

BEFORE THE HONOURABLE NATIONAL
GREEN TRIBUNAL
SOUTH ZONE, CHENNAI

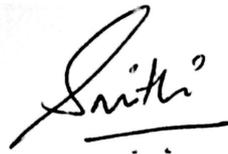
Original Application No.143 of 2020 (SZ)

Applicant : K.K. Muhammed Iqbal

Vs

Respondents : The Kerala State Pollution Control Board &
Others

REPORT FILED BY THE CHIEF ENVIRONMENTAL ENGINEER
FOR AND ON BEHALF OF THE KERALA STATE POLLUTION
CONTROL BOARD



Standing counsel for the 1st respondent

Rema Smrithi. V. K., Advocate
Additional Standing Counsel, National
Green Tribunal, (SZ), CHENNAI

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Dated this the 17th day of October, 2023.

Rema Smrithi. V. K., Advocate

Standing Counsel for the 1st Respondent

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I, Baburajan P K, aged 53 years, working as Chief Environmental Engineer, Regional Office, Kerala State Pollution Control Board, Ernakulam. I am competent to and duly authorized to represent the 1st Respondent in the above application. I know the facts and circumstances of the case. The factual submissions made here under are true and correct to the best of my knowledge, information and belief. In these circumstances, it is just and necessary that this Hon'ble Tribunal may be pleased to accept the accompanying information on file and it is so humbly prayed in the interests of justice in this case.

1) It is respectfully submitted that the Central Pollution Control Board (CPCB) under Ministry of Environment, Forest and Climate Change (MOEF & CC), Government of India had been entrusted as the implementing agency for the projects which comprises remediation of 12




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priority hazardous waste contaminated areas spread across the country. The hazardous sites which pose risks to human health and the environment were selected to be remediated as part of this initiative. Such an identified site is the Eloor- KuzhikandomThodu at Eloor and Edayattuchaal and Chakkarachaal paddy fields at Edayar in Ernakulam District. The remediation projects of above two contaminated sites were taken up under National Clean Energy Fund (NCEF) project initiated by MoEF& CC with support from the State Pollution Control Boards. The funding pattern under NCEF was limited to 40% of the total project cost and the remaining 60% to be borne by the State Governments through polluter pays principle/Public-Private Partnership/State share etc. Being an implementing agency of the project, the Central Pollution Control Board, Delhi invited proposals from the consultants for the preparation of Detailed Project Report for the Remediation of contaminated sites. The CPCB had entrusted M/S ERM India Pvt Ltd for preparation of Detailed Project Report (DPR). The DPR prepared by the consultant M/s ERM India Pvt Ltd after conducting sampling, analysis of surface water, ground water, sediments and soil of the affected areas was submitted to CPCB. The prepared DPR consists of two phases, phase 1- Eloor-Kuzhikandamthodu and Phase-2, Edayar-Chakkarachaal and Edayattuchaal. Edayar site (Edayattuchaal, Chakkarachaal) is found to be contaminated with heavy metals due to the operation of M/s Edayar Zinc (formerly M/s Binani Zinc). Though the project of remediation was started with fund sharing by State Govt and Central Govt in 60:40 ratio under NCEF scheme, the Central govt thereafter informed that the NCEF was discontinued in the year 2017. Therefore, the CPCB approved DPR of Eloor-Edayar was handed over to the state Govt for implementation in the year 2019. Now, the whole fund for remediation was to be raised by the State Govt. As per the DPR, total project cost for remediation of contaminated sites at Edayar is 47.88 Cr. The remediation works with respect to Edayar- Edayattuchaal, Chakkarachaal is not started till date except its DPR preparation.

2) The action already taken towards the remediation of Edayar - Edayattuchal and Chakkarachal are illustrated as follows:

i. Action taken to collect the money from industry for the remediation

The unit M/s. Edayar Zinc Ltd. (formerly M/s. Binani Zinc Limited) situated at Binanipuram, Kadungalloor Village, Paravur Taluk in Ernakulam District was a Zinc smelting unit where the Zinc concentrates (ores that contain Zinc) are converted into pure Zinc. The main processes include Roasting, Leaching, electrolysis etc. The company was having Board's Consent to Operate with validity up to 30.06.2015. The industry closed all of a sudden in the year 2014 due to financial crisis. The industry was attached by Punjab National Bank (PNB) and kept under




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their custody for auction. The industry had closed down the unit without utilizing their complete raw materials and thus left behind huge quantities of chemicals which included raw materials, intermediates etc. Some chemicals and acidic solutions (Zinc Sulphate) were stored in storage tanks at the bank of river Periyar. The storage tanks were on the verge of collapse and were found leaking. It came to the notice of Board that the acidic solution was leaking and reaching river Periyar through storm water drains. If the tanks were to collapse, the entire acidic solution would have reached river and resulted in high environmental hazard. The Board immediately on noticing this, issued several directions to the industry to remove the chemicals from their premises. Since the industry was attached by Punjab National Bank, Board also informed the bank about the removal of chemicals from the industry. Even after repeated directions of the Board, the company and Bank did not take any action for removal of chemicals. In view of the seriousness of the situation, and in order to protect the river and environment from a disaster, the Board initiated action as per the Section 32 of The Water (Prevention and Control of Pollution) Act, 1974, for the removal of chemicals by auctioning the chemicals for other industrial reuse purposes. The Board called tender for auction of chemicals and removed about 5000 MT of acidic Zinc Sulphate solution stored inside storage tanks of M/s Edayar Zinc and thus prevented the spillage of acidic solutions to Periyar River. The Board also informed the industry and the Punjab National Bank about the liability of 47.88 Cr towards the remediation of the mentioned site which was contaminated by the industry. But, the industry or Punjab National Bank had not replied to the Board's letter till date. As per the polluter pays principle, the unit is liable to pay compensation towards the remediation expenses. The Board had also informed District Collector, Ernakulam to include the amount of Rs. 47.88 Cr. as liability of industry for revenue recovery. But the District collector informed the Board to submit the liability amount in revenue recovery website of state Govt. Accordingly Board had initiated steps to bring the Pollution Control Board under the revenue recovery process. It was informed from the office of the Land Revenue Commissioner that the Board is to be notified under Section 71 of the Kerala Revenue Recovery Act, 1968 so as to include the Board in the online RR web portal. Board already communicated the above matter to the Environment Department. The procedure for completing this notification is underway. Since the remediation needs adequate fund, the board shall take necessary follow up actions to mobilize fund.

ii) Action taken for the utilization of Jarosite

M/s Edayar Zinc Limited was involved in the manufacture of high grade electrolytic zinc including zinc ingots, alloy and by-product including Sulphuric acid and Cadmium metals.




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Jarosite is the process waste generated during the leaching and purification process of Zinc smelter. The jarosite mainly contains iron, sulphur, zinc, calcium, lead, cadmium and aluminium. The Jarosite was stored inside the secured land fill (Jarosite ponds) designed as per guidelines. Public complaints are existing against the leaching of the Jarosite from the SLF. As per the Hazardous and other Wastes (Management Transboundary Movement) Rules, 2016, "The high volume low effect wastes such as fly ash, Phosphogypsum, red mud, jarosite, Slags from pyrometallurgical operations, mine tailings and ore beneficiation rejects are excluded from the category of hazardous wastes". As per the rule, Separate guidelines on the management of these wastes shall be issued by Central Pollution Control Board". Hence, as per the rule, the Jarosite has been exempted from the Hazardous waste category and CPCB have to publish separate guidelines for the utilization of the Jarosite. Board can take necessary action to shift the Jarosite from ponds only based on the guidelines of the CPCB. It is pertinent to note that the CPCB had constituted a committee for preparation of guidelines for handling and management of Jarosite. The committee had inspected the Edayar Zinc factory on 19th November 2019 and collected samples of Jarosite. It may be noted that the CPCB have not published the guidelines till date. Once the guidelines are published by the CPCB, the Board will initiate action to utilize the Jarosite based on the guidelines.

3) The company had filed a counter affidavit denying the allegations made against them explaining that there are other industries also which were functioning along that area and contributed to such pollution load. They had made further contentions that nature of the heavy metals found in the contaminated soil is not a constituent containing in the waste that is being generated in the process of the company and as such they cannot be directed to pay the amount towards remediation process. In response to the counter affidavit filed by the company, the Hon'ble NGT by the order dated 13.04.2021 constituted a committee comprising a Senior Officer from CPCB, KSPCB, and Scientist from Kerala Agricultural University and Senior Soil conservation officer, Department of Soil Survey and Soil Conservation to look into the following matters.

- a. Whether the activities of respondent company had contributed for the contamination of soil in the nearby agricultural lands
- b. Whether the respondent company were complying with conditions imposed by the regulators in their consent/clearance granted




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c. Whether the industrial waste that was being generated during their manufacturing process have been dealt with scientifically as per the respective rules dealing with the hazardous substance disposals.

d. Whether any of the past activities of respondent company still continues, which results in continues pollution causing contamination of that area and if that be the case what is the extend of the contamination caused on account of contribution if any, made by the activities of respondents what is the nature of remediation of action to be taken up for the purpose of remedying the situation in that area and what is the quantum of compensation that has to be realised from the person responsible for such contribution by taking into account of the nature of violation committed by them and polluted activity that has been produced on account of their operational methods in running the industry.

The first meeting of the committee was held on 22.11.2021 and the following decisions were taken in the meeting.

a. Conduct a physical meeting (second meeting of the committee) and joint inspection in the company premises and alleged areas.

b. KSPCB shall present the details with respect to the points 2,3 & 4 directions of the Hon'ble NGT order mentioned above.

c. CPCB shall coordinate with M/s. ERM (India) Private Limited to make arrangements for the presentation of DPR and the study details.

4) The second meeting and joint inspection of the Committee in the company premises and alleged areas was done on 24.06.2022. Intimation was given to the polluting companies about the meeting of the committee, as committee members were directed to allow the participation of alleged polluting companies during the meeting and inspections as directed by the Hon'ble Tribunal in its order dated 13.04.2021. But the company representatives informed their inconvenience for attending the meeting. The Chief Environmental Engineer therefore requested the company to submit their representation in writing, if any, to the committee.

The representative of M/s.ERM (India) Private Limited conducted a detailed presentation of the DPR prepared for the remediation of Edayattuchal-Chakarachal before the Committee on 24.06.2022. The presentation covered the overview of the project, introduction to the study area and subject sites, reconnaissance and preliminary assessment, preliminary investigation of the contaminated site and development of conceptual plans and sampling protocols, detailed site




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characterization, detailed site investigation and Tier 1 Risk Assessment, Tier 2 risk assessment, Human health Risk assessment, remedial action plan etc. After detailed discussions and deliberations, the Committee members visited the Edayattuchal, Chakarachal, Binani School ground and the premises of M/s. Binani Zinc Lted (presently Edayar Zinc Ltd), including the capped and uncapped jarosite pond areas. Samples of soil, drain water and well water from the accessible locations were also collected, as detailed below and handed over to the Central laboratory of the Board for analysis.

- i. Binani School Ground (Middle) : Soil
- ii. Binani School Ground (Southside) : Soil
- iii. Binani School Ground : Water
- iv. Open well near school ground : Surface Water
- v. Kuthuthodu Starting point : Water
- vi. Thodu near Glastec industries : Water

During the visit, it was observed that most of the Edayattuchal and Chakarachal area was water logged and in submerged condition, making it impossible to access the areas, which were earlier demarcated as having higher levels of contamination. Further it was decided that the results of the samples taken during the visit and other historical data available with the present owners of the unit shall be considered for further preparation of the report. It was also proposed to do further sampling and analysis after the recession of the monsoon as the area reported by the CPCB as contaminated is now waterlogged and not easily accessible.

5) The third meeting of the committee was held on 25.10.2022 to discuss the analysis report of the samples taken by the committee during the last site visit conducted on 24.06.2022. As per the analysis report of the soil sample collected from the middle of the Binani School ground, zinc concentration obtained is 1110 mg/kg against 720 mg/kg, the response level prescribed for remediation, sample collected from the south east side of the ground is 557 mg/kg, which is below the response level, but above the screening level of 200 mg/kg. In the nearest open well, zinc concentration obtained is 322.6mg/l against the permissible limit of 5 mg/l. The analysis reports reveal the possibility of leakage from the pond no.4 of the unit, which is reported to be scientifically designed as per the CPCB guidelines. After the discussion, the following decisions were taken by the committee.




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- a. KSPCB shall share the analysis reports of the samples collected during the last visit to all the committee members.
- b. Health data within 2-3 km radius shall be collected from the Primary Health Centre Random sampling shall be done from the wells already monitored during the preparation of DPR.
- c. Jarosite sample from the pond no.4 (composite sample) shall be collected and analysed with prior intimation to the company.
- d. Location of the pond no.1,2,3 and the monitoring wells inside the company shall be identified with the help of company authorities.
- e. An interim report shall be submitted to the tribunal before the next date of hearing.

In compliance with the decisions taken during the meeting, jarosite samples from the pond no.4 of the unit and water samples from 10 no. of randomly chosen wells were collected and analysed.

6) The fourth meeting of the committee was held on 27.06.2023 and discussed the analysis reports of the samples collected from the jarosite pond, well water and the main contents of the counter affidavit filed by the respondent company. The analysis reports of the water samples taken from the wells situated within 2km radius of the company showed that the water quality is not much affected except for the wells situated near to the jarosite pond. The main contention of the respondent company as per the counter affidavit is that *“As per the Environment Impact Assessment Report prepared by Local Area Environmental Committee (LAEC), the heavy metals found in groundwater, soil and sediment samples from Edayattuchal and Chakkarachal area in Edayar is Zinc, Iron, Lead, Cadmium, Copper, Nickel and Total Chromium. The analysis of sludge from the jarosite pond of this respondent company made by LAEC found only the presence of Zinc, Iron, Lead, Cadmium, Copper and Nickel. The presence of total Chromium in the ground water, soil and sediment samples of Edayattuchal, which was found absent in our sludge shows that there are other sources for contamination of the paddy fields. The analysis made by LAEC on the soil and sludge accumulated on the CMRL land near to the river on the upstream of ChakalaThodu, a canal leading to Edayattuchal from the river Periyar, found with presence of heavy metals like Zinc, Iron, Lead, Cadmium, Nickel, Total Chromium and Manganese. The sludge of SudChemie was also found with Total Chromium, Zinc, Lead, Copper, Nickel and Manganese. The sludge from two units of Merchem found with Zinc, Iron, Lead, Cadmium, Nickel and Total Chromium. The sludge from the 3 leather tanning units*




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located in Edayar area was containing with Zinc, Iron, Lead, Cadmium, Copper, Nickel and Total Chromium. Therefore, it can be seen that there are multiple source for the contaminant heavy metals found present in the groundwater soil and sediment of Edayar sites, as per the LAEC report which made the genesis for DPR and remediation projection.”

The committee, while verifying the LAEC report annexed with the counter affidavit filed by the respondent company, observed that total chromium was not analysed in the jarosite samples and only zinc, iron, lead, mercury, cadmium, copper and nickel were analysed in the report. As per the recent analysis of the jarosite sample done by the Kerala State Pollution Control Board, based on the direction of the Committee, the presence of Total Chromium was also found and the concentration reported is 45.35 mg/l against the permissible limit of 5 mg/l. The other parameters such as Manganese, lead, copper and cadmium values also showed exceedance of the values specified in the HWM Rules, 2016. Thus the claim of the company that *“the presence of total Chromium in the ground water, soil and sediment samples of Edayattuchal, which was found absent in our sludge shows that there are other sources for contamination of the paddy fields”* is not acceptable. Also the committee opined that even though CMRL, SudChemie, TMS Leather is still working, only a small quantity of waste is generated when compared to the waste generated by M/s. Binani Zinc and there is only remote chance for these heavy metals to reach Edayattuchal through ChakalaThodu since these units are located in the banks of Periyar river. As the presence of heavy metals were already found in the analysis report of the soil sample collected from the Binani School ground and water samples from the nearest well, there is no relevance to the claim of the respondent company and the cost required for the remediation has to be borne by the respondent company.

7) It was already submitted that in the order of the Hon’ble National Green Tribunal in the matter I.A 99/2022 in O.A No. 143/2020 (SZ) dated 15/02/2023, CPCB and SPCB were directed to consider the applicant’s (Harish Kandhari) technology for using the Jarosite waste to optimum use and also work out the cost component of the same and also directed to file independent report before the Hon’ble Tribunal after consulting with the experts. In compliance with the above order, the CPCB constituted an expert committee and its first meeting was held on 21/03/2023. In compliance with the decision taken during the meeting, the Board issued a letter on 06.05.2023 to the applicant requesting to furnish the proposal that outlines the process in detail, list of prospective utilizers, list of industrial waste proposed for mixing, source and quantity of spent acid required, guarantee on acceptance of the finished product by the cement




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plants, quality requirements of the products intended to be derived by the utilizers and break-up of the cost of technology.

It was also submitted that the proponent requested to send 100 Kilograms of Jarosite samples in order to prepare around 75 kg of low moisture dry Gypsum at Udaipur and to send it to Kerala SPCB under information to Bengaluru CPCB for joint collaboration testing and product validation support. However since a trial run was requested to be carried out as per the provision of Rule 9 of Hazardous and other wastes (Management and Trans boundary Movement) (HOWM) Rules, 2016, Board sent letters on 06.05.2023 and 14.06.2023 to CPCB for advice on whether the applicant may be directed to collect samples. In reply to the above letters, CPCB informed that the KSPCB may consider allowing the applicant to lift about 100 kg of jarosite from the premises of erstwhile Binani Zinc Limited for the purpose of conducting research. It was also directed to the Board to collect the details of studies conducted by the applicant. Based on that, the Board issued a letter to the applicant on 07.07.2023 allowing lifting 100kg of jarosite from the premises of Binani Zinc Limited with the support of KSPCB.

In reply to the above communication, the applicant sent an email to the Central and State Boards stating the following that:

- i. KSPCB has not mentioned where the prepared jarosite gypsum sample should be sent and who would thereafter get it tested from Cement Factories of TN, AP & Karnataka because Kerala has only one functional cement plant.
- ii. The applicant is required to carry out above described exercise, then he will have to visit at least 8 - 10 cement plants of these states, explain personally to their technical / QC officers about its testing methods & processes, resend improved sample if asked for with certain changes and finally receive their product validation reports & willingness consents for field trials in their plants through truck loads bulk supply of said Binani Zinc jarosite converted chemical gypsum produced within EZL premises.
- iii. As it would be a long drawn three months process, a part disbursement out of Rs. 2 crore DPR & validation trials Grant from - Govt. / MoEF / CPCB sanction is essential and requested to be approved/disbursed for conducting above described product validation services/job, based on which DPR preparation & bulk jarosite conversion operations could thereafter proceed further under information & directions of Hon'ble NGT, Chennai.




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It is submitted that as the Board has sought advice from the CPCB on the demands raised by the applicant and further action will be taken as per the advice of the CPCB.

It will be essential to assess the feasibility of the proposal for utilisation of the Jarosite stored within the industry premises, after the proposed trial run study, to decide upon the remediation aspects. Meanwhile, as proposed, further sampling of sediment/soil and the crops/plant shall be conducted from the Edayattuchal/Chakkarachal paddy fields to verify the present status, requirement of remediation and the cultivability of the soil.

All that is stated above are true to the best of my knowledge information and belief.

Dated this the 17th day of October, 2023.




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Chief Environmental Engineer

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