

INTERIM REPORT OF THE COMPREHENSIVE COMMITTEE CONSISTING OF CPCB, TNPCB, IISc (Bengaluru), NIT (Trichy), Rajiv Gandhi Government GH and Research Centre, Chennai DISTRICT COLLECTOR (Cuddalore) IN THE MATTER OF ORIGINAL APPLICATION NO. 184 OF 2018 (EARLIER OA NO. 34/2015 (SZ)), S. PUGAZHENDHI & ORS. Vs. TAMILNADU POLLUTION CONTROL BOARD & ORS., SUBMITTED BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTH ZONE, CHENNAI, AS PER ORDERS DATED: 05.03.2021 and 22.12.2021.

1.0 Preamble

In the matter of Application No. 184 of 2018 (Earlier OA No. 34/2015 (SZ)), Sri.S.Pugazhendhi & Ors. Vs Tamil Nadu Pollution Control Board & Ors., the National Green Tribunal, Principal Bench, New Delhi has passed an order dated 01st February, 2019 and directed that *“Joint team comprising representatives of the Central Pollution Control Board (CPCB) and the TNSPCB collect samples from Bore wells and Shallow aquifers, Piezo-metric wells in and around SIPCOT industrial complex, Cuddalore and Uppanar River and furnish a report to this tribunal within one month.*

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

In compliance of above mentioned order, The Member Secretary, Tamil Nadu Pollution Control Board, Chennai, constituted a Committee comprising the Scientist E /AD, Central Pollution Control Board, Regional Directorate, Bengaluru, Joint Chief Environmental Engineer, TNPCB, Head Office, Chennai, District Environmental Engineer, TNPCB, Cuddalore and Asst. Director, Adv.Env.Lab, TNPCB, H.O,Chennai.

The Committee visited the site during February 21 - 22, 2019, the samples of Ground water were collected from the industries, SIPCOT Complex, surrounding villages and from the ‘Uppanar’ river were collected.

The quantity of drinking water requirement of the surrounding Villages and the drinking water supplied through tanker lorries by SIPCOT and also by the Bore wells with R.O. Plants installed and maintained by the industries of SIPCOT were tabulated. A Report of the Joint team incorporating the above details along with analytical reports of water samples were filed before the Hon'ble NGT (PB) by the Member Secretary, Tamil Nadu Pollution Control Board, Chennai on 25.03.2019.

Subsequently, the Hon'ble NGT in the order dated 08.07.2019 referred the matter once again to the Joint Committee, to do the following and submit a report;

- i) To take the samples from the inlet and outlet of all the ETPs to ascertain as to whether the effluent are within the prescribed limit;*
- ii) To ascertain the source of the heavy metal pollutants like Nickel, Cadmium, Manganese, Iron and Lead, etc.*
- iii) To ascertain the adequacy of the pollution control devices installed by the industry.*
- iv) After such tests, to assess the environmental compensation to be paid by the individual units for the default on their part.*

The Hon'ble NGT has mentioned that the Applicant is also at liberty to be present during the inspection and participate in the proceedings.

In compliance with the above orders of the Hon'ble NGT, the Joint team committees along with the Applicants of the case, have inspected the industries in SIPCOT, Cuddalore during July 30 – August 01, 2019 and collected samples of the treated and untreated effluent, and also the soil sediment samples from the Uppanar river bedadjacent to SIPCOT Complex. The joint inspection report was submitted to Hon'ble NGT(SZ) on 11.11.2019 along with the report of Analysis of all the samples.

Subsequently the matter was heard on 05.03.2021, the Hon'ble disposed the case, with a direction to form a Comprehensive Committee consisting of members from CPCB, TNPCB, Experts from IISC Bangalore, NIT Trichy and from Rajiv Gandhi Govt. General Hospital, Chennai with the District Collector as Nodal Officer, to study the SIPCOT and surrounding areas and to file a report.

As per the above orders, the following members have been nominated by the respective organizations and the Comprehensive Committee was formed with the following members.

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| i | Senior Scientist from Central Pollution Control Board. | Tmt. H.D Varalaxmi, Scientist & Regional Director, CPCB, Chennai.
(Contact No. 9449004165) |
| ii | Senior Scientist from Tamilnadu Pollution Control Board. | Er. R. Seralathan, DEE (a/c), TNPCB, Cuddalore.
(Contact No. 8056042238) |
| iii | An expert having expertise in Chemical Engineering including Organic Substances from National Institute of Technology, Tiruchirapalli. | Dr. G. Arthanareeswaran, Professor, Dept of Chemical Engineering, NIT- Trichy.
(Contact No. 9940361673) |
| iv | A Scientist from Indian Institute of Science, Bangalore, having expertise in Industrial Pollution. | Dr. C. Shivakumara, Ph.D., Principal Research Scientist, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore.
(Contact No. 9448480684) |
| v | An expert in Health Services from the Rajiv Gandhi Government General Hospital and Research Centre, Chennai and | Dr. V. Rajendran, Assistant Professor, Institute of Internal Medicine, Rajiv Gandhi Government General Hospital, Chennai.
(Contact No. 9841262619) |
| vi | District Collector, Cuddalore | District Collector, Nodal Officer, Cuddalore. |

Once again the case was heard on 22.12.2021, the Hon'ble NGT directed the committee to *“prepare a Comprehensive Action Plan with recommendation of temporary and long term measures to resolve the issue and assess the environmental compensation, fixing the responsibility of the persons responsible for the same and provide necessary data*

and method of calculation of assessment of environment compensation and directed the State Government, SIPCOT, fifth respondent Association and State Pollution Control Board to submit the report within a period of six months.”

2.0 Comprehensive Committee Meeting

The first meeting of the Comprehensive Committee was convened in the District Collectorate, Cuddalore on 31.01.2022 with all the above members and discussed about the scope of study to be done as per the orders of the Hon’ble NGT (SZ), on the following aspects;

(a) Conduct study, applying reverse engineering or relate back theory to the condition of air, water and soil in Cuddalore prior to the establishing of the SIPCOT Industrial Complex and subsequent to the same.

(b) The reason for the presence of heavy metals like Chromium, Nickel, Cadmium, Lead, Iron and other heavy metals and the reason for high TDS and hardness of water quality and relative study has to be conducted as to whether this was due to the any of the activities of the industrial units in the area due to generation of natural reasons prevailing in that area.

(c) Conduct Health Study as to whether there was any increase in the mortality rate or increase in the nature of disease prior to and after the establishment of the SIPCOT Industrial Complex.

(d) The remedial measures to be taken for the purpose of resolving the issue permanently.

(e) Identify the units/industry on account of whose probable activity that such contamination has been caused.

(f) Suggestions and recommendations to be carried out by the industrial units or other establishment so as to resolve the issue permanently and take the water quality to the extent of potable limit to provide clean water to the people of the locality. The Committee is also directed to conduct study regarding the functioning of RO system provided and if any improvement is required, suggest the same as well.

(ii)The Committee shall prepare a Comprehensive Action Plan with recommendation of temporary and long term measures to resolve the issue and assess the environmental compensation, fixing the responsibility of the persons responsible for the same and provide necessary data and method of calculation of assessment of environmental compensation.

(iii) The Committee is given the liberty to coopt any other expert of their choice to conduct the study and prepare action plan.

(iv) The expenses for conducting the said study shall be borne by the SIPCOT and fifth respondent, apart from the State Government of providing necessary funds if necessary for meeting the situation.

(v) Till such study is completed and action plan implemented the present arrangement of providing drinking water to the affected villages by SIPCOT and fifth respondent Association shall continue.

(vi)The District Collector, Cuddalore will be the Nodal Officer for providing necessary logistics and coordination for the Committee to inspect and prepare the report.

(vii) The Committee is directed to complete the study and prepare the report within a period of six months and submit the same to the State Government and also this Tribunal by e-filing in the form of Searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per Rules

(viii)The State Government, SIPCOT, fifth respondent Association and State Pollution Control Board are directed to evolve the methodology of implementing the action plan and direct the responsible persons to implement the Action Plan so as to remedy the situation in an effective and time bound manner.

(ix) This Tribunal shall consider the report and pass appropriate direction if any required at a later stage on receipt of the report from the Committee.

(x) The Pollution Control Board is directed to initiate action against the industries identified and impose environmental compensation against them, after following the procedure in accordance with law.

Upon discussion of the above points, the Committee has arrived on the following three phases in the implementation of the above points mentioned in the orders of the Hon'ble NGT (SZ).

i. Data Collection and Generation

- Collection of samples of ground water, surface & soil, analysis of samples for the relevant parameters including the heavy metal concentrations such as Arsenic, Nickel, Cadmium, Chromium, Barium etc.,
- Conducting Ambient Air Quality Survey in the surrounding villages simultaneously, for a continuous period of 8 hours during sea breeze time, and another batch for a continuous period of 8 hours during land breeze time.
- Collection of past data on ground water and surface water quality available on records, and health data from Health Care facilities in the surrounding villages

ii. Interpretation of data

- The comparative changes occurred on environment, including quality of air, water and soil for the pre monsoon (Before August) and post monsoon (January & February) period of time during the alleged improvement is achieved at least to the extent of air pollution, the sources of presence of heavy metals, and the possible contributory industry of such heavy metals and also to ascertain as to whether this is due to geomorphological change in the nature or soil who were responsible for such presence of heavy metals or contribution of industrial pollution.
- Conducting health study, regarding health of the people in that area as to whether the increase in mortality rate or nature of disease affecting the health of the people prior to and after establishment of Industrial Complex.

- Conducting relate back environmental study or reverse engineering process to ascertain the pre-existing conditions of water, air and soil quality in those areas before the establishment of SIPCOT Complex, Cuddalore.

iii. Preparation of Action Plan

After the preparation of the report, an action plan is to be prepared by the Comprehensive Committee to resolve the issue in an effective manner so as to protect health of the people and continue to take steps to improve the situation in the area. Implementation of Action plan in time bound banner by the regulators, SIPCOT and the SIPCOT Industries Association, as per the orders of the Hon'ble NGT (SZ).

3. Reconnaissance survey of SIPCOT Industrial complex and interaction with Applicants

The Committee has taken reconnaissance survey of SIPCOT industrial complex to understand the surrounding features of industrial areas, villages and water bodies. The representative of SIPCOT briefed that the SIPCOT industrial complex cuddalore, is located along the cuddalore – Chidambaram highway. SIPCOT Phase – I have a total extent of 518.79 acre and SIPCOT Phase – II has a total extent of 190.52 acre. SIPCOT Phase – I and Phase – II are under CEPI area in Cuddalore District. The total area of SIPCOT industrial Complex Cuddalore is 709.31 Acres (Phase I & Phase II). The villages Pachayankuppam, ThaikkalThonithurai is located adjacent to the SIPCOT Phase – I in the Northern side and Kudikadu colony, Kudikadu and Eachangadu were found in the amidst of the industries of SIPCOT Phase – I. Semmankuppam, Sangolikuppam and Poondiyankuppam villages were located in the SIPCOT Phase – II.

After taking reconnaissance survey of SIPCOT, the Committee has called the three Applicants of this case, Thiru. S. Pugalendhi of Sangolikuppam, Thiru. S. Sivasankar of Semmankuppam and Thiru. G.K. Amirthalingam of Eachankadu, and heard their grievances in person. Following grievances were expressed by the applicants;

- a. In adequate drinking water supply to their villages
- b. Effect on crop yield & loss of soil fertility due to water and soil pollution

- c. Odour nuisance especially in night hours
- d. Illegal discharge of effluents in Eachankadu canal during rainy days
- e. Health problem due to air and water pollution.
- f. Deny of employment for local people in SIPCOT Industrial complex

The Committee has noted above grievances of the applicant and decided to fix another day for joint inspection of industries of SIPCOT Complex, Cuddalore and to proceed further course of action in the study of the SIPCOT and surrounding places as per the orders of Hon'ble NGT(SZ).

4. Second meeting of the Committee and visit to two industries of SIPCOT

The second meeting of the Comprehensive Committee was convened during April 26-27, 2022 in SIPCOT Industrial Complex. The TNPCB officials briefed that 45 industries are located in this industrial complex out of which 14 industries are dry units and no effluent generated by these units, remaining 30 units are generating effluent and 1 unit (M/s CUSECS) which is facilitating the common disposal of treated effluent into marine out fall also considered as industrial establishment but no manufacturing activity is involved by this unit. Out of 31 industries, twelve industries are having Zero Liquid Discharge (ZLD) systems and no effluent being discharged on land or water bodies. Seventeen industries are treating their effluents as per the norms fixed by the TNPCB and discharging the treated effluent to the Common Marine Disposal System (M/S CUSECS). One industry is having its own marine disposal system for discharging its treated effluent into sea.

The committee also discussed about the sources of odour nuisance and felt that solvents used by the chemical industries are the cause for odour nuisance in surrounding area. It was informed that the industries using solvents has requisite statutory permissions and provided the condenser and scrubber to control VOCs. To understand the measures taken to control VOCs the committee visited the two industries and interacted with industry representatives regarding existing solvent management systems and felt that the adequacy of control measures to be verified by the experts in the field.

5. Way forward to comply with NGT Directions

The committee had long discussion in line with task assigned by the NGT as well as grievances heard from applicant and felt to take up following activities in consultation with line departments and expert organizations/Institutions;

Sl. No.	Details of activities to be carried out	Objective of the activity	Responsible departments	Remarks
1.	Ambient Air Quality Survey around the SIPCOT industrial estate covering the nearby villages	To see the present status of ambient air quality	SIPCOT/Industrial association by engaging third party in consultation with TNPCB	Survey to be conducted during Pre monsoon(April - May) and winter season(Dec-Jan)
2.	Analysis of past Ambient Air Quality trends	Trend analysis	AAQM under NAMP programme by TNPCB	Interpretation of data based on the data available by TNPCB
3.	Ground Water quality survey around the SIPCOT industrial estate covering the nearby villages	To see the present status of ground water quality	SIPCOT/Industrial association by engaging third party in consultation with TNPCB	Survey to be conducted during summer (May June) and Post monsoon(Jan - Feb)
4.	Collection of past ground water quality data	Trend analysis	SIPCOT/Industrial association to be obtain the data from State/Central Ground Water Board	The data with location to be made available to committee within two months
5.	Soil quality survey w.r.t agricultural parameters	To verify the fertility of soil for agricultural purpose	Survey through agri dept with Joint Director, Agri in concurrence with CPCB and TNPCB.	Survey to be conducted before onset of monsoon (May – July)

6.	Collection of Health data through Health center's and conducting health study	For verification of any increase in the mortality or impact on health due to industrial activities of SIPCOT	SIPCOT/Industrial association by engaging Deputy Director, Health services.	Survey to be completed by two months
7.	Verification of adequacy of VOC control measures in Solvent handling industries	To address the issue of Odour nuisance in the surrounding area	SIPCOT/Industrial association by engaging expert organizations (IICT – Hyderabad, IIT- Chennai, NEERI)	To be conducted within two months
8.	Compliance verification of all industries w.r.t Waste water, Source emissions, VOCs from process vent, solvent recovery system, HW disposal etc.,	For verification of Compliances	TNPCB	On receipt of report Random verification by Committee
9.	Conducting study, applying reverse engineering or relate back theory to the condition of air, water and soil in Cuddalore prior to the establishing of the SIPCOT Industrial Complex and subsequent to the same.	To verify the change in air and water quality	SIPCOT/Industrial association by engaging experts (IIT- Chennai or NEERI)	On receipt of report Committee will review for preparing action plan

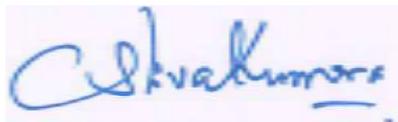
The progress of the above mentioned activities to be reviewed by the committee every two months once, the progress report may be submitted before Hon'ble NGT.

After completion of above mentioned activities and reports are made available, the committee will be able to decide upon the further course of action to be taken on the above issues, in compliance with the orders of the Hon'ble NGT. Since the SIPCOT and the SIPCOT Industries Association shall bear the expenses for the above study, the committee

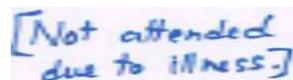
humbly pray that the SIPCOT and the Industries Association may be entrusted the work of appointing a suggested expert organization/institutions to carry out the above works and reports may be made available to committee for preparing temporary and long term measures to resolve the issue and assess the environmental compensation.

In view of the above, it is humbly prayed that time period of one year may kindly be given to this committee to submit the final report by considering the time required to complete the above mentioned activities.

Signature of Comprehensive Committee Members



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Dr. G. Arthanareeswaran
Professor, Dept. of Chemical Engineering
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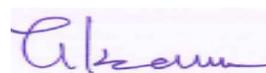
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