BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

(Through Video Conference)

Original Application No.256 of 2020(SZ)

IN THE MATTER OF:

Tribunal on its own motion-SUO MOTU Based on The News item in News Desk Magazine Dated 11.11.2020, Air Pollution and Industries, ***"These six industries in North Chennai are polluting the air for more than half the year"***

And

1) Union of India
Ministry of Environment, Forest and Climate Change,
Rep. by its Secretary,
Indira Paryavaran Bhavan, Jorbagh Road,
New Delhi – 100 003.

2) The Chief Secretary to Govt. of Tamil Nadu
Govt. Secretariat, Fort St. George
Chennai, Tamil Nadu – 600009

3) The Secretary to Govt. of Tamil Nadu
Department of Environment,
Govt. Secretariat, Fort St. George
Chennai, Tamil Nadu – 600009

4) The Principal Secretary to Govt. of Tamil Nadu
Industries Department, Govt. Secretariat,
Fort St. George Chennai, Tamil Nadu – 600009

5) Additional Chief Secretary to Govt. of Tamil Nadu,
Municipal Administration and Water Supply Department,
Govt. Secretariat, Fort St. George
Chennai, Tamil Nadu – 600009

6) Principal Secretary to Government
Health and Family Welfare Department,
Secretariat, Chennai 600 009.

7) The Chairman,
Central Pollution Control Board (CPCB),
Parivesh Bhawan, East Arjun Nagar,
Shahdara, Delhi 110 032.

8) The Chairman,
Tamil Nadu Pollution Control Board (TNPCB),
No.76, Anna Salai, Guindy,
Chennai, Tamil Nadu – 600032.

9) The Greater Chennai Corporation,
Rep. by its Commissioner,
Ripon Building, Chennai – 600 003.

10) The District Collector,
Chennai District,
District Collectorate Office,
No. 62, Rajaji Salai, 4th Floor,
Chennai 600 001.

11) North Chennai Thermal Power Station
Rep by its Chairman cum Managing Director (TANGEDCO)
Attpattu Main Road, Thiruvallur District,
Athipattu, Tamil Nadu 600 120.

12) NTPC Tamil Nadu Energy Company Limited (NTECL)
Rep, by its General Manager (TS)
Vallur Thermal Power Project,
P.O: Vellivoyal Chavadi, Ponneri Taluk,
Thiruvallur District, Chennai 600 103.

13) Chennai Petroleum Corporation Limited (CPCL)
Rep. by its Managing Director,
New No. 536, Anna Salai,
Teynampet, Chennai 600018.

14) Tamil Nadu Petro products Limited (TPL)
Rep. by its Chairperson
Manali Express Highway,
Manali, Chennai 600 068, India

15) Manali Petrochemicals Limited (MPL)
Rep. by its Chairman,
SPIC House, VI Floor,
No. 88 Mount Road, Guindy,
Chennai 600 032.

16) Madras Fertilizers Limited (MFL)
Rep. by its Chairman & Managing Director,
SH 104, Harikrishna Puram, Manali,
Chennai, Tamil Nadu 600 068.

...Respondent(s)

Benisha B M
D/o. Bennet Jose P
274/4, Sangam Apartments
Belly Area, Anna Nagar West,
Chennai – 40.

(Added as intervenor as per order in I.A. No.94/2022 (SZ) dt.01.07.2022)

For Applicant(s): Suo Motu by Court.

For Respondent(s): Dr. D. Shanmuganathan for R2 to R6 & R10.
Mr. T.N.C. Kaushik for R7.
Mr. S. Sai Sathya Jith for R8.
Mr. A.C. Manibharathi for R9.
M/s. Dhanalakshmi represented
Mr. S.T. Raja for R11.
Mr. Vijayan represented
Mr. King & Partridge for R12.
Mr. Abdul Saleem a/w
Mr. S. Saravanan for R13.
Mr. R. Sankaranarayanan, ASG a/w.
Mr. Jayesh B Dolia for R16.
Mr. A. Yogeshwaran for Internevor.
Ms. A.L. Gandhimathi for R14 & R15

Judgment Reserved on: 30th January 2023.

Judgment Pronounced on: 20th July, 2023.

CORAM:

HON'BLE SMT. JUSTICE PUSHPA SATHYANARAYANA, JUDICIAL MEMBER

HON'BLE DR. SATYAGOPAL KORLAPATI, EXPERT MEMBER

JUDGMENT

Delivered by Dr. Satyagopal Korlapati, Expert Member

1. The above case has been Suo Motu registered by this Tribunal based on the newspaper report published in 'News Desk Magazine' dated, 11.11.2020 under the caption ***"These six industries in North Chennai are polluting the air for more than half the year"***. It was alleged in the report that air quality in Ennore - Manali region has been seriously affected on account of the emission made by some of the industries namely, Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO's) North Chennai Thermal Power Station (NCTPS) Stage - 1, NTECL Vallur Power Plant, Chennai Petroleum Corporation Limited (CPCL), Tamil Nadu Petroproducts Limited

(TPL), Manali Petrochemicals Limited (MPL), & Madras Fertilizers Limited (MFL).

2. It was further alleged in the newspaper report that these industries are constantly violating the conditions/ consent/ permissions granted resulting in serious emissions from the industries affecting the air quality in that area. The stack monitoring systems provided in these units are not proper and the pollution control mechanisms are also not properly maintained by these units. Though on several occasions notices were issued by the Tamil Nadu State Pollution Control Board to rectify the deficiencies noted by them, none of these industries were taking interest in complying with the directions and according to the newspaper report, the regulator viz., Tamil Nadu Pollution Control Board was also not taking proper steps to check such illegal activities as well, though this was projected by the local people several times.

3. On going through the allegations made in the newspaper report, this Tribunal was satisfied that there is a serious environmental issue which requires the interference of this Tribunal for resolving the same. Further, these areas are declared as critically polluted areas by the Central Pollution Control Board (CPCB) and on the basis of their assessment, the Principal Bench has given direction to take appropriate steps to abate the nuisance and make these areas pollution free. In spite of all the directions given by the Courts and Tribunal, it is alleged that effective steps are not being taken by the authorities to save the lives of the people who are

being affected on account of the air pollution. Therefore, the matter was admitted.

4. **The MoEF&CC- 1st respondent** contended that the SPCBs/PCCs are required to enforce the environmental standards and monitor the compliance by industries. Besides, the concerned State Pollution Control Boards/ Pollution Control Committees are empowered to take all such measures as are deemed necessary or expedient for the purpose of protection and improving the quality of environment as well as prevention, control and abatement of environmental pollution, including pollution from industries as in the instant matter.

5. **The Central Pollution Control Board - 7th respondent** contended that during 2018, CPCB conducted environmental quality monitoring in 100 industrial clusters/areas (including Manali, Tamil Nadu), located in 21 states across the country for Comprehensive Environmental Pollution Index (hereinafter referred to as CEPI) evaluation. The CEPI score of Manali industrial area, was assessed as 84.15, and therefore identified as Critically Polluted Area (CPA). Meanwhile, the Hon'ble NGT (PB) issued directions vide order dated 13/12/2018, in the matter of O.A. No. 1038/2018, in view of the news item titled 'CPCB to rank industrial units on pollution levels' published in 'The Asian Age' dated 6/12//2018. As per the order, SPCBs/PCCs were directed to finalize time bound action plans. The Hon'ble NGT in the next hearing on 10/7/2019, issued directions inter alia:

> *"No further industrial activities or expansion be allowed with regard to red and orange category units till the said PIAs 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…."

6. Thereafter, based on appeals of MoEF&CC and CPCB, Hon'ble NGT vide Order dated 23/8/2019 directed as follows:

'…There is no absolute bar for such units being set up if they are found to be viable. The MoEF&CC can forthwith 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…'

Again, as per the order dated 14.11.2019 of Hon'ble NGT, one of the directions is as follows:

'...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 damage for the environment of the said areas, otherwise there will be no meaningful environmental governance. 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…'

7. The Hon'ble NGT Orders dated 10.07.2019 and 14.11.2019 in OA No. 1038/2018 were challenged by the Chamber of Small Industry Associations before the Hon'ble Supreme Court of India by Civil Appeal Diary No(s). 8478/2020 and the Hon'ble Apex Court ordered stay of operation of the impugned orders. In another Civil Appeal (Diary No. 19271/2020) filed by M/s. Gujarat Chambers of Commerce and Industry against CPCB & another, the Hon'ble Supreme Court of India vide its Order dated 22.09.2020, directed as follows: *'In the meantime, there shall be stay of operation of the impugned orders dated 10.07.2019, 23.08.2019 and 14.11.2019 passed by National Green Tribunal Principle Bench, New Delhi'*. The Tamil Nadu Pollution Control Board (TNPCB) submitted the action plan for Manali Industrial Area in January' 2020, which was reviewed by CPCB and made

certain recommendations to TNPCB for consideration and incorporation in action plan.

8. **The North Chennai Thermal Power Station - 11th Respondent** contended that their unit is equipped with the requisite pollution control and monitoring facilities in the project area as per the guidelines/consent conditions issued by TNPCB/CPCB and they are taking continuous efforts to reduce the emission level through all possible measures, without any default. Further, they are taking steps such as annual overhauling of ESP and rectification of works as and when any default is observed and the same is being done meticulously in order to maintain the emission level well within the norms. The unit has provided a Stack Monitoring System and the same had been in complete operation in the year 2019, save with respect to Unit- I SOX and NOX analysers, which were not functioning due to wear and tear failures and the same were immediately rectified by the service provider and put back into service. The unit had also initiated the procurement of new analysers and the same was supplied and has been replaced. The overhauling/rectification works are being carried out regularly every year in the Electro Static Precipitators (ESP) for all the three units which act as the pollution control mechanism for Suspended Particulate Matter (SPM) in order to maintain the efficiency of ESP. Further, the unit has been undertaking measures to control fugitive emissions.

9. For controlling Sulphur dioxide and Nitrogen oxide emission, it has been proposed by the unit to install semi-dry Flue Gas Desulphurisation (FGD) units for the all three units. The

administrative approval for the same has been obtained and once it is commissioned, it will take care of additional dust burden which would further reduce the levels of SPM drastically. They denied the allegation made in the report that this respondent has violated emission norms 58% of the time in the year 2019.

10. **The M/s. NTPC Tamil Nadu Energy Company Ltd. (NTECL) – 12th Respondent** contended that their unit is a joint venture company of NTPC (Central Public Sector Undertaking) & TANGEDCO (Tamil Nadu State Govt. Undertaking) for generating 1500 MW of electricity at Vallur, Vellivoyal Chavadim Ponneri Taluk, Thiruvallur District, Chennai and that all the Southern States of Tamil Nadu are beneficiaries of the power produced by this plant and State of Tamil Nadu is the major beneficiary of this Project. It is further contended that for Sulphur dioxide and Nitrogen oxide parameters in flue gas, limits were not prescribed by the regulations/notifications in thermal plants at the time of establishment of the project in the year 2007 and 2009 respectively. As per the Annexure – R12/IV, Notification No. S.O. 3305 (E) dated 07.12.2015 by Ministry of Environment, Forest and Climate Change for the first time has ordered emission limit for Particulate Matter and notified new limits for Sulphur dioxide (SO_2), Oxides of Nitrogen (NOx). The Financial implications for the work of FGD and NOx control is around Rs. 1000 crores which is more than 10% of total project cost. Considering the works involved as stated above, MoEF&CC in the meeting with MoP, CEA, NTPC & CPCB etc held on 01.09.2017 decided that FGD should be implemented by 12th Respondent by the year 2022 and

the time limit was extended due to COVID-19 conditions to December 2023 for all units (1 to 3) of NTECL Vallur.

11. It was also submitted that the NOx control works have already completed in unit-1 and the NOx values in unit-1 are well within the prescribed limit value of 450 mg/Nm^3 and the remaining works are expected to be carried out during the upcoming overhaul of Unit- 2 & 3 in the year 2021. The NTECL has also committed to implement all technical measures to maintain the emissions well within the applicable limits from the Station and to maintain the Ambient Air Quality in the surrounding area within the latest National Ambient Air Quality Standards (NAAQS) and also to comply with the latest emission standards for Thermal Power Plant dated 07.12.2015 and 19.10.2020.The News report from the News Desk dated 11.11.2020 alleging that NTECL Vallur disregarded emission standard for 41 % of the year is not true as per the current limit. The emission parameter of Particulate Matter is complied, and the variation in SO_2 and NOx parameters permitted by CPCB till the implementation of the Modification works of FGD and De NOx control at NTECL Vallur, i.e., December 2022. They denied the allegations reported in Newspaper with regard to the pollution caused by 12thRespondent.

12. The M/s. Chennai Petroleum Corporation Limited (CPCL) - 13th Respondent contended that to safeguard the environment and control air pollution, the CPCL has provided stack monitoring in all the Process Heaters, Boilers & Gas Turbines in the project, as per the guidelines/ Consent conditions issued by TNPCB/ CPCB. Further, the data Connectivity of Stack parameters is connected

with both TNPCB & CPCB and all parameters of stock and Ambient air quality are maintained within limits. In addition to the above, the Stack and Ambient Air Quality Field testing was carried out by this Respondent through Indian Institute of Technology (IIT), Madras, since January 2021. It is crystal clear from the above reports that all the values/parameters are within the prescribed limits only. One of the major milestones towards environment friendly measure adopted since 2019 is the utilization of Regassified Liquified Natural Gas (RLNG), a cleaner & Environmental friendly fuel in process heaters, Boilers & Gas turbines in place of Fuel oil in heaters & boilers and naphtha in Gas Turbines and presently they are using 30,000 MT of RLNG per month, with an object to protect the environment.

13. **The M/s. Tamil Nadu Petroproducts Limited (TPL) - 14th respondent** contended that their unit is a joint venture between Tamil Nadu Industrial Development Corporation Limited (TIDCO) wholly owned by Government of Tamil Nadu and Southern Petrochemical Industrial Corporation Ltd (SPIC) and having three manufacturing facilities Linear Alkyl Benzene Plant (LAB), Heavy Chemicals Division (HCD) and ECH - Propylene Oxide Plant (ECH-PO) in Manali. The TPL Plants (LAB, HCD and ECH-PO Plants) presently uses Re-gasified Liquified Natural Gas (R-LNG), a clean fuel as fuel in all heaters and boilers. The unit contended further that no data hours non compliances are due to Net work problem, maintenance of analysers, Software reconfiguration by software supplier, Hardware router problem, and Modem problem. Exceedance hours, non-compliances are due to choke in analyser sample line, Diaphragm pump problem, clogged sample flow,

loose contact wire termination and plant start up. The online analyser data are uploaded to TNPCB through dedicated internet IP and also additional back up internet connections (Sifi/Tata network) are provided as a preventive measure to avert network failure/no data hours. The Chennai Climate Action Group (CCAG) has not looked into the communication mails sent to TNPCB for the reasons of no data and exceedance hours and published based on an unverified report titled "POISON IN THE AIR - THE REGULATORY BLACKHOLE IN THE ENNORE-MANALI INDUSTRIAL ZONE" and denied the allegations of non-compliance with the emission norms. The CCAG describing the no-data hours as non-compliance period is contrary to facts and appears to have been made with the sole aim to sensationalize the matter where there is no wrong committed by this respondent.

14. **The M/s. Manali Petrochemicals Limited (MPL) - 15th Respondent** contended that their unit is the only Indian manufacturer of Propylene Glycol (PG) and the first manufacturer of Polyols and PO in the country. Polyols are made in four grades, viz., Flexible Slab stock, Flexible Cold Cure, Rigid and Elastomers. At present, their unit uses Re-gasified Liquified Natural Gas (RLNG) as fuel for the boilers in Plant 1 and Low Sulphur Fuel Oil (LSFO) in Plant 2. It is submitted that, actions have been taken for switchover to LNG in Plant 2 also, but the supplies have not commenced due to delay in laying of pipelines by IOCL for the same. In respect of operating above boilers, MPL has been complying with the emission norms prescribed under the Relevant Regulations. The emission values are submitted to the CARE-AIR Centre of the Tamil Nadu Pollution Control Board on a real time

basis. In addition to this, MPL also conducts periodical tests through accredited labs and the the test results reveal that the values have been within the norms. The News report in the News Desk Magazine dated 11.11.2020 alleges that MPL Plants have not complied with the norms from 6104 hours or 9% of the total hours during the period 01/01/2019 to 15/12/2019 which is totally incorrect. This news has been published based on an unverified Report of the Chennai Climate Action Group (CCAG). It is further contended that on a close look at the information provided in Table 7 of Annexure 2 in the Report of the CCAG, it could be seen that the number of exceedance hours by MPL is "Zero". The Report has chosen to classify, "No data hours as non-compliance", which is incorrect and misleading. As per the Real Time Data Acquisition and Monitoring information downloaded from the Care Air Centre Portal TNPCB/CPCB (http://glens.glensserver.com) for the above period 01/01/2019 to 15/12/2019, the availability period was above 94% for Plant 1 and above 96% for Plant 2 and not as alleged in the Report of the CCAG. The action of the CCAG in publishing its Report without going into the details and fact-checking with the concerned industries is improper and so the information is not reliable at all. The period of emission data made available in the Care Air Centre Portal by MPL has been well above the minimum hours prescribed under the CEMS Guidelines, 2018. It has been admitted in the above Report of CCAG itself that there were no exceedance hours by MPL on any single day. The CCAG describing the no-data hours as non-compliance period is contrary to facts and looks, to have been made with the sole aim to sensationalize the matter.

15. **The M/s. Madras Fertilizers Limited (MFL) - 16th Respondent** contended that their company is one of the largest Fertilizer manufacturing companies and engages in the manufacture of Urea, Ammonia and NPK complex fertilizer. The factory is state governed enterprise with Government of India holding 59.50%, Naftiran Intertrade Co. Ltd., Iran holding 25.77% and Public holding 14.73% equitable share capital. The MFL has denied the allegations made out in the newspaper report and also stated that during the year 2019, Urea Plant was in operation for 222 days only and NPK Plant for 210 days only and when the plants were in operation, 99% of the values of air pollution norms were within the prescribed limits and it was also stated that Particulate Matter analyzer was installed in November 2019 and since then, the data was available in the TNPCB's server. Earlier, manual analysis was done by the external agencies and the values were well within the prescribed limits and also stated that the MFL is a complex fertilizer manufacturing unit. Hydrogen Fluoride is not a raw material or product in the fertilizer manufacturing process and that the Hydrogen Fluoride emission was always within the emission standard limit. They have also indicated the action taken by them with reference to the non-compliances pointed out by the Pollution Control Board and stated that they adopt three layered strategy of identification, abatement and monitoring as a policy of its environmental care activities and they changed the feedstock from fuel oil to RLNG in order to protect the environment and it was stated further that the allegations have no basis and they are taking all measures for maintaining the environmental standards in their unit.

16. An interlocutory application **[I.A. No.94 of 2022 (SZ)]** was filed by one Ms. Benisha B.M. for impleadment on 09.05.2022. However, it was decided that there is no necessity to implead the applicant in I.A. No.94 of 2022 (SZ) as additional 17th respondent and instead, she was permitted to assist the Tribunal to offer suggestions (if any) to improve the situation.

17. The intervenor has filed memos on 23.08.2022, 13.09.2022 and 09.11.2022. The intervenor has highlighted the need for enhancing monitoring, transparency and enforcement and stressed the need for the Tamil Nadu Pollution Control Board to implement the CPCB Revised Guidelines with respect to "Installation of Continuous Ambient Air Quality Monitoring Stations" including making the real time and historical AAQ data available to public for analysis and oversight.

18. The intervenor also made certain suggestions to strengthen the monitoring of the excedance caused by the individual industries based on the OCEMS system which is in place and developing of foolproof mechanism to initiate quick action based on the continuous analysis of OCEMS. The intervenor also highlighted some of the flaws in analyzing the data by the Tamil Nadu Pollution Control Board though there are inconsistencies in the data being generated in the OCEMS as well as for periods for which no data is being captured by the system. It was suggested that close monitoring and stringent action for exceedance are essential. The intervenor also submitted that Ennore – Manali Industrial region ought to be seen as a cluster source of industrial pollution for the purpose of regulation. Suggestions were made

for cumulative impact assessment, particularly for the areas where the valuable, environmental and social components are affected by a large number of activities that may appear individually insignificant, but which taken together can have deleterious regional implications. The intervenor also highlighted the regulatory blind spots especially, a) Fugitive emissions from within the industries; b) Vehicular emissions and resuspended road dust; and c) emissions from flare towers in the refinery and petrochemical facilities and stressed the need for having specific rules to regulate flare emissions. Some of these issues were also flagged by the Joint Committee constituted by this Tribunal.

19. Heard the learned counsel Dr. D. Shanmuganathan for Respondents Nos.2 to 6 & 10, Mr. T.N.C. Kaushik for 7th respondent, Mr. S. Sai Sathya Jith for 8th respondent, Mr. A.C. Manibharathi for 9th respondent, Mrs. Dhanalakshmi represented Mr. S.T. Raja for 11th respondent, Mr. Vijayan represented M/s. King & Partridge for 12th respondent, Mr. Abdul Saleem, Senior Advocate along with Mr. S. Saravanan for 13th respondent and Mr. R. Sankaranarayanan, Additional Solicitor General along with Mr. Jayesh B Dolia for 16th respondent and also considered the documents available on record.

20. In order to ascertain the real state of affairs and also the genuineness of the allegations made in the newspaper report and also to take the remedial measures if required, this Tribunal appointed a Joint Committee comprising of:

I. Senior Officer from Ministry of Environment, Forests and Climate Change, Regional Office, Chennai

II. Senior Scientist from Central Pollution Control Board (CPCB), Regional Office, Chennai

III. Senior Officer from the Tamil Nadu Pollution Control Board as designated by its Chairman and

IV. Professor from Anna University of Environmental Engineering, Guindy, Chennai who is dealing with environmental related issues.

21. The Joint Committee was directed to inspect the units in question and to consider the following aspects:-

- Ascertain whether the units are complying with the pollution norms and also complying with the conditions imposed while granting permission to establish such industries in that area by the Ministry of Environment, Forest and Climate Change (MoEF&CC), and State Environmental Impact Assessment Authority (SEIAA) as the case may be and the Tamil Nadu State Pollution Control Board (TNPCB) and if there is any violation, what is the action taken by the regulators to make the erring industries to comply with the norms.
- Assess the environmental compensation against the erring units as has been directed by the Principal Bench in several cases of this nature applying the guidelines provided by the Central Pollution Control Board (CPCB).
- Conduct the Ambient Air Quality (AAQ) test to ascertain the quality of air in that area and from the nature of pollutants available in the air, trace out the sources of pollution and the persons responsible for the same and take appropriate legal action against those persons in accordance with law.
- Ascertain whether the necessary pollution control mechanism is in operation efficiently in these existing units in that industrial area and if there is any improvement required to abate the air pollution that is likely to be caused on account of their activities, then suggest and recommend the nature of improvement to be done by each industry considering the nature of pollutants being released by them in the air to avoid such things in future.
- Ascertain the environment carrying capacity of the area as to whether any more such industries can be accommodated in that area, considering the nature of pollution load created on account of existing units.

22. The Joint Committee inspected all six industries viz.,

I. North Chennai Thermal Power Station (NCTPS) Stage – 1

II. NTECL Vallur Power Plant,

III. Chennai Petroleum Corporation Limited (CPCL),

IV. Tamil Nadu Petroproducts Limited (TPL),

V. Manali Petrochemicals Limited (MPL), and

VI. Madras Fertilizers Limited (MFL)

on 28th - 29th of January 2021 and 02nd - 03rd February 2021 and held meetings on 20.07.2021 and 13.08.2021 to review the studies on environmental monitoring (Ambient Air Quality and Stack Emission) and dispersion modelling in respect of all six industries. They filed the final report on 11.11.2021.

23. The Joint Committee also reported that the stack monitoring / Ambient Air Quality survey conducted by the TNPCB in the premises of the above said six industries (CPCL, TPL, MPL, MFL, NCTPS-Stage I and NTPC Ltd.) revealed that the above units were complying with the emission norms in each point source and also satisfying the National Ambient Air Quality Standards prescribed by the CPCB Notification dated 18.11.2009. It was also reported that the TNPCB is also monitoring the emission levels from the point sources of the industries round the clock through Online Continuous Emission Monitoring Sensors (OCEMS) that is connected to the Care Air Centre (CAC) of TNPCB by the industries. It is reported that as the industries M/s. CPCL, M/s.MFL, M/s.TPL (LAB Plant) and M/s.MFL have exceeded the stack emission levels prescribed by the TNPCB, from April 2019 to December 2020, as analysed from the OCEMS data monitored through CAC of TNPCB, the TNPCB has levied Environmental Compensation for the above noted violation of emission norms, from those units. Also, in due compliance with the direction of this Tribunal, the TNPCB has inspected the above said units and issued directions under Section

33A of the Water (Prevention &Control of Pollution) Act, 1974 as amended and under Section 31A of the Air (Prevention &Control of Pollution) Act, 1981 as amended to the respondent units for implementing the improvement measures.

24. Based on the violations noticed, the Joint Committee calculated the Environmental Compensation for the exceedance of stack emissions level prescribed by the Board and a notice under Section 5 Environment (Protection) Act, 1986 has been issued by the TNPCB to show cause as to why environmental compensation computed as per the CPCB Guidelines should not be imposed for the violations caused by the units. The details of the exceedance and environmental compensation assessed are as below:-

Sl. No	Name of the Industry	No of days of exceedance	Environmental Compensation assessed (in Rs)
1.	M/s. Chennai Petroleum Corporation Limited Refinery I, II and CPP	334	1,50,30,000/-
2.	M/s. Chennai Petroleum Corporation Limited Refinery III	418	1,88,10,000/-
3.	M/s. Chennai Petroleum Corporation Limited (Propylene Plant)	161	72,45,000/-
4.	M/s. Chennai Petroleum Corporation Limited (DHDS Plant)	121	54,45,000/-
5.	M/s. Chennai Petroleum Corporation Limited (Resid Upgradation Plant)	352	1,58,40,000/-
6.	M/s. North Chennai Thermal Power Station Stage I	273	1,22,85,000/-
7.	M/s. National Thermal Power Corporation Limited	124	55,80,000/-
8.	M/s. Madras Fertilizers Limited, Manali	1	45,000/-
9.	M/s. Tamil Nadu Petroproducts Limited (Lab Plant)	228	1,02,60,000/-

25. In addition, the Joint Committee has filed a detailed report on the pollution control mechanism in all six industrial units along with suggestions for improvement in mitigating the pollution, based on the site inspection conducted in all six industries and study on air

pollution monitoring, including source dispersion modelling for all six industries.

26. The findings of the Joint Committee, based on their inspection, may be summed up as below:-

- The results of the Ambient Air Quality Monitoring to assess the Ground Level Concentration (GLC) of point source emission of Gaseous and Particulate Matter, based on 4 sampling locations in NCTPS Stage – 1, 8 sampling locations in NTECL Vallur Power Plant, 10 sampling locations in CPCL, 20 sampling locations in TPL (Divisions: PO, HC & LAB), 8 sampling locations in MPL (Unit – I & II) and 8 sampling locations in MFL revealed that the values of SO_2, NO_2 and Particulate Matter were found to be within the standards.
- The Joint Committee has concluded that the source dispersion modelling output results in respect of six units showed that the pollutants contribution to nearby villages is minimum and that the environmental and health impacts are well below the limit of National Ambient Air Quality Standards and Occupational Safety and Health Administration (OSHA)/ American Conference of Governmental Industrial Hygienists (ACGIH) occupational exposure limit values. However, the cumulative particulate matter emission from NCTPS Stage – 1 through stacks is 2906 mg/m^3. The average ground level concentration achieves at an average distance of 2.22km and the concentration at that point is 114.85 $\mu g/m^3$ which includes all the stacks at NCTPS Stage-1. **It clearly indicates that the PM_{10} contribution to the nearby communities is exceeding the ambient air quality standards and carrying capacity in this area is exceeding.** The Joint Committee also observed that the combined source mass emission load of SO_2 and NO_2 with the maximum Ground Level Concentrations (GLC) are not exceeding the NAAQ Standards.
- In respect of CPCL, the Joint Committee noticed that the AERMOD simulation indicate that the predicted concentration of SO_2 and NO_2 were exceeding the NAAQ Standards and that these emissions had a significant impact on nearby communities and Manali Industrial Complex. It was also observed that the overall combined source mass emission load of SO_2 and NO_2 with the maximum Ground Level Concentration are exceeding the NAAQ standards in respect of CPCL and as a

result, there is no further carrying capacity for SO_2 and NO_2 in the neighbourhood and Manali Industrial Complex.

- The Joint Committee observed that PM_{10} and $PM_{2.5}$ are very high in the samples collected from roadside in all the three divisions of TPL, MPL (Unit – I & II) and MFL, but attributed it to the heavy vehicular movement specifically container movement towards the port and observed that these dust emissions are further disbursed into the ambient atmosphere. It is also noted that whenever the wind direction is from North East, North to South West and South respectively, then the contribution of PM_{10} and $PM_{2.5}$to the industry is maximum and that this concentration is purely because of outside vehicular emissions and opined that outside vehicular emissions are one of the major contributing sources for PM_{10} and $PM_{2.5}$.

27. The Joint Committee proceeded to ascertain the quality of Ambient Air Quality in the Manali industrial area, for which, the Ambient Air Quality Assessment was carried out for two days. On both days, 19 sampling locations were identified to assess the Ground Level Concentration of point source emission of Gaseous and Particulate Matter. Based on the Ambient Air Quality assessment, the Joint Committee found that the SO_2, NO_2, PM_{10} and $PM_{2.5}$ were within the NAAQM standards on Day – 1 as well as Day – 2. The Joint Committee also observed that PM_{10} contribution was more outside of the industries and near the road and held that the major contribution of PM_{10} pollution is due to the vehicular movement in that area. The Joint Committee also made certain suggestions to control road dust emissions which are listed below:-

- Manali Industrial Association shall take necessary steps along with the Greater Chennai Corporation for periodical cleaning of road dust through mechanical sweeping.
- Damaged roads shall be repaired periodically.
- Necessary steps shall be taken at the time of road construction to reduce particulate emissions.
- Industries should take necessary steps to control the fugitive emission in the loading & unloading area.
- Greenbelt development along the road side & mediator lines (appropriate species shall be planted to control particulate matter).

28. A detailed study report titled *"Air Pollution Monitoring and Source Dispersion Modelling at Manali Industrial Area (TPL, MPL, MFL & CPCL)"*was conducted by the Joint Committee as directed by the Tribunal. The methodology followed by the Joint Committee for carrying capacity study with specific reference to air pollution is detailed below:

> *(i) Sampling & monitoring for all six industries were carried out as per the prescribed standards with the help of MoEFCC/CPCB approved laboratory (G-lens Innovation Labs Pvt Ltd, Chennai)*
>
> *(ii)* ***Collection of the information for modelling AERMOD 5.2 to arrive at the Carrying Capacity:*** *AERMOD is the preferred dispersion model for general industrial modelling scenarios. Its performance was evaluated against observed concentrations for impacts emitted from stacks of above six (6) Industries. For the present case simulations, the required source data input includes source type, emission rate, and location, stack height, stack gas exit velocity, stack inside diameter, stack gas temperature and elevation.*
>
> *(iii)* ***Quantification of Assimilative Capacity using Dispersion Model:*** *Critical assimilative capacity can be defined as the maximum pollutant emission (load) an area can take at a given point of time without exceeding the permissible limits.*
>
> *(iv)* ***Monitoring of Ambient Air and Stack emissions and its analysis****: Samplers have been sited to meet the goals of the specific monitoring requirement. For this study, sampling is carried out to determine the compliance with the National Ambient Air Quality Standards (NAAQS) and sampler sitting as described in CPCB guidelines. The monitoring has been done outside the zone of influence of sources located within the designated zone of representation for the monitoring site.*
>
> *(v)* ***Stack Emission Monitoring****: The assessment is carried out as per the technical and quality aspects to meet the requirements of standard test method.*
>
> ***Expert consultation:*** *The Joint Committee also consulted, through online meeting on20th Sep 2021, with experts from NIT (Calicut), IIT Chennai and Scientist from CPCB (Ret) who are working in the area of air pollution & modelling applications. It was suggested by the experts that dispersion modelling being applied, is suitable to carryout the carrying capacity of that area.*

29. The study aimed to evaluate the Ground Level Concentration of PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO emitted from factories in the Manali Industrial Complex and that too specific to the impugned six industries. The Joint Committee has analysed the contribution of each factory to the maximum Ground Level Concentration by adopting the AERMOD model. The simulated values based on the

AERMOD modelling system for SO_2, NO_2, PM and CO concentrations were compared with those obtained from measurement. The Joint Committee observed that *"the quantile-quantile plot of concentrations is not fit because always the predicted concentrations are higher than the actual ambient air quality measurement values which may be due to obstruction in wind flow pattern"*.

30. The Joint Committee has also employed statistical analysis to determine the performance of the model in predicting overall concentrations and extremely high-end concentrations. The Joint Committee has observed that spatial distributions of annual concentration of SO_2 and NO_2 were also relevant to wind characteristics in the study area. During the wet season (October - February) this area is governed by the North East wind. However, in the dry season (March – September), the South West wind plays the dominant wind direction. Therefore, it was found from the model simulation that mostly of air pollutants were transported to the North and North East directions from emission sources.

> ***"Study limited to pre-monsoon season**: The model was done for only pre-monsoon and found the maximum ground level concentration exceeded the National Ambient Air Quality Standards (NAAQS) and it will be still worse in other two seasons. So, the study is limited to pre-monsoon only.*
>
> *Contribution of those four industries to the concentrations of PM, SO_2 and NO_2 were larger than the power plants (NTECL & NCTPS-1) located far away (more than 5km) from Manali industrial area and even though their emissions were almost 10 times lower than emissions of power plants. This could be because of heights of stacks of the power plants are much taller than petrochemical plants. These characteristics enhanced the dilution abilities of emissions from power plant and reducing concentrations of air pollutants at the ground surface level. Transportation of plume emitted from the power plants probably might not reach the ground level within the modelling domain because it has to travel longer distance to reach the study area.*
>
> *In order to evaluate the influence of power plants to the ground level concentrations, AERMOD was also simulated to acquire the maximum concentration of PM, SO_2 and NO_2 in the study area.*
>
> ***North Chennai Thermal Power Station (NCTPS) Stage 1:** For NCTPS (Stage-1), the model results indicated that the maximum ground level concentration of SO2 is 79.1 µg/ m^3 & 86.4 µg/ m^3 at a GLC distance of 1.99 km, NOx is 20 µg/ m^3 & 25 µg/ m^3 at a GLC distance of 2.10 km and PM is 173 µg/ m^3 & 56.7 µg/ m^3 at a GLC distance of 2.2km.*
>
> ***NTECL Vallur Power Plant**: For NTECL, the model results indicated that the maximum ground level concentration of SO2 is*

43.4 µg/ m^3, 60.0µg/ m^3 & 63.4 µg/ m^3 at a GLC distance of 1.7km, NOx is 10.3 µg/ m^3, 13.9µg/ m^3 & 14.4µg/ m^3 at a GLC distance of 1.7km and PM is 1.18 µg/ m^3, 1.12µg/ m^3 & 1.15µg/ m^3 at a GLC distance of 1.9km. These predicted values are much lower than the NAAQ Standards and contribution of these power plant sources are negligible to Manali industrial area.

***TPLPO Division, TPL HC Division, –TPL LAB- Division, MPLUnit-1 & 2 and MFL**: Predicted concentrations were not exceeding the National Ambient Air Quality Standard for PM_{10}, SO_2, NO_2 and CO as individual point source emissions. The combined source emission results from AERMOD simulation indicated that PM, SO_2, NO_2 and CO emissions from the TPL PO division, TPL HC Division, TPL LAB division, MPL Unit-1 & 2 and MFL had no significant impact on nearby communities and Manali Industrial complex. Specific to MFL Fertilizer industry the Ammonia source emission results based on the AERMOD simulation had no significant impact on nearby communities and Manali Industrial complex. The combined ground level concentration of each individual industry mentioned above are complying with National ambient air quality standards and had much carrying capacity for PM, SO_2, NO_2 and CO.*

***Chennai Petroleum Corporation Limited (CPCL)**: Predicted concentrations were not exceeded the National Ambient Air Quality Standard for PM and CO as individual point source emissions at CPCL, Manali. The combined source emission results from AERMOD simulation indicated that PM and CO emissions from CPCL had no significant impact on nearby communities and Manali Industrial complex. But for the combined source emission results from AERMOD simulation indicated that SO_2 and NO_2 emissions from CPCL had significant impact on nearby communities and Manali Industrial complex. There is no further carrying capacity specific to SO_2 and NO_2 in Manali Industrial complex, as the predicted combined source emissions results from AERMOD for SO_2 and NO_2emissionsfrom CPCL alone exceeded the National ambient air quality standards.*

***Overall combined source mass emission load of Particulate Matter:** The overall combined source mass emission load of PM is 3654.62kg/day for which the combined maximum ground level concentration is 497.3µg/m^3 and exceeding the National Ambient Air Quality Standards for about 5 times. The carrying capacity for particulate matter is not available at Manali industrial area as the predicted particulate matter emission from the four industries (TPL, MPL, MFL and CPCL) itself exceeded 5 times more than the National Ambient Air Quality Standards during the pre-monsoon study period and this will still higher in winter period.*

***Overall combined source mass emission load of Nitrogen Dioxide**: The overall combined source mass emission load of NOx (considering 100% conversion of NO_2) is 22939kg/day for which the combined maximum ground level concentration is 2424µg/m^3 and exceeding the NAAQ Standards for about 30 times.*

The carrying capacity for Nitrogen Dioxide is not available at Manali industrial area as the predicted Nitrogen Dioxide emission from the four industries (TPL, MPL, MFL and CPCL) itself exceeded 30 times more than the National Ambient Air Quality Standards during the pre- monsoon study period and this will still higher in winter period.

***Overall combined source mass emission load of Sulphur Dioxide**: The overall combined source mass emission load of SO2 is 33607kg/day for which the combined maximum ground level*

concentration is 2914µg/ m^3 *and exceeding the NAAQ standards for about 36 times.*

The carrying capacity for Sulphur Dioxide is not available at Manali industrial area as the predicted Sulphur Dioxide emission from the four industries (TPL, MPL, MFL and CPCL) itself exceeded 36 times more than the National Ambient Air Quality Standards during the pre- monsoon study period and this will still higher in winter period.

Results from this analysis revealed that in order to manage SO_2 *and* NO_2 *pollution in the industrial area, controlling of emission from Refinery should be given the first priority.*

Committee's suggestions on whether any more such industries can be accommodated in that area, considering the nature of pollution load created on account of existing units:

Though the values of PM, SO_2 *and* NO_2 *predicted through model study indicates that the Manali industrial area doesn't have carrying capacity with respect to PM,* SO_2 *and* NO_2 *emission, the actual measurement of* PM_{10}, $PM_{2.5}$, SO_2 *and* NO_2 *in the Ambient Air of the Manali Industrial area are within the National Ambient Air Quality Standards.*

Suggestions based on Carrying Capacity Study at Ennore Power Plants: The carrying capacity in terms of Particulate Matter & SO_2 *are not available based on the monitoring of M/s NCTPS Stage-1 & M/s NTECL respectively. Particulate matter emissions from NCTPS Stage-1 is exceeding the prescribed standards. Hence, the industry need to augment the ESP Air Pollution Control Device to achieve the prescribed standards. Carrying capacity in terms of Sulphur dioxide emission could be achieved, once the FGD system is installed by the power plants. It is suggested that both the power plants shall expedite the process of installation of FGD system.*

The following suggestions are also made to implement in order to reduce the emissions and pollution load further to the extent possible:

- *Use of cleaner fuel i.e. Conversion of usage of liquid fuel (such as HSD, LDO, FO etc.) into gaseous fuel.*
- *Use of low Sulphur fuel till conversion to gaseous fuel.*
- *Improving the combustion efficiency with controlled air-fuel ratio*
- *Installation of low NOx burner.*
- *Other large/medium red category industries (Air polluting) in Manali industrial complex shall install CEMS and connect to SPCB &CPCB servers.*
- *The industries shall develop the green belt in and around the Manali area as well as road side plantation in consultation with Greater Chennai Corporation. The Green Belt Model such as Source oriented approach &Receptor oriented Approach shall be adopted to reduce the impact of emission and accordingly the suitable species shall be selected based on the Guidelines for Developing Greenbelt.*
- *Only Orange and Green category industries and Red Category Industries which are not emitting the SO2 and NO2 emissions shall be allowed in the area.*
- *Existing Industries with no increase in pollution load as well as reducing the SO2 & NO2 emissions by 30 to 50% only can be allowed for expansion.*
- *Each industry in Manali industrial area shall evolve the action plan within a month on the above points individually in addition to the CEPI action plan along with time schedule to implement the same within a year.*

- *Greater Chennai Corporation shall identify the areas to be developed as green belt in and around Manali Industrial area and furnish the same to Manali Industry Association for green belt development.*
- *The Greater Chennai Corporation/High Ways Dept. shall evolve action plan for continuous maintenance of the Roads (with green belt) in Manali Industrial area, as the same are frequently damaged due to Heavy Truck movements, so as to achieve the Ambient Air Quality Standards prescribed by the CPCB in respect of particulate matter emission in that area."*

31. A joint report by the Central Pollution Control Board and the Tamil Nadu Pollution Control Board was filed, wherein it was stated that the Joint Committee has furnished their response to the directions issued by this Tribunal in its order dated 23.08.2022.

"a. The number and nature of industries in that particular area, what is the nature of pollution control mechanism that is being adopted by them and whether it is being calibrated from time to time, so as to meet the situation of stack emissions

Totally there are 21 Industries comprising of 10 private sector, 08 Public sector and 3 Joint sector functioning in Manali and Ennore area. Industries falling under various categories are given below;

- *Fertilizers - 3 Nos*
- *Petrochemicals Manufacturing (including processing of Emulsions of oil and water) -6 Nos*
- *Synthetic fibers including rayon, tyre cord, polyester filament yarn -1 No*
- *Industry or processes involving foundry operations having capacity of 5 MT/hr and more as such units require using coal/coke at more than 500 Kg/hr-1 No*
- *Chemicals Industry- 4 Nos*
- *Pharmaceuticals -2 Nos*
- *Thermal Power Plants-3 Nos*
- *Oil Refinery - 1 Nos*

The above said industries have provided air pollution control measures based on their nature of the industry and process emissions. The units have installed online continuous emission monitoring system (OCEMS) for their requisite parameters as per the CPCB guidelines for online continuous emission monitoring system (OCEMS). The calibration of online continuous emission monitoring system is being carried out through the instrument supplier only. The frequency of calibration varies from time to time based on the instrument requirement and field conditions. The individual industry wise details of pollution control measures provided, OCEMS calibration etc is enclosed as Annexure - 1.

b. Compliance of conditions imposed in the consent order granted

The status of compliance conditions imposed in the consent order is being verified during regular inspection and also at the time of renewal of consent order to the units. The major consent conditions are complied by the industries whereas during the recent renewal of consent additional conditions have been imposed to various industries which are being complied/agreed to comply.

c. what is the methodology adopted by them whenever industrial units are applying for expansion of their production capacity and what is the nature of

additional pollution control mechanism that is being provided by them to be complied by the units

Whenever the industries are applying for expansion of their production capacity, the Tamil Nadu Pollution Control Board will consider their application for the issue of consent to establish for expansion or consent to operate for expansion by considering the following aspects

1. Status of compliance of conditions stipulated in the consent order already issued under Air (Prevention & Control of Pollution) Act 1981 as amended and Water (Prevention & Control of Pollution) Act 1974 as amended.

2. Adequacy of the existing Air Pollution Control measures to handle the emission due to the expansion activity, if not adequate the unit has to submit the proposal for additional pollution control measures to handle the emissions due to the expansion activity.

3. Adequacy of the existing effluent treatment plant/sewage treatment plant to handle the additional quantity of effluent/sewage generated due to the expansion activity. If not adequate the unit has to submit the proposal for enhancing the capacity of effluent treatment system/sewage treatment system to handle the effluent/sewage generated due to the expansion activity.

4. In addition to the above, the pollution control systems adopted by the industry is being assessed by the committee constituted for "No Increase in Pollution Load" certificate while the units applying for expansion.

The above points are considered after obtaining necessary clearances/orders as stated below if applicable;

1. Whether the industrial activity attracts the provisions of Coastal Regulation Zone (CRZ) Notification, 2011 as amended.

2. Whether the industrial activity attracts the provisions of Environmental Impact Assessment (EIA) Notification 2006 as amended. If applicable the unit has to obtain prior Environmental Clearance from the respective authority.

3. Further, as per the Ministry of Environment, Forest and Climate Change Notification S.O. 980(E) dated 02.03.2021, Tamil Nadu Pollution Control Board will consider their application for the issue of consent to operate for expansion activity of the existing projects (having Prior Environmental Clearance) with no increase in pollution load certificate obtained from the Environmental Auditor or reputed institutions empanelled by the State Pollution Control Board or Pollution Control Committee or Central Pollution Control Board or Ministry.

4. Applicability of G.O Ms No 213 dated 13.03.1989 formulated for Ban on setting up of highly polluting industries within 1 km from water bodies mentioned in the said G.0.

5. Applicability of G.O Ms No 127 dated 08.05.1998 formulated for Ban on setting up of highly polluting industries within 5 km from water bodies mentioned in the said G.O.

d. whether any periodical inspection is being done by them to monitor as to whether those pollution control mechanisms are in operation and in conformity with the standard provided, if not what is the nature of action taken by them during the period of time.

All the above said industries are inspected periodically and samples (both sewage and Trade effluent) are being collected on monthly basis and analyzed through TNPCB Laboratory. Also ambient air quality, emission monitoring and ambient noise level survey are being carried out once in a year. If the sample parameters exceeds then action will taken against the unit as per the provisions of the Air (Prevention and Control of Pollution) Act, 1981 as amended and Water (Prevention and Control of Pollution) Act, 1974 as amended.

e. They must also explain in the report if they get an e-mail regarding the exceedances of the standard provided, then what is the nature of action taken by them against such industries

Online emission/effluent monitoring mechanism is implemented for strengthening the monitoring and compliance through self-regulatory mechanism by the industries for complying with the prescribed standards and timely information for taking immediate corrective/preventive steps in case of sudden disturbance in the Production Process/ Pollution Control system.

Whenever exceedance of parameters recorded in the online system, an automatic email and SMS alerts sent to Industries, Central Pollution Control Board/Tamil Nadu Pollution Control Board. Subsequently, industries communicate the reasons/causes for exceedance as well the action taken to rectify it through email to TNPCB.

As per the CPCB Protocols for Online Continuous Effluent & Emission Monitoring Systems (OCEMS) dated 13.03.2018 the exceedance is considered and further course of action will be taken against the unit if the exceedance is continued/not rectified as per the provisions of Air (Prevention and Control of Pollution) Act, 1981 as amended and Water (Prevention and Control of Pollution) Act, 1974 as amended after due verification in the field.

The TNPCB has already issued show cause notice under Section 5 of Environment (Protection) Act, 1986 as amended to the industries based on the exceedance observed through OCEMS and also calculated Environmental Compensation for those industries. The TNPCB has filed a report on the above to the Hon'ble Tribunal on 03.12.2021. Actions Taken/Proposed under CEPI and Joint Committee as per Hon'ble Tribunal order dated 15.12.2020

i. Comprehensive Environment Pollution Index area

The long term and short term action under Comprehensive Environment Pollution Index area is being implemented by the industries and periodically reviewed to improve the air quality in Manali area. In addition MoEF&CC has devised a Mechanism to ensure that new legitimate activity or expansion can take place after due precautions are taken in the area in question by Red and Orange Category of units vide Office Memorandums dated 31.10.2019 &30.12.2019 based on the Hon'ble NGT (PB) direction issued in Original Application No.1038/2018 which was stayed in the Hon'ble Supreme Court of India and same has been vacated. Accordingly, MoEF&CC has lifted abeyance imposed on above Office Memorandums. Henceforth the said OM's being enforced."

32. The Tamil Nadu Pollution Control Board has filed reports in July, August and December, 2021. In the above reports, the Pollution Control Board has indicated the action taken by them based on the inspections carried out by a team of engineers in due compliance with the directions of this Tribunal. The Pollution Control Board has given specific observations/suggestions/ imposed conditions for compliance for all industries. The salient aspects are detailed below:-

*"**1. M/s. Manali Petrochemicals Ltd Plant-I, Manali.***

a) The unit shall remove the Lime sludge dumped outside the earmarked area immediately.

b) The unit shall store the lime sludge generated from the rotary drum vacuum filter and un-burnt lime from lime slacker unit in the earmarked area only and sent to brick kiln for further beneficial use.
c) The unit shall maintain records on the quantity of generation and disposal of lime sludge for further beneficial use.
d) The unit shall ensure that the temporary lime storage yard and its leachate collection arrangements provided are properly maintained, so as to avoid any groundwater pollution.
e) The unit shall ensure that the OCEMS installed in the Boiler stack and the continuous ambient air quality monitoring (CAAQM) sensors provided are calibrated regularly, operated continuously and connected to the CAC of the Board and CPCB servers.
f) The unit shall ensure that the OCEMS installed at the outlet of the treated trade effluent holding tank (ETP) for the parameters TOC (BOD & COD), TSS, pH & Temperature and flow sensors provided are calibrated regularly, operated continuously and connected to the CAC of the Board and CPCB servers
g) The unit shall ensure for the continuous data transmission from the OCEMS and CAAQM sensors to the CAC and WQW of the Board and CPCB servers.
h) The unit shall comply with the minutes of the meeting held on 09.02.2021.

2. M/s. Manali Petrochemicals Ltd Plant -II, Manali.

a) The unit shall maintain records on the quantity of generation and disposal of lime sludge for further beneficial use.
b) The unit shall ensure that the temporary lime storage yard and its leachate collection arrangements provided are properly maintained, so as to avoid any groundwater pollution.
c) The unit shall ensure that the OCEMS installed in the Boiler stack and the continuous ambient air quality monitoring (CAAQM) sensors provided are calibrated regularly, operated continuously and connected to the CAC of the Board and CPCB servers.
d) The unit shall ensure that the OCEMS installed at the outlet of the treated trade effluent holding tank (ETP) for the parameters TOC (BOD & COD), TSS, pH &Temperature and flow sensors provided are calibrated regularly, operated continuously and connected to the CAC of the Board and CPCB servers.
e) The unit shall ensure for the continuous data transmission from the OCEMS and CAAQM sensors to the CAC of the Board and CPCB servers.
f) The unit shall furnish time bound action plan to remove/clear the old accumulated lime sludge stored in the backyard of the unit.
g) The unit shall take immediate action to get supply of LNG from IOCL to switch over the fuel from furnace oil to LNG for the boiler.
h) The unit shall comply with the minutes of the meeting held on 09.02.2021.

3. M/s. Chennai Petroleum Corporation Limited Refinery I, II and III, Manali.

a) The unit shall improve oil water separation in the ETP for effective removal of oil.
b) The unit shall quantify the amount of water received from each source, Utilization of that water in process and treated water utilization and their distribution system. c) The unit shall provide EMFM to all the inlets and outlets of STPS, ETPs, and all the treated sewage/effluent distribution system.
d) The unit shall expedite the provision of online analyser at the outlet of ETP IV and connect the same to the WQW, TNPCB, Guindy.
e) The unit shall furnish details on wet slop oil collection and utilization since it is not known whereabouts of wet slop oil from ETP.
f) The unit shall take necessary action to improve the existing APC measures or provide new control measures to achieve the

standards prescribed by the Board as the parameters CO, PM, SO2 and NOx have exceeded many times over a period of 2 years.

g) The unit shall conduct studies regarding the emission level inside and outside the premises and take necessary effective steps to reduce the emission load let out from the premises and maintain records for the same.

4. M/s. North Chennai Thermal Power Station-I, Puzhuthivakam village, Ponneri Taluk, Tiruvallur District.

1. The unit shall comply with the following findings of the committee constituted by the Hon'ble National Green Tribunal order dated.20.05.2019, communicated and agreed by the Hon'ble NGT within the time limit as reported.

a) The unit shall remove the fly ash deposited on the land in and around the ash carrying pipeline and ash disposed inside the premises for quantity of 3,95,979 Tonnes and shall store in temporary storage area and/or sent directly for beneficial purposes.

b) The unit shall completely remove the ash deposited in Buckingham canal for a quantity of 93,096 m^3 *Tonnes and shall store in temporary storage area and/or sent directly for beneficial purposes.*

c) The unit shall completely remove the ash deposited in Kosathaliyar River for a quantity of 3,25,000 Tonnes from NCTPS main gate to KPL main gate for a length of 2.4Kms for a average width of 130m and depth of 1m and shall store in temporary storage area and/ or sent directly for beneficial purposes.

d) The unit shall completely remove the ash deposited in Kosathaliyar river for a quantity of 4,68,000 Tonnes form Ennore creek to NCTPS-I main gate for a distance of 1.7Km and from KPL main gate to Kattupalli downstream for a distance of 1.9 Km for a average width of 130m and depth 1m and shall store in temporary storage area and/or sent directly for beneficial purposes.

e) The unit shall replace the existing Ash Slurry pipe lines No.1,2,3&4 with new Cast Basalt Lined pipe lines for a total length of 20523m length.

f) The unit shall provide impervious Toe drain around the Ash dyke for a length of 6000m for the collection of seepage water and to be connected to the existing Recovery Water sump and reuse for Ash slurry making.

g) The unit shall provide 6000 Nos. of trees in and around the ash dykes and grow it well so as to prevent the dust emission from the ash dyke.

h) The unit shall make existing ash pond impervious so as to prevent the seepages as per the technical consultancy of IITM, Chennai.

i) The unit shall obtain technical study report from IITM Chennai for the remedial measures such as strengthening of Ash Dyke and other related works in Ash dyke and implement the recommendations.

j) The unit shall provide sufficient number of piezometric wells/monitoring wells around the dykes and upstream of the industry to monitor the ground water quality.

k) The unit shall bring back Recovery water Pump No.3 in to service and to replace the existing worn-our Recover water pipe Line - 1 for a entire length of 2815 m.

l) The unit shall modify existing three Electrostatic precipitator attached to the 3 No. boilers CC notification dated 07.12.2015.

m) The unit shall replace the worn-out boiler roof tubes in Unit-II and Unit-III so as to arrest the discharge of fugitive emission.

n) The unit shall develop Mangroves plantations and other costal vegetation in both sides Kosasthaliyar river banks, Buckingham canal and nearby by affected coastal areas, in consultation with M.S. Swaminathan foundation (or) Annamalai University.

o) The unit shall ensure complete utilization of fly ash as per the Ministry of Environment, Forest & Climate Change fly ash notification of 2016. p) The unit shall carry out ground water, surface water monitoring once in six months through any NABL accredited laboratory in the affected areas. Further detailed study may be carried out by Ground water department or any reputed institution on the status of ground water, surface water quality once in year.

q) The unit shall adhere the consent order condition issued by Tamil Nadu Pollution Control Board.

2. The unit shall install Flue Gas Desulphurisation (FGD) System based on Lime/Ammonia dosing to capture Sulphur in the flue gases to meet the SO2 emissions standard of 600mg/N m^3 *(Power Plants smaller than 500MW installed before 31st December 2002) as per MoEF&CC's Notification S.O. 3305(E) dated: 07.12.2015.*

3. The unit shall install Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOx Burners with Over Fire Air (OFA) system to achieve NOx emission standard of 600 mg/N m^3 *(Power Plants smaller than 500MW installed before 31st December 2002) as per MoEF&CC's Notification S.O. 3305(E) dated: 07.12.2015.*

4. The unit shall ensure that the Particulate Matter (PM) emission in each 3 boiler stacks is within the standard of 100mg/ N m^3 *at all times (Power Plants smaller than 500MW installed before 31st December 2002) as per MoEF&CC's Notification S.O. 3305(E) dated: 07.12.2015.*

5. The unit shall ensure that the OCEMS for the emission parameters SPM, SO2 & NOX are provided to each three Boiler stacks which are calibrated regularly and operated at all times and ensure that the output of the sensors are connected to CAC, TNPCB & CPCB server at all times.

6. The unit shall ensure that the sensors for the parameters PM10, PM2.5, SO2 & NO2 installed in 2 Continuous Ambient Air Quality Monitoring Station (CAAQMS) are calibrated regularly and operated effectively and ensure that the output of the sensors are connected to CAC, TNPCB at all times.

7. The unit shall continue to develop green belt either within or outside the premises to attain an area of 33% of the total area with indigenous native tree species and the green belt shall inter- alia cover an entire periphery of the unit.

5. M/s. NTPC Tamil Nadu Energy Company Ltd, Vellivoil village, Ponneri Taluk, Tiruvallur District

a) The unit shall install Flue Gas Desulphurisation (FGD) System based on Lime/Ammonia dosing to capture Sulphur in the flue gases to meet the SO2 emissions standard of 200mg/N m^3 *(500MW and above power plants installed after 1st January 2003 up to 31st December 2016) as per MoEF&CC's Notification S.O. 3305(E) dated: 07.12.2015 as reported. (Before November 2022).*

b) The unit shall install Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOx Burners with Over Fire Air (OFA) system to achieve NOx emission standard of 300 mg/N m^3 *(500MW and above power plants installed after 1st January 2003 up to 31st December 2016) as per MoEF&CC's Notification S.O. 3305(E) dated: 07.12.2015 as reported. (Before November 2022).*

c) The unit shall ensure that the Particulate Matter (PM) emission in each 3 boiler stacks is within the standard of 50mg/ N m^3 *at all times (Power Plants installed after 1st January 2003 up to 31st December 2016) as per MoEF&CC's Notification S.O. 3305(E) dated: 07.12.2015.*

d) The unit shall ensure that the online continuous effluent monitoring sensors (OCEMS) provided for the parameters pH, TSS, BOD, COD, Conductivity, Turbidity & Temperature at the outlet of Central Monitoring Basin are connected to WQW, TNPCB Chennai & CPCB server at all times and calibrated regularly and also ensure the continuous online data transfer.

e) The unit shall ensure that the OCEMS for the emission parameters SPM, SO2 &NOX provided to each three Boiler stacks are calibrated regularly and operated at all times and ensure that the output of the sensors are connected to CAC, TNPCB & CPCB server at all times.

f) The unit shall ensure that the EMFMs are provided at the inlet & outlet of the Sewage Treatment Plant I & II and at the outlet of Central Monitoring Basin and connected to WQW, TNPCB, Chennai for continuous monitoring.

g) The unit shall ensure that the sensors for the parameters PM10, PM2.5, SO2 & NO2 installed in 4 Continuous Ambient Air Quality Monitoring Station (CAAQMS) are calibrated regularly and operated effectively and ensure that the output of the sensors are connected to CAC, TNPCB at all times.

h) The unit shall ensure that the sewage including canteen waste water arising from the unit and colony is completely collected and treated through the STP 1&ll and it shall operate and maintain the Sewage Treatment Plant I&Il components efficiently and continuously so as to achieve the treated sewage standards prescribed by the Board consistently and ensure that the treated sewage is completely utilized for gardening / tree plantation within the unit/colony premises without any stagnation.

i) The unit shall ensure that the trade effluent discharged from the Central Monitoring Basin is meeting the marine disposal standards prescribed by the Board at all times.

j) The unit shall ensure that no water is discharged from the ash pond to creek nearby either directly and indirectly under any circumstances.

k) The unit shall handle the ash from ash dyke with utmost care and ensure that there shall not be any spillages of ash around the ash dyke area.

l) The unit shall ensure that the fly ash is completely collected in dry form and disposed 100% for beneficial use in cement industries and hollow block brick manufacturing industries, without any accumulation within the unit premises.

m) The unit shall continue to develop green belt either within or outside the premises to attain an area of 33% of the total area with indigenous native tree species and the green belt shall inter-alia cover an entire periphery of the unit.

6. M/s. Madras Fertilizers Limited, Manali.

a) The unit shall provide Flow meter at the inlet and outlet of STP. Provide Flow meter at the inlet and outlet of NPK plant-ETP connect the readings of flow meters at the inlet and outlet of NPK plant- ETP to the WQW centre of TNPCB.

b) The unit shall provide flow metres, energy meters and monitoring sensors for the parameters DO, TDS pH, pressure and levels to the RO plants as per CPCB guidelines and connect the readings to the WQW centre of TNPCB.

c) The unit shall complete the conversion of fuel from Furnace oil to LNG in the 55 TPH boilers (2 Nos.).

d) The unit shall install, commission and connect the Analyser for PM, SOX & NOX for the common stack attached with Boilers 1 &2 (55T/hr each) early.

e) The unit shall restore the remaining 4 CAAQMS stations and connect to CAC before June 2021, as committed.

f) The unit shall plant green belt by planting native & local specific species in the old SEPs (lagoons) area.

g) The unit shall dispose the accumulated hazardous wastes to the authorized facilities immediately as per the conditions stipulated in the authorization order issued under the Hazardous Waste (Management, Handling & Transboundary Movement) Rules 2008 and comply with the provisions of Hazardous & Other Wastes (Management, & Transboundary Movement) Rules 2016.

h) The unit shall ensure that the OCEMS installed for the parameters NH3 in Urea Prill Tower, HF & PM in NPK train C, PM analyser installed for the common stack attached with process

condensate boiler 70T/hr &110T/hr Boiler, 11 Ammonia sensors within the premises and the continuous ambient air quality monitoring (CAAQM) sensors are calibrated regularly, operated continuously and connected to the CAC of the Board and CPCB servers.

i) The unit shall ensure that the OCEMS installed for the EMFM in the HSP Plant is calibrated regularly, operated continuously and connected to the CAC of the Board and CPCB servers.

j) The unit shall ensure for the continuous data transmission from the OCEMS and CAAQM sensors to the CAC and WQW of the Board and CPCB servers.

7. M/s. Tamil Nadu Petroproducts Ltd -ECH Plant, Manali.

a) The unit shall ensure that the online continuous effluent monitoring sensors (OCEMS) provided for the parameters pH, TSS, COD & BOD at the outlet. ETP are connected to WQW, TNPCB Chennai &CPCB server and calibrated regularly and also ensure the continuous online data transfer.

b) The unit shall ensure that the online continuous emission monitoring sensors (OCEMS) for the parameters PM, Sox, NOx & CO provided with a Boiler stack and Chlorine provided with a stack attached to scrubber in chlorine handling area are calibrated regularly and operated and also to ensure that the output of the sensors are connected to CAC of TNPCB/CPCB server at all times.

c) The EMFMs installed at the inlet to the ETP & RO reject from LAB Plant along with the HCD Plant treated effluent reuse to ECH Plant process shall be connected to WQW of TNPCB/CPCB web portal.

d) The unit shall ensure that the EMFMs are provided at the inlet &outlet of the Common Sewage Treatment Plant, inlet to STP from ECH Plant, inlet to STP from HCD Plant and inlet to STP from LAB Plant and connected to WQW, TNPCB, Chennai for continuous monitoring.

e) The unit shall ensure that the sensors for the parameters PM2.5, PM10, Chlorine and VOC installed in 1 Continuous Ambient Air Quality Monitoring Station (CAAQMS) are calibrated regularly and operated effectively and ensure that the output of the sensors are connected to CAC, TNPCB at all times.

f) The unit shall ensure that the temporary lime storage yard and its leachate collection arrangements provided are properly maintained so as to curtail ground water pollution. The unit shall collect and dispose the lime sludge generated then and there to brick kilns for further beneficial.

g) The unit shall continue to develop green belt outside the premises by approaching Zonal Officer (Zone-II), Greater Chennai Corporation/Highways Department to attain an area of 40% of the total area with indigenous native tree species and the green belt shall inter-alia cover an entire periphery of the unit.

8. M/s. Tamil Nadu Petroproducts Ltd -LAB Plant, Manali.

a) The unit shall ensure that the online continuous effluent monitoring sensors (OCEMS) provided for the parameters pH, TSS, COD & BOD at the outlet of ETP are connected to WQW, TNPCB Chennai & CPCB server at all times and calibrated regularly and also ensure the continuous online data transfer.

b) The unit shall ensure that the online continuous emission monitoring sensors (OCEMS) provided for the parameters PM, Sox, NOX & CO for stack attached with Hot Oil Heater, PACOL Heater, Hydro Treater, DG sets and Boilers are calibrated regularly and operated at all times and also to ensure that the output of the sensors are connected to CAC of TNPCB/CPCB server at all times. c) The EMFMs installed at the RO-I feed, RO-I permeate, RO-II permeate, RO-II reject and RO-II reject & HCD Plant treated effluent reuse to ECH Plant process shall be connected to the WQW of TNPCB/CPCB web portal immediately.

d) The unit shall ensure that the EMFMs are provided at the inlet &outlet of Common Sewage Treatment Plant, inlet to STP

from ECH Plant, inlet to the STP from HCD Plant and inlet to STP from LAB Plant and connected to WQW, TNPCB, Chennai for continuous monitoring.

e) The unit shall ensure that the sensors for the parameters PM2.5, PM10, SO2, NOX, CO and Benzene installed in 1 Continuous Ambient Air Quality Monitoring Station (CAAQMS) are calibrated regularly and operated effectively and ensure that the output of the sensors are connected to CAC, TNPCB at all times.

f) The unit shall continue to develop green belt outside the premises by approaching Zonal Officer (Zone-II), Greater Chennai Corporation/Highways Department to attain an area of 40% of the total area with indigenous native tree species and the green belt shall inter-alia cover an entire periphery of the unit.

Also, the TNPCB is taking action to impose Environmental Compensation (EC) to the above 9 industries, for the exceedance if any in the Online Continuous Emission Monitoring System (OCEMS) data, monitored during April 2019 to December 2020, through Care Air Centre (CAC), TNPC Board Chennai comparing with the stack emission levels prescribed by the Board."

33. In the report filed in August and December, 2021, the action taken with reference to the directions issued by the Tamil Nadu Pollution Control Board vide proceedings dated 11.03.2021 and 15.04.2021 have been furnished along with the status of compliance by different industries.

34. On 19.12.2022, the Tamil Nadu Pollution Control Board filed one more report in response to the directions issued by this Tribunal in its order dated 20.10.2022.

*"**i. Whether Manali needs to have separate standards considering it as one Air shed instead of applying normal standards for all industries.***

Tamil Nadu Pollution Control Board is monitoring the level of pollutants let out through the process stacks provided by the industrial units periodically to ascertain the compliance with the standards prescribed by CPCB from time to time. Action is being taken against the erring units. Some of the industrial units in the Manali Industrial Complex such as CPCL, MFL & Indian Additives Limited have also installed Continuous Ambient Air Quality Monitoring Station (CAAQMS) in the vicinity of their premises so as to measure the level of pollutants in the ambient air.

Further, the level of pollutant in ambient air around the Manali Industrial area is being monitored by the Continuous Ambient Air Quality monitoring stations (CAAQMS) installed at Manali, Kattivakkam and Tiruvottiyur by the Tamil nadu Pollution Control Board under the National Ambient Air Quality Monitoring Project (NAMP). A Continuous Ambient Air Quality monitoring station (CAAQMS) situated at Manali by the Central Pollution Control Board (CPCB) is also functioning and level of

pollutants in ambient air around the Manali Industrial area is being monitored.
Hence, the National Ambient Air Quality Standards notified by the CPCB dated 18.11.2009 is stringent enough to monitor the level of pollutants in the ambient air which may be continued to be implemented in the Manali cluster. Also individual industry specific standards are notified by the Central Pollution Control Board from time to time and they are also being implemented and monitored by the Tamil Nadu Pollution Control Board.
Hence, separate standards are not required in this area.
ii. ***Whether technological advancements are insisted upon the industries to improve the quality.***
a) Particulate Matter- Solid to Liquid/ Gas Fuel Conversion
In order to reduce the PM emissions presently, in Manali Industrial Area, the industries were directed to convert solid fuels to liquid/gaseous fuel. Thus most of the industries had converted from solid fuels to liquid/gaseous fuel such as furnace oil and Re Gasified Liquefied Natural Gas (RLNG) in their Hydrogen Generation units, process heaters, Boilers, Gas Turbines and in the required applications wherever possible. Those industries which are yet to convert it to liquid/gaseous fuel are taking steps to implement the same.
Further, coal based thermal power plants have installed and operating the electrostatic precipitators for the control of particulate emissions and they were directed to upgrade their electrostatic precipitators for better efficiency
b) SOx
Coal based thermal power plants were instructed to use low sulphur coal in their process and they are also directed to install Flue Gas Desulphurization (FGD) in order to remove sulphur dioxides (SO2) from the flue gas generated by boilers, furnaces, and other sources.
Further all the industries in Manali area had been instructed to use low sulphur furnace oil in their furnaces to reduce sulphur di oxide emissions.

c) NOx
Coal based thermal power plants were instructed to install Denitrification system and all the industries in Manali area were instructed to install Low NO, burner in order to control /reduce NO, emissions, and the industries had installed the same in their system to reduce NO, emission

Further, Manali falls under Comprehensive Environmental Pollution
Index (CEPI) area and the mechanism for environmental management of critically polluted area issued by CPCB dated 25.10.2019 for the new/expansion activities and the mitigation measures proposed for Air pollution control is also being implemented in the existing units.
iii. Whether all emission sources are looked at, as the report only points to stack emission etc and does not taken into account of fugitive emissions.
a) Fugitive emissions from industries:
Some of the industrial units in the Manali Industrial Complex such as CPCL, MFL & Indian Additives Limited have also installed Continuous Ambient Air Quality Monitoring Station (CAAQMS) in their premises so as to measure the level of pollutants in the ambient air.
Further the level of pollutants in ambient air around the Manali Industrial area is being monitored by the Continuous Ambient Air Quality monitoring station (CAAQMS) situated at Manali, Kattivakkam and Tiruvottiyur by the Tamil Nadu Pollution Control Board under the National Ambient Air Quality Monitoring Project (NAMP). The data are uploaded in the TNPCB website.
Also, Ambient Air Quality surveys are being conducted by TNPCB using High Volume Samplers in and around the industrial

premises and monitoring of fugitive emissions were also covered during the survey and the results reveals that the parameters are generally within the Ambient Air emission standards. The TNPCB has also engages its mobile Continuous Ambient Air Quality monitoring station (CAAQMS) in case of any specific complaint received from the nearby public.

b) Fugitive emissions due to Vehicular emission

As far as Manali is concerned, one of the important sources of fugitive emission is vehicular movement in the Manali area which should be addressed to reduce the CEPI score. In and around Manali area, there are Tiruvottiyur Town, many residential colonies, industries, Ennore port and more than 5 container Freight stations (CFS) are located. Transport of Raw material, products and any other transport movement are through this core industrial area via Manali express highways. Approximate truck & lorry movement in the Manali area for the industrial activity alone is around 1069 Nos per day.

The number of vehicle passing through the Tollgate of Manali is approx. 20000 per day, in which 2000 to 3000 are light vehicles and 16000 to 17000 are heavy vehicles which also contributes to the fugitive emissions.

4. It is respectfully submitted that as mentioned in the Hon'ble Tribunal order dated 20.10.2022, the TNPCB has initiated action for conducting carrying capacity study in the air environment for Manali area through a reputed technical institution."

35. It was submitted by the Learned Counsel for the Pollution Control Board that based on the technical advancement, Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for Ambient & Stack emissions have been implemented in Manali & its industries as an indicative and early warning technique. Further, all the 17 category industries are provided with Online Monitoring of Industrial Emission &Effluent (OCEMS) and are connected to the Care Air Centre, Tamil Nadu Pollution Control Board, Guindy. He also submitted that

a. *Industries have put up necessary control measures to prevent exceedance of parameters specified sector wise. The level of pollutants is being monitored through TNPCB and CPCB. Therefore, these stringent standards are adequate enough on source monitoring and also these standards are revised from time-to-time.*
b. *Line sources and area sources are now being covered by IIT-Madras in their Source Apportionment and Carrying capacity study, which will give factual details.*
c. *NCAP approved State Level Implementation and Monitoring Committee has allotted 272 crores for mitigating pollution in Chennai.*
d. *As per Comprehensive Environmental Pollution Index (CEPI), Manali has been declared as critically polluted area having more than CEPI score of 70 in 2018 pre-monsoon study by CPCB. Consequently. The TNPCB took measures and also adopting the MoEF&CC Office stringent Memorandum 31.10.2019 such as (i) Change of solid, liquid fuel to gaseous fuels, (ii) Implementation of OCEMS, (iii) Increase in green belt by 40% (iv)Adopting Zero*

Liquid Discharge (ZLD) etc. And thus the CEPI score in Manali industrial estate presently has decreased significantly to a score of 31.

Recommendations

1. *Separate AAQ standards need not be insisted for Manali industrial estate.*
2. *All industries in Manali industrial estate shall be insisted to adopt best available technologies and best practices prevailing globally from time-to- time.*
3. *For all future industrial-clusters, a buffer zone to be notified by local authorities.*
4. *Industrial estate may spell out time based action plan for further reduction in environmental pollutants generated from the industries.*
5. *The levels of Particulate matter in Ambient air, Manali is higher while considering vehicular emissions in addition to other area sources of habitation, Construction activities etc.*
6. *The vehicular emissions also contribute to pollutants SOx and NOx.*
7. *Sequestering of CO2 by growing additional green belt like MIYAWAKI, bottling of CO2, etc can help in reduction of Green House Gases.*
8. *End to end paving of roads, adopting mechanical sweepers with water sprinklers can reduce dust emission.*

36. The learned counsels representing the six industries have categorically disputed the findings of the news report published in the News Desk Magazine dated 11.11.2020 under the caption *"These six industries in North Chennai are polluting the air for more than half the year"*. The industries have explained at length various measures being taken by them to reduce pollution, specifically measures taken by them to improve the functioning of the Electro Static Precipitators (ESPs), switching over from solid fuels to liquid/gaseous fuels and also the action taken by them for installation of Flue Gas Desulfurization (FGD) units before the specified timelines prescribed by the MoEF&CC i.e. before December 2023. Each industry has also highlighted the specific measures initiated by them to reduce air pollution taking into account the nature of their operations. All the industries have claimed that the Chennai Climate Action Group (CCAG) has published the said report without going into the details is improper and the information is not reliable at all. One of the main

objections to the said report is that the CCAG considered the no data hours as a non-compliance period which is contrary to the facts and appears to have been made with the intention to sensationalize the issue.

37. The learned counsel for the Central Pollution Control Board (CPCB) and the Tamil Nadu Pollution Control Board (TNPCB) though they have found certain violations, for which, environmental compensation has been assessed and levied, have reported that by and large the Ambient Air Quality Standards are met, but observed that the Particulate Matter (PM) pollution at ground level in the Ennore industrial complex is quite high but attributing it to the sources other than the industry and attributing it to the vehicular pollution.

38. The following issues have been considered based on the news report published as well as pleadings of the respondents and recommendations of the regulators,

(i) Whether there is any need for strengthening the OCEMS system per se and monitoring of the data generated by the OCEMS and improving the follow up based on the analysis of the data?

(ii) Whether there is any need to upgrade the existing pollution control measures to reduce the pollution load?

(iii) Whether there is any need for prescribing a separate set of standards by the regulators in areas earmarked for the promotion of industries/industrial parks and areas classified as industrial/mixed zone as against the standalone industry?

39. We hold that there is some merit in the claim of the industries that they have been taking measures for reducing the pollution loads through the modernisation of pollution control equipment as well striving to meet the prescribed standards in view of the findings of the Joint Committee constituted by this Tribunal which has been detailed supra. However, the fact that the violation of the conditions imposed cannot be denied, for which, rightly environmental compensation has been levied by the Tamil Nadu Pollution Control Board, which should be taken to logical conclusion following due process of law.

40. An important issue that has been flagged by the news report and the report of the Joint Committee/Tamil Nadu Pollution Control Board is the need for strengthening the OCEMS system and its monitoring based on the observations that for prolonged periods, no data is captured by the system and similarly, for extended periods, the data remains static which should be of serious concern.

41. We fail to understand why there should be prolonged periods where data is not captured by the OCEMS system. Such situations will certainly lead to suspicion and apprehension. It is the responsibility of both the individual industries as well as regulators to ensure that the data is captured by the OCEMS system without any interruption except on rare occasions for genuine reasons.

42. It is also difficult to appreciate how the data can remain constant for hours together relating to emission through a stack. Normally, such static data also should be a rarity and such static data should

primarily alert the regulator, though the concerned industries also have a responsibility of examining the reasons for static data.

43. Therefore, we are of the view that the Pollution Control Board through its dedicated team to monitor the OCEMS data should critically evaluate such occurrences by escalating the issue to the higher levels within the organisation so that the said occurrence can be verified through personal inspection or through the means available online, if any. Similarly, the industries should appreciate that it is their bounden duty to ensure that the OCEMS system functions accurately without any interruption so that it will not only fulfil their legal obligations but also ensure that the health of its own employees as well as health of the environment is protected. There is also a need for the industries to create an internal mechanism under the supervision of a senior officer to closely monitor the functioning of OCEMS as well as critically analyse the data for immediate corrections.

44. It has been noted that the CPCB had issued guidelines for monitoring the OCEMS data on 13.03.2018 and we are of the opinion that the norms prescribed for exceedance are very liberal and give huge elbowroom for the industries to discharge emissions beyond the norms for certain periods of a day. The following norms have been prescribed more than five years back that too in the initial years of the introduction of the OCEMS system.

> *"As per the CPCB Protocols for Online Continuous Effluent & Emission Monitoring Systems (OCEMS) dated 13.03.2018 the exceedance is considered based on the following;*
> • *Exceedance by > average 25% of 15 minutes average parameter (s) from permissible limit for 8 times/day. (PM, SO2, NOx,)*

- *Alerts for Exceedance due to plant, boiler or equipment's start or stop must be excluded (Logs must be recorded and special note to be sent to SPCB / CPCB in this regard after generation of yellow alert)*
- *When PM emission deviates from the norm by >60% for Eight (8) / consecutive readings or SO2, NOx by >25% for eight (8) consecutive readings*
- *When internet / power connectivity /sensor error of equipment failed continuously for Four hour, but limited for maximum Six times during any 30- day moving period.*
- *When parameters observed values are consistent and stable without even minimum deviation of +/- 2% continuously for > 48 hours*

Further course of action will be taken against the unit if the exceedance is continued/not rectified as per the provisions of Air (Prevention and Control of Pollution) Act, 1981 as amended and Water (Prevention and Control of Pollution) Act, 1974 as amended after due verification in the field."

45. A perusal of the above norms indicate how liberal they are and the industries can get away from 'exceedance' and pollute the environment by discharging above the prescribed standards during certain periods of the day. There is a need for the CPCB to constitute a committee, which may also include experts in the field of air pollution as well as water pollution to examine the existing protocols and submit revised guidelines to the Tribunal within a period of 3 (Three) months. There is also a need to look into the current mechanisms in place for capturing the data continually from the industries, the mechanism for data analysis and guidelines for follow up in case of excedance.

46. Based on the directions of this Tribunal in ***Original Application No.195 of 2016 (SZ) [Tandur Citizens Welfare Society Vs. Government of Telangana and Ors.]*** dated 24.08.2021, an interlocking mechanism was put in place between the OCEMS system and production system for cement industries to ensure that the OCEMS system cannot be bypassed. A committee was also constituted to examine whether such a system can be insisted across the industries.

47. Though the committee constituted by the CPCB expressed its difficulties in establishing such an interlocking system across all the industrial sectors citing safety concerns, this Tribunal reiterates the need for working out an interlocking / alert system taking into account the safety of equipment, the safety of operations, etc. to ensure that the OCEMS system is not bypassed or there is no static data for prolonged periods. With advancements in Machine Learning and Artificial Intelligence, there is a need for CPCB to re-examine the issue rather than bury the matter simply by stating that it is not technically feasible due to safety considerations. The intention of this Tribunal is not to create industrial hazards, but it is only to ensure that the polluter is not given an opportunity to bypass the system established to ensure compliance with environmental laws.

48. It is also clear from the report of the Joint Committee that there are certain large/medium Red Category industries (air polluting) in Manali Industrial Complex which are yet to install the OCEMS and connect to the State Pollution Control Board and Central Pollution Control Board servers.

49. It is also observed from the inspection reports of the regulators that the sensors in Continuous Ambient Air Quality Monitoring Station (CAAQMS) as well as OCEMS and other equipment installed for monitoring the emissions/effluents are to be calibrated regularly.

50. <u>Need to update the existing pollution control measures to reduce the pollution load:</u> From the pleadings and reports of the regulatory authorities, it is clear that the existing pollution loads can be further reduced if the existing pollution control measures are upgraded /modernised. From the reports, a few areas as detailed below which need to be addressed at the earliest.

50.1 Complete switchover to cleaner fuels including conversion of usage of liquid fuel into gaseous fuels within a stipulated period of time.

50.2 To ensure that all the units having ETPs, upgrade their ETPS to the latest generation of ETPs available today by offering a reasonable period of time for the upgradation. However, we make it clear that the fund constraints should not be stated as a reason even by the public sector undertakings. They should get necessary financial support from the Government if required.

50.3 Establishment of FGD systems wherever it is applicable without fail before December 2023.

50.4 Installation of latest pollution control measures for reduction of NOx emissions.

50.5 In order to minimize the pollution due to effluent discharges, all the industries may be directed to switch over to the ZLD system by granting a reasonable time frame. However, the immediate focus has to be on those industries which generate highly polluting effluents and they should not take the plea that these discharges are being treated effectively either in ETPs or CETPs, at best such units can be granted longer period for switch over to ZLD systems, if feasible. Only if ZLD systems are not technically feasible, ETPs/CETPs can continue.

50.6 There is a need for a committee of experts who may meet periodically (preferably once in a quarter) to evaluate the advancements in pollution control equipment, especially those relating to the capture of Particulate Matter (PM), SO_2, NO_2 and other toxic air pollutants. Once the committee

identifies the need for modernisation of the said pollution control equipment, the same may be communicated to all the State Pollution Control Boards for adoption for all new units as a precondition for grant of Consent for Operation (CFO). In respect of existing industries, reasonable time may be granted to the industries, taking into account the cost involved and also the compliance status of the industries.

50.7 Examine the technological advancements which are in place in other countries which are installing air purifiers centrally in industrial areas as well as in urban pockets with heavy vehicular populations to reduce the pollution load. Considering the need for having pure air for the healthy growth of children as well as considering the health of the adults and also considering the adverse impact, air pollution can have on the health of the people in general and a pronounced impact it can have on vulnerable groups such as children, pregnant women, senior citizens and people with ailments such as Asthma, it is time for the CPCB to insist on the establishment of air purifiers in industrial areas and in urban pockets with heavy vehicular populations. The cost of such air purifiers may be asked to be borne by all the industries based on either turnover of the companies or the emission load or a combination of both. In urban pockets with heavy vehicular population, the Government may consider imposing part of the cost of air purifiers from the owners of vehicles which are aged more than five years and balance funded by the Government.

51. <u>Need for a separate set of standards in areas earmarked for the promotion of industries/ industrial parks and areas classified as industrial/ mixed zone as against the standalone industry:</u>

51.1 The Tamil Nadu Pollution Control Board to a specific question from this Bench on the need for having more stringent emission and effluent discharge standards for industries

located in areas earmarked for industrial development, has stated that the existing regulations will suffice and there is no need for a separate set of standards for areas earmarked for industrial development.

51.2 It is also stated that the National Ambient Air Quality Standards (NAAQS) notified by the CPCB dated 18.11.2009 is stringent enough to monitor the level of pollutants in the Ambient Air, even in the Manali Industrial cluster. It is also stated that the industries' specific standard notified by the CPCB from time to time will suffice to regulate the pollution loads in areas earmarked for industrial development and also the OCEMS system installed in the premises of the industries will suffice to monitor whether the requisite parameters are met by the industries.

51.3 However, a perusal of the Joint Committee report reveals the inconsistencies and inadequacies in the OCEMS system and even environmental compensation has been levied for the violations. In addition, though the Joint Committee has reported that all the industries have met stack emission standards prescribed by the NAAQS, it is noted that both the PM_{10} and $PM_{2.5}$ are very high in the samples collected from the roadside where these industries are located but attributed it to the heavy vehicular movement, specifically container movement towards the port.

51.4 In addition to vehicular emission, the other issues which need consideration are fugitive emissions from within the industries and emissions from flare towers in the refinery and petrochemical industries. Contrary to the view held by the Pollution Control Board, we are of the view that the environmental impact due to emissions / effluents from a single industry in an area will be manageable even if the vehicular emission and fugitive emissions likely due to the industry are considered. The same cannot be said to be the case in an area where in a confined area where a large number of industries are functioning, the cumulative impact

in conjunction with the vehicular emissions / road dust / fugitive emission from the industries will be much more, even if emissions from flare towers are not an issue in those areas. The total quantum of emissions by all the industries in the area put together can definitely have a bigger impact than in a situation where if only one or two industries are located in about the same area. It is also to be noted that the emissions and effluents are chemicals by and large in a gaseous or liquid state which may interact leading to the formation of new compounds which could be deleterious.

51.5 It may not be out of place to mention that acid rains are more pronounced in areas surrounding industrial estates and similarly the visible impact of the effluent discharges on aquatic life is more pronounced in water bodies which are closer to the industrial parks. The phrase 'acid rain' was first used in 1852 by Scottish Chemist Robert Angus Smith during his investigation of rainwater chemistry near industrial cities in England and Scotland (Source – Encyclopaedia Britannica). It is widely known that where fossil fuel consumption is large and emission controls to reduce SO_2 and NO_2 emissions are weak, acid deposition will occur in areas downwind of emission sources. It is also known that the cloud water and fog in polluted areas can be more acidic. It is also known that many air pollution and atmospheric deposition problems are intertwined with one another. It is well established that besides causing acid rain, both Sulphur Oxide and Nitrogen Oxide combine with other chemicals in the atmosphere contribute to the formation of Particulate Matter, Hydrogen peroxide, ground level ozone and enhanced Particulate Matter. The problem of Particulate Matter is further complicated due to vehicle exhaust, unpaved roads, and interaction of Sulphur and Nitrogen Oxides with other compounds in the atmosphere.

51.6 In addition, the very nature of the industrial park will entail the movement of the vehicles and generation of both liquid and solid waste due to the working population as well as due

to the emergence of residential complexes within and in and around the industrial park. In such a situation, there is a need for imposing stricter norms for industries which are likely to be established in industrial parks or areas earmarked for industrial growth.

51.7 The only worthwhile suggestion that emerged from the regulators is to create a buffer zone for all future industrial clusters to be notified by the local authorities. However, the creation of a buffer zone though will be having significant benefits that alone will not suffice. The CPCB may refer this issue also to the committee to be constituted for evaluating the advancements in pollution control equipment to analyze the advantages of having stricter pollution norms for the industries to be established in areas earmarked for them as against the general norms for the establishment of industries in areas without or with only one or two in an area about the size of industrial parks.

51.8 It is reliably learnt that the Central Electricity Authority was required to submit a paper suggesting the plant location specific emission standards with a suitable basis to the Ministry of Power for further taking up with the Ministry of Environment, Forests and Climate Change. In the said paper, where a case was made out for a less stringent norms for thermal plants located in remote locations far away from town and little habitations around, it was suggested that the Ambient Air Quality can be made as the guiding factor for formulating emission control which can help in avoiding the installation of additional emission control equipment without compromising the air quality. It was also suggested that there should be a baseline air pollution level for SO_2, NO_x, $PM_{2.5}/PM_{10}$ which is maintained across the country to ensure that the baseline air quality everywhere is the same and norms can be relatively stringent in areas where air quality is critically poor and relatively less stringent where air quality is not so critical. The paper also relies on satellite imageries and focuses on the concentration of SO_2 in various

regions of the country in order to isolate the problem regions which need immediate rectification. Referring to the international emission norms where new standards have been prescribed for $S0_2$, NO_x and Mercury emissions, besides making existing limits on PM emissions more stringent and the MoEF&CC has set a deadline to comply with the new standards by end of 2019 for the national capital region, 2021 for critical areas and 2022 for all other thermal units.

51.9 In some countries such as China and Australia, emission norms are location specific where key areas have stricter emission standards over the baseline emission levels. This only shows that there is a need for having differential norms for areas where a large number of industries which pollute the air critically as against the industries located in isolated and far way locations.

51.10 The ultimate aim should be to ensure that even the industry located in the isolated area reduces its emission level by installing modern pollution abatement measures such as the latest generation of ESPs, installation of FGDs and measures for reducing NO_x, but the immediate concern should be to impose additional measures in areas which are already critically polluted due to the presence of a large number of industries in a particular area. Rather than responding to the problem after it merges, it will be prudent for the CPCB and MoEF&CC to examine the need for prescribing different standards for industries located in an area designated as industrial areas as against the industries located in an isolated manner.

51.11 It may not be out of place to mention that as observed by the Joint Committee and Pollution Control Board, the pollution due to $PM_{2.5}$ and PM_{10} is quite high in the Manali Industrial area though it has been attributed to emissions from vehicles. It is quite obvious that when a group of industries are located in a particular area, the problems due to vehicular pollution, usage of unclean fuels,

fugitive emissions and emissions due to flaring of gases get exacerbated which should be taken into account while prescribing the pollution control norms which can be more stringent than for the same type of industry located in an isolated area. This does not mean that those industries already located or to be established in isolated areas do not require the installation of the latest generation ESPs, FGDs, etc. At best, it can mean that they can be given a longer time frame for upgradation in respect of existing industries. The CPCB and the SPCBs should work out special norms in industrial areas factoring in vehicular pollution, fugitive emissions, flare gas emissions and also a need for having higher stack height even for non-thermal power plants.

51.12 In these industrial areas, the focus can also be on energy use efficiency, use of fuels and other materials which are less polluting process modification to less polluting processes and adoption of best standard emission control equipment / techniques.

51.13 **Stack Height:** The stack height for all point sources of emissions whether significant or not should be designed according to the Good International Industry Practice (GIIP) to avoid excessive ground level concentration due to downwash, wakes and eddy effects and ensure reasonable diffusion to minimize the impacts. The stack height should be established with due consideration to emissions from all other project sources both point and fugitive.

51.14 Fugitive emissions have the potential for much greater ground-level impacts per unit than stationary source emissions, as they are dispersed close to the ground. Fugitive emissions are mainly in the form of Volatile Organic Compounds and Particulate Matter. Projects which have potentially significant fugitive sources of emissions can be directed to have special measures to reduce the same. For reducing the pollution due to $PM_{2.5}$ and PM_{10}, usage of dust

control methods such as covers, water suppression, air extraction and treatment through a bag house or cyclone for material handling sources, such as conveyors and bins, etc. can also be considered.

52. Considering the above reports of the Joint Committee, Central Pollution Control Board, State Pollution Control Board and also the responses given independently by the various stakeholders who are the different kinds of industries in the Manali area, it is inevitable that stringent provisions are to be introduced which are to be strictly followed by the industries. Even though there may be an existing CPCB protocol for various kinds of pollution, the same is required to be revisited and look for better mechanisms, considering the advancements in machine learning and artificial intelligence to ensure the foolproof operation in the OCEMS system, etc. Several countries have installed centralized air purifiers in industrial areas as well as in urban pockets where there is a heavy vehicular population to reduce the pollution load. The installation of such air purifiers would considerably reduce air pollution and every citizen would have pure air to breathe and would benefit in particular children, pregnant women and senior citizens and also people with chronic ailments with breathing difficulties. Such air purifiers can be installed by the industries as part of their CSR scheme. It will be appropriate for the Government also to consider in these lines to make the State/Country pollution free and make the people breathe easily. Considering the welfare of the people, the CPCB as well as the SPCB joining hands with the industries and the Government should re-examine their norms and rigidly implement the same to have a cleaner city.

53. In view of the above detailed discussions and considering the same, the following directions are issued:

(1) The Tamil Nadu Pollution Control Board should constitute a dedicated team to monitor the OCEMS data. The industries should also create an internal mechanism to closely monitor the functioning of OCEMS as well as critically analyse the data for immediate corrections and shall submit a monthly analysis report to the Tamil Nadu Pollution Control Board. Senior Officers of TNPCB shall conduct a monthly review with designated officers of major industries in different industrial parks.

(2) The CPCB should constitute a committee which may also include experts in the field of air pollution as well as water pollution to examine the existing CPCB Protocols for OCEMS and submit revised Protocols to the Tribunal within a period of 3 (Three) months.

(3) The Committee may also suggest the periodicity at which the said sensor / equipment need to be calibrated. Once the periodicity is fixed, a mechanism may be put in place to check whether the calibration of sensors /equipment is being undertaken by the industries as per the timeline fixed, failing which, necessary action may be taken including the imposition of environmental compensation.

(4) The CPCB may constitute a new committee or revive the earlier committee constituted based on directions issued in ***Original Application No.195 of 2016 (SZ) [Tandur Citizens Welfare Society Vs. Government of Telangana and Ors.]*** dated 24.08.2021 to once again examine the issue of interlocking/ alerting / alarm systems, considering the advancements in Machine learning and Artificial Intelligence, that will ensure foolproof operations of the OCEMS system.

(5) The TNPCB is directed to verify the list of industries which are yet to install the OCEMS system. In case, some of the units have not yet been mandated to install the OCEMS system, the TNPCB is directed to issue instructions to all the units to install the OCEMS system within the shortest possible time, failing which, appropriate action should be taken. The TNPCB is directed to report the reasons for not directing or exempting certain industries from establishing the OCEMS. Failure by TNPCB also would attract fine plus compensation.

(6) Industries should switchover completely to cleaner fuels including conversion of usage of liquid fuel into gaseous fuels within a stipulated period of time. During the interregnum, the industries may be directed to use low sulphur fuels till the conversion to gaseous fuels is completed.

(7) Industries shall install Flue Gas Desulfurization (FGD) systems wherever it is applicable without fail before the time line fixed by MoEF&CC without seeking extension of time.

All the units having Electrostatic Precipitator (ESP) should upgrade to the latest generation of ESP available today within a reasonable period of time. For the up-gradation, CPCB may provide necessary guidelines.

(8) Industries shall install latest pollution control measures for reduction of NOx emissions, such as Selective Catalytic Reduction system / Selective Non-Catalytic Reduction system / low NOx burners with Over Fire Air (OFA) system to achieve the NOx emission standards.

(9) All the industries discharging effluents may be directed by TNPCB to switch over to the ZLD system by granting a reasonable time frame. Only if ZLD systems are not technically feasible, ETPs/CETPs can continue.

(10) A committee of experts in CPCB may meet periodically (preferably once in a quarter) to evaluate the advancements in pollution control equipment, especially those relating to the capture of Particulate Matter (PM), SO_2, NO_2 and other toxic air pollutants. In respect of existing industries, reasonable time may be granted to the industries, taking into account the cost involved and also the compliance status of the industries.

(11) The committee should also examine the technological advancements which are in place in other countries like installing air purifiers centrally in industrial areas as well as in urban pockets with heavy vehicular populations to reduce the pollution load.

(12) The Expert Committee of CPCB to come out with stricter pollution norms for the industries to be established in areas earmarked for Industries as against the general norms for the establishment of industries in areas without or with only one or two industries in an area about the size of industrial parks. In respect of new Parks to be established the CPCB may also prescribe a buffer zone around the Industrial Area/Park. The CPCB and the SPCBs should work out special norms in industrial areas factoring in vehicular pollution, fugitive emissions, flare gas emissions and also a need for having higher stack height even for non-thermal power plants.

(13) The CPCB should re-examine the norms for the stack height for all point sources of emissions whether significant or not to ensure that they are designed according to the Good International Industry Practice (GIIP). The stack height should be established with due consideration to emissions from all other project sources both point and fugitive. Projects which have potentially significant fugitive sources of emissions can be directed to have special measures to reduce the same.

(14) We also notice from the reports of the Joint Committee and Tamil Nadu Pollution Control Board that there are certain gaps in the pollution control measures adopted by the six industries and certain directions were issued by the Tamil Nadu Pollution Control Board to the respective industries along with certain suggestions for improvement. We do not wish to repeat those directions and suggestions, except to state that the Tamil Nadu Pollution Control Board should fix a specific deadline for compliance with the directions and adoption of the suggestions. The Tamil Nadu Pollution Control Board should file a periodical compliance report once in 6 (Six) months before this Tribunal.

(15) The environmental compensation imposed following due process should be collected and utilized by the Tamil Nadu Pollution Control Board for the conversion of the existing roads in the Manali Industrial areas into concrete roads to minimize the dust emissions from the vehicular population.

(16) We are of the view that in areas where multiple industries are established, the CPCB may consider increasing the requirement of greenbelt area and increasing the density of tree population. In case of constraints of land, the Industries may be permitted to create greenbelt in the areas adjacent to the industries including in private lands. However, it should be made mandatory that the periphery of the industries have a thick green cover with the tallest growing native trees.

(17) We also direct that TNPCB/CPCB should also mandate that industrial parks/areas shall have only concrete roads with three to four rows of tree plantations to act as a buffer for trapping air pollutants.

(18) It is recommended to create a corpus fund which shall consist of deposit of minimum 01% of the annual

turnover from all the companies located in the Manali complex for the restoration of any affected area after the orders passed by the Tribunal. The said corpus fund shall be operated jointly by the Chief Secretary, Government of Tamil Nadu and the Additional Chief Secretary, Department of Environment, Forest and Climate Change and shall utilise for restoration of the environment and for constructing RCC roads in the entire affected area as per the decision taken by the said Committee. The said fund may be called as 'Manali Environmental Relief Fund'.

54. With above directions, the Original Application [O.A. No.256 of 2022 (SZ)] is disposed of.

Smt. Justice Pushpa Sathyanarayana, JM

Dr. Satyagopal Korlapati, EM

Internet – Yes/No
All India NGT Reporter – Yes/No

O.A. No.256/2020(SZ)
20th July, 2023. Mn.