

Original Application no. 141/2021 (SZ)

State of Kerala & Others : Respondent(s)

**Report filed by the Chief Environmental Engineer,
Kerala State Pollution Control Board, Regional Office, Thiruvananthapuram
on behalf of the Kerala State Pollution Control Board,
in Original Application No. 141/2021 (SZ)**



Adv. Remasmrithi V.K

ADDITIONAL STANDING COUNSEL

RESPONDENT No.5

Original Application no. 141/2021 (SZ)

Tribunal on its own motion SUO MOTU
based on the News Item in Kerala Kaumudi
Newspaper, web edition dt: 06.06.2021,
“A New Ray of Life for Pallikkalar”.

Vs.

The Principal Secretary to Government of Kerala,
Department of Environment,
Thiruvananthapuram
and Ors

...Respondents

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Dated this the 12th day of July 2023

Remasmrithi. V.K., Advocate
Additional Standing Counsel

Respondent No.5

BEFORE THE HONOURABLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

Original Application no. 141/2021 (SZ)

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based on the News Item in Kerala Kaumudi
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...Respondents

VERIFICATION

I, Sreekala S. , Chief Environmental Engineer, Kerala State Pollution Control Board, Regional Office, Thiruvananthapuram, The 5th respondent, do hereby verify on this the 12th day of July 2023, that all what is stated above are true and correct to the best of my knowledge, information and belief.


Sreekala S.

Chief Environmental Engineer
KSPCB
SREEKALA S.
Chief Environmental Engineer



BEFORE THE HONOURABLE NATIONAL GREEN TRIBUNAL

SOUTH ZONE, CHENNAI

Original Application No.141 of 2021 (SZ)

Respondents : State of Kerala & Others

Report filed by Chief Environmental Engineer, Kerala State Pollution Control Board, Regional Office, Thiruvananthapuram on behalf of The Kerala State Pollution Control Board, in Original Application No. 141/2021.

The report is filed in accordance with the order of the Hon'ble NGT dated 15/05/2023 in O.A.No.141/2021.

As per the directions from the Hon'ble NGT vide order dated 16/02/2023 in the above O.A., the Board by its letter dated 08/02/2023 had addressed CSIR-NEERI Maharashtra and Chennai regarding the 'Phytorid technology' developed by their institution in treating sewage from water bodies. Subsequently, Board Chairman conducted a meeting on 13/03/2023 via Video conference, where Dr. Ritesh Vijay, Senior Principal Scientist and Head from NEERI, presented the technology for treating polluted water bodies using Phytorid technology before the Board officials. It was understood that feasibility of implementing the Phytorid Technology with respect to Kerala condition need to be examined in detail.

The Board vide letter dated 24/04/2023 had requested the Director, CSIR-NEERI, to depute two officials to make a visit and understand the details of various locations and feasibility of Phytorid technology in Kerala condition. Subsequently, two Scientists from CSIR-NEERI namely Er. Pravin Manekar and Dr. S. Bhuvanesh along with Government officials of different concerned departments including Board officials visited the site from 11/05/2023 to 13/05/2023 as per the schedule fixed by the Board. The NEERI officials visited three




SREEKALA S.
Chief Environmental Engineer

sites 1) Pattolit canal/drain 2) Vallakadavu (Valiyath) canal/drain and 3) Canal near Kanneti bridge on 12/05/2023 in connection with the feasibility study of implementing the Phytorid Technology in Pallickal river. Septic condition was observed in the Pattolit canal/drain along with water hyacinth at 500m upstream of the confluence of the Pallickal river with the drain. It was observed that Pattolit canal carries stormwater and untreated domestic sewage from the habitants of Karunagapally Municipality area, which is finally discharged into Pallickal river. The officials observed that the Vallakadavu (Valiyath) canal/drain (near Thwayba chicken stall) was in septic condition and was similar to Pattolit canal except for the water hyacinth. It was seen that the Vallakadavu (Valiyath) canal/drain which starts from Mundakappadam lake finally discharges into Pallickal river. It was found that a drain near the Kanneti bridge parallel to the abandoned railway line to KMML, carries untreated domestic sewage and stormwater at the confluence of the lake. On discussion with KWA, it was informed that a Detailed Project Report (DPR) on Conveyance System with 5 MLD Sewage Treatment Plant has been prepared for catering to 55 to 60 percent of the urban area but they do not have funds for project implementation. Copy of the NEERI site visit report is produced herewith as Annexure I.

The Board vide letter dated 22/06/2023 had addressed NEERI to submit a detailed report with specific recommendations regarding suitable treatment technology applicable to these sites in order to implement the same as a model. Copy of the letter is produced herewith as Annexure II.

CSIR-NEERI vide letter dated 30/06/2023 had informed that for suggesting suitable/appropriate technology depending on the type of wastewater detailed feasibility study is required and detailed project proposal will be submitted after confirmation from the Board. Copy of the letter is produced herewith as Annexure III. The Board vide letter dated 04/07/2023 had addressed NEERI to submit a project proposal with scope of work and financial budget. Copy of the letter is




SREEKALA S.
Chief Environmental Engineer

produced herewith as Annexure IV.

It is humbly submitted that the Board will follow up the matter with NEERI for materializing the project at the earliest.

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

Dated this the 12th day of July 2023.




Chief Environmental Engineer

KSPCB

SREEKALA S.
Chief Environmental Engineer

Solemnly affirmed and signed by the deponent who is known to me on
this the 12th day of July 2023

**BEFORE THE
HONOURABLE NATIONAL
GREEN TRIBUNAL (SZ)**

OA no. 141/2021 (SZ)

**Report filed by the Chief
Environmental Engineer,
Kerala State Pollution Control
Board, Regional Office,
Thiruvananthapuram on behalf of the
Kerala State Pollution Control Board,
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Adv. Remasmrithi. V.K

ADDITIONAL

STANDING

COUNSEL

RESPONDENT

No.5

9445782946

Original Application no. 141/2021 (SZ)

Tribunal on its own motion SUO MOTU
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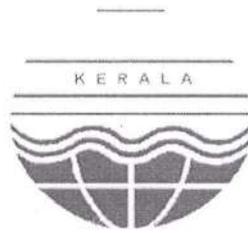
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Dated this the 12th day of July 2023.

Remasmrithi. V.K., Advocate
Additional Standing Counsel
Respondent No.5

Site Visit Report

Observation and Way Forward on Discharge of Untreated Domestic Sewage/Septage, and Effluent from Respective Municipality, Houseboat, and Prawn Peeling Industries Into Different Water Bodies



Kerala State Pollution Control Board,
Thiruvananthapuram



CSIR-National Environmental Engineering Research
Institute, Nagpur – 440 020



May 2023

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1.0 Preamble

Member Secretary of Kerala State Pollution Control Board (KSPCB), Thiruvananthapuram requested vide letter **[No. PCB/HO/EE3/ O.A/ No.27 / 2021 (SZ)/ 2021]** dated May 08, 2023, to Director CSIR-National Environmental Engineering Research Institute, Nagpur to send the two experts for a site visit considering the feasibility of the Phytoid Wastewater Treatment Technology and submit the site visit report.

Accordingly, a two-member team from CSIR-NEERI, Nagpur comprising Er. Pravin Manekar, Principal Scientist, and Dr. S. Bhuvanesh, Senior Scientist along with officials of different Government Departments visited the site during May 11-13, 2023. The identified sites canal/drain/nallah/River/Lake was carrying untreated domestic wastewater, solid and plastic wastes from different municipality areas and industrial effluent from Prawn peeling industries, and untreated sewage/septage from houseboats. The Site Visit Report on observation and the way forward for discharge of untreated domestic sewage/septage, and effluent from the respective municipality, houseboat, and prawn peeling industries into different water bodies are delineated in the following section.

2.0 CSIR-NEERI's Observation on KSPCB-Identified Site

2.1 Aluva, Kalamassery & Puthlam Kadav (Municipal area), and Edapally & Perandoor (canal)

CSIR-NEERI team along with the officials of different departments such as Kerala State Pollution Control Board (KSPCB), Suchitwa Mission, Haritha Kerala Mission, Urban Directorate, Kochi Water Metro Ltd, Kalamassery Municipality, Irrigation Department, Kerala Water Authority visited five different sites on May 11, 2023. The following observations are delineated on discharges of untreated domestic sewage generated from municipalities into canal/drain/nallah and Periyar River:

➤ Aluva Municipal Area (KMA)

There is no conveyance system or sewage treatment plant (STP) in AMA for carrying the sewage and its treatment. The sewage generated from this area is discharged into

the stormwater canal which finally meets the Periyar River. The canal is converted into a drain/nallah (Plate1: Latitude- 10°6'25.58" & Longitude-76°20'53.23")for carrying domestic sewage. As per KSPCB, this area is densely populated with less land availability.

➤ **Kalamassery Municipal Area (KMA)**

The drain originates from the paddy field and barrel land, which carries domestic sewage from the Kalamassery Municipal area and finally discharges into the Periyar River (Plate 2 Latitude-10°3'57.59" & Longitude-76°19'40.45"). A Detailed Project Report for 2 MLD STP has been prepared for treating the sewage generated from KMA. The establishment of the 2MLD STP has not yet started.

➤ **Puthlam Kadav Municipal Area (PKMA)**

The sewage generated from the Puthlam Kadav Municipality area is discharged into the stormwater canal/drain (Plate 3:Latitude-10°3'47.49" & Longitude-76°19'6.73") which is finally discharged into the Periyar River. The eutrophication and water hyacinth were observed in the Periyar River near the drain confluence with River. There is no STP to treat the sewage generated from PKMA.

➤ **Edapally Canal**

Edapally is the major canal passing through the Edapally and Vitilla zones and confluences to the Perandoor River towards the northern course and the joint Chambakkara canal to the southern end. During the site visit, this canal near Lulu Mall was found in a septic condition as shown in Plate 4:Latitude- 10°1'35.21" & Longitude- 76°18'27.45".

➤ **Perandoor Canal**

Perandoor canal carries untreated domestic sewage generated from the Kochi Municipal area (Plate 5: Latitude- 9°59'39.75"& Longitude-76°17'25.25") passing through the Edapally, Central, and Vytilla zone of the Kochi Corporation. The slaughterhouse waste and septic condition were observed in the canal (Plate). This canal all the above things and joined to another canal, which confluence to Vembanand Lake.

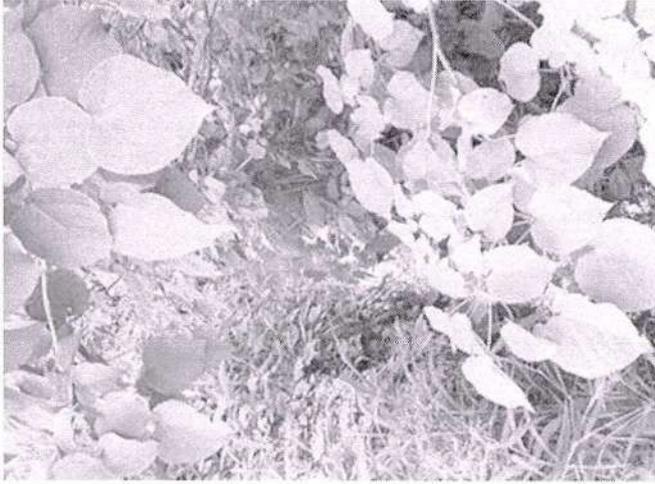


Plate 1: Canal/drain carrying untreated domestic sewage Aluva Municipal Area



Plate 2: Canal/drain carrying untreated domestic sewage Kalamassery Municipal Area

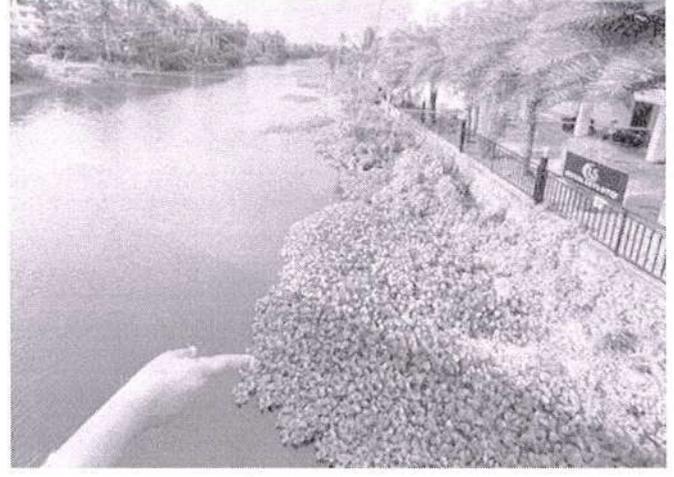


Plate 3: Canal/drain carrying untreated domestic sewage from Puthlam Kadav Municipal area & discharged in Periyar River

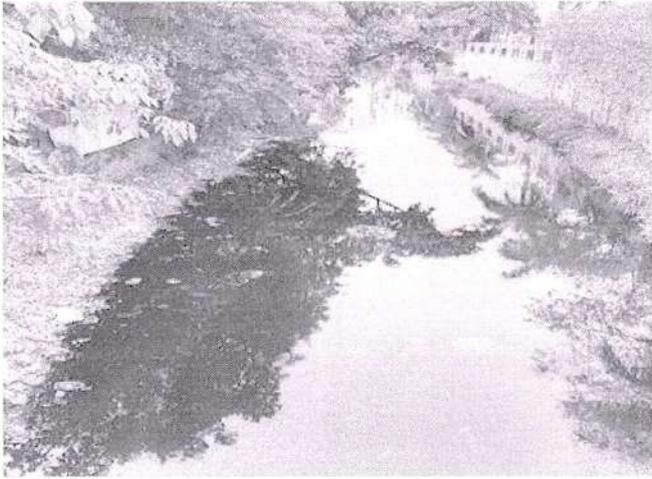


Plate 4: Canal/drain near Lulu Mall carrying untreated domestic sewage

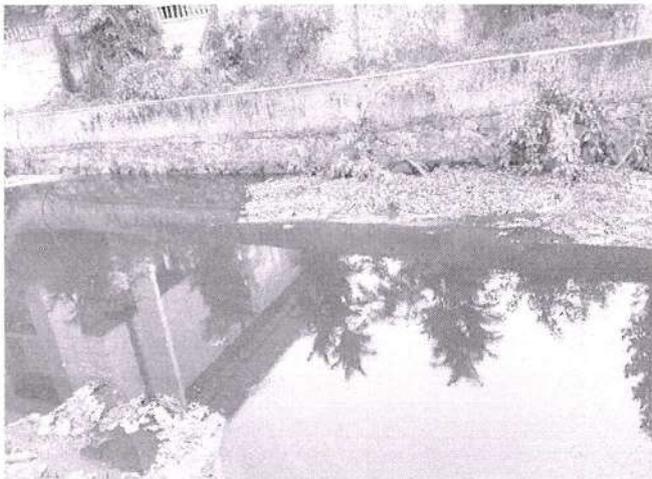


Plate 5: Perandoor canal carries untreated domestic sewage generated for the Kochi Municipal area

2.2 Puthenthodu Canal, Alappuzha Houseboats and Prawn Peeling Industry

CSIR-NEERI team along with officials of different departments such as KSPCB, Aroor Gram Panchayath, Suchitwa Mission, Haritha Kerala Mission, Irrigation Department, and Regional Joint Directorate visited two sites Puthenthodu canal, Prawn Peeling Unit and discussed the issue of the houseboat sewage/septage on May 11, 2023. The following observations are delineated on the Puthenthodu canal/drain/nallah, prawn peeling industries, and Alappuzha houseboat:

➤ Puthenthodu Canal (Chandiroor)

There is no conveyance system or sewage treatment plant (STP) for treating domestic sewage generated from the area and effluent treatment plant/common effluent treatment plant (CETP) for treating effluent generated from the Prawn Peeling Industrial units. The prawn peeling activities along with floor washing are shown in Plate 6: Latitude- 9°59'28.4" & Longitude-76°18'34.4". The untreated sewage and prawn peeling effluent along with its waste are discharged into the Puthenthodu stormwater canal/drain. The condition of the Puthenthodu canal/drain was observed to be septic during the site visit (Plate 7: Latitude- 9°50'28.6" & Longitude- 76°18'34.47").

➤ Alappuzha DTPC Houseboats

To discuss the houseboat issues, the meeting with the Sub-Collector, officers of KSPCB, CSIR-NEERI, and the houseboat association along with Alappuzha Municipality, DTPC, Urban Directorate, Tourism Department Suchitwa Mission, Haritha Kerala Mission, Irrigation Department was held in the Collector's office on May 12, 2023. Houseboats Association told that there are around 1200 houseboats. The grey and black wastewater generated from the houseboats have been collected in the houseboat tank. The supernatant from the tank is directly discharged into the Lake and the septage is sent to the treatment plant comprising an electro-coagulation process. Presently this treatment plant has been closed by the KSPC due to operational issues and not meeting the discharged standard. Kerala State Pollution Control Board has penalized houseboats for discharging the supernatant into the Lake. Presently, septage from the houseboats is directly discharged into the Vembanadu Lake. The treatment scheme established for treating the septage is inadequate.



Plate 6: Prawn peeling activities alongwith floor washing carried out in the industry



Plate 7: Puthenthodu canal/drain carrying the domestic sewage and prawan peeling effluent and its waste

2.3 Pattolit and Valiyath- Canal/Drain/Nallah

CSIR-NEERI team along with the officials of the different departments such as KSPCB Karunagapally Municipality, Urban Directorate, Suchitwa Mission, Haritha Kerala Mission, and Irrigation Department visited three sites Pattolit & Valiyath canals and Pallikar River sites on May 12, 2023. The following observations are delineated discharges of untreated sewage from the municipality area into canal/drain/nallah:

<p>➤ Pattolit canal /drain nallah</p> <p>Pattolit canal/drain/nallah carries stormwater and untreated domestic sewage from the habitant of the Karunagapally Municipality area (Plate 8: Latitude- 9°3'23.08" & Longitude-76°32'41.77"), which is finally discharged into the Pallikal River. During the site visit, the septic condition was observed in the Pattolit canal along the water hyacinth at 500m upstream of the confluence of the Pallikar River with the drain.</p>
<p>➤ Valiyath canal/ drain/nallah</p> <p>The overflow of Mundakappadam Lake is discharged into the Vallakadavu canal/drain. This drain (Plate 9: Latitude- 9°3'25.02" & Longitude-76°32'34.50") was monitored near the Thwayba chicken stall namely Valiyath canal/ drain and its condition were similar to Pattolit canal/drain /Nallah except for the water hyacinth.</p>
<p>➤ Canal/drain near Kanneti bridge</p> <p>A drain near Kanneti bridge parallel to the abandoned railway line to KMML carried untreated domestic sewage and stormwater and the confluence with the Lake.</p>
<p>➤ Kerala Water Authority</p> <p>As per Kerala Water Authority, a Detailed Project Report (DPR) on Conveyance System with 5 MLD Sewage Treatment Plant has been prepared for catering to 55-60 percent of the urban area. However, they do not have funds for project implementation.</p>



Plate 8: Pattolit canal/drain/nallah carries stormwater and untreated domestic sewage from Karunagapally Municipality area



Plate 9: Valiyath canal/ drain/nallah carrying the untreated domestic sewage

2.4 Manichithodu Slum Area Canal and Asthamudi Lake

CSIR-NEERI team along with the officials of different departments such as KSPCB along with Kollam Corporation Suchitwa Mission, Haritha Kerala Mission, Irrigation, Urban Directorate, and Kerala Water Authority visited different sites on May 12, 2023. The following observations are delineated on discharges of untreated domestic sewage from the Manichithodu slum area into canal/drain/nallah & Asthamudi Lake :

➤ Manichithodu Slum area and Asthamudi Lake

The untreated domestic sewage and solid & plastic wastes from the Manichithodu slum area are directly discharged into the drain, which is finally discharged into Asthamudi Lake. The condition of the drain and Asthamudi Lake was septic as shown in Plate 10 Latitude- 9°53'29.61" & Longitude-76°35'16.90".

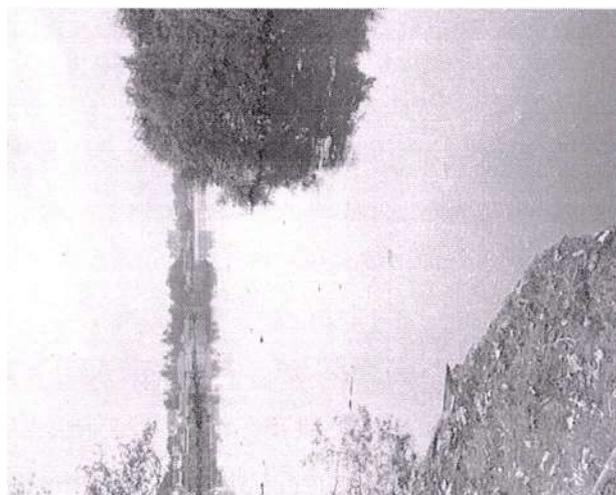


Plate 10: Canal/ drain/nallah carrying the domestic sewage from Manichithodu Slum area and discharged into Asthamudi Lake

2.5 Pattom and Pattoor Sewage Pumping Stations & Adjacent Canal/Drain/Nallah

CSIR-NEERI team along with the officials of the different departments such as KSPCB Suchitwa Mission, Haritha Kerala Mission rate, Trivandrum Corporation, and Kerala Water Urban Directorate Authority visited different sites on May 13, 2023. The following observations are delineated on discharging of raw sewage from the two pumping stations into the adjacent canal/drain/nallah:

➤ **Pattom sewage pumping stations**

Pattom pumping station (Plates 11 Latitude- 8°30'55.36" and Longitude-76°56'43.43" & 12 Latitude- 8°29'52.57" & Longitude-76°56'4.35") collected raw sewage from the nearby municipalities area and pumped it to the existing 107 MLD sewage treatment plant. Pottam pumping station is facilitated with six pumps out of which two pumps were operational and four were under maintenance or non-functional. Due to the non-operational of four pumps, the sewage is continuously bypassed to an adjacent drain. During the visit, local people were complaining about the discharge of sewage into the canal/drain from the pumping station.

➤ **Pattoor sewage pumping station**

Pattoor pumping station also collected raw sewage from the nearby municipalities area and pumped it to the existing 107 MLD sewage treatment plant. This pumping station consists of four pumps out of which one submersible pump was operational and three non-submersible pumps were in scrab. Due to the non-operational of three pumps (Plate 12 Latitude- 8°29'52.57" & Longitude-76°56'4.35"), the sewage is continuously bypassed to an adjacent drain (Plate 13 Latitude 8°29'54.09" & Longitude-76°56'12.00"). One of the sewerage lines should carry the sewage to the pumping station but due to the drain/canal in between the sewage line is not laid up to the pumping station. Entire sewage from this sewerage line is discharged into the canal/drain.

➤ **Drain near Kerala State Road Transport Workshop**

The drain near the Kerala State Road Transport workshop carries domestic sewage from the slum area (Plate 15 Latitude 8°29'22.54" & Longitude-76°57'8.09").

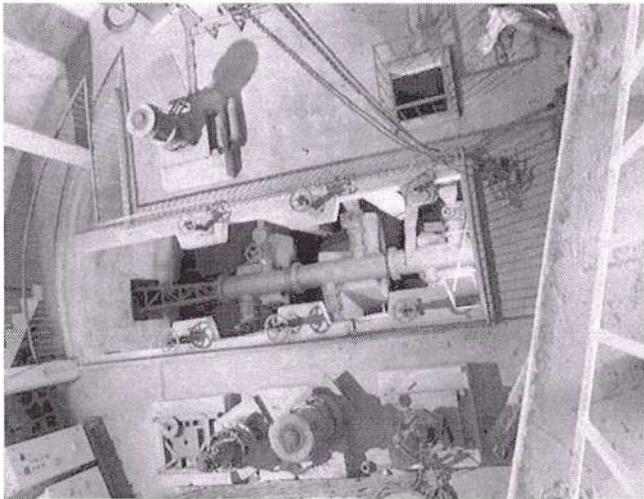


Plate 11: Pattom sewage pumping station discharging overflow into canal/ drain/nallah



Plate 12: Pattoor sewage pumping station

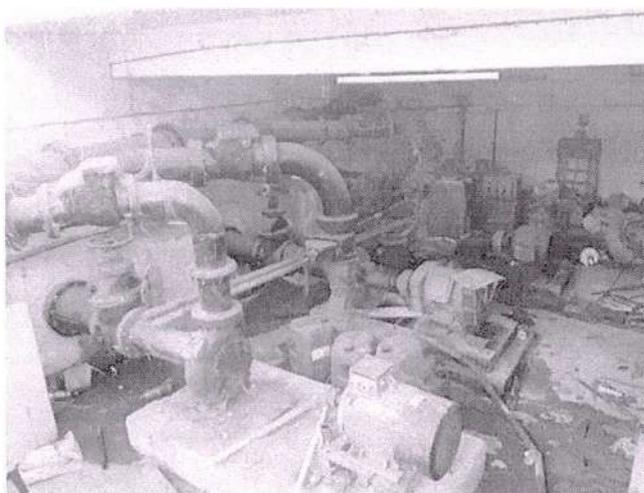


Plate 13: Pattoor sewage pumping station, pump not in working condition or scrab



Plate 14: Overflow of sewage from Pattoor sewage pumping station in to the canal, drain/nallah

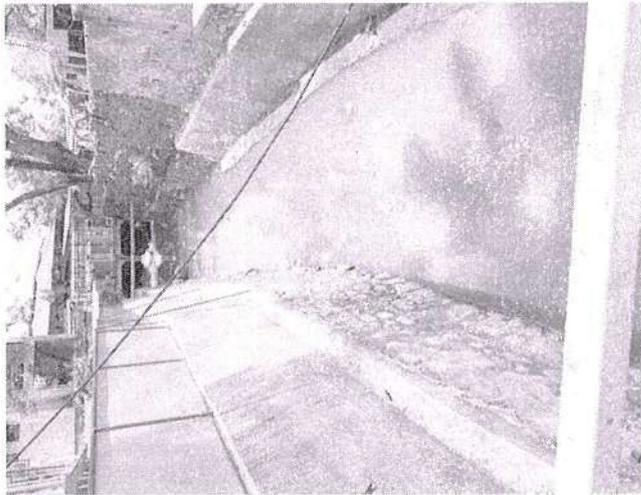
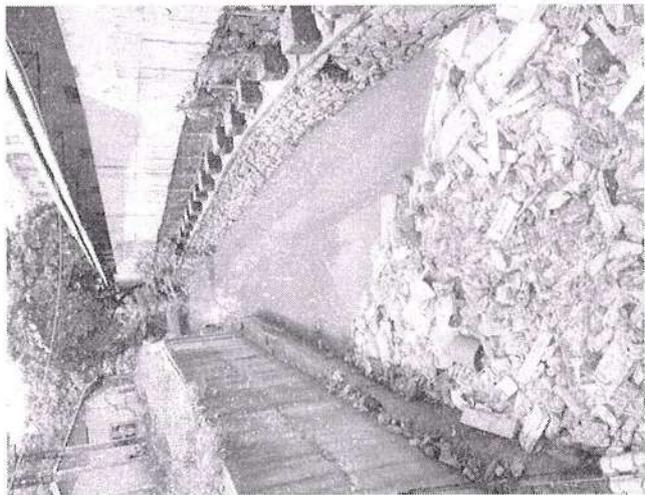


Plate 15: Canal/drain/nallah near KSRT carrying the domestic sewage from slum area

☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairman: 2318150 Member Secretary: 2318151
e-mail: chn.kspcb@gov.in; ms.kspcb@gov.in FAX: 2318152 web: kspcb.kerala.gov.in



KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004



No. KSPCB/245/2023-AE-13/B

Date: 22.06.2023

From

The Member Secretary

To

The Director,
CSIR – NEERI, Nehru Marg,
Vasant Nagar, Nagpur,
Maharashtra

Sub:- Waste water treatment Technology - OA 673/2018, OA 27/2021, 141/2021, 147/2022 - reg
Ref: 1. This office letter No. PCB/HO/EE3/O.A No.27/2021(SZ)/2021 dated 8.5.2023
2. NEERI site visit report

Sir,

Kind attention is invited to the subject matter and references. Based on the site report vide (2), you are requested submit report with specific recommendations regarding suitable treatment technology applicable to different site in order to implement the same as a model. Kindly treat this as most urgent as the progress is to be reported to Hon'ble NGT. Next posting for OA 141/2021 (Pallikkalar) & OA 27/2021 (Faecal contamination in Perandoor, Edappally Canals) is on 17/07/2023 and Board has to submit report to the Government by 30/06/2023.

Yours faithfully,

Slce 11

Member Secretary

Copy to:

The Managing Director, Kerala Water Authority
The Director, Urban Directorate
The Director, Tourism Department
The Director, Health Directorate
The Director, DTPC, Alappuzha
The Director, Directorate of Panchayat
The Chief Engineer, Irrigation Department
The Executive Director, Suchitwa Mission
The Coordinator, Harithakeralam Mission
The Secretary
Thiruvananthapuram Corporation/ Kochi Corporation/ Kollam Corporation/Alappuzha Municipality/Aluva Municipality/Kalamassery Municipality/Karunagapally Municipality/Aroor Gramapanchayat
The Chief Environmental Engineer, Regional Office, Thiruvananthapuram /Ernakulam
The Environmental Engineer, District Office Ernakulam / Alappuzha/ Kollam/ Thiruvananthapuram



सी. एस. आय. आर. - राष्ट्रीय पर्यावरण अभियांत्रिकी अनुसंधान संस्थान
CSIR - National Environmental Engineering Research Institute

नेहरू मार्ग, नागपुर - ४४० ०२०, महाराष्ट्र, भारत Nehru Marg, Nagpur 440020, Maharashtra, India

Annexure

NEERI

Er. Pravin Prabhakarroa Manekar, B.E., M.Tech.

Principal Scientist

Wastewater Technology Division

www.neeri.res.in

Assistant Professor (Engineering Sciences)

Academy of Scientific & Innovative Research

E-mail: p_manekar@neeri.res.in

Phone: +91 712 224 9763; +91 712 224 9885-88 Extn. 689

Speed Post

WWT/PM/ KSPCB/02

June 30, 2023

To,
The Member Secretary,
Kerala State Pollution Control Board (KSPCB)
Pattom P.O., Thiruvananthapuram- 695 004

Sub: Request for confirming the Site Visit Report and Submission of the Project Proposal for carrying out the Feasibility Study

Ref.: Letter vide No. [KSPCB/254/2023-AE-13/B] dated June 22, 2023

Ma'am

This has reference to your Letter received on June 27, 2023, and further discussion with the Competent Authority; it has been noted that without confirmation of the Site Visit Report from your end and formally submitting the project proposal at our end. The feasibility study Report in a two-day notice period can not be submitted. CSIR-NEERI had already submitted the Site Visit Report and Letter vide No. WWT/PM/KSPCB/01 informed that the study is essential to provide appropriate treatment technology for the different sites.

We still await your response on confirmation of the Site Visit Report and submitting the project proposal. It is humbly requested that after confirming the Site Visit Report and initiating a project proposal for the feasibility studies, the proposal may be submitted to your office. After getting the Work Order, the feasibility study can be started at the earliest.

I look forward to your earliest response in this matter.

Yours sincerely

Pravin Manekar

☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairman: 2318150 Member Secretary: 2318151
e-mail: chn.kspcb@gov.in; ms.kspcb@gov.in FAX: 2318152 web: kspcb.kerala.gov.in



KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം – 695 004



PCB/HO/EE3/OA.NO.27/2021(SZ)/2021

Date: 04.07.2023

From

The Member Secretary

To

The Director,
CSIR – NEERI, Nehru Marg,
Vasant Nagar, Nagpur,
Maharashtra

Sub:- Waste water treatment Technology - OA 673/2018, OA 27/2021, 141/2021,
147/2022 - reg

Ref: 1. NEERI site visit report
2. This office letter No. KSPCB/245/2023-AE-13/B dated 22/06/2023
3. Letter No. WWT/PM/KSPCB/02 dated 30/06/2023

Sir,

Kind attention is invited to the reference. You are requested to submit project proposal with scope of work & financial budget urgently. Suchitwa Mission, LSGIs, local institutions namely NIIST, Thiruvananthapuram, Engineering Colleges and offices of the Board may also be involved in the project in order to strengthen technical capability in the State.

Yours faithfully,

S. L. A. J.

MEMBER SECRETARY

Copy to

1. The Additional Chief Secretary - with covering letter
Local Self Government Department
Government Secretariat
Thiruvananthapuram