

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN BENCH CHENNAI
Original Application No 186 of 2023(SZ)**

IN THE MATTER OF

***Ravindranath Shanbhogue, Karnataka* : Applicant(s)**
Versus
Union of India, Through its Secretary, New Delhi
***and Ors* : Respondent(s)**

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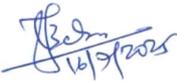
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BENGALURU

16-07-2025


Counsel for 2nd Respondent




16/7/2025

DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR

CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN. OF ENV, FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

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**REPORT OF RESPONDENT NO. 2, CENTRAL POLLUTION CONTROL
BOARD (CPCB) IN COMPLIANCE TO HON'BLE NATIONAL GREEN
TRIBUNAL (SOUTHERN ZONE) ORDER DATED 18.09.2024**

1. The instant matter was originally registered in The Honourable National Green Tribunal (NGT), Southern Zone, Chennai. Hon'ble NGT vide order dated **20.12.2023** in OA No. 186 of 2023 directed that "*The authorities are directed to file their appropriate reports after making a spot inspection*".
2. The 2nd Respondent i.e., Central Pollution Control Board (here after referred to as CPCB) is constituted under The Water (Prevention and Control of Pollution) Act, 1974. It performs the functions under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, The Environment (Protection) Act, 1986. State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) in every State/Union Territory have been constituted under Section 4 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 5 of the Air (Prevention and Control of Pollution) Act, 1981 and are responsible for implementation of the provisions of both the Acts in their respective State/Union Territory.




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3. The Ministry of Environment Forest & Climate Change vide G.S.R. 395(E). dated 04/04/2016 has notified Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and amended thereafter (hereafter will referred as HOWM Rules, 2016) (in supersession of the Hazardous wastes (Management, Handling and Transboundary Movement) Rules, 2008)) for handling and management of hazardous waste in an environmentally sound manner. Under the said Rules, CPCB has been entrusted with the responsibility for preparation and updation of guidelines/SOPs for management of hazardous and other wastes. Further, as per Rule 21 of the HOWM Rules, 2016, the State Pollution Control Boards (SPCBs) in the States/Pollution Control Committees (PCCs) in the Union Territories (UTs) have been entrusted with duty to grant and renewal of Authorization; ensure compliance of the various provisions stipulated under the aforesaid Rules through monitoring and taking of actions against defaulters.
4. That, the CPCB, in compliance to the Hon'ble National Green Tribunal order dated **20.12.2023**, carried out spot inspection of abandoned well located in cashew plantation area of M/s Plantation Corporation of Kerala Ltd. (M/s. PCK Ltd.) in Minchinpadavu, Kasaragod District on 28.12.2023. CPCB team collected two soil samples from abandoned well and also from the chemical mixing area located within Cashew plantation area of M/s. PCK Ltd. Also, three groundwater samples (two samples from open wells located within the Cashew plantation area of M/s. PCK Ltd., and one sample from the open well located close to the Ishwaramangala Panchayat (falling in Karnataka State)) were also collected. CPCB filed the spot inspection report dated 01.01.2024 before Hon'ble National Green Tribunal Southern Zone, Chennai.
5. Honourable National Green Tribunal (NGT) vide order dated **18-09-2024** (**Annexure-I**) directed CPCB to coordinate with Central Insecticides Board



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& Registration Committee (CIB&RC) under the Directorate of Plant Protection, Quarantine & Storage, Department of Agriculture & Cooperation to investigate the method by which the stacked endosulfan stock at the various estates of The Plantation Corporation of Kerala Ltd., (PCK Limited) can be disposed-off in an environmentally sound manner to The actions taken by CPCB in compliance to Hon'ble NGT directions dated 18.09.2024 in the instant matter is given in the succeeding paragraphs.

6. That, the CPCB vide letter dated 08-10-2024 requested 'Central Insecticides Board and Registration Committee (CIB&RC)' to nominate and depute a 'nodal officer' to coordinate in the matter of disposal of endosulfan stock. Subsequently, CIB&RC vide email dated 23-10-2025 deputed *Dr. Sneha Potdar, Deputy Director (Chemistry), CIB&RC, Faridabad* as a representative of CIB & RC and to coordinate the matter with CPCB.
7. That, in order to plan the disposal strategy, a virtual meeting was conducted by CPCB on 29-10-2024 with the officials of CPCB, CIB&RC, Kerala State Pollution Control Board (KSPCB) and representatives of PCK Ltd. In the said meeting, it was decided to assess the ground situation of the stored endosulfan stock piles with respect to storage conditions and the characteristics of the stored material. Further, it was decided to utilize the expertise of officials of M/s. Hindustan Insecticide Limited (HIL) to determine the strength/ specification of endosulfan stock. Since, the stock pile is under the custody of the District Administrations (Kasaragod and Palakkad Districts, Kerala), it was decided that representatives of the District administrations shall be made part of the sampling and assessment team. A copy of the minutes of the meeting held on 29-10-2024 is enclosed as **Annexure-II**.
8. That, another meeting was organized on 08-11-2024 to discuss the plan for site inspections and sampling of endosulfan stocks. In the said meeting, it was decided that a joint team shall conduct visits during 21st-23rd




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November, 2024 to all the four estates of PCK Ltd., (i.e., Periya, Cheemeni, Rajapuram in Kasaragod District and Mannarkkad in Palakkad District) where endosulfan stock piles are stored under the custody of the respective District Administration. It was also decided to invite few operators of the Common Hazardous Waste Treatment Storage and Disposal Facilities (TSDFs) for sampling the endosulfan stocks as per the standard protocols and for analysis of relevant parameters. A Copy of the minutes of the meeting held on 08.11.2024 is enclosed as **Annexure-III**.

9. That, as decided in the meeting held on 08.11.2024, the following officials inspected the stock piles stored at the four estates of PCK Ltd., located in Kasaragod and Palakkad Districts of Kerala during 21st to 23rd November, 2024:

Common team members:

1. Sh. J Chandra Babu, Regional Director, Regional Directorate, CPCB, Bengaluru.
2. Dr. Sneha Potdar, Deputy Director (Chemistry), CIB&RC, Faridabad.
3. Sh. Praveen R, Deputy Manager, M/s. HIL, Udyogamandal, Cochin.
4. Dr. V. Deepesh, Scientist C, CPCB, Regional Directorate, Bengaluru.

Team members from Kasaragod, District, Kerala:

5. Deputy Collector, Endosulfan Cell, District Administration, Kasaragod.
6. Sh. Dinesh K S, Environmental Engineer, Kerala SPCB, Kasaragod.
7. Sh. U Sajeev, Manager, M/s. PCK Ltd, Kasaragod.

Team members from Mannarkkad, Palakkad District, Kerala:

8. Tahsildar, Mannarkkad, Palakkad, representing Revenue Dept., Kerala
9. Sh. Aurther Xavier, Environmental Engineer, Kerala SPCB, Palakkad.
10. Smt. Fathima Shimji Mohamedali, Manager, PCK Ltd, Mannarkkad.

Representatives of Common Hazardous Waste TSDFs:

11. M/s Kerala Enviro Infrastructure Ltd.
12. M/s Bharuch Enviro Infrastructure Ltd.



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13. M/s Mumbai Waste Management Ltd.
 14. M/s Karnataka Waste Management Project, and
 15. M/s Tamil Nadu Waste Management Ltd.

10. Total **33** Drums containing, Liquid stock (Endosulfan emulsion concentrate, comprising - Fully filled / Partially filled HDPE drums of 200L: **14** Nos.; Contaminated drums containing Endosulfan contaminated solid waste, stored in HDPE drums of 220 L: **14** Nos.) and Contaminated Empty HDPE Drums of **05** Nos. The details of the stored endosulfan stocks and storage conditions as observed by the Joint Team during the site visit to four estates of PCK during 21 to 23, November 2024 is provided in the tables below:

| S. No | Name of the PCK Estate | Date of Site Visit | Status of Stored Quantity | Status of Storage Conditions as observed during the visit |
|--------------|--|---------------------------|---|---|
| 1 | Periya Division, Kasaragod Estate. Kasaragod 12° 23' 40.0" N 75° 05' 50.7" E | 21-11-2024 | Total 12 Poly Propylene (PP) drums (i.e., 04 empty, 02 partially filled liquid stock, and 06 drums full with liquid stock). 01 drum observed in leaked condition. | As informed, stored in a sealed building in the estate. No intermittent inspection/ maintenance done since the year 2018. |
| 2 | Cheemeni, Cheemeni Estate, Kasaragod 12° 14' 11.7" N 75° 13' 41.9" E | 21-11-2024 | Total 05 PP drums (i.e., 01 empty drum, 03 drums filled with contaminated items, and 01 drum with obsolete solid stock mixed with soil/ saw dust). | As informed, stored in a shed within the estate. No intermittent inspection/ maintenance done. Door collapsed while opening and the ceiling is in a deteriorated condition. |




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| S. No | Name of the PCK Estate | Date of Site Visit | Status of Stored Quantity | Status of Storage Conditions as observed during the visit |
|-------|---|--------------------|--|--|
| 3 | Panathur, Rajapuram Estate, Kasaragod 12° 27' 32.5" N 75° 22' 58.8" E | 22-11-2024 | Total 06 plastic drums (i.e., 03 drums filled with contaminated items and 03 drums with liquid stock). | As informed, stored in a shed within the estate. No intermittent inspection/ maintenance done. Door collapsed while opening. |
| 4 | Thenkara, Mannarkkad Estate Palakkad. 11° 02' 00.0" N 76° 28' 24.7" E | 23-11-2024 | Total 10 plastic drums (i.e., 08 drums filled with contaminated items/ unused or outdated chemicals, 02 drums broken/ leaked with liquid stock) | As informed, stored in a room near to the estate office. One key was not traceable and door opened using cutter. Leakage of liquid stock observed. |

Note: In addition to the above, 20 number of contaminated empty drums are stored in a locked room of Division store of Adhur Division of M/s. PCK Limited, Kasaragod District, Kerala.

11. That during the site visit to four estates of PCK during 21st to 23rd, November 2024, the representatives of the Hazardous Waste Treatment Storage and Disposal Facilities (TSDFs) (i.e. M/s Bharuch Enviro Infrastructure Ltd. and M/s. Re-Sustainability Limited) drawn samples of endosulfan in liquid emulsion and the contaminated solid stock for further analysis in presence of the Joint Team. The collected samples were analysed for parameters such as α -endosulfan, β -endosulfan, endosulfan sulphate, halide content, calorific value, solubility in diesel, etc. Photographs taken during the site visits is annexed as **Annexure-IV**.

12. Subsequently, a VC meeting was held on 24-12-2024, and the joint team




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discussed the storage conditions of the endosulfan stocks and the analysis results of the samples collected by the representatives of the Common Hazardous Waste Treatment Storage and Disposal Facilities (TSDFs). Upon deliberations, the joint team made the following observations and decisions;

- (a) That the present storage conditions of endosulfan in drums of 220 L capacity may not be suitable or safe for transport as such for final disposal considering the age/damaged conditions of the drums. In order to make the stored material suitable for transportation, the existing stock piles of endosulfan need to be transferred to new drums/containers of suitable size, adopting safety precautions by the operators of TSDF. Such transfer activity shall be carried out under the supervision of CPCB, CIB&RC, KSPCB, Endosulfan Cell of respective District Administration and the representative of M/s. HIL, Eloor, Kerala.
- (b) During the transfer of existing material into new transportable drums/containers, detailed inventory (in terms of the quantity and characteristics) of the endosulfan and other contaminated materials/drums/wastes of the stock-piles stored at the four estates /premises of the Plantation Corporation of Kerala (PCK) Ltd need to be ascertained. Such assessment would help in determining the best options for collection, transportation, handling and disposal in environmentally safe manner as per provisions of HOWM Rules, 2016 as amended.
- (c) Being the occupier, M/s PCK Limited was suggested to carry out the transfer activity under the supervision of Endosulfan Cell, District Collector (DC), Kasaragod, Kerala State PCB, and technical support from M/s. HIL and joint team comprising officials of CPCB, CIB&RC.



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A copy of minutes of the meeting dated 24.12.2024 is enclosed as **Annexure-V**.

13. Subsequent to the meeting held on 24.12.2024, to initiate necessary further actions, another meeting was held on 24-01-2025 to review (i) Requirements of transferring endosulfan from the existing drums to the new drums; (ii) Improving storage conditions of the sheds from safety point of view; (iii) Making arrangements for procurement of new drums by PCK Ltd., (iv) to confirm about the arrangements made and schedule for shifting of the endosulfan to the new drums and (v) A feasibility report including the disposal options based on the collected samples analysis results from the operators of Common Hazardous Waste Treatment Storage and Disposal Facilities (TSDFs).

14. Analysis results of the endosulfan samples collected from estates of M/s. PCK Limited viz., Periya, Cheemeni, Rajapuram Estates in Kasaragod District and Mannarkkad Estate in Palakkad District, during November 21 to 23, 2024 is detailed in the table given below:

| S. No. | Parameters | Analysis results of the Endosulfan Stock piles collected from 4 Estates of PCK Limited | | | | |
|--------|-----------------------------|--|---------------|---------------|---------------|------------------|
| | | Periya | Cheemeni | Rajapuram | Mannarkkad | Range |
| 1 | Chlorine (%) | 2.7-5.3 | 4.3-11.2 | 4.9-8.0 | 2.8-3.2 | 2.7 to 11.2 |
| 2 | Endosulfan sulphate (mg/Kg) | 11994.0 | 100.4 | 10667.0 | 9027.0 | 100.4 to 11994.0 |
| 3 | Total Sulphur (%) | 2.7 | 1.5 | 3.2 | 0.4 | 0.4 to 3.2 |
| 4 | Alpha endosulfan (mg/Kg) | 434.0-3710.0 | BDL-586.0 | 695.0-17415.0 | BDL-290.7 | BDL to 17415.0 |
| 5 | Beta endosulfan (mg/Kg) | 1.8-4526.0 | BDL-0.8 | 24.4-13820.0 | BDL-12.4 | BDL to 13820 |
| 6 | Calorific value (Cal./g) | 8434.0-8859.0 | 1666.0-2963.0 | 8106.0-8150.0 | 9052.0-9646.0 | 1666.0 to 9646.0 |
| 7 | pH | 1.5 | 2.0 | 1.6 | 1.4 | 1.4 to 2.0 |



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15. That the analysis results of the collected endosulfan samples, received from the operators of Common Hazardous Waste Treatment Storage and Disposal Facilities (TSDFs) viz., M/s Bharuch Enviro Infrastructure Ltd. and M/s. Re-Sustainability Limited, reveal that

- (i) Except in one estate, the calorific content of the stock piles is fairly high (1666 to 9646 Cal /g) due to the solvent present in the original 35% emulsion concentrate endosulfan formulation and meets the requirement of disposal by controlled incineration option.
- (ii) The halide/ chlorine content of the samples was 3.2 to 11.2 % due to dilute concentrations in technical grade material.
- (iii) Total Sulphur content in outdated endosulfan stock piles observed as 0.4 to 3.2 %.

16. That considering the test results and storage site conditions, the joint team has recommended the following in the meeting held on 24-01-2025:

- (i) The endosulfan stock pile need to be transferred to new drums/containers suitable for transportation to common HW disposal facility. Occupational health safety and environmental protection measures shall be adopted during transfer of endosulfan from existing drums to new drums/containers of adequate size.
- (ii) Packaging, labelling and transportation to be carried out in accordance with the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 as amended as well as CPCB guidelines.
- (iii) Specifications for new drums shall be suggested by the operator of Common Hazardous Waste TSDF selected for the task of collection, handling, transportation from existing place to the TSDF for ultimate disposal of endosulfan waste by incineration.



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- (iv) M/s. PCK Ltd being the occupier of the endosulfan stocks, shall bear the cost towards procurement of the drums, transfer operations, handling, transportation and ultimate disposal by incineration through the operator of common TSDF in an environmentally sound manner.
- (v) The Endosulfan Cell under the DC, Kasaragod, Government of Kerala, with the help of other associated departments shall extend necessary support to the operator of the TSDF to carry out safe transfer and ultimate disposal of the stock piles.
- (vi) The activity of transferring existing stock piles of endosulfan to the new drums, its handling and transportation shall be carried out under the supervision of the officials of Kerala SPCB, CPCB, Endosulfan Cell, representative of M/s. HIL, Eloor, Kerala, and State Disaster Response Team.

A Copy of the minutes of the meeting held on 24-01-2025 is enclosed as **Annexure-VI.**

17. That M/s. PCK Ltd., vide letter dated 09-06-2025 confirmed CPCB about their preparedness for transferring the stock piles to new drums (i.e., procurement of new poly propylene drums of adequate numbers, manual pumping machine with adequate length of host pipe, waste cotton and saw dust for spill collection if any, PPEs, arrangement of adequate number of skilled labour for transfer activity, first aid kit etc.). Upon receipt of confirmation from M/s. PCK Limited regarding their preparedness for transfer of endosulfan to new drums for securing purpose and for the inventory assessment of endosulfan stock piles and the contaminated waste material, CPCB arranged joint field visits with the officials from CPCB, Kerala SPCB, M/s. HIL and the District Administration during 19th, 20th, 23rd and 24th June 2025. CPCB vide letter dated 13-06-2025 (**Annexure-VII**) requested District Administration Endosulfan Cell Kasaragod and other concerned departments in Kerala for making



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necessary arrangements for ensuring safe transfer of endosulfan stock piles and for carrying out inventory of all the contaminated liquid wastes/solid waste at the four estates of PCK Limited.

18. Accordingly, safe transfer of the endosulfan stockpiles to new drums were carried out at the four estates of M/s. PCK Limited (during 19th to 20th, June 2025 at Mannarkkad Estate, Palakkad District and during 23 to 24th June 2025 at Periya, Cheemeni and Rajapuram Estates at Kasaragod District) along with detailed inventory of the stocks to be disposed, in the presence of CPCB, KSPCB, representative of HIL and the District Administration (Kasaragod and Palakkad) and support of other Kerala State Departments such as Revenue, Local Body, Health, Fire & Rescue, Kerala State Police, Civil Defence force representing Kerala State Disaster Management Authority (KSDMA).

19. Safe transfer of all endosulfan liquid stock piles to new drums and complete inventory of the endosulfan liquid stock and contaminated materials were assessed during the field exercise. All the endosulfan liquid transferred to new drums (110 L), other contaminated materials were secured in the drums and labelled, marked and kept under safe custody of M/s PCK Limited for the ultimate disposal in accordance with the HOWM Rules, 2016. Details of the inventories of outdated endosulfan stockpiles, contaminated waste materials and the contaminated empty drums to be disposed-off and lying at the four estates of M/s. PCK Ltd., is provided in **Annexure-VIII**.

Photographs taken while securing the outdated endosulfan liquid stocks and the contaminated waste materials and the officials participated in the activity at the four estates of PCK limited during 19th-25th June, 2025 is given in **Annexure-IX**.




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20. Recommendations:

- (i) As per the inventory assessment and the preliminary analysis results of the collected endosulfan stock piles carried out by the Joint Team, the suggested disposal option for environmentally sound disposal of the endosulfan stock piles and the contaminated waste drums or contaminated waste materials lying at the four estates of PCK Limited is given in the Table below:

| <i>Item Description</i> | <i>No. of Barrels or Drums</i> | <i>Capacity of Barrel/ Drum (in L)</i> | <i>Quantity (Gross Weight in Kg)</i> | <i>Suggested disposal option</i> |
|---|--------------------------------|--|--------------------------------------|---|
| Drums containing Outdated Endosulfan stockpiles (Liquid Waste) | 10 | 110 L | 878.4 | <i>Controlled Incineration through TSDF as per CPCB Guidelines and the Emission Norms notified under the E (P) Rules, 1986</i> |
| Drums containing Bottom Residue (Endosulfan) | 09 | 220 L | 569.6 | |
| Contaminated Empty Drums | 02 | 220 L | 24 | |
| Contaminated waste materials stored in drums | 24 | 220 L | 1494.4 | <i>Secured Landfilling/ Incineration as per fingerprint analysis as per CPCB guidelines</i> |
| Empty Drums after disposal of contaminated waste material in Secured Landfill | 24 | 220 L | 288 | <i>Controlled Incineration through TSDF as per CPCB Guidelines and the Emission Norms notified under the E (P) Rules, 1986</i> |

- (ii) M/s. PCK Ltd shall obtain authorization from Kerala SPCB under HOWM Rules, 2016 as amended for carrying out the activity of handling, transportation and ultimate safe disposal of endosulfan stocks or contaminated waste materials/drums through the selected Operator of Common TSDF.
- (iii) M/s. PCK Ltd with the technical support of Kerala SPCB shall call for competitive tenders from TSDFs operators in the Country for handling, transportation and ultimate safe disposal by controlled



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incineration/ secured landfilling as the case may be, within a period of three to six months.

- (iv) The cost towards safe disposal of endosulfan stocks or contaminated waste materials/drums shall be borne by M/s PCK Limited being a custodian/occupier of these wastes.
- (v) The Occupier (M/s PCK Limited), shall take necessary approvals as required under the laws including HOWM Rules, 2016 for safe disposal of endosulfan stocks or contaminated waste materials/drums under overall supervision of Kerala SPCB and technical support from CPCB.
- (vi) Till the stockpiles are completely disposed, periodic inspection/ monitoring of the inventoried endosulfan stockpiles or contaminated waste materials/drums may be carried out by the District Administration and Kerala SPCB.

In view of above submissions, it is humbly prayed that the report with annexures may please be taken on record. It is further submitted that CPCB shall abide by any order or directions passed by this Hon'ble Tribunal.

Dated at Bengaluru on this the 16th day of July, 2025.


Counsel for 2nd Respondent




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AFFIDAVIT

I, J Chandra Babu, son of late Shri. J Balaramaiah, aged 57 years, having office at the Regional Directorate (Bengaluru), Central Pollution Control Board (CPCB), 1st & 2nd Floors, Nisarga Bhavan A- Block, Thimmaiah Main Road, 7th D Cross, Shivanagar, Bengaluru – 560 079, Karnataka, do hereby solemnly affirm, declare on oath and state as under: -

1. That I, the deponent herein is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent to verify, sign and swear this affidavit on behalf of the Respondent CPCB.
2. That the accompanying reply in the form a report may be read as part and parcel of the present affidavit.
3. That the accompanying reply has been drafted and filed under my instructions and authority the contents thereof are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.





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VERIFICATION

Verified at Bengaluru on this day of 16th July, 2025 that the contents of the above reply are correct and true on the basis of the record of the cases as mentioned in the day to day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.



**COUNSEL FOR
RESPONDENT NO. 2**



DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN. OF ENV, FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

Item No.9:-**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

(Through Video Conference)

Original Application No. 186 of 2023 (SZ)**IN THE MATTER OF:**

Ravindranath Shanbhogue,
Karnataka.

...Applicant(s)

Versus

Union of India
Through its Secretary
New Delhi and Ors.

...Respondent(s)

Date of hearing: 18.09.2024.

**CORAM:**

HON'BLE Smt. JUSTICE PUSHPA SATHYANARAYANA, JUDICIAL MEMBER

HON'BLE Dr. SATYAGOPAL KORLAPATI, EXPERT MEMBER

For Applicant(s): M/s. Gaurav Kumar Bansal & Nadita Dhar.

For Respondent(s): Mr. R. Thirunavukarasu for R2.
Mr. G. Vignesh represented
Mr. E.K. Kumaresan for R3.
Mrs. Niveditha S Menon represented
Mrs. V.K. Rema Smrithi for R5.
Mr. Mukesh Kumar for R6.
Mr. Abraham Markos for R7.

ORDER

1. The CPCB (Respondent No.2) has filed its report dated 01.01.2024. Along with the report, a communication from the 7th Respondent is annexed, wherein it is specifically stated as follows:-

“Please note that we have stocks of endosulfan in Kasargod Estate (700 Lt.), Rajapuram Estate (450 Lt.), Cheemeni Estate (10 Kg. in solid state) and Mannargaht Estate (304 Lt.). The first three estates are in Kasargode District and the last estate is in Palakkad District.

Subsequently, PCK made several attempts to dispose of the stocks with the help of technical experts from Defense Research and Development Organisation (DRDO) and Kerala Agricultural University. However, due to public agitation we could not proceed with further action. Now the stocks are kept under the lock and key and control of district administration.

Recently there have been several communications from the State Govt. directing us to take immediate action to dispose the endosulfan stocks. As per the letter dt.13.10.2023 received from the Govt., we have been directed by the Govt. to get in touch with the District Administration to take further actions to dispose of the balance stock of endosulfan. Hence we have sent letter to the District Collector, Kasargode Estate on 17.10.2023 requesting to constitute a committee at the highest level including Kerala Agricultural University, PCK as well as technical experts from Hindustan Insecticides Ltd. (HIL) or any other similar agencies to chalk out a plan of action for scientific disposal of the chemical.”

2. In view of the content of the above letter, we direct the CPCB to coordinate with the Central Insecticides Board & Registration Committee (CIBRC) under the Directorate of Plant Protection, Quarantine & Storage, Department of Agriculture & Cooperation to investigate the method by which the stacked endosulfan can be disposed of to avoid any major disaster in future.

3. Let the CPCB coordinate not only with the above-referred Board but also with any other appropriate agency to deal with the same and file a detailed report before the date of next hearing.

4. Post the matter on 02.12.2024.

Sd/-

Smt. Justice Pushpa Sathyanarayana, JM

Sd/-

Dr. Satyagopal Korlapati, EM

O.A. No.186/2023 (SZ)
18th September, 2024. Mn.





Central Pollution Control Board
(Ministry of Environment, Forests and Climate Change)
Regional Directorate, Bengaluru
Nisarga Bhavan, Shivanagar
Bengaluru- 560079

Minutes of the Meeting held on 29-10-2024 in pursuance to the Honourable NGT order dated 18.09.2024 in OA No. 186/2023 SZ regarding disposal of stacked endosulfan stored at various estates of The Plantation Corporation of Kerala, Ltd.

| | |
|-----------------------|---|
| Meeting title | <i>Online meeting on the Honourable NGT order dated 18-09-2024 in the matter of OA 186/2024 SZ.</i> |
| Date | 29-10-2024 |
| Meeting Sequence | # 01 |
| Time | 11.05 to 11.38 hrs. IST |
| Platform / Venue | Virtual meeting via Google Meet |
| Meeting link (online) | https://meet.google.com/viw-zkzn-nfw |
| Meeting facilitator | Regional Directorate, CPCB, Bengaluru. |

A virtual meeting was organized by the Regional Director, Regional Directorate, CPCB, Bengaluru on 29-10-2024 at 11.00 hrs. IST to discuss on course of action to be taken for compliance to Honourable National Green Tribunal (NGT) order dated 18-09-2024 in OA No. 186/2023 SZ. Following officials attended the meeting:

1. Shri. B Vinod Babu, Scientist-F, DH, WM-II, CPCB, Delhi.
2. Shri. Dinabandhu Gouda, Scientist-F, DH, IPC-I, CPCB, Delhi.
3. Shri. J Chandra Babu, Regional Director, Regional Directorate, CPCB, Bengaluru
4. Dr. Sneha Potdar, Deputy Director (Chemistry), CIB&RC, Faridabad.
5. Shri. Ashbir Singh, Scientist D, IPC-I, CPCB, Delhi.
6. Shri. Dinesh K S, Environmental Engineer, Kerala SPCB, District Office, Kasaragod.



7. Dr. James Jacob, Managing Director, Plantation Corporation-Kerala Limited, Kottayam, Kerala.
8. Shri. Santhosh, General Manager, Plantation Corporation-Kerala Limited, Kasaragod.
9. Dr. V. Deepesh, Scientist C, CPCB, Regional Directorate, Bengaluru.

J Chandra Babu, Regional Director (RD) CPCB Bengaluru welcomed all the officials and the other participants. The meeting started with a formal note on the background of the OA No. 186/2023 SZ by the Regional Director. The directions of Honourable NGT as per the order dated 18-09-2024 was briefly explained by the RD. Thereafter, he requested the representative (s) of The Plantation Corporation-Kerala Limited (PCK Ltd.) to provide the details of stocked endosulfan in their premises. Dr. James Jacob, Managing Director, PCK Ltd., explained on the endosulfan issue and their previous failed attempt to dispose-off the stored endosulfan with the help of DRDO. Shri. Santhosh, General Manager, PCK Ltd., Kasaragod provided the details of the endosulfan stocks stored at Kasaragod and Palakkad districts. It was informed that majority of the endosulfan is stored in liquid form at Kasaragod Estate (700L) and Rajapuram Estate (450 L) in Kasaragod District, Mannarkad Estate (304 L) in Palakkad District and a small quantity of 10 Kg is in powder form stored presently at Cheemeni Estate, Kasaragod District. All these stocks stored in HDPE drums under the safe custody of the District Administration of Kasaragod and Palakkad Districts. The technical specification of the stacked endosulfan stock, details of formulation and active ingredient strength are not known to the representatives of PCK Ltd.

Shri. B Vinod Babu, Director & DH, WM-II insisted that the technical specifications of the stored endosulfan stock is important to decide on the disposal of such stocks through controlled incineration. As it is an organochlorine pesticide, incineration needs to be done carefully after appropriate dilution with fuel (diesel) to avoid chlorinated pollutants including hydrochloric acids emanating in the incineration flue gas. Flue gas from the incinerator shall be scrubbed and scrubber residue needs to be treated and disposed-off scientifically in accordance with the Hazardous and Other Waste (M & TM) Rules, 2016 as amended. He also emphasized that there should be a site visit by the team comprising



representatives of CPCB, Kerala SPCB, 2 to 3 TSDf Operators, CIB&RC and former scientists of M/s. Hindustan Insecticide Limited (HIL) to the locations where endosulfan are presently stored to conduct complete inventory on endosulfan stocks stored at PCK Ltd., premises, the adequacy of the present storage conditions of stocks, technical characteristics of the stocks (samples to be drawn and analyzed by the TSDf Operators) and to formulate techno-financial proposal for deciding the safe disposal options. Shri. Dinesh, Environmental Engineer, Kerala SPCB, Kasaragod intervened and requested to include the representative of the District Administrations in the committee. Shri. B Vinod Babu, further added that the disposal may be carried out after inviting techno-economic feasibility from various disposal agencies in the form of limited tender. Shri. B Vinod Babu, also requested for opinion of Shri. Dinabandhu Gouda, Director & DH, IPC-I. Shri D.B. Gouda provided details of common incineration facility option located in Baruch for disposal of endosulfan as suggested by the Pesticides Association, Crop Care Foundation of India, Delhi in a meeting held at India Habitat Centre.

Dr. Sneha Potdar, Deputy Director, CIB&RC opined that a site visit should be done and the specification of the technical grade or formulations needs to be ascertained. She also shared her experience with pesticide disposal done at disposal facility located at Taloja, Mumbai.

It was decided to call for another meeting on 6th or 8th of November, 2024 including representatives from HWTSDf facilities (viz., Bharuch, Taloja and HW Incinerator operators in Tamil Nadu / Karnataka), former official from HIL, District Administration of Palakkad and Kasaragod districts of Kerala to decide on the disposal strategy for Endosulfan lying in the premises of PCK Ltd.

The meeting ended with a vote of thanks to all the participants.

-- OO --



Central Pollution Control Board
(Ministry of Environment, Forests and Climate Change)
Regional Directorate, Bengaluru
Nisarga Bhavan, Shivanagar
Bengaluru- 560079

Minutes of the Meeting held on 08-11-2024 in pursuance to the Honourable NGT order dated 18.09.2024 in OA No. 186/2023 SZ regarding disposal of endosulfan stock-pile stored at various estates of The Plantation Corporation of Kerala Ltd.

| | |
|-----------------------|---|
| Meeting title | <i>Online meeting on the Honourable NGT order dated 18-09-2024 in the matter of OA 186/2024 SZ.</i> |
| Date | 08-11-2024 |
| Meeting Sequence | # 02 |
| Time | 15.00 to 15.41 hrs. IST |
| Platform / Venue | Virtual meeting via Google Meet |
| Meeting link (online) | https://meet.google.com/yog-fceq-hds |
| Meeting facilitator | Regional Directorate, CPCB, Bengaluru. |

A virtual meeting was organized by the Regional Director, Regional Directorate, CPCB, Bengaluru on 08-11-2024 at 15.00 hrs. IST to discuss on course of action to be taken for compliance to Honourable National Green Tribunal (NGT) order dated 18-09-2024 in OA No. 186/2023 SZ. Following officials attended the meeting:

1. Sh. Dinabandhu Gouda, Scientist-F, DH, IPC-I, CPCB, Delhi.
2. Sh. J Chandra Babu, Regional Director, Regional Directorate, CPCB, Bengaluru
3. Dr. Sneha Potdar, Deputy Director (Chemistry), CIB&RC, Faridabad.
4. Deputy Collector, Endosulfan Cell, District Administration, Kasaragod.
5. Add. District Magistrate, District Administration, Palakkad.
6. Sh. Dinesh K S, Environmental Engineer, Kerala SPCB, District Office, Kasaragod.



7. Dr. James Jacob, Managing Director, The Plantation Corporation of Kerala Limited Kottayam, Kerala.
8. Shri. Santhosh, General Manager, The Plantation Corporation of Kerala Limited, Kasaragod.
9. Sh. Santhosh, Unit Head, M/s. HIL, Udyogamandal, Cochin.
10. Representatives of BEIL, Baruch, Gujarat.
11. Representatives of TSDF, Taloja.
12. Representatives of TSDF, Dabaspeta, Karnataka.
13. Representatives of TSDF, Gummidipundi, Tamil Nadu.
14. Dr. N K Pillai, TSDF, Cochin.
15. Dr. V. Deepesh, Scientist C, CPCB, Regional Directorate, Bengaluru.

J Chandra Babu, Regional Director (RD) CPCB Bengaluru welcomed all the officials and the other participants. The meeting started with a formal note on the background of the OA No. 186/2023 SZ by the Regional Director (RD). The directions of Honourable NGT was briefly explained by the RD. Thereafter, he requested Shri. Dinabandhu Gouda, Scientist-F, DH, IPC-I, CPCB, Delhi to sum up the work involved for the disposal of stock-pile of endosulfan at The Plantation Corporation of Kerala Limited (PCK Ltd.). Sh. Dinabandhu Gouda briefed about the site visit to be made to assess the storage condition of stocked endosulfan and to draw samples to ascertain the strength of the stock as well as calorific value, as it is containing chlorinated insecticide. It was requested that the TSDF representatives to make arrangements to join the team comprising representative (s) of CPCB, Dr. Sneha Potdar, Deputy Director (Chemistry), CIB&RC, Faridabad, representative of Kerala SPCB and an official from M/s. Hindustan Insecticide Ltd. (HIL) during the site visit tentatively scheduled during 21 to 23.11.2024 and to take samples to assess the present quality of the Endosulfan to enable to prepare a techno-economic proposal for the environmentally sound disposal of the Endosulfan stocks. Details of the storage locations were reiterated by the RD and requested the District Administration as well as officials of The Plantation Corporation of Kerala Ltd., to co-operate and to make necessary arrangements during the site visit of the Team. The representatives of the TSDF operators (Bharuch, Taloja, Dabaspeta and Gummidipundi) shall have to make their own arrangements for travel during the site visit and the sampling team for collection,



transportation of the samples to the respective destinations and analysis of the collected samples to be carried out at their own cost.

To the query of Dr. Sneha Potdar, Deputy Director, CIB&RC regarding the details of technical grade or formulation concentration of the stacked endosulfan stock, Dr. James Jacob, MD, PCK Ltd., informed that the solid stock consists of dry granular grade endosulfan and rest of the stock is in liquid formulation. He also added that the stock is stored for more than 20 years and present strength of the endosulfan stock is not known. Shri. Santhosh, GM, PCK Ltd. Added that the formulations are 35% EC (Emulsion Concentrate).

Representatives of the BEIL, Baruch raised a query on the necessary permissions required for the disposal of endosulfan from the respective SPCBs. RD clarified that all such permissions shall be arranged by the Kerala SPCB. The representatives of the TSDF operators (Bharuch, Taloja, Dabaspur and Gummadipundi) informed that the details of representative of TSDF and sampling team who will be participating in the site visit will be shared.

The Deputy Collector of the Endosulfan Cell, Kasaragod assured that a team shall be deputed for facilitating the site visit and requested to share the details of the visiting team and visit dates in advance. The RD informed that site visit is planned during 21-23rd November, 2024 and requested all concerned to make it convenient to reach Kasaragod by 21-11-2024 (12 Noon). Dr. James Jacob, Managing Director, PCK Ltd., owing to the urgency of the NGT matter, assured that the Estate Manager shall be deputed to coordinate and facilitate the site visit.

The team comprising of CPCB, CIB&RC, Kerala SPCB and a representative of M/s. Hindustan Insecticide Ltd. (HIL) shall be visiting the estates of the PCK at Kasaragod and Palakkad Districts. It was decided to conduct the site visit as proposed during 21-23rd November, 2024 and the officials and representatives of the TSDFs are requested to assemble at Mangalore on 21-11-2024 (By 12 Noon). After completing the site visit at



Mannarkkad Estate, Palakkad District, the team members and representatives of TSDF suggested to depart from Coimbatore.

Dr. James Jacob, Managing Director, PCK Ltd., requested to share a note on the site visit along with the requirements in advance to enable to make travel and stay arrangements by PCK Limited from Kasaragod.

Sh. Dinabandhu Gouda requested that the team members shall perform the site visit for the intended purpose during 21 to 23.11.2024 due to time constrains and also clarified that the representatives of the TSDF Operators have to manage their travel plan. Further sample collection and sample transport to their destinations shall be ensured by the TSDF representative as per the standard protocols.

The meeting ended with a vote of thanks to all the participants.

-- OO --

ANNEXURE-I



Endosulfan stock: Periya Estate



Endosulfan sampling: Periya Estate



Stock of contaminated items: Cheemeni



Team members at Rajapuram Estate.



Stock of contaminated items: Mannarkad



Team members at Mannarkad Estate.



Central Pollution Control Board
 (Ministry of Environment, Forests and Climate Change)
Regional Directorate, Bengaluru
Nisarga Bhavan, 1 & 2 Floors, Thimmaiah Road, Shivanagar
Bengaluru- 560079, Karnataka

Minutes of the Meeting held on 24-12-2024 for ensuring compliance to the Honourable NGT order dated 18.09.2024 in OA No. 186/2023 (SZ) regarding disposal of endosulfan stock-pile stored at various estates of The Plantation Corporation of Kerala Ltd.

| | |
|-----------------------|---|
| Meeting title | <i>Online meeting on the Honourable NGT order dated 18-09-2024 in the matter of OA 186/2024 SZ.</i> |
| Date | 24-12-2024 |
| Meeting Sequence | # 03 |
| Time | 15.00 to 16.00 hrs. IST |
| Platform / Venue | Virtual meeting via Google Meet |
| Meeting link (online) | https://meet.google.com/oep-izxr-xbz |
| Meeting facilitator | Regional Directorate, CPCB, Bengaluru. |

A virtual meeting was organized by the Regional Director, Regional Directorate, CPCB, Bengaluru on 24-12-2024 at 15.00 hrs. IST to discuss on the analysis results of the endosulfan stock-pile samples collected during the site visit of the committee during 21 to 23rd November, 2024; and the present storage condition of the Endosulfan stock-piles at the estate premises of the Plantation Corporation of Kerala (PCK) Ltd as well as to decide further course of action as a part of ensuring compliance to the Hon'ble NGT order in OA No. 186/2023 (SZ). The list of officials attended the online meeting is provided in *Annexure-I*.

J Chandra Babu, Regional Director (RD) CPCB Bengaluru welcomed all the officials and the other participants for the meeting. The meeting started with a formal note on the background of the OA No. 186/2023 (SZ) and directions of Honourable NGT were briefly explained by the Regional Director (RD). Thereafter, the RD presented a brief power point presentation covering the aspects relating to the team members participated in the visit, endosulfan samples collected during 21 to 23rd November, 2024 and the present storage condition of the endosulfan stock-



piles at the estate premises of the Plantation Corporation of Kerala (PCK) Ltd at (1) *Periya Division, Kasaragod Estate*; (2) *Cheemeni, Cheemeni Estate, Kasaragod*, (iii) *Panathur, Rajapuram Estate, Kasaragod*, (iv) *Thenkara, Mannarkad Estate, Palakkad*

Details of the stored stockpiles, including its condition, were shared based on the observations made during the site visits. Sample analysis results obtained from two TSDF operators i.e., RE Sustainability and BEIL, were presented. The discussions highlighted the contamination levels observed in the samples. Supporting evidence, such as photographs captured during the visits. Details of analysis results as received from the TSDF operators is enclosed as ***Annexure-II***.

To the query raised regarding the need for TCLP analysis, it was discussed that such an analysis would help in determining the leaching potential of only contaminated soils or other solid materials presently stored in the PP drums and however, TCLP analysis is not required to assess the strength of the endosulfan stock piles.

It was also observed variations in the analysis methods adopted by RE Sustainability and BEIL, the importance of standardizing methods was emphasized and both TSDF operators were asked to re-verify their analysis. There are some discrepancies noted with the endosulfan concentration of the stock pile reported by both the operators. The issue of unit mg/Kg in the analysis result of liquid endosulfan samples by RE Sustainability was highlighted and was asked to re-verify the unit. It was observed that except calorific value all other parameters reported by the two operators have variations.

Shri. Dinabandu Gowda, Director, IPC-I Division, CPCB enquired about the labelling of drums, particularly regarding manufacturing dates. It was clarified that there was no specific labelling had been observed on the drums during the site visit however, the labels on the drums only indicated the name of the operation under which the stock pile was stored and the date of storage. Query was also raised regarding the recyclability of drums and it was suggested that decontaminating and recycling the drums may not be feasible and may has to be destroyed by incineration.

Dr. Sneha Potdar, reiterated that the contaminated solids/ materials shall not be disposed off in



the secured landfills of TSDf without ascertaining the contamination levels of such wastes. It was also highlighted the present drums of over 200 L capacity may not be feasible to transport as such considering the age of the stored drums and it was suggested to transport the materials in small drums of 50 to 100 L and the existing drums shall be destroyed or decontaminated or disposed off in an environmentally sound manner.

The transportation of stockpiles from the storage facilities in remote locations was another concern raised by Dr. Sneha Potdar. It was emphasised that the transportation shall be planned in small truck that can be maneuverer in narrow roads inside the estates. Representatives emphasized the need for ensuring compliance with safety and environmental regulations during transfer of endosulfan from existing drums to new PP drums of adequate size, proper packaging, labelling and transportation in accordance with the CPCB guidelines and Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 as amended. During the meeting following were discussed as detailed below:

1. **Calorific Value of Endosulfan stock pile:** It was noted that the calorific value varies in some samples due to differences in the solvent used in Endosulfan formulations. This variability must be accounted for in incineration planning.
2. **Mixing Stockpiles for Incineration:** The option of mixing high calorific value stockpiles with lower-value ones during incineration was discussed to optimize energy usage and for ensuring proper combustion efficiency.
3. **Incineration Gas Capture:** Participants stressed the importance of incorporating gas capture systems to minimize emissions and environmental harm during the incineration process.
4. **Drum Decontamination:** The decontamination of drums before disposal or recycling was considered a viable option to reduce hazardous waste, pending further evaluation.
5. **Transferring Stockpile to Smaller Drums:** It was proposed to transfer stockpiles to 50-100 L drums for ease of handling and safe transportation.
6. **Cost Estimation:** It was agreed to prepare a detailed cost estimation for disposal, transportation, and decontamination processes before initiating the tendering procedure.
7. **Custodianship of Waste:** The PCK and the Endosulfan Cell clarified their roles as custodians of the waste, with responsibilities for safeguarding the stockpile until it is handed over for final disposal.



Upon deliberations following decisions were taken:

- a) Considering the safety, existing stock piles of endosulfan need to be transferred to the new drums of volume preferably 50 to 100 L under the supervision of the officials of CPCB, Kerala SPCB, representatives of the TSDF operators, Endosulfan cell, representative of M/s. HIL, Eloor, Kerala.
- b) Also, detailed inventory of the endosulfan and other contaminated materials/drums/wastes of the stock-piles stored at the estate premises of the Plantation Corporation of Kerala (PCK) Ltd need to be ascertained by way of sampling and the analysis by the TSDF Operators.
- c) The level of contamination of the contaminated materials/drums/wastes of the stock-piles stored at the estate premises of the Plantation Corporation of Kerala (PCK) Ltd need to be ascertained so as to decide safe disposal options of all the materials in accordance with the provisions of the HOW (M & TM) Rules, 2016 as amended.
- d) Endosulfan Cell under the DC, Kasaragod, Government of Kerala shall make necessary arrangements and the requisite provision for transfer of endosulfan from the existing drums to news drums, analysis of all the contaminated materials/drums/wastes and for inventory of the stock piles to decide on the safe disposal options. After, making necessary arrangements, suitable dates be confirmed by Endosulfan Cell under the DC, Kasaragod for completion of the above task under the supervision of the team constituted by CPCB.

The meeting ended with a vote of thanks to all the participants.

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ANNEXURE-I

List of Officials Participated in the meeting held on 24.12.2024

1. Sh. Dinabandhu Gouda, Scientist-F, DH, IPC-I, CPCB, Delhi.
2. Sh. J Chandra Babu, Regional Director, Regional Directorate, CPCB, Bengaluru
3. Dr. Sneha Potdar, Deputy Director (Chemistry), CIB&RC, Faridabad.
4. Smt. Deepti Kapil, Scientist E, WM-II, CPCB, Delhi
5. Representative of District Magistrate, District Administration, Palakkad.
6. Representative of District Magistrate, District Administration, Kasaragod.
7. Assistant Engineer representing Environmental Engineer, Kerala SPCB, District Office, Kasaragod.
8. Shri. Praveen R, Deputy Manager, M/s. HIL, Eloor, Kerala.
9. Representatives of TSDF, Taloja.
10. Dr. Salman, Representatives of TSDF, Dabaspeta, Karnataka.
11. Representatives of TSDF, Gummidipundi, Tamil Nadu.
12. Shri, Parameswaran, Representatives of M/s. BEIL, Bharuch.
13. Dr. V. Deepesh, Scientist C, CPCB, Regional Directorate, Bengaluru.

Analysis results of the Endosulfan Samples as received from Re-Sustainability (4 pages)**KARNATAKA WASTE MANAGEMENT PROJECT LABORATORY**

(a Division of Re Sustainability Limited)
 ISO 9001, 14001 & 45001 Certified Laboratory
 Accredited by NABL as per ISO/IEC 17025:2017 & Certified by MoEF&CC



Sustainability

TEST REPORT

Report Number : KWMP/2024-25/239
 Name & Address : Regional Directorate (Bengaluru)
 Nisarga Bhavan, A-Block 1st & 2nd Floors, Thimmaiah Road,
 7th D Main, Shivanagar, Bengaluru- 560079.
 Sample Particulars : Endosulfan Stock-Pile Sample
 Sampling Location : Cheemeni
 Sampling Date : 21.11.2024
 Sampling Test Method : Grab
 Sample Collected by : KWMP Representative
 Sample Quantity : 50 ml
 Sample packing : Plastic cans
 Sample Reg No. and Date : KWMP/2024-25/239 & 27.11.2024
 Analysis Start Date : 28.11.2024
 Analysis End Date : 09.12.2024
 Date of Report : 09.12.2024

| S.No | Test Parameters | Unit | Test Method | Test Results |
|------|----------------------|---------|---------------------------|--------------|
| 1 | Chlorine | % | KWMP/SOP/HW/40 | 4.29 |
| 2 | Calorific Value | kcal/kg | KWMP/SOP/HW/03 | 1666 |
| 3 | Carbon | % | CHNS Method | 26.5 |
| 4 | Solubility in Diesel | % | - | Not Soluble |
| 5 | Endosulfan Sulfate | mg/kg | USEPA 3540C, 3550C, 8270E | 100.4 |
| 6 | α-Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 586 |
| 7 | β-Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 0.8 |

Authorized signatory

Page 1 of 1

Re Sustainability Limited
 CIN No. U74140TG1994PLC018833

Registered Office:
 Level 11B, Aurobindo Galaxy,
 Hyderabad Knowledge City, Hitech City Road,
 Hyderabad - 500081,
 Telangana.

Site Address:
 Karnataka Waste Management Project
 Opposite of OM Logistics
 NH - 207, Near Pemmanahalli
 Dabaspeta, Nelamangala Taluk
 Bengaluru Rural District - 56111

Regional Office:
 Ramky House, Site No. 25-30, 2nd Cross,
 Raghavendranagar, Hennur Ring Road,
 Kalyan Nagar [Post], Bengaluru - 560043,
 Karnataka.
 T: +91 70220 48893
 E: niteshkumar.singh@resustainability.com

KARNATAKA WASTE MANAGEMENT PROJECT LABORATORY

(a Division of Re Sustainability Limited)
 ISO 9001, 14001 & 45001 Certified Laboratory
 Accredited by NABL as per ISO/IEC 17025:2017 & Certified by MoEF&CC

**TEST REPORT**

Report Number : KWMP/2024-25/240
 Name & Address : Regional Directorate (Bengaluru)
 Nisarga Bhavan, A-Block 1st & 2nd Floors, Thimmaiah Road,
 7th D Main, Shivanagar, Bengaluru- 560079.
 Sample Particulars : Endosulfan Stock-Pile Sample
 Sampling Location : Kasargod
 Sampling Date : 21.11.2024
 Sampling Test Method : Grab
 Sample Collected by : KWMP Representative
 Sample Quantity : 50 ml
 Sample packing : Plastic cans
 Sample Reg No. and Date : KWMP/2024-25/240 & 27.11.2024
 Analysis Start Date : 28.11.2024
 Analysis End Date : 09.12.2024
 Date of Report : 09.12.2024

| S.No | Test Parameters | Unit | Test Method | Test Results |
|------|----------------------|---------|---------------------------|--------------|
| 1 | Chlorine | % | KWMP/SOP/HW/40 | 2.7 |
| 2 | Calorific Value | kcal/kg | KWMP/SOP/HW/03 | 8859 |
| 3 | Carbon | % | CHNS Method | 6.65 |
| 4 | Solubility in Diesel | % | - | Not Soluble |
| 5 | Endosulfan Sulfate | mg/kg | USEPA 3540C, 3550C, 8270E | 11994 |
| 6 | α -Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 434 |
| 7 | β -Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 1.82 |


 Authorized signatory

Page 1 of 1

Sustainability Limited
 N No. U74140TG1994PLC018833

Registered Office:
 Level 11B, Aurobindo Galaxy,
 Hyderabad Knowledge City, Hitech City Road,
 Hyderabad - 500081,
 Andhra Pradesh.

Site Address:
 Karnataka Waste Management Project
 Opposite of OM Logistics
 NH - 207, Near Pemmanahalli
 Dabaspet, Nelamangala Taluk
 Bengaluru Rural District - 56111

Regional Office:
 Ramky House, Site No. 25-30, 2nd Cross,
 Raghavendranagar, Hennur Ring Road,
 Kalyan Nagar [Post], Bengaluru - 560043,
 Karnataka.
 T: +91 70220 48893
 E: niteshkumar.singh@resustainability.com

KARNATAKA WASTE MANAGEMENT PROJECT LABORATORY

(a Division of Re Sustainability Limited)
 ISO 9001, 14001 & 45001 Certified Laboratory
 Accredited by NABL as per ISO/IEC 17025:2017 & Certified by MoEF&CC



Sustainability

TEST REPORT

Report Number : KWMP/2024-25/241
 Name & Address : Regional Directorate (Bengaluru)
 Nisarga Bhavan, A-Block 1st & 2nd Floors, Thimmaiah Road,
 7th D Main, Shivanagar, Bengaluru- 560079.
 Sample Particulars : Endosulfan Stock-Pile Sample
 Sampling Location : Rajapuram Estate
 Sampling Date : 22.11.2024
 Sampling Test Method : Grab
 Sample Collected by : KWMP Representative
 Sample Quantity : 50 ml
 Sample packing : Plastic cans
 Sample Reg No. and Date : KWMP/2024-25/241 & 27.11.2024
 Analysis Start Date : 28.11.2024
 Analysis End Date : 09.12.2024
 Date of Report : 09.12.2024

| S.No | Test Parameters | Unit | Test Method | Test Results |
|------|----------------------|---------|---------------------------|--------------|
| 1 | Chlorine | % | KWMP/SOP/HW/40 | 4.85 |
| 2 | Calorific Value | kcal/kg | KWMP/SOP/HW/03 | 8150 |
| 3 | Carbon | % | CHNS Method | 5.93 |
| 4 | Solubility in Diesel | % | - | Not Soluble |
| 5 | Endosulfan Sulfate | mg/kg | USEPA 3540C, 3550C, 8270E | 10667 |
| 6 | α -Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 695 |
| 7 | β -Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 24.4 |


 Authorized signatory

Page 1 of 1

Re Sustainability Limited

CIN No. U74140TG1994PLC018833

Registered Office:

Level 11B, Aurobindo Galaxy,
 Hyderabad Knowledge City, Hitech City Road,
 Hyderabad - 500081,
 Telangana.

Site Address:

Karnataka Waste Management Project
 Opposite of OM Logistics
 NH - 207, Near Pemmanahalli
 Dabaspet, Nelamangala Taluk
 Bengaluru Rural District - 56111

Regional Office:

Ramky House, Site No. 25-30, 2nd Cross,
 Raghavendranagar, Hennur Ring Road,
 Kalyan Nagar [Post], Bengaluru - 560043,
 Karnataka.

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KARNATAKA WASTE MANAGEMENT PROJECT LABORATORY

(a Division of Re Sustainability Limited)

ISO 9001, 14001 & 45001 Certified Laboratory

Accredited by NABL as per ISO/IEC 17025:2017 & Certified by MoEF&CC

**Sustainability****TEST REPORT**

Report Number : KWMP/2024-25/242

Name & Address : Regional Directorate (Bengaluru)
Nisarga Bhavan, A-Block 1st & 2nd Floors, Thimmaiah Road,
7th D Main, Shivanagar, Bengaluru- 560079.

Sample Particulars : Endosulfan Stock-Pile Sample

Sampling Location : Mannargaht

Sampling Date : 23.11.2024

Sampling Test Method : Grab

Sample Collected by : KWMP Representative

Sample Quantity : 50 ml

Sample packing : Plastic cans

Sample Reg No. and Date : KWMP/2024-25/242, 27.11.2024

Analysis Start Date : 28.11.2024

Analysis End Date : 09.12.2024

Date of Report : 09.12.2024

| S.No | Test Parameters | Unit | Test Method | Test Results |
|------|----------------------|---------|---------------------------|--------------|
| 1 | Chlorine | % | KWMP/SOP/HW/40 | 2.76 |
| 2 | Calorific Value | kcal/kg | KWMP/SOP/HW/03 | 9646 |
| 3 | Carbon | % | CHNS Method | 5.59 |
| 4 | Solubility in Diesel | % | - | Not Soluble |
| 5 | Endosulfan Sulfate | mg/kg | USEPA 3540C, 3550C, 8270E | 9027 |
| 6 | α -Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 290.7 |
| 7 | β -Endosulfan | mg/kg | USEPA 3540C, 3550C, 8270E | 12.4 |

Authorized signatory

Page 1 of 1

Re Sustainability Limited
CIN No. U74140TG1994PLC018833

Registered Office:
Level 11B, Aurobindo Galaxy,
Hyderabad Knowledge City, Hitech City Road,
Hyderabad - 500081,
Telangana.

Site Address:
Karnataka Waste Management Project
Opposite of OM Logistics
NH - 207, Near Pemmanahalli
Dabaspeta, Nelamangala Taluk
Bengaluru Rural District - 56111

Regional Office:
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Raghavendranagar, Hennur Ring Road,
Kalyan Nagar (Post), Bengaluru - 560043,
Karnataka.
T: +91 70220 48893
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Analysis results of the Endosulfan Samples as received from BEIL (4 pages)


ANALYTICAL RESEARCH LABORATORY
BEIL INFRASTRUCTURE LIMITED
 (Formerly Known as Bharuch Enviro Infrastructure Ltd.)
TEST REPORT

Page 1 of 1

| | | | |
|-------------------------|--------------------------------------|--------------------------|-------------|
| Report No: 20241212_1 | | Report Date: 12-DEC-2024 | |
| Name of Customer : | Kerala Enviro Infrastructure Limited | | |
| Address Of Customer : | Ambalamedu - 682303 | | |
| Sample Description : | Periya | | |
| Sample Quantity (UOM) : | 100 mL | Sample Received Date : | 10-DEC-2024 |
| Sampling Location : | NA | Sample Start Date : | 10-DEC-2024 |
| Sample Collected By : | BY Customer | Analysis End Date : | 12-DEC-2024 |

| Sr.No. | Parameters | Unit | Results | Permissible Limit | Method Reference |
|--------|----------------------------------|--------|---|-------------------|--|
| 1 | Physical State | --- | Liquid | - | SOP/HW/21: 2021 |
| 2 | Appearance | --- | Dark Brown | - | SOP/HW/21: 2021 |
| 3 | pH (10% Solution) | --- | 1.52 | - | APHA* 4500H+-B, 473 to 478, 24th Ed.: 23 |
| 4 | Gross Calorific Value | cal/gm | 8434 | - | IS:1448 (Part-6):1984 |
| 5 | Total Sulphur | % | 2.70 | - | ASTM D5291 - 10(2015); 2015 |
| 6 | Halogen (as Cl) | % | 5.26 | - | SOP/HW/15 Volhard's Method |
| 7 | Ash content at 800°C | % | 0.12 | - | IS 1448 (Part-4) :1984 |
| 8 | Alpha Endosulfan | ppm | 3710 | - | USEPA 508 |
| 9 | Beta Endosulfan | ppm | 4528 | - | USEPA 508 |
| 10 | Solubility in Diesel (1:1 Ratio) | -- | Miscible but formation of solid particle after half an hour | - | - |

Remarks: - Sample has eye irritation so handle with proper Safety Precaution.

----- END OF REPORT -----

For BEIL INFRASTRUCTURE LIMITED

AUTHORISED SIGNATORY

MR. N. B. PATEL

(QUALITY MANAGER)



ANALYTICAL RESEARCH LABORATORY BEIL INFRASTRUCTURE LIMITED

(Formerly Known as Bharuch Enviro Infrastructure Ltd.)

TEST REPORT

| Report No: 20241212_2 | | Page 1 of 1 | | | |
|---|----------------------------------|-------------------------|---|-------------------|---|
| Name of Customer : | | Report Date 12-DEC-2024 | | | |
| Kerala Enviro Infrastructure Limited | | | | | |
| Address Of Customer : | | Ambalamedu - 682303 | | | |
| Sample Description : | | Rajapuram | | | |
| Sample Quantity (UOM) : | | 100 mL | Sample Received Date : 10-DEC-2024 | | |
| Sampling Location : | | NA | Sample Start Date : 10-DEC-2024 | | |
| Sample Collected By : | | BY Customer | Analysis End Date : 12-DEC-2024 | | |
| Sr.No. | Parameters | Unit | Results | Permissible Limit | Method Reference |
| 1 | Physical State | --- | Liquid | - | SOP/HW/21: 2021 |
| 2 | Appearance | --- | Dark Brown | - | SOP/HW/21: 2021 |
| 3 | pH (10% Solution) | --- | 1.58 | - | APHA* 4500H+-B, 473 to 478, 24th Ed.: 23 |
| 4 | Gross Calorific Value | cal/gm | 8106 | - | IS:1448 (Part-6):1984 |
| 5 | Total Sulphur | % | 3.16 | - | ASTM D5291 - 10(2015): 2015 |
| 6 | Halogen (as Cl) | % | 7.97 | - | SOP/HW/15 Volhard's Method |
| 7 | Ash content at 800°C | % | 0.1 | - | IS 1448 (Part-4) :1984 |
| 8 | Alpha Endosulfan | ppm | 17415 | - | USEPA 508 |
| 9 | Beta Endosulfan | ppm | 13820 | - | USEPA 508 |
| 10 | Solubility in Diesel (1:1 Ratio) | -- | Miscible but formation of solid particle after half an hour | - | - |
| <p>Remarks: - Sample has eye irritation so handle with proper Safety Precaution.</p> <p style="text-align: center;">----- END OF REPORT -----</p> | | | | | |
| | | | | | <p>For BEIL INFRASTRUCTURE LIMITED</p>  <p>AUTHORISED SIGNATORY MR. N. B. PATEL (QUALITY MANAGER)</p> |



ANALYTICAL RESEARCH LABORATORY

BEIL INFRASTRUCTURE LIMITED

(Formerly Known as Bharuch Enviro Infrastructure Ltd.)

TEST REPORT

| Report No: 20241212_3 | | Page 1 of 1 | | | |
|---|----------------------------------|--------------------------------------|---|--|--|
| Name of Customer : | | Kerala Enviro Infrastructure Limited | | | |
| Address Of Customer : | | Ambalamedu - 682303 | | | |
| Sample Description : | | Manarkad | | | |
| Sample Quantity (UOM) : | | 100 mL | Sample Received Date : | | 10-DEC-2024 |
| Sampling Location : | | NA | Sample Start Date : | | 10-DEC-2024 |
| Sample Collected By : | | BY Customer | Analysis End Date : | | 12-DEC-2024 |
| Sr.No. | Parameters | Unit | Results | Permissible Limit | Method Reference |
| 1 | Physical State | --- | Liquid | - | SOP/HW/21: 2021 |
| 2 | Appearance | --- | Dark Brown | - | SOP/HW/21: 2021 |
| 3 | pH (10% Solution) | --- | 1.36 | - | APHA* 4500H+-B, 473 to 478, 24th Ed.: 23 |
| 4 | Gross Calorific Value | cal/gm | 9052 | - | IS:1448 (Part-6):1984 |
| 5 | Total Sulphur | % | 0.405 | - | ASTM D5291 - 10(2015): 2015 |
| 6 | Halogen (as Cl) | % | 3.20 | - | SOP/HW/15 Volhard's Method |
| 7 | ash content at 800°C | % | < 0.1 | - | IS 1448 (Part-4) :1984 |
| 8 | Alpha Endosulfan | ppm | Nil | - | USEPA 508 |
| 9 | Beta Endosulfan | ppm | Nil | - | USEPA 508 |
| 10 | Solubility in Diesel (1:1 Ratio) | -- | Miscible but formation of solid particle after half an hour | - | -- |
| <p>Remarks: - Sample has eye irritation so handle with proper Safety Precaution.</p> <p style="text-align: center;">----- END OF REPORT -----</p> | | | | | |
| | | | | <p>For BEIL INFRASTRUCTURE LIMITED</p>  <p>AUTHORISED SIGNATORY MR. N. B. PATEL (QUALITY MANAGER)</p> | |



ANALYTICAL RESEARCH LABORATORY BEIL INFRASTRUCTURE LIMITED

(Formerly Known as Bharuch Enviro Infrastructure Ltd.)

TEST REPORT

| Page 1 of 1 | | | | | |
|---------------------------|--------------------------------------|-------------------------|-------------|-------------------|--|
| Report No: 20241212_4 | | Report Date 12-DEC-2024 | | | |
| Name of Customer : | Kerala Enviro Infrastructure Limited | | | | |
| Address Of Customer : | Ambalamedu - 682303 | | | | |
| Sample Description : | Cheemeni | | | | |
| Sample Quantity (UOM) : | 50 gm. | Sample Received Date : | 10-DEC-2024 | | |
| Sampling Location : | NA | Sample Start Date : | 10-DEC-2024 | | |
| Sample Collected By : | BY Customer | Analysis End Date : | 12-DEC-2024 | | |
| | | | | | |
| Sr.No. | Parameters | Unit | Results | Permissible Limit | Method Reference |
| 1 | Physical State | --- | Solid | - | SOP/HW/21: 2021 |
| 2 | Appearance | --- | Dark Brown | - | SOP/HW/21: 2021 |
| 3 | pH (10% Solution) | --- | 2.08 | - | APHA* 4500H+-B, 473 to 478, 24th Ed.: 23 |
| 4 | Gross Calorific Value | cal/gm | 2963 | - | IS:1448 (Part-6):1984 |
| 5 | Total Sulphur | % | 1.53 | - | ASTM D5291 - 10(2015): 2015 |
| 6 | Halogen (as Cl) | % | 11.17 | - | SOP/HW/15 Volhard's Method |
| 7 | ash content at 800°C | % | 9.92 | - | IS 1448 (Part-4) :1984 |
| 8 | Alpha Endosulfan | mg/kg | Nil | - | USEPA 508 |
| 9 | Beta Endosulfan | mg/kg | Nil | - | USEPA 508 |
| 10 | Solubility in Diesel (1 % Solution) | -- | Not Soluble | - | -- |
| Remarks: - - - - | | | | | |
| ----- END OF REPORT ----- | | | | | |
| | | | | | For BEIL INFRASTRUCTURE LIMITED  AUTHORISED SIGNATORY MR. N. B. PATEL (QUALITY MANAGER) |



Central Pollution Control Board

(Ministry of Environment, Forests and Climate Change)

REGIONAL DIRECTORATE, BENGALURU

Nisarga Bhavan, 1 & 2 Floors, Thimmaiah Road, Shivanagar

BENGALURU-560079, KARNATAKA

Minutes of the Meeting held on 24-01-2025 for ensuring compliance to the Honourable NGT (SZ) order dated 18.09.2024 in OA No. 186/2023 (SZ) in the matter of disposal of endosulfan stock-piles stored at various estates of The Plantation Corporation of Kerala Ltd.

| | |
|-----------------------|--|
| Meeting title | <i>Online meeting in pursuance to the Honourable NGT order dated 18-09-2024 in the matter of OA 186/2024 SZ.</i> |
| Date | 24-01-2025 |
| Meeting Sequence | # 04 |
| Time | 11.30 to 12.20 hrs. IST |
| Platform / Venue | Virtual meeting via Google Meet |
| Meeting Link (online) | https://meet.google.com/iog-sfgk-uxw |
| Meeting Facilitator | Regional Directorate, CPCB, Bengaluru. |

A virtual meeting was organized by the Regional Director, Regional Directorate, CPCB, Bengaluru on 24-01-2025 at 11.30 Hrs. IST to discuss on the following;

- a) Storage conditions of the endosulfan stock piles,
- b) analysis results of the stock-pile samples collected during 21 to 23rd November, 2024 during the site visit of the Committee members;
- c) the technical feasibility reports of the TSDF operators.
- d) to decide further course of action as a part of ensuring compliance to the Hon'ble NGT order in OA No. 186/2023 (SZ).

The list of officials attended the online meeting is annexed as **Annexure-I**.

Sh. J Chandra Babu, Regional Director (RD) CPCB Bengaluru welcomed all the officials and all the other officials participated in the meeting. The meeting started with a formal note on the background of OA No. 186/2023 (SZ) and directions of Honourable NGT Thereafter, the details of the endosulfan stock inspected during November 21 to 23, 2024 in four estates of the



M/as. Plantation Corporation of Kerala (PCK) Ltd., including the storage conditions and the analysis outcome were reiterated and discussed in detail. He also, highlighted decisions taken in the last meeting held on 24.12.2024 for initiating necessary actions by the concerned especially on (i) Requirement of transfer of endosulfan from the existing drums to the new drums; (ii) Storage conditions of the sheds from safety point of view; (iii) For making arrangements for procurement of new drums (iv) to confirm about the arrangements made and suitable dates for shifting of the endosulfan to the new drums and (v) Techno-feasibility and disposal option report awaited from the TSDF operators based on the analysis results of the samples collected. He also shown the photographs captured during the visits as evidence of storage conditions of the stock piles of the endosulfan and the details of analysis results as received from the TSDF operators.

Based on the analysis results, it was observed that, calorific content of the stock pile is fairly high due to the solvent present in the endosulfan formulation and observed that the material is suitable for disposal by incineration through an authorized common HW incinerator. The halide/chlorine content of the samples were in the range of 2.7 to 11.7 % indicating the need for adjusting the feed rate considering the limiting value of chlorine loading on incinerator.

The endosulfan content was also found less than the expected concentration, which is perhaps due to degradation or breaking into other organic compounds during the period of long storage. It was also observed that there are some variations in the analysis methods adopted by TSDF operators viz., M/s. RE Sustainability and M/s. BEIL. With regard to disposal of contaminated drums, committee suggested that the decontaminating and recycling the drums may not be the suitable option and all the contaminated drums need to be disposed by incineration.

The committee emphasized the need for (a) ensuring compliance with safety and environmental regulations during handling/transfer of endosulfan from existing drums to new drums of adequate size, (b) proper packaging and labelling of drums, (c) transportation of drums containing waste pesticide drums in accordance with the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 as amended as well as CPCB guidelines.



The Deputy Collector of the Endosulfan Cell reassured that all the possible support shall be provided for the team to carry out the operation and also requested that the transferring and disposal shall be planned confidentially and need to be executed swiftly to avoid public protest as the issue is very sensitive in Kerala State. The Regional Director (RD), Bengaluru suggested to utilise the services of State Disaster Response Team for the stock pile transferring to the new drums and clean-up operations, if required.

Upon deliberations following decisions were taken:

- a) Specifications for new drums shall be suggested by the TSDF operator's viz., M/s. RE Sustainability and M/s.BEIL considering the chemical nature, material of drums, arrangements for sealing of drums during transit, safety aspects related to transport from the existing place to the TSDF for ultimate disposal.
- b) M/s. PCK Ltd., shall take-up repairing damaged portion of the roof/walls of the storage shed where the waste pesticide is stored temporarily in drums.
- c) M/s. PCK Ltd being the custodian of the endosulfan stocks, shall bear the cost towards procurement of the drums as per specifications to be suggested by the TSDF Operators and for ultimate disposal of the stock piles of endosulfan.
- d) The Endosulfan Cell under the DC, Kasaragod, Government of Kerala with the help of other associated departments shall facilitate the TSDF operators in safe handling, transfer and ultimate disposal of the stock piles in an environmentally sound manner.
- e) M/s. PCK Ltd for making necessary arrangements for transfer of the existing stock piles of endosulfan to the new drums of volume preferably 50 to 100 L under the supervision of the officials of CPCB, Kerala SPCB, representatives of the TSDF operators, Endosulfan Cell, representative of M/s. HIL, Eloor, Kerala, and State Disaster Response Team
- f) M/s. PCK Ltd shall obtain all a formal authorization/ permissions from Kerala SPCB for ensuring ultimate and safe disposal of endosulfan stocks.
- g) The technical feasibility report along with standard operating protocols (SoP) for disposal of the endosulfan stock piles be submitted by the TSDF operators viz., M/s. RE Sustainability and M/s. BEIL considering the above factors along with the analysis results



of the samples collected, preferably on or before 31-01-2025 to enable to apprise Hon'ble NGT SZ Chennai for consideration.

The meeting ended with a vote of thanks to all the participants.

-- OO --



ANNEXURE-I

List of Officials Participated in the meeting held on 24.12.2024

CPCB Officials

1. Sh. Vinod Babu B, Scientist-F, DH, WM-II, CPCB, Delhi
2. Sh. J Chandra Babu, Regional Director, Regional Directorate, CPCB, Bengaluru
3. Sh. Vivek K, Scientist E, Regional Directorate, CPCB, Bengaluru
4. Dr. V. Deepesh, Scientist D, CPCB, Regional Directorate, Bengaluru.
5. Sh. Sandeep Kumar, Scientist-B, DH, IPC-I, CPCB, Delhi.

CIB&RC, Faridabad

6. Dr. Sneha Potdar, Deputy Director (Chemistry), CIB&RC, Faridabad.

Endosulfan Cell, District Administration

7. The Deputy Collector, Endosulfan Cell, District Administration, Kasaragod.
8. Representative of District Magistrate, District Administration, Palakkad.

KSPCB RO Kasaragod

9. Sh. Dinesh K S, Environmental Engineer, Kerala SPCB, District Office, Kasaragod.

M/s. HIL, Eloor, Kerala

10. Shri. Praveen R, Deputy Manager, M/s. HIL, Eloor, Kerala.

PCK Ltd., Kasaragod Division.

11. The Manager, PCK Ltd., Kasaragod Division.

Representatives of TSDF Operators

12. Dr. P N Parameswaran, Representatives of M/s. BEIL, Bharuch.
13. Sh. Bupendra Dalwadi, Representatives of M/s. BEIL, Bharuch.
14. Sh. Nitesh Kumar, Representatives of RESustainability.
15. Dr. Salman, Representatives of TSDF, Dabaspeta, Karnataka.
16. Dr. Vipin Narayana, Lab Head, TSDF, Dabaspeta, Karnataka.
17. Dr. N K Pillai, Representatives of M/s. KEIL, Cochin, Kerala.
18. Smt. Rakshita Vyas, Representatives of M/s. BEIL, Bharuch.



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

By Speed Post

F.No. CM-13013/8/2023-LAB-RD-BENGALURU-RD (Bengaluru) 21/6 June 13, 2025

To

The Managing Director,
Plantation Corporation-Kerala (PCK),
Head Office, Muttambalam P.O, Kottayam, Kerala - 686 004.
Email: mdpckltd@pcklimited.in & operationsdept@pcklimited.in

Sub: Honourable NGT order dated 18-09-2024 in the matter of OA N. 186/2023(SZ)-
Transfer of the endosulfan stockpiles in to new drums-reg.

Sir,

Please refer to the aforementioned Honourable NGT (SZ) Chennai order, vide which CPCB was directed to coordinate with Central Insecticides Board & Registration Committee (CIB&RC) under the Directorate of Plant Protection, Quarantine & Storage, Department of Agriculture & Cooperation to investigate the method by which the stacked endosulfan stock can be disposed-off to avoid any major disaster in future. In this regard, a meeting was organized by Regional Directorate CPCB Bengaluru with all the stakeholders to decide on the course of action as a part of compliance to the orders of Hon'ble NGT passed in OA No. 186 of 2023 (SZ).

It is to bring to your kind notice that as per the meeting # 7 held on 04-06-2025 (minutes of the meeting enclosed), it was decided to transfer the endosulfan stockpile to new drums as the preliminary step towards the ultimate disposal of the stockpile, and M/s. PCK Ltd. assured in the afore-said meeting that the necessary arrangements shall be made in coordination with the district administration to safely transfer the stockpile in to new storage drums.

It is requested to initiate steps for the site visit for the transfer of the stockpile into new drums in the presence of the committee, DC- Endosulfan Cell, Govt. of Kerala, representatives of HIL and TSDF operators, State Disaster Response Force (SDRF), concerned State Revenue Departments, Police and Health Department as well as Kerala SPCB. Site visits may be planned as per the tentative schedule given below:

| | |
|-------------------------------|--|
| 19-20 th June 2025 | Site visit, inventory and safe transfer of endosulfan stock pile into new storage drums at Mannarkad Estate, Palakkad. |
| 23-25 th June 2025 | Site visit, inventory and safe transfer of endosulfan stock pile into new storage drums at Periya, Cheemeni, Rajapuram estates, Kasaragod. |

It is requested to take necessary action and to coordinate with the Endosulfan Cell and arrange requisite provisions and necessary logistics during the site visit and other necessary logistics required for the transferring of endosulfan stock pile to new drums.

Yours faithfully

क्षेत्रीय निदेशालय (बेंगलूरु) : निसर्ग भवन, ए-ब्लॉक, प्रथम एवं द्वितीय तल, तिममय्या रोड, 7-डी मैन, शिवपुर, बेंगलूरु (J. Chandrababu)

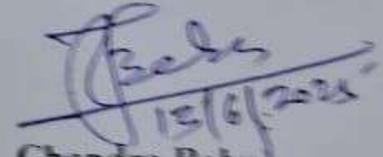
Regional Directorate (Bengaluru) : " Nisarga Bhawan ", A-Block, 1st & 2nd Floors, Thimmaiah Road, 7th D - Main, Shivpur, Bengaluru - 560002

Encl.: As above दूरभाष / Telephone : 080-23233739, 23233827, 23222539, Fax : 080-23234059

ई-मेल / E-mail : zobangalore.cpcb@nic.in

Copy to:

1. District Collector, Endosulfan Cell, Government of Kerala, Kasaragod, Kerala . For kind information and with a request to direct all the concerned and the concerned departments in Kerala for n.a at their end in light of the decisions taken and as per minutes of the meeting held on 04.06.2025.
2. District Collector, Palakkad, Kerala .
3. AO to MS, CPCB, Delhi . For kind information of "MS" please.
4. The Director & DH, IPC-1, CPCB, Delhi . For information and record please.
5. The Director & DH, Legal Section, CPCB, Delhi . For information and record please.
6. Member Secretary, Kerala SPCB, Trivandrum . For information and with a request to co-ordinate with all the concerned Departments for taking necessary actions in light of the decisions taken in the meeting held on 04.06.2025
7. TSDF Operators (Representatives of TSDF viz., BEIL and Re-sustainability Limited, Karnataka) . For information and to join during the scheduled visits
8. Representative of HIL, Kochi, Kerala (Sh.R.Praveen, Dy.Manager) . For information and with a request to join during the scheduled visits


 13/6/2025
 (J. Chandra Babu)

Annexure-VIII**Details of the inventories of outdated endosulfan stockpiles and the contaminated waste materials/drums to be disposed-off***Details of inventoried stockpile at Mannarkkad Estate, Palakkad as on 20-06-2025.*

| Sl. No. | Item code/ Barrel code | Item (Description) | No. of Barrels or Drums | Capacity of Barrel/ Drum (in L) | Quantity (Gross Weight in kg) | Total/ Sub-Total (Gross Weight in kg) |
|---------|---------------------------|--|----------------------------------|--|--|---|
| 1 | MKD-ES-01 | Drum containing Outdated Endosulfan (Liquid Waste) | 01 | 110 L | 72.0 | 72.0 |
| 2 | MKD-ES-BR1 | Drum containing Bottom Residue (Endosulfan) | 02 | 220 L | 67.3 | 94.6 |
| 3 | MKD-ES-BR2 | | | | 27.3 | |
| 4 | MKD-ES-CM01 | Drum containing contaminated materials | 10 | 220 L | 60.2 | 681.6 |
| 5 | MKD-ES-CM02 | | | | 09.2 | |
| 6 | MKD-ES-CM03 | | | | 90.8 | |
| 7 | MKD-ES-CM04 | | | | 22.4 | |
| 8 | MKD-ES-CM05 | | | | 101.8 | |
| 9 | MKD-ES-CM06 | | | | 20.0 | |
| 10 | MKD-ES-CM07 | | | | 47.5 | |
| 11 | MKD-ES-CM08 | | | | 116.0 | |
| 12 | MKD-ES-CM09 | | | | 112.5 | |
| 13 | MKD-ES-CM10 | | | | 101.2 | |

Details of inventoried stockpile at Periya Estate, Kasaragod as on 23-06-2025.

| Sl. No. | Item code/ Barrel code | Item (Description) | No. of Barrels or Drums | Capacity of Barrel/ Drum (in L) | Quantity (Gross Weight in kg) | Total/ Sub-Total (Gross Weight in kg) |
|---------|---------------------------|--|----------------------------------|--|--|---|
| 1 | PRY-ES-01 | Drum containing Outdated Endosulfan (Liquid Waste) | 05 | 110 L | 102.3 | 455.7 |
| 2 | PRY-ES-02 | | | | 113.5 | |
| 3 | PRY-ES-03 | | | | 91.4 | |
| 4 | PRY-ES-04 | | | | 99.5 | |
| 5 | PRY-ES-05 | | | | 49.0 | |
| 6 | PRY-ES-BR01 | Drum containing Bottom Residue (Endosulfan) | 04 | 220 L | 46.5 | 294.5 |
| 7 | PRY-ES-BR02 | | | | 49.5 | |
| 8 | PRY-ES-BR03 | | | | 69.0 | |
| 9 | PRY-ES-BR04 | | | | 129.5 | |
| 10 | PRY-CD (Empty)-01 | Contaminated Drum (Empty) | 02 | 220 L | 24.0 | 24.0 |
| 11 | PRY-CD (Empty)-02 | | | | | |
| 12 | PRY-ES-CM01 | Drum containing contaminated materials | 06 | 220 L | 52.0 | 254.8 |
| 13 | PRY-ES-CM02 | | | | 63.6 | |
| 14 | PRY-ES-CM03 | | | | 50.0 | |
| 15 | PRY-ES-CM04 | | | | 34.0 | |
| 16 | PRY-ES-CM05 | | | | 35.2 | |
| 17 | PRY-ES-CM06 | | | | 20.0 | |

Details of inventoried stockpile at Cheemeni Estate, Kasaragod as on 23-06-2025.

| Sl. No. | Item code/ Barrel code | Item (Description) | No. of Barrels or Drums | Capacity of Barrel/ Drum (in L) | Quantity (Gross Weight in kg) | Total/ Sub-Total (Gross Weight in kg) |
|---------|---------------------------|---|----------------------------------|--|--|---|
| 1 | CHE-ES-CM-01 | Drum containing contaminated materials | 05 | 220 L | 51.0 | 384.0 |
| 2 | CHE-ES-CM-02 | | | | 227.0 | |
| 3 | CHE-ES-CM-03 | | | | 16.0 | |
| 4 | CHE-ES-CM-04 | | | | 12.0 | |
| 5 | CHE-ES-CM-05 | | | | 78.0 | |

Details of inventoried stockpile at Rajapuram Estate, Kasaragod as on 24-06-2025.

| Sl. No. | Item code/ Barrel code | Item (Description) | No. of Barrels or Drums | Capacity of Barrel/ Drum (in L) | Quantity (Gross Weight in kg) | Total/ Sub-Total (Gross Weight in kg) |
|---------|---------------------------|---|----------------------------------|--|--|---|
| 1 | RJP-ES-01 | Drum containing Outdated Endosulfan (Liquid Waste) | 04 | 110 L | 100.0 | 350.7 |
| 2 | RJP-ES-02 | | | | 107.7 | |
| 3 | RJP-ES-03 | | | | 101.5 | |
| 4 | RJP-ES-04 | | | | 41.5 | |
| 5 | RJP-ES-BR-01 | Drum containing Bottom Residue (Endosulfan) | 03 | 220 L | 45.0 | 180.5 |
| 6 | RJP-ES-BR-02 | | | | 71.0 | |
| 7 | RJP-ES-BR-03 | | | | 64.5 | |
| 10 | RJP-ES-CM-01 | Drum containing contaminated materials | 03 | 220 L | 49.0 | 174.0 |
| 11 | RJP-ES-CM-02 | | | | 50.0 | |
| 12 | RJP-ES-CM-03 | | | | 76.0 | |

ANNEXURE-IX

PHOTOGRAPHS OF FIELD VISIT DURING 19-25TH JUNE 2025



Briefing of activities at Periya, Kasaragod



Team at Mannarkkad estate after inventorization



Transferring liquid stock at Mannarkkad.



Transferring liquid stock at Periya, Kasaragod.



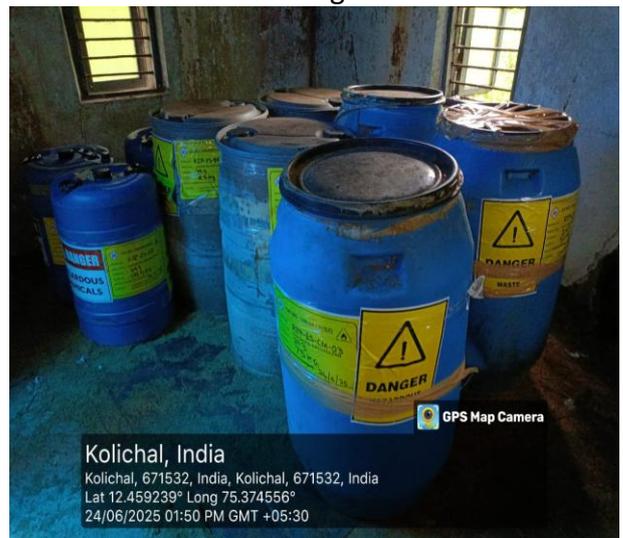
Inventory assessment at Cheemeni, Kasaragod



Transferring liquid stock at Rajapuram, Kasaragod.



Drums made ready at Rajapuram Estate, Kasaragod



Inventoried stock at Rajapuram, Kasaragod.



Thenkara, Kerala, India

Thenkara, Kerala 678582, India, Thenkara, Kerala 678582, India
Lat 11.033311° Long 76.473349°
20/06/2025 12:02 PM GMT +05:30

Team after the operations at Mannarkkad Estate, Palakkad.



Periye, Kerala, India

93wx+654, Periye, Kerala 671316, India
Lat 12.394415° Long 75.097616°
23/06/2025 03:09 PM GMT +05:30

Team after the operations at Periya Estate, Kasaragod.



Team after the operations at Cheemeni Estate, Kasaragod.



Team after the operations at Rajapuram Estate, Kasaragod.

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN BENCH CHENNAI**

Original Application No 186 of 2023 (SZ)

IN THE MATTER OF

***Ravindranath Shanbhogue, Karnataka* : Applicant(s)**

Versus

***Union of India, Through its Secretary, New
Delhi and Ors* : Respondent(s)**

**REPORT OF RESPONDENT NO. 2, CENTRAL POLLUTION
CONTROL BOARD (CPCB) IN COMPLIANCE TO HON'BLE
NATIONAL GREEN TRIBUNAL (SOUTHERN ZONE) ORDER
DATED 18.09.2024**

**M/s. R. Thirunavukarasu
Counsel for the 2nd Respondent
M-9444012986**