

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

IN

ORIGINAL APPLICATION NO. 514 of 2019(PB)

RENUMBERED AS OA 77 of 2021 (SZ)

And

ORIGINAL APPLICATION No. OA 442/2013(SZ)

And

ORIGINAL APPLICATION No. OA 20/2017(SZ)

And

ORIGINAL APPLICATION No. OA 276/2017(SZ)

VOLUME 2

Index

Sl.No.	Description	Pages
1	Annexure 1- Copy of the report to SLMC Chairman dated 26.02.2021	1-6
2	Annexure 2- Copy of the report to SLMC Chairman dated 07.03.2021	7-21
3	Annexure 3- Copy of the letter dated 02.11.2020 by the Corporation	22-32
4	Annexure 4- Copy of the Analysis report on the samples collected on 22.09.2020	33-35
5	Annexure 5- Copy of the checklist with scoring pattern	36
6	Annexure 6- Copy of the Photographs of some of the centralized facilities	37-38
7	Annexure 7- Copy of the direction asking to remit EC dated 13.01.2021	39-44
8	Annexure 8- Copy of the direction issued to Aluva dated 17.02.2021	45-47
9	Annexure 9- Copy of the direction issued to Thripunithura dated 08.02.2021	48-50
10	Annexure 10- Copy of the Show Cause notice dated 16.03.2021	51-67

Dated this the 30th day of March 2021

Rema Smrithi, Advocate
ADDITIONAL STANDING COUNSEL FOR THE RESPONDENT



KERALA STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE, GANDHI NAGAR, ERNAKULAM – 682 020

www.keralapcb.org

PCB/RO-EKM/GEN-258/19

Date: 26.02.2021

From

The Chief Environmental Engineer

To

The Chairman

State Level Monitoring Committee(NGT)

Sub:- Report on the present status of Solid Waste Management facility by Kochi Corporation-Reg.

Respected Sir,

Your kind attention is invited to an inspection conducted along with official from Environmental monitoring cell, Government secretariat, Thiruvananthapuram at the Solid waste dumping yard of Kochi Corporation at Brahmapuram on 09.02.2021. This was done as a follow up on the actions already initiated to verify whether any advancement is there with respect to effective solid waste management.

During inspection certain observations were made. These observations in addition to the earlier findings are illustrated as follows.

1. It was noticed that fresh biodegradable waste received in the plant are not properly segregated and disposed as such even though the records were kept viz. separate log books for biodegradable and non biodegradable wastes. The sheds provided for windrow composting is in a dilapidated stage. The wastes were seen dumped in the open yard too. There is every chance of heavy leachate flow during rainy season for which proper collection facility is not seen provided.
2. It is highly required that all the CCTV cameras installed shall be connected to SPCB so that our surveillance team will be able to close watch all day to day operations of this solid waste management facility and necessary follow up

actions could be initiated. Though this was discussed during SLMC meeting, was not effected till date.

3. No actions are taken to install proper Effluent Treatment facilities at the site where as the Environmental Engineer, who is in charge of the day to day operations of this facility reported that leachate is being transferred to nearby common septage treatment facility. It is to be noted that there was an adverse remark from Principal bench of Hon'ble NGT on the feasibility of leachate transfer to a septage plant for treatment.

4. It is once again regretted to note that the drains provided are found to be damaged as if these were found during earlier occasions with settled slurry from different yards and primary bio degradable dumping area. Though they have reported that drain works around the facility are completed, the drains were found to be open and still not completed. There is every chance of mixing of storm water with this leachate. Hence it can be reiterated that no specific progress were seen in the drain management. Operation and maintenance of the Septage plant also need close verifications as a lot of malfunctioning were noticed during various inspections conducted by the Board officials.

5. It is already identified and reported before the Hon'ble NGT that 8 other local bodies also are transferring wastes to this solid waste management facility and their quantity wise waste transfer details. Updated quantity wise details could not be collected as the registers were not available at the site. A letter was sent to Secretary asking such updated details with proof.

6. Though marginal quantity, it was found during inspection that they are practicing bio mining of legacy waste. It is also informed that they are still selling manure as "city compost" which was analyzed for its fertilizer value and found that the same is not meeting the standards stipulated as per the Solid waste management rules 2016. There were presence of heavy metals also in the manure.

7. Though they are collecting non biodegradable wastes from Corporation area, no processing or transfer facilities are seen provided for non biodegradable wastes especially plastic. Huge heaps were seen there. The shredder installed was also seen kept idle.

8. Sufficient windrows were not observed and they are still dumping fresh biodegradable waste above this legacy waste heaps.

9. Temporary leachate treatment plant was seen kept idle and are seen in a damaged condition. Leachate drains provided are kept open and not at all adequate and hence entire quantity of leachate may not reach in the collection tank.



Photo 1 - Windrow composting shed in dilapidated condition



Photo 2 - Open drain allowing storm water to enter



Photo 3 - Leachate flow inside the shed



Photo 4 - Temporary effluent treatment plant in damaged condition

It may precisely be noted that certain follow up actions are being initiated by the Government/Corporation which are illustrated as follows,

a. Management of Legacy waste

Though the Corporation failed to do biomining as per the commitment, the Government had made certain interventions for the scientific disposal of legacy waste at Brahmapuram. As per G.O(Ms)No.08/2020/DMD dated 05/03/2020 Government have entrusted Kerala State Industrial Development Corporation (KSIDC) to initiate tender procedure for identifying a suitable agency for carrying

out the rehabilitation of Municipal Solid Waste (MSW) dumpsite at Brahmapuram in Ernakulam district after cancelling the tender floated by Kochi Municipal Corporation. Accordingly KSIDC had floated e-tender on 20th March 2020 for identifying a suitable agency for the rehabilitation of MSW dumpsite at Brahmapuram in Ernakulam district. As per G.O(Rt) No.985/2020/LSGD dated 26/05/2020 Government have constituted a Technical Evaluation Committee chaired by Principal Secretary LSG (Urban) Department to evaluate the technical bids received for the project. After completing the tender process, KSIDC has submitted the report to Government for taking further steps through Kochi Municipal Corporation.

b. Management of solid waste

It is noticed that the concessionaire M/s G.J. Eco Power Pvt. Ltd miserably failed to implement the waste to energy project and the Government as per G.O.(Rt.)No.805/2020/LSGD Dated 30.04.2020 had cancelled the approval granted to the project and the Secretary, Kochi Municipal Corporation has been directed to take immediate steps to terminate the Concession Agreement executed with M/s G.J. Eco Power Pvt. Ltd for the implementation of the project. However, from the reports submitted before the Hon'ble Tribunal following observations were made.

a. Government has entrusted the works to KSIDC and they floated e-tender for the project on 24th June 2020.

b. The technical bids received in e- tender portal opened on 16th September 2020 and the two agencies submitted bids for the project were Consortium led by M/s Tholani Clean Energy Pvt. Ltd., Kochi and Consortium led by M/s Zonta Infratech Pvt. Ltd, Bangalore.

c. The technical bids submitted by the two agencies were evaluated by the Bid Evaluation Committee on 07.01.2021.

d. It was found that only one bidder was qualified. The Committee recommended for retendering the work in accordance with Government orders. In case of single bid found qualified for a work, a mandatory second bidding is to be done.

e. Accordingly, the bids have been invited again, however, keeping the least 15 working days as the time framework.

Though they had submitted that the work for WtoE plant would be awarded in February 2021, no further progress is reported till date.

c. Drone mapping details.

To examine the quantity of legacy waste, survey of the area to be biomined is to be conducted and for that Kochi Corporation had requested to NIT Calicut to submit their terms and conditions to conduct the said survey. It is understood that such surveys were conducted during second week of February 2021.

This is for favour of information.

Yours faithfully,

M A BAIJU

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CHIEF ENVIRONMENTAL ENGINEER

Copy to: The Member Secretary, Thiruvananthapuram.



KERALA STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE, GANDHI NAGAR, ERNAKULAM – 682 020

www.keralapcb.nic.in

PCB/RO-EKM/GEN-258/19

Date: 07.03.2021

From

The Chief Environmental Engineer

To

The Chairman

State Level Monitoring Committee(NGT)

Sub:- Report on the present status of Solid Waste Management facility by Kochi Corporation-Reg.

Ref:- 1. Report dated 25.02.2021 submitted before the Chairman, SLMC.
2. Joint inspection conducted on 03.03.2021 by the Chairman, SLMC along with Chief Environmental Engineer, Regional Office, Ernakulam.

Respected Sir,

In continuation to the report vide reference cited (1) above and as per the surprise inspection conducted on 03.03.21 along with your good self I may report the findings as follows,

Still there are no progress in satisfactory management of solid waste at the Solid Waste Management facility provided by the Kochi Corporation at Brahmapuram. During inspection certain observations were made. These observations in addition to the earlier findings are illustrated as follows.

1. Though the Corporation is still collecting solid wastes from other Municipalities also, it was once again noticed that fresh biodegradable waste received in the plant are not in properly segregated form and disposed as such over the legacy waste deposit in the dilapidated windrow sheds. Though several directions were already given directly by the Board and SLMC during different meetings, they are not able to practice spot treatment of such fresh waste at the

plant even after a lag of about 10 years, the date from which the corporation is operating the Brahmapuram yard without a valid authorization as per the MSW Rules 2000 and SWM Rules 2016.

2. The damaged windrow composting sheds is the root cause for the malfunctioning of solid waste management facility as no effective facilities are seen there to process fresh bio degradable wastes collected from Corporation area as well as from other Local Bodies. Also, the rain water if any will definitely come in contact with the deposited legacy waste and will be directed to "Kadambrayar", one of the rivers surrounding the dumping yard. There are visible discharge routes intentionally constructed for this untreated sewage discharges which find its way to marshy area beyond this sheds then to river flowing nearby. The other one, a branch of chithrapuzha also facing the same menace due to this dumping yard. It is important to note that these two stretches are already identified and actions plans are being proposed to revitalize these streams as per different orders of the Hon'ble National Green Tribunal in OA 673/2018 in the matter of "News item published in 'The Hindu' authorized by Sri. Jacob Koshy titled "More river Stretches are now Critically Polluted: CPCB". Samples were collected from damaged drains which were seen spread over the entire area and sent to Central Laboratory for reports.

3. No actions are taken to install proper Effluent Treatment facilities at the site. The temporary plant provided was seen totally nonfunctional. The claim of the Corporation that they are properly treating leachate oozed out from windrow sheds to nearby common septage treatment facility is absolutely a false statement. During the surprise visit, septage treatment facility also was inspected to ascertain whether the plant is functioning or not. It is unfortunate to note that the plant is not functioning properly and it is suspected that they are discharging untreated or partially treated sewage/effluent to nearby marshy area which is approximately 50 m away from septage plant where sewage in septic condition was seen spread over the entire area. It is distressing to note that almost all components of the septage treatment plant were seen kept idle and there were clear evidence for untreated sewage discharge using flexible hose directly through outlet portion which end in such marshy area. This marshy

area is extended to Chithrapuzha river, flows if any will be leading to Chitrpuzha, one of the river identified as polluted river stretch out of 21 in the state and 3 in the District. At the same time it is to be noted that there was an adverse remark from Principal bench of Hon'ble NGT on the feasibility of leachate transfer to a septage plant for treatment. However, sample collected from the discharge area was forwarded to Central Laboratory. It is also vital to note that statutory samples were collected from this outlet and damaged drains as a prelude step on initiating prosecution against the Secretary, Kochi Corporation.

4. As usual plastic wastes were found to be dumped openly along the southeast portion and no facilities were seen there to process it except a shed which is not capable of accommodate the entire plastic wastes brought to this yard. The shredding machine installed was seen kept idle. It was also reported that a small portion of the waste is being transferred to some outside agencies for further processing but the quantity or the agency details are not obtained from the responsible officials available at the facility.

5. It is also noticed that a fire accident was occurred at this plant on 05.03.2021 where plastic waste heaped along the southeast direction mentioned above. On hearing about this incident surveillance team of the Board rushed to this area where fire and heavy smoke were observed. The CCTV Footage proved it clear that the flames started at 1.00 PM and multiplied after that. The fire and rescue team was able to control the fire in the night but heavy smoke from burning of plastic continued. It is regretted to observe that during 2019 and 2020 there were fire accidents and a study was conducted by the NIIST in 2019 on which a report was submitted on the status of emission of dioxins and dioxin – like PCBs. The major findings of the study are as follows,

Major findings of the study.

- ❖ *Dioxins were detected and quantified in ambient air, residual ash and sediment samples collected from the premises of waste dump yard during fire break out.*

- ❖ *The average dioxin levels observed in ambient air was found to be 10.3 pg TEQ/m³. The observed levels are 50 and 10 times higher than reference and field blank data.*
- ❖ *The average dioxin concentration observed in residual ash samples collected from different locations in the fire covered area is 158.5 ng TEQ/kg of ash.*
- ❖ *The observed dioxin levels in sediment samples collected from nearby marsh fields is 6.8 ng TEQ/kg.*
- ❖ *The dioxin generated by the fire is given by Emission Factor x Activity Rate.*
 - *The Activity Rate = total quantity of MSW burned = Area burned (from satellite photo of 23/2/2019) x burn depth (20 cm as given by Dr.Ajit Haridas), and bulk density (350 kg/m³) = 1800 tonnes (appr.)*
 - *The Emission Factor for dioxins as determined in “Burn-hut” at CSIR-NIIST is 39.81 µg PCDD-F TEQWHO/ ton of waste burned.*
 - *Hence, estimated dioxin emitted = 72 milligram Toxicity equivalence (TEQ).*
 - *The WHO /FAO maximum tolerable monthly intake of dioxins for humans is 70 picogram TEQ/kg body weight (tolerable annual intake for a 65 kg person is 54.6 nanogram TEQ). While only a very small fraction of the dioxins generated reaches humans via the food chain, the total dioxin generated is sufficient to exceed tolerable annual intake of $72 \times 10^{-3} / 54.6 \times 10^{-9} = 1.3$ million persons*

Recommendations

- *It is essential to establish modern solid waste treatment plants and clear the dump yards of wastes by ‘bio-mining’ to separate combustible and inert material. The contaminated ash separated during bio-mining should be removed to sanitary landfill.*
 - *Given the widespread burning of waste and dump yard fires, analysis of dioxins in animal origin food samples such as milk, egg, meat and in human milk is recommended.*
6. Though specific instructions were given to Corporation not to repeat this type of accidents via mismanagement of such a dumping yard where huge heaps of plastic wastes are a regular scene, the negligence shown by the Corporation shall be accordingly addressed. Different photographs taken during the visit/fire accident to show the grave situation existing are placed here.



Photo 1 – Uncontrolled Leachate Flow to Kadambrayar



Photo 2 –Kadambrayar with full of weeds surrounding the solid waste management plant



Photo 3 –The Brahmapuram solid waste dumping yard is just 1-2 m away from Kadambrayar



Photo 4 –Damaged windrow composting sheds of Brahmapuram solid waste plant



Photo 5 – Open Legacy waste heap always a menace to Kadambrayar river



Photo 6 – Uncontrolled Leachate Flow from dilapidated windrow sheds



Photo 7- Fresh Biodegradable wastes are brought from other Municipality (Aluva) but dumped over legacy wastes



Photo 8 -Biodegradable wastes transfer from other Municipality (Thrikkakkara)



Photo 9 – Blocked Drains prevent Leachate Flow.



Photo 10 – Uncontrolled Leachate Flow



Photo 11 – Open Drains make leachate treatment unviable.



Photo 12 – Untreated sewage discharge from Septage treatment plant



Photo 13 – A channel through where untreated sewage is routed.



Photo 14 – A part of legacy waste accumulation



Photo 15 – Nonfunctional Sludge Drying Bed of Septage Treatment Plant



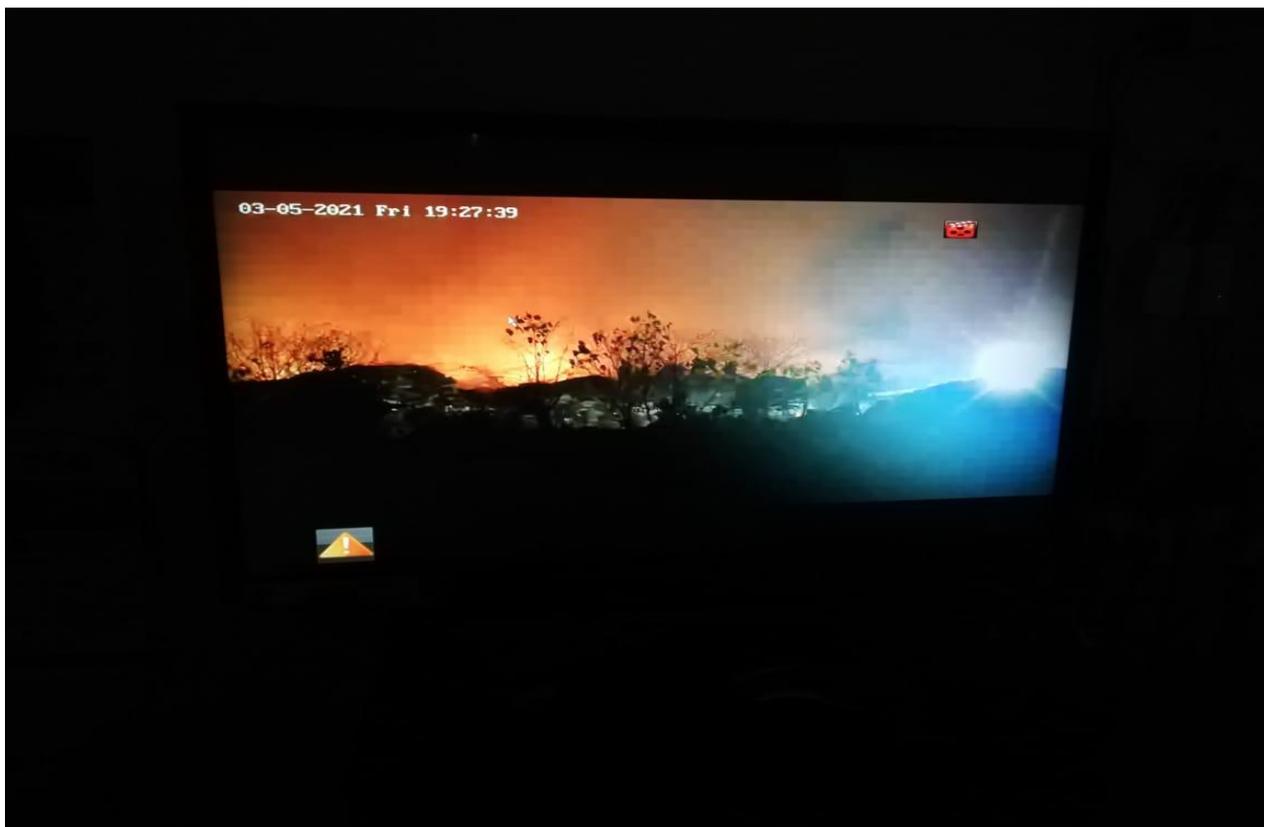
Photo 16 – Suspected untreated flow Outlet portion of Septage Treatment Plant



Photo 17 – Nonfunctional Filter feed tank of Septage Treatment Plant



Photo 18 – Surveillance team is visiting the Fire accident occurred at Brahmapuram plant on 05.03.2021



Phot 19–CCTV Footage of Fire accident occurred at Brahmapuram plant on 05.03.2021 at 07.27 PM

Conclusion

1. Since it is a long pending issue, immediate actions need be taken to revamp the solid waste management facility immediately.
2. Necessary action shall be immediately taken to construct a new windrow shed or repair one of the sheds so that scientific windrow composting can be carried out there (It is better to choose the shed where fresh waste are disposed over legacy waste) for which the entire legacy waste deposited in the shed may be transferred to any other shed.
3. Waste collection from other Local bodies may be stopped as they are also duty bound to manage their wastes and continuing violation for several years as per the MSW Rules 2000 / for the last five years as per the SWM Rules 2016 [Rules 22(1), (3), (5), (6) & (11)]. It is important to note that there are committed offences by these local bodies as per the order dated 12.10.2018 & 16.01.2019 in OA 606 of 2018 also.

4. Each fire accident causes damages to environment in equal/similar proportions as happened in 2019 on which specific study was conducted by the Board. Hence Environmental Damage assessment/imposing fine also needed to prevent anymore fire accidents at the facility in future.

5. Leachate collection and treatment shall be immediately started as the visit revealed that there were severe flow from solid waste management facility and septage treatment plant, both under the control of Kochi Corporation. It look leachate flow will be more severe during coming monsoon within a couple of months.

6. It is important to note that the Hon'ble Chief Secretary in the meeting held on 06.03.2021 to review the actions taken for ensuring effective implementation of solid waste management Rules, 2016 by the Kochi and Kollam Corporations in the light of the orders issued by the Hon'ble NGT in OA 514 of 2019 , OA 439 of 2013 and 456 of 2013 remarked as follows,

“it is very unfortunate that the inaction on the part of the Municipal Corporations is being reflected as poor governance. It was noted that even after the intervention of the Hon'ble National Green Tribunal and State Level Monitoring Committee, no remarkable progress was achieved in the solid waste management scenario, including remediation of legacy waste dumps. The Chief Secretary made it very clear that such non-compliances will not be allowed to continue and strict legal action including penalty options will be undertaken against the non-implementation of statutory responsibility”.

Also warned

“for taking action on erring officials/persons in the event of default.Both the Municipal Secretary and Council will be held responsible for non-implementation of solid waste management rules if timely compliance is not adhered to. The option of resorting personal fines will have to be thought of, if non compliance continues”.

M A BAIJU

Chief Environmental Engineer

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KOCHI MUNICIPAL CORPORATION

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No.MOE2-10948/17

02/11/2020

From

Secretary

To

The Chairman
Kerala State Pollution Control Board
Pattom P.O Thiruvananthapuram
695004

Sir,

Sub: Explanation to the notice given under Environment Protection Act 1986

Ref. Notice No.PCB/HO/SEE2/Kochi Corpn/2019 dated 15/10/2020

The compliance in implementation of the Solid waste management rules 2016 is as given below:

1. *Rule 22(1): Identification of suitable sites for setting up solid waste processing facilities*

Kochi Corporation had identified, constructed, commissioned and is operating a 250 tonnes per day capacity Windrow compost plant at Brahmapuram for treating the biodegradable fraction of the waste since April 2008(*Whereby the Rule 22(1) is complied*) Corporation had also entered into an agreement for construction of a waste to energy plant in 2016 as part of upgrading the solid waste treatment and to treat the non-biodegradable portion of the waste as well. This has been cancelled by the Government Vide G.O(Rt) No.805/2020/LSGD dated 30/4/2020 due to the delay from the side of concessionaire and failure in submitting the details regarding the funding. New tenders have been floated for the project by KSIDC on 24/06/2020 with

last date of submission on 30/7/2020 and was extended upto 14/09/2020. The tenders received are being evaluated by KSIDC. It is expected that the tenders would be finalised by KSIDC in November 2020.

2. *Rule 22(2) identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more .*

Corporation had identified land for solid waste processing facility way back in 2004 and had established a windrow composting plant in 2008 and had identified land for constructing landfill in the 110 acres of land. Vide letter No. PCB/RO-EKM/GEN-97/12 dated 22/08/2019 Chief Environmental Engineer, Regional Office Ernakulam had informed after inspection that the land identified by Corporation in Brahmapuram for construction of scientific landfill behind the security cabin is not suitable as per the guidelines of CPCB as 2m clearance to the ground water table from the bottom liner of the landfill cannot be ensured and to find some other place in the 110 acre land at Brahmapuram. In full compliance with the CPCB guidelines and the guidelines of the CPHEEO Solid waste management manual 2016 other land cannot be found in Brahmapuram as a minimum 100m clearance from water bodies is also mandated. A request has been placed with the Government vide letter No. MOE2/3760/18 dated 19/11/2019 to waive the conditions of siting landfill and to grant special permission. Vide G.O (Rt)No.1198/2020/LSGD dated 18/06/2020, Government have accorded sanction to Kerala Enviro Infrastructure Limited and Clean Kerala Company Limited for constructing regional sanitary landfill in the land purchased by KINFRA from FACT near Brahmapuram by utilizing 25 acres of land. (Whereby the intended spirit of the Rule is met)

3. *Rule 22(3) Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities*

Suitable site was procured in 2004 and Solid waste treatment plant was established in 2008 itself. Status regarding the establishment of scientific landfill is as given in the above paragraph.

4. *Rule 22(4) Enforcing waste generators to practice segregation of bio-degradable, recyclable combustible, sanitary waste domestic hazardous and inert solid waste at source.*

85% of Households in Kochi Corporation area store wastes in segregated form (Biodegradable waste and Non-biodegradable wastes separately). 5%

of HHs where source segregation was not practiced belongs to the areas in and around Fort Kochi. To promote source segregation of wastes, under the Cochin Smart Mission (Smart City Project) 30,000 bins were distributed to the HHs in Fort Kochi area. About 59.8% of shops/commercial establishments store wastes in segregated form. Rest of the establishments are either small outlets or shops which do not generate much wastes other than food waste.

5. *Rule 22(5) Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.*

There are about 1,67,935 households in Kochi Corporation. Wastes are directly collected from about 1,50,730 HHs (90%) (Door to door collection of wastes). In about 7,262(4.32%)HHs source level treatment of wastes are adopted. And in another 8204 HHs(4.88%) CREDAI a real estate builders association is taking care of the waste management. In total 99.2% of the total wastes are either collected by door to door collection or processed at source. Only the remaining 0.8% (1343) of the households needs to be brought on board for 100% collection and processing of waste. This will be ensured by end of November 2020. Wastes are transported to treatment facility in compactor trucks and covered tipper trucks.

6. *Rule 22(6) Ensure separate storage, collection and transportation of construction and demolition waste.*

In compliance with the construction and demolition waste management rules 2016, the C&D wastes are not collected nor mixed with the other wastes collected, transported and treated by Corporation. C&D wastes are reused for filling low lying areas and filling of basement areas and for construction of pavement tiles and kerb stones. Such wastes are processed and reused by the builders itself and has never been a menace to public. It may be interesting to share that one of the agency engaged by Kochi Corporation to quantify the C&D waste commented that they couldn't find any C&D waste in Kochi.

7. *Rule 22(7) Setting up solid waste processing facilities by all local bodies having 100000 or more population*

Kochi Corporation had set up a 250 TPD capacity windrow composting plant (one of the technologies specified in CPHEEO manual and SWM Rules 2016) for solid waste processing in 2008 itself.

8. *Rule 22(8) Setting up solid waste processing facilities by local bodies and census towns below 100000 population.*

Not applicable to Kochi Corporation as the population of Kochi Corporation is above 100000.

9. *Rule 22(9) Setting up common or stand alone sanitary landfills or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreated inert wastes as permitted under the Rules*

Status is same as furnished for Rule 22(2)

10. *Setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules.*

Not applicable to Kochi Municipal Corporation

11. *Rule 22(11) Bio-remediation or capping of old and abandoned dump sites*

A large portion of the dump site was capped in 2011 itself, and on 21/02/2019 Expression of Interest was called for capping the wastes in the dumping yard with closing date on 07/03/2019, later as per the direction of the State Level Monitoring Committee of NGT in its meeting on 06/04/2019 to bio-mine the legacy waste instead of capping, the EOIs obtained for capping were cancelled and fresh tender for bio-mining the legacy wastes was floated on 14/08/2019 after vetting of the tender document by Pollution Control Board and with closing date on 04/09/2019. As nobody participated in the tender the closing date was extended to 20/09/2019. Even then nobody participated in the tender. The work was re-tendered on 26/10/2019 with closing date on 18/11/2019; and was extended till 26/11/2019. Only one bidder participated in the tender, and the council that met on 13/12/2019 approved the bid evaluation report. Financial bid was opened on 24/11/2019 was placed before the council meeting scheduled on 13/01/2020 for approval of the financial bid with quoted rate of Rs. 597/m³. The council deferred its decision. Later when the matter was placed before the special council for Brahampuram on 03/03/2020 the council again deferred its decision.

Government intervened in the matter and took over the work of bio-mining the legacy waste at Brahmapuram from Kochi Municipal Corporation vide G.O (Ms)No.8/2020/DMD dated Thiruvananthapuram 05/03/2020 and assigned KSIDC to float fresh tenders after cancelling the tender floated by Kochi Corporation. On 20/03/2020 KSIDC invited tenders for bio-mining of legacy waste. As only 1 bidder was technically qualified the work was re-tendered on 24/06/2020 with last date for submission on 27/08/2020. Technical bids were opened on 03/09/2020 and after evaluation the financial bid of the responsive tender was opened on 12/10/2020. The quoted rate and the quantity are being analysed. It is expected that the work could be started in November 2020.

Regarding the proposed waste to energy project/integrated solid waste treatment plant, as the concessionaire could not demonstrate and submit the financial closure or financial plan for funding the project even after 1400 days of signing the agreement, Government vide G.O (Rt)No.805/2020/LSGD Dated 30/04/2020 cancelled the approval granted to the concessionaire M/s GJ Ecopower Pvt Ltd and directed Kochi Corporation to terminate the concession agreement. KSIDC was directed to float fresh tenders for the waste to energy project. The concession agreement was terminated by Kochi Corporation accordingly. The concessionaire was also heard by the Government as directed by Hon'ble High Court and Vide G.O (Rt)No.1064/2020/LSGD dated 05/06/2020 Government affirmed that the concessionaire would not be able to implement the project even if more time is granted and directed the MD, KSIDC to float new tenders. KSIDC floated fresh tenders on 24/06/2020 with last date for submission of bids on 04/09/2020. Tenders are being evaluated by KSIDC

Following directions given in the meeting of SLMC on 15/3/19 are complied:

1. Escrow account to meet emergency expenses was started.
2. Status of Biomining mentioned in the pre-para.
3. Construction of leachate collection tank of 1 lakh litre capacity completed
4. Log book of vehicles transporting waste to Brahmapuram plant are kept with the JHI-Brahmapuram plant.
5. Issuing of vehicle pass for waste transportation by Health Inspectors
6. Transportation of waste in covered trucks
7. Bulk waste generators were given notice to process waste on their own and most of the bulk waste generators have engaged agencies like M/s Green worm for processing their waste.
8. Cameras were installed at the Brahmapuram plant for surveillance and the all the cameras are in good working condition.

9. Laying of roads inside the legacy waste lying yard
10. Installation of fire hydrant to prevent spread of fire (Work awarded to M/s Freefire solutions. Work will be started soon after the water logged in the area dries up)
11. New security men (Ex-service men) were deployed for the security of the plant.
12. The details of solid waste management are published in the Kochi Municipal Corporation website and can also be accessed through www.clickforkochi.kerala.gov.in
- 13.6 Roads were made waste free
14. Banned the use of plastic carry bags
15. Personal Protective Equipments were given to the health workers
16. 20 flats in marine drive area were given notice for non-operation of sewage treatment plants and to install sewage treatment plant.
17. As mentioned in the pre-para there is no construction and demolition waste left out for collection as the builders are reusing it for various activities related to construction. The land identified by Kochi Corporation for landfill was found unsuitable by Pollution Control Board (Vide letter No. PCB/RO-EKM/GEN-97/12 dated 22/08/2019)

The council that met on 13/12/2019 had given approval for constructing biomethanation plants in markets and institutions and an agency has also been identified for construction of biomethanation plants of 1000kg/day capacity. Installation of 100TPD biomethanation plant at Brahmapuram is to be debated as an integrated solid waste treatment plant of 300TPD capacity is coming up in Brahmapuram. It would roughly incur an amount of more than 40 crores for installing a biomethanation plant of 100TPD capacity.-

On an average 250 tonnes per day of wastes are received at the windrow compost plant that includes waste collected from 5 municipalities and 3 grama panchayaths. 23 windrows of 4x4x80m size are usually formed. Due to space constraints in the dilapidated shed more number of windrows could not be formed and need have to be operated with the 23 windrows. The windrows such formed are regularly rotated for aeration and accelerate the composting.

Though the structure is completely collapsed, and there are issues related to available space, and storm water infiltration, Corporation has taken its earnest effort in operating the windrow compost plant. Biodegradable wastes are treated properly by forming windrows. The efficiency of the plant is maintained

at 8% when compared to the standard 12% (Ref.CPHEEO Manual on SWM) efficiency of windrow composting plants. It may be noted that the Regional Monitoring Committee vide its minutes dated 1/02/2019 has observed that Corporation has made considerable improvement over a period in the windrow composting plant. Repair of trommels and many other maintenance works were carried out in the plant in March 2019. On an average 250Tonnes of biodegradable wastes are processed in the plant daily and about 20 tonnes of finished 6mm sieved manure is produced which are sold to planters in idukki, Theni, Kambam and other parts of Tamil Nadu, Krishi Bhavans. It is also mixed with other fertilizer to increase the nutritional value. It is also to be noted that this dilapidated plant is taking care of the entire waste generated out of Kochi city.

The Brahmapuram plant though not visually appealing, it may be noted that amid all the difficulties and collapsed structure, it is this plant that keeps the entire Kochi City and surrounding local bodies clean.

Corporation was under the impression that the waste to energy project could be started immediately and thus refrained from parallel projects. But at this onset Corporation has initiated steps to rectify the structural deformities of the existing windrow compost plant shed.

Action plan was submitted to State Level Monitoring Committee of NGT and Pollution Control Board. The same was given as annexure by the SLMC in the minutes of the meeting held on 3/08/2019.

Construction of leachate collection tank of 100000litres has been completed.5 truck loads (5x5000litres) of leachate are taken to the septage treatment plant situated within the premises and treated there. Test result of raw leachate shows no excess heavy metals than the standard prescribed in the MSW Rules 2016 (Test result annexed) Though the work for preparation of DPR for leachate treatment plant was awarded after tendering process to the lowest bidder on 29/07/2019, GIZ a German collaboration agency who supports Corporation under the Sustainable Urban Development -Smart Cities project was also engaged to suggest suitable technology for the leachate treatment plant. As the technology proposed by GIZ that of Sequencing Batch Reactor was different from that proposed by Suchitwa Mission of Electrocoagulation, the council that met on 03/03/2020 referred the matter to the Health Standing Committee and the committee wanted to take a suggestion from Suchitwa Mission. Accordingly Suchitwa Mission was requested on 04/08/2020. The technical committee on liquid waste management constituted by Suchitwa Mission that met on 25/09/2020 in which Chief Environmental Engineer of Regional Office Pollution

Control Board Thiruvananthapuram is also a member suggested to opt for treating the leachate in the septage treatment plant. The technical committee also assessed that presence of heavy metals will not tamper the treatment efficiency.

The fact that the treatment plant at Brahmapuram is dilapidated is admitted. As mentioned in the pre-para. though the plant is in dilapidated condition the process of composting is carried out and manure/city compost is also produced from the plant. The quantity of manure produced is in the range of 8-10% compared to the standard 12%. The manure are mixed with other chemical fertilizer as well to increase the nutritional value. The wastes that are seen dumped near the windrow compost plant are rejects from the 16mm sieving trommels. It is as such taken as soil conditioner for landscaping and also sieved further in 6mm trommels for making finished manure. It is for drying the rejects are temporarily kept aside the plant.

All measures have been taken to prevent spread of fire including making of internal roads and fixing of pump sets to spray water into the legacy waste yard to keep the waste moist. Work of installing permanent fire hydrant system has also been awarded and will be started soon after the water logged area in the site dries up.

No leachate is now flowing into the Kadambayar as drains in full length have been constructed around the plant shed. The leachate gets drained only to the newly constructed leachate treatment plant of 100m³ capacity from where it is taken tanker trucks to the nearby septage treatment plant.

Regarding the installation of leachate treatment plant we are being advised that as the septage treatment plant is having surplus volume, the leachate shall be treated in the septage treatment plant. Nevertheless after getting a final advice regarding the treatment technology from Suchitwa Mission it is intended to go ahead with installing a standalone leachate treatment plant.

Status related to biomining of legacy waste and waste to energy plant has already been mentioned in the pre-paragraphs.

It may be pertinent to note that most of the major directions have been complied. It is informed that application for renewal of authorisation obtained in 2008 was submitted to Pollution Control Board on 01/07/2016 with the processing fee of Rs.30000 (DD.No.400893 dated 01/07/2016) vide letter no.MOE2/21941/16 dated 01/07/2016 and vide letter no. MOE2/21941/16 dated 28/10/2016 proposal for leachate treatment plant was also submitted to the Environmental Engineer of Ernakulam District Office –II. On 28/07/2018 the

online application was returned by Pollution Control Board citing to submit the details of leachate treatment plant and present status of MSW plant and to remit the fees for the current year.

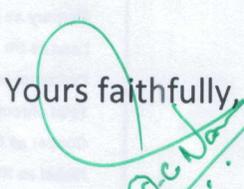
As the application was returned online and no alerts were received at this office we were unaware of the return of the application. The application will be resubmitted soon.

The total waste generated in Kochi Corporation is 326 TPD. Of this 9.5 TPD is processed at source and about 11 TPD is processed by the real estate builders association CREDAI. The remaining 306 TPD of wastes are collected, transported to Brahmapuram for processing. Of the 306 TPD 206 TPD of biodegradable wastes are processed in the Windrow composting plant. The non-biodegradable portion of waste is taken for recycling and recovery by the contractor engaged by Corporation. To bring down the quantity of non-biodegradable waste taken to Brahmapuram the 5 MRF centres will be operated shortly.

In the implementation of SWM Rules 2016, Kochi Corporation is much ahead than other LSGIs in Kerala though there are hitches. Kochi Corporation which was once the epitome of waste management in Kerala is now in a sorry state because of the unforeseen incidents and matters out of control of Kochi Corporation. Many projects aligned for the management of waste did not materialise including the waste to energy project. Now the projects are in track and will complete as soon as possible.

It is requested to kindly keep in abeyance any action against the Municipal Corporation including imposing of environmental compensation.

Yours faithfully,


Secretary (C/E)

Annexure

SAMPLE 2

SGS

Test Report

Print Date : 26/06/2019

SAMPLE NOT DRAWN BY SGS INDIA PVT. LTD.

Report No : CE19-002772.001

JOE No : CE19-002772

Report Control No : CER0000280889
Sample Described by Customer as : LEACHATE WASTE WATER

Client Name : ECOSAN SERVICES FOUNDATION
 Client Address : 1st Floor,
 : 24, Prashant Nagar,
 City : 721/1 Navi Sadashiv Peth,
 Postal Code : 411030
 State : Maharashtra
 Country : INDIA
 Sample Type : LEACHATE WASTE WATER
 Received : 13/06/2019
 Sample Qty. : 5L
 Recd. Site : ECOSAN SERVICES FOUNDATION,VISTAARA,DOOR NO.62/5543
 A4,CANON SHED ROAD,KOCHI-682011.
 Marks on Sample : LEACHATE SAMPLE-2 DATE:11.06.19
 Test Start/End Date : 13/06/2019 - 26/06/2019

Analysis	Method	Result	Unit
Total suspended solids (Dried at 103 to 105°C)	APHA 2540 D	4950	mg/L
Ammonical nitrogen as NH ₃ -N	APHA 4500 C (Semi-Micro-Kjeldahl/Titrimetric method)	2556	mg/L
Total Kjeldahl nitrogen as N (TKN)	APHA 4500 C (Semi-Micro-Kjeldahl/Titrimetric method)	2659	mg/L
BOD at 27 °C for 3 days	IS 3025 (Part 4) : 1993	7267	mg/L
COD as O ₂	APHA 5220 B (Open Reflux method)	14546	mg/L
Cyanide as CN	APHA 4500 F (Ion-Selective Electrode method)	BDL(DL:0.01)	mg/L
pH at 25°C	APHA 4500 B (Electrometric method)	8.27	
Arsenic as As	APHA 3125 B (By ICP-MS)	0.050	mg/L
Mercury as Hg	APHA 3125 B (By ICP-MS)	0.010	mg/L
Lead as Pb	APHA 3125 B (By ICP-MS)	0.077	mg/L
Cadmium as Cd	APHA 3125 B (By ICP-MS)	<0.001	mg/L
Total chromium as Cr	APHA 3125 B (By ICP-MS)	0.308	mg/L
Copper as Cu	APHA 3125 B (By ICP-MS)	0.065	mg/L
Nickel as Ni	APHA 3125 B (By ICP-MS)	0.739	mg/L
Zinc as Zn	APHA 3120 B (By ICP-OES)	1.83	mg/L
Chloride as Cl	APHA 4500 B (Argentometric method)	6626	mg/L
Total dissolved solids (Fixed or Inorganic) (Ignited at 550°C)	APHA 2540 E	19512	mg/L

Page 1 of 2

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SGS**Test Report**

SAMPLE NOT DRAWN BY SGS INDIA PVT. LTD.

Print Date : 28/06/2019

Report No : CE19-002722.001

JOE No : CE19-002722

Report Control No : CER0000281436

Analysis	Method	Result	Unit
Fluoride as F	USEPA 1311 & APHA 4500 C (Ion-Selective Electrode method)	0.3	mg/L
Phenolic compounds	USEPA 3510C & 8041A (Sum of phenols)	<0.025	mg/L

Remark : BDL: Below detection limit, DL: Detection limit

Per pro SGS India Private Ltd



K_MANOKARAN

Section Incharge

Authorized Signatory

****End of Report****

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KERALA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY

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കേന്ദ്ര പരീക്ഷണശാല



Certificate No.
TC-8525

ANALYSIS REPORT

Analysis Report No.	PCB/CL/737/20-21	Date	16 Oct 2020	Doc No	PCB/CL/CH/F 7
Ref.No.	PCB/RO-EKM dated 22.09.20	Date Of Collection	22 Sep 2020		
Received From	R O ERNAKULAM	Date Of Receipt	22 Sep 2020		
No. Of Sample	4	Period Of Analysis	22 Sep 2020 - 16 Oct 2020		
Source	Brahmapuram Dumping Yard	Scientist-in-charge	Geetha P		
Sample Condition	fit for analysis	Sample Type	Waste Water		
Sample collected by	CEE, RO ERNAKULAM	Sample volume & container type	5L and 1L plastic can		
Sample preservation	As per APHA/ IS :3025(Part-1)	Type of test	CHEMICAL		

Sample ID : BP-1 (Sample collected from leachate tank)

Sl.No	Parameters	Unit	Value	Test Method	Detection Limit
1	pH	-	7.1	APHA, 4500- H+B, 4-95 to 4- 99, 23rd Edition 2017	1
2	Suspended Solids	mg/L	BDL	APHA, 2540- D 2-70 to 2-71 23rd Edition 2017	10 mg/l
3	Total Dissolved Solids	mg/L	731.0	APHA, 2540- C 2- 69 to 2 - 70 23 rd Edition 2017	10 mg l
4	Chloride	mg/L	85.0	APHA, 4500- Cl/B, 4-75 to 4-76, 23 rd Edition: 2017	1 mg/L
5	Fluoride	mg/L	0.21	APHA, 4500- F,C, 4-89 to 4-90 ,(ISE Method), 23rd Edition: 2017	0.1 mg/L
6	Ammonia as Nitrogen	mg/L	28.7	APHA, 4500 NH3 F, 4-119 to 4-120, (Phenate method , Colourimetric), 23rd Edition: 2017	0.02 mg/L
7	Biochemical Oxygen Demand (BOD)	mg/L	60.4	IS 3025 (Part 44): 1993	0.1 mg/L
8	Chemical Oxygen Demand (COD)	mg/L	92.0	APHA, 5220 B, 5-18 to 5- 19 23 rd Edition 2017	3 mg/l

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Page 1 of 3



Doc.No: PCB/CL/CH/F-7

Analysis Report No.: PCB/CL/737/20-21

9	Total Kjeldahl Nitrogen	mg/L	34.9	APHA, 4500-N org B, 4-139 to 4-140, 23rd Edition: 2017	0.2 mg/L
10	Phenolic compounds	mg/l	BDL	APHA 5530-C, 22nd Edition	0.001mg/l

Sample ID : BP-1 (HM)

SI No	Parameters	Unit	Value	Test Method	Detection Limit
1	Cadmium	mg/L	BDL	APHA, 3111-B, 3-20 to 3-21, 23rd Edition : 2017	0.01 mg/L
2	Chromium Total	mg/L	0.03	APHA, 3111-B, 3-20 to 3-21, 23rd Edition: 2017	0.03 mg/L
3	Copper	mg/L	BDL	APHA, 3111-B, 3-20 to 3-21, 23rd Edition : 2017	0.02 mg/L
4	Nickel	mg/L	BDL	APHA, 3111-B, 3-20 to 3-21, 23rd Edition : 2017	0.05 mg/L
5	Lead	mg/L	BDL	APHA, 3111-B, 3-20 to 3-21, 23rd Edition : 2017	0.05 mg/L
6	Zinc	mg/L	BDL	APHA, 3111-B, 3-20 to 3-21, 23rd Edition : 2017	0.02 mg/L
7	Arsenic	mg/L	BDL	APHA, 3114-B, 3-36 to 3-40, 23rd Edition: 2017	0.01 mg/L
8	Mercury	mg/L	BDL	APHA, 3112-B, 3-25 to 3-27, 23rd Edition: 2017	0.01 mg/L

Sample ID : BP-2 (Sample collected from drain towards tank)

SI.No	Parameters	Unit	Value	Test Method	Detection Limit
1	pH	-	8.0	APHA, 4500- H+B, 4-95 to 4- 99, 23rd Edition: 2017	1
2	Suspended Solids	mg/L	262.0	APHA, 2540- D, 2-70 to 2-71, 23rd Edition: 2017	10 mg/L
3	Total Dissolved Solids	mg/L	3834.0	APHA, 2540-C, 2-69 to 2-70 23rd Edition: 2017	10 mg/L
4	Chloride	mg/L	1914.0	APHA, 4500- Cl/B, 4-75 to 4-76, 23rd Edition: 2017	1 mg/L
5	Fluoride	mg/L	0.22	APHA, 4500- F,C, 4-89 to 4-90, (ISE Method), 23rd Edition: 2017	0.1 mg/L

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Page 2 of 3



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6	Ammonia as Nitrogen	mg/L	1372.0	APHA, 4500 NH3 F, 4-119 to 4-120. (Phenate method, Colourimetric), 23rd Edition: 2017	0.02 mg/L
7	Biochemical Oxygen Demand (BOD)	mg/L	215.3	IS 3025 (Part 44): 1993	0.1 mg/L
8	Chemical Oxygen Demand (COD)	mg/L	1744.0	APHA, 5220 B, 5-18 to 5-19, 23rd Edition: 2017	3 mg/L
9	Total Kjeldahl Nitrogen	mg/L	1381.0	APHA, 4500-N org B, 4-139 to 4-140, 23rd Edition: 2017	0.2 mg/L
10	Phenolic compounds	mg/l	0.17	APHA 5530-C, 22nd Edition	0.001 mg/l

Sample ID : BP-2 (HM)

Sl.No	Parameters	Unit	Value	Test Method	Detection Limit
1	Cadmium	mg/L	BDL	APHA, 3111-B, 3-20 to 3-21, 23rd Edition: 2017	0.01 mg/L
2	Chromium Total	mg/L	0.06	APHA, 3111-B, 3-20 to 3-21, 23rd Edition: 2017	0.03 mg/L
3	Copper	mg/L	0.09	APHA, 3111-B, 3-20 to 3-21, 23rd Edition: 2017	0.02 mg/L
4	Nickel	mg/L	0.11	APHA, 3111-B, 3-20 to 3-21, 23rd Edition: 2017	0.05 mg/L
5	Lead	mg/L	BDL	APHA, 3111-B, 3-20 to 3-21, 23rd Edition: 2017	0.05 mg/L
6	Zinc	mg/L	0.13	APHA, 3111-B, 3-20 to 3-21, 23rd Edition: 2017	0.02 mg/L
7	Arsenic	mg/L	BDL	APHA, 3114-B, 3-36 to 3-40, 23rd Edition: 2017	0.01 mg/L
8	Mercury	mg/L	0.01	APHA, 3112-B, 3-25 to 3-27, 23rd Edition: 2017	0.01 mg/L

-- End of Report --

Checked by

Rajana
19/10/20

RAJANA.R
Assistant Scientist

Authorised by

M.F. Gowerafudeen

M.F. GOWERAFUDEEN
Senior Environmental Scientist

Note: The test results relate only to the sample submitted for analysis and it shouldn't be reproduced except in full without the written permission of the authorised signatory of the lab.

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SOLID WASTE MANAGEMENT SCORES LSGDS (PERCENTAGE ACHIEVEMENT & SCORING PATTERN)		
Sl no	Priorities	Marks
1	Harithakarmasena	19(Max)
a	Formation	5
b	Training, Id card , Uniform issued, Safety	4
c	Activities (D/D collection, Segregation at Source)	5
d	Street sweeping	5
2	Dry waste (Plastic waste/E waste)	33(Max)
a	Collection (Shop,House&Road)	8
b	Segregation&Temporary storage	6
c	MCF	3
d	MRF	3
e	Plastic squad formed, activities, fine imposed	3
f	Notice issued (ban on carry bag)	1
g	EPR Alternatives	2
h	Alternatives provided(cloth bag)	1
i	Other activities (sign board, awareness programme, appointing staffs etc)	3
j	E waste collection/Domestic Hazardous waste	3
3	Wet waste	38(Max)
a	Door to Door Collection of Segregated Waste (shop&house)	10
b	Decentralized Facility(House Hold)	5
c	Sufficient Cluster facilities, vermi compost or ring compost or biogas plant or pipe compost, Thumboormoozhy models provided with houses	5
d	Centralized Facility	15
e	Anaerobic digestors (Centralized)	3
4	Vehicles	10(Max)
a	GPS mounted	5
b	Covering/Leachate protection etc.	5
5	Grand Total	100



Photo 1-Centralized facility of North Paravur Municipality at Vedimara



Photo 2- Centralized facility of Muvatupuzha Municipality



Photo 3 – Centralized facility of Kothamangalam Municipality



Photo 4- Centralized facility of Kalamassery Municipality

☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairman: 2318150 Member Secretary: 2318151
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KERALASTATE POLLUTION CONTROL BOARD

കരളസംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram - 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004

PCB/HO/SEE2/KOCHI CORPN/2019

Date: 13/01/2021

Regd. with A/D

DIRECTION UNDER SECTION 5 OF THE ENVIRONMENTAL PROTECTION ACT, 1986

Sub: Non-compliance of Solid Waste Management Rules, 2016.

- Ref: 1. Order dated 23/10/2018 of the Hon'ble NGT in O.A. 533-535/2018.
2. Order dated 9/11/2018 of the Hon'ble High Court in WP(c) No. 36204/2018(A)
3. Order dated 16/01/2019 in OA no. 606/2018
4. This office notice No. PCB/HO/RULES/SWM-ERNAKULAM/2018 dated 12/10/ 2019
5. Letter no. PCB/RO-EKM/GEN-221/19 dated 18/10/2019 from the Chief Environmental Engineer, Regional Office, Ernakulum
6. This office notice No. PCB/HO/SEE2/KOCHI CORPN/2019 dated 11/12/2019
7. Letter No. MOE2/10948/2017 dated 01/ 01/ 2020 and 06/01/2020 of Secretary, Kochi Corporation
8. Order dated 30/01/2020 in OA no. 442/2013 by the Hon'ble NGT.
9. Letter no. PCB/RO/EKM/GEN-258/19 dated 20/02/2020.
10. Minutes of the meeting on 16-3-2020 with the Secretary, Kochi Corporation
11. Order dated 03/07/2020 in OA no.514/2019
12. Letter No PCB/RO-EKM/GEN-258/19 D dated 23.07.2020 from the Chief Environmental Engineer, Regional office, Ernakulum
13. Minutes of the video conference held on 17/08/2020 with Secretary, Kochi Corporation and allied municipalities
14. Letter No. MOE2/10948/2017 dated 11/09/2020 of Secretary, Kochi Corporation.
15. Order dated 22/11/2018 in O.A. No. 353/2016
16. Order dated 20/11/2018 in O.A No. 117/2014, 499/2014 and 102/2014
17. Order dated 16/09/2020 in OA no.514/2018.
18. Show cause notice of even No. dated 15/10/2020.
19. Letter No.MOE2-10948/17 dated 02/11/2020 from Kochi Corporation.

WHEREAS the Central Government notified the Environmental (Protection) Act, 1986 for the protection and improvement of environment and for matters connected therewith;

WHEREAS as per Section 3, 6 and 25 of the Environment (Protection) Act, 1986, the Central Government re-notified the Solid Wastes Management Rules, 2016 (hereinafter referred as SWM Rules) vide notification S.O. 1357(E) dated 8/4/2016;

WHEREAS as per Rule 22 (1) of the SWM Rules, suitable sites for setting up solid waste processing facilities are to be identified;

WHEREAS as per Rule 22(3) of the SWM Rules, suitable sites for setting up solid waste processing facility and sanitary landfill facilities are to be procured;

WHEREAS as per Rule 22 (5) of the SWM Rules, door to door collection of segregated waste and its transportation in covered vehicles to processing or disposing facility shall be ensured by 8-4-2018;

WHEREAS as per Rule 22 (7) of the SWM Rules, solid waste processing facilities for the complete quantity of waste generated from the local body at 0.4 to 0.5 kg/person/day, shall be set up by 8-4-2018;

WHEREAS facilities with the technologies specified in CPHEEO manual and SWM Rules are to be in place for the effective treatment and disposal of the solid waste generated in the local body;

WHEREAS as per Rule 22 (6) of the SWM Rules, separate storage, collection and transportation of construction and demolition waste shall be provided;

WHEREAS as per Rule 22(11) of the SWM Rules, bio-remediation or capping of old and abandoned dump site shall be ensured;

WHEREAS the Hon'ble NGT vide order dated 23/10/2018 read first above, ordered to complete the new integrated solid waste treatment processing plant in six months to commence the treatment of legacy waste, impose a penalty of Rs. 1 crore on Kochi Corporation and to deposit a performance guarantee of Rs. 3 crore with Kerala State Pollution Control Board and the Hon'ble High Court vide the order read 2nd above, ordered to place bank guarantee of Rs. 50 lakh each to Central Pollution Control Board and Kerala State Pollution Control Board and to exempt you from depositing Rs. 3 crore towards bank guarantee and accordingly bank guarantee was placed by the Kochi Corporation;

WHEREAS during the second meeting on 15/3/2019 of the State Level Monitoring Committee constituted by the Hon'ble NGT vide the order under ref.3, the resolutions were made to conduct bio mining of legacy waste part by part; keep ESCROW amount for handling emergency situation; provide adequate cover, leachate collection tank and log book for waste transporting vehicles and allow waste transportation only by those vehicles by Health Supervisor; engage Ex-service armed security at the site in the dump yard; to make the roads, NH Bypass, Sahodaran Ayyappan Road and Banerjee Road as Zero Waste road; to insist door to door collection and prohibit the deposition of waste on roads and other public places and insist for segregation of waste before disposal; ban the plastic carry bags below the prescribed limit and to proceed against violators under the law of penalization; to give adequate protective equipment namely gumboots, gloves, masks etc., proceed against the violators disposing sewage, septage and chicken waste in the water resources; apartments, hospitals, hospitals which are not operating their sewage treatment plants and to evolve methods for the effective disposal of plastics and not to dispose plastic by burning;

WHEREAS Chairman SLMC during their 4th meeting on 08/05/19 directed to submit specific and detailed time bound action plan to the Kerala State Pollution Control Board, to adopt mechanized system for the disposal of legacy waste, to implement heavy fining/insisted surveillance cameras/strict squad to prevent waste dumping on roads, to insist on segregation of wastes at source, to transport vehicles with adequate cover, leachate collection tank and logbook, to provide adequate personal protective equipments to workers and to compel them to wear the same,

to prohibit deposit of wastes on roads and other public places, to deploy Haritha Karma Sena for door to door collection, to report on the action taken to the SLMC;

WHEREAS the fifth meeting of the State Level Monitoring Committee on 14/06/2019, noticed with distress that a good number of directions issued were yet to be complied with and therefore expressed displeasure over the same and it was again directed to issue directions by the Corporation to the bulk generators to take steps to channelize their own wastes as the same is homogenous and clean, channelization can be done easily; to submit the details of wards, in which segregation is complete; segregate plastic waste for shredding to be stored in areas attached to the zonal office of the Corporation; and to submit action plan in each ward for solid waste management, projects to be implemented and to improve the existing waste management facility, existing material collection facility and resource recovery facility; to publish the information on waste management in the website; to take legal action against open burning of non-biodegradable waste and dumping of waste in water bodies; to take steps to establish MCFs in all wards and RRF at least in six wards; issue identity card to all workers engaged in waste management and to prepare action plan for developing a business model for effective treatment of waste;

WHEREAS it is noted that you have not identified the land for managing Construction and Demolition waste and sanitary landfill;

WHEREAS notice dated 12/10/2019 was issued vide reference 4th above for not taking steps to provide biomethanation plant for the food wastes generated within Kochi Corporation;

WHEREAS the Chief Environmental Engineer, Regional Office, Ernakulam vide the letter dated 18/10/2019 cited 5th above, reported about the improper functioning of solid waste plant and non installation of proper leachate treatment plant at the site;

WHEREAS the Board issued notice dated 11/12/2019 read 6th above to the Secretary, Kochi Corporation to show cause why the Environmental compensation of Rs. 1.122 Crore shall not be levied for not providing leachate treatment plant and the replies of the Kochi Corporation under ref. 7th above were received;

WHEREAS the Hon'ble National Green Tribunal vide the order read 8th above on 30-1-2020 directed that, on receipt of the explanation from the Corporation to the notice issued by Board, the Pollution Control Board is to pass appropriate orders and complete the proceedings initiated on the basis of their inspection and dispose of the same in accordance with law and come with compliance report before the Tribunal;

WHEREAS the Chief Environmental Engineer, Regional Office, Emakulam in the report (ref. 9) dated 20/02/2020 to the Chairman, State Level Monitoring Committee, reported that the Corporation is not taking earnest steps to solve the issue which is a long pending case from the Corporation side and to assess environmental compensation as done on 18/10/2019;

WHEREAS the Chief Environmental Engineer, Regional Office, Emakulam vide letter No. PCB/RO-EKM/GEN-258/2019 dated 28-2-2020 reported that the Corporation is allowing five municipalities and two grama panchayaths to bring their biodegradable waste in addition to Corporation's biodegradable waste and non biodegradable waste and the total actual quantity of waste estimated as 365.19TPD;

WHEREAS on receiving the reply from the Secretary, Kochi Corporation, hearing was conducted with the Secretary, Kochi Corporation on 16/3/2020 vide ref., 10 reported status to the NGT;

WHEREAS the Hon'ble NGT on 3/7/2020 in OA514/2019 (ref. 11) observed the delay in setting up of waste to energy plant and was doubtful whether leachate can be treated in an ordinary septage treatment plant as it contains heavy metals and the tribunal also observed that the progress appears to be very slow and in disregard to the statutory and constitutional obligation of providing clean environment;

WHEREAS it was reported by the Chief Environmental Engineer, Regional office Ernakulam vide letter No. PCB/RO-EKM/GEN-221/19 dated 23/07/2020 (ref. 12) that during the inspection conducted by the Board on various occasions, it was noticed

- a) The facilities provided for the treatment and disposal of solid waste provided at Brahmapuram are not maintained properly;
- b) The windrow composting shed is in dilapidated condition and the mixed solid waste including plastic waste is dumped in the yard in open condition;
- c) The manure produced seems to be marginal compared to the daily waste collected at the plant;
- d) Manure produced did not meet the fertilizer standard as per the SWM Rule, 2016 and contain heavy metals;
- e) Due to the unscientific treatment of biodegradable solid waste, huge quantity of rejects have been dumped at various places and which in turn got converted to legacy waste;
- f) Fire accident were occurred in the legacy waste dump yard at Brahmapuram 3 or 4 times during the period of 2019 and 2020 which lead to air pollution in and around the dump site
- g) Leachate from the windrow composting shed and the biodegradable solid waste dumping area is not collected and treated properly due to improper drains and there are chances of leachate reaching the Kadambayar river, one of the polluted river stretch identified by CPCB;
- h) The leachate treatment plant provided prior to the visit of Regional Monitoring Committee (RMC) appointed by the Hon'ble NGT is not operational now;
- i) During the inspection conducted on 16.07.2020 it was noticed that no progress in the installation of leachate treatment plant except the construction of a new collection tank having capacity of 100 m³ on which the Hon'ble Court made adverse remarks;
- j) No effective steps were taken for construction activities for the installation of waste to energy plant and for the removal of legacy waste. The Corporation authorities are still not able to assess the quantum of legacy waste settled there;

WHEREAS hearing was conducted by the Chairman on 17/8/2020 with the Kochi Corporation (ref. 13) and accordingly details were submitted by you vide the letter under ref. 14;

WHEREAS from the above observations, it is noted that you have not fully complied with the directions of Hon'ble SLMC, Solid Waste Management Rules and also not obtained authorization under SWM Rules, 2016;

WHEREAS the Hon'ble National Green Tribunal, Principal Bench, New Delhi in the order dated 22/11/2018 in O.A. No. 353/2016 (ref. 15) clarified that apart from prosecution, the statutory authorities under the Environment (Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974, must, in exercise of their incidental powers, prescribe scale of compensation to be collected from the polluters on the "Polluter Pay's Principle". Such scale which may be laid down at various levels, having regard to the local condition or as per direction in the hierarchy of the authorities;

WHEREAS in various other application also, the Hon'ble NGT passed similar orders, for instance, in the Order dated 20/11/2018 in O.A No. 117/2014, 499/2014 and 102/2014 (ref. 16) the Hon'ble NGT noted as; "Needless to say that statutory authorities under the Environment (Protection) Act, 1986, Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 are entitled to assess and recover damages as "Polluter Pay's Principle" in exercise of incidental powers to protect environment".

WHEREAS as per Hon'ble NGT order dated 23/09/2019 in O.A 585/2018, if the rules are violated, the Pollution Control Board can independently proceed against local bodies who are not complying with the rules including initiation of prosecution of those person who are not complying with the same and assessment of damage caused to the Environment;

WHEREAS the Hon'ble NGT vide order dated 16/9/2020 in OA 514/2018 (ref. 17), observed the failure in taking effective steps on the matter;

WHEREAS based on the recommendation of the Chief Environmental Engineer, Regional Office, Ernakulum made for levying Environmental Compensation against Kochi Corporation Show Cause Notice was issued to the Corporation vide notice No. PCB/HO/SEE2/KOCHI CORPN/2019 dated 15/10/2020 (ref. 18) for furnishing reasons for not levying the Environmental Compensation of Rs. 1395.42 lakhs (Rupees One thousand three hundred and ninety five lakhs and forty two thousand only);

WHEREAS reply was received from Kochi Corporation vide letter No.MOE2-10948/17 dated 02/11/2020 (ref. 19);

ANDWHEREAS the Chief Environmental Engineer, Regional Office, Ernakulum made recommendations for reassessment of levying Environmental Compensation, vide letter No.PCB/RO-EKM/GEN-258/19 dated 10/01/2021 is as follows;

Population(2011)	6,77,381
Class	Class I
Waste generation (TPD)	315.96
Waste disposed as per Rules (TPD)	31.60
Waste Management Capacity Gap(TPD)	284.36
Calculated EC(capital cost component) in Lakhs, Rs.	682.47
Minimum and Maximum values of EC (Capital cost component) recommended by the Committee (Lakhs, Rs.)	Min. 100 Max. 1000
Final EC (capital cost component) in Lakhs, Rs.	682.47
Calculated EC (O&M component) in Lakhs, Rs./day	5.69
Minimum and maximum values of EC (O&M cost component) recommended by the Committee	Min. 0.1 Max. 1.0
Final EC(O&M component) in Lakhs, Rs./day	1.00

Calculated Environmental Externality (Lakhs Rs./day)	0.01
Minimum and maximum values of Environmental Externality recommended by the committee(Lakhs, Rs./day)	Min. 0.05 Max.0.1
Final Environmental Externality (Rs. Per day)	0.05
EC to be collected (Rs. in Lakhs from 22/11/2018 to 31/12/2020 i.e 771 days)	1492.02

NOW THEREFORE, in exercise of the powers vested under Section 5 of the Environment Protection Act 1986, read with Government of India Notification S.O. 327(E) dated 10/04/2001, you are directed to remit an amount of Rs. 1492.02 lakhs (Rupees One thousand four hundred and ninety two lakh and two thousand only) towards the Environmental Compensation for non-compliance of the Solid Waste Management Rules, 2016, for the period from 22/11/2018 to 31/12/2020 within 15 days of receipt of this direction.


CHAIRMAN

To

The Secretary,
Kochi Corporation

Copy to:

1. The Chairman
State Level Monitoring Committee with C/L
2. The Additional Chief Secretary
Local Self Government Department with C/L
3. The Principal Secretary
Environment Department with C/L
4. The District Collector, Ernakulam
5. The Director, Urban Directorate
6. The Chief Environmental Engineer, Regional Office, Ernakulam
7. The Environmental Engineer, District Office 1 and 2, Ernakulam



KERALASTATE POLLUTION CONTROL BOARD

കരളസംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004

PCB/HO/SEE2/Aluva Municipality /2019

Date: 17/02/2021

Regd. with A/D

SHOWCAUSE NOTICE UNDER SECTION 5 OF THE ENVIRONMENTAL PROTECTION ACT, 1986

Sub: Non-compliance of Solid Waste Management Rules, 2016.

- Ref: 1. The Hon'ble NGT order dated 16/01/2019 in OA no. 606/2018.
 2. The Hon'ble NGT order dated 22/11/2018 in O.A. No. 353/2016.
 3. The Hon'ble NGT order dated 20/11/2018 in O.A No. 117/2014, 499/2014 and 102/2014.
 4. Letter No. PCB/HO/RULES/SWM-ERNAKULAM/2018 dated 13/02/2019
 5. Letter No. H4-2655/19 dated 27/03/2019.
 6. Letter No. PCB/RO-EKM/NEW-97/12 dated 22/05/2019 from CEE, RO, Ernakulam.
 7. Notice of even No. dated 12/10/2019.
 8. Your letter dated 24/08/2020
 9. Minutes of Video Conference held on 19/11/2020.
 10. Letter No. PCB/RO-EKM/GEN-258/19 dated 10/01/2021.

WHEREAS the Central Government notified the Environmental (Protection) Act, 1986 for the protection and improvement of environment and for matters connected therewith;

WHEREAS as per Section 3, 6 and 25 of the Environment (Protection) Act, 1986, the Central Government re-notified the Solid Wastes Management Rules, 2016 hereinafter referred as SWM Rules) vide notification S.O. 1357(E) dated 8/4/2016;

WHEREAS as per Rule 22 (1) of the SWM Rules, suitable sites for setting up solid waste processing facilities are to be identified;

WHEREAS as per Rule 22(3) of the SWM Rules, suitable sites for setting up solid waste processing facility and sanitary landfill facilities are to be procured;

WHEREAS as per Rule 22 (5) of the SWM Rules, door to door collection of segregated waste and its transportation in covered vehicles to processing or disposing facility shall be ensured by 8-4-2019;

WHEREAS as per Rule 22 (7) of the SWM Rules, solid waste processing facilities for the complete quantity of waste generated from the local body at 0.4 to 0.5 kg/person/day, shall be set up by 8-4-2019;

WHEREAS facilities with the technologies specified in CPHEEO manual and SWM Rules are to be in place for the effective treatment and disposal of the solid waste generated in the local body;

WHEREAS as per Rule 22 (6) of the SWM Rules, separate storage, collection and transportation of construction and demolition waste shall be provided;

WHEREAS as per Rule 22 (11) of the SWM Rules, bio-remediation or capping of old and abandoned dump site shall be ensured;

WHEREAS as per NGT order dated 25/04/2019 in O.A. 606/2018 (ref.1 above), all environmental statutes are to be complied by the model city/town/village by 25.10.2019 and all other local bodies by 25.04.2020;

WHEREAS repeated instructions were issued including the communications read 4th and 6th above, for the compliance of the SWM Rules;

WHEREAS it is pointed out vide the letter cited 6th above that you had been continuously violating the rules by evading from adopting suitable measures for Solid Waste Management;

WHEREAS the Board issued direction vide communication read 7th to take step to provide bio-methanation plant for the waste generated within Aluva Municipality;

WHEREAS it is noted vide ref. 8 that you are still disposing biodegradable waste to the Brahmapuram plant which is in dilapidated condition;

WHEREAS it is noted vide ref. 8 that you are disposing non-biodegradable waste to the hazardous landfill of KEIL, which is meant for the disposal of Hazardous Wastes as per Hazardous Waste Management Rule and is against the rule;

WHEREAS in the meeting held on 19/11/2020 through video conference with municipality, Chief Environmental Engineer, Regional Office had been directed to submit a detailed report in Solid Waste Management;

WHEREAS the Hon'ble National Green Tribunal, Principal Bench, New Delhi in the order dated 22/11/2018 in O.A. No. 353/2016 clarified that apart from prosecution, the statutory authorities under the Environment (Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974, must, in exercise of their incidental powers, prescribed scale of compensation to be collected from the polluters on the "Polluter Pay's Principle". Such scale which may be laid down at various levels, having regard to the local condition or as per direction in the hierarchy of the authorities. In various other application also, the Hon'ble NGT passed similar orders, for instance, in the Order dated 20/11/2018 in O.A No. 117/2014, 499/2014 and 102/2014 the Hon'ble NGT noted as; "Needless to say that statutory authorities under the Environment (Protection) Act, 1986, Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 are entitled to assess and recover damages as "Polluter Pay's Principle" in exercise of incidental powers to protect environment".

WHEREAS the Chief Environmental Engineer, Regional Office, Ernakulum made assessment for levying Environmental Compensation, details of assessment were furnished vide letter No.PCB/RO-EKM/GEN-258/19 dated 10/01/2021(Ref.9 above) as follows for the non-compliance with the Solid Waste Management Rules, 2016;

Population(2011)	22,428
Class	Class III
Total waste generation (kg per person per day)	0.3
Waste generation (TPD)	6.73
Waste disposed as per Rules (TPD)	0.67
Waste Management Capacity Gap(TPD)	$6.73-0.67=6.06$
EC - Capital Cost Component (Rs in lakhs) (Min:100 & Max:1000)	$2.4 \times 6.06 = 14.54$ (Taken as 100)
EC - O&M Component(Rs in lakhs/day) (Min: 0.1 & Max: 1)	$0.02 \times 6.06 = 0.12$
Environmental Externality(Rs in lakhs/day) (Min: 0.05 & Max: 0.1)	$5 \times 6.06 / 100000 = 0.0003$ (Taken as 0.05)
No. of days (N) (Taken as days from 09.04.2019 to 31.12.2020)	663
Environmental Compensation (Rs in lakhs)	$100 + 0.12 \times 663 + 0.05 \times 663 = 212.71$

AND WHEREAS an amount of **Rs. 212.71 lakhs (Rupees Two hundred twelve lakh and seventy one thousand only)** is assessed as environmental compensation from 09/04/2019 to 31/12/2020 against you for the non-compliance of the Solid Waste Management Rules, 2016;

NOW THEREFORE, in exercise of the powers vested under Section 5 of the Environment Protection Act, 1986, read with Government of India Notification S.O. 327(E) dated 10/04/2020 you are directed to show cause within 15 days of receipt of this notice as to why the Board shall not recover Environmental Compensation of **Rs. 212.71 lakhs (Rupees Two hundred twelve lakh and seventy one thousand only)** from 09/04/2019 to 31/12/2020 against you for the non-compliance of Rule 22 of the SWM Rules, 2016.


CHAIRMAN

To

The Secretary
Aluva Municipality

Copy to:

1. The Chairman
State Level Monitoring Committee.
2. The Additional Chief Secretary
Local Self Government Department.
3. The District Collector, Ernakulam.
4. The Director, Urban Directorate.
5. The Chief Environmental Engineer, Regional Office, Ernakulam.
6. The Environmental Engineer, District Office, Ernakulam.



☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairman: 2318150 Member Secretary: 2318151
E-mail: ms.kspcb@gov.in FAX: 0471 - 2318134, 2318152 web: www.keralapcb.nic.in

KERALASTATE POLLUTION CONTROL BOARD

കേരളസംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004

PCB/HO/RULES/SWM - ERNAKULAM/2018

Date: 08/02/2021

Regd. with A/D

SHOW CAUSE NOTICE ISSUED UNDER SECTION 5 OF THE ENVIRONMENTAL (PROTECTION) ACT, 1986

Sub: Non-compliance of Solid Waste Management Rules, 2016.

- Ref: 1. The Hon'ble NGT order dated 20/11/2018 in O.A No. 117/2014, 499/2014 and 102/2014.
2. The Hon'ble NGT order dated 22/11/2018 in O.A. No. 353/2016.
3. The Hon'ble NGT order dated 16/01/2019 and 25/04/2019 in OA no. 606/2018.
4. Your letter no. PH-14345/81 dated 15/03/2019
5. Letter No. PCB/RO-EKM/NEW-97/12 dated 22.5.19 from CEE,RO, Ernakulam
6. Notice of even number dated 12.10.19
7. Minutes of Video Conference held on 19/11/2020.
8. Letter No. PCB/RO-EKM/GEN-258/19 dated 10/01/2021.

WHEREAS the Central Government notified the Environmental (Protection) Act, 1986 for the protection and improvement of environment and for matters connected therewith;

WHEREAS as per Section 3, 6, and 25 of the Environment (Protection) Act, 1986, the Central Government re-notified the Solid Wastes Management Rules, 2016 hereinafter referred as SWM Rules) vide notification S.O. 1357(E) dated 8-4-2016;

WHEREAS as per Rule 22 (1) of the SWM Rules, suitable sites for setting up solid waste processing facilities are to be identified;

WHEREAS as per Rule 22(3) of the SWM Rules, suitable sites for setting up solid waste processing facility and sanitary landfill facilities are to be procured;

WHEREAS as per Rule 22 (5) of the SWM Rules, door to door collection of segregated waste and its transportation in covered vehicles to processing or disposing facility shall be ensured by 8-4-2018;

WHEREAS as per Rule 22 (7) of the SWM Rules, solid waste processing facilities for the complete quantity of waste generated from the local body at 0.4 to 0.5 kg/person/day, shall be set up by 8-4-2019;

WHEREAS facilities with the technologies specified in CPHEEO manual and SWM Rules are to be in place for the effective treatment and disposal of the solid waste generated in the local body;

WHEREAS as per Rule 22 (6) of the SWM Rules, separate storage, collection and transportation of construction and demolition waste shall be provided;

WHEREAS as per Rule 22 (11) of the SWM Rules, bio-remediation or capping of old and abandoned dump site shall be ensured;

WHEREAS as per NGT order dated 25.04.2019 in O.A. 606/2018 (ref.1 above), all environmental statutes are to be complied by the model city/town/village by 25.10.2019 and all other local bodies by 25.04.2020;

WHEREAS repeated instructions were issued including the communication read 5th above, for the compliance of the SWM Rules;

WHEREAS it is pointed out vide the letter cited 5th above that you had been continuously violating the rules by evading from adopting suitable measures for Solid Waste Management;

WHEREAS the Board issued direction vide communication read 6th to take step to provide bio-methanation plant for the waste generated within Thrippunithura Municipality;

WHEREAS it is noted vide ref. (8) that you are still disposing biodegradable waste to the Brahmapuram plant which is in dilapidated condition;

WHEREAS it is noted vide ref. (8) that you are disposing non-biodegradable waste to the hazardous landfill of KEIL, which is meant for the disposal of Hazardous Wastes as per Hazardous Waste Management Rule and is against the rule;

WHEREAS in the meeting held on 19/11/2020 through video conference with Municipality, Chief Environmental Engineer, Regional Office had been directed to submit a detailed report in Solid Waste Management;

WHEREAS the Hon'ble National Green Tribunal, Principal Bench, New Delhi in the order dated 22/11/2018 in O.A. No. 353/2016 clarified that apart from prosecution, the statutory authorities under the Environment (Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974, must, in exercise of their incidental powers, prescribed scale of compensation to be collected from the polluters on the "Polluter Pay's Principle". Such scale which may be laid down at various levels, having regard to the local condition or as per direction in the hierarchy of the authorities. In various other application also, the Hon'ble NGT passed similar orders, for instance, in the Order dated 20/11/2018 in O.A No. 117/2014, 499/2014 and 102/2014 the Hon'ble NGT noted as; "Needless to say that statutory authorities under the Environment (Protection) Act, 1986, Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 are entitled to assess and recover damages as "Polluter Pay's Principle" in exercise of incidental powers to protect environment".

WHEREAS the Chief Environmental Engineer, Regional Office, Ernakulum made assessment for levying Environmental Compensation, details of assessment were furnished vide letter No.PCB/RO-EKM/GEN-258/19 dated 10/01/2021(Ref.8 above) as follows for the non compliance with the Solid Waste Management Rules, 2016;

Population(2011)	69,390
Class	Class II
Total waste generation (kg per person per day)	0.3
Waste generation (TPD)	20.82

Waste disposed as per Rules (TPD)	2.08
Waste Management Capacity Gap(TPD)	$20.82-2.08=18.74$
EC - Capital Cost Component (Rs in lakhs) (Min:100 & Max:1000)	$2.4 \times 18.74 = 44.96$ (Taken as 100)
EC - O&M Component(Rs in lakhs/day) (Min: 0.1 & Max: 1)	$0.02 \times 18.74 = 0.37$
Environmental Externality(Rs in lakhs/day) (Min: 0.05 & Max: 0.1)	$5 \times 18.74 / 100000 = 0.009$ (Taken as 0.05)
No. of days (N) (Taken as days from 09.04.2019 to 31.12.2020)	663
Environmental Compensation (Rs in lakhs)	$100 + 0.37 \times 663 + 0.05 \times 663 = 378.46$

ANDWHEREAS an amount of **Rs. 378.46 lakhs (Rupees Three hundred seventy eight lakh and forty six thousand only)** is assessed as environmental compensation from 09/04/2019 to 31/12/2020 against you for the non-compliance of the Solid Waste Management Rules, 2016;

NOW THEREFORE, in exercise of the powers vested under Section 5 of the Environment Protection Act, 1986, read with Government of India Notification S.O. 327(E) dated 10/04/2020 you are directed to show cause within 15 days as to why the Board shall not recover Environmental Compensation of Rs. 378.46 lakhs (Rupees Three hundred seventy eight lakh and forty six thousand only) from 09/04/2019 to 31/12/2020 from you for the non-compliance of Rule 22 of the SWM Rules, 2016.



CHAIRMAN

To

The Secretary
Thrippunithura Municipality

Copy to:

1. The Chairman
State Level Monitoring Committee.
2. The Additional Chief Secretary
Local Self Government Department.
3. The District Collector, Ernakulam.
4. The Director, Urban Directorate.
5. The Chief Environmental Engineer, Regional Office, Ernakulam.
6. The Environmental Engineer, District Office, Ernakulam.



KERALA STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE, GANDHI NAGAR, ERNAKULAM – 682 020

www.keralapcb.nic.in

PCB/RO-EKM/GEN-258/19

Date: 16.03.2021

SHOW CAUSE NOTICE

Sub:- Solid Waste dumping facility by Kochi Corporation – Brahmapuram - Reg.

Ref:- 1. Direction No.PCB/HO/SEE2/KOCHI CORPN/2019 (Vol-II) given by the Chairman, KSPCB dated 09.03.2021.

2. This office notice No.PCB/RO-EKM/GEN-97/12 dated 14.01.2019.

3. Authorization given by the Chairman, SPCB No. PCB/HO/SEE2/KOCHI CORPN/2019 dated 31.07.2020 to initiate prosecution against Kochi Corporation.

4. Notice No. PCB/HO/RULES/SWM-ERNAKULAM/2018 dated 12.10.2019 from the Chairman of the Board.

5. Notice No. PCB/HO/SEE2/KOCHI CORPN/2019 dated 11.12.2019 from the Chairman of the Board.

6. Joint inspection conducted at solid waste plant and septage treatment plant, Brahmapuram on 03.03.2021 by the Chief Environmental Engineer, Regional Office, Ernakulam along with Chairman, SLMC.

7. Fire Accident Occurred at solid waste dumping area on 05.03.2021 and study report by NIIST prepared in April 2019 during fire accident occurred on 22.02.2019 & 23.02.2019.

8. Notice No. PCB/HO/SEE 2/KOCHI CORPN/2019 dated 15.10.2020 assessing Environmental Compensation.

9. Direction No. PCB/HO/SEE 2/KOCHI CORPN/2019 dated 13.01.2021 imposing Environmental Compensation.

10. Your Letter No. MOE2/10948/17/II dated 28.10.2020.

Sir,

In continuation to the notices & direction vide references cited (4),(5), (8), & (9) above, as per the surprise inspection conducted on 03.03.2021 at solid waste disposal yard / Septage treatment plant at Brahmapuram along with the Chairman, SLMC and based on the findings during the fire accident mentioned/based on the report vide reference (7) I am to inform you as follows,

It may be noted that still there are no progress in the satisfactory management of solid waste at the Solid Waste Management facility provided by the Kochi Corporation at Brahmapuram. During inspection mentioned vide reference (6), certain observations were made. These observations in addition to the earlier findings are illustrated as follows.

Though the Corporation is still collecting solid wastes from other Municipalities also, it was once again noticed that fresh biodegradable waste received in the plant are not in properly segregated form and disposed as such over the legacy waste deposit in the dilapidated windrow sheds. Though several directions were already given directly by the Board and during different meetings by SLMC, you are not able to practice spot treatment of such fresh waste at the plant even after a lag of about 10 years, the date from which the corporation is operating the Brahmapuram yard without a valid authorization as per the MSW Rules 2000 and SWM Rules 2016.

The damaged windrow composting sheds are the root cause for the malfunctioning of solid waste management facility as no effective facilities are seen there to process fresh bio degradable wastes collected from Corporation area as well as from other Local Bodies. It is a sad state of affair that you are still allowing bio degradable fraction of the solid wastes from other local bodies also whereas you have not practicing any scientific facilities for solid waste management at Brahmapuram plant. It is also noticed that the rain water if any will definitely come in contact with the deposited legacy waste and will be directed to "Kadambrayar", one of the rivers surrounding the dumping yard. There are visible discharge routes intentionally constructed for this untreated leachate which find its way to marshy area beyond this sheds then to river flowing nearby. The other one, a branch of chithrapuzha also facing the same menace due to this dumping yard. It is important to note that these two stretches are already identified as polluted river stretch and action plans are being proposed to revitalize these streams as per different orders of the Hon'ble National Green Tribunal in OA 673/2018 in the matter of "News item published in 'The Hindu' authorized by Sri. Jacob Koshy titled "More river Stretches are now Critically Polluted: CPCB". Samples were collected from drains which were seen spread over the entire area and sent to Central Laboratory, KSPCB for reports. It may also be noted that the thickly growing weeds in the Kadambrayar and Chithrapuzha prevent the Board officials to carry out water sampling.

No actions are taken to install proper Leachate Treatment facilities at the site. The temporary plant provided was seen totally non functional. Your claim that this leachate oozed out from windrow sheds is being properly treated in the nearby common septage treatment facility is seems to be absolutely a false statement. During the surprise visit vide reference (6), septage treatment facility provided very near to this dumping yard also was inspected to ascertain whether the plant is functioning or not. It is unfortunate to note that the plant was not functioning properly and it is suspected that you are discharging untreated or partially treated sewage/effluent to nearby marshy area which is approximately 50 m away from septage plant where sewage in septic condition was seen spread over the entire area. It is distressing to note that almost all components of the septage treatment plant were seen kept idle and there were clear evidence for untreated sewage discharge using flexible hose directly through outlet portion which end in such marshy area. This marshy area is extended to Chithrapuzha river, flow if any will be leading to Chithrpuzha, one of the river identified as polluted river stretch out of 21 in the state and 3 in the District. During inspection vehicle (Reg No. KL 40 N 5051) was seen emptying the leachate though no components of the plant was found to be operational and the flow meter provided was seen faulty. It may also be noted that there was an adverse remark from Principal bench of Hon'ble NGT on the feasibility of leachate transfer to a septage plant for treatment. However, sample collected from the discharge area also and was forwarded to Central Laboratory. It may be noted that statutory samples were also collected from this outlet portion and drain leading to temporary leachate collection tank provided at the solid waste dumping yard as a prelude step on initiating prosecution against you for the committed offences as per the relevant provisions of the Water (Prevention and Control of Pollution) Act 1974, the Environment Protection Act 1986 and the Solid Waste Management Rules, 2016 and as authorized by the Chairman, SPCB vide reference (3).

As usual, plastic wastes were found to be dumped openly along the southeast portion and no facilities were seen there to process it except a shed which is not at all capable of accommodating the entire plastic wastes brought to this yard. The shredding machine installed was seen kept idle. It may be noted that the responsible officials available at the site reported that a small portion of the waste is being transferred to some outside agencies for further

processing but the quantity or the agency details are not obtained from them and they were not at all aware of such details.

It is also noticed that a fire accident was occurred at this plant on 05.03.2021 where plastic waste heaped along the southeast direction mentioned above. On hearing about this incident surveillance team of the Board rushed to this area where fire and heavy smoke were observed. The CCTV Footage proved it clear that the flames started at 1.00 PM and multiplied after that. It was noticed that the fire and rescue team was able to control the fire in the night but heavy smoke from burning of plastic continued. It is regretted to observe that during 2019 and 2020 also there were fire accidents and a study was conducted by the NIIST in 2019 on which a report was submitted on the status of emission of dioxins and dioxin – like PCBs. The major findings of the study may be noted,

Major findings of the study.

- ❖ *Dioxins were detected and quantified in ambient air, residual ash and sediment samples collected from the premises of waste dump yard during fire break out.*
- ❖ *The average dioxin levels observed in ambient air was found to be 10.3 pg TEQ/m³. The observed levels are 50 and 10 times higher than reference and field blank data.*
- ❖ *The average dioxin concentration observed in residual ash samples collected from different locations in the fire covered area is 158.5 ng TEQ/kg of ash.*
- ❖ *The observed dioxin levels in sediment samples collected from nearby marsh fields is 6.8 ng TEQ/kg.*
- ❖ *The dioxin generated by the fire is given by Emission Factor x Activity Rate.*
 - *The Activity Rate = total quantity of MSW burned = Area burned (from satellite photo of 23/2/2019) x burn depth (20 cm as given by Dr.Ajit Haridas), and bulk density (350 kg/m³) = 1800 tonnes (appr.)*
 - *The Emission Factor for dioxins as determined in “Burn-hut” at CSIR-NIIST is 39.81 µg PCDD-F TEQWHO/ ton of waste burned.*
 - *Hence, estimated dioxin emitted = 72 milligram Toxicity equivalence (TEQ).*
 - *The WHO /FAO maximum tolerable monthly intake of dioxins for humans is 70 picogram TEQ/kg body weight (tolerable annual intake for a 65 kg person is 54.6 nanogram TEQ). While only a very small fraction of the dioxins generated reaches humans via the food chain, the total dioxin generated is sufficient to exceed tolerable annual intake of $72 \times 10^{-3} / 54.6 \times 10^{-9} = 1.3$ million persons*

Recommendations

- *It is essential to establish modern solid waste treatment plants and clear the dump yards of wastes by ‘bio-mining’ to separate combustible and inert*

material. The contaminated ash separated during bio-mining should be removed to sanitary landfill.

- *Given the widespread burning of waste and dump yard fires, analysis of dioxins in animal origin food samples such as milk, egg, meat and in human milk is recommended.*

It may also be noted that during several occasions specific instructions were given by the SLMC to then Secretaries not to repeat mismanagement of solid wastes/these types of accidents via due negligence shown by the responsible officials of the Corporation at a dumping yard where huge heaps of plastic wastes / legacy wastes are a regular scene. You are also reminded that the repeated fire accidents and experienced toxic gas emissions are violations as per the relevant provisions of the Air (Prevention and Control of Pollution) Act 1981. Also, no reply has been submitted to this office letter of even number dated 16.02.2021 asking details of certain registers and list of officials held the post of Secretary of the Corporation after 28.10.2020, the date on which a list of officials held the post of Secretary from 18.04.2010 onwards (the date on which the validity of the authorization ended) was made available as per the letter vide reference (11).

Please find attached different photographs taken during the visit/fire accident to make you aware on the grave situation existing are placed here.



Photo 1 – Uncontrolled Leachate Flow to Kadambrayar



Photo 2 –Kadambrayar with full of weeds surrounding the solid waste management plant



Photo 3 –The Brahmapuram solid waste dumping yard is just 1-2 m away from Kadambrayar



Photo 4 – Damaged windrow composting sheds of Brahmapuram solid waste plant



Photo 5 – Open Legacy waste heap always a menace to Kadambrayar river



Photo 6 – Uncontrolled Leachate Flow from dilapidated windrow sheds



Photo 7– Fresh Biodegradable wastes are brought from other Municipality (Aluva) but dumped over legacy wastes



Photo 8 –Biodegradable wastes transfer from other Municipality (Thrikkakkara)



Photo 9 – Blocked Drains prevent Leachate Flow.



Photo 10- Uncontrolled Leachate Flow



Photo 11 - Open Drains make leachate treatment unviable.



Photo 12 – Untreated sewage discharge from Septage treatment plant



Photo 13 – A channel through where untreated sewage is routed.



Photo 14 – A part of legacy waste accumulation



Photo 15 – Nonfunctional Sludge Drying Bed of Septage Treatment Plant



Photo 16 – Suspected untreated flow Outlet portion of Septage Treatment Plant



Photo 17 – Nonfunctional filter feed tank of Septage Treatment Plant



Photo 18 – Faulty flow meter installed at Septage Treatment Plant



Photo 19 – Vehicle seen at the plant emptying leachate from Solid waste plant



Photo 20 – Suveillance team is visiting the Fire accident occurred at Brahmapuram plant on 05.03.3021



Photo 21–CCTV Footage of Fire accident occurred at Brahmapuram plant on 05.03.3021 at 07.27 PM

The following observations also may be read to identify the negligence shown towards improper management of solid waste at Brahmapuram plant owned and operated by the Kochi Corporation.

1. Still you are continuing collection of bio degradable wastes from other Local bodies whereas they are also duty bound to manage their wastes and continuing violation for several years as per the MSW Rules 2000 / for the last five years as per the SWM Rules 2016 [Rules 22(1), (3), (5), (6) & (11)]. It is important to note that there are committed offences by the Kochi Corporation and these local bodies as per the order dated 12.10.2018 & 16.01.2019 in OA 606 of 2018 also.
2. Each fire accident causes damages to environment in equal/similar proportions as happened in 2019 on which specific study was conducted by the Board. Hence the Board will be forced to proceed with Environmental Damage assessment/imposing fine etc.
3. It look leachate flow will be more severe during coming monsoon also which will be there within a couple of months as happened in the previous years and the nonfunctioning septage treatment plant is not at all capable of accommodating the leachate generated from the Solid waste dumping facility at Brahmapuram which is also under your control.
4. It is important to note that the Hon'ble Chief Secretary in the meeting held on 06.03.2021 to review the actions taken for ensuring effective implementation of solid waste management Rules, 2016 by the Kochi and Kollam Corporations in the light of the orders issued by the Hon'ble NGT in OA 514 of 2019 , OA 439 of 2013 and OA 456 of 2013 remarked as follows,

“it is very unfortunate that the inaction on the part of the Municipal Corporations is being reflected as poor governance. It was noted that even after the intervention of the Hon'ble National Green Tribunal and State Level Monitoring Committee, no remarkable progress was achieved in the solid waste management scenario, including remediation of legacy waste dumps. The Chief Secretary made it very clear that such non-compliances will not be allowed to continue and strict legal action including penalty options will be undertaken against the non-implementation of statutory responsibility”.

The Hon'ble Chief Secretary also warned,

“for taking action on erring officials/persons in the event of default. Both the Municipal Secretary and Council will be held responsible for non-implementation of solid waste management rules if timely compliance is not adhered to. The

option of resorting personal fines will have to be thought of, if non compliance continues”.

In these circumstances, you are hereby directed to show cause if any within 15 days why legal actions shall not be initiated against you including prosecution as per the authorization given by the Chairman vide reference (3) and as per the relevant provisions of the mentioned acts for the above explained violations already committed by you.

M A BAIJU

Digitally signed by M A BAIJU
Date: 2021.03.16 20:24:40 +05'30'

Chief Environmental Engineer

To

The Secretary,
Kochi Corporation

Copy to: 1. *The Chairman, KSPCB, Thiruvananthapuram*
2. *The Member Secretary, SLMC, Thiruvananthapuram.*
3. *The District Collector, Ernakulam.*
4. *Adv. Rema Smrithi, Advocate Standing Counsel (NGT)*