suitable for even irrigation purpose.
- (c) The analysis results of samples collected from Athalai Kanmoi also confirms the contamination of water due to surplus water flow from Periya Kanmoi during rainy period and discharge of domestic sewerage (part of) from Karaikudi town through drain.
- (d) Shekarathi Kanmoi was found almost dried up. Due to rain before the visit/monitoring, in some places stagnated water was found, the COD concentration in the Kanmoi indicates the slight contamination.
- (e) The analysis results of Karaikudi Kanmoi confirm the contamination of water due to surplus water flow from Periya Kanmoi during rainy period and discharge of domestic effluent (part of) from Karaikudi town through drain.
- (f) The analysis results of Sambai Ootru confirms the slight contamination due to existence of storm water drain carrying domestic effluent from commercial activities and joining this Ootru in other side.

- (g) The analysis result of samples collected from the bore wells from which drinking water is being supplied to Karaikudi town found within the permissible limit of drinking water is being supplied to Karaikudi town found within the permissible limit of drinking water standards except TDS concentration.
- (h) Municipal solid waste generated from the town is being dumped in the identified area without any lining system and no proper arrangements were made to collect leachate from the site. This site is located at a distance of <1 km from the Karaikudi Kanmoi. And also it was observed that out of three bore wells, two bore wells were in operation, these water being supplied to Karaikudi town for drinking purpose. Since these bore wells are in MSW site it may lead to contamination.
- (i) The water quality of bore well from which drinking water is being supplied to Koviloor village was found to have slight contamination due to seepage of water from Thennar which is carrying contaminated water from Periya Kanmoi during rainy period.
- (j) The water quality of bore wells from which TCP is drawing water for process and to meet other requirements found meeting with prescribed standards of drinking water quality because these bore wells are located upstream of Sambai Ootru.
- (k) CPCB team visited 7 water service stations, out of seven service stations only three stations provided septic tanks to collect wash water after vehicle service and other service stations were found discharging effluents without any treatment having BOD of 437 mg/L, COD of 2571 mg/L and O & G of 191 mg/L collected in septic tank is being given to private party to dispose these effluents. However, it is not known that where these effluents are discharged either in any drain or in any Kanmois.
- (l) The analysis results of samples collected from open well behind the TCP unit and Koviloor village which is located adjacent to TCP unit found contaminated and not suitable for drinking. These open well water is not suitable even for irrigation purpose also.
- (m) As per the information provided by the M/s. Tamil Nadu Chemical Products Ltd., (TCP) the unit had practice of discharge of untreated/treated effluent into earthen ponds followed by impervious ponds for solar evaporation till 2015. Due to this, contamination of ground water in the surrounding area may not be ruled out.
- (n) The TCP unit is not having proper drainage system to collect the surface run off from the process area during rain and also not provided any treatment system to treat the same.
- (o) The TCP unit has not taken any steps to remove residues from the dismantled solar ponds. During rain, the surface run off from this area is being discharged into catchment area of Periya Kanmoi. During inspection huge quantity of stagnated water having pH 10.1 and Sulphate of 3700 mg/L was found stagnated along the compound wall and seeping through compound wall.

(p) The tri-salt unit provided by the M/s. TCP is not found fool proof system to achieve ZLD, because around 27 KLD of water is being let into atmosphere in the form of water vapour, this may cause odour nuisance in the surrounding area. The unscientific way of recovery of Sodium thio sulphate (open pan) in the open space also causes the spillages of salts and other fugitive emissions (vapours from the pan) in the surrounding area.

(q) Storage of Sulphur slag in the open pit may also cause contamination of ground water in the surrounding area.

“ Regarding the protection of water quality in Sambai Ootru and bore wells (ground water) around the Ootru it is recommended by the CPCB to direct Karaikudi Municipal authority to take following measures:

- To install underground drainage system to collect domestic effluent and to install STP to treat the same.
- To direct Tamil Nadu Transport Service Station to construct proper collection system and to treat the same to desirable limit.
- To direct all commercial activities located around the Sambai Ootru to install proper tanks to collect water wash and to remove Oil & grease and to send to authorised party to dispose safely without affecting any water bodies till construction of STP. After construction of STP these effluent shall be sent to STP.
- To direct the Municipal authority to take steps to divert the drains carrying domestic effluent into downstream of Karaikudi town till installation of STP.
- To stop operation of Bore well which exists inside the MSW site and to construct MSW site as per CPCB guidelines to protect the health of Karaikudi public and to protect surrounding water bodies.

Regarding protection of water quality of Periya Kanmoi and other Kanmoies which are meant for irrigation purpose, it is recommended by the CPCB to direct the concerned authority of PWD & WR to take following measures:

- To take periodical maintenance of all Kanmoies exist in Karaikudi by removing silt and Water weeds to increase water storage capacities of Kanmoies since all Kanmoies are rain fed no other sources are exist to feed these Kanmoies.
- To take measures to not to allow discharge of any effluents into Kanmoies to prevent further contamination of water in these Kanmoies.
- To take steps to restore the water quality of Periya Kanmoi and Athilai Kanmoi by applying principle of Polluter Pays.

Regarding the water and air pollution in Karaikudi Town and its nearby villages the CPCB has given the following recommendations to M/s Tamil Nadu Chemical Products Ltd., to take following measures which are as follows:

- To stop operation of process till installation of fool proof salt recovery system including water vapour capture system from reactor during concentration of mother liquor. And to reuse these captured water vapour in the process.
- To collect all stagnated water from dismantled solar evaporation pond area and to treat the same to ensure prescribed standards of irrigation before used for gardening.
- To upgrade the existing Air Pollution Control devices of Sodium hydro Sulphite Plant and Liquid Sulphur di-oxide Plant to meet the prescribed standards of TNPCB and to install continuous online monitoring system to monitor source emissions. And also to install digital display board in the industry entrance to disseminate online monitoring data to public.
- To provide proper storm water drains cum collection tank to collect surface run off from process area during rainy period and to treat and reuse in the process.
- To ensure no effluent or wash water from the process area shall be mixed with domestic sewerage.
- Prevailing seepages due to storage of untreated/treated effluent in earthen ponds/solar ponds in the past may cause further contamination of ground water in the surrounding, hence it is suggested to direct the unit to provide containment wall either along the premises wall or around the earlier solar ponds to prevent further contamination in the surroundings.
- To take steps to restore water quality of Periya Kanmoi which is located behind the TCP unit and contaminated either due to discharge of effluent or due to seepages of effluent from earthen ponds of TCP unit.
- To take steps to remove accumulated silt in Periya Kanmoi which is contributing obnoxious odour in the surrounding, the removed silt shall be analysed, if it contains any harmful chemicals the same shall be sent to TSDF after obtaining permission from TNPCB.
- To take up steps to restore ground water quality in the Koviloor village which is located adjacent to Periya Kanmoi and contaminated due to stagnation of polluted water in the Periya Kanmoi.
- To take up detailed ground water quality study through either National Ground Water Research Institute, Hyderabad or through any reputed institutes to ascertain the extent of ground water pollution to take up remediation of the same to restore the water quality in the area”.

25. After the said inspection report was filed by the CPCB, the 10<sup>th</sup> respondent has filed a reply dated 12<sup>th</sup> December 2015 giving answer to each of the recommendations of the report of the CPCB. Regarding the first suggestion to stop of the 10<sup>th</sup> respondent till installation of full proof salt recovery system including from reactor during concentration

of mother liquor, it is stated that all recommended steps have been taken which was supported by various photographs. Likewise, in respect of other suggestions, the 10<sup>th</sup> respondent has elaborately stated about the steps taken.

26. In the meantime, it is relevant to find that the order of closure and disconnection of electricity to the 10<sup>th</sup> respondent by TNPCB dated 16-02-2015 which was suspended temporarily on 26-02-2015 up to 30-06-2015 subject to certain compliance was continued in the proceeding of TNPCB up to 31-12-2015. On the basis of a request made by the 10<sup>th</sup> respondent for revocation of closure order the Board is stated to have constituted a committee and thereafter in the proceedings dated 30-12-2015, the suspension of revocation order was extended for 1 month subject to the compliance of conditions stipulated on 24-06-2015. In a subsequent proceeding of the Board dated 25-01-2016, taking note of the committee's report which was given after inspection on 06-01-2016 and on 07-01-2016 that the unit has taken sufficient efforts to address environmental issues and recommended for giving additional time for complying directions of Board, earlier order of suspension of closure order was extended up to 31-07-2016 subject to the compliance of the following conditions:

1. All the Solar Evaporation pans shall be cleaned and emptied and dismantled within one month.
2. The low lying area with pits in the northern compound wall shall be filled up with soil to prevent stagnation (Time one month).
3. Bio mass shall not be stored outside the existing shed under any circumstances.
4. The unit shall operate and maintain the tri salt plant continuously and efficiently so as to achieve Zero Discharge from the process. The unit shall furnish the salt recovery details month wise.
5. The unit shall operate and maintain the STP continuously and efficiently and shall ensure that the treated Sewerage is utilized for gardening inside the premises.
6. The unit shall operate and maintain the Liquid SO<sub>2</sub> Plant with utmost care to prevent any SO<sub>2</sub> leakage and public complaint in future.
7. The unit shall adopt all the recommendations of the safety audit conducted during regular operation of the industry.
8. The unit shall operate and maintain all the APC measures attached to the process as well as boilers efficiently so as to the AAQ/ Emission standards prescribed by the Board by October 2015.
9. The unit shall prepare a comprehensive plan for the remedial actions for the public of Koviloor Village on drinking water; agriculture and health issues under

CSR programme and submit the same to District Collector & TNPCB within three months.

10. The unit shall provide a scrubber at the final vent of the tri salt plant (Completion time: within one month).
  11. Additional EMFMs shall be provided in the tri salt plant at a) Feed of the Sodium Formate (ML2) b) Feed of the Sodium thio Sulphate (ML3) (Completion time : Within two months).
  12. The unit shall upgrade the software in the computer recording for the tri salt plant, including cumulative flow quantities, monthly averages, yearly averages etc. (within Two months).
  13. The unit shall provide hood with suction arrangement in the open pan boiling section of tri salt plant along with a wet scrubber to control emissions within Two months.
  14. The unit shall provide hood with suction arrangement in the sulphur melting section along with a wet scrubber to control SO<sub>2</sub> emissions within Two months.
  15. The unit shall provide individual dyke walls around the process area of SO<sub>2</sub> plant and tri salt plant with collection pits so as to collect the rain water and feed the same to tri salt plant within Two months.
  16. EMFM with computer recording arrangements shall be provided for the raw water drawl from its bore wells near Sambai Ootru within Two months.
  17. The storm water drain under construction on the rear side of the unit to prevent the storm water entering into the defunct solar pond area, shall be extended to its entire length in the western side within one month.
  18. In addition to the online TDS meter installed at the storm water outlet (near northern compound wall), an EMFM shall be provided with computer recording arrangements with adequate memory capacity within Two months.
  19. Tree plantations of a thick canopy shall be developed on the northern boundary of the unit.
  20. Meteorological station to collect data as wind direction, wind speed, ambient temperature, humidity, rain fall, solar radiation etc., shall be provided within Three months.
27. As per the directions of the Tribunal the Board has filed a report dated 11-02-2016. In the report it is stated that Board has inspected the unit on 08-02-2016 when the entire unit was in operation with all plants. In the report, the Board has formulated the recommendations by CPCB and the inspection remark by the Board which is as follows:

SI. NO.	Recommendations by CPCB	Inspection remarks
1.	To stop operation of process till installation of full proof salt recovery system including water vapour capture	The unit has taken up the following improvement and additional works in the tri salt recovery plant after the CPCB's

	system from reactor during concentration of mother liquor. And to reuse these captured water vapour in the process.	inspection. <ol style="list-style-type: none"> <li>1. The unit has shifted the Evaporation of final residue of mother liquor from open yard to closed yard.</li> <li>2. Dyke walls with collection pit has been provided to the entire area of tri salt plant so as to collect the spillages and washings to recycle back with the mother liquor.</li> <li>3. 12 numbers of condensers were erected as water vapour capture system and the condensed water is to be recycled for boiler feed.</li> <li>4. A scrubber is also provided before the final vent of the tri salt recovery plant.</li> </ol>
2.	To collect all stagnant water from dismantled solar evaporation pond area and to treat the same to ensure prescribed standards of irrigation before using in the gardening.	The unit has pumped all the water from the three numbers of the solar ponds for re-processing.
3.	To upgrade the existing air pollution control devices of Sodium Hydro Sulphide plant and Liquid Sulphur dioxide plant to meet the prescribed standards of TNPCB and to install continuous online monitoring system to monitor source emissions. And also to install digital display board in the industry entrance to disseminate online monitoring data to public.	The unit has taken up works to upgrade the APC measures in the SO <sub>2</sub> Plant by providing additional gas collection and scrubbing system in the Sulphur melting section. The unit has provided online continuous monitoring facility for the parameter SO <sub>2</sub> in the SO <sub>2</sub> Plant. A display board is also maintained by the unit.
4.	To provide proper storm water drainage cum collection tank to collect surface run off from process area during rainy period and to treat and reuse in the process.	The unit has provided dyke walls with collection pits to collect the rain water in the process area of SO <sub>2</sub> Plant, HS Plant and tri salt recovery Plant.
5.	To ensure no effluent or wash water from the process area shall be mixed with domestic sewerage.	The unit has provided dyke walls with collection pits to collect the rain water in the process area of SO <sub>2</sub> Plant, HS Plant and tri salt recovery Plant.
6.	Prevailing seepages due to storage of untreated/treated effluent in earthen ponds/solar ponds in the past may cause further contamination of ground water in the surrounding, hence it is suggested to direct the unit to provide containment wall either along the permitted wall or around the earlier solar ponds to prevent further contamination in the surroundings.	Instead of providing containment wall, the unit is carrying out provision of HDPE lining in the earlier solar pond area so as to avoid penetration of rain water thus avoiding seepage.
7.	To take steps to restore water quality of Periya Kanmoi which is located behind the TCP unit and contaminated either due to discharge of effluent or due to seepages of effluent from earthen ponds of TCP unit	TNPCB has issued Direction under Section 33A of the Water Act to the State PWD to undertake the works and to recover the cost from the polluter.
8.	To take steps to remove accumulated silt in Periya Kanmoi which is contributing obnoxious odour in the surrounding, the removed silt shall be analysed, if it contains any harmful chemical the same shall be sent to	TNPCB has issued Directions under Section 33A of the Water Act to the State PWD to undertake the works and to recover the cost from the polluter.



	TSDF.	
9.	To take up steps to restore ground water quality in the Kovilur village which is located adjacent to Periya Kanmoi and stagnation of polluted water in the Periya Kanmoi.	TNPCB has issued Directions under Section 33A of the Water Act to the State PWD to undertake the works and to recover the cost from the polluter.
10.	To take up detailed ground water quality study through either National Ground Water Research Institute, Hyderabad or through any reputed institutes to ascertain the extend of ground water pollution to take up remediation of the same to restore the water quality in the area.	The work is yet to be taken up by the unit.

28. The contention of the learned Counsel appearing for the applicant in Application No. 102 of 2015 as well as the 9<sup>th</sup> respondent Koviloor Panchayat is that the 10<sup>th</sup> respondent TCP Ltd., has been continuously polluting by discharging effluent into the Periya Kanmoi which is an admitted fact and therefore the said unit should be closed immediately. They have also narrated as to how the Periya Kanmoi situated 1.5 km away from Sambai Ootru is being polluted by the industrial activities of TCP and have also brought to the notice of the Tribunal on the alarming concentration of COD, BOD, TDS etc., resulting in pollution of water. They have also referred to the observations made by the CPCB to submit that there is an abnormal situation because of the conduct of the 10<sup>th</sup> respondent. It is contended that when the PCB has issued an order of closure on 16-02-2015, the revocation of closure order has been obtained by fraudulent manner and that will be evidenced from CPCB's report in comparison with the reply filed by the 10<sup>th</sup> respondent on 13-08-2015. Therefore, it is their contention that such a polluting Industry cannot be permitted to continue its operation which will amount to perpetuation of pollution. It is also contended that the unit is not having authorisation under Hazardous Waste (Management and Handling) Rules.

29. *Per contra*, it is the contention of Mr. Rahul Balaji learned Counsel appearing for the 10<sup>th</sup> respondent that the finding of the various authorities show that the 10<sup>th</sup> respondent is not the only contributing factor of pollution and even the Municipality and Panchayat have not taken any step for the purpose of treating the solid and liquid waste and admittedly they are also draining untreated municipal waste to these water bodies and therefore it is not proper to accuse the 10<sup>th</sup> respondent alone. In any event, only after having been satisfied that the recommendations of the CPCB have been complied with substantially by the 10<sup>th</sup> respondent, the revocation of suspension order has been continued by the PCB till 31-07-2016 and in as much as that order is

not in question it is not open to the applicant as well as the Panchayat to argue that the unit should be shut. He has also given an undertaking on behalf of 10<sup>th</sup> respondent that all directions given by the TNPCB based on CPCB's recommendation will be complied with in full and applying sustainable development concept the unit may not be closed.

30. We have heard learned Counsel appearing for the applicant in Application No. 102 of 2015 and respondents in both the cases, referred to the pleadings and documents filed by the parties and given our anxious thought to the issues involved in this case.

The two issues which are to be answered in this case are:

1. Whether the Sambai Ootru is polluted and the water cannot be used for drinking purposes and if so, what direction are required to be issued?
2. Whether the 10<sup>th</sup> respondent Tamil Nadu Chemical Pvt Ltd., is to be closed on the basis of various reports?

**31. Issue No.1**

At the outset, it is to be noted that in both the cases of *suo motu* as well as the application filed by the applicant in Application No.102 of 2015, the issues were only relating to potability of water in Sambai Ootru which is admittedly the major source of supply of drinking water to the people living in the Karaikudi Municipal limit. The facts relating to the existence of various bore wells in Sambai Ootru and the distance between the Sambai Ootru and Periya Kanmoi and situation of the 10<sup>th</sup> respondent unit as explained above are not in dispute and therefore the same need not be repeated. To answer the above issue it is sufficient to refer to the reports filed by the Board as well as the CPCB. As it is seen in the report of the CPCB dated 6<sup>th</sup> July 2015 based on the water sample collected and analysed on 09-06-2015 in various points including bore well owned by Karaikudi Municipality at Sambai Ootru, it is clearly stated that even though the water is found to be slightly acidic, all other parameters are found to be within the drinking water standard specification (IS10500:1991). The analysis report given by the Advanced Environmental Laboratory, TNPCB, Madurai as elicited in the previous paragraphs would clearly show that the bore well owned by the Karaikudi Municipality at Samabai Ootru shows the water quality to be within the prescribed standard. The inspection report of the CPCB dated 17-11-2015 and filed as per the direction of the Tribunal dated 14<sup>th</sup> September 2015 shows that

the Sambai Ootru is totally covered with weeds and lotus plants and the same is under the maintenance of Karaikudi Municipality and the maintenance is very poor. It is stated that on one side of the Ootru there is Karaikudi Kanmoi and on the other side drain which carries domestic sewage. The analysis report on the water samples collected from various places including Sambai Ootru given by the Advanced Environmental Laboratory, TNPCB, Madurai dated 15-10-2015 also specifically states that the quality of water in Sambai Ootru is within the permissible limit of drinking water standard. As elicited above the relevant portion regarding the quality of water in Sambai Ootru is as follows:

“In Sambai Ootru, except TDS (500 mg/ L), COD (91mg/L), and BOD (0.5 mg/L) other parameter were found within the permissible limit of drinking water standard. Adjacent to this Ootru, the storm water drain carrying domestic sewerage from commercial activities was found and also joining this Ootru in other side, this may be contributing COD, BOD in the Ootru. The percent of Sodium (42.5) and SAR (2.2) indicates the good quality of water for irrigation Purposes”.

32. In view of the above said categoric finding regarding the quality of water in Sambai Ootru the issue No. 1 is answered to the effect that as on date the drinking water standard of water taken from the Sambai Ootru is within permissible standard. However, as it is admitted that the said Ootru is maintained by the Karaikudi Municipality, the Municipality and all other surrounding Panchayats shall take all necessary steps to prevent untreated sewage water to enter in to the water body and the Municipality shall maintain the quality of water and the same shall be checked up periodically with the assistance of the Board to maintain the drinking water standard. We also direct the Karaikudi Municipality to take all necessary steps to remove all the aquatic weeds in the said water body, in and near the water body so as to make the entire surrounding clean and avoid discharge of domestic wastes joining the Ootru. The report of CPCB dated 17-11-2015 in relation to recommendation to protect water quality in Sambai Ootru and measures suggested therein elicited above in Para. 24 shall be strictly implemented by the Karaikudi Municipality.

## **Issue No.2**

33. This issue is not actually the subject matter in Application No. 102 of 2015. It was only after the Tribunal took note of the report of the year 2014 we directed the CPCB to inspect the effect of the 10<sup>th</sup> respondent unit on the water bodies. Accordingly, the CPCB in the above said report has stated that the 10<sup>th</sup> respondent namely, M/s. TCP Ltd., a major chemical industry is located in Karaikudi on south side of Periya Kanmoi and storm water from the industry premises joins Periya Kanmoi and the water tested in the Periya Kanmoi was highly alkaline.

34. However, the report of the Board dated 6<sup>th</sup> July 2015 relating to the quality of water in the bore well owned by M/s. TCP Ltd., conducted on 09-06-2015 as elicited earlier shows that the water meets the standard of drinking water. The water samples were taken from Koviloor Kanmoi and analysed on the same date by the Board which was also elicited in the previous paragraphs show that TDS, Chlorides, and sulphite were found to be more than the permissible limits. The CPCB report, in its conclusion and recommendation has given certain measures to be taken by M/s. Tamil Nadu Chemical Products Ltd., as detailed above namely:

“Regarding the water and air pollution in Karaikudi Town and its nearby villages the CPCB has given the following recommendations to M/s Tamil Nadu Chemical Products Ltd., to take following measures which are as follows:

- To stop operation of process till installation of fool proof salt recovery system including water vapour capture system from reactor during concentration of mother liquor. And to reuse these captured water vapour in the process.
- To collect all stagnated water from dismantled solar evaporation pond area and to treat the same to ensure prescribed standards of irrigation before used for gardening.
- To upgrade the existing Air Pollution Control devices of Sodium hydro Sulphite Plant and Liquid Sulphur di-oxide Plant to meet the prescribed standards of TNPCB and to install continuous online monitoring system to monitor source emissions. And also to install digital display board in the industry entrance to disseminate online monitoring data to public.
- To provide proper storm water drains cum collection tank to collect surface run off from process area during rainy period and to treat and reuse in the process.
- To ensure no effluent or wash water from the process area shall be mixed with domestic sewerage.
- Prevailing seepages due to storage of untreated/treated effluent in earthen ponds/solar ponds in the past may cause further contamination of ground water in the surrounding, hence it is suggested to direct the unit to provide

containment wall either along the premises wall or around the earlier solar ponds to prevent further contamination in the surroundings.

- To take steps to restore water quality of Periya Kanmoi which is located behind the TCP unit and contaminated either due to discharge of effluent or due to seepages of effluent from earthen ponds of TCP unit.
- To take steps to remove accumulated silt in Periya Kanmoi which is contributing obnoxious odour in the surrounding, the removed silt shall be analysed, if it contains any harmful chemicals the same shall be sent to TSDF after obtaining permission from TNPCB.
- To take up steps to restore ground water quality in the Koviloor village which is located adjacent to Periya Kanmoi and contaminated due to stagnation of polluted water in the Periya Kanmoi.
- To take up detailed ground water quality study through either National Ground Water Research Institute, Hyderabad or through any reputed institutes to ascertain the extent of ground water pollution to take up remediation of the same to restore the water quality in the area.”

After the order of closure passed by the Board in respect of the 10<sup>th</sup> respondent M/s. Tamil Nadu Chemical Pvt. Ltd., dated 16-02-2015 it is stated that the 10<sup>th</sup> respondent has informed the Board in the letter dated 25-03-2015 about the steps taken for the purpose of compliance of conditions imposed by the Board. The compliance report categorises the following conditions and compliances:

Compliance report for directions issued by Tamil Nadu Pollution Control Board:

Proc. No. T4/TNPCB/F.238/RL/SVG/A/COMP/2015-1 dated 26.03.2015

Sl.No.	Conditions	compliance
A	Solar evaporation pans shall be cleaned and emptied and dismantled within one month.	Complied with.
B	The low lying area with pits in the northern compound wall shall be filled with soil to prevent stagnation. (Time: one month).	Condition complied with.
C	Tri salt plant:	
	i) The tri salt plant shall be operated in 100 % efficiency;	100 % in operation
	ii) Each stage of MEE shall have online temperature and pressure gauges with computer recording facility	Temperature and Pressure gauges fixed for each stage. Online computer recorder also provided.
	iii) EMFM to be provided at the inlet of MEE, MEE condensate, MEE reject and	EMFM provided at the inlet of MEE and MEE condensate and connected to computer recording

	connected the same to computer recording arrangement within 2 months	
D.	Sewage treatment plant to be provided online EMFM at the inlet and outlet STP and connected to computer recording arrangement within 2 months.	EMFM provided at the inlet and outlet of STP
E.	The unit shall provide online dissolved oxygen (DO) meter in the aeration tank with computer recording arrangement within 2 months.	Purchase order placed for the procurement of DO and will be installed with computer recording arrangement. The work will be completed within 10 days after receipt.
F.	Public Liability Insurance shall be renewed for further period from 01.04.2014 (time: 1 month).	Public Liability Insurance renewed up to 30.03.2016 (Policy No. 411600/48/2015/3794)
G.	Bio-mass shall not be stored outside the existing shed under any circumstances.	The bio-mass is stored in the existing storage shed and will avoid open storage in future. We are also extending the existing storage shed.
H.	New SEP near the Boiler house for RO reject to be commissioned immediately.	New Solar evaporation pond is being used for Boiler blow down water collection. The quantity and the frequency of Blow down is drastically reduced due to usage of RO water to Boiler. As our RO reject is of irrigable quality, it is used directly for gardening. <b>The RO Reject and Blow down water calculation is given below:</b>
<p><b>RO REJECT WATER AND BOILER BLOW DOWN GENERATION:</b>  We are using about 50 KL RO water for our plant  Raw water TDS=400 ppm  RO Plant Efficiency= 60 %  Total raw water input to RO plant= 83.333 KL ( salt 33.333 kg)  RO process water outlet= 50,000 KL ( salt 1.250 kg)  RO reject water outlet = 33.333 KL ( salt 32.083 kg)  RO reject water TDS = 962 ppm (salt 32.083 kg)  Wood Boiler Blow down water Generation:</p> $B= E \times S(m^3/h) \div (C-S) = 14 \times 25 \div (3000-25) = 0.117 m^3/h \times 24 = 2.808 m^3/day$ <p>E= Evaporation or steam generation, S= Amount of Solids  B= Blow down (m<sup>3</sup>/h) C= permissible concentration of solid inside the boiler drum  Boiler blow down water = 2.808 KL (TDS 3000 ppm: salt 8.428 kg)  RO water reject = 33.333 KL (TDS 962 ppm : salt 32.083 kg)  RO reject + Boiler Blow down = 36.141 KL (TDS 1120 ppm: salt 40.511 kg)</p>		
I.	The unit shall conduct safety audit through a competent authority during the temporary operational period and submit the report to the Board for the compliance.	We have conducted the safety audit through a competent safety auditor. Safety Audit report and compliance report for the same recommendations are enclosed.
J.	The unit shall operate and maintain the tri-salt recovery continuously and efficiently so as to achieve Zero discharge from the process. The unit shall furnish the salt recovery details month wise.	The tri-salt plant is being run continuously and efficiently. We will submit the salt-recovery details month wise as directed.
K.	The unit shall operate and maintain the STP continuously and efficiently and shall ensure that the treated Sewage is	Condition complied with.

	utilized for gardening inside the premises.	
L.	The unit shall collect the entire residue from the existing Solar evaporation pans and dispose the same to the TSDF Gummudipoondi after obtaining authorisation under HW (MH & TM) Rules from the TNPCB.	We have registered with Industrial waste Management Association. We have sent our waste sample for analysis to the Tamil Nadu Waste Management facility at Gummudipoondi and further entered with agreement for disposal of the residue to the facility. The residue will be disposed after authorisation under HW (MH & TM) Rules from the TNPCB.
M.	The unit shall furnish an affidavit to the Board that no wastewater will be discharged directly/ indirectly outside the unit premises (Time: 1 week).	Condition complied with.
N.	The unit shall operate and maintain the Liquid SO <sub>2</sub> leakage and public complaint in future.	Will strictly follow the directions.

It is based on the said communication of the 10<sup>th</sup> Respondent dated 25.03.2015 there was an inspection by the District Environment Engineer at M/s. TCP Ltd., and has given the following report:

1. Maintenance work at various places has been carried out.
2. Works related to strengthening of the tri-salt plant is under progress.
3. Dyke walls have been constructed for the Chemical storage tanks in the tri-salt plant.
4. Solar evaporation is to be discarded on emptying and cleaning with the 100% operation of tri-salt plant.
5. STP has been revamped and put into operation
6. The unit has provided one additional common SO<sub>2</sub> scrubber to the liquid SO<sub>2</sub> plant.
7. The unit has provided steam in the MEE of tri-salt plant.

He has also recommended for temporary revocation of closure order for a period of 3 months with certain conditions. Therefore, by a proceeding dated 26-03 2015 a closure order dated 16-03-2015 came to be revoked with certain condition up to 16-06-2016 as follows:

SI.No.	Conditions	compliance
A	Solar evaporation pans shall be cleaned and emptied and dismantled within one month.	Complied with.
B	The low lying area with pits in the northern compound wall shall be filled with soil to prevent stagnation. (Time: one month).	Condition complied with.
C	Tri salt plant:  i) The tri salt plant shall be operated in 100 % efficiency;	100 % in operation

	<p>ii) Each stage of MEE shall have online temperature and pressure gauges with computer recording facility.</p> <p>iii) EMFM to be provided at the inlet of MEE, MEE condensate, MEE reject and connected the same to computer recording arrangement within 2 months</p>	<p>Temperature and Pressure gauges fixed for each stage. Online computer recorder also provided.</p> <p>EMFM provided at the inlet of MEE and MEE condensate and connected to computer recording.</p>
D.	Sewage treatment plant to be provided online EMFM at the inlet and outlet STP and connected to computer recording arrangement within 2 months.	EMFM provided at the inlet and outlet of STP
E.	The unit shall provide online dissolved oxygen (DO) meter in the aeration tank with computer recording arrangement within 2 months.	Purchase order placed for the procurement of DO and will be installed with computer recording arrangement. The work will be completed within 10 days after receipt.
F.	Public Liability Insurance shall be renewed for further period from 01.04.2014 (time: 1 month).	Public Liability Insurance renewed up to 30.03.2016 (Policy No. 411600/48/2015/3794)
G.	Bio-mass shall not be stored outside the existing shed under any circumstances.	The bio-mass is stored in the existing storage shed and will avoid open storage in future. We are also extending the existing storage shed.
H.	New SEP near the Boiler house for RO reject to be commissioned immediately.	<p>New Solar evaporation pond is being used for Boiler blow down water collection. The quantity and the frequency of Blow down is drastically reduced due to usage of RO water to Boiler. As our RO reject is of irrigable quality, it is used directly for gardening.</p> <p><b>The RO Reject and Blow down water calculation is given below:</b></p>
<p><b>RO REJECT WATER AND BOILER BLOW DOWN GENERATION:</b>  We are using about 50 KL RO water for our plant  Raw water TDS=400 ppm  RO Plant Efficiency= 60 %  Total raw water input to RO plant= 83.333 KL ( salt 33.333 kg)  RO process water outlet= 50,000 KL ( salt 1.250 kg)  RO reject water outlet = 33.333 KL ( salt 32.083 kg)  RO reject water TDS = 962 ppm (salt 32.083 kg)  Wood Boiler Blow down water Generation:</p> $B = E \times S(m^3/h) \div (C-S) = 14 \times 25 \div (3000-25) = 0.117 m^3/h \times 24 = 2.808 m^3/day$ <p>E= Evaporation or steam generation, S= Amount of Solids  B= Blow down (m<sup>3</sup>/h) C= permissible concentration of solid inside the boiler drum  Boiler blow down water = 2.808 KL (TDS 3000 ppm: salt 8.428 kg)  RO water reject = 33.333 KL (TDS 962 ppm : salt 32.083 kg)  RO reject + Boiler Blow down = 36.141 KL (TDS 1120 ppm: salt 40.511 kg)</p>		
I.	The unit shall conduct safety audit through a competent authority during the temporary operational period and submit the report to the Board for the compliance.	We have conducted the safety audit through a competent safety auditor. Safety Audit report and compliance report for the same recommendations are enclosed.



J.	The unit shall operate and maintain the tri-salt recovery continuously and efficiently so as to achieve Zero discharge from the process. The unit shall furnish the salt recovery details month wise.	The tri-salt plant is being run continuously and efficiently. We will submit the salt-recovery details month wise as directed.
K.	The unit shall operate and maintain the STP continuously and efficiently and shall ensure that the treated Sewage is utilized for gardening inside the premises.	Condition complied with.
L.	The unit shall collect the entire residue from the existing Solar evaporation pans and dispose the same to the TSDF Gummudipoondi after obtaining authorisation under HW (MH & TM) Rules from the TNPCB.	We have registered with Industrial waste Management Association. We have sent our waste sample for analysis to the Tamil Nadu Waste Management facility at Gummudipoondi and further entered with agreement for disposal of the residue to the facility. The residue will be disposed after authorisation under HW (MH & TM) Rules from the TNPCB.
M.	The unit shall furnish an affidavit to the Board that no wastewater will be discharged directly/ indirectly outside the unit premises (Time: 1 week).	Condition complied with.
N.	The unit shall operate and maintain the Liquid SO <sub>2</sub> leakage and public complaint in future.	Will strictly follow the directions.

35. Again based on a compliance letter dated 17-06-2015 by the unit there was an inspection done by District Environmental Engineer, Sivagangai on 17-06-2015 and recommended for extension of suspension of revocation order and accordingly the revocation order stood suspended up to 31-12-2015 subject to the following conditions:

1. The unit shall adopt all the recommendations of the safety audit conducted during regular operation of the industry.
2. The unit shall operate and maintain the tri- salt plant continuously and efficiently so as to achieve Zero discharge from the process. The unit shall furnish the salt recovery details month wise.
3. The unit shall collect the entire residues from the existing solar evaporation pans and dispose the same to the TSDF Gummudipoondi after obtaining authorisation under HW (MH & TM) rules from TNPCB by October 2015.
4. The Unit shall operate and maintain the Liquid SO<sub>2</sub> leakage and public complaint in future.
5. The unit shall operate and maintain the STP continuously and efficiently and shall ensure that the treated sewerage is utilized for gardening inside the premises. Treated sewerage sample to be collected and analysed through TNPCB lab during July & September 2015.
6. The unit shall operate and maintain all the APC measures attached to the process as well as boilers efficiently so as to adhere to the AAQ/Emission standards prescribed by the Board by October 2015.

7. The unit shall furnish material balance and water balance within one month to the Board.
8. The unit shall prepare a comprehensive plan for the remedial actions for the public of Koviloor Village on drinking water; agriculture and health issues under CSR programme and submit the same to the District Collector & TNPCB within three months.
9. All other conditions mentioned in Bd's Proc. Dated 26.03.2015.

36. In the meantime, the CPCB filed its report before this Tribunal on 23-11-2015. It is stated that the TNPCB has constituted a committee to inspect the unit based on the recommendations of the CPCB dated 17-11-2015 filed before this Tribunal. It is stated that the Committee has recommended that further time shall be granted to the unit to comply with the directions and also recommended the following additional recommendations:

1. The unit shall provide a scrubber at the final vent of the tri salt Plant within one month.
2. Additional EMFMs shall be provided in the tri salt Plant at a) Feed of the Sodium Formate (ML2) 2) Feed of the Sodium thio sulphate (ML3) within two months.
3. The unit shall upgrade the software in the computer recording for the tri salt Plant, including cumulative flow quantities, monthly averages, yearly averages etc., within two months.
4. The unit shall provide hood with suction arrangement in the open pan boiling section of tri salt Plant along with a wet scrubber to control emissions within two months.
5. The unit shall provide hood with suction arrangement in the Sulphur melting section along with a wet scrubber to control SO<sub>2</sub> emissions within two months.
6. The unit shall provide individual dyke walls around the process area of SO<sub>2</sub> Plant and tri salt Plant with collection pits so as to collect the rain water and feed the same to tri salt Plant within two months.
7. EMFM with computer recording arrangements shall be provided for the raw water drawl from its bore wells near Sambai Ootru within two months.
8. The storm water drain under construction on the rear side of the unit to prevent the storm water entering into the defunct solar ponds area shall be extended to its entire length in the western side within one month.
9. In addition to the online TDS meter installed at the storm water outlet (near northern compound wall), an EMFM shall be provided with computer recording arrangements with adequate memory capacity within two months.
10. Tree plantation of a thick canopy shall be developed on the northern boundary of the unit.
11. Meteorological station to collect data such as wind direction, wind speed, ambient temperature, humidity, rainfall, solar radiation etc., shall be provided within three months.

It was based on the above said recommendation the Board in the proceeding dated 25-01-2016 has extended the period of suspension of revocation up to 31-07-2016 subject to the following conditions to be fulfilled:

1. All the Solar Evaporation pans shall be cleaned and emptied and dismantled within one month.
2. The low lying area with pits in the northern compound wall shall be filled up with soil to prevent stagnation (Time one month).
3. Bio mass shall not be stored outside the existing shed under any circumstances.
4. The unit shall operate and maintain the tri salt plant continuously and efficiently so as to achieve zero discharge from the process. The unit shall furnish the salt recovery details month wise.
5. The unit shall operate and maintain the STP continuously and efficiently and shall ensure that the treated Sewerage is utilized for gardening inside the premises.
6. The unit shall operate and maintain the Liquid SO<sub>2</sub> Plant with utmost care to prevent any SO<sub>2</sub> leakage and public complaint in future.
7. The unit shall adopt all the recommendations of the safety audit conducted during regular operation of the industry.
8. The unit shall operate and maintain all the APC measures attached to the process as well as boilers efficiently so as to the AAQ/ Emission standards prescribed by the Board by October 2015.
9. The unit shall prepare a comprehensive plan for the remedial actions for the public of Koviloor Village on drinking water; agriculture and health issues under CSR programme and submit the same to District Collector & TNPCB within three months.
10. The unit shall provide a scrubber at the final vent of the tri salt plant (Completion time: within one month).
11. Additional EMFMs shall be provided in the tri salt plant at a) Feed of the Sodium Formate (ML2) b) Feed of the Sodium thio Sulphate (ML3) (Completion time : Within two months).
12. The unit shall upgrade the software in the computer recording for the tri salt plant, including cumulative flow quantities, monthly averages, yearly averages etc. (within Two months).
13. The unit shall provide hood with suction arrangement in the open pan boiling section of tri salt plant along with a wet scrubber to control emissions within Two months.
14. The unit shall provide hood with suction arrangement in the sulphur melting section along with a wet scrubber to control SO<sub>2</sub> emissions within Two months.
15. The unit shall provide individual dyke walls around the process area of SO<sub>2</sub> plant and tri salt plant with collection pits so as to collect the rain water and feed the same to tri salt plant within Two months.
16. EMFM with computer recording arrangements shall be provided for the raw water drawl from its bore wells near Sambai Ootru within Two months.
17. The storm water drain under construction on the rear side of the unit to prevent the storm water entering into the defunct solar pond area, shall be extended to its entire length in the western side within one month.

18. In addition to the online TDS meter installed at the storm water outlet (near northern compound wall), an EMFM shall be provided with computer recording arrangements with adequate memory capacity within Two months.
19. Tree plantations of a thick canopy shall be developed on the northern boundary of the unit.
20. Meteorological station to collect data as wind direction, wind speed, ambient temperature, humidity, rain fall, solar radiation etc., shall be provided within Three months.

37. It is also stated that on an inspection made by the Board on 08-02-2016, certain compliances were found to have been carried out by the unit based on the recommendation of CPCB, as already elicited. Therefore, it is clear that the Board has been continuously monitoring and insisting for compliance of recommendations of CPCB and in as much as the compliance activities are being carried out, there is temporary suspension of revocation till 31-07-2016. We are of the considered view that no useful purpose will be served at this stage in directing closure of the unit which may not be in consonance with principles of sustainable development. Accordingly, we hold that the 10<sup>th</sup> Respondent unit M/s. TCP Ltd., need not be closed at this point of time and one more chance should be given to the said Unit to comply with the recommendations of CPCB and additional directions by the Board before 31-07-2016. We direct the Board to inspect it again in the last week of July 2016 along with CPCB and ascertain as to whether the recommendations of CPCB as well as the additional directions of the State Board have been fully complied with by the 10<sup>th</sup> respondent M/s. TCP Ltd. In the event of both the CPCB as well as the Board having satisfied on the compliance, it will be open to the Board to pass further orders. We make it clear that in the event of the Board and CPCB finding that the 10<sup>th</sup> Respondent M/s. TCP Ltd., has not fully complied with all the above said recommendations, the Board shall pass appropriate orders including closure of the unit. We are of the view that the above said direction will be sufficient to give a chance to the 10<sup>th</sup> respondent M/s. TCP Ltd., to comply with the directions and recommendations. The issue No.2 is answered accordingly.

After any such orders passed by the Board it will be always open to the parties to work out their remedy in the manner known to law.

In view of our findings given in both issues no further orders are required in these applications. Accordingly, the application stands closed. The issue relating to imposing of any other liability on the 10<sup>th</sup> respondent M/s.TCP Ltd., is kept open to be decided in the proceedings which may arise in future.

No order as to cost.

Chennai

Dated 26<sup>th</sup> April 2016.

Justice Dr. P. Jyothimani (JM)

Prof. Dr. R. Nagendran (EM)

This Judgment delivered by video conferencing at 2:30 PM from Chennai Bench by the Hon'ble Judicial Member Dr. P. Jyothimani and Principal Bench at Delhi Hon'ble Expert Member Prof. Dr. R. Nagendran.

NGGT