

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEWDELHI

IN

ORIGINAL APPLICATION NO. 147 of 2022

Petitioner : Krishna Das K. V.

Versus

Respondent(s) : The State of Kerala

**REPORT FILED BY THE SENIOR ENVIRONMENTAL
ENGINEER, REGIONAL OFFICE, ERNAKULAM ON BEHALF
OF THE KERALA STATE POLLUTION CONTROL BOARD**

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VOLUME 1

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Dated this the 17th day of August 2022

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ENGINEER ON BEHALF OF KERALA STATE POLLUTION
CONTROL BOARD**

I, Mini Mary Sam, aged 55 years, W/o Ranjan Jacob, Senior Environmental Engineer do here by submit that I am authorised to represent the Kerala State Pollution Control Board, and that I am conversant with the facts of the above case and I may state as follows.

Grievance in this application is about the failure to take action for protecting Astamudi wetland and Vembanad-kol wetland, a Ramsar site in Kollam district of Kerala. As per the order dated 28.02.2022, the state PCB needs to enforce consents /EC conditions applicable to pharmaceutical units and house boats as well as other authorities dumping wastes and to take appropriate action by way of prosecution and stopping polluting activity.

ASHTAMUDI LAKE

Ashtamudi Lake, situated in Kollam District of Kerala, is the most visited backwater and lake in the state. Fishing, coconut husk retting for coir production and inland navigation services are the




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prominent activities connected with the lake. It has a catchment area of 1700 sq.km. and an area of 61.4 sq.km. Kallada River is the major river discharging into the Ashtamudi Lake. Ashtamudi Wetland was included in the list of wetlands of international importance, as defined by the Ramsar Convention for the conservation and sustainable utilization of wetlands. Studies show that, the lake is under pollution stress due to dumping of solid waste and discharge of sewage. Several major and minor drainage channels loaded with waste products from households and establishments join the lake at the southern end. Coconut husk retting for coir fibre manufacture is predominant at certain locations in the eastern arm of the estuary.

ACTION TAKEN BY THE BOARD FOR THE REJUVANATION OF ASHTAMUDI LAKE

For identifying and controlling the pollution of the lake, the Board had conducted a Sanitation Survey of Ashtamudi lake as per the direction dated 03.10.2018 of the Local Fund Accounts Committee of Kerala Legislative Assembly. Socio Economic Unit Foundation (SEUF), an NGO, was entrusted by the Board with the responsibility of conducting the survey as per the agreement dated 10.01.2020. It was decided to conduct the survey of the area around 100m from lake which included houses, flats, industries, establishments, drains joining the lake etc. The data collection was done with a mobile application named *ASAN* developed by Kerala State Remote Sensing and Environment Centre specially customized for the purpose of sanitation survey of Ashtamudi Lake.

The survey was carried out in Kollam Corporation and the Grama Panchayaths of Perinad, West Kallada, East Kallada, Munroethuruth, Panayam, Kundara, Perinad, Thrikkaruva, Thevalakkara, Thekkumbhagam, Chavara and Neendakara. As per the survey 65% of the residents dispose their sewage through septic tank and soak pit, 15% uses toilet pits and 18% residents dispose directly into the lake.

According to the survey 40% of the residents are segregating waste as biodegradable (wet waste) and non-biodegradable (dry waste). Method of disposal of wastes varies with the area. The local bodies are collecting dry waste, mainly plastics through Haritha Karma Sena (HKS). However, the fraction of the population availing the service of the HKS is less. The wet waste from households and establishments are managed at the point of generation itself. The dry




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waste from the remaining households were found disposed through burning, burying, dumping into the lake or drains.

Thus the main reason for the pollution of the lake water is the indiscriminate discharge of sewage and dumping of solid waste from households and establishments.

Regarding dumping of solid wastes, the local bodies have to take action since as per the provisions contained in the Solid Waste Management & Handling) Rules 2016, the Local Bodies are vested with powers and duties to manage the solid waste generated within its limits. The Board had issued direction to the local bodies to improve the door to door collection and to dispose the solid wastes as specified in the SWM Rules. There is found to be a gap of 20% on an average between the solid waste generation and solid waste management in the local bodies. The Board is also monitoring the progress of implementation of SWM Rules from the periodic reports and action plans submitted by the local bodies. The matter of mismanagement of solid waste noticed in the surveillance by Board Officers is followed up in the periodic meeting of the District Level Monitoring Committee (DLMC) constituted as per direction of this Hon'ble Tribunal in O.A. 606/18. Two rendering plants have been set up in private sector and 3 more are under construction. This will provide a permanent solution for the chicken waste which contributes to a large proportion of the solid waste generated. Kollam Corporation has recently completed 80% bio mining of legacy waste from Kureepuzha dumpsite situated on the banks of the lake. A 200 TPD bio-methanation based Waste to Energy Plant is also planned at Kureepuzha. This will go a long way in solving the solid waste management problems in the corporation area as well as nearby local bodies.

Another major contributor to the pollution of the lake is the sewage from households and establishments. A common sewage treatment plant of capacity 12 MLD is being constructed in Kureepuzha by Kollam Corporation and is expected to be completed within one year. The Board had granted Consent to Establish the STP. This STP will help in reducing sewage pollution to the lake.

The Board is carrying out periodic surveillance, seizing of banned single use plastics etc. in the district. The progress of implementation of the Environmental Laws is monitored through




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the periodic reports collected from the Local Bodies. The industries, hospitals, high rise buildings etc. are granted Consent of the Board only after ensuring that there is adequate effluent/sewage and solid waste treatment facility. No industry/establishment is currently granted consent to make discharge into Ashtamudi lake. The Board is granting Consent to house boats and resorts after verifying the adequacy of the solid waste & sewage management facilities. The Board is also conducting periodic inspection and sampling from the effluent/sewage treatment plants of the industries/establishments to ensure that the outlet parameters are meeting the discharge standards. Necessary directions are given to defaulter units to take adequate corrective measures if the parameters are found to be exceeding the permissible limits.

The Board is collecting water samples from 5 numbers of stations in Ashtamudi lake under the State Water Quality Monitoring Programme (SWMP). The analysis reports show presence of fecal coliform in the range 110 cfu/100ml to 680cfu/100ml. Also the parameter electrical conductivity is high due to tidal effect and is of the range 16730µmhos/cm to 21630µmhos/cm. The high electrical conductivity is because the lake is estuarine. Due to this high electrical conductivity the lake is classified in the category "below E" of surface water bodies. Analysis report for the period 2019-2021 is tabulated in Table 1.

River Stations				pH	EC µmhos/cm	DO mg/l	BOD mg/l	TC MPN/100ml	FC MPN/100ml	CLASS*
2019	Neendakara 1441	NWMP	Max	8.1	19350	5.6	4.0	920	680	Below E
			Min	7.5	18120	3.4	1.4	480	260	
			Mean	7.8	18382	4.2	3.1	672	458	
2020	Neendakara 1441	NWMP	Max	8.1	19220	5.6	4.5	540	220	Below E
			Min	6.6	18200	3.6	2.9	310	100	
			Mean	7.5	18649	4.4	3.4	365	136	
2021	Neendakara 1441	NWMP	Max	7.4	18410	6.1	3.5	610	150	C
			Min	6.3	15000	5.1	2.5	350	100	
			Mean	6.9	16609	5.8	3.0	462	123	

Table 1: Ashtamudi Kayal analysis report for the period 2019-2021

Apart from the above major causes of pollution, coconut husk retting and related operations, though of small scale, are noticed to be carried out in the lake which contributes to pollution. The fishing boats fitted with outboard engines releases hydrocarbons and heavy metals into the system. The agricultural practices which involve the use of chemical/organic



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fertilizers and insecticides/pesticides, and the residues on entering the system may cause pollution and eutrophication. Boat breaking activities were resulting in deposition and burning of the solid wastes on the banks damaging the mangroves. Aquaculture and fish processing units were also noticed as causing pollution. The Board on receipt of public complaints or on noticing any violation during surveillance or compliance monitoring is issuing necessary directions to individual industries and local boides to control the pollution.

VEMBANADU LAKE

Vembanad Lake is a designated Ramsar site, a wetland of global importance for its biodiversity values. The lake is bordered by Alappuzha, Kottayam and Ernakulum districts. Five main rivers flow into the lake, are the Achenkovil, Manimala, Meenachil, Muvattupuzha, Pamba and Periyar.

ACTION TAKEN BY POLLUTION CONTROL BOARD CONCERNING THE STRETCH IN ALAPPUZHA DISTRICT

The Board is monitoring the quality of the lake from five points under State Water Quality Monitoring Programme and from eleven points under the Project of Backwater Resources in the portion of the lake coming under the Alappuha district. The analysis report of the samples taken for the period 2019-2021 are shown below in Table 2 & Table 3.

YEAR	RIVER STATIONS	SWMP	PH	EC µmhos/c	DO mg/l	BOD mg/l	TC MPN/100	FC MPN/100	CLASS
2019	KELTRON KADAVU	MIN	6.8	4428	1.2	1.2	600.0	300	D
		MAX	7.9	8660	5.6	6.4	8000.0	6000	
		Mean	7.5	6289	3.8	3.5	2550.0	1600	
	CHANDIROOR	MIN	6.8	1621	4.7	0.6	400.0	280	D
		MAX	7.6	3098	6.8	5.6	9000.0	4000	
		Mean	7.3	2500	5.4	3.6	2808.0	1550	
	ERAMALLOOR	MIN	6.9	1976	4.0	2.2	800.0	400	D
		MAX	7.8	3190	7.4	4.8	7000.0	5600	
		Mean	7.3	2645	5.7	3.3	2858.0	1908	
	KATTACHIRA KADAVU	MIN	6.8	739	4.9	1.2	0.0	0	D
		MAX	7.6	1539	8.2	5.7	1200.0	700	



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2020	KAYIPURAM	Mean	7.3	1230	6.0	2.6	504.0	278	D
		MIN	6.8	682	5.9	1.8	900.0	500	
		MAX	7.5	1610	7.8	4.6	6000.0	4200	
		Mean	7.2	1120	7.3	2.6	2183.0	1280	
	KELTRON KADAVU	MIN	6.7	762	2.5	3.1	300.0	100	D
		MAX	8.1	5981	7.3	6.7	3000.0	1800	
		Mean	7.6	4499	4.2	4.0	1250.0	666	
	CHANDIROOR	MIN	6.9	482	3.6	2.3	300.0	200	D
		MAX	7.9	2872	7.2	4.1	1600.0	800	
		Mean	7.3	1567	3.2	3.0	950.0	492	
	ERAMALLOOR	MIN	6.8	523	4.1	2.1	0.0	0	D
		MAX	7.8	2644.4	8.1	4.2	2500.0	1300	
		Mean	7.4	1800	5.5	3.1	1025.0	565	
2021	KATTACHIRA KADAVU	MIN	6.8	340	4.1	2.0	0.0	0	D
		MAX	7.8	1809	7.4	3.9	1800.0	1000	
		Mean	7.4	1180	5.7	3.0	583.0	325	
	KAYIPURAM	MIN	6.8	704	4.5	1.0	0.0	0	D
		MAX	7.9	1436	7.3	3.5	2700.0	1400	
		Mean	7.2	1087	6.2	2.3	875.0	475	
	KELTRON KADAVU	MIN	7.1	1315.3	6.1	2.2	300.0	0	D
		MAX	7.8	20490	3.7	6.2	4300.0	2300	
		Mean	7.4	7600	2.2	3.3	2236.0	1163	
	CHANDIROOR	MIN	6.7	225.8	2.7	1.6	400.0	200	D
		MAX	7.5	8930	7.6	5.5	6000.0	3800	
		Mean	7.2	3320	5.1	3.1	1916.0	1070	
	ERAMALLOOR	MIN	6.8	223.8	3.2	1.1	0.0	0	D
		MAX	7.5	9690	7.2	5.2	4200.0	1900	
		Mean	7.1	3193	5.4	2.7	1458.0	725	
	KATTACHIRA KADAVU	MIN	6.8	139.5	4.1	1.1	0.0	0	D
		MAX	7.4	6950	7.8	3.8	4500.0	2200	
		Mean	7.1	2331	6.0	2.0	872.7	381	
	KAYIPURAM	MIN	6.7	163.1	4.3	1.0	200.0	0	D
		MAX	7.6	3347	7.9	3.9	3200.0	1900	
		Mean	7.1	1077	6.1	2.0	1533.0	758	

Table 2: Analysis report of the samples collected under SWMP for the period 2019-2021

YEAR	RIVER STATIONS	SWMP	PH	EC µmhos/c	DO mg/l	BOD mg/l	TC MPN/100	FC MPN/100	CLASS
2019	PUNNAMADA	MIN	6.7	800	3.4	1.5	0.0	0	D



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FINISHING POINT	MAX	7.8	1268	5.8	3.2	1000.0	550	
	Mean	7.2	999	4.5	2.4	429.0	248	
1 KM FROM PUMPING STATION	MIN	6.4	470	4.3	2.0	200.0	150	D
	MAX	7.8	1116	7.6	3.1	1200.0	800	
	Mean	7.2	837	5.7	2.7	775.0	440	
PUMPING STATION	MIN	6.8	440	3.6	1.2	100.0	50	D
	MAX	7.8	982	7.8	3.0	2100.0	1500	
	Mean	7.3	773	5.2	1.6	1108.0	650	
PATHIRAMANAL	MIN	6.6	812	3.4	0.8	0.0	0	D
	MAX	7.9	1412	7.8	3.0	700.0	350	
	Mean	7.2	1056	5.9	2.0	391.0	176	
D/S OF THANNERMUKKAM BUND	MIN	6.7	890	6.2	0.9	0.0	0	D
	MAX	7.8	1947	8.0	3.9	1800.0	800	
	Mean	7.2	1338	7.1	1.4	450.0	219	
U/S OF THANNERMUKKAM BUND	MIN	6.8	1321	4.2	1.2	0.0	0	D
	MAX	7.8	2218	8.1	3.3	1200.0	700	
	Mean	7.2	1706	6.1	2.7	675.0	246	
D/S OF McDOWELL & CO.	MIN	6.9	1233	4.0	0.8	0.0	0	D
	MAX	7.7	2628	7.6	3.3	1000.0	600	
	Mean	7.2	1698	5.5	2.3	483.0	254	
THAKAZHY	MIN	6.7	499	3.8	0.6	0.0	0	D
	MAX	7.3	1720	8.0	3.6	2000.0	400	
	Mean	6.9	840	5.3	2.5	483.0	171	
PULINKUNNU	MIN	6.5	340	4.1	1.5	0.0	0	D
	MAX	7.1	850	7.7	4.0	4200.0	2500	
	Mean	6.9	581	5.9	2.3	1108.0	680	
PALLATHURUTHU	MIN	6.6	439	3.2	0.9	0.0	0	D
	MAX	7.5	898	6.0	3.3	1200.0	800	
	Mean	6.9	699	4.3	2.3	325.0	217	
BOARDING POINT	MIN	6.8	811	3.9	2.2	500.0	200	D
	MAX	7.9	1658	5.9	3.5	8000.0	4800	
	Mean	7.2	1201	4.4	2.9	2600.0	1542	

YEAR	RIVER STATIONS	SWMP	PH	EC µmhos/c	DO mg/l	BOD mg/l	TC MPN/100	FC MPN/100	CLASS
2020	PUNNAMADA FINISHING POINT	MIN	6.7	152	3.4	0.1	200.0	100	D
		MAX	7.8	1214	6.5	3.4	2100.0	1000	
		Mean	7.2	575	5.1	2.3	1217.0	591	




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	1 KM FROM PUMPING STATION	MIN	6.4	282	4.6	0.5	300.0	100	D
		MAX	7.8	942	6.6	2.8	2400.0	1200	
		Mean	7.2	713	5.6	1.7	1358.0	733	
	PUMPING STATION	MIN	6.8	173	3.4	0.8	100.0	0	D
		MAX	7.8	936	7.0	3.3	1200.0	700	
		Mean	7.2	654	5.3	1.8	658.0	358	
	PATHIRAMANAL	MIN	6.6	318	4.2	0.7	0.0	0	D
		MAX	7.9	1185	7.5	2.9	800.0	400	
		Mean	7.2	948	5.8	2.1	300.0	150	
	D/S OF THANNERMUKKAM BUND	MIN	6.7	561	6.2	0.9	0.0	0	D
		MAX	7.8	1472	7.8	2.8	900.0	500	
		Mean	7.3	145	6.9	1.8	450.0	216	
	U/S OF THANNERMUKKAM BUND	MIN	6.8	218	4.2	1.2	0.0	0	D
		MAX	7.8	1784	7.6	2.8	1200.0	700	
		Mean	7.3	998	6.1	1.8	617.0	358	
	D/S OF McDOWELL & CO.	MIN	6.8	237	4.0	0.7	100.0	0	D
		MAX	7.8	1924	7.6	3.2	1200.0	700	
		Mean	7.3	1006	5.7	2.0	525.0	283	
	THAKAZHY	MIN	6.9	145	4.2	0.8	200.0	100	D
		MAX	7.7	1091	6.5	3.4	2000.0	1100	
		Mean	7.2	563	5.0	2.1	867.0	491	
	PULINKUNNU	MIN	6.5	146	4.5	1.1	300.0	100	D
		MAX	7.7	859	7.4	4.5	1600.0	900	
		Mean	6.9	435	5.5	2.6	892.0	491	
	PALLATHURUTHU	MIN	6.6	201	2.8	0.8	200.0	100	D
		MAX	8.4	894	6.4	3.6	1200.0	700	
		Mean	7.0	522	4.5	2.4	617.0	333	
	BOARDING POINT	MIN	6.8	184	3.6	1.4	300.0	100	D
		MAX	8.6	1006	6.8	4.1	4000.0	1900	
		Mean	7.3	591	5.1	2.6	1483.0	766	

YEAR	RIVER STATIONS	SWMP	PH	EC umhos/c	DO mg/l	BOD mg/l	TC MPN/100	FC MPN/100	CLASS
2021	PUNNAMADA FINISHING POINT	MIN	6.7	128	4.5	1.5	0.0	0	D
		MAX	7.4	835	7.8	3.7	2200.0	100	
		Mean	7.2	394	6.4	2.1	758.0	358	
	1 KM FROM PUMPING STATION	MIN	6.7	136	5.1	1.6	0.0	0	D
		MAX	7.5	820	7.7	3.8	2900.0	1200	
		Mean	7.3	396	6.5	2.4	741.0	316	



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PUMPING STATION	MIN	6.8	132	5.3	1.5	0.0	0	D
	MAX	7.4	796	7.8	3.3	1400.0	900	
	Mean	7.2	357	6.6	2.0	408.0	183	
PATHIRAMANAL	MIN	6.7	152	5.9	1.1	0.0	0	D
	MAX	7.4	956	7.9	3.0	1200.0	500	
	Mean	7.1	431	7.3	1.7	150.0	58	
D/S OF THANNERMUKKAM BUND	MIN	6.9	153	5.3	0.9	0.0	0	D
	MAX	7.5	996	7.9	3.4	500.0	300	
	Mean	7.1	503	7.3	2.0	125.0	58	
U/S OF THANNERMUKKAM BUND	MIN	7.0	185	5.9	1.2	0.0	0	D
	MAX	7.5	1228	7.9	3.1	4000.0	2600	
	Mean	7.2	553	7.0	1.9	691.0	408	
D/S OF McDOWELL & CO.	MIN	7.1	150	5.2	1.1	0.0	0	D
	MAX	7.5	1173	7.9	4.4	2200.0	1200	
	Mean	7.2	499	7.0	2.3	433.0	208	
THAKAZHY	MIN	6.8	140	4.1	1.1	0.0	0	D
	MAX	7.8	592	6.1	3.7	1200.0	700	
	Mean	7.2	313	5.3	2.5	616.0	275	
PULINKUNNU	MIN	6.8	110	4.1	1.2	0.0	0	D
	MAX	7.6	379	7.4	5.4	1600.0	900	
	Mean	7.2	256	6.0	2.4	750.0	375	
PALLATHURUTHU	MIN	6.7	131	3.9	1.3	0.0	0	D
	MAX	7.7	598	7.0	3.9	1700.0	1000	
	Mean	7.2	363	5.7	2.3	658.0	291	
BOARDING POINT	MIN	7.1	179	4.2	1.5	300.0	100	D
	MAX	7.5	788	7.4	4.8	6000.0	3200	
	Mean	7.3	421	6.2	2.8	2116.0	1041	

Table3: Analysis report of the sampling points under PROJECT OF BACKWATER RESOURCES for the period 2019-2021

Major portions of the lake have not been classified according to the Best Designated Use criteria developed by Central Pollution Control Board. Hence the water quality has been compared with Primary Water Quality Criteria for Bathing Water. The analysis reports show high values of fecal coliform than the permissible limit (desirable) of 500 MPN/100ml. Dissolved oxygen content is seen to be below the limit(5mg/l) at certain points.

A main activity in the stretch of the lake in Alappuzha district is tourism. A large no. of houseboats are plying in the lake. With an increase in number of houseboats catering to



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backwater tourism, commensurate waste management facility is yet to be developed. Intensification of agriculture and use of high yielding varieties of rice has also led to increased use of fertilizers and pesticides which may ultimately reach the lake.

The actions taken by the Board to reduce the pollution threat are as follows:

- Consent of the Board under the Water Act has been made mandatory for houseboats with condition to provide sewage collection facility and to treat the collected sewage at common treatment plant. The Board had charged an amount of Rs 90,45,400/- as penalty from houseboat owners for not complying norms and conditions.
- Action is taken through Port Officer, Alappuzha to find out unauthorized house boats.
- Another major issue in the district is waste from peeling sheds. As a solution to this problem, the demand for a CETP is high. For establishing CETP in Chandiroor region as part of ACCEPT Society, several official and public meetings were held in multiple level with very little positive result. Due to the strong protest of few neighbours the progress of the project is limited.
- A CETP at Mega Food Park, Pallipuram with a capacity to treat 20 lakh L/D effluent was commissioned in March 2022, thus providing a protection to Kaithapuzha, a tributary of Vembanad Lake, from further pollution due to peeling sheds in Puthenthodu.
- Inspections for house boats and resorts near to the lake are being conducted for ensuring compliance to consent conditions.
- Directions were issued to all local bodies in the district to implement adequate solid waste management facilities including composting facilities, Material Collection facility (MCF)/Material Recovery Facility (MRF).
- Haritha Kerala Mission (HKM) and KSPCB had jointly organized two training programs with all stakeholding departments to create awareness in environmental law enforcement responsibility of each department and ensuring synergic function of these departments for environmental conservation. HKM and Suchithwa Mission had organized three training programs in this line for LSGI officials to improve environmental rule implementation for the better waste management and protection of water bodies.
- Continual awareness programs are being given to create awareness about the consequences of lake and stream pollutions, in association with residence associations, peeling shed owners and sea food industries associations in regular interval.
- Awareness classes or seminars are conducted for school students regarding the waste management as a part of environmental day program focusing on mentoring youth for environmental conservation.

ACTION TAKEN BY POLLUTION CONTROL BOARD CONCERNING THE STRETCH IN ERNAKULAM DISTRICT

Kochi city of Ernakulam district is bounded by Vembanadu Lake. To determine the extent of water pollution of Vembanadu lake (Kochi kayal) areas within 5 Kilometers from lake was identified for studying pollution problems of the stretch of the lake in Ernakulam




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district. The study identified the chances of wastewater discharge from establishments, units, apartments etc. Several establishments, units, apartments etc were identified according to major chances of discharging of wastewater into the lake. An inspection team was organized and inspections conducted with the following checklist.

- Whether they have consent or not
- Whether they have a proper waste treatment plant
- Functioning status of STP or ETP
- Whether complying the rules and regulations
- Whether the waste waters discharged to any drain

Based on the inspections conducted, notices were issued to 10 establishments for non compliance of consent conditions and letters issued to 39 units directing to apply for the consent of the Board which are not still under the consent regime of the Board. The matter is being followed up by the Board.

An industrial survey, ie a field survey is done, in which observed data on sewage treatment plant and consent details are collected from selected industrial establishments in the 5km buffer area of coastal stretch. The data reflects the details regarding the generation and treatment of waste from the industries/establishments. The data collection and mapping of industries are done using *EnviClean* application.

A total of 101 industries were identified and mapped using Enviclean application. The following data are collected:

- Water Consumption
- Effluent Generation Quantity
- Whether effluent treatment plant provided
- Waste water treatment plant/ system provided
- Whether applied for consent or not

Periodical inspections and monitoring are being conducted by the Board for ensuring the compliance of consent conditions in major commercial and residential establishments which are already under the consent regime of the Board. Efforts are being taken to bring more units under the purview of the Board which do not have the consent of the Board.




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Seven drains flowing through Kochi city and falls into Vembanadu Lake were identified. The photos showing the location of the drains are enclosed as **Annexure A** and the table showing flow measurements is attached as **Annexure B**. The analysis report of the sediments and the water samples collected from these drains are attached as **Annexure C & Annexure D** respectively.

In certain drains, the values of BOD are more than 3mg/l& Dissolved Oxygen less than 4 mg/l , which are prescribed as the limits by CPCB for determining whether the stretches for water bodies are polluted or not which indicates that more treatment is necessary for wastewater before letting it into drains.

The Board conducts monthly sampling of the Vembanadu lake at Oil Tanker Jetty, near Marine Drive, Ernakulam and the analysis reports of 3 years are attached below in Table 4. The values of Fecal Coliforms are well above the permissible limit of 2500MPN /100ml which is the maximum permissible value. . The inference is that the wastewater needs treatment before it is discharged into the lake.

River Stations				pH	EC µmhos/cm	DO mg/l	BOD mg/l	TC MPN/100ml	FC MPN/100ml	CLASS*
Oil Tanker Jetty 1575	NWMP	2019	Max	8.0	44000	8.1	3.6	310000	140000	Below E
			Min	6.8	1200	2.5	0.8	840	430	
			Mean	7.2	24300	5.3	2.0	48420	22040	
		2020	Max	7.7	46270	6.7	3.4	46000	24000	Below E
			Min	6.6	320	2.3	0.7	1100	480	
			Mean	7.2	25209	5.2	2.0	11618	7389	
		2021	Max	7.9	42380	7.8	3.6	200000	32000	E
			Min	6.3	200	3.4	0.3	1500	630	
			Mean	7.1	20673	5.3	2.2	34375	8994	

Table 4: Analysis Report of the samples from collected Oil Tanker Jetty , near Marine Drive, Ernakulam for the period 2019- 2021

Under NWMP, monthly sampling of the above mentioned four stations are being conducted. In these stations, the values of Fecal Coliform are high above the permissible limit as per the Primary Water Quality Criteria based on Designated Best Use for coastal waters marine outfalls, specified for the stations. Analysis report of the samples collected from these stations for the month of May 2022 is detailed below as Table 5. At present, for treating the waste water generated in Kochi City, there is a Sewage Treatment Plant at Elamkulam, Kochi with 3.5MLD



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capacity running and maintained by Kerala Water Authority. Construction of another STP of 5MLD capacity is nearing completion in the same premises. On commissioning of the new one, the old STP will be demolished. Also M/s Kochi Metro Rail Ltd has obtained Consent to Establish of the Board having validity up to 26.08 2025, for setting up 4 STPs of total capacity of 31MLD for treating the waste water generated in Kochi city, at different locations of the city.

	Name of Monitoring Station	Colour	Odour	Class (as per DBU)	DissolvedOxygen	pH	BOD	FecalColiform	Turbidity
Mar-22	Goshree Bridge	Clear	Fishy	SW - II	5.9	8	3.0	4900	1.6
	Near Cochin Port Trust	Clear	Fishy	SW - III	3.9	7.3	-	3100	3.8
	Thoppumpady	Turbid	Fishy	SW - III	3.1	7.3	-	2000	9.4
	Near Willingdon Island	Clear	None	SW - II	3.6	7.3	2.4	2000	9.0
Apr-22	Goshree Bridge	Clear	Fishy	SW - II	6.7	7.5	2.3	3100	4.0
	Near Cochin Port Trust	Clear	Fishy	SW - III	4.8	7.6	-	4300	7.0
	Thoppumpady	Turbid	Fishy	SW - III	4.3	7.6	-	3800	6.0
	Near Willingdon Island	Clear	None	SW - II	5.3	7.1	4.4	3400	12.2
May-22	Goshree Bridge	Clear	Fishy	SW - II	5.9	7.6	2.8	2700	2.1
	Near Cochin Port Trust	Clear	Fishy	SW - III	3.7	7.4	-	2700	11.3
	Thoppumpady	Turbid	Fishy	SW - III	4.5	7.4	-	1500	2.4
	Near Willingdon Island	Clear	None	SW - II	5.7	7.5	3	700	10.3

Table 5: NWMP DATA for the period MARCH 2022 - MAY 2022

ACTIONS TAKEN FOR REDUCING THE DETIRIORATION OF WATER QUALITY OF VEMBANADU LAKE BY DISTRICT OFFICE OF THE BOARD, KOTTAYAM

The Identification and correction of industrial units functioning near Meenachil river, Muvattupuzha river which discharge their treated waste water into Vembanad lake are in progress, periodic inspections are scheduled to ensure that no contaminants are being discharged



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 Senior Environmental Engineer

into these rivers which eventually reach Vembanad Lake. The results of the SWMP samples collected for the period 2019-2021 are given below as Table 6 & 7.

	River Stations			pH	EC µmhos/cm	DO mg/l	BOD mg/l	TC MPN/100ml	FC MPN/100ml	CLASS*
2019	Kidangoor 1339	NWMP	Max	7.9	103	7.7	0.9	4900	2800	C
			Min	6.8	44	6.0	0.2	700	310	
			Mean	7.5	70	7.0	0.5	2625	1418	
	Theekoy K29	SWMP	Max	7.7	71	8.2	1.4	2900	1400	C
			Min	6.5	36	5.0	0.1	1000	500	
			Mean	7.1	48	7.0	0.5	1950	1046	
	Bharanganam K30	SWMP	Max	7.6	105	8.0	1.0	4300	2400	C
			Min	6.4	38	6.2	0.2	1600	800	
			Mean	7.2	41	7.6	0.5	2667	1350	
	Kadappattoor K31	SWMP	Max	7.6	154	8.7	0.8	3000	1400	C
			Min	6.9	42	6.7	0.2	1200	600	
			Mean	7.3	46	7.4	0.5	1846	967	
	Punnathara K32	SWMP	Max	7.7	108	8.1	1.1	4350	2100	C
			Min	6.8	44	6.4	0.1	700	500	
			Mean	7.4	49	7.3	0.6	2000	1050	
	Thazhathangadi K33	SWMP	Max	7.7	13240	7.8	0.8	4900	2450	C
			Min	5.7	43	3.8	0.2	900	350	
			Mean	7.2	2018	6.1	0.4	2338	1204	
	Kumarakom K34	SWMP	Max	7.6	22820	7.1	1.2	7000	3800	C
			Min	4.8	102	3.4	0.1	1200	650	
			Mean	6.7	287	4.8	0.7	3425	1838	
2020	Kidangoor 1339	NWMP	Max	8.1	104	7.7	1.0	3600	2100	C
			Min	6.6	12	6.5	0.1	490	400	
			Mean	7.4	59	7.2	0.5	1799	950	
	Theekoy K29	SWMP	Max	8.0	77	8.2	1.3	3100	1500	C
			Min	6.2	28	6.1	0.1	200	100	
			Mean	7.2	47	7.5	0.4	1619	821	
	Bharanganam K30	SWMP	Max	8.1	79	8.0	1.8	4700	2400	C
			Min	6.6	33	6.6	0.1	700	310	
			Mean	7.3	51	7.4	0.4	1850	1033	
	Kadappattoor K31	SWMP	Max	8.1	100	8.0	1.6	4300	2200	C
			Min	6.5	35	6.8	0.1	790	400	
			Mean	7.4	56	7.5	0.5	2179	1146	



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2021	Punnathara K32	SWMP	Max	7.9	90	7.9	1.1	3600	2000	C
			Min	6.7	38	6.2	0.2	700	400	
			Mean	7.3	59	7.1	0.5	1854	954	
	Thazhathangadi K33	SWMP	Max	7.9	3028	7.2	0.8	6100	3100	C
			Min	6.9	43	4.0	0.1	1200	790	
			Mean	7.5	519	6.2	0.4	2804	1404	
	Kumarakom K34	SWMP	Max	7.9	5895	5.5	1.0	6300	3600	C
			Min	6.6	95	2.9	0.1	820	470	
			Mean	7.4	1400	3.9	0.5	2996	1433	
	Kidangoor 1339	NWMP	Max	7.2	65	8.1	1.0	2800	1100	C
			Min	6.1	38	3.6	0.3	350	100	
			Mean	6.6	49	7.1	0.5	1184	618	
	Theekoy K29	SWMP	Max	7.2	56	8.2	1.0	3100	1500	C
			Min	6.2	26	6.9	0.2	300	50	
			Mean	6.6	39	7.7	0.5	1029	542	
	Bharanganam K30	SWMP	Max	7.2	75	8.1	1.3	2700	1200	C
			Min	6.0	32	7.1	0.2	400	200	
			Mean	6.4	46	7.8	0.5	1279	583	
	Kadappattoor K31	SWMP	Max	7.1	73	8.0	0.8	3100	1600	C
			Min	6.1	36	7.1	0.3	300	50	
			Mean	6.6	48	7.5	0.5	1125	592	
	Punnathara K32	SWMP	Max	7.1	75	8.1	0.9	2500	1200	C
			Min	6.1	40	6.8	0.3	200	250	
			Mean	6.5	50	7.3	0.4	1105	655	
	Thazhathangadi K33	SWMP	Max	7.2	532	8.0	1.1	2600	1500	C
			Min	5.7	48	5.7	0.2	400	100	
			Mean	6.3	144	6.8	0.6	1242	633	
	Kumarakom K34	SWMP	Max	7.0	1266	8.2	1.2	2700	1250	C
			Min	5.7	61	2.0	0.2	500	150	
			Mean	6.2	384	5.0	0.6	1421	663	

Table 6: Analysis report of the samples for the period 2019-2021 collected from Meenachil river

	River Stations			pH	EC µmhos/cm	DO mg/l	BOD mg/l	TC MPN/100ml	FC MPN/100ml	CLASS*
2019	Vettikkattumukku 0043	NWMP	Max	7.9	86	7.8	0.8	4900	2700	C
			Min	6.9	54	5.7	0.2	2200	1100	
			Mean	7.5	70	6.9	0.5	3383	1808	
	Malankara Dam	SWMP	Max	7.7	80	8.2	0.8	6000	3600	C



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	K43		Min	6.6	45	6.2	0.1	600	350	
			Mean	7.2	60	7.7	0.5	2667	1508	
	Muvattupuzha K44	SWMP	Max	7.3	76	7.9	0.6	5000	2700	C
			Min	6.5	49	6.3	0.1	1300	650	
			Mean	7.1	56	7.3	0.4	2717	1375	
	Peruvammoozhy K45	SWMP	Max	7.9	77	7.9	0.8	3400	2000	C
			Min	6.7	50	7.0	0.1	1150	600	
			Mean	7.4	62	7.5	0.4	2063	1208	
	Ramamangalam K46	SWMP	Max	7.9	79	7.9	0.6	2650	1600	C
			Min	6.5	50	6.9	0.1	950	400	
			Mean	7.4	66	7.5	0.3	1767	917	
	Piravom K47	SWMP	Max	7.9	107	7.9	0.6	4000	2100	C
			Min	6.8	52	6.6	0.1	1400	600	
			Mean	7.5	58	7.2	0.4	2417	1225	
	Murinjapuzha K48	SWMP	Max	7.8	4154	8.0	1.1	6000	3200	C
			Min	6.3	70	5.4	0.3	1850	1200	
			Mean	7.4	1243	6.8	0.7	3808	2067	
2020	Vettikkattumukku 0043	NWMP	Max	8.2	68	8.1	1.0	4300	2500	C
			Min	6.6	45	6.4	0.3	840	490	
			Mean	7.5	58	7.2	0.6	2395	1265	
	Malankara Dam K43	SWMP	Max	7.9	63	7.9	0.7	2600	1400	C
			Min	6.7	35	7.0	0.1	600	250	
			Mean	7.2	49	7.5	0.3	1333	671	
	Muvattupuzha K44	SWMP	Max	7.8	65	8.0	1.0	4300	2400	C
			Min	6.8	46	7.1	0.2	600	310	
			Mean	7.3	55	7.6	0.4	2329	1238	
	Peruvammoozhy K45	SWMP	Max	8.0	64	8.2	0.8	3700	2400	C
			Min	6.7	45	7.1	0.1	490	250	
			Mean	7.4	55	7.5	0.3	1704	942	
	Ramamangalam K46	SWMP	Max	7.9	66	7.6	0.9	3300	1600	C
			Min	6.8	45	6.4	0.1	630	310	
			Mean	7.5	57	7.1	0.5	1813	925	
	Piravom K47	SWMP	Max	7.9	66	7.9	0.8	4300	2100	C
			Min	6.4	45	6.3	0.1	400	200	
			Mean	7.4	57	7.2	0.4	1888	933	
	Murinjapuzha K48	SWMP	Max	8.1	14800	7.5	1.3	6300	2600	Below E
			Min	6.7	47	5.6	0.2	1000	400	
			Mean	7.5	4215	6.6	0.5	3113	1404	
2021	Vettikkattumukku	NWMP	Max	7.2	76	8.2	1.3	3100	1500	C




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0043		Min	6.1	51	6.0	0.3	100	100	
		Mean	6.7	59	7.2	0.5	1108	605	
Malankara Dam K43	SWMP	Max	7.3	57	8.1	0.9	1900	1000	C
		Min	6.0	43	7.1	0.2	200	50	
		Mean	6.5	50	7.9	0.4	668	365	
Muvattupuzha K44	SWMP	Max	7.6	56	8.2	0.9	2000	1100	C
		Min	6.3	41	7.2	0.1	500	250	
		Mean	6.7	51	7.6	0.3	959	473	
Peruvammoozhy K45	SWMP	Max	7.6	60	8.0	1.9	2100	1100	C
		Min	6.4	43	7.3	0.1	300	150	
		Mean	6.7	51	7.7	0.5	927	475	
Ramamangalam K46	SWMP	Max	7.7	62	8.2	1.0	3500	1050	C
		Min	6.3	43	7.1	0.2	500	200	
		Mean	6.7	53	7.6	0.4	1236	531.818182	
Piravom K47	SWMP	Max	7.7	63	8.1	0.9	3000	900	C
		Min	6.4	48	6.8	0.3	150	50	
		Mean	6.8	56	7.4	0.4	1025	488	
Murinjapuzha K48	SWMP	Max	7.7	1886	7.9	0.8	2450	1200	C
		Min	6.0	51	5.8	0.1	100	50	
		Mean	6.7	622	7.0	0.4	1250	664	

Table7: Analysis report of the samples for the period 2019-2021 collected from Muvattupuzha river

The analysis reports show that the parameters are within the limits except for the value of fecal coliform prescribed for bathing under Primary Water Quality Criteria.

Periodic inspections are also conducted for ensuring the compliance of consent conditions issued to house boats and resorts functioning near the lake so as to abate the pollution of the lake. All these hotels and resorts are functioning with proper solid and liquid waste treatment plant including Sewage Treatment Plants and also have implemented systems for recycling used water. Board ensures the compliance of the units as per circulars /guidelines of the Board. The list of industrial units having STP, functioning near Vembanad Lake and using treated effluent for irrigation is enclosed as **Annexure E** and list of those industries which are discharging treated effluent into the lake is enclosed as **Annexure F**.

In order to prevent the water pollution from house boats, DTPC has constructed a Common Sewage Treatment Plant exclusively for house boats at Kavanattumkara Kumarakom. Consent to Operate to the house boats shall only be granted if the houseboat treats the wastewater through



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this facility. During the inspection and sampling conducted on 26.02.2022 the BOD and COD level of treated water was found to be above the permissible limit. Hence a show cause notice was issued to DTPC and enclosed as **Annexure G**.

The other area sources of pollution to Vembanad Lake include the discharge of pollutants in the solid and liquid waste generated from nearby panchayats and municipalities. The wastes dumped in the water shed includes drainages from houses, small shops, commercial establishments and other small scale industries. There are 10 Panchayats and 2 Municipalities sharing boundary with Vembanadu lake and the other 62 Panchayats and 4 municipalities in the water shed and none of them have taken Authorisation for Solid waste management or set up scientific waste anagement facilities. The Municipalities and Panchayats are discharging their waste into these rivers and tributaries discharging into Vembanad Lake. Efficient Solid Waste Management rule implementation including door to door collection of waste is not conducted effectively in these LSGIs. Intimation letter was sent to all municipalities for obtaining authorisation. Copy of the letter is enclosed as **Annexure H**.

The Board had got conducted 2 studies on Vembanad lake viz., 'Study on the Impact of Heavy Floods on Environmental Characteristics of Vembanad Backwater' and 'Hydrochemistry of Vembanad Backwater with Special Reference to Pollution Problems and its Management Issues'. The Board has taken actions for implementing the recommendations of these studies.

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

Dated this 17th day of August 2022



A handwritten signature in blue ink, appearing to read 'Mini Mary Sam', written over a horizontal line.

SENIOR ENVIRONMENTAL ENGINEER

Mini Mary Sam
Senior Environmental Engineer

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEWDELHI

IN

ORIGINAL APPLICATION NO. 147 of 2022

Petitioner : Krishna Das K. V.

Versus

Respondent(s) : The State of Kerala

**REPORT FILED BY THE SENIOR ENVIRONMENTAL
ENGINEER, REGIONAL OFFICE, ERNAKULAM ON BEHALF
OF THE KERALA STATE POLLUTION CONTROL BOARD**

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEWDELHI**

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VOLUME 2

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Dated this the 17th day of August 2022

ANNEXURE -A**Locations of drain sampling points**

Fig 1: Drain Cp Thodu, Near State Bank Of India, Bazar Road, Fortkochi



Fig 2: Drain near MatyaFed, Marine Drive



Fig 3: Drain Near Choice Marina, Thoppumpady



Fig 4: Drain near Tata Tritvam Flats, Marine Drive



Fig 5: Drain Near Holiday Bay Castle, Marine Drive, Kochi

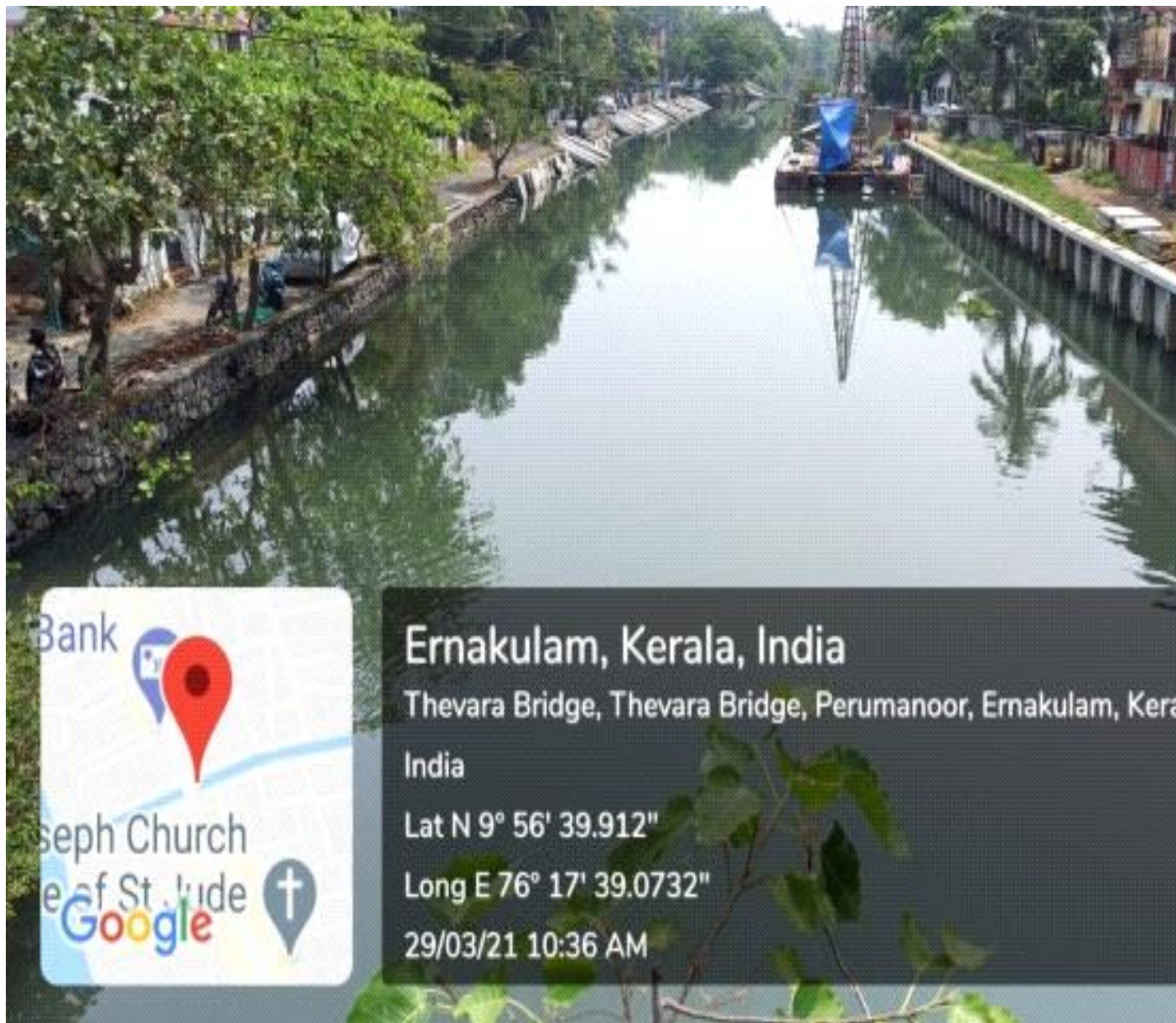


Fig 6: Drain Near Thevara Market



Fig 7: Drain Near Hotel Top Form, Karuvelippady, Fort Kochi

ANNEXURE - B

Drain Sampling Details								
Team 1 (Willington Island To Marine Drive Stretch)								
Sl.No	Name Of The Drain	Location	Width (m)	Depth (m)	Flow Measurement			
					Distance (m)	Time (s)	Velocity (m/s)	Flow (m ³ /s)
1	Drain Near Holiday Bay Castle, Marine Drive, Kochi	N09 °58'48.198" E076 °16'30.7308"	12 M	1.5 M	1 M	18 Sec	0.06	1.08
2	Drain Near Thevara Market	N09 °56'39.948" E076 °17'38.922"	20 M	2 M	1 M	5 Sec	0.2	8
3	Drain Near Choice Marina, Thoppumpady	N09 °55'50.8008" E076 °16'2.82"	10 M	1 M	1 M	32 Sec	0.03	0.3
4	Drain Near Hotel Top Form, Karuvelippady, Fort Kochi	N09 °56'21.714" E076 °15'33.2928"	10 M	1 M	1 M	26 Sec	0.04	0.4
5	Drain Cp Thodu, Near State Bank Of India, Bazar Road, Fortkochi	N09 °58'4.5948" E076 °15'8.1216"	12 M	1.5 M	1 M	18 Sec	0.06	1.08

Team 2 (Marine Drive To Munambam Stretch)								
Sl.No	Name Of The Drain	Location	Width (m)	Depth (m)	Flow Measurement			
					Distance (m)	Time (s)	Velocity (m/s)	Flow (m ³ /s)
6	Drain near MatyaFed, Marine Drive	N09 °59.208' E076 °16.343'	9 M	1.08 M	1 M	15 SEC	0.07	0.68
7	Drain near Tata Tritvam Flats, Marine Drive	N09 °59.766' E076 °16.334'	10.7 M	1 M	1 M	41 SEC	0.02	0.21

ANNEXURE- C**Sediment Samples in Drains - Analysis Report**

			MD	TT	NFM	DHBC-SED	DMC-SED	DCMT-SED	DHT-SED
	PARAMETERS	UNIT	Drain near MatyaFed, Marine Drive	Drain near Tata Tritvam Flats, Marine Drive	Drain near Nayarambalam Fish Market	Drain near Holiday Bay Castle, Marine Drive, Kochi	Drain near Thevara Market	Drain near Choice Marina, Thoppumpady	Drain near Hotel Top Form, Karuvelipaddy, Fort Kochi
1	Arsenic as As	mg/l	BDL(MDL-0.005)	BDL(MDL-0.005)	BDL(MDL-0.005)	BDL(MDL-0.005)	BDL(MDL-0.005)	2.28	BDL(MDL-0.005)
2	Antimony as Sb	mg/l	1.69	BDL(MDL-0.001)	1.78	1.39	BDL(MDL-0.001)	BDL(MDL-0.001)	BDL(MDL-0.001)
3	Chromium as Cr	mg/l	48.9	41.99	43.52	53.15	48.21	48.56	51.69
4	Cadmium as Cd	mg/l	BDL(MDL-0.001)	BDL(MDL-0.001)	BDL(MDL-0.001)	BDL(MDL-0.001)	BDL(MDL-0.001)	BDL(MDL-0.001)	BDL(MDL-0.001)
5	Cobalt as Co	mg/l	3.37	3.28	2.66	3.49	2.98	3.03	1.78
6	Copper as Cu	mg/l	20.24	11.15	9.7	48.25	35.29	58.42	26.74
7	Iron as Fe	mg/l	15435.08	17320.21	11595	18878.32	15186.9	15368.74	16322.64
8	Lead as Pb	mg/l	12.65	6.56	79.93	12.59	4.47	22	12.48
9	Manganese as Mn	mg/l	144.18	59.06	20.43	47.55	54.17	417.29	48.13
10	Mercury as Hg	mg/l	5.9	4.59	7.99	4.89	2.98	6.07	12.48
11	Molybdenum as Mo	mg/l	0.84	BDL(MDL-0.010)	BDL(MDL-0.010)	0.69	BDL(MDL-0.010)	BDL(MDL-0.010)	BDL(MDL-0.010)
12	Nickel as Ni	mg/l	13.49	11.15	6.22	20.98	8.45	9.1	19.61
13	Zinc as Zn	mg/l	96.12	91.21	60.39	107.69	36.28	97.12	156.86

ANNEXURE- D**Water Samples in Drains - Analysis Report**

			GEN-MD	GEN-TT	GEN-DHBC	GEN-DMC	GEN-DCMT	GEN-DHT	GEN-FKCP
	PARAMETERS	UNIT	Drain near MatyaFed, Marine Drive	Drain near Tata Tritvam Flats, Marine Drive	Drain near Holiday Bay Castle, Marine Drive, Kochi	Drain near Thevara Market	Drain near Choice Marina, Thoppumpady	Drain near Hotel Top Form, Karuvelippady, Fort kochi	Drain CP Thodu, near STATE BANK OF INDIA, Bazar Road, Fortkochi
1	pH	-	7	6.9	6.9	7	7.1	7	7.5
2	TDS	mg/l	28107	30070	25008	27111	28107	34488	35686
3	Oil & Grease	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4	COD	mg/l	16	16	28	20	24	16	20
5	BOD	mg/l	0.8	0.6	6.7	3.5	4.9	2.5	1.8
6	Conductivity	mg/l	44500	42700	37400	42000	44500	54600	56500
7	colour	mg/l	30	20	30	20	20	5	30
8	Fluoride	mg/l	0.54	0.51	0.46	0.51	0.55	0.56	0.58
9	chloride	mg/l	18292	16484	12762	15314	16484	16697	19994
10	Nitrate as Nitrogen	mg/l	0.024	0.023	0.025	0.11	0.015	0.02	0.009
11	Sulphate	mg/l	1188	1520	1962	889	1718	2005	482
12	Phosphate	mg/l	0.5	0.5	1.1	0.4	0.5	0.6	0.1
13	Hardness	mg/l	5300	4400	4000	4700	4800	4400	6100
14	Cyanide	mg/l	0.13	0.12	0.08	0.09	0.11	0.12	0.14
15	Hexavalent Chromium	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16	Dissolved oxygen	mg/l	2.1	3.5	0.8	3.1	3.5	2.1	3.1

ANNEXURE - E**List of units using treated effluent for irrigation**

Sl. No	Name of unit
1	Abad Hotels & Resorts, Kumarakom
2	Aveda Resorts & Spa, Kumarakom
3	Back Water Ripples, Kumarakom
4	Cee Cee Grand Hotel, Kumarakom
5	Club Mahindra Kumarakom
6	Cocobay Resort, Kumarakom
7	Coconut Lagoon Heritage Resort, Kumarakom
8	Eastend Lake Song Resort, Kumarakom
9	EdasseryKayal Resort, Kumarakom
10	Gokulam Grand Resort And Spa, Kumarakom
11	Green Field Resorts, Kumarakom
12	Illikkalam Lake Resort, Kumarakom
13	Kumarakom Lake Resorts, Kumarakom
14	M/S The Windsor Castle, Kumarakom
15	Proposed Resort Owned BySreeGokulam Chits & Finance Co. Pvt.Ltd, Kumarakom
16	The ZuriKumarakom Kerala Resorts & Spa, Kumarakom
17	Vivanta By Taj(Taj Gardew), Kumarakom
18	Water &Capes(Ktdc), Kumarakom
19	MRF Limited, Vadavathoor

ANNEXURE - F**List of industries and Sewage Treatment Plants near the banks of Vembanadkol wetlands**

1	Modern Rice Mill Oil Palm India Ltd.,KudavechoorPO,Vaikon Kottayam	FSTP of DTPC Kavanattinkara, Kumarakom
2	Abad Motels And Resorts Pvt. Ltd. Kumarakom	
3	Aveda Resorts And Spa Kumarakom	
4	Back Water Ripples Kumarakom	
5	Cee Cee Grand Hotel Kumarakom	
4	Club Mahindra Kumarakom	
5	Cocobay Resort Kuarakom	
6	Coconut Lagoon Heritage Resort Kumarakom	
7	Eastend Lake Song Resort Kumarakom	
8	EdasseryKayal Resort Kumarakom	
9	Gokulam Grand resort And Spa Kumarakom	
10	Green Field Resorts Kumarakom	
11	Illikkalam Lake Resort Kumarakom	
12	Indraprastham Back Water Cruise Kumarakom	
13	Kumarakom Lake Resorts	
14	M/S The Windsor Castle Kumarakom	
15	The ZuriKumarakom Kerala Resorts \$ Spa	
16	Vivanta By Taj (Taj Gardew) Kumarakom	
17	Water \$ Capes (KTDC) Kumarakom	

KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

DISTRICT OFFICE, SREENIVASA IYER ROAD, KOTTAYAM - 1



ജില്ലാ ഓഫീസ്, ശ്രീനിവാസ അയ്യർ റോഡ്, കോട്ടയം.

Registered with A/D

In reply please refer to:-PCB/KTM/2631/08

Ref: 1. Inspection conducted by Board Officials on 26.02.2022

NOTICE

WHEREAS M/s., Common STP for House boats, Kumarakom, P.O Kottayam, (hereinafter referred to as the unit) having its establishment at Kumarakom Gramapanchayath, Vaikom Taluk, Kottayam District, comes under the purview of the Water (Prevention & Control of Pollution) Act, 1974 & Air (Prevention & Control of Pollution) Act, 1981 are bound to comply with the standards laid down there under and the conditions of the consent issued there under;

WHEREAS, the Government of Kerala have constituted the Kerala State Pollution Control Board (herein after referred as the Board) as per section 4 of the Water (Prevention & Control of Pollution) Act, 1974;

WHEREAS the unit comes under the purview of the Environment (Protection) Act, 1986 and is bound to comply with the standards prescribed in the Environment (Protection) Rules;

WHEREAS unit was inspected and an effluent sample was drawn from the unit on 26/02/2022;

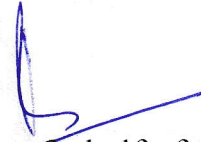
WHEREAS it was reported that the BOD levels in the treated water was 74mg/litre and the limit was only 30mg/litre.

WHEREAS it was reported that the COD levels in the treated water was 256mg/litre and the limit was only 250mg/litre. This shows the improper functioning of effluent treatment plant.

WHEREAS you need to do modifications/ improvements in the CSTP unit to reduce the BOD value, to less than 30mg/litre and COD value to less than 250mg/litre.

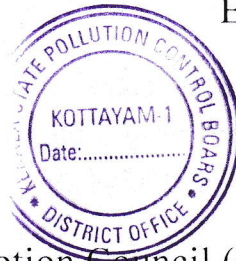
NOW THEREFORE you are hereby directed to show cause if any, within 15 days of receipt of this notice as to why legal proceedings for violating the provisions of the Water (Prevention and Control of Pollution) Act, 1974 shall not be initiated against you.

Dated this the 23th day March 2022.



For and on behalf of the
KERALA STATE POLLUTION CONTROL BOARD

ENVIRONMENTAL ENGINEER.



To,

The Secretary
District Tourism Promotion Council (DTPC)
Kodimatha
Kottayam
Email : info@dtppckottayam.com

ANNEXURE- H**ജില്ലാ ഓഫീസ്, കോട്ടയം****കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്****KERALA STATE POLLUTION CONTROL BOARD****DISTRICT OFFICE, KOTTAYAM.**

ശ്രീനിവാസ അയ്യർ റോഡ്, കോട്ടയം-686001

Sreenivasa Iyer Road, Kottayam-686001

E-mail: kspcbkottayam@gmail.com, keralapcb_ktm@yahoo.com Telephone : 0481 - 2302445 web: www.keralapcb.nic.in
ഓൺലൈനിൽ അപേക്ഷകൾ സമർപ്പിക്കുന്നതിന് www.krocmms.nic.in എന്ന വെബ്സൈറ്റ് ഉപയോഗിക്കുക.

PCB/KTM/GEN-66/Audit Enq/2015

11.05.2022

From

Environmental Engineer

To

1. The Secretary.,
All Municipalities

REMINDER**NGT- URGENT**Despatched
On-11.05.22-as
email

Sir/ Madam,

Sub:- Authorization for Processing/Recycling/Treatment and Disposal of solid waste -
Reg.

Ref:- 1. Solid waste management rules 2016

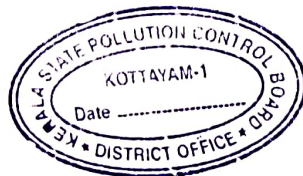
2. NGT order on OA 606/ 2018 dated 12.10.2018.

3.This office letter dated 18.03.2022

4.This office letter PCB/KTM/GEN-66/Audit Enq/2015 dated 26.04.2022

As per the reference, the municipalities had been reminded many times to obtain authorization under Solid waste management rules 2016. It is observed that, your municipality has not taken authorization for Processing/Recycling/Treatment and Disposal of solid waste as per solid waste management rules 2016. Hence you are directed to submit the application in enclosed format for authorization within seven days with DD for Rs. 20,000/- in favour of KSPCB, Kottayam, payable at Kottayam as authorization fee along with substantiating documents for the data given in the form attached herewith.

Yours faithfully,



Encl:- As above

ENVIRONMENTAL ENGINEER.