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

ORIGINAL APPLICATION NO. 730 of 2022

Petitioner **:** K Ramachandran Pillai &ors.

Versus

Respondent(s) **:** The State of Kerala

REPORT OF THE JOINT COMMITTEE FILED BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI IN THE MATTER OF O.A. NO. 730/2022

1. Background

The Hon'ble National Green Tribunal (NGT) Principal Bench, New Delhi has registered O.A No. 730 of 2022 based on a letter petition dated 15.06.2022 received from K. Ramachandran Pillai &Ors of District Kollam.The Hon'ble National Green Tribunal (NGT), vide its order dated 02.01.2023 in OA No. 730 of 2022, directed the constitution of a joint committee and found it appropriate before taking any further action, a factual action report must be obtained by a joint Committee comprising of State PCB, Kerala Irrigation Department, Kerala Coastal Zone Management Authority and National Center for Sustainable Coastal Management, Chennai who shall visit concerned area and submit a factual report within two months.The nodal agency will be State Pollution Control Board for coordination and compliance.

2. Composition of the joint committee

As per the directions of the Honourable NGT, the Kerala State Pollution Control Board, vide its letter dated 10.01.2023solicited nominations from all the concerned agencies,and accordingly, the following members were nominated by concerned agencies to serve as a member of this joint committee.

Sl. No.	Organization	Nominated member
1.	National Centre for Sustainable Coastal Management (NCSCM), Ministry of Environment, Forest and Climate Change of India (MoEF& CC), Chennai	Dr. Robin. R.S, Scientist- C
2.	Directorate of Environment, KeralaCoastal Zone Management Authority (KCZMA), Thiruvananthapuram	Sri. Rahul Ramesh, Assistant Environmental Officer
3.	Irrigation Department, Kollam	Sri. A. Muhammad Ansari Assistant Executive Engineer
4.	Kerala State Pollution Control Board (KSPCB)	Smt. Rachel Thomas Environmental Engineer

3. Mandate of the joint committee

The Honourable NGT directed the joint committee to inspect the site area in question and to submit a factual report as to whether there was any violation regarding illegal mining near or inside theRiverIthikkara and also to examine the major allegations raised in the petition.

4. Approach adopted by the joint committee

Based on the Order of the Honourable NGT, Kerala State Pollution Control Board being the nodal agency for coordination have sought nominations from the Kerala Irrigation Department, Kerala Coastal Zone Management Authority,and National Center for Sustainable Coastal Management, Chennai,constituted a joint committee.

Pursuant to the receipt of nominations, the Joint Committee made a site inspection along with the complainants, Sri. K. Ramachandran Pillai &Ors. The committee had visited five points, such as i) Chathannoor Canal; ii) ParavoorPozhy, where the Ithikkara River joins with ParavoorKayal and the Arabian Sea; iii) ChirakkaraAmavattom; iv) Meenad West; and v) Kanjiramkuzhy, which were pointed out by the complainants themselves. **(Annexure I &Annexure II)**.

Fig. 1.Interactions of the joint committee with the complainants and residents.

Based on their site inspection, all concerned committee members have gathered the requisite information. Based on the information gathered and observationsby themselves, the joint committee prepared a report,which is submitted for the kind consideration of the Honourable NGT.

5. Key issues raised in the complaint and remarks of the joint committee

Grievance is that arbitrary and illegal mining is going on the embankment, buffer area and flood zone of the river causing huge disturbance to the ecology

pertaining to aquatic life, etc. and also disturbing/damaging mangroves. The violators have even damaged two bunds constructed on the river.

6. Remarks of the joint committee

The committee took part in the joint field inspection along with the complainants, Sri. K. Ramachandran Pillai and others. The committee had visited five points:Chathannoor Canal, ParavoorPozhy, where Ithikkara River joins with ParavoorKayal and the Arabian Sea, Chirakkara-Amavattom, Meenad West, and Kanjiramkuzhy which were pointed out by the complainants themselves. The committee noted that there are abandoned quarry pits filled with water was seen at Meenad West area. No other activities causing environmental damage as alleged by the complainants and the local residents were noticed. Under the State Water quality Monitoring Program (SWMP), State PCB has been collecting samples from different points in the IthikkaraRiver. The results show that the parameters are within the limit. Dissolved Oxygen level and Biological Oxygen Demand shows that the water quality is good and aquatic life can thrive in it. Copy of the result of the collected water samples for the last one year is attached herewith and marked as **Annexure III**.However, the committee has noticed issues surrounding the river, which are explained in the section below.

7. Key observations by the committee

(a) The canal at Chathannooris choked with weeds.

The committee noted that the canals of the river are choked with weeds that prevent the natural flushing, which can be a major problem during floods. The committee suggests removing weeds from the canalunder the provisions of the "National Rural Employment Generation Scheme (NREGS)".

Fig. 2.Choked canal and sluice with weeds.

(b) Illegal clay mining activities and wire cut brick manufacturing units at Meenad

Brick kilns are a major source of livelihood for the people. The kilns mine clayfrom the river to manufacture bricks. However, there are brick kilns that are unauthorised or do not have a proper government recognized license. The committee decided to enquire with the local body concerning the activities and entrust the Pollution Control Board to collect the details from ChathannoorGramaPanchayath. The matter was enquired with the local Panchayath vide letter dated 04.03.2023 is attached herewith as **Annexure IV**. The committee suggests the local government to monitor the activities of the brick kilns based on the regulations of the CRZ 2011/2019 norms as applicable. Continuous mining can cause pit formations in the river bed.

Fig. 3. Water filled clay mining pits by the side of the Ithikkara River.

(b 1) CRZ status of the alleged illegal mining area

KCZMA, on verification of the geo-coordinates captured from the site ((8051'8''N & 76041'34''E) with the Coastal Zone Management Plan (CZMP), 2011, found that the area in question falls inside Coastal Zone Regulation (CRZ) line, in Survey No. 152 of Meenad Village (CZMP 2011, Map No: KL 10). The area falls in CRZ buffer- Non Development Zone (NDZ) (CRZ III category). The provisions of CRZ III region are from Clause 8(III) (A) (i, ii & iii) &clause 8 III (B) (i to xi) of CRZ notification, 2011). CRZ Notification with respect to the Kerala Coast is attached herewith as **Annexure V**.Any activity in CRZ area requires prior permission from Coastal Zone Management Authority (CZMA). If the same is not obtained from the authority, it is violation of CRZ rules. Panchayath can only issue licence/ permit after obtaining the CRZ clearance from the CZMA concerned.The above mentioned Brick Construction Unit are using the ordinary clay mined from the IthikkaraRiver and its surroundings, this might also attract the EIA notification, 2006 and prior Environmental Clearance (EC)

from State Environment Impact Assessment Authority (SEIAA) might also be necessary. Operation of mining activities in the CRZ region without obtaining clearances from statutory authorities (KCZMA, SEIAA) is violation of CRZ notifications, 1991, 2011 & EIA notification, 2006. Consent to operate from the Pollution Control Board is also not obtained. The Panchayath concerned may issue stop memo against all the said activities and take necessary actions.

Fig. 4.Brick kilns located along the banks of the river.

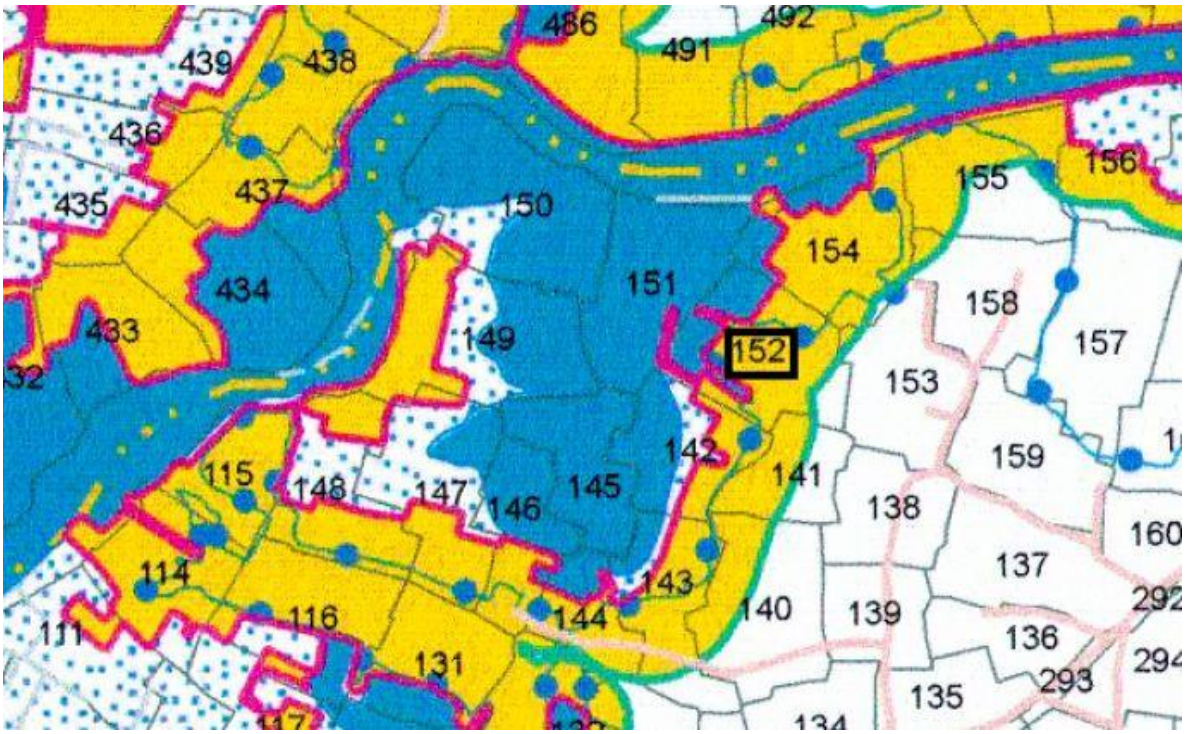

Fig.5a.The CZMP map of the region available in the website of (KCZMA)

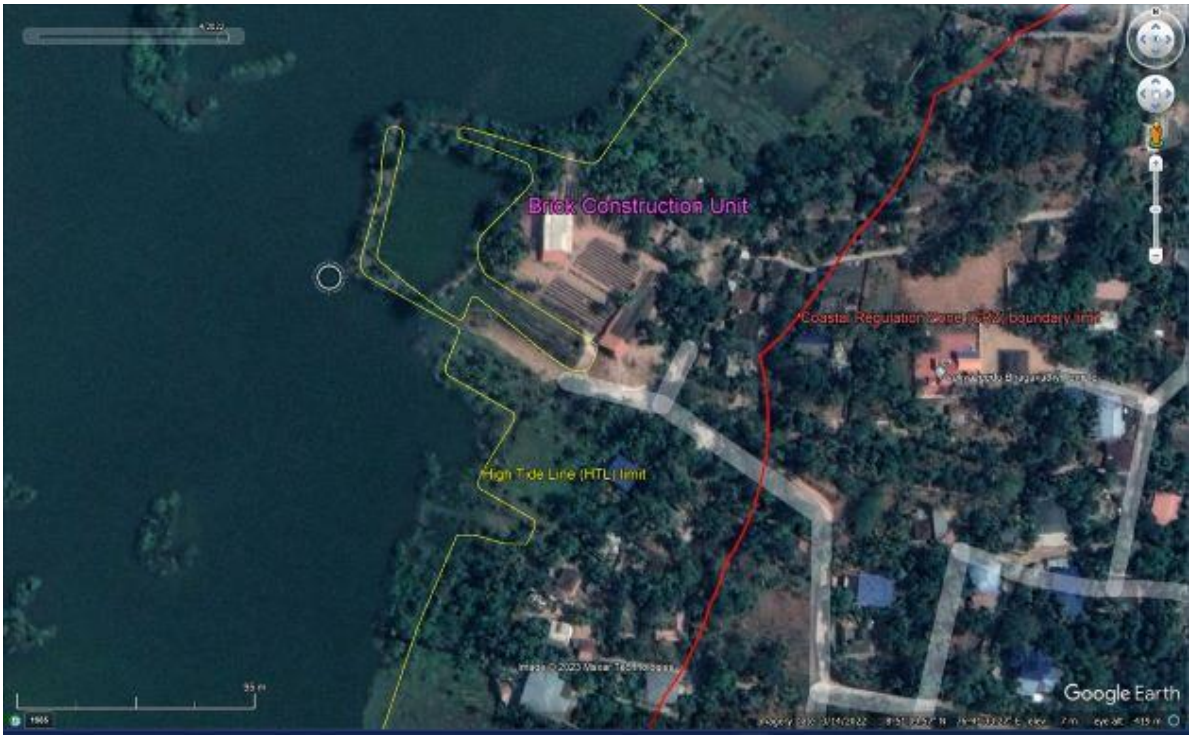

Fig.5b.The CZMP map of the region available in the website of (KCZMA)

(c) Siltation and sand bar formation; maintenance of spillway at ParavoorPozhy.

The committee noted that the spillway at ParavoorPozhyrequires periodic maintenance to prevent siltation and enhance proper flushing of flood water during the monsoons.The committee observed that siltation and sandbar formation occur in the mouth of ParavoorKayal. The sandbanks formed by the accumulation of deposits at the end of IthikkaraRiver near ParavoorPozhikkara has been destroyed due to sand mining and has stopped the formation of 'bund'. However, it is noticed that due to these sand dunes, water gets raised in Paravoor Lake during monsoon season and creates threat to the people's life and fish farming in areas like Mukkam. Hence during monsoon season generally works are arranged to break the bunds formed at estuary. Hence it is essential to remove these sand banks.Report from the Irrigation Department is attached herewith as **Annexure VI**.The committee suggests that a study has to be carried out to reach a consensus on how much sand needs to be removed from this region for natural seawater exchange.

Fig. 6.Seawater intrusion into the river, siltation, and sandbar formation make the river shallow.

(d) Bank erosion, aquaculture andimpacts on mangroves at Chirakkara, Amavattom,Appopankavu

The committee observed that various mangrove plants sparsely exist along the banks of the river,while the river banks look eroded. Any future developments in

this area should be aligned with the latest approved CZMP**(AnnexureV&Annexure VII)**.Boating activities are common in the region but are not alarming enough to cause any environmental damage. The proliferation of aquaculture should be regulated.Shelled organisms such as devil snails were observed in the region. Theorganism exists in the mangrove region, where it feeds on mangrove leaf litter.

Fig. 7. River bank erosion, aquaculture ponds, sparse mangroves, and shelled organisms noticed at Chirakkara, Amavattom, and Appopankavu.

(e) ***Reclamation of river banks at Kanjiramkuzy.***

The committee observed heaps of fresh earth which was a result of mining. The actual path of the river must be determined using digital maps to ensure whether the area lies on land or river.

8. Concluding Remarks

The Ithikkara River is one of the longest rivers in Kerala, originating from Kulathupuzha in the Western Ghats at an elevation of about 240 m above mean sea level. It has a length of about 56 km and a catchment area of about 642 km^2 and it merges with the Paravur Lake. The river has a rich biodiversity with about 56 species of fish, 50 species of benthic fauna, 29 species of macro invertebrates (prawns, molluscs, and crabs), zooplankton, and phytoplankton. The region has a high groundwater potential with crystalline rocks and alluvial soils. The alluvial soil favours the cultivation of several commercially important crops.

However, the advent of brick kilns and aquaculture has led to sand mining activities in the river. Clay mining was found to take place in the river, as per the complainant Sri. K. Ramachandran Pillai &Ors. The committee has also observed other issues such as the clogging of canals, river bank erosion, siltation, and brick kilns without valid licences over the course of the river. The committee has suggested various recommendations for each of the above issues. The committee notes that sand mining activity can be permitted with the approval of concerned authorities. A study must be carried out on the issues pertaining to siltation and sand bar formation to achieve consensus on the quantity of sand to be removed from this region. The choked canals can be cleaned according to the provisions of the "National Rural Employment Scheme (NREGS)". Further, the committee observes that the river is continuously flourishing during the summer and that there are no issues pertaining to pollution, such as garbage dumping. The analysis results of the samples along the stretches also show that the parameters are within the prescribed limit. Sandand sediment mining is a cause of concern in a few

areas, but the committee has not noticed any ecological damage due to this activity.

Activities in CRZ-I areas that are regulated or permissible shall be dealt with by the Ministry of Environment, Forest, and Climate Change for CRZ clearance, based on the recommendation of the Geology Department, the Coastal Zone Management Authority, and other line departments.The sand bar and sedimentation removal activities at ParavoorPozhy may be based on a scientific study and cleared by SCZMA/MoEF&CC.

To stop erosion on the river banks, soft measures such as mangrove plantation in suitable areas shall be conducted along the estuarine banks, involving the local communities.

Conduct carrying capacity studies on the Ithikkara River to limit and sustain resource utilisation using national-level institutes and organizations.

This report is submitted for kind consideration of the Honourable National Green Tribunal.

Dr. R.S. Robin
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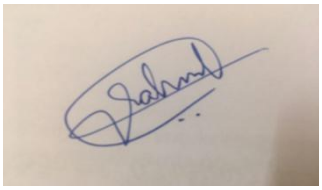
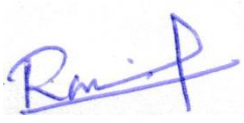
National Centre for Sustainable Coastal Management, Ministry of Environment, Forest and Climate Change,
Chennai, 600 025, India



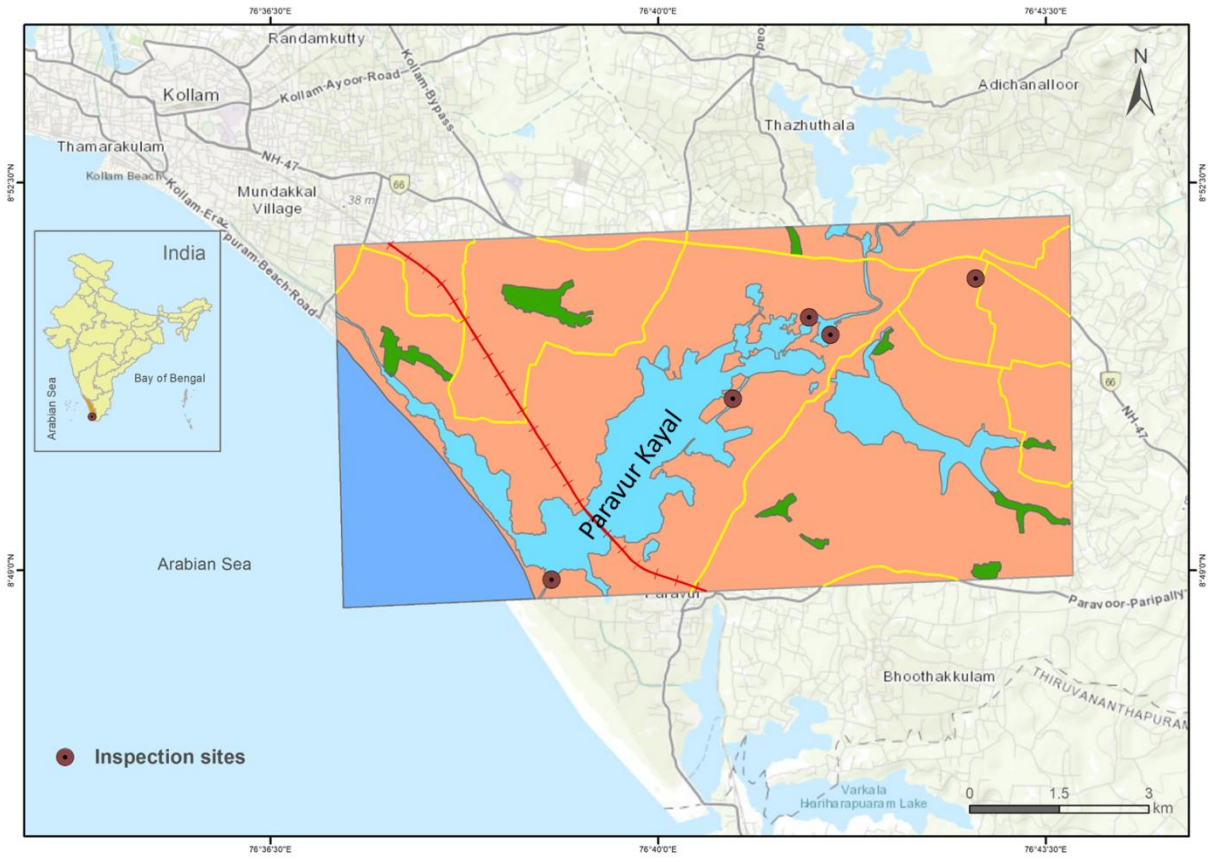
Sri. Rahul Ramesh,
Assistant Environmental Officer
Directorate of Environment,
KCZMA, Thiruvananthapuram

Sri. A. Muhammad Ansari
Assistant Executive Engineer
Irrigation Department, Kollam



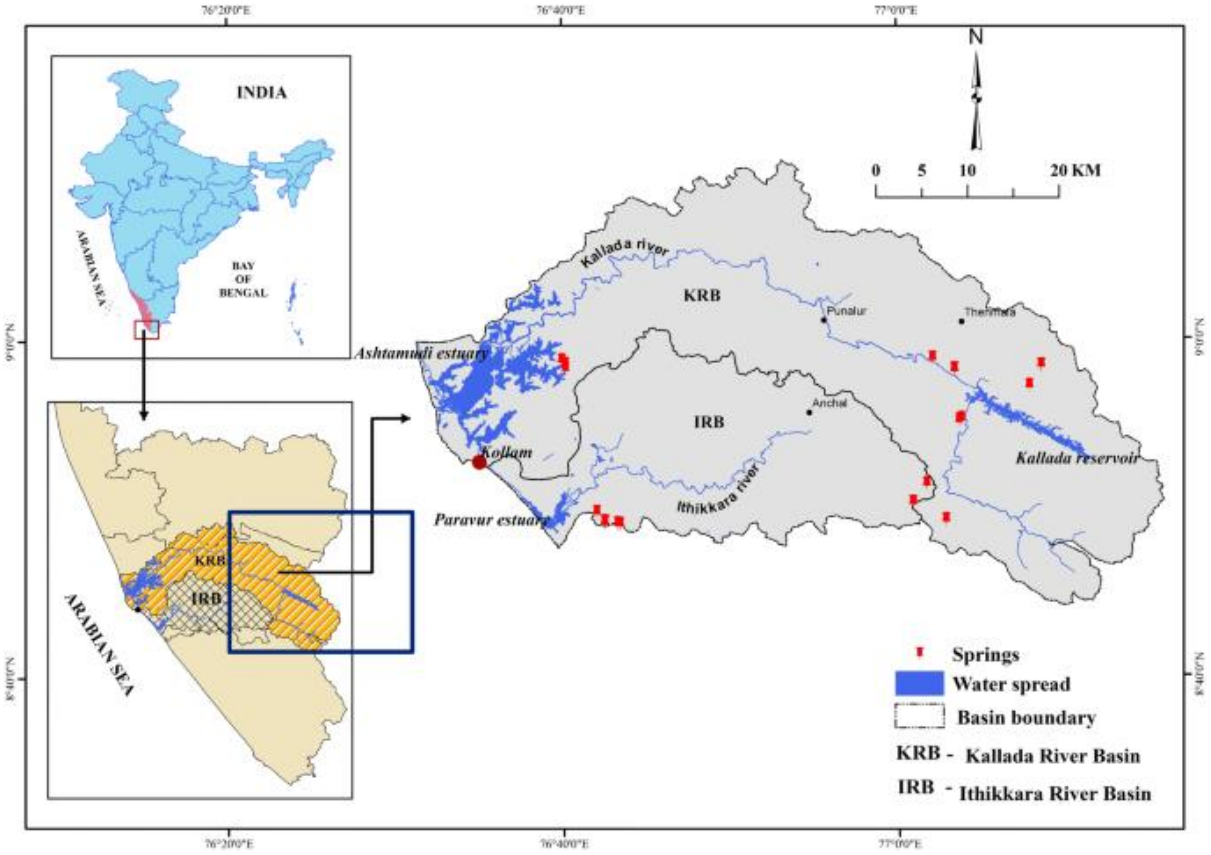
Smt. Rachel Thomas
Environmental Engineer
KSPCB, District Office, Kollam

ANNEXUREI



Map inspection sites in ParavoorKayal (the lower reaches of the Ithikkara River Basin).

ANNEXURE II



Ithikkara River Basin (IRB) (map retrieved from Kerala Public Service Commission available at https://directionelearning.com/kerala-geography-for-kerala-psc-drainage-of-kerala/)

ANNEXURE III

ANALYSISREPORTOFITHIKKARARIVER-2022

NAMEOFSTATION:KOTTUVAMUKKU

Sl. No.	Parameters	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Weather	...	Clear	Clear	Cloudy	Rainy	Cloudy	Rainy	Cloudy	Rainy	Rainy	Clear	Clear	Clear
2	Colour	...	Clear	Clear	Clear	Turbid	Clear	Brown	Brown	Turbid	Brown	Clear	Clear	Clear
3	Temperature	°C	28	28	28	27	30	29.9	25.8	26	26.3	28	27	25.6
4	Dissolved Oxygen	mg/L	6.9	7.2	6.5	6.4	8.1	7.5	6.2	6.2	6.4	6.7	7.1	6.8
5	pH	--	7.5	8	7.6	7.9	8.1	8.4	8.03	8.2	8.1	7.9	7.8	7.7
6	Conductivity	µs/cm	156	170	145	141	116	128.3	92.19	90.5	85.6	88.9	130.1	100.48
7	BOD	mg/L	1.8	1.9	1.6	1.4	1.7	1.9	1.9	1.8	1.9	1.7	1.9	1.8
8	Nitrate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
9	FaecalColiform	MPN/ 100ml	140	170	130	120	150	130	150	140	180	160	110	120
10	Total Coliform	MPN/ 100ml	410	360	390	380	450	360	450	420	470	440	400	380
11	Faecal Streptococci	MPN/ 100ml	_	_	_	_	_	_	_	_	_	_	_	_
12	Turbidity	NTU	1.8	1.5	1.3	1.8	1.9	4.04	5.2	5.3	5.5	4.9	4.8	5.2
13	PehnAlkalinty	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
14	TotalAlkalinity	mg/L	30	27	20	16	14	12	10	9	11	10	21	14
15	Chloride	mg/L	30	38	23	22	17	19	20	21	19	18	19	11
16	COD	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
17	TKN	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
18	AmmoniacalNitrogen	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
19	TotalHardness	mg/L	40	35	30	26	23	28	20	25	23	21	29	23
20	CalciumCaCO3	mg/L	35	25	25	20	17	20	15	18	15	14	20	17
21	Magnesium CaCO3	mg/L	5	10	5	6	6	8	5	7	8	7	9	6
22	Sulphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_

23	Sodium	mg/L	17.9	18.9	17.3	17.6	22.4	15.6	10.6	11.5	10.2	9.8	14.1	11.2
24	Total DissolvedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
25	Total FixedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
26	Total SuspendedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
27	Phosphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
28	Boron	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
29	Fluoride	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
30	Sodium	%	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
31	SAR		1.158	1.22	1.26	1.349	1.804	1.127	0.919	0.881	0.744	0.803	0.992	0.902
32	Potassium		3.3	4.6	3.5	2.9	2.1	1.47	1.68	1.54	1.45	1.23	2.14	1.08

NAME OFSTATION:AYUR

Sl. No.	Parameters	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Weather	...	Clear	Clear	Cloudy	Rainy	Cloudy	Rainy	Cloudy	Cloudy	Clear	Rainy	Clear	Cloudy
2	Colour	...	Clear	Clear	Clear	Turbid	Clear	Brown	Brown	Brown	Clear	Brown	Brown	Brown
3	Temperature	°C	22.6	24.1	24.6	25.1	26	22.5	23.5	25.4	24.5	25.5	26	24.7
4	Dissolved Oxygen	mg/L	6.4	6.2	6.9	6.8	7.1	7.1	7	6.9	6.2	6.1	7.1	6.4
5	pH	--	6.9	7.6	7.3	8.2	8.2	7.8	7.44	7.5	7.7	7.8	7.7	7.4
6	Conductivity	µs/cm	228.5	320	210	154	156.3	150	188.7	175.5	169.8	158.4	149.4	152.8
7	BOD	mg/L	0.9	0.8	0.8	1.6	1.8	1.6	0.8	0.9	0.8	0.7	1.3	1
8	Nitrate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_

9	FaecalColiform	MPN/ 100ml	110	200	130	130	190	200	160	180	170	160	160	150
10	Total Coliform	MPN/ 100ml	480	820	690	700	790	840	820	850	750	820	800	630
11	Faecal Streptococci	MPN/ 100ml	–	–	–	–	–	–	–	–	–	–	–	–
12	Turbidity	NTU	1.1	2.5	1.1	0.8	1.2	2.5	3.1	4.1	5.1	5.5	5.4	4.8
13	PehnAlkalinty	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
14	TotalAlkalinity	mg/L	28	24	25	23	21	20	18	17	16	18	20	18
15	Chloride	mg/L	52	58	30	30	35	36	38	35	30	32	34	29
16	COD	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
17	TKN	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
18	Ammoniacal Nitrogen	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
19	TotalHardness	mg/L	30	39	24	36	39	28	37	40	35	39	42	36
20	CalciumCaCO3	mg/L	20	30	17	26	30	20	28	17	30	29	30	29
21	Magnesium CaCO3	mg/L	10	9	7	10	9	8	9	13	5	10	12	7
22	Sulphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
23	Sodium	mg/L	28.3	32.4	23.5	23.5	23.5	23.1	25.6	22.5	27.5	23.6	25	21.4
24	Total DissolvedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
25	TotalFixed Solids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
26	TotalSuspendedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
27	Phosphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
28	Boron	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL

29	Fluoride	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
30	Sodium	%	_	_	_	_	_	_	_	_	_	_	_	_
31	SAR		1.94	2.02	1.83	1.5	1.47	1.66	1.63	1.49	1.89	1.46	1.47	1.41
32	Potassium	mg/L	4.1	5.1	3.5	3.5	3.8	4.1	5.1	5	4.6	4.2	5.6	4.3

NAMEOFSTATION:VELINALLOOR

Sl. No.	Parameters	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Weather	...	Clear	Clear	Cloudy	Rainy	Cloudy	Rainy	Cloudy	Cloudy	Clear	Rainy	Clear	Cloudy
2	Colour	...	Clear	Clear	Clear	Turbid	Clear	Brown	Brown	Brown	Clear	Brown	Clear	Brown
3	Temperature	°C	29	29	28	27	30.1	29.2	25.6	27.5	25.6	24.5	26.7	25.3
4	Dissolved Oxygen	mg/L	6.1	6.1	6.4	6.2	8.08	7.2	5.6	5.2	5	4.9	6.5	6.2
5	pH	--	7.8	7.8	7.5	7.9	8.1	6.8	8.13	7.9	8.5	8.6	8.2	8.1
6	Conductivity	µs/cm	140	140	136	131	115	102.6	90.93	85.65	83.54	79.84	83.6	85.74
7	BOD	mg/L	1.8	1.6	1.7	1.8	1.7	1.8	2	1.9	2.1	1.7	1.9	1.4
8	Nitrate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
9	FaecalColiform	MPN/ 100ml	150	150	140	130	140	110	120	100	110	120	170	140
10	Total Coliform	MPN/ 100ml	370	370	160	350	380	340	250	280	270	260	360	290
11	Faecal Streptococci	MPN/ 100ml	–	–	–	–	–	–	–	–	–	–	–	–
12	Turbidity	NTU	1.5	1.5	1.4	1.6	2.6	4.53	3.5	5.5	4.9	5.9	5.3	4.1
13	PehnAlkalinty	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
14	TotalAlkalinity	mg/L	19	20	18	15	12	15	16	15	14	10	12	10
15	Chloride	mg/L	20	22	19	17	17	19	24	22	20	19	25	20
16	COD	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
17	TKN	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL

18	Ammoniacal Nitrogen	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
19	TotalHardness	mg/L	30	30	26	23	22	23	14	13	15	17	21	18
20	CalciumCaCO3	mg/L	20	20	20	15	16	14	11	8	9	10	12	10
21	MagnesiumCaCO3	mg/L	10	10	6	8	6	9	3	5	6	7	9	8
22	Sulphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
23	Sodium	mg/L	15.5	15.5	14.5	13.6	24.5	15.9	10.8	11.5	9.9	8.9	11.3	10.4
24	Total DissolvedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
25	Total FixedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
26	Total SuspendedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
27	Phosphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
28	Boron	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
29	Fluoride	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
30	Sodium	%	_	_	_	_	_	_	_	_	_	_	_	_
31	SAR		1.06	1.063	1.112	1.059	2.008	1.218	1.136	1.17	0.937	0.788	0.894	0.884
32	Potassium	mg/L	3.5	3.5	3.3	2.5	1.6	1.61	1.58	1.64	1.5	1.45	2.34	1.61

NAMEOFSTATION:ITHIKKARA

Sl. No.	Parameters	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Weather	...	Clear	Clear	Cloudy	Rainy	Cloudy	Rainy	Cloudy	Cloudy	Clear	Rainy	Cloudy	Clear
2	Colour	...	Clear	Clear	Clear	Turbid	Clear	Brown	Brown	Brown	Clear	Rainy	Brown	Clear
3	Temperature	°C	24.1	24.3	25.1	24.6	28	25.1	23.5	25.6	24.8	25.5	26.3	24.5
4	Dissolved Oxygen	mg/L	5.2	5	5.3	5.3	6.8	6.8	6.8	6.6	6.5	6.4	6.8	6.4

5	pH	--	7.6	6.8	6.5	8.1	7.8	8.3	7.4	7.1	6.8	6.5	7.2	7
6	Conductivity	µs/cm	9880	4590	4896	9585	11250	7984	10230	9850	9980	9950	1025	9969
7	BOD	mg/L	1.9	1.7	1.4	1.7	1.2	2.1	1.9	1.8	1.6	1.7	12.1	1.8
8	Nitrate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
9	FaecalColiform	MPN/ 100ml	120	140	190	200	210	160	140	130	120	120	130	150
10	Total Coliform	MPN/ 100ml	560	680	770	790	810	790	800	750	700	650	670	590
11	Faecal Streptococci	MPN/ 100ml	_	_	_	_	_	_	_	_	_	_	_	_
12	Turbidity	NTU	2.1	4.8	1.4	3.2	2.6	4.5	6.16	6.5	5.8	6.8	5.9	6.1
13	PehnAlkalinty	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
14	TotalAlkalinity	mg/L	18	18	28	28	30	20	20	19	18	16	15	19
15	Chloride	mg/L	3300	3510	3750	3460	3900	3300	3800	4020	4510	4215	4516	4819
16	COD	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
17	TKN	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
18	Ammoniacal Nitrogen	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
19	TotalHardness	mg/L	640	646	2137	1630	2250	1980	2260	2998	3010	3520	3689	3587
20	CalciumCaCO3	mg/L	480	494	1337	1120	1650	1380	1550	1450	2100	1998	2150	2589
21	MagnesiumCaCO3	mg/L	160	152	800	510	600	600	710	1548	910	1522	1539	998
22	Sulphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
23	Sodium	mg/L	1720	1830	1750	1800	1810.0	1580	1260	1520	1450	1650	1854	1954
24	Total DissolvedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_

25	Total FixedSolids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
26	TotalSuspended Solids	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
27	Phosphate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
28	Boron	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
29	Fluoride	mg/L	_	_	_	_	_	_	BDL	BDL	BDL	BDL	BDL	BDL
30	Sodium	%	_	_	_	_	_	_	_	_	_	_	_	_
31	SAR		26.38	28.1	14	16.87	14.7	13.49	10.027	9.771	10.04	10.07	11.07	12.52
32	Potassium	mg/L	58.3	60.4	59.6	59.6	60.2	55.6	52.6	56.2	55.6	60	58.9	56.8

NAMEOFSTATION:UPPUKADAVU

Sl. No.	Parameters	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Weather	...	Clear	Clear	Cloudy	Rainy	Cloudy	Rainy	Cloudy	Cloudy	Clear	Rainy	Cloudy	Clear
2	Colour	...	Clear	Clear	Clear	Turbid	Clear	Brown	Brown	Brown	Clear	Brown	Brown	Clear
3	Temperature	°C	29	29	28	27	29.9	27.5	26	27	25.6	26	27	28
4	Dissolved Oxygen	mg/L	7.4	7.4	7.5	7.7	7.9	7.6	7	7.1	6.9	7.2	7.5	7.6
5	pH	--	7.5	7.5	7.7	7.6	7.5	3.7	8.02	8.6	8.5	8.2	8.1	8.5
6	Conductivity	µs/cm	4890	4890	4750	4672	3560	2350	3010	3560	3541	3258	3546	3485
7	BOD	mg/L	1.8	1.7	1.9	1.8	1.2	1.6	1.9	1.8	1.5	1.7	1.6	1.8
8	Nitrate	mg/L	_	_	_	_	_	_	_	_	_	_	_	_
9	FaecalColiform	MPN/ 100ml	130	120	120	110	150	200	150	140	150	120	130	150
10	Total Coliform	MPN/ 100ml	320	330	310	300	340	400	400	390	450	440	450	510
11	Faecal Streptococci	MPN/ 100ml	–	–	–	–	–	–	–	–	–	–	–	–
12	Turbidity	NTU	1.9	1.8	1.8	1.6	1.6	4.73	4.73	5.2	4.9	5.6	5.4	5.8

13	PehnAlkalinty	mg/L	–	–	–	–	–	–	–	–	–	–	–	–
14	TotalAlkalinity	mg/L	25	26	23	22	20	18	15	14	13	16	18	19
15	Chloride	mg/L	750	890	1050	1100	1260	1600	2100	2650	2580	2780	2850	2964
16	COD	mg/L	–	–	–	–	–	–	–	–	–	–	–	–
17	TKN	mg/L	–	–	–	–	–	–	BDL	BDL	BDL	BDL	BDL	BDL
18	AmmoniacalNitrogen	mg/L	–	–	–	–	–	–	BDL	BDL	BDL	BDL	BDL	BDL
19	TotalHardness	mg/L	4600	5400	6200	7500	8200	9000	10500	10800	10700	11100	10800	10955
20	CalciumCaCO3	mg/L	2400	2400	3600	4500	5800	6400	7300	6541	6980	7500	8200	7950
21	Magnesium CaCO3	mg/L	2200	2000	2600	3000	2400	2600	3200	4259	3720	3600	2600	3005
22	Sulphate	mg/L	–	–	–	–	–	–	–	–	–	–	–	–
23	Sodium	mg/L	1850	1620	1520	1390	1210	1080	985	987	1025	1126	1089	1012
24	Total DissolvedSolids	mg/L	–	–	–	–	–	–	–	–	–	–	–	–
25	Total FixedSolids	mg/L	–	–	–	–	–	–	–	–	–	–	–	–
26	TotalSuspended Solids	mg/L	–	–	–	–	–	–	–	–	–	–	–	–
27	Phosphate	mg/L	–	–	–	–	–	–	–	–	–	–	–	–
28	Boron	mg/L	–	–	–	–	–	–	BDL	BDL	BDL	BDL	BDL	BDL
29	Fluoride	mg/L	–	–	–	–	–	–	BDL	BDL	BDL	BDL	BDL	BDL
30	Sodium	%	–	–	–	–	–	–	–	–	–	–	–	–
31	SAR		9.72	8.77	7.02	5.88	5.09	4.34	3.64	3.487	3.701	4.028	4.081	
32	Potassium	mg/L	150	160	130	110	100	85	60	64	63	62	68	71

ANNEXURE IV

Office Phone: 0474- 2762117
Office E-mail: kspcbklm@gmail.com
Web site : www.kspcb.kerala.gov.in
Help Desk : 0474- 2950617
Help Desk email : kspcbkollam.hd@gmail.com

KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

DISTRICT OFFICE

ജില്ലാ ഓഫീസ്

USHUS BUILDING, BIG BAZAR, KOLLAM – 691 001

ഉഷസ്സ് ബിൽഡിംഗ്, ബിഗ് ബസാർ, കൊല്ലം - 691 001

No. PCB/KO/G/35/2006 Date : 04.03.2023

From

The Environmental Engineer & Nodal Officer

To

The Secretary,
Chathannoor Grama Panchayath

FAIR COPY
DESPATCHED
ON...07.03.23...

Sub:- O.A 730/2022 – before the Hon'ble National Green Tribunal – Ithikkara River pollution/illegal mining - reg.

Ref:- Order of Hon'ble Nationa Green Tribunal dated 02.01.2023 in O.A No. 730/2022

Sir,

The Hon'ble National Green Tribunal, Principal Bench, New Delhi has registered O.A No. 730/2022 and vide ref above a joint committee was constituted to submit factual action report. The committee visited the river and its surroundings on 07.02.2023.

During the visit the Chathannoor Canal which is adjoining to the Ithikkara river found chocked with silt and weeds. Necessary cleaning shall be done and ensure that solid or untreated liquid waste shall not enter to the canal.

The committee visited the Meenad West area where brick kilns are found working in the CRZ area. Committee decided to seek clarification from the local body whether the unit has CRZ clearance, consent from PCB or having license from Panchayath for working. Also inform the number of unauthorized brick kiln units which is carrying out clay mining from the River.

Yours faithfully

ENVIRONMENTAL ENGINEER
& Nodal Officer

o/c

Annexure V

CRZ Notification with respect to the Kerala Coast

The coastal environment is being influenced by increased population growth and economic development along Kerala's coastal regions. Impose stringent control measures to prevent further environmental degradation along the coast as a result of these growing impacts. Kerala's coastal areas have been designated as "areas requiring special attention for the protection of critical coastal environmental and community issues" in the CRZ (2019) notification. In conjunction with the "Coastal Regulation Zone" 2011 and 2019 notifications, all coastal states are required to prepare a Coastal Zone Management Plan (CZMP).
As per the CRZ (2019) notification, the following activities are permitted with the permission of SCZMA in the lake:

- The CRZ extends 50 metres from the high tide line or the width of the creek, river, or backwater, whichever is shorter.
- Existing residential units in local communities may be renovated or rebuilt within 50 metres of the high tide line with the permission of SCZMA, but new construction is not permitted.
- Civic amenities can be built on the landward side of the backwater beyond 50 metres from the high tide line or the width of the creek, river, or lake, whichever is less.
- Activities and facilities such as fish drying areas, net mending areas, traditional fish processing sites, and boat repair can be built within 50 metres of the high tide line with prior approval from the town planning authority and Gram Panchayat or with the permission of SCZMA.

Annexure VI

No.A6-56/2023

Office of the ExecutiveEngineer,
Irrigation Division, Kol1am-691002
PhoneNo.,0474-2746114
Email.eeirrigationklm@gmail.com
Dated:02.03.2023

From

ExecutiveEngineer.

To

TheEnvironmental Engineer
Pollution Control Board
Kollam

Sir,

Sub:-O.A.No.730/2022beforetheHon'bleNationalGreenTribunal-Report submitting reg:-

Ref:-1.ThatofficeEndt.No.D2-5707/2018/SE/ISC/Vol.(IV)dated,30.01.2023.

2.LetterNo.PL2/37/2023dated,06.02.2023oftheChiefEngineer,Irrigation&Admimstration,Thiruvananthapuram.

Kind attentionis invited to the subjectmatter. A Joint CommitteeincludingExecutiveEngineer,KeralaStatePollutionControlBoard,Kollam,Assistant Executive Engineer, Irrigation Sub Division, Kollam, Member, Kerala Coastal Zone Management Authority, Representative of National Centre for Sustainable Coastal Management, Chennai and the complainant Sri. R. Ramakrishna Pillai conducted a joint inspection on 07.02.2023 as per the order of Hon'ble NGT in O.A.No.730/22.

One of the major issues raised in the complaint is that the sandbanks formed by the accumulation of deposits at the end of Ithikkara river near Paravoor Pozhikkarahas been destroyed due to sand mining and has stopped the formation of 'bund'. However, it is

noticed that due to these sand dunes, water gets raised in Paravoor lake during monsoon season sand creates threat to the people's life and fish farming in areas like Mukkam. Hence during monsoon season generallyworks are arranged tobreakthebundsformedatestuary.Henceitisessentialtoremovethesesandbanks.

Another issue raised in the complaint is that the backwater gets polluted but saltwater intrusion as there is no shutter in the Paravoor RCB. The work for providing ofnewshutterinRCBisinprogress.

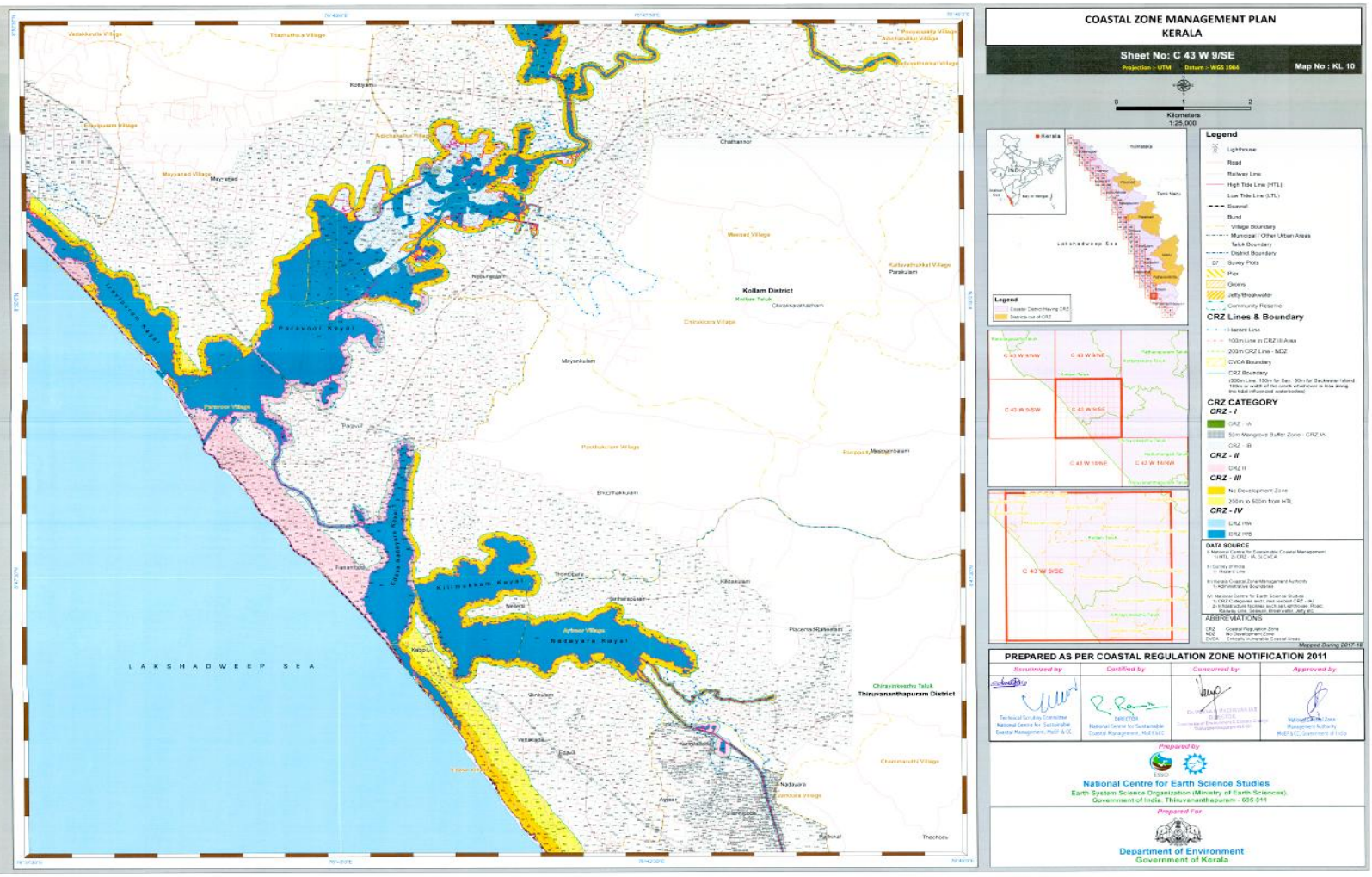
Complaints have been raised that the bund constructed near the bridge across the Chathannoor stream flowing near Chathannoor town is obstructing the flow of waterduetononremovalofthesiltanddebris.Thisproblemcanberectifiedby arranging a work to remove the bund.

Another complaint is that at the mouth of Ithikkara River close to the Paravoorlake, the island where the Amavattom-Chittanikkal temples are located is being destroyed. It may be reported that this island having an area of about 85 cents is surrounded by mangrove forest and it is owned by a private individual. The construction of the side wall for the island as requested in the said complaint wouldcause damage to the mangroves. Moreover it would be difficult to get clearance fromCoastal Zone Management Authorities.It is also informed that the other complaints raised in the petition are not related to the Irrigation Department. This is for your kind information and necessary action.

Yoursfaithfully,

EXECUTIVE ENGINEER

AnnexureVII



CZMP Maps for the Ithikkara River Basin (map retrieved from Kerala Coastal Zone Management Authority available at http://keralaczma.gov.in/maps/1996/kollam)