

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

IN

ORIGINAL APPLICATION No. O A 77 of 2021(SZ)

IN THE MATTER OF

Suo Motu proceedings initiated

based on letter received

From Justice A.V. Ramakrishna Pillai,

Former Judge, High Court of

Kerala, Chairman,

SLMC, Kerala.

:

Applicant(s)

Versus

The Chief Secretary,

Government of Kerala,

Thiruvananthapuram and Others

:

Respondent(s)And

ORIGINAL APPLICATION No. O A 442/2013(SZ)

Applicant(s) : Jith Kumar, Muthedathu

Versus

Respondent(s) : The State of Kerala & others

And

ORIGINAL APPLICATION No. O A 20 / 2017(SZ)

Abdul Basheer

Versus

Kochi Municipal Corporation & Others

ORIGINAL APPLICATION No. O A 276/2017(SZ)

Lawyers Environmental Awareness Forum

Versus

SEIAA, Thiruvananthapuram

VOLUME 1

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Dated this the 10th day of February 2023

Adv. Rema Smrithi,

ADDITIONAL STANDING COUNSEL FOR THE RESPONDENT No. 4

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**UPDATED STATUS REPORT FILED BY THE CHIEF ENVIRONMENTAL
ENGINEER, REGIONAL OFFICE, ERNAKULAM FOR AND ON BEHALF OF
THE KERALA STATE POLLUTION CONTROL BOARD**

Dated this the 10th day of February 2023

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KERALA STATE POLLUTION CONTROL BOARD**

I, Baburajan P K, 52 years, S/o. Late P A Kuttappan, now working as the Chief Environmental Engineer, Regional Office, Kerala State Pollution Control Board, Ernakulam. I am competent to and duly authorized to represent the Board. I know the facts and circumstances of the cases. The factual submissions made hereunder are true and correct to the best of my knowledge, information and belief. In these circumstances, it is just and necessary that this Hon'ble Tribunal may be pleased to accept the accompanying report on file and it is so humbly prayed in the interests of justice in this case.

1. It is respectfully submitted that, in continuation to the report filed before the Hon'ble Tribunal on 06.09.2022, a hearing was conducted by the Chief Environmental Engineer on 27.09.2022 at the Regional Office, Kerala State Pollution Control Board, Ernakulam to discuss about the waste management at Brahmapuram, status of bio mining and the application submitted for the Consent to operate of Solid Waste Treatment Plant at Brahmapuram. In the hearing, the Kochi Corporation reported that,
 - i) For the scientific disposal of legacy waste, Corporation has already executed an agreement on 06.09.2021 with M/s. Zonta Infratech Ltd. As per the approved work implementation plan by the technical committee, bio-mining activities were completed in sectors 4, 5, 6 and 7.
 - ii) Even if the windrow compost plant is in dilapidated condition, the biodegradable waste can be treated and leachate is disposed through the septage treatment plant at Brahmapuram. Also, DPR for the new windrow compost plant is submitted for the Council approval. Till then to use the old plant, an estimate is prepared for the maintenance works.
2. It is respectfully submitted that the Kochi Municipal Corporation updated the working status of Brahmapuram waste treatment plant on 13.12.2022 which include the detailed action plan with specific time frame and quantity of waste




BABURAJAN P.K.
Chief Environmental Engineer

bio mined and action plan for addressing the incoming daily fresh waste and leachate generated. Copy of the action taken report submitted by the Corporation dated 13.12.2022 is produced herewith and marked as **Annexure 1**.

3. It is respectfully submitted that inspections were conducted by the Board on 11.11.2022 and 15.12.2022 to the waste dumping yard at Brahmapuram. During these inspections, there was no bio mining activities going on. The officials of Kochi Corporation reported that though the biomining activities were restarted after monsoon in November 2022, due to the intermittent rain, it was temporarily stopped. Some photographs taken during the inspection on 15.12.2022 is produced herewith and marked as **Annexure 2**.
4. It is to be noted that, a joint inspection and meeting of the technical committee was conducted on 06.01.2023 for monitoring the progress of bio mining and Land Reclamation Project at Brahmapuram dump yard. During the inspection, it was noticed that segregation of the legacy waste was found to be not proper. Huge sized stones, wood pieces etc. were found mixed up with hood earth and large pieces of plastic were seen along with rejects. Hence, instruction was given to the Kochi Corporation to use fine sieve in order to reduce the volume of rejects and also instructed them to dispose rejects as per the Municipal Solid Waste Guidelines. Copy of the letter given to Kochi Corporation and its translation is produced herewith and marked as **Annexure 3**. Photographs taken during the inspection is produced herewith and marked as **Annexure 4**.
5. The Board again visited the dumpsite on 03.02.2023. It was seen that biomining and baling activities were progressing. Photographs taken during the visit is produced herewith and marked as **Annexure 5**. The Corporation officials reported in the DLMC meeting held on 06.02.2023 that, biomining of sector 4, 5, 6 and 7 is completed and now sector 1 is progressing. About 972m³ of RDF is baled and stacked which comes nearly 27%. It was also informed from the Kochi Corporation that as per the instruction from Board, screen size to sieve




BABURAJAN P.K.
Chief Environmental Engineer

rejects is upgraded. The Board is monitoring the biomining activities regularly and necessary directions are given then and there.

All the facts stated above are true to the best of my knowledge, information and belief.

Dated this the 10th day of February 2023




CHIEF ENVIRONMENTAL ENGINEER
BABURAJAN P.K.
Chief Environmental Engineer

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VOLUME 2

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Dated this the 10th day of February 2023

Adv. RemaSmrithi,

ADDITIONAL STANDING COUNSEL FOR THE RESPONDENT

ANNEXURE 1


KOCHI MUNICIPAL CORPORATION

Phone 2369007, 2369196
2369143, 2369149
2369197, 2369069

Corporation Office
P.B.No.1016
Ernakulam, Cochin 682 011

MOE2-10948/17

13/12/2022

From,
Secretary,
Kochi Municipal Corporation

To
The Chief Secretary to Government
(Through District Collector)

Sir,

Sub: KMC- O.A. No. 77/2021 (SZ) of NGT- Biomining and Solid waste management activities being done at Brahmapuram dumpyard- review meeting- Revised Report -regarding.

Ref:

- 1) Note No. 15/EMCell/CSO/2020 dated 06/12/2022 issued by the Chief Secretary (copy attached)
- 2) Order dated 21/11/2022 of the NGT in OA No. 77/2021 (SZ).
- 3) Environment monitoring cell (GoK), mail, dated on: 02-12-2022.
- 4) Environment monitoring cell (GoK), mail, dated on: 07-12-2022.
- 5) Deputy Collector, LR Collectorate, Ernakulam, mail, dated on: 07-12-2022.
- 6) RO(PCB), Ernakulam, mail , dated on 08-12-2022.

Kind attention is invited to the reference cited above.

In this regard, Kochi Municipal Corporation apprises of the various action points taken from the previous hearing vide above reference (2):

(1) DETAILED ACTION PLAN WITH SPECIFIC TIME FRAME AND QUANTITY OF WASTE BIO-MINED

- Kochi Municipal Corporation has taken up the rehabilitation of the existing dumpsite at Brahmapuram by adopting bio-mining and capping methods to manage the existing legacy waste spread over 40.24 acres as per prevailing SWM Rules, 2016.
- The waste spread areas are divided into 7 sectors. The quantification of waste was conducted by the National Institute of Technology, Calicut on the 8th and 9th of February 2021 through a drone survey. The total legacy waste spread area in the Brahmapuram Dumpsite was found to be 40.25 Acres and the total quantity of the waste assessed is around 5,51,903 Cum.
- As per the report of contractor, Sector 4,5,6 &7 areas are already cleared i.e., ~28% of the Area is cleared. Balance sectors, work is in progress.
- ~30 Tons of RDF generated is transported to Dalmia Cements and currently RDF is being baled at the site using the Baling Machine.
- Due to incessant rain showers, the biomining procedure has been delayed, and now it is in progress and is expected to be completed within the stipulated time i.e., before June 2023.

(A) Current Status of Legacy Waste Clearance as of 06.12.2022 is as below:

Sector	Volume of Legacy Waste in m ³	Area in Acres	Area Cleared as on 30.11.2022	Remarks
Sector 1	3,71,823	24.00	Under Progress	Biomining, Excavation, and heaping of waste are in progress. 4860 m ³ is bio-mined in the period from 06.11.2022 till 06.12.2022, out of which 3988m ³ is RDF, 611.04 m ³ is Rejects and 260.1m ³ is good earth. Quantity of legacy waste heaped is 44276m ³ .
Sector 2	17,436	1.88	-	Legacy waste is full of rejects and earmarked for Scientific Closure/Capping.
Sector 3	65,133	4.52	-	Legacy waste is full of rejects and earmarked for Scientific Closure/Capping.
Sector 4	39,133	3.47	100%	Completed
Sector 5	41,303	4.40	100%	Completed
Sector 6	16,257	1.28	100%	Completed
Sector 7	9,818	0.70	100%	Completed
TOTAL	5,51,903	40.25	~28%	

Site Photographs on the Current Status





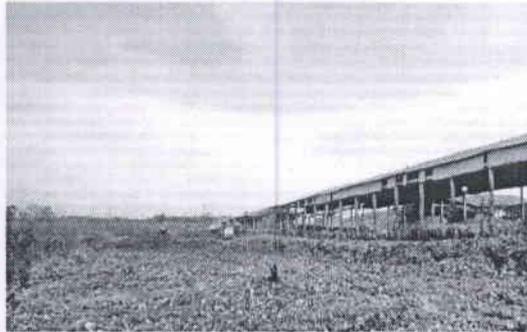
Sector 7 Before



Sector 7 After



Sector 5 Before



Sector 5 After



Sector 4 Before



Sector 4 After

(B) Details of Machinery and Manpower Deployed

The Project commenced on 21.01.2022 and the following machineries have been deployed.

Sl. No	Machinery	Quantity
1	Automated High-End Mobile Screening Machines with Conveyors, Screeners of Capacity: 100 tons per hour - Screen sizes include a 100 mm screen, 42 mm screen, and 16 mm screen	1 No
2	Excavators	4 Nos
3	Dumpers/ Tippers	6 Nos

The above-said machinery is considered as a 1 Line for Biomining activity. This line has been increased by another 1 Line to expedite the work progress. Further, an additional line is being deployed now to further expedite the speedy implementation of the works and complete the

Biomining.

Also, a Baling Machine has been deployed to bale the RDF generated from the Biomining.

The Current Machinery & Manpower Details at the site are as below

Sl. No	Machinery	Make	Quantity at Site
1	Automated High-End Mobile Screening Machines with Conveyors, Screeners of Capacity: 100 tons per hour - Screen sizes include a 100 mm screen, 42 mm screen, and 16 mm screen	Kleeman	1 No
2	Automated High-End Mobile Screening Machines with Conveyors, Screeners of Capacity: 120 tons per hour - Screen sizes include a 100 mm screen, 50/60 mm screen, and 16/20 mm screen	Keestack	1 No
3	Excavator 1 (140)	JCB	1 No
4	Excavator 2 (110)	JCB	1 No
5	Excavator 3 (110)	Hitachi	1 No
6	Excavator 4 (110)	Hitachi	1 No
7	Generator	-	1 No
8	Tipper No 16 (14 CUM)	Tata Motors	1 No
9	Tipper No 19 (14 CUM)	Tata Motors	1 No
10	Tipper No 21 (14 CUM)RDF shifting from shed	Mahindra	1 No
11	Tipper (14 CUM)	Tata Motors	1 No
12	Forklift	Manitou	1 No
13	Baling Machine	Baler Boy	1 No

Note: One more line of Automated High-End Mobile Screening Machines is being deployed as confirmed by the Contractor to complete the works within the stipulated timelines.

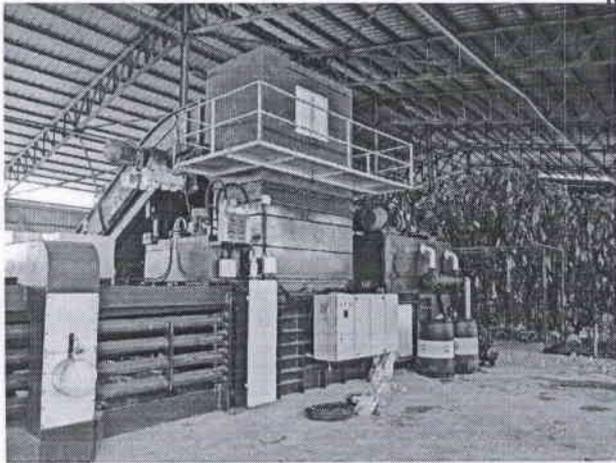
Site Photographs



**KEESTRACK –
BIO-MINING MACHINE 1**



KLEEMANN -



BALER BOY -
BALING MACHINE

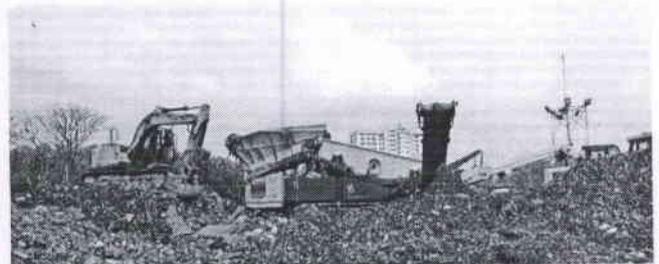




Segregated RDF



Segregated Good Earth



(C) Environmental Monitoring Plan during Rehabilitation Project

Environmental Monitoring includes monitoring of the quality of Surface Water, Ground Water, and Ambient Air and the said parameters are being monitored as per the standards stipulated in SWM Rules, 2016. The frequency of monitoring is as below:

Sl. No.	Description	Frequency
During Bio-mining & Construction of Landfill Closure Period		
1	Quality of Water in wells within the site	Once in 3 months
2	Groundwater Quality – Outside the Site	Once in 3 months
3	Air Quality	Once in 3 months
During Post Closure Period		
1	Groundwater Quality – Outside the site	Once in 6 months
2	Air Quality	Once in 6 months
3	Gas Quality	Once in 6 months

Present water samples will be tested for fixing the present level of contamination. Samples would be picked from the same locations which are downstream of the dumpsite every six months. A similar procedure will be adopted for checking the air quality. Subsequently, water and air samples would be taken every six months to monitor the effect of closure.

The Contractor also has adopted a detailed Health & Safety Plan including:

- Identification of key personnel, site-entry procedures and control, personal protective equipment and monitoring, communication procedures, emergency medical procedures, and standard operating procedures.
- Masks, gloves, helmets, etc.
- Normal work clothes and construction gear.
- Training requirements, including, Fire safety training supervisor training, and medical surveillance.
- Regular monitoring of the entire site for any fire incidents
- There is an existing Fire Hydrant system at the site which is maintained by the Kochi Municipal Corporation.

(D) Action Plan for Completion and Time Schedule

The Contractor has provided the indicated mass balance from the biomining of the legacy waste at Brahmaputra.

Sl. No	Particulars	Percentage	Quantity (m ³)
1	Quantity of legacy waste		5,51,903
2	Quantity of RDF expected	48.14 %	2,65,661
3	Quantity of Recyclables expected	0.96 %	5283
3	Quantity of Rejects expected	27.24%	1,50,346
4	Quantity of Good Earth expected	23.67%	1,30,613
5	Quantity of waste to be Landfilled		1,51,000

The rejects from the bio-mining process will be scientifically capped and provided with a cover system as per SWM Rules, 2016. The detailed design parameters are:

Detailed Design Parameters for Capping			
1.0 Volume Calculations			
1	Volume of waste to be capped	Cum	1,51,000
2.0 Proposed Design			
1	Total height of the waste mound	m	15
2	Side Slopes proposed		1:3.5
3	No. of Stages	nos	3
5	Footprint Area	Sqm	32,400
6	Gas collection units	Nos.	42
7	Surface area of Liners	<i>Sqm</i>	<i>30,860</i>
8	Walkway -Top		
(i)	Length	m	180
(ii)	Width	m	3
9	Steps to the top of the Closure area		
(i)	Length	m	55
(ii)	Width	m	1.5
10	Drains		
(i)	RCC Storm water drain at Footprint of capping mound	m	724
(ii)	Semi-circular (Half Cut) RCC Pipe drain of 500mm Dia	m	1900

Accordingly, Biomining and Landfill closure activities are targeted to be completed within the stipulated timelines. A Time Schedule with the monthly progress expected to be achieved and the anticipated completion date of each major item of work to be done as submitted by the Contractor is enclosed herewith under **Annexure 1**.

(2) ACTION PLAN FOR ADDRESSING THE INCOMING DAILY FRESH WASTE AND LEACHATE GENERATED

WASTE TO ENERGY PLANT

Daily fresh waste is disposed of at Brahmapuram dumpsite from Kochi Municipal Corporation and the nearby municipalities as well. Kochi Municipal Corporation has earmarked 20 acres of land at Brahmapuram dumpsite for setting up of the **Waste to Energy plant** and leased to KSIDC for implementing the same.

(A) WASTE TO ENERGY PROJECT IMPLEMENTATION STATUS

- Request for Proposal (RFP) has been floated by KSIDC on 24.06.2020 for setting up an Integrated Solid Waste Management Project with a Waste to Energy Plant, on a Design,

Build, Finance, Operate and Transfer model under Public Private Partnership (PPP), for the Kochi cluster which includes Kochi Municipal Corporation and 14 Urban Local Bodies in the district.

- After a Competitive Tendering Process and Financial negotiations with the successful bidder, through a Government Order G.O. (Rt).No. 1754/2021/LSGD dated 14.09.2021, the Project has been awarded.
- Accordingly, a Special Purpose Vehicle Company, M/s Kochi Waste Management Private Limited (KWMPL) has been incorporated by the successful bidder and the Concession Agreement has been signed by all the participating local bodies and the agreement has been placed under the Council Approval and will be executed by Kochi Municipal Corporation at the earliest.
- As a part of the Project, KWMPL, has taken up various studies at the Site as well as across the Kochi cluster to establish the baseline environmental parameters and also to assess the waste generation & characteristics details to establish the design parameters for setting up of the Waste to Energy Plant.

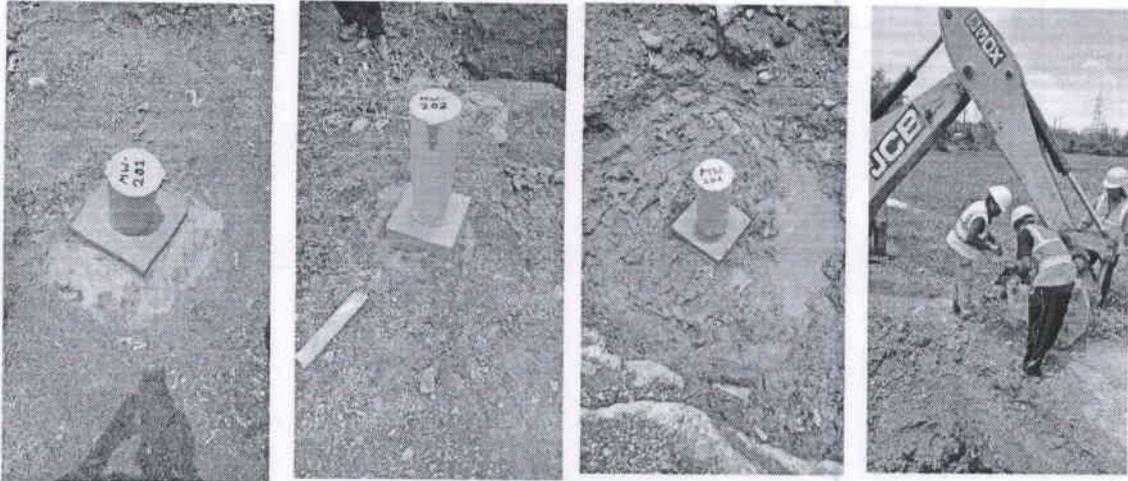
(B) ENVIRONMENTAL STUDIES CONDUCTED FOR THE WASTE-TO-ENERGY PROJECT

Environmental sample collections and monitoring points have been established at the earmarked site for Waste to Energy. Periodical monitoring of the samples will be done as per the pollution control board norms during the construction and operations of the plant facilities at the site.

The collected samples of soil & ground waste have been sent and analyzed at Element Materials Technology (formerly Exova Jones) based in the United Kingdom, an ISO 17025/ILAC accredited and MCERTS (U.K. only) certified laboratory, and Eurofins India Private Limited for the Indian drinking water standards analysis (BIS 10500:2012).

Site Photographs of Environmental Study





Kochi Municipal Corporation has extended its support in providing the details and access to the site for conducting the study. Also, all the established points will be regularly monitored for compliance. A detailed report with results and findings is enclosed under **Annexure 2**.

(C) WASTE GENERATION AND CHARACTERIZATION STUDY CONDUCTED ACROSS THE KOCHI CLUSTER

For the said Waste to Energy Project, the Concessionaire has conducted a detailed study across the cluster to assess the waste generation and characteristics. Kochi Municipal Corporation has extended its support to the study.



The study has been conducted over a period of 4 months from February 2022 to June 2022. The estimated waste generation in the Kochi Cluster is:

S No	Kochi Cluster ULB	Waste Generation in TPD
1	Aluva	24.44
2	Angamali	18.24
3	Eloor	11.96
4	Ernakulam	296.88
5	Kalamaseri	50.81
6	Koothakulam	7.70
7	Kothamangalam	16.76
8	Maradu	17.71
9	Muvattupuzha	15.67
10	Paravur	20.77
11	Permbavur	20.48
12	Piravom	13.61
13	Thirupunithura	33.63
14	Thrikkara	23.56
	Total	572.22

Waste to Energy Plant is being implemented with a service level parameter to limit the disposal of waste to 10% only at the scientific landfill under the Project and 90% of the incoming waste will be processed and converted to Energy.

Meanwhile, to address the issues of leachate from the existing Compost Plant, Kochi Municipal Corporation is transporting it by collecting in a collection tank of 130 KLD capacity from which the conveyance contractor is transporting to corporation owned 100 KLD septage treatment plant which is treated daily about 20KLD-25KLD of the leachate in the Corporation owned 0.1MLD STP, which is fully functional at Brahmapuram, since 23-02-2022. An Integrated Consent to Operate was obtained from the Pollution control board on 23-07-2022, having validity up to 30-04-2027. Operation & Maintenance of the Plant is being carried out through a Contract and the consolidated report of leachate & septage load treated from February 2022- November 2022 is also enclosed here under **Annexure 3. Treated water quality standards are within the permissible limit of the Kerala State Pollution Control Board.**

Further, Kochi Municipal Corporation has taken steps to implement a **New Leachate Treatment Plant** at the site. **M/s Ultratech Environmental Consultancy** has been entrusted with the preparation of a Detailed Project Report for the construction of a new leachate treatment plant and an agreement in this regard has been executed on 14.03.2022. Leachate sample analysis, kick-off meeting with the Technical Committee comprising of members from State Pollution Control

Board, Suchitwa Mission, Kochi Municipal Corporation, Characterization study, Site Identification, and demarcation are completed. About 60 KLD capacity Leachate Treatment Plant is being designed including 300 TPD Windrow Compost Plant. An Inception Report has been submitted and reviewed by the Technical Committee dated 05.08.2022. A revised Report has been submitted by M/s Ultratech Environmental Consultancy and the Technical Committee review has been conducted on 16.11.2022. Before the Final Approval, the Committee has asked their Experts to inspect the site.

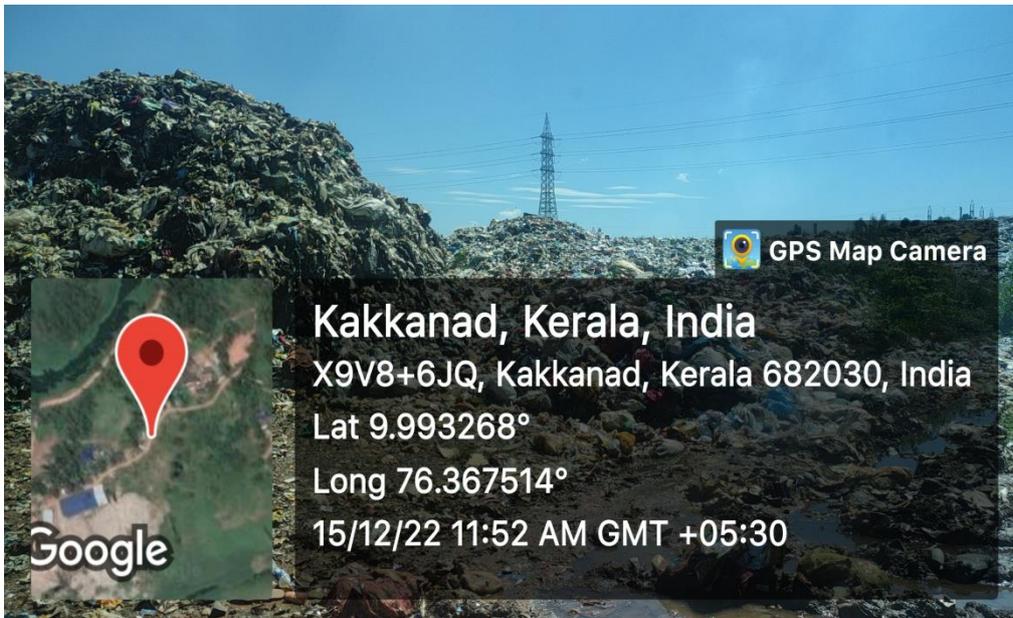
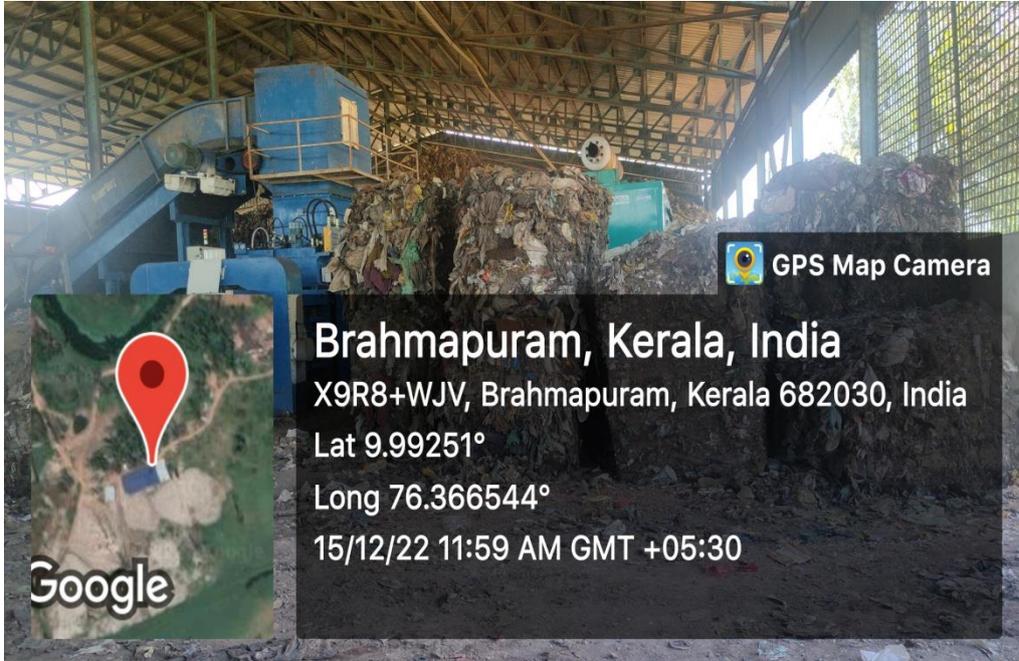
Kochi Municipal Corporation has earmarked 3.5 acres of land for an additional 2MLD capacity Septage Treatment Plan for 50 Urban Local Bodies as a part of the Urban Congglomeration of 1 Municipal Corporation, 9 Municipalities, and 40 Grama panchayats. An Inception Report is prepared and approved by the Pollution Control Board, however, Suchitwa Mission has sought some additional queries which were clarified by the Agency – M/s Ultratech including the traffic movement of the vehicles inside the site. Further, a committee review meeting was held on 16.11.2022 and the minutes of the meeting are awaited to understand more details on the proposal.

These are the various initiatives and steps taken by Kochi Municipal Corporation to address the Solid Waste Management issues at Brahmapuram along with the detailed progress of the Rehabilitation Project from the previous hearing.


SECRETARY
KOCHI MUNICIPAL CORPORATION
Additional Secretary
Kochi Municipal Corporation

Photographs taken during the inspection on 15.12.2022

1) Segregation of Plastic Wastes



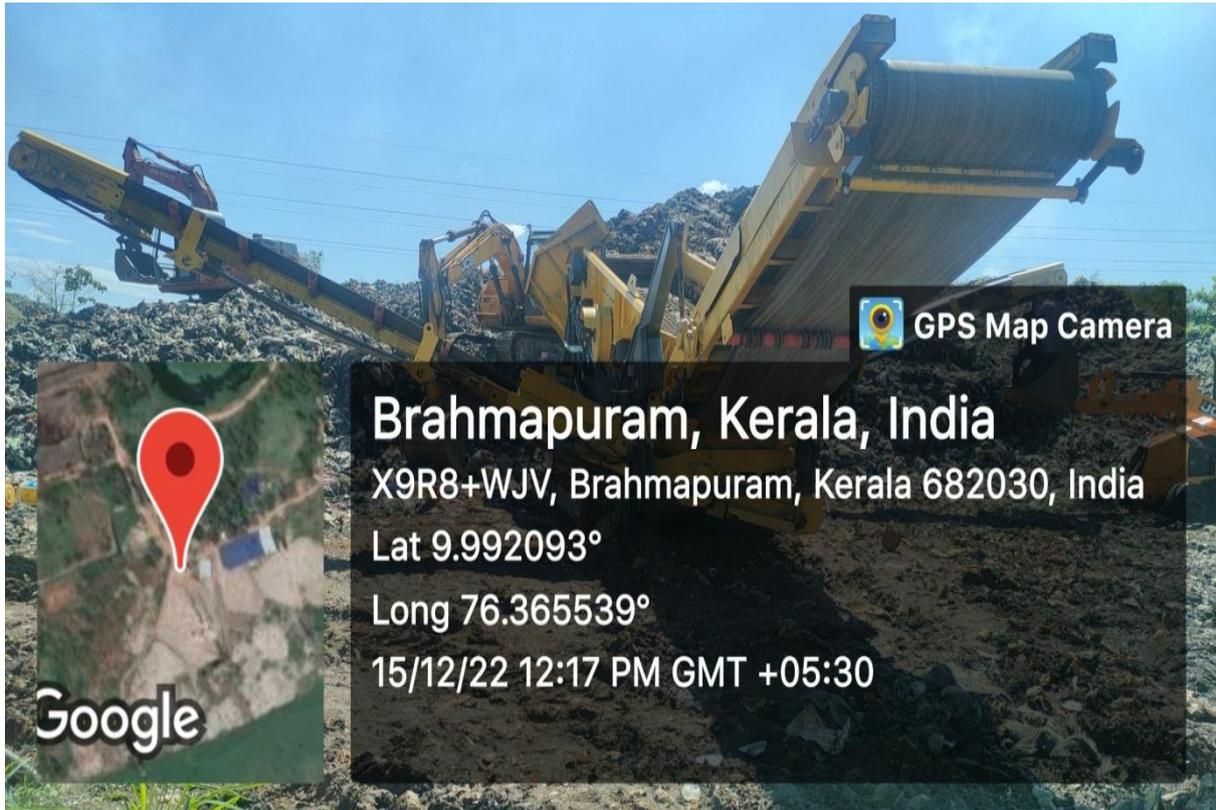




2) Pathetic condition of the road



3) Biomining





Good Earth obtained

4) STP





Dried Sludge



O/C >

19/1/23
KERALA STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE, GANDHI NAGAR, ERNAKULAM - 682 020
www.keralapcb.nic.in

“ഭരണഭാഷ-മാതൃഭാഷ”

പി.സി.ബി/ആർ.ഒ-ഇ.കെ.എം/ജി.ഇ.എൻ-258/19

18.01.2023

പ്രേഷകൻ

മുഖ്യ പരിസ്ഥിതി എഞ്ചിനീയർ

സ്വീകർത്താവ്

സെക്രട്ടറി
കൊച്ചി കോർപ്പറേഷൻ

വിഷയം:-ബ്രഹ്മപുരം മാലിന്യ സംസ്കരണ പ്ലാന്റിലെ കെട്ടിക്കിടക്കുന്ന ലെഗസി വേസ്റ്റ് സംസ്കരിക്കുന്നത് - സംബന്ധിച്ച്.

സൂചന:- 06.01.2023-ൽ നടത്തിയ സംയുക്ത പരിശോധന.

സർ,

മേൽ സൂചന പ്രകാരം ബ്രഹ്മപുരം മാലിന്യ സംസ്കരണ പ്ലാന്റിൽ നടത്തിയ പരിശോധനയിൽ, കാലങ്ങളായി കൂടിക്കിടക്കുന്ന മാലിന്യങ്ങൾ സംസ്കരിക്കുന്നതിന്റെ ഭാഗമായി മെഷീനുകളുപയോഗിച്ച് RDF, മണ്ണ്, rejects എന്നിങ്ങനെ മൂന്നായി തരം തിരിക്കുന്നത് കാണുവാൻ ഇടയായി. എന്നാൽ ഈ മാലിന്യത്തിൽ നിന്നും തരം തിരിച്ച മണ്ണിൽ വലിപ്പം കുടിയ കല്ല്, കട്ട, മരകഷ്ണങ്ങൾ എന്നിവയും rejects -ൽ വലിയ പ്ലാസ്റ്റിക് കഷ്ണങ്ങളും കാണുവാൻ സാധിച്ചു. ആയതിനാൽ തരം തിരിച്ചുമാറ്റിയ മണ്ണും പുനരുപയോഗം/പുനഃചംക്രമണം സാധ്യമല്ലാത്ത അവശിഷ്ടങ്ങളും വീണ്ടും ചെറിയ അരിപ്പകൾ ഉപയോഗിച്ച് അരിച്ച് അവയുടെ വ്യാപ്തി കുറയ്ക്കുവാനുള്ള നടപടി സ്വീകരിക്കേണ്ടതാണ്.

കൂടാതെ മുൻപ് rejects ഇട്ട് ക്യാപ്പു ചെയ്ത സെക്ടറുകളുടെ മുകളിലായി വീണ്ടും ഇപ്പോഴുണ്ടാകുന്ന rejects നിക്ഷേപിച്ച് ക്യാപ്പ് ചെയ്യുവാനാണ് ഉദ്ദേശിക്കുന്നത് എന്ന് മീറ്റിംഗിൽ കോൺട്രാക്ടർ അറിയിക്കുകയുണ്ടായി. എന്നാൽ, എപ്പോഴും Municipal Solid Waste Guidelines -ൽ നിർദ്ദേശിക്കുന്നതിൽ പ്രകാരം മാത്രമേ rejects നിർമ്മാർജ്ജനം ചെയ്യാവൂ. ആയതിനാൽ land fill site ൽ guide line ൽ പ്രതിപാദിച്ചിരിക്കുന്ന പ്രകാരം

- Fig 7 ൽ ഉള്ള വിവിധ layer കളായി നൽകേണ്ട ലൈനിങ്ങുകൾ താഴെയും വശങ്ങളിലും നൽകിയിട്ടുണ്ടോ എന്ന് ഉറപ്പുവരുത്തേണ്ടതാണ്.
- Fig 8 പ്രകാരം നൽകേണ്ട lining കൾ site മുടുമ്പോൾ നൽകേണ്ടതാണ്.
- Leachate collection and Management system, Gas collection and management system, Surface water Drainage system എന്നിവ നൽകേണ്ടതാണ്.
- Land fill-ന്റെ നിർമ്മാണ സമയം മുതൽ cap ചെയ്യുന്നതുവരെ slope stability കണക്കിലെടുക്കേണ്ടതാണ്.

Guidelines ന്റെ പകർപ്പ് ഇതോടൊപ്പം ഉള്ളടക്കം ചെയ്യുന്നു.

ടി വിഷയത്തിൽ താങ്കൾ സ്വീകരിച്ച നടപടികൾ സംബന്ധിച്ച വിവരങ്ങൾ ഈ കാര്യാലയത്തിൽ യഥാക്രമം അറിയിക്കേണ്ടതാണ്.

വിശ്വസ്തതയോടെ,


 . മുഖ്യ പരിസ്ഥിതി എഞ്ചിനീയർ



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

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18.01.2023

From

Chief Environmental Engineer

To

The Secretary

Kochi Corporation

Sub:- Disposal of legacy waste at Brahmapuram Sewage Treatment Plant –reg

Ref:- Joint Inspection conducted on 06.01.2023

Sir,

As indicated above, during the inspection conducted at the Brahmapuram Waste Management Plant, it was seen that the legacy waste was sorted into three categories such as RDF, Good earth and Rejects using machines. But from this garbage, it was possible to see large stones, blocks, trees and large plastic pieces in the rejects. Therefore, steps should be taken to reduce the size of reclaimed soil, reuse and non-recyclable debris by shifting those using small sieves.

Contractor informed in the meeting that, it is intended to deposit and cap the current rejects on the top of previously capped sectors. However, rejects should always be disposed of only as prescribed in the Municipal Solid Waste Guidelines.

Therefore, as indicated in the Guideline at the land fill site:-

- Below are the linings to be given as different layers in Fig. 7. It should be ensured that the sides are also provided.
- Linings to be provided as per Fig.8 should be provided while covering in site.

- Leachate collection and management system, gas collection and management system, surface water drainage system should be provided.
- Slope stability should be considered from the time of construction of landfill until capping.

A copy of the Guidelines is enclosed herewith.

Information about the steps taken by you in the above matter should be reported to this office respectively.

Yours sincerely,

Chief Environmental Engineer

Photographs taken during the inspection on 06.01.2023

Biomining



Rejects



Good Earth

Baling



Photographs taken during the inspection on 03.02.2023

Biomining





Baling



