

BEFORE THE 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 and Ors.

...Respondent(s)

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Signed and verified on this on **January 01, 2024** at Bengaluru.


01/01/2024
DEPONENT

Place: Bengaluru

Date: 01 January 2024



COUNSEL FOR CPCB



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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**AFFIDAVIT OF CENTRAL POLLUTION CONTROL BOARD IN COMPLIANCE TO
HON'BLE NATIONAL GREEN TRIBUNAL (SOUTHERN ZONE) CHENNAI ORDER
DATED 20.12.2023**

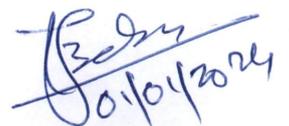
I J. Chandra Babu, Son of Late Sh. J. Balaramaiah, aged about 55 years, having office at the Regional Directorate, Central Pollution Control Board, 1st & 2nd Floors, Nisarga Bhavan, A-Block, Thimmaiah Main Road, 7th D Cross, Shivanagar, Bengaluru - 560079, Karnataka do hereby solemnly affirm and sincerely state as follows:

2. That I am presently working as Scientist 'E' & Regional Director, Regional Directorate (South), Central Pollution Control Board (hereafter referred as CPCB), Bengaluru and have been authorized to file the present report. I am fully conversant with the facts of the case and hence, competent and authorized to depose and swear the present report as under:

"That the Honourable National Green Tribunal, Southern Zone, Chennai, in the matter of Original Application No. 186 of 2023 vide order dated 20.12.2023 directed all the respondents that "The authorities are directed to file their appropriate reports after making a spot inspection".

In this connection, Spot Inspection report of CPCB is enclosed as **Appendix**.

Signed and verified on this on **January 01, 2024** at Bengaluru.



DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
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Spot Inspection Report of the Area Under Scrutiny

(As per Hon'ble National Green Tribunal, Southern Zone, Chennai order dated 20.12.2023 in Original Application No. 186/2023)

1. Introduction

The Honourable National Green Tribunal, Southern Zone, Chennai, in the matter of Original Application No. 186 of 2023 vide order dated 20.12.2023 directed all the respondents and relevant portion of the directions is reproduced below;

“The authorities are directed to file their appropriate reports after making a spot inspection”

A copy of Hon'ble NGT order dated 20.12.2023 is enclosed as **Annexure-I**

2. Initiatives of the Respondent No. 02 i.e., Central Pollution Control Board (CPCB)

In compliance to the Hon'ble National Green Tribunal, Southern Zone, Chennai order dated 20.12.2023, the following representatives of Respondent No. 02 i.e., Central Pollution Control Board (CPCB) performed spot inspection on 28.12.2023 to assess the area under scrutiny in the matter. The official of Kerala State Pollution Control Board (viz., Sh.T.V. Adarsh, Assistant Environmental Engineer, District Office, Kerala State Pollution Control Board, Kasaragod, Kerala) and Karnataka State Pollution Control Board (Dr.D.R.Ravi, Regional Officer, Karnataka State Pollution Control Board, Mangalore) also associated during the visit of CPCB Team comprising following officials;

- a. Sh. J Chandra Babu, Regional Director & Scientist E', Regional Directorate, CPCB, Bengaluru
- b. Sh. Nikhil Y Kumar, JLA, Regional Directorate, CPCB, Bengaluru

On 28.12.2023, afore-said officials interacted with the officials of M/s Plantation Corporation of Kerala Limited, Minchinpadavu, Mulleria, Kasaragod District, Kerala (M/s.PCK Ltd.,) on endosulfan usage, used endosulfan barrel disposal related issues,

visited an abandoned well within the cashew plantation area of M/s PCK Ltd., where it was believed to be used Endosulfan barrels /drums were disposed off unscientifically, as per the local public. CPCB visited team also collected two soil samples from dumped and closed open well, concrete chemical mixing area and two ground water samples from open wells located close to the Adhur Estate Division office and Nettanige-Mundnur, as well as one ground water sample from an open well close to the Primary Health Centre (PHC), Ishwarmanagal, Karnataka for further analysis of pesticides and general parameters. The visited team also interacted with Health Department Officials of Primary Health Centre (PHC) at Ishwarmangal in Karnataka and Family Health Centre (FHC) at Bellur in Kerala so as to know the potential identified victims presently undergoing medical treatment.

Chemical Characteristics and Environmental Fate of Endosulfan: Insights into Persistence and Degradation

As per the World Health Organisation (WHO), Endosulfan is an insecticide which is applied extensively to cash crops. In its commercial form, endosulfan is composed of two stereoisomers, α and β endosulfan, in a 70:30 ratio. This compound is especially toxic for aquatic organisms. In mammals, it can induce reproductive toxicity and neurotoxicity. In the soil, endosulfan is converted into endosulfan sulfate by oxidation and diol endosulfan by hydrolysis. Both isomers present different levels of persistence in the environment. The half-life of total endosulfan and α and β endosulfan is 1336 and 27.5 and 157 days, respectively, under aerobic conditions. Endosulfan sulfate is a more persistent and toxic residue than endosulfan isomers. As per the WHO document entitled “Endosulfan in Drinking Water (WHO/SDE/WSH/0.3-0.4/92/2004)” endosulfan in water undergoes hydrolysis to endosulfan diol and the rate of hydrolysis is influenced by pH. Oxidative degradation also occurs in water. At pH 7, the half-lives for hydrolysis and oxidation were 23 and 25 days, respectively; at pH 5, the half-lives were 54 and 51 days, respectively.

Endosulfan, a pesticide is banned for manufacture, sale, use and import by Ministry of Agriculture vide ad-interim order of the Hon'ble Supreme Court of India in the Writ Petition (Civil) No. 213 of 2011 dated 13th May, 2011 and finally disposed of dated 10th January, 2017.

Effluent discharge standards for Pesticide Industry have been notified under the Environment (Protection) Rules, 1986 and the standards prescribed for discharge of

pesticide industry effluent for Endosulfan is 0.01 mg/L and same to be complied by the pesticide industry.

The details of spot inspection conducted by the CPCB officials are detailed in the subsequent paras

2.1 Visit to Cashew plantation area of M/s Plantation Corporation of Kerala, Minchinpadavu, Mulleria, Kasaragod Dist., Kerala (M/s.PCK Ltd.,)

Prior to the visit of the CPCB team to Cashew plantation area of M/s PCK Ltd., located at Minchinpadavu, Mulleria, Kasaragod Dist., Kerala, and in response to the query of CPCB, the respondent “Managing Director of M/s Plantation Corporation of Kerala LTD” vide letter dated 26.12.2023 informed to the Regional Director, CPCB, Bengaluru that M/s. PCK Ltd is having cashew plantations at Kasaragod district which is an extent of about 4000 Ha of land. 2060 Ha of land consisting of cashew plantation and rubber plants in remaining area. Use of Endosulfan to combat the annual "tea mosquito bug" infestation on cashew crops was based on the recommendation of the Central Plantation Crops Research Institute (CPCRI), Kasaragod by using aerial spraying of Endosulfan. The National Centre for Research (NCR) in Puthur, Karnataka vide letter dated 29.10.1988 communicated to the Directorate of Cashew Development, Cochin and emphasized the significance of pest control as a crucial practice for enhancing cashew production in the country. The Managing Director also asserted that the aerial spraying of pesticides, including endosulfan, was a common practice among major plantations in the region, including those of the Karnataka State Government, from 1983 to 2001. However, M/s PCK Ltd., reported to be ceased using the stock after 2001 due to public opposition, leading to the storage of unused endosulfan in the M/s. PCK Ltd., estate warehouse under the supervision of the Kerala State Pollution Control Board. The current stock of sealed endosulfan is at Kasaragod Estate (700 L); Rajapuram Estate (450 L); Cheemeni Estate (10 kg-solid state) and Mannarghat Estate (304 L). The first three estates are situated in Kasaragod District, while the fourth one is in Palakkad District, Kerala. M/s PCK Ltd vide letter dated 26.12.2023 communicated that with the assistance of technical experts from Defence Research and Development Organisation (DRDO) and Kerala Agricultural University, faced challenges in disposing of the unused endosulfan due to public opposition. Consequently, the stocks are securely stored under lock and key, under the control of the KJasaragod District Administration since 2001. A copy of the information

received from M/s Plantation Corporation of Kerala Ltd. vide letter dated 26.12.2023 is annexed as **Annexure-II**.



Physical inspection of the plantation area in Adhur Estate, M/s PCK Ltd.



Used Barrels of Endosulfan stored in Division Store Room, Adhur Estate of M/s. PCK Ltd.,



Inspecting the effects of Tea Mosquito Bug on Cashew Crops

During the visit of CPCB Team to cashew plantation area of M/s PCK Ltd., following officials are present and as no information available at the Adhur Division plantation area, the officials of M/s. PCK Ltd., provided only oral information but not any documentary evidences to the CPCB visited team;

- a. Mr. Santhosh Manayatt, Group Manager, M/s.PCK Ltd.,
- b. Sh. Ismail P.M., Estate Manager, M/s.PCK Ltd.,
- c. Sh. Karunakara Minchipadavu, Field Supervisor, M/s.PCK Ltd.,

During the visit, the visited CPCB team held discussions with the officials of M/s PCK Ltd., with regard to the endosulfan consumption, method of spraying of endosulfan in the plantation area covering 4000 hectares owned by M/s PCK Ltd., during the period 1983 to 2001, mode of disposal of unused endosulfan, used endosulfan barrels and other related aspects. As informed by M/s PCK Ltd., Kasaragod District, Kerala officials to the visited CPCB Team that for areal spray, 35 Emulsified Endosulfan concentrate 0.1 % at 750 ml per hectare is mixed in 13 L of water in a designated concrete chemical mixing area located close to the Adhur Division office. The prepared Endosulfan mixture using helicopter used to be sprayed above 3 to 4 m of the cashew canopy depending on the topography for control of “Tea Mosquito Bug” during the period 1983-2001. Nearest habitation is at a distance of about 150 m from M/s. PCK Ltd., cashew plantation.

As per oral information provided by the representatives of M/s PCK Ltd., to the visited CPCB Team, yearly average consumption of Endosulfan used for aerial spray over the cashew plantation (Kasaragod District) was estimated to be around 3198 L/Year i.e., approximately 16 barrels (capacity 200 l) per year [inclusive of two rounds of aerial spray annually]. However, it was informed that the plantation authorities refrained from aerial spraying of endosulfan from the year 2001 in view of the public agitation. Capacity of each container of Endosulfan barrel was approximately 200 L. had procured from M/s Hindustan Pesticide Limited (HIL), Kerala.

Comparing the effect of non-usage of Endosulfan to prevent the pest attack, it was informed by the representative of M/s. PCK Ltd., that 160-200 MTA production of cashew recorded currently which is significantly lower when compared to the 400 MTA production of cashew recorded during the period of endosulfan usage. Also, the plantation authorities informed that no alternative pest control measures are available for preventing the attack and increase the quantity of production.

Presently 27 out of 32 open wells available within the Kasaragod cashew plantation are in use and five open wells reported to be abandoned due to various administrative reasons.

There are three panchayats both in Kerala and Karnataka States lies adjacent to the Kasaragod cashew plantation area. About 11 panchayats has been identified as Endosulfan affected area in Kerala State presently under the administrative area of District Collector, Kasaragod District, Kerala.

2.2 Spot inspection to the abandoned well as well as collection of soil and water samples within and outside planation area of M/s. PCK Ltd., on 28.12.2023

Visited CPCB Team made Spot inspection on 28.12.2023 to an abandoned well (which had been pointed out as a potential dumping site for Endosulfan by the applicant) located within the plantation area of M/s PCK Ltd., was identified and a composite soil sample at about one feet depth was collected for further analysis of endosulfan if any. Also, soil sample from chemical mixing tank close to the Adhur Division office also collected by the visited team.

Since, the dumping/ disposal of used endosulfan barrels stated to be happened in 2013 and due to natural attenuation/ degradation of pesticide residue, finding the traces of pesticide in the collected ground water and soil matrix is most unlikely now. However, to know the present level of contamination resulting from such alleged dumping in the past, three ground water samples from open wells (one located close to the Adhur Division office and another at about 1.5 KM road distance from Adhur Division office) and One ground water sample from an open well located in affected village namely Ishwarmangala located close to the Primary Health Centre, Ishwarmangala, Karnataka were collected by the visited CPCB team on 28.12.2023. The details of sampling locations and respective remarks, photographs taken during the sampling are provided as follows:

Sl. No.	Sampling Location	Co-ordinates of sampling point	Type of Sample collected	Remarks
1.	Open well located near the office building of Adhur Division, M/s PCK Ltd. premises	12° 34' 38.55" N 75° 12' 05.49" E	Water sample [General and Pesticide]	As informed by the field supervisor, this is the prime source of water for plantation activities
2.	Dilution pit	12° 34' 38.95" N 75° 12' 06.04" E	Soil sample	Historical location, used for dilution of endosulfan
3.	Open well located 1.5 km from the plantation area of M/s PCK Ltd. in Kasaragod estate.	12° 34' 46.60" N 75° 12' 02.40" E	Water sample [General and Pesticide]	As informed by the field supervisor, this is the secondary source of water for plantation activities
4.	Alleged Dump site	12° 34' 42.00" N 75° 12' 07.00" E	Soil sample	The location was previously an open well used as secondary source of water for plantation activities.
5.	Open well near the PHC, Ishwaramangala Panchayat (L-5)	12° 37' 19.68" N 75° 15' 15.88" E	Water sample [Pesticide]	The open well is used by household for drinking and bathing purpose.



Map depicting the sampling locations L1, L2, L3 and L4



L-1 Open well located near the office building of Adhur Division, M/s PCK Ltd. premises



L-2 Chemical Dilution Pit



L-3 Open well located inside the plantation area of M/s PCK Ltd. in Kasaragod estate.



L-4 Alleged dump site



Location - 5 Open well near the PHC, Ishwaramangala Panchayat

These water samples and the soil samples collected within the cashew plantation and outside M/s.PCK Ltd., were subsequently submitted to the Regional Laboratory at CPCB RD Bengaluru for a comprehensive analysis aimed at identifying and quantifying traces of pesticides particularly Endosulfan. The analysis results are expected within two to three weeks.

2.3 Medical Experts' Insights: Assessing Post-Facto Effects and Groundwater Contamination in Kasaragod District of Kerala and Dakshin Kannada District of Karnataka.

The CPCB team visited the Public Health Centre (PHC) located at **Ishwaramangala, Karnataka** and Bellur in Kerala which are located at about 10 KM and about 5 KM respectively from cashew plantation of M/s. PCK Ltd., for obtaining the opinion of medical experts on the post-facto effects of aerial spraying of pesticides by the human habitation around the plantation area due to suspected ground water contamination.

A. Visit to Public Health Centre (PHC) located at Ishwaramangala, Karnataka

Following officials were present and the visited team held discussions with the PHC, Ishwaramangala, Karnataka.

- a. Dr. Deepak Rai, Taluk HO, Puttur Taluk, Govt. of Karnataka
- b. Sh. Sajivuddin, District Co-ordinator for Endosulfan, H& FW, Govt. of Karnataka
- c. Dr. Nikhil, Medical Officer – PHC Ishwaramangala, Karnataka.
- d. Dr. Jyothi Mol, Assistant Surgeon, FHC, Bellur, Kerala

As per the oral information provided by Dr. Deepak Rai, Taluk Health Officer, Puttur Taluk Health Office, Government of Karnataka to the visited team, Endosulfan used to be sprayed aerially and ground spray by Cashew Board during early 1980's to 2000 at the

cashew plantation located in Dakshin Kannada, Uttar Kannada and Udupi Districts of Karnataka as well as in Kasaragod district of Kerala. Puttur District, Karnataka which consisted of 12 Grama Panchayats, it was mentioned that about 2547 Ha of land used to be aerial spray and 476 Ha of land was ground spray of Endosulfan. As per the data submitted by

Sh. Sajivuddin, District Co-ordinator for Endosulfan, Health & Family Welfare, Dakshin Kannada, Govt. of Karnataka to the CPCB visited team, persons identified with specific illness in endosulfan sprayed areas of Dakshin Kannada up to October 2023, about 4728 people were identified as victims in which 364 expired.

Details are given in the table below:

Sl. No.	Taluk	Total Identified Beneficiaries	<60% Disability		<25% Disability (Considered only for treatment)	Death
			Eligible for stipend			
			₹ 2000/-	₹ 4000/-		
1	Bantwal	496	105	271	92	28
2	Belthangady	1625	363	932	184	146
3	Mangaluru	394	70	289	2	33
4	Puttur	1867	371	1123	240	133
5	Sulia	346	48	242	32	24
Total		4728	957	2857	550	364



Dr. Deepak Rai, Taluk Health Officer, Puttur Taluk Health Office, Government of Karnataka informed that in the year 2012, health camps were organised to identify the victims with specific disabilities related to exposure of Endosulfan. The symptoms like cerebral palsy, eye related issues like acute conjunctivitis and other visual disturbances, Autism, Orthopaedic issues, Psychiatric issues, foetal abnormalities like neoplasms and aneuploidies were the various parameters used for identifying the victims and also the public with disabilities born after 1981 were only considered as victims of endosulfan

exposure. He also informed that only the symptomatic treatment and physiotherapies for bed-ridden victims are provided.

Dr. Nikhil, Medical Officer – PHC Ishwaramangala informed to the visited team that under the PHC, Ishwaramangala 89 patients were identified with specific illness related to Endosulfan usage in the past. He also informed that the PHC facility has been provided with 4 Nos of dedicated mobile vans, which consists of a medical team of 3 officials comprising 1 physiotherapist, 1 staff nurse and 1 attender, who are assigned with the task to provide medical aid for bed-ridden victims. As per the data furnished, 206 victims in Dakshin Kannada District were attended twice in a month by the Endosulfan mobile van team.

As per the information provided by Sh. Sajjivuddin, District Co-ordinator for Endosulfan, Health & Family Welfare, Government of Karnataka, compensation to the victims of Endosulfan is given in compliance to the directions of Hon'ble High Court of Karnataka, based on the degree of disability which is detailed below:

- Disability > 60% - Eligible stipend ₹ 4000 per month/person
- Disability < 60% - Eligible stipend for ₹ 2000 per month/person
- Disability < 25 %- No stipend but free treatment and free medicines required for the symptomatic treatment.

Depending on the severity, their in-patient treatment was facilitated in the nearest empanelled Medical Colleges.

B. Visit to Family Health Centre (FHC) located at Bellur Kerala

Dr. Jyothi Mol, Assistant Surgeon and Medical Officer [Mob: 9447233532] was present and the visited team held discussions with the FHC Bellur Kerala. Dr. Jyothi Mol informed to the visited team that the document generated by Endosulfan Cell Kasaragod has identified the victims based on the congenital problems related to mental and respiratory systems. As per the updated records shown during the visit, 285 persons in Bellur jurisdiction are currently identified as Endosulfan victims, as detailed below;

- For year 2010 – 336 victims were identified in which 88 were deemed dead.
- For year 2017 – 6 victims were identified in which 1 was deemed dead.
- For year 2022 – 45 victims were identified in which 10 were deemed dead.

- Out of the 387 victims, 99 were deemed dead while 1 case was deemed undetectable and 2 victims shifted their residence from the Bellur Panchayat limits

Presently, the Family Health Centre in Bellur facilitates medical treatment of 288 identified victims who are categorised under symptomatic treatment, while victims with severe symptoms are referred to Medical College at Pariyavarm, Kannur located at a distance of 51 km as Kasaragod District doesn't have a Medical College facility.



It was also informed by Dr. Jyothi Mol, that the mobile medical van facility which used to facilitate monthly physiotherapy and other medical aid to the bedridden victims in the Bellur panchayat was available until 2022. Currently, the physiotherapist and staff nurse perform visit monthly once to the bedridden victims at their home to provide medical support with the help of ambulance available at FHC, Bellur, Kerala.

3. Main Observations

Main observations made by CPCB team during the spot inspection of Kasaragod Cashew plantation area of M/s.PCK Ltd., alleged dumping site of used endosulfan barrels, based on interactions made with local public and medical officers of Primary Health Centre at Ishwaramangala in Karnataka and Family Health Centre at Bellur, Kerala are detailed below:

- *M/s PCK Ltd. has informed that aerial spraying of endosulfan was carried out from 1983 after obtaining statutory sanction and same continued till 2000-2001 cashew*

season and after cashew season 2000-2001, M/s PCK Ltd reported to be not used endosulfan in any of its plantation in the State of Kerala. Physically, no odours of pesticides were felt by the visited CPCB team during the visit to Kasaragod Plantation area of M/s.PCK Ltd., As informed no alternatives for preventing pest attack was explored by M/s PCK Lt.

- *As per M/s PCK Ltd., usage of endosulfan by aerial spraying at the rate of 750 mL/Ha over cashew plantation area of 2060 Ha out of 4000 Ha [Crops grown are Cashew and Rubbers over whole area] could have generated 278 number of barrels approximately [Capacity of each barrel :200 L and 2 rounds of aerial spray/annum]. However, the officials of M/s PCK Ltd. could able to show only 20 barrels stored in a locked room of Division store of Adhur Estate. No accountability of 258 used endosulfan barrels or proof of documentary evidence was furnished by M/s. PCK Ltd.,*
- *Based on the information provided by M/s PCK Ltd. officials with regard to the annual average consumption of endosulfan was stated to be about 3198 L/annum for the Kasaragod Cashew plantation of M/s. PCK Ltd., Considering this, total consumption of endosulfan during the period 1983-2001 is estimated about 57.56 KL.*
- *As per M/s PCK Ltd. officials, 5 out of 32 open wells were closed due to administrative reasons while as per the local public unscientific dumping of used endosulfan barrels was carried out in the past by M/s. PCK Ltd in these wells. Since no documentary evidence was furnished by the officials regarding safe disposal of used endosulfan barrels in accordance with the prevailing provisions, chances of dumping of the barrels into the open wells and closing these wells as informed by the local public during the site visit of CPCB team, cannot be ignored.*
- *Moreover, M/s. PCK Ltd., is not monitoring and reporting the relevant water quality parameters of 27 open wells which are located within the Kasaragod Cashew Plantation of M/s. PCK Ltd., so as to know the present status of Endosulfan contamination, if any. Also, no details are available with M/s. PCK Ltd., with regard to the ground water movement to arrive at possible direction and extent of ground water contamination if any.*

- *Due to banning of endosulfan usage in Kerala State, as per inventory stock of unused endosulfan as informed by M/s. PCK Ltd., is at Kasaragod Estate [700 L], Rajapuram Estate [450 L], Cheemeni Estate [10 kg in solid state] and Mannarghat estate [304 L]. These stocks are presently stored and under the lock and key of District Administration (first three stock of unused endosulfan under the custody of Kasaragod District Administration and the fourth estate stock is under the control of Palakkad District Administration). Same not been disposed of through authorised hazardous waste incinerator.*
- *As informed by the Dakshin Kannada Health Department officials, endosulfan also was used in Cashew plantations located in Dakshin Kannada, Uttar Kannada and Udupi Districts. However, the District Coordinator for Endosulfan, H&FW Department officials could not able to provide any details of the ultimate disposal of used Endosulfan barrels and unused stockpiles of Endosulfan, if any in Karnataka State. Dakshin Kannada Health Department official and Co-ordinator for Endosulfan did not provided information pertaining to endosulfan victims in Udupi and Uttara Kannada districts despite having data.*
- *As per Kerala SPCB and DMO (Health), there are about 6600 endosulfan victims spread across 45 Local Self Governments (LSGs) in Kasaragod District, Kerala.*
- *As per local public, unused endosulfan and used endosulfan barrels were stated to be dumped in an open well having depth about 70 feet. During the visit. the visited team collected soil sample only at 1 feet depth from the closed open well as sampling of soils at or more than 70 feet requires mechanical drilling equipment. However, assessment of soil quality of 5 open wells closed by M/s. PCK Ltd., yet to be ascertained to know the actual environmental damage due to historical use of Endosulfan or illegal dumping of used endosulfan barrels.*
- *As per local public, during the period 1986-2001, alerts or caution used to be given by M/s. PCK Ltd., prior to aerial spray of endosulfan in the plantation in the form of mike announcement and sirens. However, during the visit it was observed that no air pollution control barriers were present around the peripherals of cashew plantation area, which could have avoided interaction of endosulfan aerosol entering the local population during the period of spray of endosulfan in the cashew*

plantation. Neither provision of peripheral drainage system provided to collect the run-off due to storm water.

4 Recommendations

- *M/s PCK Ltd shall be directed to carry out soil and water quality within in the cashew plantation area for parameters such as pesticides and other relevant parameters and archives the records. The soil analysis shall be performed twice in a year [post and pre flowering season] and the water quality of existing open wells [27 nos.] shall be performed on monthly basis for relevant parameters including pesticides. The analysis report shall also be submitted to Kerala State Pollution Control Board for review.*
- *All five number of closed open wells located within the premises of M/s. PCK Ltd., Kasaragod district needs to be assessed for the presence of residual endosulfan or contaminants at least up to a depth of 80 to 100 feet through drilling, under the supervision of the Committee to be constituted comprising representatives of concerned departments/organisations of State Government of Kerala, Karnataka, Central Ministries and Expert Institutions (such as Pollution Control Boards of Kerala and Karnataka, Health Departments from Govt. of Kerala and Govt. of Karnataka, Central Ministries such as Agriculture, Chemical & Fertilizer Ministries and expert organisations like ICMR, ICAR, CGWD and NGRI) to ascertain the damages to the environment, with Kerala SPCB as nodal agency and with financial support from Govt. of Kerala. If any contamination found, Environmental Compensation (EC) may be estimated for damage caused to the environment due to improper disposal of endosulfan/used endosulfan barrels by M/s. PCK Ltd., The same may be levied and recovered from M/s. PCK Ltd., Kerala.*
- *If any contamination is observed, action need to be taken for digging, lifting, transportation and safe disposal of contaminants through a common hazardous waste TSDF which is operational in Kerala State, following the provisions of the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 under the overall supervision of expert committee to be constituted by Hon 'ble NGT. Cost towards disposal of contaminated barrels or contaminants from contaminated sites may be borne by M/s PCK Ltd.*

- *M/s PCK Ltd as well as concerned department/Cashew Board of Karnataka shall be directed to provide documentary evidences regarding safe disposal of used endosulfan barrels in the past. Inventory of unused stocks of Endosulfan shall be directed to report by both the States-Karnataka and Kerala. Existing stock piles of unused endosulfan both in Kerala and Karnataka shall be disposed off through an authorized common hazardous waste incinerator which is operational in the respective States, under the overall supervision of the expert committee. The cost of incineration may be borne by the respective State/custodians of stock pile of endosulfan.*
- *Govt. of Kerala and Govt. of Karnataka shall ensure that the identified endosulfan victims are supported with compensation/stipend in compliance to the directions of Hon'ble Supreme Court and Hon'ble High Courts of Karnataka and Kerala as the case may be.*

5. Conclusion

- ❖ *CPCB collected two soil samples and two ground water samples from open well s located within the M/s. PCK Ltd. Cashew plantation area and one ground water sample from the open well located close to the Ishwaramangala Panchayat of Karnataka. The samples are deposited in CPCB Regional Directorate Laboratory Bengaluru for analysis of pesticides and general parameter. The analysis report shall be submitted before Hon'ble NGT (SZ), Chennai within a time period of three weeks.*
- ❖ *To ascertain the latest environmental damages due to historical Endosulfan usage, illegal dumping of wastes in the problematic area under reference in the matter, to devise remedial action plans and environmentally sound disposal of the unused Endosulfan stock and to supervise execution of the remedial plans, an expert committee may be constituted by Hon'ble NGT with Kerala SPCB as nodal agency.*



J. Chandra Babu
01/01/2024

(J.Chandra Babu)
Scientist E'
CPCB, Bengaluru

Item No.08:

**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: 20.12.2023.

CORAM:

HON'BLE Smt. JUSTICE PUSHPA SATHYANARAYANA, JUDICIAL MEMBER

HON'BLE Dr. SATYAGOPAL KORLAPATI, EXPERT MEMBER

For Applicant(s): Mr. Abhimanue Shrestha.

For Respondent(s): Mr. Thirunavukarasu for R2.
 Mr. G. Vignesh represented
 Mr. E.K. Kumaresan for R3.
 Mr. Rajat Jonathan Shaw represented
 Mr. K.M. Darpan for R4.
 Mrs. Rema Smrithi for R5.
 Mr. Mukesh Kumar for R6.

ORDER

1. Let notice be issued to Respondents No. 1 to 6 through the Tribunal as well as privately for the time being.
2. The learned counsel Mr. Thirunavukarasu accepts notice on behalf of the Respondent No.2, Mr. G. Vignesh representing Mr. E.K. Kumaresan accepts notice on behalf of the Respondent No.3, Mr. Rajat Jonathan Shaw representing Mr. K.M. Darpan accepts notice on behalf of the Respondent No.4, Mrs. Rema Smrithi accepts notice on behalf of the Respondent No.5 and Mr. Mukesh Kumar accepts notice on behalf of the Respondent No.6.
3. The authorities are directed to file their appropriate reports after making a spot inspection.
4. Post the matter on 02.01.2024.

Sd/-
Smt. Justice Pushpa Sathyanarayana, JM

Sd/-
Dr. Satyagopal Korlapati, EM

O.A. No.186/2023(SZ)
20th December, 2023. AD.

THE PLANTATION CORPORATION OF KERALA LTD

(An ISO 9001:2015 Certified Company under Government of Kerala)
Registered Office: KOTTAYAM-686 004
CIN:U01119KL1962SGC001997

☎ 0481.2578301-04, 2578306 (MD) Fax:0481.2575133 (MD) Web:www.pcklimited.in E-mail:pckltd@bsnl.in, mdpckltd@gmail.com



PRO/F- 3976

26.12.2023

The Regional Director,
Central Pollution Control Board,
Regional Directorate,
Nisarga Bhawan,
1st Floor, Thimmaiah Road,
7th D-Cross, Shivanagar,
Bengaluru-560079

Sir,

Sub:- Spot Inspection in compliance to the Hon'ble National Green Tribunal(NGT) order dt.20.12.2023 in the matter of OA No.186 of 2023- Reg.

Ref:- Your e-mail dt.25.12.2023

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Regarding the above said matter, we hereby submit following for favour of perusal:

P.C.K.Ltd. is having cashew plantations at Kasaragod District, which is having an extent of about 4000 Ha. of land. There are also large private cashew plantations in the area. The Cashew Plantations suffers from attack of peculiar bug namely tea mosquito bug. Because of the attack of the said pest, there used to be large loss of cashew crop in the cashew plantation. When this became an annual phenomenon and the conventional preventive methods failed, the Management of the P.C.K.Ltd. was constrained to request for expert opinion and advice from the Central Plantation Crops Research Institute (A Central Govt. Institution) and from the Kerala Agricultural University. The expert bodies as aforesaid including the Central Government owned Central Plantation Crops Research Institute, Kasaragod had recommended to the P.C.K.Ltd. for aerial spraying of Endosulphan as an effective method for controlling the pests. The National Centre for Research Puthur, Karnataka, which is also a Central Govt. undertaking has informed vide letter dated 29.10.1988 to the Directorate of Cashew Development, Cochin, that, pest control is one of the most important package of practices recommended for increasing the production of cashew in the country.

Hence it is informed that the decision to use of Endosulphan as an aerial spray was not that of the P.C.K.Ltd alone, but strictly as advised by the authorities mentioned above. It is brought to the notice that apart from the Plantation Corporation of Kerala Ltd. all the major plantation in the area including Plantation of Karnataka State Govt. has resorted to aerial spraying of pesticides and Endosulphan as a measure to control the tea mosquito bug.

As such aerial spraying was conducted from 1983 after obtaining statutory sanction from the District Administration and continued upto 2000-2001 cashew season. After 2000-2001 cashew season, the PCK Ltd. has not used any endosulfan in any of its plantation for aerial spraying. Endosulfan was formally banned in the State of Kerala by the Central Govt. only on 31.10.2006 as per gazette notification No.SO187E of the Ministry of Agriculture, Union of India. After 2000-2001 season, PCK was not able to use the entire endosulfan purchased for spraying due to the public resistance. Further to that the unused endosulfan was jointly sealed by both PCK and Pollution Control Board and kept in PCK Estate godown.

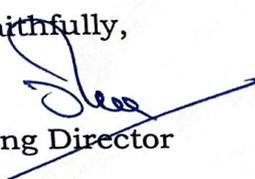
Please note that we have stocks of endosulfan in Kasargod Estate(700 Lt.), Rajapuram Estate(450 Lt.), Cheemeni Estate(10 Kg. in solid state) and Mannargaht Estate(304 Lt.). The first three estates are in Kasargode District and the last estate is in Palakkad District.

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.

Thanking You,

Yours faithfully,


Managing Director


12/12