

National Mission for Clean Ganga
Format for Submission of Monthly Progress Report by States/UTs
(Hon'ble NGT in the matter of OA No.673/2018 dated 06.12.2019)
RIVER KARAMANA, THIRUVANANTHAPURAM

ACTION PLAN FOR RIVER KARAMANA, KERALA

December 2023

1. Short Term Plan**Maintenance and de-bottle necking of existing sewerage network**

No.	Activity	Implementing agency	Time line	Progress in the month of oct2023	Progress in the month of Nov2023	Progress in the month of Dec 2023	% works completed	Details of works remaining
2.1.1	Pumping lines from the terminal pumping stations namely Kuriyathi, Pattoor, Kannammoola and Enchakkal pumping stations are to be connected directly to STP at Mutathara	Kerala Water Authority	May 2019				100%	100% work of Kuriathy completed. Pumping main of Pattoor, Kannammoola and Enchakkal included in long term works
2.1.2	Rehabilitation/upgradation of Thaliyal and Aranoor Sewerage Pump house by rehabilitation of existing well, construction of new well and grit chamber, installation of new pump Sets	Kerala Water Authority	May 2020				100%	a) Completed
							100%	b) a) Providing RCC lining for the existing two wells. Lining for first well completed. 2 Pump sets erected in first well and commissioned. Pumping main also completed. Lining for 2 nd well partly

								completed. b) Diesel generator – to be supplied by contractor. Work terminated at the risk and cost of the contractor. Work completed
2.1.3	5 MLD sewage treatment plant at Medical College	Kerala Water Authority	May 2020				100%	Work Completed.
2.1.4	Installation of adequate pumps in Mudavanmughal and Enchakkal pumping stations.	Kerala Water Authority	March 2020				100%	Pump sets installation at Enchakkal and Mudavanmughal pump house completed.
2.1.5	DG sets in all lift and pumping stations – Mudavanmughal, Arannoor, Thaliyal, Kuriyathi, Pattoor, Kannammola, Pattom, Murinjapalam and Enchakkal	Kerala Water Authority	May 2020				100%	DG sets installation of seven pumping stations completed. Approval from Electrical inspectorate received. Work completed. Trial run also completed. For Arannoor and Thaliyal. Erection of diesel generator is already included in the item mentioned 2.1.2. For Enchakkal already exists.
2.1.6	Reconnect sewer at Rajaji Nagar, stop outflow of sewage into Amayizhanchanthodu, control storm water entry into sewer to avoid overflow in Thampanoor area. Sewage generated in Rajaji Nagar shall be diverted to main sewer line. Sewage generated in Thoppil area shall be diverted main sewer line	Kerala Water Authority	Dec 2020				100%	Work completed.
2.1.7	Discharge of	Kerala	Com-				100 %	Rehabilitation work of

	sewage in Parayilkadavu shall be stopped as there is overflow of sewage reaches in houses having sewerage connection and this may lead to discharge of sewage into River Karamana	Water Authority	completed				completed	existing pipe line is included in the work State Plan -2019-20-Rehabilitation of sewer line from Sathya Nagar to Karamana BHS and allied works. Works Completed.
2.1.8	Divert the sewer line from the School compound of Government Karamana High School	Kerala Water Authority	completed				100% completed	Work mentioned is same as the above work which is completed.
2.1.9	Rehabilitation by laying new lines increasing size of undersized main and reconstruction by dilapidated manholes for the last 3 years	Kerala Water Authority	May 2020	0%	0%	0%	98.5%	Works completed – 75No. (Rs. 15.41cr) AMRUT-44, State plan-28 MLA ADF/SDF-3 completed (Rs. 3.cr.) AMRUT-1, State plan-0 One AMRUT work short closed due to not getting road cutting sanction.
	Total works in progress/completed (76No.) Works dropped (2No.)						Dropped – 2 No. (Rs. 1.52cr.) State plan-2	Two works dropped due to not getting offers on repeated tenders and expiry of AS
2.1.10	Extension of sewer network wherever technically feasible in new areas of existing blocks In progress/ On-going (24No.) Tendering/ To be arranged (1No.) Land acquisition - 1	Kerala Water Authority	May 2020	0.1%	0.1%	0.05%	99.45%	Works completed - 24 No. (Rs. 17.21 cr.) AMRUT-12, State plan-11 MLA ADF/SDF-1
						To be arranged	Land Acquisition in progress- 1Nos	Land acquisition process for three work completed and land handed over to KWA and AS obtained for arranging the work

	In progress-3							under State Plan 22-23 and one work arranged and one tendered. LA for one work in initial stage.(Details shown in excel sheet attached) Direction from head office to cancel one work and recast the estimate and submit for new AS. Same has been approved in State Plan 2022-23 and tendered. Agreement Executed and pipe supplied and work in progress .Expected date of completion 31.03.24
2.1.11	Procurement of sewer cleaning machines and equipment maintenance	Kerala Water Authority	Mar 2020	0%	0%	0%	100%	Work completed.

2. Long Term Works

Sl No.	Long term measures proposed	Implementing agency	Amount Required (Rs.in Crore)	Time line	Progress in the month of February	Progress in the month of March	% works completed	Details of works remaining
3.1.1	Extension of sewerage system to Block F to G coastal belt	Kerala Water Authority		Three years				Consultant appointed for preparing Detailed Project Report for uncovered wards of the Thiruvananthapuram Corporation and Rehabilitation of existing system was terminated from the contract due to breach of contract by the firm vide Proceedings No. KWA/SE/SEW/EOI/REPL/338/2020- 2021 of the SE, Sewerage Circle, Tvpm dated 31.05.2022 to arrange the balance work at
3.1.2	Extension of sewerage system to Block H to R							
3.1.3	Extension of sewerage system to							

	newly added areas of corporation viz,							their risk and cost. As discussed in the Chief Secretary, GoK' s meeting dated 21/06/2022 the work of Preparation of DPRs has to be done internally. The total wards were divided in to 10 clusters. Cluster 1 comprises of 5 wards - Attukal, Kalady, Kallipankulam, Ambalathara and kamaleswaram wards - The DPR for Cluster 1 was submitted on 13/10/2022 for obtaining AS. DPR of Cluster 1 Zone 1 & 2 for Rs 99 Crores and DPR of Cluster 1 Zone 3&4 for Rs.58.5Crs submitted to the Secretary WRD on 13/04/23. Later as per the direction of Secretary Tvm Corporation the DPR for Cluster 1 was revised including Zone 1&5 for Rs 91.00 Cr and Zone 3&4 for Rs 66.50 Cr and was submitted to the Secretary Tvpm Corporation on 28.12.2023 for getting AS under UIDF. Cluster 3, which was originally consisting of Thiruvallam, Poonkulam and Vellar is the second in the priority list and was taken up. This Cluster is then modified by adding more wards and is divided into 3 zones. The DPR for Cluster 3 Zone 1 is prepared and submitted to GoK. The DPR of Cluster 3 Zone 2 and Zone 3 is prepared and submitted on 21.01.2023. The DPR for cluster 2 is submitted on 27.02.2023 and is verified and kept in Shelf. The DPR for cluster 4 is prepared and submitted on 30.03.2023. and as suggested for identifying Corporation / Govt lands for the collection well and STP proposed is being done and after
3.1.4	Providing sewerage system in Block A to E							
3.1.5	Rehabilitation of existing Network and pump house in block A to E							
3.1.6	Procurement of equipment for maintenance of sewerage system.							
3.1.7	Additional STP requirement							

I/39811/2024

							<p>obtaining sanction of the puramboke land identified there will be changes in the design network and there by changes will be made in the DPR . Since there is constraint in land availability for the Construction of STP in this cluster, and is under revision. DPR for Cluster IX completed and submitted on 29.09.2023. DPR of cluster X is under preparation.</p>
	Total Amount		5000Cr				

Signed by

Santhoshkumar..R. V
Chief Engineer

Date: 05-01-2024 12:08:08

National Mission for Clean Ganga
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(Hon'ble NGT in the matter of OA No.673/2018 dated 06.12.2019)
RIVER KARAMANA, THIRUVANANTHAPURAM

S. No.	Activity to be monitored	Timeline	Submission of progress by state/UT-Compliance status
1	Ensure 100% treatment of sewage at least in-situ remediation		
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured		
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning		
5	Chief Secretaries may set up appropriate monitoring mechanism at state level <ul style="list-style-type: none"> ● Specifying accountability of nodal authorities not below the Secretary level ● Chief Secretaries may have an accountable person attached in their office for this purpose. 		

	<ul style="list-style-type: none">● Monitoring at State level must take place		
6	<p>Progress report may be furnished by the State/UTs to</p> <ul style="list-style-type: none">● Secretary, Ministry of Jal Shakti● Member Secretary, CPCB		

<p>.1 Progress Report may be comprised of details along with completion timelines on:</p> <ul style="list-style-type: none">(I) Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment.(II) <u>Status of STPs, I&D and sewerage networks</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline(III) <u>Status of CETPs</u> Details of Existing CETP and ETP Infrastructure, Gap Analysis, Proposed along with completion timeline, No. of industries and complying status(iv) <u>Status of Solid Waste Management & Details of Processing Facilities</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline(v) Latest water quality of polluted river, its tributaries, drains with flow	
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ACTION PLAN FOR RIVER KARAMANA, KERALA

1. Short term plan

Maintenance and de-bottlenecking of existing sewerage network

No.	Activity	Implementing agency	Timeline	Progress in the month of May 2022	Progress in the month of June 2022	% works completed	Details of works remaining
2.1 .1	Pumping lines from the terminal pumping stations namely Kuriyathi, Pattoor, Kannammoola and Enchakkal pumping stations are to be connected directly to STP at Muttathara	Kerala Water Authority	May 2019				

	Kuriyathi pumping line						
2.1.2	Rehabilitation/upgradation of Thaliyal and Aranoor Sewerage Pump house by rehabilitation of existing well, construction of new well and grit chamber, installation of new pump sets	Kerala Water Authority	May 2020				
2.1.3	5 MLD sewage treatment plant at Medical College	Kerala Water Authority	May 2020				
2.1.4	Installation of adequate pumps in Mudavanmugal and Enchakkal pumping stations	Kerala Water Authority	March 2020				

2.1 .5	DG sets in all lift and pumping stations – Mudavanmughal, Aranoor, Thaliyal, Kuriyathi, Pattoor, Kannammola, Pattom, Murinjapalam and Enchakkal	Kerala Water Authority	May 2020					
2.1 .6	Reconnect sewer at Rajaji Nagar, stop outflow of sewage into Amayizhanchanthodu, control storm water entry into sewer to avoid overflow in Thampanoor area Sewage generated in Rajaji Nagar shall be diverted to main sewer line Sewage generated in Thoppil area shall be diverted main sewer line	Kerala Water Authority	Dec 2020					

2.1 .7	Discharge of sewage in Parayilkadavu shall be stopped as there is overflow of sewage reaches in houses having sewerage connection and this may lead to discharge of sewage into River Karamana	Kerala Water Authority	Completed				
2.1 .8	Divert the sewer line from the School compound of Government Karamana High School	Kerala Water Authority	Awarded				
2.1 .9	Rehabilitation by laying new lines increasing size of undersized main and reconstruction by dilapidated manholes for the last 3 years	Kerala Water Authority	May 2020				

	Total works in progress (45No.) Works in tendering (33No.)						
2.1 .10	Extension of sewer network wherever technically feasible in new areas of existing blocks In progress (17No.) Tendering (12No.)	Kerala Water Authority	May 2020				
2.1 .11	Procurement of sewer cleaning machines and equipment maintenance	Kerala Water Authority	Mar2020				

Solid Waste Management Action Plan

Sl.No	Activity	Implementing Agency	Unit	Time for completion	Progress in the month of October 2023	Progress in the month of November2023	Progress in the month of December 2023	% works completed	Details of works remaining
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2.2.1	Slaughter house and poultry waste	Thiruvananthapuram Corporation	Rendering plant	Dec 2022	<p>Slaughter House- Slaughter house kunnukuzhy- Work started for construction of retaining wall, work ongoing for construction of security cabin and visitors lounge. Security cabin , roof slab casting completed, visitors lounge, structure completed, roof slab casting on progress. Work under progress. It will be completed on <i>September 2023</i></p> <p>poultry waste- TMC has started collecting poultry waste coming under jurisdiction of 25 HI Office from 1st November 2019 with online tracking of vehicles. The entire poultry waste generated in whole Corporation area is collected and sent to rendering plant at Elloor.</p> <p>Report October 2023</p>	<p>Slaughter House- Slaughter house kunnukuzhy- Work started for construction of retaining wall, work ongoing for construction of security cabin and visitors lounge. Security cabin , roof slab casting completed, visitors lounge, structure completed, roof slab casting on progress. Work under progress. It will be completed on <i>January2024</i></p> <p>poultry waste- TMC has started collecting poultry waste coming under jurisdiction of 25 HI Office from 1st November 2019 with online tracking of vehicles. The entire poultry waste generated in whole Corporation area is collected and sent to rendering plant at Elloor.</p> <p>Report November 2023</p>	<p>Slaughter House- Slaughter house kunnukuzhy- Work started for construction of retaining wall, work ongoing for construction of security cabin and visitors lounge. Security cabin , roof slab casting completed, visitors lounge, structure completed, roof slab casting on progress. Work under progress. It will be completed on <i>January2024</i></p> <p>poultry waste- TMC has started collecting poultry waste coming under jurisdiction of 25 HI Office from 1st November 2019 with online tracking of vehicles. The entire poultry waste generated in whole Corporation area is collected and sent to rendering plant at Elloor.</p> <p>Report December 2023</p>	92	
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2.2.2	Sanitation facility and treat of waste water in the markets of Pangode, Kumarichanda		Treatment plant Portable aerobic bins	Dec 2023	<p>Kumarichanda: Market Renovation completed. Pilot project implemented for treatment of wastewater.</p> <p>Pangode: DPR submitted by the agency .To be forwarded for getting technical sanction.</p>	<p>Kumarichanda: Market Renovation completed. Pilot project implemented for treatment of wastewater.</p> <p>Pangode: DPR submitted by the agency . Forwarded for getting technical sanction.</p>	<p>Kumarichanda: Market Renovation completed. Pilot project implemented for treatment of wastewater.</p> <p>Pangode: DPR submitted by the agency . Forwarded for getting technical sanction.</p>	100	
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2.2.3	Provide facility for the treatment of sewage, sullage and garbage generated in the Poonthura slum area between Karamana river and sea	Thiruvananthapuram Corporation	<p>Aerobins at various places(28)</p> <p>Proposed sites</p> <ol style="list-style-type: none"> 1. Moonnathumukku – Purampok u 2. Poonthura – HI Office 3. Cheriyanmuttam – Poonthura 4. B e e m a p a l y C o m p o u n d 5. Tsunami Colony 6. Mother There sa 	March 2024	<p>13 Location work completed, remaining location not available.</p> <p>This area will be covered in the master plan for providing sewer line for the full capacity utilization of CSTP at Muttathara and by providing Decentralized STP where there is land availability- KWA</p>	<p>13 Location work completed, remaining location not available.</p> <p>This area will be covered in the master plan for providing sewer line for the full capacity utilization of CSTP at Muttathara and by providing Decentralized STP where there is land availability- KWA</p>	<p>13 Location work completed, remaining location not available.</p> <p>This area will be covered in the master plan for providing sewer line for the full capacity utilization of CSTP at Muttathara and by providing Decentralized STP where there is land availability- KWA</p>	45%	
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2.2.4	The discharge of waste water from the surrounding houses to the pond at Jagathy is to be stopped	Thiruvananthapuram Corporation	Pond desilting Issued notices to the household Project is prepared for desilting the pond	March 2020	Meeting was conducted on 30-07-21, convened by the Public Work Standing Committee Chairperson with KWA Officials, Tvpm Corporation officials and councilors ward to discuss this concern. This area will be covered in the master plan for providing sewer line for the full capacity utilization of CSTP at Muttathara and by providing Decentralized STP where there is land availability- KWA.	Meeting was conducted on 30-07-21, convened by the Public Work Standing Committee Chairperson with KWA Officials, Tvpm Corporation officials and councillors to discuss this concern. This area will be covered in the master plan for providing sewer line for the full capacity utilization of CSTP at Muttathara and by providing Decentralized STP where there is land availability- KWA.	meeting was conducted on 30-07-21, convened by the Public Work Standing Committee Chairperson with KWA Officials, Tvpm Corporation officials and councillors ward to discuss this concern. This area will be covered in the master plan for providing sewer line for the full capacity utilization of CSTP at Muttathara and by providing Decentralized STP where there is land availability- KWA.		
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2.2.5	Around 155 Houses in Kurukuvilakom, Kannettu mukku shall be provided with septic and treatment system	Thiruvananthapuram Corporation			Dropped. When the full capacity utilization of CSTP at Muttathara shall be ensured, this area will be covered as it is situated along the banks of Karamana – Killiyar River – KWA.	Dropped. When the full capacity utilization of CSTP at Muttathara shall be ensured, this area will be covered as it is situated along the banks of Karamana – Killiyar River – KWA.	Dropped. When the full capacity utilization of CSTP at Muttathara shall be ensured, this area will be covered as it is situated along the banks of Karamana – Killiyar River – KWA.		
2.2.5	Identification of illegal outlets into storm water drains and fine shall be imposed on such units	Thiruvananthapuram Corporation	Fine imposed and prosecution initiated		1979440 lakhs fine collected from 2019 to till date	1979440 lakhs fine collected from 2019 to till date	2004450 lakhs fine collected from 2019 to till date		

2.2.6	Biodegradable waste	Thiruvananthapuram Corporation	Bio-Composter	Sep 2020	Installed 51,557 bins in total. Tender invited for installation of 25,000 bio compost bins. Proposal approved by the health standing committee. Proposal placed in the health standing committee and forwarded to purchase committee for negotiation	Installed 51,557 bins in total. Tender invited for installation of 25,000 bio compost bins. Proposal approved by the health standing committee. Proposal placed in the health standing committee and forwarded to purchase committee for negotiation	Installed 51,557 bins in total. Tender invited for installation of 50000 bio compost bins. Proposal approved by the health standing committee. Proposal placed in the health standing committee and forwarded to purchase committee for negotiation done, placed before council. Out of which 5812 bins were distributed	80%	
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2.2.7			Thumbo ormuzhi aerobic bins	<p>Total 154 locations Completed works (Total - 159 units) Santhikavadam - 3 units, Manathala - 3 units, ITI chackai – 11 bins Kalladimukham – 32 bins Neerazhi Market, Ulloor – 6 bins Thumba station kadavu – 4 units Womens college – 4 bins completed will be handovered soon. Sanskriti College – 5 bins Near Peroorkada Market-35 Kamaleshwaram, Karamana PRS opposite, Cotton hill LPS ,Cotton hill HSS-25 Poojapura-10 Inside Pratheeksha flat- 16 Manvila Market-5</p> <p>Work in progress Kuravankonam – 4 bins</p>	<p>Total 154 locations Completed works (Total - 159 units) Santhikavadam - 3 units, Manathala - 3 units, ITI chackai – 11 bins Kalladimukham – 32 bins Neerazhi Market, Ulloor – 6 bins Thumba station kadavu – 4 units Womens college – 4 bins completed will be handovered soon. Sanskriti College – 5 bins Near Peroorkada Market-35 Kamaleshwaram, Karamana PRS opposite, Cotton hill LPS ,Cotton hill HSS-25 Poojapura-10 Inside Pratheeksha flat- 16 Manvila Market-5</p> <p>Work in progress Kuravankonam – 4 bins</p>	<p>Total 154 locations Completed works (Total - 159 units) Santhikavadam - 3 units, Manathala - 3 units, ITI chackai – 11 bins Kalladimukham – 32 bins Neerazhi Market, Ulloor – 6 bins Thumba station kadavu – 4 units Womens college – 4 bins completed will be handovered soon. Sanskriti College – 5 bins Near Peroorkada Market-35 Kamaleshwaram, Karamana PRS opposite, Cotton hill LPS ,Cotton hill HSS-25 Poojapura-10 Inside Pratheeksha flat-16 Manvila Market-5</p> <p>Work in progress Kuravankonam – 4 bins</p>		
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2.2.8			Community biogas	Total 13 locations – Institutional Level. <u>Work completed – 6locations</u> Vanitha jail and Central jail, Poojapura - 100kg/day, Govt L P S, Kanjirampara - 100kg/day and Womens College, Vazhuthacaud - 500kg/day. Work at Law collage, Palayam -500 Kg/day, University campus, Palayam - 500Kg/day and Govt. High school, Kulathoor – 100Kg/day. Ongoing Works are : Mental Hospital, Oolampara – 500 kg/day General Hospital – 500 kg/day DPI, Jagathy – 100 kg/day.GovtPanchakarma Hospital - 100 kg/day	Total 13 locations – Institutional Level. <u>Work completed – 6locations</u> Vanitha jail and Central jail, Poojapura - 100kg/day, Govt L P S, Kanjirampara - 100kg/day and Womens College, Vazhuthacaud - 500kg/day. Work at Law collage, Palayam -500 Kg/day, University campus, Palayam - 500Kg/day and Govt. High school, Kulathoor – 100Kg/day. Ongoing Works are : Mental Hospital, Oolampara – 500 kg/day General Hospital – 500 kg/day DPI, Jagathy – 100 kg/day.GovtPancha	Total 13 locations – Institutional Level. <u>Work completed – 6locations</u> Vanitha jail and Central jail, Poojapura - 100kg/day, Govt L P S, Kanjirampara - 100kg/day and Womens College, Vazhuthacaud - 500kg/day. Work at Law collage, Palayam - 500 Kg/day, University campus, Palayam - 500Kg/day and Govt. High school, Kulathoor – 100Kg/day. Ongoing Works are : Mental Hospital, Oolampara – 500 kg/day General Hospital – 500 kg/day DPI, Jagathy – 100 kg/day.GovtPanchakarma Hospital - 100 kg/day Remaining 2 sites	60%
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2.2.9			Organic Waste Converter		Dropped		Dropped		Dropped		
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2.2.10	Thiruvananthapuram Corporation	Portable biogas		Dropped	Dropped	Dropped	
2.2.11		Portable aerobic bins		28 more units installed. Total 125 units installed	Project completed	Project completed	
2.2.12		Ring compost		Project implementation started. Installed 30 units. Site identified for installation of rest of 470 bins.	Project implementation started. Installed 125 units. . Rest of the bins will be installed soon.Action on going	Project implementation started. Installed 350 units. Rest of the bins will be installed soon. Action on going	70%
2.2.13		Segregation bins		Dropped	Dropped	Dropped	
2.2.14	Biodegradable waste	RRC		Total 2 locations. (i)Work in Manacaud site completed. Tendering activities for electrification are in progress. (ii)Kalladimugham, Attukal ward - work will start soon after cutting 11 coconut trees. Council resolution took to cut down the trees.	Total 2 locations. (i)Work in Manacaud site completed. Tendering activities for electrification are in progress. (ii)Kalladimugham, site cleared after cutting 11 coconut trees. Work will be started soon.	Total 2 locations. (i)Work in Manacaud site completed. Tendering activities for electrification are in progress. (ii)Kalladimugham, site cleared after cutting 11 coconut trees. Work started, completed upto plinth level.	99% Work on going, Construction under progress
2.2.15		Plastic Recycling unit		Site not yet identified	Site not yet identified. Project dropped	Site not yet identified. Project dropped	

2.2.16			Mobile MRF		Project dropped	Project dropped	Project dropped	
2.2.17			Electronic Weigh bridge		Project dropped	Project dropped	Project dropped	
2.2.18			Solar electrical cart		Work completed.	Work completed.	Work completed.	
2.2.19			Swaps shops		Work almost completed. Part bill submitted.	Work completed. Revised estimate approved by council.	Work completed. Revised estimate approved by council. Final part bill will be issued soon.	98% completed
2.2.20			PET bottle crushing		Project dropped	Project dropped	Project dropped	
2.2.21			Community level unit		During Trail run the unit is found to be incompetent	During Trail run the unit is found to be incompetent	During Trail run the unit is found to be incompetent	
			Napkin destroyer		158 Nos purchased and installed at various locations	158 Nos purchased and installed at various locations	158 Nos purchased and installed at various locations	
2.2.22		Thiruvananthapuram Corporation	Animal Crematorium at Kattela	May	Project dropped	Project dropped	Project dropped	

2.2.23	Thiruvananthapuram Corporation	Urban Gardening	2020	Project dropped	Project dropped	Project dropped	
2.2.24	Thiruvananthapuram Corporation	Upgradation of present facilities		Completed.	Completed.	Completed.	.100% completed
2.2.25	Thiruvananthapuram Corporation	Capacity Building & IEC		Training for contingency workers scheduled from 06/06/2022 to 09.06/2022 and also from 10/06/2022 to 12/06/2022	Meeting conducted with participation of all thumburmuzhi workers on 31.06.2022., A training programme was conducted for HI/JHI on May6	A training programme was conducted for HI/JHI on 2023 September23,24	
2.2.26	Thiruvananthapuram Corporation	Viability gap Fund		Issue of Sixst phase of VGF to Haritha Karma Sena completed	Issue of Seventh phase of VGF to Haritha Karma Sena completed	Issue of Seventh phase of VGF to Haritha Karma Sena completed	

2.2. 27	Prevent entry of storm water into sewer line along with KWA	Thiruvananthapuram Corporation	KWA is authorised to prepare and implement proper sewerage lines under Amrut scheme	May 2020	Close monitoring is done by health Squad and all Health Inspectors are directed to issue notice and prosecution.	Close monitoring is done by health Squad and all Health Inspectors are directed to issue notice and prosecution.	Close monitoring is done by health Squad and all Health Inspectors are directed to issue notice and prosecution.	
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2.2. 28	Take steps to prevent the solid wastes in sewer line as reported by KWA	Thiruvananthapuram Corporation	Squad and Fines Special squad is formed at Corporation level. Health Inspectors are authorized for regularly monitoring and preventing the waste discharge	May 2020	Employees were placed at various spots during night to prevent dumping of solid waste in drains and fines are being charged. Regarding to waste throwing to public places Corporation collected an amount of Rs2064330/- as fine from 01.01.2022.	Employees were placed at various spots during night to prevent dumping of solid waste in drains and fines are being charged. Regarding to waste throwing to public places Corporation collected an amount of Rs20733060/- as fine from 01.01.2022.	Employees were placed at various spots during night to prevent dumping of solid waste in drains and fines are being charged. Regarding to waste throwing to public places Corporation collected an amount of Rs20825240/- as fine from 01.01.2022.	
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Monitoring

	Activity	Implementing agency	Time line	Water quality in July/ pre-monsoon	Water quality in August/ monsoon	Water quality in post-monsoon
2.3.1	River water quality monitoring - Killiyar, Karamana, Parvathiputhanar, Akkulam-Veli lake	Kerala State Pollution Control Board	Ongoing; monthly			
2.3.2	Storm drains monitoring - Amayizhan chanthodu, Ulloorthodu, Pattomthodu, Kannamoolathodu, Thekkanakkar canal	Kerala State Pollution Control Board	Ongoing Seasonal monitoring – pre-monsoon, monsoon, post-monsoon			

3.1 .1	Extension of sewerage system to Block F to G coastal belt	Kerala Water Authority	200	Three years					
3.1 .2	Extension of sewerage system to Block H to R	Kerala Water Authority	700						
3.1 .3	Extension of sewerage system to Newly added areas of	Kerala Water Authority	300						
3.1 .4	Providing sewerage system in Block A to E	Kerala Water Authority	100						
3.1 .5	Rehabilitation of existing Network and pump house in block A to E	Kerala Water Authority	100						
3.1 .6	Procurements of equipments for maintenance sewerage system	Kerala Water Authority	10						
3.1 .7	Additional STP requirement	Kerala Water Authority	60						

3.1.8	Total Amount required	Kerala Water Authority	1470 Crores						
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Solid waste management

	Long term measures proposed by Thiruvananthapuram	Implementing agency	Timeline	Progress in the month of January 2022	Progress in the month of February 2022	Progress in the month of March 2022	% works completed	Details of works remaining
3.2.1	Acquire 58 acres of land and rehabilitate 8150 families from the banks of River	Thiruvananthapuram Corporation	5 years	Project Dropped				

De-silting and development

No.	Activity	Implementing agency	Timeline	Progress in the month of April 2022	Progress in the month of May 2022	Progress in the month of June 2022	% works completed	Details of works remaining
3.3.1	Development package for ParvathyPuthanar	Irrigation department Included in KIFB by KWIL includes cleaning of canal	3 years					

3.3.2	De-silting and development of AmayizhanchanThodu	Irrigation Department	1.5 years					
3.3.3	Improvements to Thekkenekara canal and de-silting-	Irrigation Department	1 year					
3.3.4	Karimadam tank improvements, de-silting sheet piling/under preparation and providing fencing	Irrigation Department	1.5 years					
3.3.5	Development of Karamana basin	Irrigation Department	1.5 years					

Date- 04/01/2024 **Secretary**

(Sd/-)

ANALYSIS REPORT OF RIVER NEYYAR @ ARUVIPPURAM FOR THE PERIOD FROM DECEMBER 2022 TO DECEMBER 2023

SL NO	PARAMETER	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
1	Temperature, °C	27	26	26	27	28	29	29	27	29	28	29	28	29
2	Dissolved Oxygen, mg/l	6.4	6.8	6.1	6.7	5.6	6.4	6.8	6.4	5.9	7.2	6.8	6.6	7.1
3	pH	7.2	7.2	6.9	7.4	6.6	7.1	7.1	7.1	6.6	6.6	6.4	6.4	7
4	Conductivity, µmhos/cm	92	95	95	74	79	83	83	112	171	142	121	95	80
5	BOD, mg/l	2.4	2.6	2.3	2.7	0.9	1.1	1.3	1.5	2	1.3	1.9	0.7	0.4
6	Nitrate-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Turbidity, NTU	1.9	1.7	2.2	2.1	1.8	1.2	1.4	2.3	2.6	2.7	3	2.4	2.2
8	Phenolphthalein Alkalinity, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	Total Alkalinity, mg/l	20	23	20	16	24	26	32	22	32	32	20	18	16
10	Chloride, mg/l	16	15	16	16	11	10	8	20	36	24	32	24	16
11	COD, mg/l	8	8	8	8	4	4	4	4	8	4	4	4	4
12	TKN, mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Ammoniacal-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14	Hardness as CaCO ₃ , mg/l	24	26	20	20	24	28	30	16	44	28	20	28	16
15	Calcium as CaCO ₃ , mg/l	12	16	12	12	16	19	26	10	24	24	16	20	12
16	Magnesium as CaCO ₃ , mg/l	12	10	8	8	8	9	4	6	20	4	4	8	4
17	Sulphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Calcium (Ca ²⁺), mg/l	4.8	6.4	4.8	4.8	6.4	7.6	10	4	9.6	9.6	6	8	5
19	Magnesium (Mg ²⁺), mg/l	2.9	2.4	1.9	1.9	1.9	2.2	0.9	1.5	4.9	1	1	2	1
20	Sodium, mg/l	8.5	7.8	8.9	6.7	5.9	5.4	5.2	12	19.8	13.1	16.9	12.5	8.6
21	Total Dissolved Solids, mg/l	55	56	56	43	46	49	54	62	108	79	74	62	44
22	Total Fixed Solids, mg/l	46	44	43	26	31	32	26	44	66	52	42	38	32
23	Total Suspended Solids, mg/l	32	32	31	18	23	18	12	32	25	23	18	15	13
24	Phosphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Boron, mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Potassium, mg/l	3.4	2.6	4.9	2.1	1.9	2.3	2.2	4.3	4.6	4.5	4.5	2.2	2.4
27	Fluoride, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Total Coliform, MPN/100 ml	1700	1900	1700	1700	1500	1600	1400	2000	2100	2500	3500	1500	1300
29	Fecal Coliform, MPN/100 ml	1100	1200	1100	1200	1000	900	1100	1500	1700	1900	2200	1100	900
30	Fecal Streptococcus, MPN/100 ml	NIL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
31	% SODIUM	18.1	16.7	21.8	18.2	32.7	27.5	25.6	54.8	46.3	45.8	58.8	46.9	49.5
32	SAR	0.4	0.4	0.5	0.4	0.5	0.4	0.4	1.3	1.3	1.1	1.6	1	0.9

ANALYSIS REPORT OF RIVER NEYYAR @ AMARAVILA FOR THE PERIOD FROM DECEMBER 2022 TO DECEMBER 2023

SL NO	PARAMETER	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
1	Temperature, °C	27	26	26	27	28	28	28	29	28	27	28	29	30
2	Dissolved Oxygen, mg/l	7.4	8	8.1	7.8	7.8	7.2	7.4	6.3	6	8.7	7.6	6.5	6
3	pH	7.1	6.8	7	6.9	7.1	7.5	7.4	6.8	6.6	6.6	6.3	6.3	6.6
4	Conductivity, µmhos/cm	85	90	110	122	118	127	118	119	180	98	131	163	74
5	BOD, mg/l	1	0.2	1.5	1.3	1.3	1.3	1.2	0.7	0.5	0.7	1.2	0.2	0.8
6	Nitrate-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Turbidity, NTU	0.4	2.1	1.3	0.8	1.4	1.4	1.3	1.5	1.4	1.6	1.8	1.7	1.6
8	Phenolphthalein Alkalinity, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	Total Alkalinity, mg/l	20	24	26	36	36	36	28	32	32	22	24	24	20
10	Chloride, mg/l	12	12	16	14	15	16	24	20	44	16	32	44	12
11	COD, mg/l	8	8	8	4	4	4	4	4	4	4	4	4	4
12	TKN, mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Ammoniacal-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14	Hardness as CaCO ₃ , mg/l	24	24	32	40	36	36	36	32	28	24	20	28	20
15	Calcium as CaCO ₃ , mg/l	16	16	24	28	24	28	28	24	24	16	16	24	12
16	Magnesium as CaCO ₃ , mg/l	8	8	8	12	12	8	8	8	4	8	4	4	8
17	Sulphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Calcium (Ca ²⁺), mg/l	6.4	6.4	9.6	11.2	9.6	11.2	11	9.6	9.6	6.4	6	10	5
19	Magnesium (Mg ²⁺), mg/l	1.9	1.9	1.9	2.9	2.9	1.9	1.9	1.9	1	2	1	1	2
20	Sodium, mg/l	7.1	7.4	8.5	7.6	8.2	9.2	12.6	12.4	22.9	8.3	17.5	22.8	6.6
21	Total Dissolved Solids, mg/l	50	52	65	71	69	70	70	72	112	55	79	101	42
22	Total Fixed Solids, mg/l	38	37	46	42	39	62	48	60	63	42	45	52	21
23	Total Suspended Solids, mg/l	24	26	28	34	22	41	26	42	45	18	20	27	16
24	Phosphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Boron, mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Potassium, mg/l	3.1	2.1	4.3	3.8	4.1	4.1	3.8	4.5	10.6	4.1	6.3	7.1	1.3
27	Fluoride, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Total Coliform, MPN/100 ml	1800	1600	1800	2100	1900	1500	1500	1200	1500	2200	3000	1000	1100
29	Fecal Coliform, MPN/100 ml	1200	1000	1000	1300	1100	1100	1000	800	1000	1400	1800	800	900
30	Fecal Streptococcus, MPN/100 ml	NIL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
31	% SODIUM	16.7	17.5	15.8	11.7	30.2	32.7	40.1	41.7	54.5	38.2	57.6	57.2	39.9
32	SAR	0.4	0.4	0.4	0.3	0.6	0.7	0.9	1	1.9	0.7	1.7	1.9	0.6

ANALYSIS REPORT OF RIVER VAMANAPURAM @ VAMANAPURAM FOR THE PERIOD FROM DECEMBER 2022 TO DECEMBER 2023

SL NO	PARAMETER	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
1	Temperature, °C	26	27	26	27	28	28	29	29	28	27	28	28	29
2	Dissolved Oxygen, mg/l	7.7	7.4	6.8	7.2	7.5	7.8	8.2	8.4	8.5	8.2	6.7	7.2	7.6
3	pH	7.3	7.2	7.1	7.4	7.2	7.4	7.2	6.9	6.4	6.4	6.3	6.4	6.4
4	Conductivity, µmhos/cm	95	90	110	116	129	143	63	121	69	62	73	100	147
5	BOD, mg/l	1.1	1.5	1.8	1.6	1.4	1.7	1.2	1.2	1.5	2	1.5	0.9	0.5
6	Nitrate-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Turbidity, NTU	4.3	2.8	2.3	3.2	2.8	1.6	1.4	2.4	1.5	1.7	2	1.8	1.6
8	Phenolphthalein Alkalinity, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	Total Alkalinity, mg/l	24	24	27	28	36	40	22	20	8	12	12	16	24
10	Chloride, mg/l	14	13	16	16	17	19	8	28	16	16	16	24	36
11	COD, mg/l	8	16	8	8	4	8	4	4	4	4	4	4	4
12	TKN, mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Ammoniacal-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14	Hardness as CaCO3, mg/l	26	26	32	36	40	44	20	16	12	16	16	16	24
15	Calcium as CaCO3, mg/l	16	18	24	28	30	33	14	12	8	8	8	12	16
16	Magnesium as CaCO3, mg/l	10	8	8	8	10	11	6	4	4	8	8	4	8
17	Sulphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Calcium (Ca2+), mg/l	6.4	7.2	9.6	11.2	12	13.2	5.6	4.8	3.2	3.2	3	5	6
19	Magnesium (Mg2+), mg/l	2.4	1.9	1.9	1.9	2.4	2.7	1.5	1	1	2	2	1	2
20	Sodium, mg/l	7.3	6.8	8.4	8.6	9.1	10.3	4.2	15.3	8.4	8.4	8.6	12.6	19.6
21	Total Dissolved Solids, mg/l	55	52	65	68	74	80	36	69	38	40	41	58	83
22	Total Fixed Solids, mg/l	42	46	46	51	45	53	22	56	25	27	28	36	42
23	Total Suspended Solids, mg/l	36	32	38	43	27	32	14	38	19	20	20	25	28
24	Phosphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Boron, mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Potassium, mg/l	2.8	2.3	2.8	3.2	3.5	3.9	0.6	6.5	2.7	2.7	2.8	3.2	3.9
27	Fluoride, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Total Coliform, MPN/100 ml	1100	1400	1800	2100	1900	2100	1200	600	700	1100	2300	2100	2000
29	Fecal Coliform, MPN/100 ml	400	800	900	800	900	1000	800	200	300	800	1900	1600	1500
30	Fecal Streptococcus, MPN/100 ml	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
31	% SODIUM	15.8	15.5	15.9	14.9	30.8	31.4	30.6	57.8	54.2	48.4	48.9	57.7	59.5
32	SAR	0.4	0.3	0.4	0.4	0.6	0.7	0.4	1.7	1.1	0.9	0.9	1.4	1.7

ANALYSIS REPORT OF RIVER AYIROOR @ AYIROOR FOR THE PERIOD FROM DECEMBER 2022 TO DECEMBER 2023

SL NO	PARAMETER	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
1	Temperature, °C	27	26	26	27	28	28	29	28	29	28	28	29	28
2	Dissolved Oxygen, mg/l	8.1	7.8	7.4	7.4	7.7	7.9	5.1	6.9	6.7	6.6	7.4	7.8	6.6
3	pH	7	7.2	7.1	7.3	6.9	6.5	6.8	6.6	7.1	6.8	6.2	6.3	6.1
4	Conductivity, µmhos/cm	158	145	148	145	156	166	154	254	158	119	160	111	115
5	BOD, mg/l	2.7	2.3	2.5	2.7	2.4	2.1	2.3	2.1	0.8	1	0.7	1.5	1.7
6	Nitrate-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Turbidity, NTU	4.7	3.1	1.8	3.9	2.1	1.8	4.3	2.3	2.5	2.8	3	2.8	2.6
8	Phenolphthalein Alkalinity, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	Total Alkalinity, mg/l	24	26	30	26	36	40	36	12	20	30	20	20	24
10	Chloride, mg/l	32	29	26	28	26	25	20	92	32	28	40	28	24
11	COD, mg/l	8	8	8	8	12	8	8	8	4	4	4	4	4
12	TKN, mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Ammoniacal-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14	Hardness as CaCO ₃ , mg/l	36	34	40	32	40	44	42	40	20	40	24	24	24
15	Calcium as CaCO ₃ , mg/l	20	24	30	24	34	38	38	24	12	24	20	16	16
16	Magnesium as CaCO ₃ , mg/l	16	10	10	8	6	6	4	16	8	16	4	8	8
17	Sulphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Calcium (Ca ²⁺), mg/l	8.0	9.6	12.0	9.6	13.6	15.2	15	9.6	4.8	9.6	8	6	6
19	Magnesium (Mg ²⁺), mg/l	3.9	2.4	2.4	1.9	1.5	1.5	0.9	3.9	1.9	4	1	2	2
20	Sodium, mg/l	17	15.4	14	14.7	13.8	14.1	10.9	55.5	17.9	14.8	20.7	14.5	13
21	Total Dissolved Solids, mg/l	90	87	87	85	90	95	92	178	86	81	88	70	64
22	Total Fixed Solids, mg/l	82	61	68	68	72	73	65	78	65	45	48	41	36
23	Total Suspended Solids, mg/l	61	52	48	52	47	55	42	56	40	20	23	20	17
24	Phosphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Boron, mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Potassium, mg/l	3.4	3.2	3.5	2.9	3.2	3.6	2.2	3.3	4.9	2.8	5.3	5.1	3.1
27	Fluoride, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Total Coliform, MPN/100 ml	1600	1600	1700	2100	1900	1600	3500	4000	1300	2200	1800	2100	2200
29	Fecal Coliform, MPN/100 ml	1100	900	800	1400	1100	1000	1800	2000	800	1500	1400	1600	1700
30	Fecal Streptococcus, MPN/100 ml	NIL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
31	% SODIUM	23.5	24.1	20.1	24.9	40.5	38.7	34.6	73.2	59.7	42.5	59.4	50.8	50.3
32	SAR	0.7	0.7	0.6	0.7	0.9	0.9	0.7	3.8	1.7	1	1.8	1.3	1.2

ANALYSIS REPORT OF RIVER MAMOM @ MAMOM FOR THE PERIOD FROM DECEMBER 2022 TO DECEMBER 2023

SL NO	PARAMETER	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
1	Temperature, °C	26	26	26	27	27	28	29	28	29	27	29	28	29
2	Dissolved Oxygen, mg/l	8.8	7.6	7.4	7.7	8.1	7.7	6.2	7.1	6.9	10	7.1	9.1	8.2
3	pH	6.9	6.7	6.9	7.2	6.9	7.3	6.9	6.6	6.8	6.7	6.4	6.6	6.3
4	Conductivity, µmhos/cm	130	142	143	132	152	160	164	167	167	149	150	117	105
5	BOD, mg/l	2.8	2.3	2.8	2.4	2.2	2.4	2.5	1.8	1	1.1	1.2	0.2	0.3
6	Nitrate-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Turbidity, NTU	2.3	1.8	2.1	1.8	2	1.7	2.8	1.5	1.7	1.9	2	2.1	2
8	Phenolphthalein Alkalinity, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	Total Alkalinity, mg/l	28	32	33	32	40	44	48	20	24	24	32	22	16
10	Chloride, mg/l	20	24	22	20	20	22	22	44	44	28	28	24	24
11	COD, mg/l	8	8	8	8	12	8	8	8	4	4	4	4	4
12	TKN, mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Ammoniacal-N, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14	Hardness as CaCO ₃ , mg/l	36	38	42	36	44	46	52	40	40	28	32	30	20
15	Calcium as CaCO ₃ , mg/l	24	26	32	20	32	35	46	28	28	24	20	16	12
16	Magnesium as CaCO ₃ , mg/l	12	12	10	16	12	11	6	12	12	4	12	14	8
17	Sulphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Calcium (Ca ²⁺), mg/l	9.6	10.4	12.8	8.0	12.8	14	18	11	11	9.6	8	6	5
19	Magnesium (Mg ²⁺), mg/l	2.9	2.9	2.4	3.9	2.9	2.7	1.5	2.9	2.9	1	3	3	2
20	Sodium, mg/l	10.4	12.8	11.6	10.9	11.2	12.3	12.1	21.5	23.5	15.4	14.9	12.7	12.6
21	Total Dissolved Solids, mg/l	75	85	84	76	88	92	94	101	101	84	84	65	58
22	Total Fixed Solids, mg/l	46	62	72	56	52	64	58	60	64	48	47	35	33
23	Total Suspended Solids, mg/l	34	46	58	43	39	42	40	44	37	16	17	14	12
24	Phosphate, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Boron, mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Potassium, mg/l	4.1	3.4	3.8	3.6	3.9	4.3	4.3	5	5	3.8	3.3	2.9	2.7
27	Fluoride, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Total Coliform, MPN/100 ml	2800	2900	2800	2400	2600	2200	2800	3500	3000	2500	2600	1000	900
29	Fecal Coliform, MPN/100 ml	1500	1600	1900	1900	2000	1700	1900	2000	2200	1800	1900	800	700
30	Fecal Streptococcus, MPN/100 ml	NIL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
31	% SODIUM	16.5	19.0	16.7	16.4	33.2	34.2	31.4	50.2	52.4	50.5	47.2	45	53.9
32	SAR	0.4	0.5	0.5	0.4	0.7	0.8	0.7	1.5	1.6	1.3	1.1	1	1.2

National Mission for Clean Ganga

Format for Submission of Monthly Progress Report by States/UTs

(Hon'ble NGT in the matter of OA No.673/2018 dated 06.12.2019) **RIVER PAMBA, PATHANAMTHITTA**

S. No	Activity to be monitored	Timeline	Submission of progress by State/UT-Compliance status
1	Ensure 100% treatment of sewage at least in-situ remediation		
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured		Kadapra Grama Panchayat id totally open defection free. All the sewage generated in the households and other places and inistutions have 100% treatment of sewage-situ
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning		Niranam Gramapanchayat is an upper Kuttanad area , so no such dry land suitable for solid waste treatment plant is available . MCF construction completed .13 mini MCF implimentedc in all wards . Necessary instruction are given to all offices and institution to strictly comply with the green protocol and is regularly monitored.
5	Chief Secretaries may set up appropriate monitoring mechanism at state level <ul style="list-style-type: none"> • Specifying accountability of nodal authorities not below the Secretary level • Chief Secretaries may have an accountable person attached in their office for this purpose 		
	<ul style="list-style-type: none"> • Monitoring at State level must take place 		

6	Progress report may be furnished by the State/UTs to <ul style="list-style-type: none">• Secretary,Ministry of Jal Shakti• Member Secretary,CPCB		
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6.1	<p>Progress Report may be comprised of details along with completion timelines on:</p> <p>(I) Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment.</p> <p>(II) <u>Status of STPs, I&D and sewerage networks</u> Details of Existing Infrastructure,Gap Analysis, Proposed along with completion timeline</p> <p>(III) <u>Status of CETPs</u> Details of Existing CETP and ETP Infrastructure,Gap Analysis, Proposed along with completion timeline, No. of industries and complying status</p> <p>(iv)<u>Status of Solid Waste Management & Details of Processing Facilities</u> Details of Existing Infrastructure,Gap Analysis, Proposed along with completion timeline</p> <p>(v)Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river;</p> <p>(vi)Preventing dumping of waste and scientific waste management including bio-medical waste, plastic waste and decentralizing waste processing, including waste generated from hotels, Ashrams, etc.</p> <p>(vii)Ground water regulation</p> <p>(viii) Adopting good irrigation practices</p> <p>(ix) Protection and management of food plain Zones (FPZ)</p>	<p>The Panchayat has resolved to identify all polluting sources involved in pollution of river resources and initiation of penal action against them.</p>
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(x) Rain water harvesting

(xi) Maintaining minimum Environmental flow of river

(xii) Plantation on both sides of the river

(xiii) Setting up biodiversity parks on flood plains by removing encroachment

ACTION PLAN FOR RIVER PAMBA, KERALA

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of November-2023	Progress in the month of December 2023	% works completed	Details of works remaining
A(a)	No industries	-	-	-	-	-	-
A(a)	Monitoring of river water quality	Kerala State Pollution Control Board	Continuing project				
C(ii)	Establishment of de- centralized solid waste treatment facility	Mannar Panchayat, Kadapra/ Niranam Panchayath	31.03.2021	NA Not submitted report	Not submitted report The Panchayat has resolved to identify all polluting involved in pollution of river resources and initiation of penal against them		Inauguration of functioning.

				Niranam Gramapanchayat is an upper Kuttanad area , so no such dry land suitable for solid waste treatment plant is available	Not submitted the report		
C	Resource Recovery Facility	Mannar Panchayat, Kadapra/ Niranam Panchayath	31.03.2021	NA Not submitted the report	Not submitted the report Resource Recovery Facility due to non-availability of space	NA	Collection and transportation of Non-bio degradable Materials to RRF for processing

				It will be suitable if RRF is established at Block level in Niranam Grama Panchayath	NA		
C	Installing household and community level solid waste management units	Mannar Panchayat	31.03.2021	Collection of Non-biodegradable plastic materials from houses and institutions is conducted by Haritha Karma Sena(HKS). Collection, segregation and transportation of non-biodegradable plastic materials is continuing. About 12 tonnes of plastic materials handed over to Clean Kerala Company(CKC) so far. About 500 kg of	Not submitted report	100%	Construction and operation of Aerobic compost unit.

				<p>plastic materials is kept ready for transportation. Construction of Two mini MCFs in each ward in all the 18 wards of Mannar GP is completed. Plastic Waste management Bylaw (Final) has been passed by Mannar GP on 19/06/2021. Action Plan on solid waste Management is approved by Grama Panchayat Committee on 27/08/2021.</p>			
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C	Door to door collection and transportation of municipal solid waste	Mannar Panchayat	31.03.2021	<p>Collection of Non-biodegradable plastic materials from houses and institutions is conducted by Haritha Karma Sena(HKS). Collection, segregation and transportation of non-biodegradable plastic materials is continuing. About 12 tonnes of plastic materials handed over to Clean Kerala Company(CKC) so far. About 500 kg of plastic materials is kept ready for transportation. Construction of Two mini MCFs in each ward in all the 18 wards of Mannar GP is completed. Plastic Waste management Bylaw(final) has been passed by Mannar GP on 19/06/2021. Action Plan on solid waste Management is approved by Grama Panchayat Committee on 27/08/2021.</p>	Not submitted report		Continuing
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C	Construction of small sewage treatment plant with screening, septic tank and disinfection to the storm water drain of Parumala Town	Kadapra Panchayat	31.12.2020	The Panchayat is considered is sewage treatment plants is currently not need with in Panchayat area around Parumala	The Panchayat is considered is sewage treatment plants is currently not need with in Panchayat area around Parumala		
C	Construction of small sewage treatment plant with screening, septic tank and disinfection to the storm water drain of Mannar Town	Mannar Panchayat	31.12.2020	Due to the lack of space and fund, construction of small STP is not included in the annual plan of Mannar Grama Panchayat. It will be suitable if the Govt. takes necessary steps in this matter.	Not submitted report	0%	Not applicable
C	Construction of compound wall with fencing	Irrigation department	31.03.2021	Detailed project report for the Holistic rejuvenation of the reaches is prepared and submitted to Government	Detailed project report for the Holistic rejuvenation of the reaches is prepared and submitted to Government		
C	Removing light jungle and muddies from river courses	Irrigation department	31.03.2021				
C	Electrical-Light arrangements and Surveillance cameras	Irrigation department	31.03.2021				
C	Regualting activites in flood plain zone, protection and management of flood plain zone	Irrigation department	31.03.2021			Detailed project report for the Holistic rejuvenation of the reaches is prepared and submitted to Government	Detailed project report for the Holistic rejuvenation of the reaches is prepared and submitted to Government

	Greenery development Plantatioplan. Plantation on both sides of the river, setting up biodiversity parks on flood plains by removing encroachment	Irrigation department	31.03.2021				
C (b) (ii)	Green Protocol implementation in all Offices institution & Public function	Mannar, Kadabra/ Niranam Panchayat	31.05.2020	100%	Not submitted report	Not submitted report	Continuation of Green Protocol.
				Necessary instruction are given to all offices and institution to strictly comply with the green protocol and is regularly monitored in Niranam Grama Panchayath		Green protocol has implemented in public officers Kadapa Grama Panchayat	
						NA	

D(a)	Issues relating to E-flow,maintaining minimum environmental flow of river (by having watershed management provisions)	Irrigation department	30.11.2020	Detailed project report for the Holistic rejuvenation of the reaches is prepared and submitted to Government	Detailed project report for the Holistic rejuvenation of the reaches is prepared and submitted to Government		
D (b)	Irrigation practices	Irrigation department	30.04.2020				
E	Awareness programmes for sections of public	Kerala State Pollution Control Board	31.05.2020				
C	Management of municipal, plastic, hazardous, biomedical and electrical waste	LSGD	31.03.2021	Draft by-law of Plastic Waste Handling has been passed by the Grama panchayat Committee on 05/02/2021. Collection, segregation and transportation of non-biodegradable plastic materials is continuing. About	NA		

			<p>12 tonnes of plastic materials handed over to Clean Kerala Company(CKC) so far. About 500 kg of plastic materials is kept ready for transportation. Socio-Economic Unit (SEU) has been selected as implementing agency for the construction Two mini MCFs in each ward in all the 18 wards of Mannar GP. For the management of electrical, electronic and hazardous waste, the Grama Panchayat has reached in an agreement with Clean Kerala Company. Collection and handing over of electrical,</p>		<p>continuing. About 12 tonnes of plastic materials handed over to Clean Kerala Company(CKC) so far. About 500 kg of plastic materials is kept ready for transportation. Socio-Economic Unit (SEU) has been selected as implementing agency for the construction Two mini MCFs in each ward in all the 18 wards of Mannar GP.For the management of electrical, electronic and hazardous waste, the Grama Panchayat has</p>	
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				<p>of electrical, electronic and hazardous waste, the Grama Panchayat has reached in an agreement with Clean Kerala Company. Collection and handing over of electrical, electronic and hazardous waste will start. Biomedical waste is being collected from source and transported for processing by IMAGE (IMA Goes + Eco-friendly), an initiative run by IMA (Indian Medical Association)</p>				

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ACTION BY GROUND WATER DEPARTMENT

Sl. No.	Ref para item nos as per NGT Order no.673/2018 dated 20.09.2018	Activity	Progress in the month of November,2023	Progress in the month of December,2023	% works completed	Details of works remaining
1	B(i)	Ground Water resources and regulation of ground water extraction by industries particularly in over exploited as critical zones/blocks	NOC has not been issued to industries for Ground Water extraction during November 2023	NOC has not been issued to industries for Ground Water extraction during December 2023	Demand based	1. As per the GEC estimation all the blocks in the District has been categorized as SAFE. 2. Provisions of GW (control & Regulation) Act 2002 is implementing strictly for regulating extraction of GW

						resource in the district.
2	B(ii)	Ground water recharging / rain water harvesting	Artificial Recharge Structure Estimate for 11 sites sent to Directorate for Technical Sanction & Estimate for pond renovation at two sites in Pandalam Thekkekkara Grama Panchayath one also under preparation.	Artificial Recharge Structure Estimate for pond renovation at one site (Perumpetty Valiyakulam) Sent for Technical Sanction. One site pond renovation estimate under preparation. Pond renovation at Malayalappuzha Grama Panchayath work tendered and work order issued.	Demand based	All the blocks in the district is categorized as SAFE as per GEC estimation. Kadapra- Niranam Area is not feasible for Ground Water Recharge. However, GW recharging programme is taken up in some pockets in the midland area including Manimala basin. Where seasonal GW level fluctuation is noticed.
3	B(iii)	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps	Groundwater sample collection during the month of July 2023 monitoring wells (borewells and open wells) collected and sent to Analytical Lab Thiruvananthapuram for chemical analysis soon.	Groundwater sample collection during the month of July 2023 monitoring wells (borewells and open wells) collected and sent to Analytical Lab Thiruvananthapuram for chemical analysis soon.	Periodical assessment(Regular programme) Chemical analysis result of groundwater samples collected during November-2020 reveals that the gw quality is good and potable.	(i)Maintaining a network of observation wells in various hydro geomorphic units throughout the district from which water level and water samples have been collected periodically and analysed. (ii)generally groundwater quality is good and potable
4	B(iv)	For regulating use of ground water for	Borewell/ tube well construction is	Borewell/ tube well construction is	Continuing programme	i)Borewell/tube well construction is regulated in the

		<p>irrigation purpose, adopting good irrigation practices</p>	<p>regulated in the district by insisting permit of local bodies based on the feasibility report</p> <p>ii) Promoting conjunctive use of groundwater and surface water for irrigation purpose.</p>	<p>regulated in the district by insisting permit of local bodies based on the feasibility report</p> <p>ii) Promoting conjunctive use of groundwater and surface water for irrigation purpose.</p>		<p>district by insisting permit of local bodies based on the feasibility report of GWD</p> <p>ii) Promoting conjunctive use of groundwater and surface water for irrigation purpose.</p> <p>iii) Awareness programmes organised to the public to adopt rainwater harvesting measures</p>
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National Mission for Clean Ganga

**Format for Submission of Monthly Progress Report by States/UTs
(Hon'ble NGT in the matter of OA No.673/2018 dated 06.12.2019)**

RIVER PAMBA, PATHANAMTHITTA

S. No.	Activity to be monitored	Timeline	Submission of progress by State/UT- Compliance status
1	Ensure 100% treatment of sewage at least in-situ remediation	31.03.2025	Projects for to be taken
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured	31.03.2025	„
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	31.03.2025	„
5	Chief Secretaries may set up appropriate monitoring mechanism at state level <ul style="list-style-type: none">• Specifying accountability of nodal authorities not below the Secretary level• Chief Secretaries may have an accountable person attached in their office for this purpose	NA	-
	<ul style="list-style-type: none">• -	NA	-
6	Progress report may be furnished by the State/UTs to <ul style="list-style-type: none">• Secretary, Ministry of Jal Shakti• Member Secretary, CPCB	NA	-

<p>(viii) Adopting good irrigation practices</p> <p>(ix) Protection and management of food plain Zones (FPZ)</p> <p>(x) Rain water harvesting</p> <p>(xi) Maintaining minimum Environmental flow of river</p> <p>(xii) Plantation on both sides of the river</p> <p>(xiii) Setting up biodiversity parks on flood plains by removing encroachment</p>		<p>-</p> <p>Yes, Going On</p> <p>Yes, Going On</p> <p>Yes, Going On</p>
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ACTION PLAN FOR RIVER PAMBA, KERALA

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of October 2023	Progress in the month of November 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
A(a)	No industries	-	-				-	-
A(a)	Monitornng of river water quality	Kerala State Pollution Control Board	Continuing project					
C(ii)	Establishment of de-centralized solid waste treatment facility	Mannar Panchayat, Panchayath	31.03.2024					
C	Establishment of Material Collection Facility	Mannar Panchayat, Panchayath	31.03.2021				100%	
C	Resource Recovery Facility	Mannar Panchayat, Panchayath	31.03.2021				-	
C	Installing household and community level solid waste management units	Mannar Panchayat	31.03.2021				50%	
C	Door to door collection and transportation of municipal solid waste	Mannar Panchayat	31.03.2021					

C	Construction of small sewage treatment plant with screening, septic tank and disinfection to the storm water drain of Parumala Town	Kadapra Panchayat	31.12.2020					
C	Construction of small sewage treatment plant with screening, septic tank and disinfection to the storm water drain of Mannar Town	Mannar Panchayat	31.12.2024				”	”
C	Construction of compound wall with fencing	Irrigation department	31.03.2021					
C	Removing light jungle and muddies from river courses	Irrigation department	31.03.2021					
C	Electrical-Light arrangements and Surveillance cameras	Irrigation department	31.03.2021					
C	Regualting activites in flood plain zone, protection and management of flood plain zone	Irrigation department	31.03.2021					
	Greenery developmentPlantation plan. Plantation on both sides of the river, setting up biodiversity parks on flood plains by removing encroachment	Irrigation department	31.03.2021					

1	B(i)	Ground Water resources and regulation of ground water extraction by industries particularly in over exploited as critical zones/blocks					
2	B(ii)	Ground water recharging / rain water harvesting					
3	B(iii)	Periodic ground water quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps					
4	B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices					

National Mission for Clean Ganga

**Format for Submission of Monthly Progress Report by States/UTs
(Hon'ble NGT in the matter of OA No.673/2018 dated 06.12.2019)**

RIVER MANIMALA, ALAPPUZHA

S. No.	Activity to be monitored	Timeline	Submission of progress by State/UT- Compliance status
1	Ensure 100% treatment of sewage at least in-situ remediation	31.03.2021	NIL
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured	31.03.2020	Since Large Land holding by local residents on the bank, No
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	22.01.2020	Such issues arises, no need of steps since
5	Chief Secretaries may set up appropriate monitoring mechanism at state level <ul style="list-style-type: none">• Specifying accountability of nodal authorities not below the Secretary level• Chief Secretaries may have an accountable person attached in their office for this purpose	22.01.2020	No industry/commercial activity
	<ul style="list-style-type: none">• Monitoring at State level must take place	22.01.2020	NIL
6	Progress report may be furnished by the State/UTs to <ul style="list-style-type: none">• Secretary, Ministry of Jal Shakti• Member Secretary, CPCB	22.01.2020 Fortnightly commencing	NIL

6.1	<p>Progress Report may be comprised of details along with completion timelines on:</p> <p>(I) Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment.</p> <p>(II) <u>Status of STPs, I&D and sewerage networks</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline</p> <p>(III) <u>Status of CETPs</u> Details of Existing CETP and ETP Infrastructure, Gap Analysis, Proposed along with completion timeline, No. of industries and complying status</p> <p>(iv) <u>Status of Solid Waste Management & Details of Processing Facilities</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline</p> <p>(v) Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river;</p> <p>(vi) Preventing dumping of waste and scientific waste management including bio-medical waste, plastic</p>	<p>21.12.2019</p> <p>2020-2021</p> <p>2019-2020</p> <p>2020-2021</p> <p>2020-2021</p>	<p>Drains contributing to river pollution were identified. The drains are seasonal and water quality is above the require limit, no in situ.</p> <p>Proposal for setting up an FSTP by Chengannur municipality is initiated.</p> <p>Since the area does not contain any industry no requirement of any CETP, this action. Plan revised.</p> <p>The adjoining local bodies are in the stage of developing and establishing adequate solid waste management facilities also the solid waste during issues were not identified in the stretch during field visit held during past 1 year.</p> <p>Water quality analysis result of the stretch up to DECEMBER 2023 is enclosed.</p> <p>Awareness campaigns initiated.</p> <p>No groundwater pollution is noted in the area action yet to be initiated.</p>
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ACTION PLAN FOR RIVER PAMBA, KERALA

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of October 2023	Progress in the month of November 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
A(a)	Monitoring of river water quality	Kerala State Pollution Control Board	Continuing project				100%	NIL
A(b)	Rendering Plant at Eraviperoor or Thiruvalla	Eraviperoor/ Thiruvalla local body	31.03.2021				0%	Work to be initiated
C(ii)	Fencing of bridges, desilting, dredging and protection works, surveillance cameras at vantage points	Irrigation department	31.03.2021				0%	Work to be initiated
C	Preventing illegal discharge of septage and other waste water into the river. Formation of River Protection Group	Panchayath, Police , KSPCB	31.05.2020.				0%	Work pending due to COVID pandemic
C	Greenery development Plantation on both sides of the river, setting up biodiversity parks in flood plains and removing encroachment	Irrigation department in association with panchayath	31.03.2021				0%	Yet to be initiated
C(b)(ii)	Green Protocol implementation in all offices, institution & public functions	Kalloopara, Eraviperoor, Puramattom, Kaviyoor, Peringara, Kuttoorpanchayaths	31.03.2020				100%	0

D(a)	Issues relating to E-flow, maintaining minimum environmental flow of river (by having watershed management provisions)	Irrigation department, Hydrographic survey department	31.03.2021					Work to be initiated
C(ii)	Establishment of decentralized solid waste treatment facilities	Kalloopara, Eraviperoor, Puramattom, Kaviyoor, Peringara, Kuttoorpanchayaths	31.12.2020				100%	0
C	Installing household & community level solid and domestic sewage waste management	Kalloopara, Eraviperoor, Puramattom, Kaviyoor, Peringara, Kuttoorpanchayaths	31.12.2020				NA	NA
C	Door to door collection of solid waste & Material Collection Facilities (MCF) & Resource Revcovery Facilities (RRF)	Kalloopara, Eraviperoor, Puramattom, Kaviyoor, Peringara, Kuttoorpanchayaths	31.12.2020				NA	NA

ACTION BY GROUND WATER DEPARTMENT

Sl. No	Ref para item nos as per NGT Order no.673/2018 dated 20.09.2018	Activity	Timeline	Progress in the month of October 2023	Progress in the month of November 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
1	B(i)	Ground Water resources and regulation of ground water extraction by industries particularly in over exploited as critical zones/blocks	31.03.2021					
2	B(ii)	Ground water recharging / rain water harvesting in Govt offices	31.03.2021					
3	NGT order in O.A no.496/2016 Identification of illegal bore wells in the catchment area.	NGT order in O.A no.496/2016 Identification of illegal bore wells in the catchment area.	31.03.2021					

**ANALYSIS REPORT OF DRAINS OF MANIMALA BETWEEN KALLOOPARA AND THONDRA
DEC-2023**

SI NO	BOTTLE NO.	Name of Drains	PH	BOD	TC	FC
1	TK1	Panayampalathodu	6.8	0.6	3000	1800
2	TK2	PadathupalamThodu	6.9	0.8	2400	1200
3	TK3	Thottappuzha	6.7	0.06	1200	700
4	TK4	Kuttapuzha under Kattodubridge	7.1	1.2	1000	600
5	TK5	Kadavumbara	7.08	0.46	1100	500
6	TK6	Drain under Varappalam Bridge	NIL	NIL	NIL	NIL
7	TK7	Drain under kallupalam Bridge	7.1	1.06	2000	1000
8	TK8	Komalamthodu	7.2	0.8	2800	1500
9	TK9	Vennikulam Valiyathodu	6.7	0.26	1500	1000
10	TK10	Paduthodu	6.8	0.53	700	300
11	TK11	Mallappally Valiyathodu	6.9	0.4	2100	1300

Analysis Result of Drains Joining to Mannar-Thakazhi Stretch of Pamba River (2022-2023)

Sl. No	Name of Drain	Parameters														
		pH			Electrical Conductivity(μ S/cm)			BOD(mg/l)			TC(Nos/100ml)			FC		
	Months	OCT	NOV	DEC	OCT	NOV	DEC	OCT	NOV	DEC	OCT	NOV	DEC	OCT	NOV	DEC
1	Parumala Drain	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2	MannarTown Drain	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
3	Kuriyathkadavu Thodu	6.39	7.1	6.1	88.79	101.9	119.1	0.46	1.6	2	3000	3000	3000	300	400	1800
4	Karovelil Thodu	7.16	7.2	7.1	38.46	26.43	205.9	1.06	0.2	1.8	800	900	7000	100	200	400
5	Nochithodu	6.82	6.9	6.9	68.97	76.27	62.26	1	0.2	1.7	1500	1000	1800	500	100	1400
6	Pattaparambil Thodu	6.71	7.01	6.6	87.68	39.13	213.9	1	0.06	0.6	2000	200	2000	700	0	1200
7	Kappiyarissery Thodu	6.56	6.92	6.5	86.43	100.9	62.92	2.06	0.86	0.01	1800	3000	1100	300	1200	600
8	Kombankery Thodu	7.19	7.2	6.2	37.07	68.68	52.24	0.53	0.2	2.3	800	400	1600	200	100	800
9	Perackalthodu	6.89	7.15	7.1	142.9	192.9	202.1	1	1.2	2.2	2000	700	2000	500	200	1100
10	Erathodu	7.02	6.8	6.2	54.68	60.32	54.97	1.6	0.6	2.4	1500	1500	1500	200	300	800
11	Kolarayaru	6.97	7.05	6.5	30.62	63.75	46.19	1.8	0.2	1.8	1000	1300	1300	100	400	800

WATER QUALITY DATA OF POLLUTED RIVER STRETCHES DECEMBER-2023**DISTRICT OFFICE, PATHANAMTHITTA****Date of Sampling: 04.12.2023**

Sl. No	PARAMETERS	THAKZHY	EDATHUA	MANNAR
1	Temperature, °C	29	28	28
2	pH	6.8	6.6	6.8
3	Conductivity, µmhos/cm	56.72	59.25	48.55
4	Turbidity, NTU	0.8	2.1	1.0
5	Phenolphthalein Alkalinity, as CaCO ₃	Nil	Nil	Nil
6	Total Alkalinity, as CaCO ₃	11	9	8
7	Chloride, mg/l	10	12	12
8	COD, mg/l	3.2	6.4	3.2
9	TKN, mg/l	0.25	0.2	0.2
10	Ammoniacal-N, mg/l	BDL	BDL	BDL
11	Hardness, as CaCO ₃ mg/l	24	24	22
12	Calcium, as CaCO ₃ mg/l	14	14	12
13	Magnesium as CaCO ₃ , mg/l	10	10	10
14	Sulphate, mg/l	1.9	2.14	2.1
15	Sodium, mg/l	5.4	6.3	6.2
16	Total Dissolved Solids, mg/l	36	36	34
17	Total Fixed Solids, mg/l	31	31	27
18	Total Suspended Solids, mg/l	26	26	22
19	Phosphate, mg/l	BDL	BDL	BDL
20	Boron, mg/l	BDL	BDL	BDL
21	Potassium, mg/l	0.212	0.315	0.231
22	BOD, mg/l	0.5	1.8	0.7
23	Fluoride, mg/l	0.25	0.25	0.25
24	Dissolved Oxygen, mg/l	6.8	6.5	6.6
25	Nitrate-N, mg/l	0.166	0.154	0.224
26	Total Coliform, CFU/100 ml	270	330	280
27	Faecal Coliform, CFU/100 ml	90	110	90
28	SAR	0.479248	0.559123	0.574715
29	% of sodium	13.327468	15.18862	15.8837135
30	Faecal Strepto Coccus,CFU/100 ml	Nil	Nil	Nil

MONTHLY ANALYSIS REPORT OF POLLUTED RIVER STRETCHES DECEMBER-2023

STATION: MANNAR

SamplingDate: 04.12.2023

SI. No	PARAMETERS	ITTINAYARKKADAVU BRIDGE KUTTAMPEROOR	KOTTAKAL KADAVU BRIDGE KORATTIKADAVU	PARUMALA BRIDGE	MANNAR BRIDGE
1	Temp. (°C)	29	28	27	28
2	pH	6.8	6.9	7.0	6.8
3	Conductivity (µS/cm)	43.55	44.15	43.74	40.97
4	DO (mg/L)	5.4	6.0	6.0	5.7
5	BOD (mg/L)	1.4	0.9	1.0	1.1
6	COD (mg/L)	6.4	3.2	3.2	3.2
7	TDS (mg/L)	68	52	48	44
8	TC (CFU/100ml)	600	300	360	200
9	FC (CFU/100ml)	200	100	120	70
10	FSC(CFU/100ml)	Nil	Nil	Nil	Nil

National Mission for Clean Ganga

**Format for Submission of Monthly Progress Report by States/UTs
(Hon'ble NGT in the matter of OA No.673/2018 dated 06.12.2019)**

RIVER PERIYAR. ERNAKULAM

S. No.	Activity to be monitored	Timeline	Submission of progress by State/UT- Compliance status
1	Ensure 100% treatment of sewage at least in-situ remediation		
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured		
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning		
5	Chief Secretaries may set up appropriate monitoring mechanism at state level <ul style="list-style-type: none">• Specifying accountability of nodal authorities not below the Secretary level• Chief Secretaries may have an accountable person attached in their office for this purpose		
	<ul style="list-style-type: none">• Monitoring at State level must take place		
6	Progress report may be furnished by the State/UTs to <ul style="list-style-type: none">• Secretary, Ministry of Jal Shakti• Member Secretary, CPCB		

6.1	<p>Progress Report may be comprised of details along with completion timelines on:</p> <p>(I) Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment.</p> <p>(II) <u>Status of STPs, I&D and sewerage networks</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline</p> <p>(III) <u>Status of CETPs</u> Details of Existing CETP and ETP Infrastructure, Gap Analysis, Proposed along with completion timeline, No. of industries and complying status</p> <p>(iv) <u>Status of Solid Waste Management & Details of Processing Facilities</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline</p> <p>(v) Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river;</p> <p>(vi) Preventing dumping of waste and scientific waste management including bio-medical waste, plastic</p>		
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	<p>waste and decentralizing waste processing, including waste generated from hotels, Ashrams, etc.</p> <p>(vii) Ground water regulation</p> <p>(viii) Adopting good irrigation practices</p> <p>(ix) Protection and management of flood plain Zones (FPZ)</p> <p>(x) Rain water harvesting</p> <p>(xi) Maintaining minimum Environmental flow of river</p> <p>(xii) Plantation on both sides of the river</p> <p>(xiii) Setting up biodiversity parks on flood plains by removing encroachment</p>		
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ACTION PLAN FOR RIVER PERIYAR, KERALA

SHORT TERM MEASURES

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of October 2023	Progress in the month of November 2023	Progress in the month of December 2023	% works completed	Details of works remaining
A(b)	Augmentation and Revamping of existing STP at near Adwaita Ashramam and to increase the capacity of STP so as to treat more sewage generated in the municipality	Aluva Municipality	Dec 2019	The construction work of STP at Advaita Ashram is in progress. The agreement for the civil works has been completed at present and the work will start immediately. Electrical work is reserved for retendering. Investments have been made for mechanical related work. Currently STP is working partially, therefore steps have been taken to speed up the partial functioning. Informed that mechanical and civil related works may completed within 2	The construction work of STP at Advaita Ashram is in progress. The agreement for the civil works has been completed at present and the work will start immediately. Electrical work is reserved for retendering. Investments have been made for mechanical related work. Currently STP is working partially, therefore steps have been taken to speed up the partial functioning. Informed that mechanical and civil related works may	The construction work of STP at Advaita Ashram is in progress. The agreement for the civil works has been completed at present and the work will start immediately. Electrical work is reserved for retendering. Investments have been made for mechanical related work. Currently STP is working partially, therefore steps have been taken to speed up the partial functioning. Informed that mechanical and civil		

				months.	completed within 2 months.	related works may completed within 2 months.		
A(b)	Augmentation and Revamping of existing STP at Aluva Market and to increase the capacity of STP so as to treat more sewage generated in the municipality	Aluva Municipality	2021	A proposal was submitted for 0.3MLD ETP. Preparation for DPR will be completed within 2 weeks. Adding waste from fish stall along with abattoir is considered.	A proposal was submitted for 0.3MLD ETP. Preparation for DPR will be completed within 2 weeks. Adding waste from fish stall along with abattoir is considered.	A proposal was submitted for 0.03MLD ETP. Revised DPR for increasing capacity to .07 MLD will be submitted. Adding waste from fish stall along with abattoir is considered.		
A(b)	Discharge of sewage from township to the River through drain near Periyar Hotel shall be stopped.	Aluva Municipality	2020					
A(b)	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain and to collect fine based on polluter pay principle	Aluva Municipality, KSPCB	2020	74 cases been caught from the 24 inspections conducted on the month of June .A fine of Rs.5,60,000 has been imposed and out of this Rs.35,000 is paid. Further action is taken for the rest. As well as Rs. 1, 46,000 has been levied from the inspections conducted on illegal waste dumping sites and 26,000 rupees	74 cases been caught from the 24 inspections conducted on the month of June .A fine of Rs.5,60,000 has been imposed and out of this Rs.35,000 is paid. Further action is taken for the rest. As well as Rs. 1, 46,000 has been levied from the inspections conducted on illegal waste dumping	Out of 4 inspections one case was found on the month of December. And they paid the fine that imposed, which is Rs 25000. Also 4 inspections were done regarding the illegal waste dumping and imposed Rs 5000 as fine and paid		

				has been paid out of this. The remaining follow up action is being taken.	sites and 26,000 rupees has been paid out of this. The remaining follow up action is being taken.			
A(a)(iv)	Periodical inspection in the Industries, Flats, hotels monitoring of STP,ETP	KSPCB	Periodical					
C(ii)	Installation of modern abattoirs	Aluva Municipality	March 2021	DPR proposal prepared by IRTC (Accredited Agency) for the installation of machines has been submitted for the approval	DPR proposal prepared by IRTC (Accredited Agency) for the installation of machines has been submitted for the approval	DPR proposal prepared by IRTC (Accredited Agency) for the installation of machines has been submitted for the approval		
A(b)	Procurement of sewer cleaning machines and equipment maintenance	Aluva Municipality	March 2020	Drainage cleaning activities are done everyday. JCBs are also used for carry out the waste. The excavated waste is then disposed in Thumboormuzhi compost.	Drainage cleaning activities are done everyday. JCBs are also used for carry out the waste. The excavated waste is then disposed in Thumboormuzhi compost.	Drainage cleaning activities are done everyday. JCBs are also used for carry out the waste. The excavated waste is then disposed in Thumboormuzhi compost.		
E	Installation of cameras at the waste dumping spots	Aluva Municipality	2020	For monitoring the dumping sites, 25 lakh rupee-worth of cameras have been established. But the NVR has been ceased by the police in connection with a criminal case in Aluva .Therefore it is currently not working.	For monitoring the dumping sites, 25 lakh rupee-worth of cameras have been established. But the NVR has been ceased by the police in connection with a criminal case in Aluva .Therefore it is currently	25 lakhs rupee-worth cameras have been established for monitoring waste dumping site		

				Night surveillance squad operation is still ongoing.	not working. Night surveillance squad operation is still ongoing.			
A(b)	Construction of retaining wall with HDPE liner at Kalamassery dumping yard in order to prevent the leachate discharge from the yard to Thoombungal Thodu	Kalamassery Municipality	Sept 2019	NA	NA	NA	100%	
C(ii)	Installation of plastic shredding unit	Kalamassery Municipality	June 2019	NA	NA	NA	100%	
A(a)(iv)	Constitution of squads for night surveillance for finding the unauthorized dumping of sewage at NAD wet lands Kalamassery	Kalamassery Municipality, Police department	2020	NAD not provided CCTV.Night squad fine Rs. 1867440	NAD not provided CCTV.Night squad fine Rs. 1867440	NAD not provided CCTV. Night squad fine Rs. 1939440		
A(b)	Installation of common STP for Kalamassery Municipality and ETP at Municipal Market	Kalamassery Municipality	December 2019	75 cents land identified at North Kalamassery for sewage and septage treatment plant	75 cents land identified at North Kalamassery for sewage and septage treatment plant	75 cents land identified at North Kalamassery for sewage and septage treatment plant		
A(a)(iv)	Monitoring and surveillance of industries in Kalamassery Industrial	KSPCB	2019					

	Estate in order to prevent unauthorized discharges to Muttar River							
C(ii)	Installation of modern abattoirs including poultry and meat rendering plants.	Kalamasser Y Municipality, Industries Department (for land allotment)	2021	A letter dated 03.10.22 has forwarded to the govt. for allotment of land for the construction of modern abattoirs	A letter dated 03.10.22 has forwarded to the govt. for allotment of land for the construction of modern abattoirs	A letter dated 03.10.22 has forwarded to the govt. for allotment of land for the construction of modern abattoirs		
A(b)	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Kalamassery Municipality	2020	Inspection conducted on 24/09/2020, 22/07/2021, 13/08/2021, 01/01/2022, 10/01/2022, 11/01/2022, 12/01/2022 & notice issued to 49 persons. 12 persons cleared violations. Second notice issued to 2 persons and rectified the defect. Inspection conducted on 28.07.2022, fresh notice issued to 5 persons, 1 person cleared violation. Inspection conducted on 15.09.2022, fresh notice	Inspection conducted on 24/09/2020, 22/07/2021, 13/08/2021, 01/01/2022, 10/01/2022, 11/01/2022, 12/01/2022 & notice issued to 49 persons. 12 persons cleared violations. Second notice issued to 2 persons and rectified the defect. Inspection conducted on 28.07.2022, fresh notice issued to 5 persons, 1 person	Inspection conducted on 24/09/2020, 22/07/2021, 13/08/2021, 01/01/2022, 10/01/2022, 11/01/2022, 12/01/2022 & notice issued to 49 persons. 12 persons cleared violations. Second notice issued to 2 persons and rectified the defect. Inspection conducted on 28.07.2022, fresh notice issued to 5 persons, 1 person cleared violation. Inspection conducted on 15.09.2022, fresh notice issued to 1 person . Inspection		

				issued to 1 person Inspection conducted on 29.12.2022, 5 persons cleared violation Inspection conducted on 16.02.2023, 1 person fresh notice issued 7 outlet of houses, 3 outlet of establishment in may 2023	cleared violation. Inspection conducted on 15.09.2022, fresh notice issued to 1 person Inspection conducted on 29.12.2022, 5 persons cleared violation Inspection conducted on 16.02.2023, 1 person fresh notice issued 7 outlet of houses, 3 outlet of establishment in may 2023	conducted on 29.12.2022, 5 persons cleared violation . Inspection conducted on 16.02.2023, 1 person fresh notice issued. 7 outlet of houses, 3 outlet of establishment in may 2023		
E	Installation of cameras at the waste dumping spots	Kalamassery Municipality	2020	Camera installed on 10 locations. 2 portable (mobile) camera has installed for identifying waste dumping spot. Rs 36560 /- levied till date	Camera installed on 10 locations. 2 portable (mobile) camera has installed for identifying waste dumping spot. Rs 36560 /- levied till date	Camera installed on 10 locations. 2 portable (mobile) camera has installed for identifying waste dumping spot. Rs 36560 /- levied till date		
A(b)	Identification of sources of sewage discharged to drain near Pathalam bridge and action to stop the discharge which reach river Periyar from hotels, labour camps etc In case the quantity of sewage generated is assessed to be more STP	Eloor Municipality, KSPCB (for monitoring)	2020	Inspections are done time to time. No waste discharge was found during inspection time	Inspections are done time to time. Waste discharging outlets from shops were identified and proper arrangements are made as remedy. No new waste discharging findings were caught	Inspections are done time to time. Waste discharging outlets from shops were identified and proper arrangements are made as remedy. No new waste discharging findings were caught		

	need to be installed							
E	Installation of cameras at the waste dumping spots	Eloor Municipality	2020	Keltron cameras have been installed in the vicinity of the aerobic bins near HIL company and in Manjummel Arattukadavu. Also in the 2023-24 project amount has been allocated for the installation of cameras in different areas of the municipality and according to this 44,00,000 rupees tender procedures are being taken for 3 projects	The project is being implemented at a cost of Rs.44 lakh to install 104 cameras. Tender has been opened. Camera locations have been identified. Keltron cameras have been established near HIL company and Aarattukadavu	The project is being implemented at a cost of Rs.44 lakh to install 104 cameras. Work has started after identifying the locations for the camera. Keltron cameras have been established near HIL company and Aarattukadavu		
A(a)(iv)	Periodical inspection in the Industries, Flats, hotels for monitoring of STP,ETP located in Cochin corporation	KSPCB	periodical	Inspection ongoing	Inspection ongoing	Inspection ongoing		
A(a)	Inventory of sources of pollution through a rapid study/Study for identification of pollution sources at Edapally thodu	Kochi Municipal Corporation	3 months	To find the source of discharge, a squad was formed under Engineering and health and regular inspections are carried out. Identified sources will be informed. Desilting	To find the source of discharge, a squad was formed under Engineering and health and regular inspections are carried out. Identified sources will be informed.	To find the source of discharge, a squad was formed under Engineering and health and regular inspections are carried out. Identified sources will		

				works have been completed	Desilting works have been completed	be informed. Desilting works have been completed		
E	issuing notice to the defaulters	Kochi Municipal Corporation	4 months					
A(a)(iv)	Periodical inspection in the flats, hotels, shops located along the river	Kochi Municipal Corporation	periodical	A thorough inspection was carried out in the establishments near the river. 112 notices were issued against those found violating the law on last month and 76 outlets of institutions have been closed. Made them to take PCB consent. A fine of 3 lakh have been imposed.	A thorough inspection was carried out in the establishments near the river. 76 outlets of institutions have been closed. Made them to take PCB consent. A fine of 3 lakh have been imposed.	A thorough inspection was carried out in the establishments near the river. 76 outlets of institutions have been closed. Made them to take PCB consent. A fine of 3 lakh have been imposed.		
A(b)	Identification of natural drains/thodu reaching river Periyar and cleaning of weeds, grasses etc	Irrigation department	2 years	Cleaning of 20 canals and 13 sub canals under Eloor municipality on the banks of Periyar in Kalamassery constituency and 40 canals under Paravur constituency situated on the banks of Periyar in Karumallor, Kunnukara and Alangad Panchayath, which comes under the auspices of minor irrigation office are under progress. The proposal for the cleaning of the	Cleaning of 20 canals and 13 sub canals under Eloor municipality on the banks of Periyar in Kalamassery constituency and 40 canals under Paravur constituency situated on the banks of Periyar in Karumallor, Kunnukara and Alangad Panchayath, which comes under the auspices of minor irrigation office are under progress. The proposal	Cleaning of 20 canals and 13 sub canals under Eloor municipality on the banks of Periyar in Kalamassery constituency and 40 canals under Paravur constituency situated on the banks of Periyar in Karumallor, Kunnukara and Alangad Panchayath, which comes under the auspices of minor irrigation office are	Estimated.)Detailed submitted for FS	estimate submitted to higher authority for FS. FS not obtained so far

				<p>Onithod which connected from Periyar has been submitted to the government by the Ernakulum district collector from minor irrigation office. Permission not received. Irrigation Division has submitted estimates for rehabilitation of the following streams under Ernakulam.</p> <p>1. Kuthuthodu (IRR/IA/EST/8495/2022_5_8_7) Rs. 74.40 lakh 2.Edathodu (IRR/IA/EST/8495/2022_5_11_10) Rs. 9/- lakh These works have not been approved.The cleaning of Vliyachal canal and Erazhichal in Eloor municipality is in progress under Minor irrigation department.</p>	<p>for the cleaning of the Onithod which connected from Periyar has been submitted to the government by the Ernakulum district collector from minor irrigation office. Permission not received. Irrigation Division has submitted estimates for rehabilitation of the following streams under Ernakulam.</p> <p>1. Kuthuthodu (IRR/IA/EST/8495/2022_5_8_7) Rs. 74.40 lakh 2.Edathodu (IRR/IA/EST/8495/2022_5_11_10) Rs. 9/- lakh These works have not been approved.The cleaning of Vliyachal canal and Erazhichal in Eloor municipality is in progress under Minor irrigation department.</p>	<p>under progress. The proposal for the cleaning of the Onithod which connected from Periyar has been submitted to the government by the Ernakulum district collector from minor irrigation office. Permission not received. Irrigation Division has submitted estimates for rehabilitation of the following streams under Ernakulam.</p> <p>1. Kuthuthodu (IRR/IA/EST/8495/2022_5_8_7) Rs. 74.40 lakh 2.Edathodu (IRR/IA/EST/8495/2022_5_11_10) Rs. 9/- lakh These works have not been approved.The cleaning of Vliyachal canal and Erazhichal in Eloor municipality is in progress under Minor irrigation department.</p>		
C(iii)	Clearing of weeds, grasses at the river bank in order to	Irrigation departmen	3 years	The project Operation Vahini 2022 is carried out	The project Operation Vahini 2022 is carried	The project Operation Vahini 2022 is carried		O

	ensure the smooth flow of water	t		<p>to clean and desilt drains and hand drains. As part of this project, works on some tributaries of Periyar have been completed and also the cleaning of 17.5km of Edamula-Muttar-Varapuzha reach which is a part of Periyar is under completion. Proposals have been issued for cleaning activities Edayar and Methanam. If permission is granted, they will also be taken up</p>	<p>out to clean and desilt drains and hand drains. As part of this project, works on some tributaries of Periyar have been completed and also the cleaning of 17.5km of Edamula-Muttar-Varapuzha reach which is a part of Periyar is under completion. Proposals have been issued for cleaning activities Edayar and Methanam. If permission is granted, they will also be taken up</p>	<p>out to clean and desilt drains and hand drains. As part of this project, works on some tributaries of Periyar have been completed and also the cleaning of 17.5km of Edamula-Muttar-Varapuzha reach which is a part of Periyar is under completion. Proposals have been issued for cleaning activities Edayar and Methanam. If permission is granted, they will also be taken up</p>	<p>n e w o r k d a l r e a d y c o m p l e t e n</p>
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								e a r P a t h a l a m L C R .
D(a)	Maintaining of Minimum flow in river during lean period and periodical operation of Regulators at River in-order to maintain minimum flow.	Irrigation department	3 years	The shutters are opened and operated at regular intervals.	The shutters are opened and operated at regular intervals.	Periodicaly maintained for the minimum flow of water by operating the shutter properly at pathalam lock cum regulator		
A(b)	Common Effluent Treatment Plant at Edayar Industrial Estate	Industries department	2022					
A(b)	Construction of internal roads and proper drainage	Industries department		Completed construction of 13 roads and drainages.	Completed construction of 13 roads and	Completed the constructed roads and		

	in Edayar industrial estate			Rs.6.54 crore has been approved to PWD for maintenance and repair.	drainages. Rs.6.54 crore has been approved to PWD for maintenance and repair.The construction works will start from December 15	drainage works in the locality of Edayar which comes under the project of MSECDP and costed 9 crore. 6.54 crore rupees has been sanctioned to PWD for works to be completed and construction of 34 lakh rupees drainage is under progress. 45% of work is completed. Process for the construction of internal road which worth Rs 6.20 crore is in progress		
A(b)	Installation of common discharge pipe line at downstream of Pathalam Regulator Bridge	Industries department, Irrigation department	3 years					
E	Installation of Night vision surveillance cameras at the River Bank side	KSPCB	2020					
A(a)(iv)	Periodical Monitoring of Eloor, Edayar, Kalamassery Industrial belts	KSPCB	2020	Routine inspection is going on. Night Surveillance also carried out continuously.	Routine inspection is going on. Night Surveillance also carried out continuously.	Routine inspection is going on. Night Surveillance also carried out continuously.		

A(a)(iv)	Monitoring of quality of water at various intake point	Kerala Water Authority	2020					
A(a)(iv)	Installation of additional continuous online River water monitoring station	KSPCB	2022	The maintenance works of Online monitoring station in the downstream side of PathalamBundhave been completed and is working. Online monitoring station in the upstream side has been installed. Display board work is in progress. Quality of water at upstream is satisfactory	The maintenance works of Online monitoring station in the downstream side of PathalamBundhave been completed and is working. Online monitoring station in the upstream side has been installed. Display board work is in progress. Quality of water at upstream is satisfactory	New water monitoring station has been set up at theUpstream side of the Pathalam bund. The online data of water monitoring is available in the office. Quality of water at upstream is satisfactory		
A(b)	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Kadungallur Panchayath	2020	Inspection Ongoing	Waste discharging units has been identified .issued notices and fine is charged .Biobin , composite pit are available	Waste discharging units are been identifies. Fine and notices were issued to them		
E	Installation of cameras at the waste dumping spots	Kadungallur Panchayath	2020	Project Ongoing	The 17 lakh project to install camera is underway.30 spots been identified and a fine of 15000 rupees charged as penalty last month	The 17 lakh project to install camera is underway and technical sanction got approved.The monitoring squad has identified 30 spots and		

						18000 rupees charged been charged as fine on december		
A(b)	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Choornikkara Panchayath	2020	150 soak pits have been constructed to prevent dumping of sewage from houses into the river, and no other problems exist.	150 soak pits have been constructed to prevent dumping of sewage from houses into the river, and no other problems exist.	150 soak pits have been constructed to prevent dumping of sewage from houses into the river, and no other problems exist.		
E	Installation of cameras at the waste dumping spots	Choornikkara Panchayath	2020	For the monitoring of dumping spots, 50 lakh rupees project is submitted for installing camera. Out of which 25 lakhs should be collected in the form of donation. 50 lakhs to be amended to 30 lakhs is under consideration. 2.11 lakhs as CSR contribution. It was decided to negotiate with the companies for the remaining amount, 5 lakh is also under consideration	For the monitoring of dumping spots, 50 lakh rupees project is submitted for installing camera. Out of which 25 lakhs should be collected in the form of donation. 50 lakhs to be amended to 30 lakhs is under consideration. 2.11 lakhs as CSR contribution. It was decided to negotiate with the companies for the remaining amount, 5 lakh is also under consideration	For the monitoring of dumping spots, 50 lakh rupees project is submitted for installing camera. Out of which 25 lakhs should be collected in the form of donation. 50 lakhs to be amended to 30 lakhs is under consideration. The amount received in the form of CSR as contribution will be announced in the next meeting.. It is decided to negotiate with other companies about the remaining amount..The donation amount has been revised to 5 lakh.		

LONG TERM MEASURES

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of October 2023	Progress in the month of November 2023	Progress in the month of December 2023	% works completed	Details of works remaining
A(b)	Construction of walkway, ring roads etc at the Periyar River bank at industrial belt.	Irrigation department	4 years	Tender process for the 5.9 lakh construction of Dyke wall and surveillance road along the industrial has been completed and engaged in contract agreements. Dyke wall design will be	An investigation estimation of 8 lakh have been prepared for the construction of road and dyke wall nearby industrial belt. Financial sanction is received and sent for administration sanction. Dyke wall design will be accomplished by analyzing the	An investigation work has been started for the construction of surveillance road and dyke wall on the side of industrial belt. The dyke wall design design can be finalized after considering the investigation report		

				accomplished by analyzing the investigation report and space availability.	investigation report and space availability. It is informed that Investigation process shall be completed within 2 months. The construction of retaining wall in dumping yard and compound was is completed	and availability of space. Investigation process shall be completed within 2 months		
C(i)	Fencing of the river banks along the stretches of waste disposal (Edamula stretch)	Cochin Municipal Corporation	1-2 years					
C(iii)	Beautification of the river stretches (Edamula stretch)	Cochin Municipal Corporation	1-2 years	Explanation will be given in next meeting	Explanation will be given in next meeting	Explanation will be given in next meeting		

ACTION BY GROUND WATER DEPARTMENT

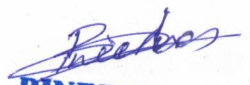
Sl. No.	Ref para item nos as per NGT Order no.673/2018 dated 20.09.2018	Activity	Progress in the month of October 2023	Progress in the month of November2023	Progress in the month of December2023	% works completed	Details of works remaining
1	B(i)	Ground Water resources and regulation of ground water extraction by industries particularly in over exploited as critical zones/blocks					
2	B(ii)	Ground water recharging / rain water harvesting					
3	B(iii)	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps					
4	B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices					

KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: MANJUMMAL BUND

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.3	30.6
2	pH		6.9	7.3
3	Conductivity	µS/cm	74.26	74.97
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	20.9	14.9
6	Hardness	"	18.0	19.0
7	D.O.	"	4.6	5.8
8	Calcium	"	6.8	6.8
9	Magnesium	"	0.243	0.486
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	36.0	28.0
13	BOD	"	1.5	1.3
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	1900.0	1700.0
17	FC	"	500.0	500.0
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** SPECTROPHOTOMETER IS OUT OF ORDER



BINEESHA M.P.
Assistant Scientist

KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: ALUVA - MANAPPURAM

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°c	30.3	30.7
2	pH		6.7	7.3
3	Conductivity	µS/cm	66.81	60.99
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	22.8	11.9
6	Hardness	"	18.0	15.0
7	D.O.	"	5.4	5.6
8	Calcium	"	5.6	5.6
9	Magnesium	"	0.972	0.243
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	36.0	22.0
13	BOD	"	0.9	0.6
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	1400.0	1500.0
17	FC	"	300.0	300.0
18	FS	"	NIL	NIL

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ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: VETTUKADAVU

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°c	30.4	29.8
2	pH		6.7	7.0
3	Conductivity	µS/cm	704.00	4965.00
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	218.4	1499.2
6	Hardness	"	210.0	100.0
7	D.O.	"	4.7	5.3
8	Calcium	"	76.0	12.0
9	Magnesium	"	4.860	17.010
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	34.0	32.0
13	BOD	"	2.7	4.2
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	600.0	400.0
17	FC	"	NIL	NIL
18	FS	"	NIL	NIL

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ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PATHALAM BRIDGE

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°c	30.2	30.5
2	pH		6.9	7.1
3	Conductivity	µS/cm	73.02	77.84
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	21.8	18.9
6	Hardness	"	22.0	22.0
7	D.O.	"	5.9	5.9
8	Calcium	"	6.4	6.4
9	Magnesium	"	1.458	1.458
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	32.0	22.0
13	BOD	"	1.9	1.5
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	1100.0	1000.0
17	FC	"	400.0	200.0
18	FS	"	NIL	NIL

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ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PUTHALAM KADAVU

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°c	30.3	30.5
2	pH		6.8	7.5
3	Conductivity	µS/cm	72.10	63.16
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	29.8	13.9
6	Hardness	"	40.0	15.0
7	D.O.	"	5.5	6.0
8	Calcium	"	6.0	5.6
9	Magnesium	"	6.075	0.243
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	30.0	24.0
13	BOD	"	1.5	0.9
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	800.0	1200.0
17	FC	"	200.0	200.0
18	FS	"	NIL	NIL

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ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PATHALAM BUND D/S

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°c	30.3	30.7
2	pH		6.9	7.2
3	Conductivity	µS/cm	408.3	3684.0
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	111.2	1062.4
6	Hardness	"	75.0	80.0
7	D.O.	"	5.4	4.5
8	Calcium	"	17.6	20.0
9	Magnesium	"	7.533	7.290
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	34.0	32.0
13	BOD	"	1.9	1.1
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	800.0	500.0
17	FC	"	100.0	NIL
18	FS	"	NIL	NIL

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ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PATHALAM BUND U/S

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°c	30.4	30.5
2	pH		7.1	7.2
3	Conductivity	µS/cm	86.44	97.90
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	23.8	19.9
6	Hardness	"	22.0	23.0
7	D.O.	"	5.7	4.7
8	Calcium	"	7.6	7.6
9	Magnesium	"	0.729	0.972
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	32.0	26.0
13	BOD	"	2.5	1.5
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	2100.0	800.0
17	FC	"	600.0	100.0
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** SPECTROPHOTOMETER IS OUT OF ORDER


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**KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: VETTUKADAVU**

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.4	29.8
2	pH		6.7	7.0
3	Conductivity	µS/cm	704.00	4965.00
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	218.4	1499.2
6	Hardness	"	210.0	100.0
7	D.O.	"	4.7	5.3
8	Calcium	"	76.0	12.0
9	Magnesium	"	4.860	17.010
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	34.0	32.0
13	BOD	"	2.7	4.2
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	600.0	400.0
17	FC	"	NIL	NIL
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** SPECTROPHOTOMETER IS OUT OF ORDER

**KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PATHALAM BRIDGE**

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.2	30.5
2	pH		6.9	7.1
3	Conductivity	µS/cm	73.02	77.84
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	21.8	18.9
6	Hardness	"	22.0	22.0
7	D.O.	"	5.9	5.9
8	Calcium	"	6.4	6.4
9	Magnesium	"	1.458	1.458
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	32.0	22.0
13	BOD	"	1.9	1.5
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	1100.0	1000.0
17	FC	"	400.0	200.0
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** SPECTROPHOTOMETER IS OUT OF ORDER

**KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PUTHALAM KADAVU**

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.3	30.5
2	pH		6.8	7.5
3	Conductivity	µS/cm	72.10	63.16
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	29.8	13.9
6	Hardness	"	40.0	15.0
7	D.O.	"	5.5	6.0
8	Calcium	"	6.0	5.6
9	Magnesium	"	6.075	0.243
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	30.0	24.0
13	BOD	"	1.5	0.9
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	800.0	1200.0
17	FC	"	200.0	200.0
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

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**KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PATHALAM BUND U/S**

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.4	30.5
2	pH		7.1	7.2
3	Conductivity	µS/cm	86.44	97.90
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	23.8	19.9
6	Hardness	"	22.0	23.0
7	D.O.	"	5.7	4.7
8	Calcium	"	7.6	7.6
9	Magnesium	"	0.729	0.972
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	32.0	26.0
13	BOD	"	2.5	1.5
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	2100.0	800.0
17	FC	"	600.0	100.0
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** SPECTROPHOTOMETER IS OUT OF ORDER

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ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: PATHALAM BUND D/S**

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.3	30.7
2	pH		6.9	7.2
3	Conductivity	µS/cm	408.3	3684.0
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	111.2	1062.4
6	Hardness	"	75.0	80.0
7	D.O.	"	5.4	4.5
8	Calcium	"	17.6	20.0
9	Magnesium	"	7.533	7.290
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	34.0	32.0
13	BOD	"	1.9	1.1
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	800.0	500.0
17	FC	"	100.0	NIL
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** SPECTROPHOTOMETER IS OUT OF ORDER

**KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: MANJUMMAL BUND**

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.3	30.6
2	pH		6.9	7.3
3	Conductivity	µS/cm	74.26	74.97
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	20.9	14.9
6	Hardness	"	18.0	19.0
7	D.O.	"	4.6	5.8
8	Calcium	"	6.8	6.8
9	Magnesium	"	0.243	0.486
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	36.0	28.0
13	BOD	"	1.5	1.3
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	1900.0	1700.0
17	FC	"	500.0	500.0
18	FS	"	NIL	NIL

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ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR - DECEMBER 2023
Sampling point: ALUVA - MANAPPURAM**

Sl. No	Parameter	Unit	05.12.2023	25.12.2023
1	Temp	°C	30.3	30.7
2	pH		6.7	7.3
3	Conductivity	µS/cm	66.81	60.99
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	22.8	11.9
6	Hardness	"	18.0	15.0
7	D.O.	"	5.4	5.6
8	Calcium	"	5.6	5.6
9	Magnesium	"	0.972	0.243
10	Ammoniacal Nitrogen	"	**	**
11	Phosphate	"	**	**
12	Total alkalinity	"	36.0	22.0
13	BOD	"	0.9	0.6
14	Sulphate	"	**	**
15	Nitrates	"	**	**
16	TC	cfu/100ml	1400.0	1500.0
17	FC	"	300.0	300.0
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** SPECTROPHOTOMETER IS OUT OF ORDER

KADALUNDI/TIRUR RIVER CONSOLIDATED DATA OF GIVEN PARAMETERS FOR THE YEARS JANUARY TO DECEMBER 2023

STATIONS	PARAMETERS	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
HAJIYARPPALLY	pH	7.4	7.4	7.6	7.3	7.5	7.5	7.4	7.1	7	7	6.8	6.8
	BOD	1.2	2	2.6	1	3	1.3	1.6	1.1	1.8	1.5	1.3	1.5
	DO	7.6	8	8.9	7.6	9	8.6	7.5	6.9	6.1	7.5	6	7.3
	FC	120	94	90	200	180	40	40	80	60	40	250	10
VALIYANGADIY DRAIN	pH	7.5	7.7	DRIED	DRIED	DRIED	DRIED	7.7	7.6	7.4	6.6	6.6	7.3
	BOD	1.4	1.8					1.6	2.1	1.8	0.8	3	1
	DO	7.3	7.9					7.3	7	5.6	6.8	7.3	6.9
	FC	100	30					100	200	35	25	40	150
VALIYATHODU	pH	7.6	7.6	DRIED	DRIED	DRIED	DRIED	7.8	7.5	7.5	7	7	7.8
	BOD	1.6	1.9					1.6	1.6	1	1	2.6	0.5
	DO	7.3	7.8					7.6	6.6	5.8	5.3	7.3	6.5
	FC	60	80					130	150	30	100	70	100
VALIYANGADY BYPASS DRAIN	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED
	BOD												
	DO												
	FC												
DRAIN NEAR TIRUR RAILWAY STATIONS	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED
	BOD												
	DO												
	FC												
THAZHEPALAM DRAIN	pH	7.8	7.5	7.5	7.4	7.8	DRIED	7.8	7.5	7.4	6.8	7	7.6
	BOD	1	0.9	2.2	1.7	1.9		1.5	1.4	1.7	2.1	0.8	1.5
	DO	4.3	4.3	6.6	5.5	4.1		5.4	7.2	5.1	5.3	4.8	3.6
	FC	70	225	85	65	70		160	50	130	30	140	250
NADUVILANGADY DRAIN	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED
	BOD												
	DO												
	FC												
ANNASSERY DRAIN	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	7.7	7.2	7.5	7.5	7	DRIED
	BOD							1.8	1.6	2.3	0.6	1.9	
	DO							4.7	2.3	6.9	2.4	3.5	
	FC							40	100	100	250	160	
CANAL AT CV LAND	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED
	BOD												
	DO												
	FC												
CANAL AT MANGALAM THURUTH	pH	7.7	7.8	7.5	7.3	7.4	7.3	7.8	7.5	7.5	6.5	6.8	6.8
	BOD	1.2	1.9	1.3	1.8	1.3	3	1.4	1.9	2	2.2	2.2	2.6
	DO	5.6	5.9	4	7.6	8	6.4	5.4	7	7.3	6.1	7.7	5.3
	FC	65	120	220	180	120	100	100	180	50	40	50	300
	pH	7.6	7.7	7.7	7.5	7.7	7.8	7.8	7.8	7	7.7	7.2	8.3

CANAL AT PULLOONI	BOD	0.8	1.8	1.6	1.8	1.2	2.5	1.8	3	3	1.6	2.6	1.5
	DO	4.2	4	4.5	4.1	6.6	7.3	3.8	4.8	4.5	4	4	4.8
	FC	80	110	150	215	30	180	80	110	200	20	120	200
DRAIN NEAR MANGATTIRI BRIDGE	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED
	BOD												
	DO												
	FC												
DRAIN NEAR ETTIRIKKADAV BRIDGE	pH	7.6	7.5	7.7	7.2	7.6	7.3	7.6	7.6	7	6.8	7	6.8
	BOD	0.9	1	0.8	1.3	1.4	1.8	1.6	1.7	2.3	1.2	1.9	2.3
	DO	5.4	4.4	4	4	3.4	4	3.8	4.5	4.3	3.7	5	4.6
	FC	72	90	75	205	60	40	30	320	100	130	140	100
EPOTHINGAL	pH	7.5	7.4	7.3	7.6	7.6	7.5	7.8	7.2	6.8	6.7	6.8	6.5
	BOD	1	1.2	0.8	1.8	1.3	1.4	1.8	2	1.6	0.6	2	1.3
	DO	5	2.5	2	5.3	2.7	4.1	4.7	4.6	5	5.3	4	3.3
	FC	84	200	20	250	160	120	180	120	100	250	120	300
ASARIKADAVU	pH	7	7.5	DRIED	DRIED	DRIED	7.7	7.8	7.2	7.2	6.7	6.8	6.9
	BOD	0.4	0.9				1.2	1.5	2.5	3	1.5	0.7	1.7
	DO	5	2.3				4.6	4.7	3.7	4.3	4.2	4.6	4
	FC	76	250				80	120	180	100	50	120	160
KANDANATHUKADAV	pH	7.2	7.5	7.5	7.6	7.5	7.3	7.7	7.6	7.6	7.6	6.6	6.7
	BOD	1.4	1.7	1.9	1.5	1.8	1.3	1	1.8	1.6	1.6	1.3	2.2
	DO	6	3.4	2.7	3.7	2.5	4.3	5	4.1	5	5	3	3
	FC	55	260	100	100	190	20	180	80	80	80	70	250
PANCHARAMOOLA	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	7.9	6.8	6.5	6.5	6.8	DRIED
	BOD							1	1	1.2	1	0.5	
	DO							5.1	2.9	2	2	2	
	FC							150	120	180	180	600	
KAKKADAVU	pH	7.4	7.3	7.7	7.7	7.6	6.8	7.6	7.3	6.6	6.8	7	6.6
	BOD	0.9	1.8	1.2	1.2	1	1.2	1.3	3	1.8	0.9	0.9	3
	DO	3.6	4.1	4.6	3.2	2.3	5.6	5.2	4.1	4.3	5.5	3.2	3.7
	FC	100	150	125	180	150	200	60	100	100	100	280	150
KANATHUKADAVU	pH	7.3	7.5	7.4	7.5	7.6	7.5	7.9	7.5	6.5	6.7	7.3	6.8
	BOD	0.9	1.9	1.3	1.1	1.8	1.6	1.4	3.2	1.3	1	0.6	2.5
	DO	4.6	3.6	3.1	2.4	3.4	5.3	5.2	4.1	3.7	3	4.4	3.5
	FC	56	180	185	205	200	120	120	150	110	500	150	600
DRAIN NEAR TIRUR RAILWAYSTATIONS (VANCHIKADAV)	pH	7.3	7.3	7.3	7.6	7.8	7.3	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED
	BOD	1.1	0.8	1.3	0.9	1.8	1.3						
	DO	3.9	4	3.5	2.8	4.1	4.3						
	FC	124	145	140	100	180	20						
PAYYANANGADY	pH	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	DRIED	6.6	6.6	DRIED	DRIED
	BOD									2	1.2		
	DO									2.3	2.3		
	FC									50	50		

POLLUTED RIVER STRETCH MONITORING PROGRAMME (DATA-DECEMBER - 2023)													
Station Name		RIVER KORAYAR AT KANJIKODE											
Type of Water body		RIVER											
Completed by		DO, PALAKKAD											
Agency		Kerala State Pollution Control Board											
1	Station Code	2	3	2	6								
2	Date and time of sample taken (DDMMYY, HHMM)	12/5/2023											
3	Weather	1	0	:	4	5							
4	Approximate depth of main stream	Cloudy		Clear √		Windy		Raining					
5	Color & Intensity	< 50 cm		50 – 100 cm √		>100 cm		Flood					
6	Odour	None √		Fishy		H,S		Other					
7	Floating Matter	Floating Algae		Floating sludge		Oil & Grease		Water Hyacinth					
8	Visible effluent discharges in proximity	Industrial		Municipal sewage		None √							
9	Human activities around the station	Cattle wading √		Tourism spot		Fishing		Bathing √		Other			
10	Location details	U/s of town or		D/s of town or		Pilgrim center/Bathing		None					
11	Flow rate	30 m ³ /s											
12	Major polluting source	Industrial effluent		MSW		PW		None √		Other			
13	Uses of water in downstream	Irrigation		Drinking water source √		Fishing		Domestic		Others			
		Organized water source		Cultivation		Bathing Ghat							

Sl.No	Determinant	Value
1	Temperature, °C	30
2	Dissolved Oxygen, mg/l	5.4
3	pH	8.26
4	Conductivity, µmhos/cm	795
5	BOD, mg/l	2.06
6	Nitrate-N, mg/l	0.465
7	Turbidity, NTU	BDL
8	Phenolphthalein Alkalinity, as CaCO ₃ , mg/l	BDL
9	Total Alkalinity, as CaCO ₃ , mg/l	210
10	Chloride, mg/l	119.99
11	COD, mg/l	6.18
12	TKN, mg/l	0.006
13	Ammoniacal-N, mg/l	BDL
14	Hardness, as CaCO ₃ , mg/l	240
15	Calcium, as CaCO ₃ , mg/l	155
16	Magnesium as CaCO ₃ , mg/l	85
17	Sulphate, mg/l	19.61
18	Calcium (Ca ²⁺), mg/l	62
19	Magnesium (mg ²⁺), mg/l	20.65
20	Sodium, mg/l	69
21	Total Dissolved Solids, mg/l	450
22	Total Fixed Solids, mg/l	292
23	Total Suspended Solids, mg/l	BDL
24	Phosphate, mg/l	0.51
25	Boron, mg/l	BDL
26	Potassium, mg/l	18
27	Fluoride, mg/l	0.306
28	Total Coliform, MPN/100 ml	600
29	Fecal Coliform, MPN/100 ml	100
30	Fecal streptococci, MPN/100 ml	ABSENT
31	% Sodium	36.31
32	SAR	1.94

POLLUTED RIVER STRETCH MONITORING PROGRAMME (DATA-DECEMBER - 2023)													
Station Name		KALPATHYPUZHA AT KALPATHY											
Type of Water body		RIVER											
Completed by		DO, PALAKKAD											
Agency		Kerala State Pollution Control Board											
1	Station Code	3	4	6	0								
2	Date and time of sample taken (DDMMYY, HHMM)	12/5/2023											
3	Weather	0	9	:	0	0							
4	Approximate depth of main stream	Cloudy		Clear √		Windy		Raining					
5	Color & Intensity	< 50 cm		50 – 100 cm		>100 cm √		Flood		Brown			
6	Odour	None √		Fishy		H,S		Other					
7	Floating Matter	Floating Algae		Floating sludge		Oil & Grease		Water Hyacinth					
8	Visible effluent discharges in proximity	Industrial		Municipal sewage √		None							
9	Human activities around the station	Cattle wading √		Tourism spot		Fishing		Bathing √		Other			
10	Location details	U/s of town or		D/s of town or		Pilgrim center/Bathing		None					
11	Flow rate	19 m ³ /s											
12	Major polluting source	Industrial effluent		MSW √		PW		None		Other			
13	Uses of water in downstream	Irrigation		Drinking water source √		Fishing		Domestic		Others			
		Organized water source		Cultivation		Bathing Ghat							

Sl.No	Determinant	Value
1	Temperature, °C	28
2	Dissolved Oxygen, mg/l	7.33
3	pH	7.44
4	Conductivity, µmhos/cm	469
5	BOD, mg/l	3.06
6	Nitrate-N, mg/l	0.373
7	Turbidity, NTU	BDL
8	Phenolphthalein Alkalinity, as CaCO ₃ , mg/l	BDL
9	Total Alkalinity, as CaCO ₃ , mg/l	150
10	Chloride, mg/l	59.99
11	COD, mg/l	9.18
12	TKN, mg/l	0.007
13	Ammoniacal-N, mg/l	BDL
14	Hardness, as CaCO ₃ , mg/l	153
15	Calcium, as CaCO ₃ , mg/l	84
16	Magnesium as CaCO ₃ , mg/l	69
17	Sulphate, mg/l	11.29
18	Calcium (Ca ²⁺), mg/l	33.6
19	Magnesium (mg ²⁺), mg/l	16.76
20	Sodium, mg/l	36
21	Total Dissolved Solids, mg/l	285
22	Total Fixed Solids, mg/l	176
23	Total Suspended Solids, mg/l	BDL
24	Phosphate, mg/l	0.17
25	Boron, mg/l	BDL
26	Potassium, mg/l	8.5
27	Fluoride, mg/l	0.302
28	Total Coliform, MPN/100 ml	500
29	Fecal Coliform, MPN/100 ml	200
30	Fecal streptococci, MPN/100 ml	ABSENT
31	% Sodium	32.32
32	SAR	1.27

Kerala State Pollution Control Board, District Office, Kozhikode

NATIONAL MISSION FOR CLEAN GANGA

Format for submission of monthly progress report by state/UTs

(Hon'ble NGT in the matter of OA.No.673/2018 dated 6/12/2018) For

the month of DECEMBER 2023–Kallayi polluted river stretch

Sl.No.	Activity to be monitored	Timeline	Submission of progress by state/UT-compliance status
1	Ensure 100% treatment of sewage at least in-situ remediation		
2	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STP must be ensured.		
3	Timeline for completing all steps of action plans including completion of setting up STP and their commissioning		
4	Chief secretaries may setup appropriate monitoring mechanisms at the state level <ul style="list-style-type: none">● Specifying accountability of nodal authorities not below the secretary level● Chief secretaries may have an accountable Person attached in their office for this purpose		
	<ul style="list-style-type: none">● Monitoring at the state level must take place		

5	<p>Progress report may be furnished by the state/UTs to</p> <ul style="list-style-type: none"> ● Secretary,ministry of Jal Shakti ● Member secretary,CPCB 		
5.1	<p>Progress report may be comprised of details along with completion timeline on:</p> <p>(i) Identification of polluting source including drains contributing to river pollution and action as per NGT order on in situ treatment.</p> <p>(ii) <u>status of STPs,I&D and sewage networks</u> Details of Existing Infrastructure,Gap Analysis,Proposed along with completion timeline</p> <p>(iii) <u>status of CETPs</u></p> <p>Details of existing CETP and ETP infrastructure,Gap analysis,proposed along with completion timeline,No.of industries and complying status.</p> <p>(iv) <u>status of solid waste management&details of processing facilities</u></p> <p>Details of existing infrastructure,Gap analysis proposed along with completion timeline</p> <p>(v) Latest water quality of polluted river,its tributaries,drains with flow details and ground water quality in the catchment of polluted river;</p> <p>(vi) preventing dumping of waste and scientific waste management including bio-medical waste plastic waste and decentralizing waste processing,including waste</p>		

	<p>generated from hotels,ashrams etc.</p> <ul style="list-style-type: none">(vii) Ground water regulation(viii) Adopting good irrigation practices(ix) protection and management of flood plain zones(FPZ),(x) Rainwater harvesting(xi) Maintaining minimum environmental flow of river(xii) Plantation on both sides of the river(xiii) Setting up bio diversity parks on flood plains by removing encroachment		<p style="text-align: center;">Monthly progress report enclosed</p>
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ACTION PLAN FOR RIVER KALLAYI , KERALA

Kozhikode Corporation

No.	Activity	Implementing agency	Time line	Progress in the month of SEPTEMBER 2023	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
1	Identification of illegal outlets into storm water drain and issue Notice to such units	Kozhikode Corporation	30.12.2020				12 illegal outlet into storm water.Fine remitted Rs 90000/-	Continuing random inspections and imposing fine regularly	On going
2	Waste to energy project proposed at Njeliyamparamba	KSIDC	30.06.2021						Not reported
3	Establishment of Aerobic compost units	Kozhikode Corporation	Completed and functioning				New project going on		

4	Segregation of solid waste at source-level and treatment of household wastes	Kozhikode Corporation	30.06.2019				Biodegradable waste managements equipment installed in household level 1. Bockashi bucket-3243 2. geebin-5575 3. Biogas-138 4. Ring compost-2446 5. Pipe compost-1110	100% Coverage	
5	Setting up of rendering treatment plant for chicken stall wastes	Kozhikode Corporation	30.06.2019	On going	On going		Rendering plant installed in Thamarassery Panchayath(Fresh cut rendering plant).Chicken waste generated from chicken stalls under Kozhikode corporations are being transported to rendering plant at Thamarassery.	100% Coverage	

6	Implementation of Green protocol unit	Kozhikode Corporation	30.06.19				On going		
7	Setting up of common STP of (13MLD) 7.1 At Kothi bridge - 6 MLD plant proposed 7.2 At Avikkal - 7 MLD plant proposed	Kozhikode Corporation	31.03.2020				The corporation is trying to restart the projects.Hence Estimate was recast and submitted to the SLTC/SHPSC for revised administrative sanction.The SLTC dated 27.09.2023 has considered this project and recommended the SHPSC for further Approvals.Total station survey completed construction of Fencing and the, Soil investigation has been completed.Site cleared. Presently the work has been		

							<p>stopped due to a stay order from the Munsif Court.</p> <p>For both the proposals work can be restarted only after resolving court case.</p>		
8	Implementation of STP at Kottooli (13.5 MLD)					<p>After receiving Council approval, the project was submitted to the Government for Administrative sanction. The AS was deferred and directed to revise the proposal to increase the number of connections. KWA is revising the proposal.</p>	<p>27 MLD STP and 220 KLD FSTP as a co-treatment, with an associated network of 50km</p>		

9	Cleaning of Canoli canal	Kozhikode Corporation	Periodical			on going process	On going		Continuous - seasonal
10	Purchasing of Solar Boat for Canoli canal cleaning	Kozhikode Corporation	31.03.2020				Project dropped		
11	Installation of CCTV Camera for the Identification and monitoring of illegal activities	Kozhikode Corporation				Implementation started	On going		
12	Establishment of Mobile Septage Units	Kozhikode Corporation	31.03.2020				Project dropped		
13	Action taken against dumping of wastes into river and public places	Kozhikode Corporation	On going action				66 Nos. Fine remitted Rs. 263500/-	Continuing random inspections and imposing fine regularly	
14	Cleaning of B.K canal	Kozhikode Corporation	31.03.2020				Completed on 31.05.2021	100%	

15	<p>Establishment of treatment plant at Medical college (3MLD plant)</p> <p>15.1-2 MLD plant proposed</p> <p>15.2-1 MLD plant proposed</p>	Kozhikode Corporation	31.03.2020				<p>2 MLD STP work was completed and started working</p> <p>100%</p> <p>1 MLD STP works were restarted at the site on 11.10.2023 and are expected to be completed by 15.12.2023</p> <p>88%</p> <p>20%</p>	
16	Construction of drains at Y.M.RC Ayyankarcolony	Kozhikode Corporation	31.03.2020				<p>The work has started and is in progress. Sidewall construction 30 m completed. Expected to be completed by 28.02.2024. 963 m drainage Construction is remaining.</p> <p>60%</p> <p>40%</p>	
17	Treatment facility for waste water in central Market	Kozhikode Corporation						Not reported

18	Establishment of comfort stations	Kozhikode Corporation							Not reported
19	Provide facility for MRF,RRF,Super MRF Three units existing 19.1 Njeliyanparamb 19.2 Industrial estate 19.3 Mayor Bhavan jayanthi nagar colony	Kozhikode Corporation					3.MRF and 5.MCF are already existing. New project going on		
20	Identification of illegal outlets from house to storm water drain and issue Notice to such Houses	Kozhikode Corporation					12	On going - Continuous process	
21	Establishment of Plastic shredding unit	Kozhikode Corporation					Project started		
22	Establishment of slaughtering unit	Kozhikode Corporation					Project under Consideration		Not reported
23	Cleaning of drains in Kozhikode Town	Kozhikode Corporation					On going - Continuous process		

Perumanna Grama Panchayath

No	Activity	Implementing agency	Time line	Progress in the month of SEPTEMBER 2023	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
1	Outlets into storm Water drain and issue notice	Perumanna Panchayat, kozhikode	Continues process					Inspection Conducting regularly	
2	Establishment of six aerobic compost units in panchayat	Perumanna Panchayat , Kozhikode through MGNREGS	12/2021					100% Work of completed	5 units will be started if public place is available
3	Collection and segregation of solid waste in the river	Perumanna Panchayat	Continues process in every year					74% Work completed	
4	Setting up of residential treatment plant for chicken stall waste	Perumanna Panchayat	Continues process			Resolution passed by panchayat board to execute an agreement with fresh cut, Thamarasser y, KKD		91%	

5	Setting up of 360 soak pit plant in all houses near the river area and panchayat	Perumanna Panchayat through MGNREGS	12/2021				As of now 119 No.s completed. No further progress reported after the month of July		
6	Implementation of 360 compost unit near river side and panchayat	Perumanna Panchayat , Kozhikode through MGNREGS	12/2021				As of now 126 No.s completed. No further progress reported after the month of July		
7	Implementation of water flow project (Aluvangal Thazham Perumbatta Elamanapadam, Valiyapadam. Mampuzhthode Naveekarana, project no 260/2021 project cost 16.67 Lakhs).	Perumanna Panchayat	12/2021				Technical sanction obtained. Tender procedure completed. Included in 2021-22 plan as spillover project.		

8	Cleaning of Mambuzha river (project name : Mambuzha water flow restoration, project no 01/2018-19	District Panchayat , Kozhikode	2018-2019				Work has been completed by District Panchayat, Kozhikode		
9	Establishment of 18 nos of mini MCF in different wards including Payyadi methal where the river is flowing	Perumanna Panchayat , Kozhikode through MGNREGS	12/2021				As of now 11 No.s completed. No further progress reported after the month of July		
10	Collection of plastic Waste from the river	Perumanna Panchayat	Continuous process				Process will be done every year		

Peruvayal Grama Panchayath

No .	Activity	Implementing agency	Time line	Progress in the month of SEPTEMBER 2023	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	%works completed	Details of works remaining
1	Outlet in storm water drain and issued notice	Peruvayal G P	Continu ous process			20 Notice issued	Ongoing		
2	Establishment of 5b units anaerobic composed unit in panchayat.	Peruvayal GP through MGNREGS	04/2023 to 03/2021						work will commence on third week of November 2023
3	Setting up of rendering plant for chicken solid waste	Peruvayal G P	Continuous process				Commence on 01/03/2024		
4	Setting up of 379 soak pit plant in all houses	Peruvayal G P	04/2023 to 03/2024				On going		

5	Cleaning of Mambuzha river (Mambuzha renovation) project no :190/2017-18	District panchayat Kozhikode	2017-2018				Completed by Panchayath		
6	Establishment of 8 numbers of mini MCF	Peruvayal GP through MGNREGS	04/2023 TO 03/2024			6 mini MCF completed		25%	6 will start immediately
7	Collection of plastic waste from the river	Peruvayal GP	Continuous process			3 times collected	On going	100%	
8	Collection and segregation of solid waste in the river	Peruvayal GP	Continuous process			3 times collected	On going		
9	Establishment of Bio gas plant	Peruvayal GP	2023-24			26 numbers completed		70%	Work will be completed by the end of April 2024
10	Well recharge	Peruvayal GP through MGNREGS	2023-24			63 numbers completed		60%	Work will be completed by the end of April 2024

Mavoor Grama Panchayat

No.	Activity	Implementing agency	Time line	Progress in the month of SEPTEMBER 2023	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	%Work completed	Details of work remaining
1	Transportation of waste management to refinement unit	Konnari Advanced Polymers Limited	2022-23				Completed	100%	
2	Cleaning of Cherupuzha (Kuniyakadav to Thenghilakadav)	Mavoor GP	2022-23				Completed	100%	1500 mtr
3	Valayannor Thodu cleaning	MGNREGS	2022-23				Completed		115 mtr
4	Arayancode kalchira Thodu Cleaning	MGNREGS	2022-23				On going		115 mtr
5	Vellaram Kandi Chirakkal thazham thodu	Mavoor GP	2023-24				completed	100%	
6	Ring compost	Mavoor GP	2023-24				On going		
7	Kadayan thodu	MGNREGS	2023-24				completed	100%	

8	Chalippadam Punchappadam thodu	MGNREGS	2023-24				Completed	100%	
9	Puthiyottil thazham Elaram thodu	MGNREGS	2023-23				Completed	100%	

OLAVNNA GRAMAPANCHAYAT

N o	Activity	Implementing Agency	Time line	Progressing the month Of SEPTEMBER 2023	Progress In The Month Of OCTOBER 2023	Progress In The Month Of NOVEMBER 2023	Progress In The Month Of DECEMBER 2023	% Works Completed	Details Of Remaining Work
1	Collection of plastic waste from the river	Olavanna Gramapanchayat	Continuous process			8 Times collected	Process continuing	96%	
2	Collection of segregation of solid waste in the river	Olavanna Gramapanchayat	Continuous process			9 Times collected	Process continuing	97%	
3	Cleaning of Mambuzha river	Olavanna Gramapanchayat	Continuous process				Process continuing	93%	
4	Well recharge	Olavanna Gramapanchayat through MGNREGS	4/2023 To 3/2024				As of now 1 no's completed.		Work will be completed by the end of March 2024
5	Setting up of soak pit in houses	Olavanna Gramapanchayat through MGNREGS	4/2022 To 3/2024				As of now 14 no's completed.		Work will be completed by the end of March 2024

6	Action taken against dumping of waste in to river	Olavanna Gramapanchayat	Continuous process				On going	93%	Process continuing
7	Collection of non-biodegradable waste	Harith karma sena	Throughout the year						Process continuing

IRRIGATION DEPARTMENT

No	Activity	Implementing Agency	Timeline	Progress In The Month Of OCTOBER 2023	Progress In The Month Of NOVEMBER 2023	Progress In The Month Of DECEMBER 2023	% Works Completed	Details Of Remaining Work
1	Desilting of Kallayi river from Kaduppini to Kothi in Kozhikode Corporation	Irrigation department	31.03.2021			DPR was submitted to SE,INC,KKD on 16.10.2019 for Rs 773.05 lakhs (730 lakhs for desilting of river and 43.05 lakhs for fencing of 5 bridges) under action plan of Kallayi river. Rs.790 lakhs deposited by kozhikode corporation for desilting of kallayi river under urban agglomeration on 06.03.2021.The work is under retender process.		
2	Provide fencing on the sides of the Bridge	Irrigation department	31.03.2021			DPR was submitted to SE,INC,KKD on 16.10.2019 for Rs 773.05 lakhs(730 lakhs for desilting of river and 43.05 lakhs for fencing of 5 bridges). Revised DPR Submitted to Superintending Engineer		

						for Rs.47.52 lakhs for fencing of 3 bridges vide this office letter No.D1/GL/NGT/2019 td.28-01-2023		
3	Dredging , Desilting & removal of weeds from E K canal (11.21 km)	Irrigation department	31.07.2019			Work entrusted to Kerala Waterways & Infrastructure Ltd(KWIL)		
4	Bio park in Kozhikode District	Irrigation department				Land for the proposed bio park is to be demarcated by the Revenue authorities after necessary boundary survey and subsequent bio cover works are to be done by the Social Forestry Department		
5	Flood prone mapping in Kozhikode District	Irrigation department				Action to be taken by the Hydrology Wing of Irrigation Department as this needs data collection, scientific analysis and modeling skills.		

Kerala State Pollution Control Board

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
1	River water quality monitoring-Kallayi river National Water Quality Monitoring Programme (NWMP)	KSPCB	Ongoing ; monthly frequency					
2	River water quality monitoring-Kallayi rivers State Water Monitoring Programme,KSPCB fund(SWMP)	KSPCB	Ongoing. Seasonal monitoring- pre-monsoon , monsoon , post-monsoon					
3	Inspection and effluent quality monitoring of the flats,industrial units,service stations, hospitals, Hotels etc. In Malappuram Municipal area	KSPCB	Ongoing Interval: Red- 1 month. Orange-3months. Green-6months.					

Suchitwa Mission

No. (as per Action Plan)	Activity	Implementing agency	Timeline	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
1	Board displaying messages against dumping to be placed in river banks	Suchitwa Mission	15.07.19					

Action Plan by Ground Water Department

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
B(i)	Ground Water resources and regulation of ground water extraction by industries particularly in over exploited as critical zones / blocks (Earlier status: As per Ground water resources of Kerala,2017 estimate,Kozhikode Block comes under the Kallai river basin and the block is safe with stage of ground water Extraction 68.49%)	Ground Water Department		Nil	Nil	Nil		
B(ii)	Ground water recharging/ rain water harvesting (Earlier status:The average pre - monsoon ground water level is 7.23 mbgl. Ground water Department has implemented 3 no of dug well recharge schemes at Kozhikode block)	Ground Water Department		Nil	Nil	Nil		
B(iii)	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/ bore wells or hand	Ground Water Department		Nil	Nil	Nil		

	pumps (Earlier status-Ground water Department has 1 observation Piezometer (BW) in the river stretch.)							
B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices (Earlier status -The total irrigation draft in the Block area is 488.76 ha.m.)	Ground Water Department		Nil	Nil	Nil		

Action plan by irrigation Department

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of OCTOBER 2023	Progress in the month of NOVEMBER 2023	Progress in the month of DECEMBER 2023	% works completed	Details of works remaining
E	Dredging and desilting	Irrigation Department	3 years			DP Rs. 790 lakhs deposited by Kozhikode corporation for desilting of kallayi river under urban agglomeration on 06.03.2021. The work is under retender process.		
E	E-flow (by micro water shed management)	Irrigation Department	3 years			Action to be taken by the hydrology wing of irrigation department as this needs data collection, scientific analysis and modeling skills. The matter has been communicated to the Hydrology wing Assistant Engineer at Kozhikode.		
E	Flood plain zone (protection and management)	Irrigation Department	3 years			Action to be taken by the hydrology wing of irrigation department. The		

						matter has been communicated to the Hydrology wing.		
E	Greenery development (plant in trees on the banks)	Irrigation Department	3 years					



KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

REGIONAL OFFICE, KOZHIKODE

Phone: 0495-2300744 Mail: pcbrokkd@gmail.com Website: kspcb.kerala.gov.in



Environmental Engineer
CALICUT
Date: 5/1/24
Pollution Control Board

ANALYSIS REPORT OF RIVER WATER

Report No.	K R O R 4 8 9 6 / 1 to 5	Date:	3 0 1 2 2 0 2 3					
Date of Sample Collection	1 4 1 2 2 0 2 3	Date of receipt of the sample	1 4 1 2 2 0 2 3					
Sampled by:	RL ,KKD	Time	Hours: 0 1 : 0 0					
Sampling Method	APHA1060B,a	Sample ID	KL1, KL2, KL3, KL5,& KL6					
Sample container	PC 2.5 L	Sample Lab Code	KROS 4896/1-5					
Source:	KALLAI RIVER WATER	Ref.letter No.	PCB/KKD/DO/ 910/09 Dated : 18.12.2023					
Specific sampling location:	GIVEN BELOW	Received from:	EE,DO,KKD					
Sample preservation:	Ice box	Period of analysis:	18.12.2023-28.12.2023					
		No. of samples	5					
		Analysed by:	AKG/NKT/AM/SP					
		Method:Standard Methods for the examination of Water and Wastewater, APHA AWWA WEF (22 nd Ed.)						
Sl no	Parameters	unit	Method No.	SAMPLE ID				
				KL 1	KL 2	KL 3	KL 5	KL 6
1	pH	-	APHA 4500-H+,B	6.68	6.79	6.94	7.32	7.95
2	CONDUCTIVITY	µmhos /cm	APHA 2510B	43170	16660	17680	29550	41930
3	BOD	mg/L	IS3025 (Part 44)	2.8	2.4	2.2	2	1.1
4	DISSOLVED OXYGEN	mg/L	APHA 4500-O,C	3.00	3.3	3.70	4.1	5.70
5	TOTAL COLIFORM,	CFU/100ml	APHA 9222B	25000	20000	46000	42000	8000
6	FECAL COLIFORM	CFU/100ml	APHA 9222D	10000	15000	18000	28000	2000
7	FECAL STREPTOCOCCUS	CFU/100ml	APHA 9230 C	700	900	1100	800	100
8	TEMPERATURE	°C	APHA 2550B	30	30	30	29	31

Test method variation: None

Remarks: LDL-Lower Detection Limit BDL-Below Detection Limit

KL1-KALLAI RIVER AT PALATHUMKANDI BRIDGE, POKKUNNU, KL2-KALLAI RIVER AT KADUPPINI BRIDGE, KL3- KALLAI RIVER AT MANKAVU BRIDGE, KL5- KALLAI RIVER AT KALLAI BRIDGE & KL6- KALLAI RIVER AT KOTHI BRIDGE, THEKKEPURAM .

DA 673
DEI

[Signature]
30/12/23
Scientist in charge

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8/1/24

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9/1/24

National Mission for Clean Ganga

**Format for Submission of Monthly Progress Report by States/UTs
(Hon'ble NGT in the matter of OA No.673/2018 dated 06.12.2019)**

RIVER UPPALA, KASARGOD

S. No.	Activity to be monitored	Timeline	Submission of progress by State/UT- Compliance status
1	Ensure 100% treatment of sewage at least in-situ remediation		
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured		
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning		
5	Chief Secretaries may set up appropriate monitoring mechanism at state level <ul style="list-style-type: none">• Specifying accountability of nodal authorities not below the Secretary level• Chief Secretaries may have an accountable person attached in their office for this purpose		
	<ul style="list-style-type: none">• Monitoring at State level must take place		
6	Progress report may be furnished by the State/UTs to <ul style="list-style-type: none">• Secretary, Ministry of Jal Shakti• Member Secretary, CPCB		

6.1	<p>Progress Report may be comprised of details along with completion timelines on:</p> <p>(I) Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment.</p> <p>(II) <u>Status of STPs, I&D and sewerage networks</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline</p> <p>(III) <u>Status of CETPs</u> Details of Existing CETP and ETP Infrastructure, Gap Analysis, Proposed along with completion timeline, No. of industries and complying status</p> <p>(iv) <u>Status of Solid Waste Management & Details of Processing Facilities</u> Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline</p> <p>(v) Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river;</p> <p>(vi) Preventing dumping of waste and scientific waste management including bio-medical waste, plastic waste and decentralizing waste processing, including waste generated from hotels, Ashrams, etc.</p>		
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	<p>(vii) Ground water regulation</p> <p>(viii) Adopting good irrigation practices</p> <p>(ix) Protection and management of food plain Zones (FPZ)</p> <p>(x) Rain water harvesting</p> <p>(xi) Maintaining minimum Environmental flow of river</p> <p>(xii) Plantation on both sides of the river</p> <p>(xiii) Setting up biodiversity parks on flood plains by removing encroachment</p>		
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ACTION PLAN FOR RIVER UPPALA, KASARAGOD DISTRICT, KERALA
MONTHLY PROGRESS REPORT FOR THE MONTH OF December 2023
RIVER UPPALA, KASARGOD

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of October 2023	Progress in the month of November 2023	Progress in the month of December 2023	% works completed	Details of works remaining
C(ii)	Material collection facility. Operation	Mangalpady Grama Panchayath	2019	NA	NA	NA		
C	Waste management including purchase of vehicle to collect waste.	Mangalpady Grama Panchayath/ Green Space Private company	2019- 2020	NA	NA	NA	-	
E	Installation of camera	Mangalpady Grama Panchayath	March 2020	NA	NA	NA		
C	Electrification of material collection facility	Manjeshwaram Grama Panchayat	2019-2020	Electrified	Electrified	Electrified	100%	Completed
C	Transportation of collected waste	Manjeshwaram Grama Panchayat	March 2020	16 ton rejected waste transported	16420 kg waste transported	12960 Kg waste Transported	100%	completed
E	Installation of camera	Manjeshwaram Grama Panchayat	March 2020	CC TV installed at 4 places by Keltron, connected to Police Station and Panchayath Office	CC TV installed at 4 places by Keltron, connected to Police Station and Panchayath Office	CC TV installed at 4 places by Keltron, connected to Police Station and Panchayath Office	100%	completed

C	Tying of net on both sides of the bridge	Irrigation Department	2019-2020	DPR submitted to Chief Engineer (Price ID: 2019/10825/IA) for approval. Informed that as the proposed NH upgrade works are going on and these works are to be carried out along with the bridges which are part of the NH ,it would not be desirable to Carry to these works now. It is hereby notified that NH department itself undertakes and executes the said works in connection with the upgradation of NH 66.	DPR submitted to Chief Engineer (Price ID: 2019/10825/IA) for approval.Informed that as the proposed NH upgrade works are going on and these works are to be carried out along with the bridges, which are part of the NH, it would not be desirable to carry to these works now. it is hereby notified that NH department itself undertakes and executes the said works in connection with the upgradation of NH 66.	DPR submitted to Chief Engineer (Price ID: 2019/10825/IA) for approval.I informed that as the proposed NH upgrade works are going on and these works are to be carried out along with the bridges, which are part of the NH, it would not be desirable to carry to these works now. it is hereby notified that NH department itself undertakes and executes the said works in connection with the upgradation of NH 66.		Work still under process.
E	Continuous vigil on waste dumping on roads	Police Department	100% Completed					
A(a)	Water quality monitoring	KSPCB	Being done regularly					

Sd/-

Environmental Engineer

MOGRAL RIVER - MOGRAL BRIDGE (Existing NWMP Station)			
Sampling Point		Mogral Bridge	
NWMP Station Code		2304	
Latitude		12°33'36.5"N	
Longitude		74°57'21.0"E	
Date of Sampling		15.11.2023	
Nature and flow of the river		Medium flow, water level decreased	
Sl.No	Parameters	Unit	Mogral Bridge
1	Temperature	°C	30
2	pH	-	7.14
3	Conductivity	µmhos/cm	1100
4	Turbidity	NTU	0.8
5	BOD	mg/l	1.3
6	Dissolved Oxygen	mg/l	6.9
7	Total Coliforms	cfu/100ml	560
8	Feecal Coliforms	cfu/100ml	200
9	Feecal Streptococcus	cfu/100ml	5
10	Chlorides	mg/l	250
11	Total Alkalinity	mg/l	48
12	Total Hardness	mg/l	63
13	Calcium Hardness	mg/l	8
14	Magnesium Hardness	mg/l	55
15	Calcium	mg/l	19.24
16	Magnesium	mg/l	3.650
17	Total Dissolved Solids	mg/l	600
18	Sodium	mg/l	136
19	Potassium	mg/l	102

MOGRAL RIVER - PUZHAKKARA (Proposed NWMP Station)			
Sampling Point		Puzhakkara	
Distance from existing NWMP Station		3.25 km	
Latitude		12°33'58.1"N	
Longitude		74°58'43.7"E	
Date of Sampling		15.11.2023	
Nature and flow of the river		Water level decreased, Medium flow	
Sl.No	Parameters	Unit	Puzhakkara
1	Temperature	°C	30
2	pH	-	7.41
3	Conductivity	µmhos/cm	164.7
4	Turbidity	NTU	0.1
5	BOD	mg/l	1.3
6	Dissolved Oxygen	mg/l	5.5
7	Total Coliforms	cfu/100ml	630
8	Feecal Coliforms	cfu/100ml	160
9	Feecal Streptococcus	cfu/100ml	0
10	Chlorides	mg/l	32
11	Total Alkalinity	mg/l	22
12	Total Hardness	mg/l	35
13	Calcium Hardness	mg/l	17
14	Magnesium Hardness	mg/l	18
15	Calcium	mg/l	6.8
16	Magnesium	mg/l	4.374
17	Total Dissolved Solids	mg/l	70
18	Sodium	mg/l	13.22
19	Potassium	mg/l	1.40

Sd/-
Assistant Scientist

UPPALA RIVER - UPPALA BRIDGE (Existing NWMP Station)			
Sampling Point		Uppala Bridge	
NWMP Station Code		2306	
Latitude		12°41'41.7"N	
Longitude		74°54'16.9"E	
Date of Sampling		15.11.2023	
Nature and flow of the river		Moderate flow, water level decreased	
Sl.No	Parameters	Unit	Uppala Bridge
1	Temperature	° C	31
2	pH	-	7.34
3	Conductivity	µmhos/cm	180
4	Turbidity	NTU	0.8
5	BOD	mg/l	1.2
6	Dissolved Oxygen	mg/l	7.4
7	Total Coliforms	cfu/100ml	550
8	Feecal Coliforms	cfu/100ml	248
9	Feecal Streptococcus	cfu/100ml	5
10	Chlorides	mg/l	21
11	Total Alkalinity	mg/l	45
12	Total Hardness	mg/l	32
13	Calcium Hardness	mg/l	23
14	Magnesium Hardness	mg/l	9
15	Calcium	mg/l	9.21
16	Magnesium	mg/l	2.1
17	Total Dissolved Solids	mg/l	89
18	Sodium	mg/l	11.2
19	Potassium	mg/l	2.15

UPPALA RIVER - UPPALA RIVER NEAR BHAGAVATHI TEMPLE (Bhagavathi Gate) - (Proposed NWMP Station)			
Sampling Point		Uppala River Near Bhagavathi Temple (Bhagavathi Gate)	
Distance from existing NWMP Station		878.66 m	
Latitude		12°41'20.1"N	
Longitude		74°54'34.0"E	
Date of Sampling		015.11.2023	
Nature and flow of the river		Water level decreased, moderate flow	
Sl.No	Parameters	Unit	Uppala River Near Bhagavathi Temple
1	Temperature	° C	30
2	pH	-	7.43
3	Conductivity	µmhos/cm	136
4	Turbidity	NTU	2.3
5	BOD	mg/l	1.1
6	Dissolved Oxygen	mg/l	6.6
7	Total Coliforms	cfu/100ml	350
8	Feecal Coliforms	cfu/100ml	170
9	Feecal Streptococcus	cfu/100ml	3
10	Chlorides	mg/l	25
11	Total Alkalinity	mg/l	22
12	Total Hardness	mg/l	19
13	Calcium Hardness	mg/l	17
14	Magnesium Hardness	mg/l	2
15	Calcium	mg/l	6.8
16	Magnesium	mg/l	0.486
17	Total Dissolved Solids	mg/l	62
18	Sodium	mg/l	9.34
19	Potassium	mg/l	1.9

Sd/-
Assistant Scientist