

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 - September 2022****1. Short term plan****Maintenance and de-bottlenecking of existing Sewerage Network**

No.	Activity	Implementing agency	Time line	Progress in the month of July-2022	Progress in the month of August-2022	Progress in the month of September 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				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	Aranoor	0%	0%	80%	a. Completed 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. TS issued for recasted estimate and tendered. One offer received on re-tender. Submitted to SE for approval. Court order to hold the
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								tender.
2.1.3	5 MLD sewage treatment plant at Medical College	Kerala Water Authority	May 2020				100%	Work Completed on 8.8.21.
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, Aranoor, 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 Amayizhancha- nthodu, control storm water entry into sewer to avoid overflow in Thampanoor area. Sewage generated	Kerala Water Authority	Dec 2020				100%	Work completed.



	in Rajaji Nagar shall be diverted to main sewer line. Sewage generated in Thoppil area shall be diverted main sewer line							
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 RiverKaramana	Kerala Water Authority	Completed				100 % completed	Rehabilitation work of 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%	98%	Works completed – 75No. (Rs. 15.41cr) AMRUT-44, State plan-28 MLA ADF/SDF-3 In progress – 1No. (Rs. 3.cr.) AMRUT-1, State plan-0 Expected to be completed



										by 31.10.2022 for one AMRUT work	
	Total works in progress/completed (76No.) Works in tendering (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	Kerala Water Authority	May 2020		0.5%	0%	97%				Works completed - 22 No. (Rs. 5.86 cr.) AMRUT-10, State plan-11 MLA ADF/SDF-1
	In progress/Ongoing (24No.)										In progress –2 No. (Rs. 11.35 cr.) AMRUT-2 State plan-0 Expected date of completion 31.12.22
					0.5%						Land acquisition process for three work completed and land handed over to KWA and AS obtained for arranging the work under State Plan 22-23 and same are being tendered. LA for one work in initial



	Tendering/ To be arranged (3No.) Land acquisition -1					To be arranged	To be arranged- 3-Nos. (Rs.7.885cr.) Land Aquisition in progress-1 Nos	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 2021-22 and tendered. Quoted rate is high. Since offer received was high estimate revised and submitted for additional AS under State plan 2022-23. Additional AS obtained and work tendered. Work order to be issued. Expected date of completion 31.05.23.
2.1.11	Procurement of sewer cleaning machines and equipment maintenance	Kerala Water Authority	Mar 2020	0%	0%	0%	100%	Work completed.



The document is digitally approved. Hence signature is not needed.

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 for preparing Detailed Project Report for uncovered wards of the Thiruvananthapuram Corporation and Rehabilitation of existing system, terminated from the contract due to poor quality of work on 31/5/22. Action is being taken to prepare the DPR of 19 wards abutting Kramana river internally
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,							
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	Procurements of equipments for maintenance sewerage system							
3.1.7	Additional STP requirement							
	Total Amount required :		5000 Crores					



Out of the 100 wards in Thiruvananthapuram Corporation, 43 wards (Blocks A to E) are fully/Partially covered with sewerage facility. For 35

Wards (Blocks F to R) design of sewerage network was prepared earlier but needs modification in lieu of the change in demography. Hence designs are to be prepared for 58 wards including 23 wards for which no designs are available. The long term measures are envisaged to cover the entire wards in the Thiruvananthapuram Corporation. For preparing DPR for rehabilitation of existing sewerage system and for establishing Sewerage /Septage management system for uncovered areas of Thiruvananthapuram Corporation, AS has been obtained under RKI. The Additional Chief Secretary, Water Resources directed to design the system with decentralized STP units. The Consultant firm M/s REPL, Delhi had submitted draft DPRs. But, on scrutiny, major discrepancies was observed in the survey data and design of M/s REPL. Hence they were terminated from the work and action is being taken to prepare the DPR internally. Total wards to be covered are divided into 9 clusters. Cluster one comprises of Attuklal, Kalady, kallipankulam, Ambalathara and kamaleswam. Survey works of the area under cluster1 completed, network design in progress and DPR can be completed in 2nd week of October.



ACTION PLAN FOR RIVER KARAMANA, KERALA

1. Short term Plan

Main finance and de-bottlenecking of existing sewerage network

No.	Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.1.1	Pumping lines from the terminal pumping stations namely Kuriyathi, Pattoor, Kannamoola and Enchakkal pumping stations are to be connected directly to STP at Mutathara	Kerala Water Authority	May-19	100%	100%	100%	100%	
	Kuriyathi Pumping line			100%	100%	100%	100%	Completed
2.1.2	Rehabilitation/upgradation of Thaliyal and Arannoor Sewerage Pump house by rehabilitation of existing well, construction of new well and grit chamber, installation of new pump sets	Kerala Water Authority	May-20				80%	
	Arannoor							Proving RCC lining for the existing two wells. Lining for first well completed . 2 Pumps erected in first well and commissioned. Pumping main also completed. Lining for 2nd well partly completed . B) Diesel generator- to be supplied by contractor. Work terminated at the risk and cost of the contractor. TS issued for recast estimate and tendered.
2.1.3	5 MLD sewage treatment plant at Medical College	Kerala Water Authority	May-20	100%	100%	100%	100%	

No.	Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remain
2.1.4	Installation of adequate pumps in Mulavanmughal and Enchakkal pumping stations	Kerala Water Authority	Mar-20	100%	100%	100%	100%	
2.1.5	DG sets in all lift and pumping stations - Mulavanmughal, Aranoor, Thalyal, Kuryathi, Pattoor, Karammola, Pattom, Murinjapalam and Enchakkal	Kerala Water Authority	May-20	100%	100%	100%	100%	
2.1.6	Reconnect sewer at Rajaji Nagar, stop outflow of sewage into Anrayichanchathada, control storm water entry into sewer to avoid overflow in Thampanoor area. Sewage generated in Rajaji Nagar shall be diverted to main sewerline Sewage generated in Theppil area shall be diverted main sewerline	Kerala Water Authority	Deco-20	100%	100%	100%	100%	
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	100%	100%	100%	100%	
2.1.8	Divert the sewer line from the School compound of Government Karamana High School.	Kerala Water Authority	Awarded	100%	100%	100%	100%	

Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.1.9 Rehabilitation by laying new lines increasing size of undersized main and reconstruction by dilapidated manholes for the last 7 years	Kerala Water Authority	May-20	98%	98%	98%	98%	Works completed - 75No. (Rs. 15.41cr.) AMRUT-44, State plan-28 MLA ADF/SDF-3 In progress - 1No. (Rs. 3 cr.) AMRUT-1, State plan-0 Expected to be completed by 31.10.2022 for one AMRUT work
Total works in progress (76 No.)				To be arranged - 2 No. (Rs. 1.52cr.)	Dropped - 2 No. (Rs. 1.52cr.)		Two works dropped due to not getting offers on repeated tenders and expiry of AS
Works in tendering (2 No.)				State plan-	State plan-2		
2.1.10 Extension of sewer network wherever technically feasible in new areas of existing blocks	Kerala Water Authority						Works completed - 22 No. (Rs. 5.86 cr.) AMRUT-10, State plan-11 MLA ADF/SDF-1
In progress/Ongoing (24No.)							In progress -2No. (Rs. 11.35 cr.) AMRUT-2 State plan 0 Expected date of completion 31.12.22

No.	Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
	Tendering/ To be arranged (1No.) Land acquisition -4		May-20	89%	96.50%	96.5%	89%	Land acquisition process for this work completed and land handed over to KWA and AS obtained for arranging the work under State Plan 22-23 and same are being 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 2021-22 and tendered.Quoted rate is high. Since offer received was high estimate revised and submitted for additional AS under State plan 2022-23.Additional AS obtained and work tendered.Work order to be issued. Expected date of completion 31.05.23
2.1.11	Procurement of sewer cleaning machines and equipment maintenance	Kerala Water Authority	Mar-20	100	100		100	Work completed

Solid Waste Management Action Plan

Activity	Implementing Agency	Unit	Time for Completion	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% Works Completed	Details of work remaining
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	Activity	Implementing Agency	Time line		Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.2.1	Slaughter house and poultry waste	Thiruvananthapuram Corporation	Rendering Plant	Mar-21	75%	75%	80%	80%	<p>Slaughter house kizhikkal- Slaughter house kizhikkal 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 in progress.</p> <p>Poultry waste- TMC has started collecting poultry waste coming under jurisdiction of 25 JJ 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 Ellur. Report September 2022 awaiting</p>

No.	Activity	Implementing Agency	Time line		Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.2.2	Sanitation facility and Treatment of waste water in the markets of Pangode, Kumarichanda	Thiruvananthapuram Corporation	Treatment Plant Portable Aerobic bins	Dec-19	90%	90%		100%	Kumarichanda: Market Renovation completed. Pila project implemented for treatment of wastewater. Pangode: DPR submitted by the agency - Forwarded for getting technical sanction.
2.2.3	Provide facility for the treatment of sewage, sullage and	Thiruvananthapuram Corporation	1. Moonnathumukku 2. Poonthura-III Office 3. Cheriyan muttam-Poonthura 4. Boomappa Ily Compound 5. Tsunami Colony		45%	45%		45%	
	garbage generated in the poonthura slum area between Karamana river and sea		6. Mother Theresa Colony 7. Kumari Chantha 8. Poonthura Marker 9. Moonnathumukku bridge 10. Ambalathar-Nilama 11. Fishermen Flat-Mattathara 12. Perumalli Market Road 13. Poundka davu old market 14. Market behind						(1) Location work completed, remaining location not available. This area will be covered in the master plan for providing sewer line for the full capacity utilization of STP at Mattathara and by providing Decentralized STP where there is land availability. KWA

Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
		15. Tsunami Colony near 110 KV tower (Poundkaday) 16. Near Valiyavila Veli St. Thomas Church (Poundkaday) 17. Near Kamaleshwararam HSS 18. Valiyu veetil Residence association 19. Near Arannoor Govt. Quarters 20. Kunjahimoodu Junction					
		21. Kumarapuram Thamara bhagata (near comfort station) 22. Near Kannamoola Bridge 23. Mannantala Market 24. Santhi Nagar Residents association 25. Alanthara Kattayil 26. Ulloor Market 27. Museum RCV Road 28. New Nalantha road					

No.	Activity	Implementing Agency	Time line		Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
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						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 Mattathara and by providing Decentralized STP where there is land availability- KWA.

Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.2.5 Around 155 Houses in Karukuvilakom, Kanneettumakku shall be provided with septic and treatment system	Thiruvananthapuram Corporation						Dropped. When the full capacity utilization of CSTP at Mattulhara shall be ensured this area will be covered as it is situated along the banks of Karamana - Kilibyar River - KWA. So it is included in KWA DPR.
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					17.42 lakhs fine collected from 2019 to 2022 till date.
2.2.6	Thiruvananthapuram Corporation	Bio- Composter	82%	82%		80%	Installed 51,000 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

No.	Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remained
2.2.7	Biodegradable waste (DPR)	Thiruvananthapuram Corporation	Thumboormuzhi aerobic bins	60%	60%		60%	Total 154 locations Completed works (Total - 159 units) Sankhikavadam - 3 units, Manathala - 3 units, ITI chackai - 11 bins Kalladiyakulam - 32 bins Noerazhi 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 Kamaleswararun, Karumana PRS opposite, Cotton hill PS, Cotton hill HSS-25 Puzayara-10 Inside Pratheeksha flat-10 Marvila Market-5 Work in progress Kuravankomam - 4 bins
2.2.8		Thiruvananthapuram Corporation	Community biogas	60%	60%		60%	
2.2.9		Thiruvananthapuram Corporation	Organic Waste Converter					Dropped
2.2.10		Thiruvananthapuram Corporation	Portable biogas					Dropped
2.2.11		Thiruvananthapuram Corporation	Portable aerobics		75%	75%		100%

Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.2.12	Thiruvananthapuram Corporation	Ring compost				42%	Project implementation started. Installed 30 units. Site identified for installation of rest of 470 bins. Rest of the bins will be installed soon.
2.2.13	Thiruvananthapuram Corporation	Segregation bins					Dropped.
2.2.14	Thiruvananthapuram Corporation	RRC	40%	40%		39%	Total 2 locations. (i) Work in Manacaud site completed. Tendering activities for electrification are in progress. (ii) Kalladimughan, site cleared after cutting 11 coconut trees. Work started, completed upto plinth level
2.2.15	Thiruvananthapuram Corporation	Plastic Recycling unit					Dropped.
2.2.16	Thiruvananthapuram Corporation	Mobile MRF					Dropped.
2.2.17	Thiruvananthapuram Corporation	Electronic Weigh bridge					Dropped.
2.2.18	Thiruvananthapuram Corporation	Solar electrical cart	Part bill submitted				Work completed
2.2.19	Thiruvananthapuram Corporation	Soaps shops	90%	95%		98%	Work completed. Revised estimate approved by council. Final part bill will be issued soon.

No.	Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.2.20	Biodegradable waste (DPR)	Thiruvananthapuram Corporation	PET bottle crushing					Project dropped
2.2.21		Thiruvananthapuram Corporation	Community level unit Napkin destroyer	10%	10%		10%	During Trial run the unit is found to be incompetent. 158 Nos purchased and installed at various locations.
2.2.22		Thiruvananthapuram Corporation	Animal Crematoriums at Kattela					Project dropped
2.2.23		Thiruvananthapuram Corporation	Urban Gardening					Project dropped
2.2.24		Thiruvananthapuram Corporation	Upgradation of present facilities	100%	100%		100%	Completed
2.2.25		Thiruvananthapuram Corporation	Capacity Building & IEC					Meeting conducted with participation of all thamburuzhi workers on 31.06.2022.
2.2.26		Thiruvananthapuram Corporation	Viability gap Fund					Issue of third phase of VGF to Haritha Karma Sena completed
2.2.27		Prevent entry of Stormwater into sewer line along with KWA	Thiruvananthapuram Corporation	KWA is authorized to prepare and implement proper sewerage lines under Amrut scheme				

Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
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 wasted charge					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 place Corporation collected an amount of Rs 1152375/- as fine From 01.01.2022
Monitoring							
River water quality monitoring - Killyar, Karamana, Parvathiputhanar, Akkulam-Vel lake	Kerala State Pollution Control Board	Ongoing; monthly	Water quality in July/ Pre-monsoon	Water quality in August / Monsoon			Water quality in Post monsoon Analysis report attached herewith
Storm drains monitoring - Arayidhananthodu, Ulloorthodu, Pattanthodu, Kannamoolathodu, Thekkarakkara canal	Kerala State Pollution Control Board	Ongoing Seasonal monitoring- Pre-monsoon, monsoon, Post-monsoon					Analysis report attached herewith

No.	Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
2.3.3	Inspection and effluent quality monitoring of the flats, industrial units, service stations, hospitals, hotels etc in Thiruvananthapuram Corporation area	Kerala State Pollution Control Board	Ongoing Interval. Red - 1 month Orange - 11 month Green - 1 month					Analysis report attached herewith

2. Long term Plan

Sewerage Network

	Long Term measures proposed	Implementing Agency	Amount Required (Rs. In Crore)	Time Line	Progress in the month of May 2022	Progress in the month of June 2022	Progress in the month of July 2022	% Works Completed	Details of work remaining
3.1.1	Extension of sewerage system to Block F to G coastal belt	Kerala Water Authority	200	Three Years					Consultant for preparing Detailed Project Report for uncovered wards of the Thiruvananthapuram Corporation and Rehabilitation of existing system, appointed and DER preparation in progress under PTC Regional Office Team
3.1.2	Extension of sewerage system in Block H to K.	Kerala Water Authority	700	Three Years					
3.1.3	Extension of sewerage system to Newly added	Kerala Water Authority	300	Three Years					
3.1.4	Providing sewerage system in Block A to E	Kerala Water Authority	100	Three Years					
3.1.5	Rehabilitation of existing Network and pump house in block A to E.	Kerala Water Authority	100	Three Years					

Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
3.1.6 Procurements of equipments for maintenance sewerage system	Kerala Water Authority	10	Three Years				
3.1.7 Additional STP requirement	Kerala Water Authority	60	Three Years				
Total Amount required		5000 Crores					

Solid Waste Management

Long Term measures proposed by Thiruvananthapuram	Implementing Agency	Time line	Progress in the month of May 2022	Progress in the month of June 2022	Progress in the month of July 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					Dropped

Desilting and Development

No.	Activity	Implementing Agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
No.	Activity	Implementing Agency	Time line	Progress in the month of May 2022	Progress in the month of June 2022	Progress in the month of July 2022	% works completed	Details of works remaining
3.3.1	Development package for Parvathybuzhanar	Irrigation department included in KIFB by KWIL includes cleaning of canal	3 Years	100%	100%		100%	Phase I (First half) removal of water hyacinth completed Veli to Kadinankulam Kayal (Ch 16.00 to Ch27.00) Executed by Inland Navigation - Aakkulam to Mammattumokku - cleaning works 100% completed- by KWIL - for an amount of 45 Lakhs (3 Months) Now department work is started for cleaning.
3.3.2	De-silting and development of AmayazhunchanThodu	Irrigation Department	1.5 Years	15%	20%		20%	On going
3.3.3	Improvements to Thekkemekara canal and de-silting	Irrigation Department	1 Year					Flood mitigation work completed
3.3.4	Karasadam tank improvements, de-silting sheet piling, under preparation and providing fencing	Irrigation Department	1.5 Years	15%	20%		20%	Flood mitigation works ongoing
3.3.5	Development of Karamana basin	Irrigation Department	1.5 Years					Desilting of river completed. E-flow statement is submitted. Protection works at Vulnerable portions are also completed

SUPERINTENDING ENGINEER

STATE WATER MONITORING PROGRAMME (SWMP) 2022

Analysis Report for the month of SEPTEMBER -2022

KARAMANA

Name of River

Date and Time of Sample collection

Method of analysis

Sl no.	Parameters	SAMPLE ID									
		Peppara	Aravikkara	Mangattukadavu	Pallathukadavu	Thiruvallom	Moppattattusukku				
1	Temperature, degree celsius	26	27	27	27	26	26				
2	pH	7.1	6.8	6.9	6.8	6.6	7.9				
3	Turbidity,MTU	0.9	3.2	3.8	3.2	6.5	5.2				
4	Electrical Conductivity,µmhos/cm	64	105	140	147	250	532				
5	DO,mg/l	6.7	6.2	6.3	6	5.3	1.2				
6	BOD,mg/l	1	1.8	2.1	2.2	2.3	6.6				
7	NH3-N,mg/l	BDL	BDL	BDL	BDL	BDL	BDL				
8	Nitrate-N,mg/l	BDL	BDL	BDL	BDL	BDL	1.3				
9	Chloride,mg/l	5	14	28	29	48	112				
10	Phosphate,mg/l	BDL	BDL	BDL	BDL	BDL	BDL				
11	Total Alkalinity as CaCO3,mg/l	24	30	27	20	38	70				
12	Total Hardness as CaCO3,mg/l	28	34	38	32	56	114				
13	Calcium Hardness as CaCO3,mg/l	20	24	28	24	40	74				
14	Magnesium Hardness as CaCO3,mg/l	8	10	10	8	16	40				
15	Sulphate,mg/l	2.6	7.3	14.8	15.2	25	60				
16	Potassium,mg/l	0.8	1.4	1.8	2.3	3.8	7.2				
17	Boron,mg/l	0	0	0	0	0	0				
18	SAR	0.12414	0.315578	0.610144	0.685578	0.84404	1.395186				
19	Total Coliform,cfu/100ml	600	900	1400	2000	2000	45000				
20	Faecal Coliform,cfu/100ml	200	700	1000	1200	1800	14000				
21	Faecal Streptococcus,cfu/100ml	ND	ND	ND	ND	ND	ND				



Assistant Environmental Scientist

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		
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> <p>(vii)Ground water regulation</p> <p>(viii) Adopting good irrigation practices</p> <p>(ix) Protection and management of food plain Zones (FPZ)</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 August-2022	Progress in the month of September-2022	% 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	Mannar Gramapanchayat not submitted report	Construction of 2 aerobic compost units completed (One each in Grama Panchayat Office compound and near Mannar Private Bus Stand. The work was executed by M/s Floret Technologies, Thiruvananthapuram. An amount of Rs. 13,60,000/- was allocated in the annual plan of Mannar GP for this project. Action Plan on solid waste Management is approved by Grama Panchayat Committee on 27/08/2021		Inauguration of functioning.

				<p>Kadapra Gramapanchayat not submitted report</p>	<p>Kadapra Panchayath has resolved to identify all polluting sources involved in pollution of river resources and initiation of penal action against them</p>		
				<p>Niranam Gramapanchayat is an upper Kuttanad area , so no such dry land suitable for solid waste treatment plant is available</p>	<p>Niranam Gramapanchayat is an upper Kuttanad area , so no such dry land suitable for solid waste treatment plant is available</p>		

C	Establishment of Material Collection Facility	Mannar Panchayat, Kadapra/ Niranam Panchayath	31.03.2021	Mannar Gramapanchayat not submitted report	Collection of Non-biodegradable plastic materials from houses and institutions is conducted by Haritha Karma Sena(HKS). Non- biodegradable plastic materials has bCollection, 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 trasportation. 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	100%	Construction of permanent MCF building, collection and transportation of Non-bio degradable Materials to RRF for processing.
				Kadapra Gramapanchayat not submitted report	Material Collection Facility is fully functional in Kadapra Grama Panchayath		

				MCF construction completed 13 mini MCF implimentedc in all wards in Niranam Panchayath	MCF construction completed 13 mini MCF implimentedc in all wards in Niranam Panchayath		
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C	Resource Recovery Facility	Mannar Panchayat, Kadapra/ Niranam Panchayath	31.03.2021	Mannar Gramapanchayat not submitted report	As there is no RRF in Mavelikkara Block Panchayat in which Mannar GP belongs, nearby Chengannur Block Panchayat has agreed to receive the plastic materials collected and transported by Mannar GP. Mannar GP has started stockpiling of plastic waste materials collected through HKS in a hall above the Vridhdhasadanam owned by GP and segregated and transported to Clen Kerala company. Plastic Waste management Bylaw (Final) has been passed by Mannar GP on 19/06/2021	100%	Collection and transportation of Non-bio degradable Materials to RRF for processing
				Kadapra Gramapanchayat not submitted report	Resource recovery facility is working as a centralised arrangement at BlockPanchayath level in Kadapra Grama Panchayath		

				It will be suitable if RRF is established at Block level in Niranam Grama Panchayath	It will be suitable if RRF is established at Block level in Niranam Grama Panchayath		
C	Installing household and community level solid waste management units	Mannar Panchayat	31.03.2021	Mannar Gramapanchayat not submitted report	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	100%	Construction and operation of Aerobic compost unit.

					Management is approved by Grama Panchayat Committee on 27/08/2021.		
C	Door to door collection and transportation of municipal solid waste	Mannar Panchayat	31.03.2021	Mannar Gramapanchayat not submitted report	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.		Continuing

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	Kadapra Gramapanchayat not submitted report	The Panchayath has its resolution considered that sewage treatment plants is currently not needed within Panchayath 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	Mannar Gramapanchayat not submitted report	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.	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				

	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, Kadapra/ Niranam Panchayat	31.05.2020	Mannar Gramapanchayat not submitted report	Green Protocol is strictly observed in Mannar GP and other offices as well as public functions . Strict instruction in writing is given to owners of auditoriums , assembly halls, etc to comply with Green protocol while conducting ceremonies. Rs. 1,50,000/- has been allocated for a project for the setting up of cloth bag/paper bag unit so that use of plastic carry bags can be discouraged . Green Audit was conducted in Mannar GP Office and other 13 Government Offices within the Panchayat Area. 11 offices were certified to have fulfilled Green Audit parameters. Certificates were awarded to the successful offices and Suchitwa Padavi Declaration in Mannar GP was conducted 26/01/2021	100%	Continuation of Green Protocol .

				<p>Kadapra Gramapanchayat not submitted report</p>	<p>Green protocol has been implemented in Public offices of Kadapra Gramapanchayat</p>		
				<p>Necessary instruction are given to all offices and institution to strictly comply with the green protocol and is regularly monitored in Niranam Grama Panchayath</p>	<p>Necessary instruction are given to all offices and institution to strictly comply with the green protocol and is regularly monitored in Niranam Grama Panchayath</p>		

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	Mannar Gramapanchayat not submitted report	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		

					<p>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.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, 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 August 2022	Progress in the month of September 2022	% 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 August 2022	NOC has not been issued to industries for Ground Water extraction during September 2022	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 11 sites estimate prepared and sent to Directorate and new 4 sites found feasible	Artificial Recharge Structure 10 sites estimate prepared and sent to Directorate Selection Notice for tendered work.(5 sites) given on 15/09/2022	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 August 2022 from monitoring wells (borewells and open wells) collected and sent to Analytical Lab Thiruvananthapuram for chemical analysis soon	Groundwater sample collection during the month of September 2022 from monitoring wells (borewells and open wells) collected and sent to Analytical Lab Thiruvananthapuram for chemical analysis soon	Periodical assessment(Regular programme) Chemical analysis result ofgroundwater samples collected during November-2020 reveals that the gw quality is good and potable.	(i)Maintaining a network of observation wells in various hydrogeomorphic 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 irrigation purpose, adopting good irrigation practices	Borewell/ tube well construction is regulated in the district by insisting permit of local bodies based on the feasibility report ii) Promoting conjunctive use of groundwater and surface water for irrigation purpose.	Borewell/ tube well construction is regulated in the district by insisting permit of local bodies based on the feasibility report ii) Promoting conjunctive use of groundwater and surface water for irrigation purpose.	Continuing programme	i)Borewell/tube well construction is regulated in the district by insisting permit of local bodies based on the feasibility report of GWD ii) Promoting conjunctive use of groundwater and surface water for irrigation purpose. iii)Awareness programmes organised to the public to adopt rainwater harvesting measures

MONTHLY ANALYSIS REPORT OF POLLUTED RIVER STRETCHES SEPTEMBER- 2022

STATION : MANNAR

Sampling date : 02.09.2022

SI.NO	PARAMETERES	ITTINAYARKADAVU BRIDGE KUTTAMPEROOR	KOTTAKAL KADAVU BRIDGE KORATTIKADAVU	PARUMALA BRIDGE	MANNAR BRIDGE
1	Temp. (°C)	27	28	28	28
2	pH	6.3	6.5	6.6	6.4
3	Conductivity (µS/cm)	42.38	43.51	46.24	45.08
4	DO (mg/l)	5.4	5.2	5.5	5.3
5	BOD (mg/l)	1.2	1.1	1.4	1.1
6	COD (mg/l)	6.4	6.4	6.4	6.4
7	TDS (mg/l)	34	32	36	32
8	TC (CFU/100ml)	780	290	260	130
9	FC (CFU/100ml)	260	90	80	40
10	FSC(CFU/100ml)	Nil	Nil	10	Nil

WATER QUALITY DATA OF POLLUTED RIVER STRETCHES SEPTEMBER- 2022

DISTRICT OFFICE, PATHANAMTHITTA

Date of Sampling: 02.09.2022

Sl.No	PARAMETERS	THAKZHY	EDATHUA	MANNAR
1	Temperature, °C	26	27	27
2	pH	6.5	6.3	6.2
3	Conductivity, µmhos/cm	69	56.87	48
4	Turbidity, NTU	2.4	1.8	2.3
5	Phenolphthalein Alkalinity, as CaCO ₃	Nil	Nil	Nil
6	Total Alkalinity, as CaCO ₃	11	11	11
7	Chloride, mg/l	12	10	10
8	COD, mg/l	3.2	6.4	6.4
9	TKN, mg/l	0.2	0.14	0.13
10	Ammoniacal-N, mg/l	BDL	0.158	BDL
11	Hardness, as CaCO ₃ mg/l	24	22	20
12	Calcium, as CaCO ₃ mg/l	14	12	10
13	Magnesium as CaCO ₃ , mg/l	10	10	10
14	Sulphate, mg/l	2.2	1.6	2.1
15	Sodium, mg/l	6.3	5.1	5.3
16	Total Dissolved Solids, mg/l	46	40	34
17	Total Fixed Solids, mg/l	41	35	29
18	Total Suspended Solids, mg/l	35	29	24
19	Phosphate, mg/l	BDL	BDL	BDL
20	Boron, mg/l	-	-	-
21	Potassium, mg/l	0.865	0.792	0.713
22	BOD, mg/l	0.9	0.8	1.1
23	Fluoride, mg/l	0.18	0.15	0.15
24	Dissolved Oxygen, mg/l	6.1	5.6	5.5
25	Nitrate-N, mg/l	0.189	0.154	0.208
26	Total Coliform, CFU/100 ml	190	240	280
27	Faecal Coliform, CFU/100 ml	60	80	90
28	SAR	0.559123	0.4727	0.51526
29	% of sodium	15.0709	13.328	14.672
30	Faecal Strepto Coccus,CFU/100 ml	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 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 September 2022 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 July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
A(a)	Monitoring of river water quality	Kerala State Pollution Control Board	Continuing project	Result attached	Result attached	Result attached	100%	NIL
A(b)	Rendering Plant at Eraviperoor or Thiruvalla	Eraviperoor/ Thiruvalla local body	31.03.2021	NIL			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	NIL			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.	NIL	NIL	NIL	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	NIL			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%	100%	100%	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%	100%	100%	100%	0
C	Installing household & community level solid and domestic sewage waste management	Kalloopara, Eraviperoor, Puramattom, Kaviyoor, Peringara, Kuttoorpanchayaths	31.12.2020	NA	NA	NA	NA	NA
C	Door to door collection of solid waste & Material Collection Facilities (MCF) & Resource Recovery Facilities (RRF)	Kalloopara, Eraviperoor, Puramattom, Kaviyoor, Peringara, Kuttoorpanchayaths	31.12.2020	NA	NA	NA	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 July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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					
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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		NA
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured		NA
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning		NA
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		NA

	<ul style="list-style-type: none"> • 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>Monthly (preferably before 20th of every month)</p>	NA

<p>6.1</p>	<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>2019-2020</p>	<p>Drains contributing to river pollution were Identified-The drains are seasonal and water quality is above the required limit, no in-situ Treatment is required</p> <p>Since the area does not contain any industry and so do not require any CETP, this action point is revised</p> <p>The adjoining local bodies are in the stage of developing and establishing adequate solid waste management facilities. Also, the solid waste dumping issues were not identified in the stretch during the field visit held during past one year.</p> <p>Water quality analysis results of September 2022 is enclosed.</p> <p>Awareness campaign to be initiated</p>
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	<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>No ground water pollution is noted in the area so action yet to be initiated.</p> <p>Adopted.</p> <p>Action will be initiated.</p> <p>Action will be initiated.</p> <p>Action will be initiated.</p> <p>Action will be initiated.</p> <p>Action will be initiated.</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 PAMBA, KERALA

No. (as per	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works complet	Details of works
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Action Plan)							ed	remaining
A(a)	No industries	-	-				-	-
A(a)	Monitoring of river water quality	Kerala State Pollution Control Board	Continuing project	Result attached	Result attached	Result attached	100%	Nil
C(ii)	Establishment of decentralized solid waste treatment facility	Mannar Panchayat, Kadappa/Nirana mPanchayath	30.08.2022	Construction of 2 aerobic compost units completed (One each in Grama Panchayat Office compound and near Mannar Private Bus Stand. The work was executed by M/s Floret Technologies, Thiruvananthapuram. An amount of Rs. 13,60,000/- was allocated in the annual plan of Mannar GP for this project. Action Plan on solid waste Management is	Construction of 2 aerobic compost units completed (One each in Grama Panchayat Office compound and near Mannar Private Bus Stand. The work was executed by M/s Floret Technologies, Thiruvananthapuram. An amount of Rs. 13,60,000/- was allocated in the annual plan of Mannar GP for this project. Action Plan on solid waste Management is approved by Grama Panchayat Committee on	Construction of 2 aerobic compost units completed (One each in Grama Panchayat Office compound and near Mannar Private Bus Stand. The work was executed by M/s Floret Technologies, Thiruvananthapuram. An amount of Rs. 13,60,000/- was allocated in the annual plan of Mannar GP for this project. Action Plan on solid waste Management is approved by Grama Panchayat Committee	100%	Inauguration of functioning.

				approved by Grama Panchayat Committee on 27/08/2021	27/08/2021	on 27/08/2021		
C	Establishment of Material Collection Facility	Mannar Panchayat,	30.08.2022	Collection of Non-biodegradable plastic materials from houses and institutions is conducted by Haritha Karma Sena(HKS). Non-biodegradable plastic materials has bCollection, 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	Collection of Non- biodegradable plastic materials from houses and institutions is conducted by Haritha Karma Sena(HKS). Non-biodegradable plastic materials has bCollection, 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.	Collection of Non-biodegradable plastic materials from houses and institutions is conducted by Haritha Karma Sena(HKS). Non-biodegradable plastic materials has bCollection, 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.	100%	Construction of permanent MCF building.

				Bylaw (Final) has been passed by Mannar GP on 19/06/2021.				
C	Resource Recovery Facility	Mannar Panchayat, Kadapra/Nirana mPanchayath	30.08.2021	As there is no RRF in Mavelikkara Block Panchayat in which Mannar GP belongs, nearby Chengannur Block Panchayat has agreed to receive the plastic materials collected and transported by Mannar GP. Mannar GP has started stockpiling of plastic waste materials collected through HKS in a hall above the Vridhdhasadanam owned by GP and segregated and transported to Clen Kerala company. Plastic Waste management Bylaw (Final) has been passed by Mannar GP on 19/06/2021.	As there is no RRF in Mavelikkara Block Panchayat in which Mannar GP belongs, nearby Chengannur Block Panchayat has agreed to receive the plastic materials collected and transported by Mannar GP. Mannar GP has started stockpiling of plastic waste materials collected through HKS in a hall above the Vridhdhasadanam owned by GP and segregated and transported to Clen Kerala company. Plastic Waste management Bylaw (Final) has been passed by Mannar GP on 19/06/2021.	As there is no RRF in Mavelikkara Block Panchayat in which Mannar GP belongs, nearby Chengannur Block Panchayat has agreed to receive the plastic materials collected and transported by Mannar GP. Mannar GP has started stockpiling of plastic waste materials collected through HKS in a hall above the Vridhdhasadanam owned by GP and segregated and transported to Clen Kerala company. Plastic Waste management Bylaw (Final) has been passed by Mannar GP on 19/06/2021.	100%	

C	Installing household and community level solid waste management units	Mannar Panchayat	30.08.2022	<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</p>	<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>	<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>	100%	Operation of Aerobic compost unit.
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				by Grama Panchayat Committee on 27/08/2021.				
C	Door to door collection and transportation of municipal solid waste	Mannar Panchayat	30.08.2022	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	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	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	100%	The process has to be repeated throughout the year.

				19/06/2021. Action Plan on solid waste Management is approved by Grama Panchayat Committee on 27/08/2021.	Committee on 27/08/2021.	Committee on 27/08/2021.		
C	Construct ion of small sewage treatmen t plant with screening , septic tank and disinfecti on to the storm water drain of Parumala Town	Kadapr aPanch ayat	31.12.2020					

C	Construct ion of small sewage treatment plant with screening , septic tank and disinfecti on to the storm water drain of Mannar Town	Mannar Pancha yat	30.08.2020	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.	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.	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.	0%	Not applicabl e
C	Constructi on of compound wall with fencing	Irrigatio n depart ment	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 development Plantation plan. 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 , Kadapra/ Nirana mPanchayat	30.06.2020	Green Protocol is strictly observed in Mannar GP and other offices as well as public functions . Strict instruction in writing is given to owners of auditoriums , assembly halls, etc to comply with Green protocol while conducting ceremonies. Rs. 1,50,000/- has been allocated for a project for the setting up of cloth bag/paper bag unit so	Green Protocol is strictly observed in Mannar GP and other offices as well as public functions . Strict instruction in writing is given to owners of auditoriums , assembly halls, etc to comply with Green protocol while conducting ceremonies. Rs. 1,50,000/- has been allocated for a project for the setting up of cloth bag/paper bag unit so that use of plastic carry bags can be discouraged . Green Audit was	Green Protocol is strictly observed in Mannar GP and other offices as well as public functions . Strict instruction in writing is given to owners of auditoriums , assembly halls, etc to comply with Green protocol while conducting ceremonies. Rs. 1,50,000/- has been allocated for a project for the setting up of cloth bag/paper bag unit so that use of plastic carry	100%	Continuation of Green Protocol .

				that use of plastic carry bags can be discouraged . Green Audit was conducted in Mannar GP Office and other 13 Government Offices within the Panchayat Area. 11 offices were certified to have fulfilled Green Audit parameters. Certificates were awarded to the successful offices and Suchitwa Padavi Declaration in Mannar GP was conducted 26/01/2021.	bags can be discouraged .		
D(a)	Issues relating to E-flow, maintaining minimum environmental flow of river	Irrigation department	30.11.2020				

	(by having watershed management provisions)							
D (b)	Irrigation practices	Irrigation department	30.04.2020					
E	Awareness programmes for sections of public	Kerala State Pollution Control Board	31.05.2020	Awareness classes were conducting	Awareness classes were conducting	Awareness classes were conducting	100%	
C	Management of municipal, plastic, hazardous , biomedical and electrical	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.	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 12 tonnes of plastic materials handed over to Clean Kerala	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 12 tonnes of plastic materials handed	100%	The process is to be repeated periodically.

	waste			<p>About 4.5 tonnes of plastic materials handed over to Clean Kerala Company(CKC) so far. About 3 tonnes 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, electronic and hazardous waste will start. Biomedical waste is being collected from source and transported for processing</p>	<p>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, 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>	<p>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, 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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				by IMAGE (IMA Goes + Eco-friendly), an initiative run by IMA (Indian Medical Association).				
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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 July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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					

**ANALYSIS REPORT OF DRAINS OF MANIMALA BETWEEN KALLOOPARA AND THONDRA
SEPTEMBER-22**

SI NO	BOTTLE NO.	Name of Drains	PH	BOD	COD	TC	FC
1	TK1	Panayampalathodu	8	1.5	8	100	0
2	TK2	PadathupalamThodu	7.9	1.3	4	300	100
3	TK3	Thottappuzha	7.9	0.06	4	200	0
4	TK4	Kuttapuzha under Kattodubridge	7.9	0.4	4	100	0
5	TK5	Kadavumbara	7.8	0.1	8	100	0
6	TK6	Drain under Varappalam Bridge	7.9	2	8	800	400
7	TK7	Drain under kallupalam Bridge	7.9	1	4	200	0
8	TK8	Komalamthodu	7.8	0.4	4	800	500
9	TK9	Vennikulam Valiyathodu	7.8	0.2	4	400	200
10	TK10	Paduthodu	7.8	0.3	4	100	0
11	TK11	Mallappally Valiyathodu	7.8	0.5	8	200	100

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

Parameters																	
Sl. No	Name of Drain	pH			Electrical Conductivity(μ S/cm)			BOD(mg/l)			COD(mg/l)			TC(Nos/100ml)			FC
		JULY	AUG	SEP	JULY	AUG	SEP	JULY	AUG	SEP	JULY	AUG	SEP	JULY	AUG	SEP	SEP
	Months																
1	Parumala Drain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	MannarTown Drain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	Kuriyathkadavu Thodu	6.7	7.3	NA	71.17	59.2	NA	3.3	0.2	NA	8	4	NA	1000	1700	NA	NA
4	KaruvelilThodu	6.9	7.4	6.5	87.59	35.18	61.7	0.5	0.3	0.8	4	4	4	1600	500	400	100
5	Nochithodu	6.9	7.4	6.4	33.76	56.53	71.16	0.4	0.3	2.2	8	8	8	1200	2000	800	300
6	Pattaparambil Thodu	6.9	7.3	6.5	34.07	41.53	51.77	0.3	0.1	0.7	8	8	4	800	600	100	0
7	Kappiyarissery Thodu	6.8	7.2	6	45.18	45.18	46.12	0.9	0.2	2.5	4	4	16	900	200	1000	700
8	KombankeryThodu	7	7.4	6.7	31.92	53.24	70.75	0.1	0.7	0.6	8	4	4	700	400	300	100
9	Perackalthodu	6.9	7.5	6.8	36.97	40.3	47.95	0.5	0.1	0.8	8	8	4	400	700	600	300
10	Erathodu	6.8	7.5	6.7	34.92	62.5	49.27	0.5	0.3	1.2	12	12	4	600	2200	2800	1400
11	Kolarayaru	6.8	7.5	6.7	30.2	40.78	90.9	0.3	0.2	0.3	8	8	4	1500	100	300	100

**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 CHITHRAPUZHA. 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		Major units have own treatment facility
	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		Proposed to construct Combined STP with the Thrikkakara Municipality in Brahmapuram Plant(for both Municipalities)
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>	Thrippunithura Municipality	<p>2 persons identified and Fine Imposed Amount - 30,000</p> <p>Plastic Waste given to a Government Approved agency for recycling processing and Bio waste processed in Brahmapuram Plant.</p> <p>Bio Medical waste collect to IMAGE and plastic waste given to government approved agencies, bio waste processing to Brahmapuram Plant.</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>	<p>Thrippunithura Municipality</p>	<p>Done.</p> <p>Completed.</p>
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**ACTION PLAN FOR RIVER CHITHRAPUZHA, KERALA
SHORT TERM MEASURES**

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
(1) Drain joining Chithrapuzha (near Brahmapuram dumping yard) (Near FACT CD)							
C (ii)	Restricting seepage of leachate of plastic dumped in the dumping yard (Biomining of legacy waste is to be carried out)	Kochi Corporation	3 years	Bio mining started and progressing	progressing	NA	
Aa (iv)	Effluent monitoring from FACT	KSPCB	Periodical	ongoing	ongoing		
Aa (iv)	Periodical Monitoring	KSPCB	Periodical	ongoing	ongoing		
(2) Drain from Cochin Refinery area							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October2022	% works completed	Details of works remaining
Aa (iv)	Surveillance to restrict the dumping of wastes into the river and its branches	Vadavucode – Puthencruz Panchayat with the help of Police	Periodical	ongoing	ongoing		
A(b)	Sanitation Survey	Vadavucode – Puthencruz Panchayat	3 months	Completed 1700 houses. Progressing. Covered 5000	progressing		

				houses. DLTC directed to submit the detailed report on sanitation survey			
E	Periodical Cleaning of Chithrapuzha	Irrigation Department	Twice in 3 years	Reach I – Third term cleaning started Reach II, Second term cleaning Reach I-66% Reach II -65% For Reach III, Estimate submitted to CE Reach III will be implemented through Operation Vahini.	Work Completed.	100%	
	Already implemented Effluent Treatment facility in Kochi Refinery and periodical monitoring are ongoing	KSPCB		ongoing	ongoing		
(3)Athikkayi branch (Provided temporary bund in joining section to check salinity intrusion)							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
A(b)	Identification of major pollution causing units(Apartments,	Thrikkakkara Municipality	3 months	Progressing	Progressing		

	hospitals, service stations, markets and industries) in upstream	KSPCB		Progressing	Progressing		
Aa(iv)	Surveillance to restrict the dumping of wastes into the river and its branches	Thrikkakkara Municipality with the help of Police	Periodical Monitoring	Camera installed.40 violations identified and action initiated	Identified 52 violations. 3 persons fined. Details of vehicles collected from RTO Office to identify the vehicle that littering wastes.Further actions will be initiated against the violators. progressing		
Aa(iv)	Periodical Monitoring	KSPCB	Periodical	Monthly monitoring progressing.	Monthly monitoring progressing.		
A(b)	Sanitation Survey	Thrikkakara Municipality	6 months	Sanitation survey progressing. Environmental Engineer ,KSPCB informed the municipality to submit the report.	Sanitation survey progressing.		
E	Periodical Cleaning.	Irrigation Department	Once in a year	Reach I-Third term cleaning started.Reach II-Second term cleaning. Reach I-66% ,Reach II-65% For Reach III,Estimate	Work completed.	100%	

				submitted to CE.Reach I and Reach II completed.Reach III will be implemented through Operation Vahini.			
(4) Drain joining Chithrappuzha from CSEZ(Chittethukara)							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% Works completed	Details of works remaining
A(b)	Ensure proper functioning of ETP in CSEZ	KSPCB	Periodical	The CETP is functional. But, discharge standards not fully complied. Violation noted, action being initiated.	Monitoring progressing		
A(b)	Sanitation Survey and periodical cleaning	Thrikkakara Municipality	6 months	Sanitation survey progressing. Environmental Engineer ,KSPCB informed the municipality to submit the report.	Sanitation survey progressing.		
Aa(iv)	Periodical Monitoring	KSPCB	Periodical	Ongoing	Ongoing		
(5) Vettuvelikkadavu (Konothupuzha joining Chithrappuzha)							
No. (as per Action)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October	% Works completed	Details of works remaining

Plan)					2022		
A(b)	Identifying and closing of all unauthorized outlets into the stream joining the river	Thripunithura Municipality	6 months	The secretary reported the action is progressing. 15 notices issued	Action progressing		
A(b)	Sanitation Survey	Thripunithura Municipality	3 months	Completed, Environmental Engineer, KSPCB informed the municipality to submit the sanitation survey report. Sanitation survey report not submitted to DLTC	Reported to be completed.		
Aa(iv)	Periodical Monitoring	KSPCB	Periodical	ongoing	Ongoing		
C(ii)	Surveillance to restrict the dumping of wastes into the river and its branches	Thripunithura Municipality with the help of Police	6 months	Secretary informed that surveillance squad is already formed and action will be initiated for the inspections and night surveillance of squad. Squad inspection progressing. Environmental Engineer, KSPCB informed the municipality to submit the details of inspections. Night Squad inspection progressing. 18 cases identified. Collected Rs 88,750 as fine.	Inspection progressing		

E	Cleaning of Konothupuzha (work Proposal already submitted by Minor Irrigation)	Irrigation Department (Minor Irrigation)	Twice in a year	Action initiated as per the directions of Hon'ble NGT OA 237/2017			
Main Stretch (Kadambayar-Chithrappuzha Confluence point to Irumpanam)							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
E	Periodic Cleaning	Irrigation Department	Once in a year	Reach II(second time cleaning)will start on January	Reach II completed, Reach III 70% completed	completed	
C(ii)	Surveillance to restrict the dumping of wastes into the river	Vadavucode - Puthercruz with the help of Police	Periodical Monitoring	Ongoing.	Ongoing.		
		Thripunithura Municipality with the help of Police	6 months	Surveillance squad is already formed and action being taken for the night surveillance	Squad inspection progressing.		
Aa(iv)	River water quality monitoring	KSPCB	Ongoing	Conducting monthly monitoring	Conducting monthly monitoring		
A(b)	Inspection and effluent quality monitoring of the flats, industrial units, service stations, hospitals,	KSPCB	Ongoing	Ongoing	Ongoing		

	hotels etc						
C(ii)	Surveillance of restrict dumping of waste to the river, Sanitation survey (with the help of Police)	Vadavukode Puthenkruze Panchayath	6 months	Ongoing	Ongoing		

LONG TERM MEASURES

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
E	Provide inspection bund for Chithrapuzha	Irrigation Department	3 years	Remind letter submitted to Thahasidar Kanayannur Thaluk regarding the survey	Remind letter submitted to Thahasidar Kanayannur Thaluk regarding the survey	45%	Remaining work is Land survey.
A(b)	Additional STP requirement (if needed)	Thrikkakkara Municipality, Thripunithura Municipality	3 years	No progress	No progress due to adequate land .Secretary informed that special council meeting convened and sub committee constituted for identifying land for the STP		

	Restriction of illegal dumping of Septage in to the river	Police					
	Flood Plain Zone(Management and Protection) Preparation of Inundation maps	Irrigation Department	3 years	Detailed study and investigations has to be done with the consultation of Hydrology Wing.	Detailed study and investigations has to be done with the consultation of Hydrology Wing.		

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 September 2022	Progress in the month of October2022	% 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	NA			
2	B(ii)	Ground water recharging / rain water harvesting	Ongoing			
3	B(iii)	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps	Cleaning of wells are ongoing			
4	B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices	NA			

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 KADAMBRAYAR, 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		District level committee monitoring regularly.
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>	<p>Ongoing by KSPCB and Thrikkakkara Municipality</p> <p>Submitted earlier.</p> <p>Submitted earlier.</p> <p>The Kadambayar river shares the western boundary of Kunnathunadu Grama Panchayat for a stretch of approximately 6Kms. And 90% of this stretch consists of swamps, hence direct access to the river via land is ruled out. And in the remaining stretch, i.e., in and around Manakkakadvu bridge the DTPC operates a boat club with a riverside walkway and park. Any kind of possible river polluting activities by the general public in this area is monitored by the erection of CCTV camera's provided with the CSR aid of Wonderla Amusements Park. Also the police authorities are conducting routine surveillance operation so as to</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>	<p>prevent any possible illegal activities which pollutes the river. In addition to these preventive measures, there operates a Ward Monitoring Committee under the supervision of Kunnathunadu Grama Panchayat Committee which ensures the prevention of polluting activities by the local people.</p> <p>Ground Water Department:As per Groundwater resources of Kerala, 2017 estimate a total number of 2 blocks (Mulanthuruthiand Vadavakkodu) comes under the Kadambrayarriver basin. All the blocks in the river stretch are safe with stage of groundwater extraction ranges from25.38% to 68.01%</p> <p>Ground Water Department and Irrigation Department : : Not submitted</p>
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ACTION PLAN FOR RIVER KADAMBAYAR, KERALA
SHORT TERM MEASURES

Short term plan

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
(2) Manakkakkadavu							
2.1.2 C(ii)	Surveillance to restrict the dumping of wastes into river and its branches	KunnathunaduPanchayat and with the help of Police		Action completed. Informed that the PWD work progressing and hence the power is temporarily disconnected will reinstate immediately after the road work.	Camera operational	100%	
(4) Canal joining Kadambayar near Infopark Phasell							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
2.2.1E	Cleaning of thodu	Kerala Irrigation Department &	6 months	EE, Irrigation informed that the project will be implemented through Operation Vahini.Work started.	Work completed.	Manual cleaning for the year 2021-2022 started. 95%	

		Vadavucode – Puthencruz Panchayat		Manual cleaning for the year 2021-22 started. 95% completed	Completed.	completed	
2.2.3 C(ii)	Surveillance to restrict the dumping of wastes into river and its branches	Vadavucode – Puthencruz Panchayat with the help of Police	2 months	Action completed. Installed cameras.	Camera operational		Work completed
<u>Main Stream (Manakkadavu to Kadambayar-Chithrappuzha Confluence point) (Provided temporary bund (Kozhichira Bund) in Kadambayar-Chithrappuzha joining section to check salinity intrusion)</u>							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
A(a)	Restricting seepage of leachate of plastic dumped in the dumping yard (Bio-mining of legacy waste going on)	Kochi Corporation	January 2024	Work is ongoing. Legacy waste spread in sector 4,5,6 and 7 is now cleared and area recovered is about 10 acres that is 28% work is completed. 30% work completed. RDF 30 tonnes waste disposed to Dalmia Cements. The work presently stopped due to rain. No progress. Bio-mining work Stopped. Notice issued for breach of agreement. The company informed that they will resume the bio mining. The bailing machine will be installed by Aug 27. The company submitted revised action plan requesting 18 months extension approved by technical committee.	The bio mining not resumed till date. Company informed the bio mining can be completed only in June. No major progress.		Completion of the work of bio mining by January 2024

				Bailing machine is reached in the site. Bio mining will start in November and will complete in next June .But Corporation had informed the company to complete the Bio mining before the March			
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A(b)	Provide proper facilities for restricting the seepage of leachate (Construction of Leachate treatment Plant: Collection tank)	Kochi Corporation	April 2022	<p>Leachate treatment plant is proposing to construct after reconstruction of the composting plant. Project completion April 2023. Selection notice was sent. Agreement signed on 14/03/2022. Estimate 39Cr for the composting plant. Submitted for council approval. Presently the leachate treating in the septage treatment plant.</p> <p>Inception report of new leachate treatment Plant submitted to Suchitwa mission for vetting. Suchitwa Mission verified the report and informed that Buoyent filter and Bio reactor is not feasible. Instead of High rate renewable Bio reactor shall be used. The report has been given to the Kochi Corporation.</p>	<p>The Kochi Corporation modified the DPR after incorporating the changes suggested by Suchitwa Mission and resubmitted to Suchitwa Mission for approval.</p>		
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A(c)	Provide proper facilities for collecting and treating leachate (Construction of leachate treatment plant)	Kochi Corporation	April 2023	Leachate started treating from 23.02.2022 at Brahmapuram Septage Treatment plant after its preliminary treatment in the ratio 4:1 (Septage:Leachate)Daily 20KL of leachate is treated at septage treatment plant.DPR prepared for the leachate treatment project	The Kochi Corporation modified the DPR after incorporating the changes suggested by Suchitwa Mission and resubmitted to Suchitwa Mission for approval.	No progress	
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Action plan by Gramapanchayath

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
E	Installation of CCTV camera at Manakkakadavu	Kunnathunadu	30.09.2019	Completed	Action Completed	100%	
C(ii)	Cleaning of Thodu	Vadavukad-puthenkruze	6 months	-	Manual cleaning for the year 2021-2022 started.	95%	
C(ii)	Surveillance to restrict dumping of waste to the river and branches (with the help of Police)	Vadavukad-puthenkruze	2 months	Installed cameras. Action completed.	Camera operational.	100%	

2. Long term Plan

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
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4.5 C(ii)	Solid waste treatment facility at Brahmaipuram (Construction of waste to energy plant)	Kochi Corporation	December 2023	<p>About 500 TPD WtE Plant is proposed by KSIDC in this land. M/s. Zonta Infratech Pvt Ltd informed that following procedures should be done before execution. Characterisation report not submitted till date. Construction agreement given for vetting.</p> <p>Matter regarding signing of Concessionaire agreement was discussed in the council held on 30-06-2022 and it was decided to request to the government to check the legal validity of signing the agreement by the secretary as the tender process was done by KSIDC and to act accordingly to the direction of the government.</p> <p>Accordingly a letter has been sent to Government on 5/07/2022 for orders</p>	<p>Agreement has been placed before the council for the signature.</p> <p>No progress</p>	Not started	
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4.6 A(b)	Restriction of illegal dumping of septage in to the river	Police	As soon as possible				
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4. REVISED ACTIONPLAN

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
3.1	Slaughter house and poultry waste Rendering plant	Thrikkakkara Municipality		<p>The land identified and the land inspected by the sub-committee. The proposal submitted for council approval. Council not approved the proposal since land value is found higher than the market value.</p> <p>The proposal cancelled and municipality decided to give advertisement again.</p>	No progress		Action pending
3.2	Sanitation facility and treatment of waste water inthe markets	Thrikkakkara Municipality	2020-21	The Secretary informed that they have no adequate land for construction of waste	No progress.		Action pending

	Treatment plant, Portable aerobic bins		2021-22	management facility in market.			
3.3	<p>Provide facility for the treatment of sewage, sullage and garbage generated</p> <p>Proposed places for the installation of Aerobins</p> <p>(1) Municipal office compound</p> <p>(2) NGOquarters</p> <p>(3) Kakkanad Market</p> <p>Near Eechamukku TV-Centre Anganavadi</p>	Thrikkakkara Municipality		<p>No progress. Land has been identified near to NGO quarters for setting up aero bins and the proposal submitted for council approval.</p> <p>Market construction completed. The land identified near NGO quarters found inadequate. Requested Suchitwa Mission to prepare DPR for the waste management in market.</p>	No progress.		
3.4	Providing facility for restricting discharge of waste water from the surrounding houses to the river	Thrikkakkara Municipality		Survey continuing. DLTC Convener informed the municipality to submit the sanitation survey report.	Progressing Municipality not submitted report.		

				Survey reported to be Progressing. 1200 completed. Report of survey not submitted to DLTC.			
3.5	Providing effluent treatment plant for industries No.of industries :75 no.s	Thrikkakkara Municipality		Survey reported to be Progressing. 1200 completed. Report of survey not submitted to DLTC.	KSPCB is ensuring that the industries are operating with proper treatment systems.		
3.6	Identification of illegal outlets into storm water drains and fine shall be imposed on such units – 30 units	Thrikkakkara Municipality		Action initiated	The Municipality informed that their	Action initiated	Action pending
3.7	Biodegradable waste management Bio-Composter – 2000 No.s Thumboormuzhi aerobins - 4 No.s Portable biogas – 1500 No.s Ring compost – 500 No.s Napkin destroyer – 6 No.s Viability gap Fund	Thrikkakkara Municipality		Actions initiated to issue notice to close the outlet.	No progress		
5. MONITORING							

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
4.1	River water quality monitoring – Monitoring of water quality	Kerala State Pollution Control Board	Ongoing; Monthly frequency	On going	monitoring progressing		
4.2	Inspection and effluent quality monitoring of the flats, industrial units, service stations, hospitals, hotels etc Monitoring of establishments, service stations, flats, industrial units	Kerala State Pollution Control Board		On going	progressing		

7. LONG TERM PLAN

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
5.1	Additional STP requirement DPR Preparation in 6 months (through consultants) To allot land, Government Procedure are ongoing	Thrikkakkara Municipality	3 years	The Secretary informed action not being taken due to land constraints.	No adequate land. No progress.		Action to be initiated.

5.2	Acquiring of land and rehabilitate families from the banks of River To allot land, Government Procedure are ongoing	District Collector, Thrikkakkara Municipality, Revenue Dept	5 years	-	-		Action to be initiated.
<u>DESILTING AND DEVELOPEMENT</u>							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
5.3	Development package Inspection bund for Chithrapuzhaand Kadambayar is included in this package. For this project, preliminary investigation of site which includes survey of land to know its availability for formation of side bund which is to be provided with tiles. The project also includes side protection	Irrigation department	3 years	No sanction obtained. No progress.	FS not obtained.		

	<p>work of Chitrapuzha and Kadambayar.</p> <p>Provision for handrail at the edge of the bund is given. Overall cost comes to 25 Crore. The work is being proposed urgently and will be submitted to higher authorities for financial sanction.</p>						
5.4	<p>Desilting and development It includes clearing and removing water hyacinth of Kadambayar ,Chitrapuzha and Edachirathodu near Infopark phase II. This is to be done periodically (every four months), depending on availability of fund.</p>	Irrigation Department	1 year (periodical cleaning -4 months x3)	<p>Financial sanction not obtained.</p> <p>The EE, Irrigation informed that minor works will be implemented through Operation Vahini Project.</p> <p>De silting and water Hayacinth work started.</p>	Completed.		
5.5	<p>sheet piling and providing fencing Fencing is provided in Sl.no 5.3</p>	Irrigation Department	1.5years	Financial sanction not obtained.	Financial sanction not obtained.		
5.6	<p>Development of river basin It includes cleaning and</p>	Irrigation Department	1.5years	Financial sanction not obtained.	Financial sanction not obtained.		

	removal of water hyacinth from rivers and maintainits natural flow, depending on availability of fund.						
<u>9. RECOMMENDATIONS BY KERALA STATE POLLUTION CONTROL BOARD</u>							
Activities for compliance with Solid Waste Management Rules, 2016; Bio-medical Waste Management Rules, 2016							
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% Works completed	Details of works remaining
6.1	Door-to-door collection and transportation of MSW 100% door to door collection Proposed Kerala Solid Waste Management Authority	Thrikkakkara Municipality Local bodies of Census Town		100% by 2023			
6.2	Modern Solid Waste Treatment Plant Proposed Kerala Solid Waste Management Authority	Thrikkakkara Municipality (To allot land, Government procedure are ongoing) Local bodies of Census Town		Actions initiated to procure land.	No progress	Actions initiated to procure land.	

6.3	Rendering plant for slaughter house/poultry wastes Proposed Kerala Solid Waste Management Authority	Thrikkakkara Municipality (To allot land, Government procedure are ongoing)		The land identified and the land inspected by the sub committee. Final decision will be taken by June after the model code of conduct.	The proposal submitted for council approval.	Actions initiated to procure land.	
6.4	Common bio-medical waste treatment facility Proposed Kerala Solid Waste Management Authority	Health Department		CBWTF started at Ambalamughal, operated by KEIL	Completed	Completed	
6.5	Regional sanitary landfill site identification and land acquisition Establishment and operation of Regional Sanitary Landfills Proposed Kerala State Waste Management Authority.	District Collector Local bodies		-			
7.OTHERASPECTS							

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of September 2022	Progress in the month of October 2022	% works completed	Details of works remaining
7.1	Flood plain zone management and E-flow maintaining Flood plain zone management & E-flow maintaining cleaning & desilting, depending on availability of fund. During summer season Irrigation Department Provides temporary bund to prevent the salt water intrusion due to tidal effects. To maintain natural flow, sluice gate is provided. During the low tide, the shutter of the sluice gate is kept open to maintain minimum flow	IrrigationDept		It is included in the estimate of Removal of water hyacinth from Kadambayar and Removal of water hyacinth from Edachira Thodu	FS not obtained		
7.2	Development of bio diversity parks in banks	Thrikkakkara Municipality	1 st Phase 2020-21 2 nd Phase 2021-22				

Analysis report of polluted river stretches-R Periyar, R- Chithrapuzha, R-Kadambrayar For the month of SEPTEMBER 2022

STNCCode	Sampling Date	Sampling Time	StnName	TypeWaterBody	NameOf WaterBody
17	02.09.2022	10:30	Periyar at Eloor	River	Periyar River
1338	15.09.2022	10:30	Periyar at SDP Aluva	River	Periyar River
2334	03.09.2022	10:45	Periyar at Pathalam	River	Periyar River
2335	03.09.2023	12:00	Periyar at Kalamassery	River	Periyar River
3468	15.09.2022	10:50	Periyar at KWA Aluva	River	Periyar River
2337	25.09.2022	11:00	Kadambrayar At Brahmappu	River	Kadambrayar River
2338	25.09.2022	10:30	Kadambrayar At Manackak	River	Kadambrayar River
1573	25.09.2023	11:30	Chithrapuzha At Irumpanar	River	Chithrapuzha River

Sl. No.	Parameters	Values							
		Station Code							
		17	1338	2334	2335	3468	2337	2338	1573
1	Temperature, °C	28	29	27	28	28	30	29	29
2	Dissolved Oxygen, mg/l	7.1	7.7	7.2	5.6	7.4	5.1	5.4	6.2
3	pH	8.5	7.4	8.1	9	7.9	6.7	6.6	6.6
4	Conductivity, µmhos/cm	112	45	105	71	48	170	105	300
5	BOD, mg/l	1	1.4	0.2	2.4	1.3	2.6	3	2
6	Nitrate-N, mg/l	NA	NA	NA	NA	NA	NA	NA	NA
7	Turbidity, NTU	1.5	1.2	1.3	0.6	1.1	4.8	6.3	4.2
8	Total Alkalinity, as CaCO ₃	39	15	21	36	16	31	30	20
9	Chloride, mg/l	12	5	22	7	5	39	15	62
10	COD, mg/l	8.8	4	6.4	7.2	3.2	7.2	6.4	8
11	TKN, mg/l	0.2	0.14	0	0.12	0	0.35	0.12	5.8
12	Ammoniacal-N, mg/l	0.09	0.01	0	0.007	0	0.28	0.07	5.2
13	Total Hardness, as CaCO ₃ mg/l	30	12	16	22	12	38	34	65

14	Calcium, as CaCO ₃ mg/l	20	7	10	15	8	24	20	13
15	Magnesium as CaCO ₃ , mg/l	10	5	6	7	4	14	14	52
16	Sulphate, mg/l	0	0.62	0.62	0.31	0.31	8.09	9.44	39
17	Sodium, mg/l	7.27	3	14.25	4.09	2.64	20.85	10.38	34.02
18	Total Dissolved Solids, mg/l	62	25	60	44	28	112	70	176
19	Total Fixed Solids, mg/l	46	18	45	32	20	86	55	136
20	Total Suspended Solids, mg/l	26	10	24	20	12	28	25	32
21	Phosphate, mg/l	0.03	0.03	0.05	0	0.04	0.03	0.02	6.43
22	Boron, mg/l	0	0	0	0	0	0.12	0.03	0.12
23	Potassium, mg/l	1.2	1.01	1.05	1.23	0.95	3.64	2.66	3.02
24	Fluoride, mg/l	0.05	0.04	0.13	0.26	0.04	0.11	0.15	0.09
25	Total Coliform, MPN/100 ml	1100	4100	1200	1600	320	4900	4800	7900
26	Feecal Coliform, MPN/100 ml	490	3800	900	940	240	3200	2000	6300
27	Feecal Streptococci, MPN/100ml	79	340	170	280	17	460	840	480

**Analysis report of polluted river stretches-R Periyar, R- Chithrapuzha, R-Kadambrayar
For the month of SEPTEMBER 2022**

STNCode	Sampling Date	Sampling Time	StnName	TypeWaterBody	
2337	25.09.2022	11:00	Kadambrayar At Brahmapu	River	
2338	25.09.2022	10:30	Kadambrayar At Manackak	River	
1573	25.09.2023	11:30	Chithrapuzha At Irumpanar	River	

Sl. No.	Parameters			
		2337	2338	1573
1	Temperature, °C	30	29	29
2	Dissolved Oxygen, mg/l	5.1	5.4	6.2
3	pH	6.7	6.6	6.6
4	Conductivity, µmhos/cm	170	105	300
5	BOD, mg/l	2.6	3	2
6	Nitrate-N, mg/l	NA	NA	NA
7	Turbidity, NTU	4.8	6.3	4.2
8	Total Alkalinity, as CaCO ₃	31	30	20
9	Chloride, mg/l	39	15	62
10	COD, mg/l	7.2	6.4	8
11	TKN, mg/l	0.35	0.12	5.8
12	Ammoniacal-N, mg/l	0.28	0.07	5.2
13	Total Hardness, as CaCO ₃ mg/l	38	34	65
14	Calcium, as CaCO ₃ mg/l	24	20	13
15	Magnesium as CaCO ₃ , mg/l	14	14	52
16	Sulphate, mg/l	8.09	9.44	39
17	Sodium, mg/l	20.85	10.38	34.02
18	Total Dissolved Solids, mg/l	112	70	176
19	Total Fixed Solids, mg/l	86	55	136
20	Total Suspended Solids, mg/l	28	25	32

21	Phosphate, mg/l	0.03	0.02	6.43
22	Boron, mg/l	0.12	0.03	0.12
23	Potassium, mg/l	3.64	2.66	3.02
24	Fluoride, mg/l	0.11	0.15	0.09
25	Total Coliform, MPN/100 ml	4900	4800	7900
26	Feacal Coliform, MPN/100 ml	3200	2000	6300
27	Feacal Streptococci, MPN/100ml	460	840	480

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

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		
	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 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 months of August2022	Progress in the months of September 2022	% works completed	Details of works remaining
1.A(b)	Augmentation and Revamping of existing STP at near AdwaitaAshramam and to increase the capacity of STP so as to treat more sewage generated in the municipality	Aluva Municipality	Dec 2019	The detailed estimate submitted by Waterman Aquatic Pvt. Ltd. company has been submitted to Suchitwa Mission. Suchitwa Mission has reported that the detailed estimate had been discussed in the previous Technical Committee and committee has suggested to furnish some more details regarding STP. Committee will consider this matter in the next Technical Committee after getting the details	Inspection was conducted from sub division office regarding non sanctioning TS for the STP project. They have informed that this will be appealed in CE level and will make necessary arrangements for sanctioning the estimate.		
2.A(b)	Augmentation and Revamping of existing ETP at Aluva Market and to increase the capacity of ETP so as to treat more sewage generated in the	Aluva Municipality	2021	Augmentation and Revamping work of existing ETP at Aluva is given to	DPR of 3 Lakhs rupees has been approved by DPC. Quotation		

	municipality			Agency named Centura Engineering Consultancy. Council approval has been received.	procedures in progress		
3.A(b)	Discharge of sewage from Hotels to the River through drain near Periyar	Aluva Municipality	2020	Health Squad inspection in progress	Health Squad inspection in progress	100%	
4.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	Inspection in progress	Inspection in progress		
5.A(a)(iv)	Periodical inspection in the Industries, Flats, hotels monitoring of STP,ETP	KSPCB	Periodical	Aluva Municipality has no industries	Aluva Municipality has no industries		
6.C(ii)	Installation of modern abattoirs	Aluva Municipality	March 2021	Since the Civil work is being completed, fund has been requested to KIIFB for the purchase of machineries and other requirements related to modern abattoirs. DPR has been prepared.	Establishment of modern abattoirs will cost about 4-5 Crore. DPR of 15 Lakhs has been put up for council approval.		
7.A(b)	Procurement of sewer cleaning machines and equipment	Aluva Municipality	March 2020	Purchased sewer cleaning machines.	Purchased sewer cleaning machines.		

	maintenance			Cleaning work in progress.	Cleaning work in progress.		
8.E	Installation of cameras at the waste dumping spots	Aluva Municipality	2020	The project has been approved by DPC on 28.01.2022 of estimated amount of Rs. 8,00,000/-. Technical sanction not received.	Cameras are being installed by Health wing as purchase. No need of Technical saction.		
9.A(b)	Construction of retaining wall with HDPE liner at Kalamassery dumping yard in order to prevent the leachate discharge from the yard to ThoombungalThodu	Kalamassery Municipality	Sept 2019	Completed	Completed	100%	
10.C(ii)	Installation of plastic shredding unit	Kalamassery Municipality	June 2019	One plant is already installed and functioning.	One plant is already installed and functioning.	100%	
11.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 has not installed CCTV. Night surveillance in progress. A total amount of Rs.610880/- levied as fine.	NAD has not installed CCTV. Night surveillance in progress. A vigilance group constituting NAD representatives, Health Committee chairman and 4 ward counselors has been formed		

					for inspection. A total amount of Rs.697930/- levied as fine.		
12.A(b)	Installation of common STP for Kalamassery Municipality and ETP at Municipal Market	Kalamassery Municipality	December 2019	Common ETP is working at municipal market.75 cents land identified at North Kalamassery for sewage and septage treatment plant. Procedures for soil testing in progress. DPR procedures in progress	75 cents land identified at North Kalamassery for sewage and septage treatment plant. Procedures for soil testing in progress. DPR is prepared by KWA. DPR procedures in progress		
13.A(a)(iv)	Monitoring and surveillance of industries in Kalamassery Industrial Estate in order to prevent unauthorized discharges to Muttar River	Kalamassery Municipality	2019	Inspection conducted in 8 establishments and one unit was found having unauthorized discharge. Notice has been issued for the same.	Inspection conducted in 8 establishments and one unit was found having unauthorized discharge. Notice has been issued for the same.		
14.C(ii)	Installation of modern abattoirs including poultry and meat rendering plants.	Kalamassery Municipality, Industries Department (for land allotment)	2021	Industries department has informed that land is not available in the industrial estate.	Industries department has informed that land is not available in the industrial estate.		

15.A(b)	Identification of the establishments/commercial complexes/flats/houses/hotelse tc who is discharging the sewage to the public drain	Kalamassery Municipality	2020	During the inspection conducted in August month, 54 households were found having unauthorized discharge and notice was issued. 13 units have cleared the violation.	During the inspection conducted in August month, 54 households were found having unauthorized discharge and notice was issued. 13 units have cleared the violation.		
16.E	Installation of cameras at the waste dumping spots	Kalamassery Municipality	2020	Camera installed on 10 locations. 2 portable (mobile) cameras has installed for identifying waste dumping spot. Rs 30560/- levied till date	Camera installed on 10 locations. 2 portable (mobile) cameras has installed for identifying waste dumping spot. Rs30560/- levied till date		
17.A(b)	Identification of sources of sewage discharged to drain near Pathalam bridge and action to stop the discharge which reach river Periyarfrom hotels, labour camps etc. In case the quantity of sewage generated is assessed to be more STP need to be installed	Eloor Municipality, KSPCB (for monitoring)	2020	Inspection in progress	Inspection in progress		
18.E	Installation of cameras at the waste dumping spots	EloorMunicipality	2020	Keltron have installed cameras at the waste dumping spots namely the premisesof Aerobic biobin near HIL	Keltron have installed cameras at the waste dumping spots namely the premisesof Aerobic biobin near HIL		

				Company and bin near ManjummelArattukadvu. Due the software issue the cameras are not working most time. Keltron has agreed to rectify the issues.	Company and bin near ManjummelArattukadvu. Due the software issue the cameras are not working most time. Keltron has agreed to rectify the issues.		
19.A(a)(iv)	Periodical inspection in the Industries, Flats, hotels for monitoring of STP,ETP located in Cochin corporation	Kochi Municipal Corporation	Periodical	Inspection in progress. Fine imposed Rs.20,86,000/- against dumping of waste in public places and water bodies from October 2021-July 2022.	Inspection in progress. Fine imposed Rs.20,86,000/- against dumping of waste in public places and water bodies from October 2021- July 2022.		
20.A(a)	Inventory of sources of pollution through a rapid study/Study for identification of pollution sources at Edappallythodu	Kochi Municipal Corporation	3 months	Survey completed by HI and JHI of KMC. Location of waste disposal in TP canals and Edappallythodu was identified. Closing of outlet exposed to drains of TP canals is taken as a joint work by Engineering and Health wing of KMC. Work mainly focused on four zones. They are	Survey completed by HI and JHI of KMC. Location of waste disposal in TP canals and Edappallythodu was identified. Closing of outlet exposed to drains of TP canals is taken as a joint work by Engineering and Health wing of KMC. Work		

				Central zone,Edappally zone,Pachalam zone and Vytilla zone.	mainly focused on four zones. They are Central zone,Edappally zone,Pachalam zone and Vytilla zone.		
21.E	Issuing notice to the defaulters	Kochi Municipal Corporation	4 months	Inspection is going on. Further actions are taken.	Inspection is going on. Further actions are taken.		
22.A(a)(iv)	Periodical inspection in the flats, hotels, shops located along the river	Kochi Municipal Corporation	Periodical	Inspection in progress	Inspection in progress		Being carried out periodically
23.A(b)	Identification of natural drains/thodu reaching river Periyar and cleaning of weeds, grasses etc.	Irrigation department	2 years	4 polluted streams have been identified. The Estimate has been submitted for restoration works. Financial sanction was not yet received. Onjithodu soil test conducted. Streams have been included in Operation Vahini.	4 polluted streams have been identified. The Estimate has been submitted for restoration works. Financial sanction was not yet received. Onjithodu soil test conducted. Streams have been included in Operation Vahini.		Detailed estimate submitted to higher authority for FS. FS not obtained so far
24.C(iii)	Clearing of weeds, grasses at the river bank in order to ensure the smooth flow of water	Irrigation department	3 years	The cleaning of river tributaries and desilting is jointly implemented by Local self government department and irrigation through	The cleaning of river tributaries and desilting is jointly implemented by Local self		

			<p>Operation Vahini. Once this cleaning and desilting is completed the water table will increase and which in turn reduces the pollution. Measures are being taken to ensure the natural flow of the river. Desilting work in progress. For the remaining work, request have been submitted to RRC along with the DPR. Financial sanction to be received. The DIC has informed to clear off the grasses and weeds which are obstructing the smooth flow of drains in the industrial estate. DIC has informed that instruction has been given to Estate Manager and Associations regarding this. All the 28 units have completed the clearing work. River side units have cleared the weeds and grass within their compound.</p>	<p>government department and irrigation through Operation Vahini. Once this cleaning and desilting is completed the water table will increase and which in turn reduces the pollution. Measures are being taken to ensure the natural flow of the river. Desilting work in progress. For the remaining work, request have been submitted to RRC along with the DPR. Financial sanction to be received. The DIC has informed to clear off the grasses and weeds which are obstructing the smooth flow of drains in the</p>		
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					industrial estate. DIC has reported that they have directed Estate Manager to ensure that the units near Periyar river banks are clearing the grass in their unit premises periodically.		
25.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	Shutters are being operated periodically at the Pathalam lock cum regulator to maintain the flow of river	Shutters are being operated periodically at the Pathalam lock cum regulator to maintain the flow of river		
26.A(b)	Common Effluent Treatment Plant at Edayar Industrial Estate	Industries department	2022	For the establishment of CETP a government order has come sanctioning Rs. 37.5 Crore to DIC	For the establishment of CETP a government order has come sanctioning Rs. 37.5 Crore to DIC. KWA is entrusted to implement the project. DPR for the same has been		

					submitted. The project is under Government consideration.		
27.A(b)	Construction of internal roads and proper drainage in Edayar industrial estate	Industries department	Work progressing	The pending works have been reported to PWD	Funds have been received for all the drains and roads for which request has been submitted and same has been handed over to PWD. The tender procedures are in progress.		
28.A(b)	Installation of common discharge pipe line at downstream of PathalamRegulator Bridge	Industries department, Irrigation department	3 years	It was decided to include the project of installing the common discharge pipeline in the DPR of CETP. Under this circumstance, the work comes under the responsibility of KWA.	It was decided to include the project of installing the common discharge pipeline in the DPR of CETP. Under this circumstance, the work comes under the responsibility of KWA.		
29.E	Installation of Night vision surveillance cameras at the River Bank side	KSPCB	2020	The CCTV cameras and accessories for fixing the same have been received. Due to the prevailing rain camera installation was	The CCTV cameras and accessories have been installed. 7 new cameras have been installed. Maintenance		

				delayed. Contacted Keltron to speed up the installation process.	of two cameras in progress.		
30.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.		
31.A(a)(iv)	Monitoring of quality of water at various intake point	Kerala Water Authority	2020	Status not reported	Status not reported		
32.A(a)(iv)	Installation of additional continuous online River water monitoring station	KSPCB	2022	Currently an Online water quality monitoring station is installed at the downstream side of Pathalam Bund. Tender procedures for installing new station at the upstream side have been completed. Received Buoy for the online monitoring station. Probe yet to be received	Tender procedures for installing new station at the upstream side have been completed. Received all accessories for the new online monitoring station.		
33.A(b)	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Kadungallur Panchayath	2020	5 ward members have been appointed for monitoring the defaulters. Also, the respective ward members and Standing Committee chairman have been entrusted for identification of	5 ward members have been appointed for monitoring the defaulters. Also, the respective ward members and Standing Committee		

				defaulters. Inspection not started	chairman have been entrusted for identification of defaulters. Inspection not started		
34.E	Installation of cameras at the waste dumping spots	Kadungallur Panchayath	2020	Camera installation work not started. Arrangements for Power connection and Net connection at camera installation points to be made.	Camera installation work not started. Arrangements for Power connection and Net connection at camera installation points to be made.		
35.A(b)	Identification of the establishments/commercial complexes/flats/houses/hotelse tc. who is discharging the sewage to the public drain	Choornikkara Panchayath	2020	Inspection and monitoring is performed regularly to identify the offenders. Issual of notice to those offenders is also being done regularly.	Inspection and monitoring is performed regularly to identify the offenders. Issual of notice to those offenders is also being done regularly.		
36.E	Installation of cameras at the waste dumping spots	Choornikkara Panchayath	2020	12 Cameras have been already installed on waste dumping spots. In order to monitor waste dumping to river, a camera needs to be installed at the identified spot. This has been submitted as a project. On	12 Cameras have been already installed on waste dumping spots. In order to monitor waste dumping to river, a camera needs to be installed at the identified spot. This has been submitted as a project. On		

				receiving DPC approval further actions will be taken.	receiving DPC approval further actions will be taken.		
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LONG TERM MEASURES

No. (as per Action Plan)	Activity	Implementin g agency	Time line	Progress in the month of August2022	Progress in the month of September2022	% works completed	Details of works remaining
1.A(b)	Construction of walkway, ring roads etc at the Periyar River bank at industrial belt.	Irrigation department	4 years	Investigation and detailed Estimate Submitted and waiting for FS	Investigation and detailed Estimate Submitted and waiting for FS		FS not obtained for the work
2.C(i)	Fencing of the river banks along the stretches of waste disposal (Edamula stretch)	Cochin Municipal Corporation	1-2 years	ppallyThodu, which is a tributary of Periyar river touches Cochin Corporation Boundary for a small stretch. The other side of this thodu is belonging to LSGs like Kalamassery, Thrikkakkara, Eloor etc. The work of rejuvenation of EdappallyThodu is included under the IURWTS project of Kochi Metro Rail Limited. The progress of the works undertaken by KMRL is reported as follows. a) Applied for land acquisition works for	EdappallyThodu, which is a tributary of Periyar river touches Cochin Corporation Boundary for a small stretch. The other side of this thodu is belonging to LSGs like Kalamassery, Thrikkakkara, Eloor etc. The work of rejuvenation of EdappallyThodu is included under the IURWTS project of Kochi Metro Rail Limited. The progress of the works undertaken by KMRL is reported as follows. a) Applied for land acquisition works for		

				<p>various canal, it's on processing under revenue department.</p> <p>b) As no land acquisition is needed for market canal, work of it will be carried out this year. KIIFB is the funding agency for the work. Tender process for the work is going on.</p>	<p>various canal, it's on processing under revenue department.</p> <p>b) As no land acquisition is needed for market canal, work of it will be carried out this year. KIIFB is the funding agency for the work. Tender process for the work is going on.</p>		
3.C(iii)	Beautification of the river stretches (Edamula stretch)	Cochin Municipal Corporation	1-2 years	<p>Beautification work has been included in the KMRL IURWTS project. Due to the prevailing public protest, land acquisition procedure is being delayed</p>	<p>Beautification work has been included in the KMRL IURWTS project. Due to the prevailing public protest, land acquisition procedure is being delayed</p>		

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 July 2022	Progress in the month of August2022	Progress in the month of September2022	% 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 -SEPTEMBER 2022

Sampling point: VETTUKADAVU

Sl. No	Parameter	Unit	05.09.2022	25.09.2022
1	Temp	°c	30.9	31.6
2	pH		6.5	6.3
3	Conductivity	µS/cm	87.62	82.34
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	21.8	13.9
6	Hardness	"	22.0	17.0
7	D.O.	"	5.1	5.5
8	Calcium	"	6.8	4.4
9	Magnesium	"	1.215	1.458
10	Ammoniacal Nitrogen	"	0.413	0.201
11	Phosphate	"	BDL	BDL
12	Total alkalinity	"	24.0	20.0
13	BOD	"	**	**
14	Sulphate	"	2.102	1.338
15	Nitrates	"	BDL	BDL
16	TC	cfu/100ml	620.0	220.0
17	FC	"	60.0	NIL
18	FS	"	NIL	NIL

* TURBIDITY METER IS OUT OF ORDER

** BOD INCUBATOR IS OUT OF ORDER

KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR -SEPTEMBER 2022

Sampling point: PATHALAM BRIDGE

Sl. No	Parameter	Unit	05.09.2022	25.09.2022
1	Temp	°c	30.8	31.6
2	pH		6.5	6.6
3	Conductivity	µS/cm	86.84	69.05
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	24.8	19.9
6	Hardness	"	20.0	23.0
7	D.O.	"	4.9	6.4
8	Calcium	"	4.8	4.4
9	Magnesium	"	1.944	2.916
10	Ammoniacal Nitrogen	"	0.324	0.095
11	Phosphate	"	BDL	BDL
12	Total alkalinity	"	20.0	18.0
13	BOD	"	**	**
14	Sulphate	"	1.720	0.955
15	Nitrates	"	BDL	BDL
16	TC	cfu/100ml	920.0	1100.0
17	FC	"	160.0	NIL
18	FS	"	NIL	NIL

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KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR -SEPTEMBER 2022

Sampling point: PUTHALAM KADAVU

Sl. No	Parameter	Unit	05.09.2022	25.09.2022
1	Temp	°c	30.8	31.4
2	pH		6.5	6.5
3	Conductivity	µS/cm	50.01	50.28
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	18.9	13.9
6	Hardness	"	19.0	17.0
7	D.O.	"	4.0	5.4
8	Calcium	"	4.4	5.2
9	Magnesium	"	1.944	0.972
10	Ammoniacal Nitrogen	"	0.162	0.184
11	Phosphate	"	BDL	BDL
12	Total alkalinity	"	22.0	16.0
13	BOD	"	**	**
14	Sulphate	"	2.229	1.210
15	Nitrates	"	BDL	BDL
16	TC	cfu/100ml	1180.0	1920.0
17	FC	"	NIL	60.0
18	FS	"	NIL	NIL

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KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR -SEPTEMBER 2022

Sampling point: PATHALAM BUND U/S

Sl. No	Parameter	Unit	05.09.2022	25.09.2022
1	Temp	°c	30.8	31.4
2	pH		6.5	6.4
3	Conductivity	µS/cm	91.74	63.40
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	26.8	17.9
6	Hardness	"	19.0	18.0
7	D.O.	"	4.9	6.2
8	Calcium	"	5.2	4.4
9	Magnesium	"	1.458	1.701
10	Ammoniacal Nitrogen	"	0.151	0.580
11	Phosphate	"	BDL	BDL
12	Total alkalinity	"	18.0	20.0
13	BOD	"	**	**
14	Sulphate	"	2.102	0.955
15	Nitrates	"	BDL	BDL
16	TC	cfu/100ml	860.0	1020.0
17	FC	"	40.0	60.0
18	FS	"	NIL	NIL

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**KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR -SEPTEMBER 2022**

Sampling point: PATHALAM BUND D/S

Sl. No	Parameter	Unit	05.09.2022	25.09.2022
1	Temp	°c	B	B
2	pH		U	U
3	Conductivity	µS/cm	N	N
4	Turbidity	NTU	D	D
5	Chlorides	mg/L		
6	Hardness	"	O	O
7	D.O.	"	P	P
8	Calcium	"	E	E
9	Magnesium	"	N	N
10	Ammoniacal Nitrogen	"		
11	Phosphate	"		
12	Total alkalinity	"		
13	BOD	"		
14	Sulphate	"		
15	Nitrates	"		
16	TC	cfu/100ml		
17	FC	"		
18	FS	"		

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KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR -SEPTEMBER 2022

Sampling point: MANJUMMAL BUND

Sl. No	Parameter	Unit	05.09.2022	25.09.2022
1	Temp	°c	30.6	31.4
2	pH		6.6	6.4
3	Conductivity	µS/cm	49.43	52.60
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	18.9	14.9
6	Hardness	"	17.0	16.0
7	D.O.	"	9.2	5.3
8	Calcium	"	4.4	2.8
9	Magnesium	"	1.458	2.187
10	Ammoniacal Nitrogen	"	0.100	0.787
11	Phosphate	"	BDL	BDL
12	Total alkalinity	"	20.0	18.0
13	BOD	"	**	**
14	Sulphate	"	1.592	0.955
15	Nitrates	"	BDL	BDL
16	TC	cfu/100ml	1460.0	1760.0
17	FC	"	20.0	40.0
18	FS	"	NIL	NIL

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KERALA STATE POLLUTION CONTROL BOARD
ENVIRONMENTAL SURVEILLANCE CENTRE, ELOOR
ANALYSIS REPORT OF RIVER PERIYAR -SEPTEMBER 2022

Sampling point: ALUVA - MANAPPURAM

Sl. No	Parameter	Unit	05.09.2022	25.09.2022
1	Temp	°c	30.9	31.4
2	pH		6.5	6.5
3	Conductivity	µS/cm	58.82	52.71
4	Turbidity	NTU	*	*
5	Chlorides	mg/L	14.9	17.9
6	Hardness	"	20.0	16.0
7	D.O.	"	4.7	5.0
8	Calcium	"	4.8	4.8
9	Magnesium	"	1.944	0.972
10	Ammoniacal Nitrogen	"	0.201	0.033
11	Phosphate	"	BDL	BDL
12	Total alkalinity	"	20.0	18.0
13	BOD	"	**	**
14	Sulphate	"	1.465	0.955
15	Nitrates	"	BDL	BDL
16	TC	cfu/100ml	1340.0	1960.0
17	FC	"	120.0	420.0
18	FS	"	NIL	NIL

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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 KARUVANNUR, THRISSUR

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 KARUVANNUR, KERALA
SHORT TERM MEASURES**

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month Of August 2022	Progress in the month of September 2022	% works complete d	Details of works remainin g
Thirukuzhy thodu								
A(a)(iv)	Surveillance to restrict dumping of wastes into river and its branches	Vallachira Panchayat with the help of Police		-	-	-		
E	Cleaning and desilting of canal	Irrigation Department and Vallachira Panchayat	4months	ടി തോടി ന്റെ ഭൂരിഭാ ഗം നീളവു ം നിലവി ലില്ല എന്നു ം ശേഷി ക്കുന്ന ഏകദേ ശം 15 മീറ്ററേ റളം വരുന്ന		ടി തോടി ന്റെ ഭൂരിഭാ ഗം നീളവ ും നിലവ ിലില്ല എന്നു ം ശേഷി ക്കുന്ന ഏകദേ ദശം 15 മീറ്ററേ	10 0	ni l

				<p>ഭാഗം തൊഴി ലുറപ്പ് പദ്ധതി കൾ ഉൾപ്പെ ടുത്തി എല്ലാ വർഷ വും വൃത്തി യാക്കു ന്നു് എന്നു ം പഞ്ചാ യത്ത് അധി കൃതർ അറിയ ിച്ചിട്ടു ്.</p> <p>ആയത ിനാൽ ടി പ്രവൃ ത്തി ആവ ശ്യമില്ല എന്ന ജനപ്ര തിനിധ ികളും, കർഷ</p>		<p>ാളം വരു ന്ന ഭാഗം തൊഴി ലുറപ്പ് പദ്ധതി കൾ ഉൾപ പ്പെടു ത്തി എല്ലാ വർഷ വും വൃത്ത ിയാക്ക ുന്നു ് എന്നു ം പഞ്ചാ യത്ത് അധി കൃതർ അറിയ ിച്ചിട്ടു ്.</p> <p>ആയ തിനാ ൽ ടി പ്രവൃ ത്തി ആവ ശ്യമി</p>		
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				<p>കരും അഭിപ്രായപ്പെട്ടു എന്ന വിവരം അസിസ്റ്റന്റ് എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെക്ഷൻ, ചേർപ്പ് സ്ഥല പരിഷ്കാര ശാധനയ്ക്കു ശേഷം റിപ്പോർട്ട് ചെയ്തിട്ടുള്ളതായി എക്സിക്യൂട്ടീവ് എഞ്ചിനീയർ, മൈനർ</p>		<p>ല്ല എന്ന ജനപ്രതിനിധികളും, കർഷകരും അഭിപ്രായപ്പെട്ടു എന്ന വിവരം അസിസ്റ്റന്റ് എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെക്ഷൻ, ചേർപ്പ് സ്ഥല പരിഷ്കാര ശാധനയ്ക്കു ശേഷം റിപ്പോർട്ട് ചെയ്തിട്ടുള്ള</p>		
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				ഇരിശ്ശേരി ഡിവി ഷൻ, തൃശ്ശൂർ അറിയ പ്പെട്ടിട്ടു ണ്ടാ കയാ 02.03.2 022 തീയത യിലെ ഡി7 - Green Tribun al കത്ത് മുഖാ ന്തരം അറിയ പ്പെട്ടിട്ടു ണ്ടാ കയാ		ഉതായ 1 എക് സിക്യ ൂട്ടീവ് എഞ്ചി നീയർ, മൈന ർ ഇരിശ്ശേ രി ഡിവി ഷൻ, തൃശ്ശൂ ർ അറിയ പ്പെട്ടിട്ടു ണ്ടാ കയാ			
Thodu near Kadalassery bridge									
A(b)	Identification of pollution sources and surveillance to restrict dumping of wastes	Vallachira, Pudukad & Nenmanikkara Panchayats	1 month	Ongoing	Ongoing	Ongoing	100	0	

E	Cleaning and desilting	Irrigation Department and Vallachira Panchayat	4months	ടി പ്രവൃത്തിക്കായി 2.7 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് പ്രൈസ് 3 യിൽ തയ്യാറാക്കി പ്രചോസൽ സാമ്പത്തികാനുമതി ലഭിക്കുന്നതിനായി സുപ്രീം എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ എറണാകുളത്തിനും, സുപ്രീം എഞ്ചിനീയർ, ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ, തൃശ്ശൂരിനും സമർപ്പിച്ചിട്ടുണ്ട്. പ്രവൃത്തി നടപ്പിലാക്കുന്നതിന് ഫണ്ട് ലഭ്യമായിട്ടില്ല.					
		Neerolithodu							
E	Cleaning and desilting	Irrigation Department	4months	ടി പ്രവൃത്തിക്കായി 10 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് പ്രൈസ് 3 യിൽ തയ്യാറാക്കി പ്രചോസൽ സാമ്പത്തികാനുമതി ലഭിക്കുന്നതിനായി സുപ്രീം എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ എറണാകുളത്തിനും, സുപ്രീം എഞ്ചിനീയർ, ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ, തൃശ്ശൂരിനും സമർപ്പിച്ചിട്ടുണ്ട്. പ്രവൃത്തി നടപ്പിലാക്കുന്നതിന് ഫണ്ട് ലഭ്യമായിട്ടില്ല.					
		Painkilikayal thodu							
E	Cleaning and desilting	Irrigation Department and Vallachira Panchayat	4months	ടി പ്രവൃത്തിക്കായി 15 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് പ്രൈസ് 3 യിൽ തയ്യാറാക്കി പ്രചോസൽ സാമ്പത്തികാനുമതി ലഭിക്കുന്നതിനായി സുപ്രീം എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ എറണാകുളത്തിനും, സുപ്രീം എഞ്ചിനീയർ, ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ, തൃശ്ശൂരിനും സമർപ്പിച്ചിട്ടുണ്ട്. പ്രവൃത്തി നടപ്പിലാക്കുന്നതിന് ഫണ്ട് ലഭ്യമായിട്ടില്ല.					
		Kadathodu							
A(b)	Identification of pollution sources and surveillance to restrict the dumping of wastes	Vallachira & Nenmanikkara Panchayats	1 month	Ongoing	Ongoing	Ongoing	100	0	

E	Cleaning and desilting	Irrigation Department	4months	ടി പ്രവൃത്തിക്കായി 9.50 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് പ്രൈസ് 3 യിൽ തയ്യാറാക്കി പ്രേഷാസൽ സാമ്പത്തികാനുമതി ലഭിക്കുന്നതിനായി സുപ്രീം എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ എറണാകുളത്തിനും, സുപ്രീം എഞ്ചിനീയർ, ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ, തൃശ്ശൂരിനും സമർപ്പിച്ചിട്ടുണ്ട്. പ്രവൃത്തി നടപ്പിലാക്കുന്നതിന് ഫണ്ട് ലഭ്യമായിട്ടില്ല.				
Main Stream –along Karuvannur								
A(a)(iv)	Periodic Surveillance to restrict the dumping of waste into river and imposing Fine	Irinjalakkuda Municipality, Police Dept.		Presently no such dumping of waste. Square inspection ongoing well including night squad.	Presently no such dumping of waste. Square inspection ongoing well including night squad	Presently no such dumping of waste. Squad inspection ongoing well including night squad.		
A(b)	Sanitation Survey	Irinjalakkuda Municipality	3 Months	100% Completed	100% Completed	100% Completed		
A(b)	Closing of all un authorized outlets leading to the river	Irinjalakkuda Municipality		Inspection is going on. There is no unauthorized outlets leading to the river.	Inspection is going on. There is no unauthorized outlets leading to the river.	Inspection is going on. There is no unauthorized outlets leading to the river.		

A(b)	Closing of all un authorized outlets in the drain leading to the river	Irinjalakkuda Municipality		There is no unauthorize d outlets in the drain leading to the river.	There is no unauthoriz ed outlets in the drain leading to the river	There is no unauthoriz ed outlets in the drain leading to the river.		
E	Boards to display slogans against littering waste in various Places other IEC Activities Like posters, notices and classes	Irinjalakkuda Municipality	6 months	Installed boards along Karuvannur river side against littering waste and animal bath. Board installation process is going on in various places of municipal area. We used tp conduct surveys, distributed	Installed boards along along Karuvannur river side against littering waste and animal bath. Board installation process is going on in various places of municipal area. We used tp conduct	Installed boards along Karuvannur river side against littering waste and animal bath. Board installation process is going on in various places of municipal area. We used tp conduct surveys, distributed		

				notices to all the houses near to the riverside.	surveys, distributed notices to all the houses near to the riverside.	notices to all the houses near to the riverside.		
Monitoring								
A(a)(iv)	River water quality monitoring	KSPCB	Ongoing; monthly frequency	Monitoring is going on July monthly basis	Monitoring is going on August monthly basis	Monitoring is going on September monthly basis		
A(b)	Inspection & effluent quality monitoring of the Flats, industrial units, service stations, hospitals,hotels etc	KSPCB	Ongoing	Going on July monthly basis.	Going on August monthly basis.	Going on September monthly basis.		
Long Term Plan								
A(b)	Sewage treatment facilities to all house holds	Vallachira Grama Panachayat	1 yr	Nil	0	Nil	100	0
A(b)	Construction of FSTP and STP	Irinjalakkuda Municipality	2 years	Constructio n of STP plant at General Hospital, Irinjalakuda	Constructi on of STP plant at General Hospital, Irinjalakud	Constructio n of STP plant at General Hospital, Irinjalakuda		

				- DPR approved by Suchitwa Mission	a - DPR approved by Suchitwa Mission	- DPR approved by Suchitwa Mission		
C(ii)	Setting up of a modern crematorium at Mandarakkadavu, Arattupuzha	Vallachira Grama Panachayat	2 years	No fund				100
C(ii)	Solid waste treatment facility	Vallachira Grama Panachayat	2 years	100 %			Mini MCF	
C(ii)	Construction of Windrow composting plant	Irinjalakkuda Municipality	2 years	Windrow Compost plant having 4 ton capacity. Construction has been already completed. Presently it is functioning well and producing Bio manure for sale.	Windrow Compost plant having 4 ton capacity. Construction has been already completed. Presently it is functioning well and producing Bio manure for sale.	Windrow Compost plant having 4 ton capacity. Construction has been already completed. Presently it is functioning well and producing Bio manure for sale.		
E	Rejuvenation of Kanathodu	Irrigation	1 year	ടി പ്രവൃത്തിക്കായി 10 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് പ്രൈസ് 3 യിൽ തയ്യാറാക്കി പ്രചോസൽ സാമ്പത്തികാനുമതി ലഭിക്കുന്നതിനായി സുപ്രീം എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ എറണാകുളത്തിനും, സുപ്രീം എഞ്ചിനീയർ,				

		Department		ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ, തൃശ്ശൂരിനും സമർപ്പിച്ചിട്ടുണ്ട്. പ്രവൃത്തി നടപ്പിലാക്കുന്നതിന് ഫണ്ട് ലഭ്യമായിട്ടില്ല.				
E	Installation of CCTV for Surveillance to prevent the dumping of waste in to the river	Irinjalakkuda Municipality	2 years	Police Department installed CCTV and currently functioning Near Karuvannur Bridge	Police Department installed CCTV and currently functioning Near Karuvannur Bridge	Police Department installed CCTV and currently functioning Near Karuvannur Bridge		

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 July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.		
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	Water level data collected from GWD observation wells.	Water level data collected from GWD observation wells.	Water level data collected from GWD observation wells.		
4	B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices	-	-	-	-	-

ACTION PLAN BY GRAMAPANCHAYATH

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
C	MANALIPUZHA RIVER PROTECTION -Jalaraksha Jeevaraksha - Manalipuzha conservation	Vallachira Grama Panchayath	1 year	Nil	Nil	Nil	1000m	500m
C	Setting up of Nursery for Bamboo seedlings in Kadalassery	MGNREGS	31.03.2020	TS SAN CTIO NED, BUT NOT PUBL IC PLAC	TS SANCTI ONED, BUT NOT PUBLIC PLACE	TS SANC TIONE D, BUT NOT PUBLI C PLACE	25	75

				E				
C	Side protection of Manalippuzha with organic materials available locally	MGNREGS	31.03.2020	Nil	nil	Nil	25	75
C	Side Protection of Manalippuzha with Bamboo plants	MGNREGS	31.03.2020	nil	nil	Nil	100	0
C	Deepening & Protecting Muttikkal Thodu by Spreading Geo Textiles	MGNREGS	31.03.2020	600 m	600 m	600 m	100	0
C	Cluster 2-Kurumaly puzha sub river bed -Project document preparation	Puthukkad Panchayath	1 year	Documentation completed	Documentation completed		100	Documentation completed
C	Manalippuzha River Protection-Jala Raksha, Jeeva Raksha , Survey and Tree Plantation	Nenmenikkara Grama Panchayat	31.03.2020	3.5 km survey out of 7 k.m have been completed	3.5 km survey out of 7 k.m have been completed and survey posts have	3.5 km survey out of 7 k.m have been completed and	50 %	3.5 killo meter survey yet to complete

				d and surv ey posts have been fixed	been fixed.	surve y posts have been fixed.		
C	Manalipuzha River protection	MGNREGS	31.03.2020	3.5 km surv ey out of 7 k.m have been com plete d and surv ey posts have been fixed	3.5 km survey out of 7 k.m have been complet ed and survey posts have been fixed.	3.5 km surv ey out of 7 k.m have been com plete d and surv ey posts have been fixed		As surve y did not compl ete

A(b)	Protection and reconstruction and protection of Paliyekkara Kayalathod	MGNREGS	31.03.2020	COMPLETED	COMPLETED	COMPLETED	100 %	COMPLETED
A(b)	Reconstruction and protection of Paliyekkara Karama Thodu	MGNREGS	31.03.2020	COMPLETED	COMPLETED	COMPLETED	100 %	COMPLETED

KARUVANUR

Date of sampling

22.09.2022

SL. NO	PARAMETER	UNIT	KT	MRK	KND	MDK	THR	KRV
1	PH		6.72	8.02	7	6.23	6.97	6.95
2	EC	µ/cm	103.3	97.17	104.3	136.9	85.22	95.59
3	BOD	mg/L	0.64	0.96	2.56	1.47	1.73	2.89
4	DO	mg/L	5.12	7.62	6.01	5.12	6.85	5.76
5	COD	mg/L	4	4	4	8	4	4
6	TC	CFU/100 ml	400	500	300	400	300	400
7	FC	CFU/100 ml	200	300	200	250	150	250
8	FSC	CFU/100 ml	NIL	40	50	20	50	40

KT - KANAKKAN KADAVU, KARUVANNUR

MRK - NEEROLI THODU

KND - KANATHODU, KARUVANNUR

MDK - MUTTIKKAL DAM, KARUVANNUR

THR- THIRUKUZHI, KARUVANNUR

KRV - PAINKILIKAYAL THODU, KARUVANNUR

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 KECHERY, THRISSUR

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 KECHERY, KERALA

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works complete d	Details of works remaining
WADAKKENCHERY RIVER -SHORT TERM MEASURES								
A(b)	Identification of illegal outlets from houses and shops/other establishments in town and imposing fine	Wadakkanchery Municipality, Ayyakali Urban Employment Guarantee Scheme & health squad	Completed					
E	Installation of CCTV s on the bank of river in town	Wadakkanchery Municipality	31.03.2022				0%	Work not started due to scarcity of Municipal fund
C(ii)	Material recovery facility	Wadakkanchery Municipality	Completed					
C(ii)	Resource recovery facility	Wadakkanchery Municipality	Completed					

C(ii)	Renovation of existing biogas plant	Wadakkanchery Municipality	Completed					Presently functioning well
Monitoring								
A(a)(iv)	River water quality monitoring	KSPCB	Monthly Monitoring in progress	Analysis report for the month of July submitted	Analysis report for the month of August enclosed herewith	Analysis report for the month of September enclosed herewith		Continuing
A(b)	Inspection & effluent quality monitoring of the Flats, industrial units, service stations, hospitals,hotels etc	KSPCB	Ongoing	Ongoing	Ongoing	Ongoing		Continuing
Long Term Plan								
E	Identification and cleaning of polluted drains reaching wadakkancheri river	Irrigation Dept	30-03-2022			Estimate submitted for fund		Estimate submitted for fund
A (b)	Common STP	Wadakkanchery Municipality, Kerala Infrastructure	March 2022					Site for one STP identified. Applied for NOC from

		Investment Fund Board						District Collector (Land is Puzha Puramboke and Irrigation Department Canal Puramboke)
C(iii)	Windrow composting at Kumbalangad yard	Wadakkanchery Municipality	March 2022				90% work completed	
C(ii)	Modern slaughter House	Wadakkanchery	March 2022					Lack of

		Municipality, Kerala Infrastructure Investment Fund Board						suitable site for the project
E	Forestation, desilting & deepening of Wadakkanchery river and fitting river side with coir geo net	Wadakkanchery Municipality	desilting deepening of Wadkanchery River 3 km in Municipal area completed 7655m ³ desilt removed					Fitting river side with Coir Geo Net. Awaiting Municipal Council Decision for fund allocation
	Rain water harvesting	Wadakkanchery Municipality	Ongoing work					
	Ground water recharge	Wadakkanchery Municipality	Ongoing work					
	River survey	Wadakkanchery Municipality	Ongoing work					
	Regulating activities in flood plain zone, protection and management of flood plain zone	Wadakkanchery Municipality	30-03-2022			As part of the		

						action plan prepared in relation to the revival of Kecheri River, the plastic wastes that have fallen into		
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						the river have been included in the Job Guarantee Project and removed. 913 741 rupees were spent in		
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						<p>this work. Garbage that fell due to rain was removed in many places.</p>		
	<p>Greenery development Plantation plan. Plantation on both sides of the river, settling up biodiversity parks on flood plains by removing encroachment</p>	<p>Wadakkanchery Municipality</p>	<p>30-03-2022</p>			<p>Bamboo saplings were planted on</p>		

						both sides of the river through “Wadakerri river side afforestation”. 155976 rupees were spent for		
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						<p>this wor k. The garb age in the floo d- pro ne area s has bee n rem ove d and the flow has bee n facili tate</p>		
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						d.		
Short term plan (Kecheri river)								
E	Installation of CCTV in different locations along river side	PWD Electronic division		Progress has not been reported	Progress has not been reported			Including 2022-23 project
E	Fixing Boards	Choondal Grama Panchayat	Completed					Board fixed (including 2021-22 project)
A(a)(iv)	Surveillance to prevent flow of sewage /effluent to river	Choondal Grama Panchayat	Ongoing					Action taken
A(b)	Stoppage of effluent from residential apartment (Shajan's flat) and pig farm into the river	Choondal Grama Panchayat	Action taken					Stop Memo Had been Given to Concerned persons

Long Term Plan (Kecheri river)								
E	Side protection by fixing coir geo nets	Choondal Grama Panchayat	Not started	Not started				
E	Survey process of Kechery river portion belong to Choondal Grama Panchayat to mark the boundary and encroachment	Revenue Department	completed	completed				
E	Laying of survey station	Choondal Grama Panchayat	completed	completed				
E	Digital mapping and seminar on pollution control	Forestry College, Vellanikkara	31/05/2020	Not started				

IRRIGATION DEPARTMENT

No.	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
1	Issues relating to E-flow, maintaining minimum environmental flow of river(by having watershed management provisions)	Irrigation Department	30-03-2022	കേച്ചേരി പുഴയുടെ പരിസ്ഥിതിക നീരൊഴുക്ക് പഠനം (E-flow) പൂർത്തിയാക്കി റിപ്പോർട്ട് 18/05/2022 ന് ചീഫ്				

				എത്തിനിയർ, ജലസേചനവും ഭരണവും, തിരുവനന്തപുരത്ത് സമർപ്പിച്ചിട്ടുണ്ട്.				
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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 July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.		
2	B(ii)	Ground water recharging / rain water harvesting				100%	

3	B(iii)	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps	Water level data collected from GWD observation wells	Water level data collected from GWD observation wells	Water level data collected from GWD		
4	B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices					

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
C	Punarjani Kecherri river	Choondal Grama Panchayat	completed					Flood Wastes from the river has been removed and made water flow easily which reduced chances

								of flood .
C(ii)	Surveying of river side, eviction and planting trees	Choondal Grama Panchayat						Survey completed
C	Side Protection	Choondal Grama Panchayat	completed					
C	Bio fencing related to river bank protection – water and soil Conservation project ward 3,4,7	MGNRES	Not started					

KECHERI RIVER				
Date of sampling -05.09.2022				
SL. NO	PARAMETER	UNIT	VAD1	VAD2
1	pH	-	8.82	8.73
2	Electrical Conductivity	µs/cm	129.4	115.1
3	BOD	mg/L	1.15	1.09
4	DO	mg/L	6.4	6.72
5	COD	mg/L	4	12
6	TC	CFU/100ml	500	400
7	F C	CFU/100ml	300	200
8	FSC	CFU/100ml	50	NIL
VAD1 - WADAKKANCHERY PUZHA (WADAKKANCHERY BRIDGE), KECHERY				
VAD2 - WADAKKANCHERY PUZHA(CHALIPPADAM ROAD), KECHERY				

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 PUZHAKKAL, THRISSUR

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 PUZHAKKAL, KERALA
SHORT TERM MEASURES**

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
A(b)	Identification of illegal outlets into the Panchikkal thodu and subsidiary drains	Thrissur Corporation	3 months	0		0		
A(b)	Stoppage of discharge of waste water from the surrounding houses and institutions to the drains which leads to Panchikkal thodu	Thrissur Corporation	6 months	2	2	2	100	0
A(b)	Ensure adequate treatment facility is provided for waste water and solid waste generated from Sri Dharma Sastha temple situated on the banks of the river	Adat Grama Panchayat						Instruction has been provide to temple authorities for construction of waste disposal facilities accordance

								with swm2016
E	Desilting of Karakattuchal	Irrigation Department	4 months	ടി പ്രവൃത്തിയ്ക്കായി 10 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് തയ്യാറാക്കി CMDRF ഹെഡ്ക്വാർട്ടേഴ്സിൽ ഉൾപ്പെടുത്തി സാമ്പത്തികാനുമതിയ്ക്കായി സമർപ്പിച്ചിരുന്നു വെങ്കിലും ഫലപ്രദമായിട്ടില്ല. 03/03/2022 ലെ മെമ്പർ ഇറിഗേഷൻ	ടി പ്രവൃത്തിയ്ക്കായി 10 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് തയ്യാറാക്കി CMDRF ഹെഡ്ക്വാർട്ടേഴ്സിൽ ഉൾപ്പെടുത്തി സാമ്പത്തികാനുമതിയ്ക്കായി സമർപ്പിച്ചിരുന്നു വെങ്കിലും ഫലപ്രദമായിട്ടില്ല.	ടി പ്രവൃത്തിയ്ക്കായി 10 ലക്ഷം രൂപയുടെ എസ്റ്റിമേറ്റ് പ്രൈസ് 3 യിൽ തയ്യാറാക്കി പ്രേഷാസൽ സാമ്പത്തികാനുമതി ലഭിക്കുന്നതിനായി സൂപ്രീം എഞ്ചിനീയർ, മൈനർ ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ എറണാകുളത്തിനും, സൂപ്രീം എഞ്ചിനീയർ, ഇറിഗേഷൻ സെൻട്രൽ സർക്കിൾ, തൃശ്ശൂരിനും സമർപ്പിച്ചിട്ടുണ്ട്. പ്രവൃത്തി നടപ്പിലാക്കുന്നതിന് ഫലപ്രദമായിട്ടില്ല.		

			<p>ൻ ഡിവിഷൻ, തൃശ്ശൂർ എക്സിക്യൂട്ടീവ് എഞ്ചിനീയറുടെ കാര്യാലയത്തിലെ ഡി7 - ഗ്രീൻ ട്രിബ്യൂണൽ നമ്പർ കത്ത് പ്രകാരം പ്രവൃത്തിയുടെ എസ്റ്റിമേറ്റ് സാമ്പത്തികാനുമതി ലഭ്യമാകുന്നതിനായി സുപ്രീം എഞ്ചിനീയർ മൈനർ സെൻട്രൽ ഇറിഗേഷൻ</p>	<p>ഒ. 03/03/2022 ലെ മൈനർ ഇറിഗേഷൻ ഡിവിഷൻ, തൃശ്ശൂർ എക്സിക്യൂട്ടീവ് എഞ്ചിനീയറുടെ കാര്യാലയത്തിലെ ഡി7 - ഗ്രീൻ ട്രിബ്യൂണൽ നമ്പർ കത്ത് പ്രകാരം പ്രവൃത്തിയുടെ എസ്റ്റിമേ</p>		
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				<p>സർക്കിൾ ഏറണാകുളത്തിന് വില്ലേജ് സമർപ്പിച്ചിട്ടുണ്ട്.</p>	<p>മറ്റ് സാമ്പത്തികാനുമതി ലഭ്യമാകുന്നതിനായി സൂപ്രീം ഏഞ്ചിനീയർമാർ സെൻട്രൽ ഇറിഗേഷൻ സർക്കിളിൽ ഏറണാകുളത്തിന് വില്ലേജ് സമർപ്പിച്ചിട്ടുണ്ട്.</p>			
E	Desilting of Panchikkal thodu	Irrigation Department	4 months	Proposed to be clean for a length of 5.34 Km during 2022-23	Work completed	Work completed	100	

E	Desilting of Kurinjikkal thuruth	Irrigation Department	4 months			Estimate submitted for fund		
E	Desilting of Muppuzha	Irrigation Department	4 months	Desilting work 1860 metre completed as per pre-monsoon activity in 2021-22 work proposed for 2022-23 season	Work completed	Work completed		

E	Side protection, desilting and deepening work of vanchikulam thodu at Poothole of length about 40 km (work in progress).	Thrissur Corporation	3 months	400 meter side protection wall completed. 642 meter protection wall proposed and work in progress.	500 meter side protection wall completed. 642 meter protection wall proposed and work in progress.	550 meter side protection wall completed. 642 meter protection wall proposed and work in progress.		
E	Annual desilting, cleaning of main drains and canals within the corporation area (work in progress).	Thrissur Corporation	3 months	195 Nos. Works are proposed for thodu cleaning and now	195 Nos. Works are proposed for thodu clean	195 Nos. Works are proposed for thodu cleaning works are completed		

				194 numbe rs of work compl eted	ing work s are com plete d			
Monitoring								
A(a)(iv)	River water quality monitoring	KSPCB	Ongoing; monthly frequency	Analysis report for the month of July submitted	Analysis report for the month of August submitted	Analysis report for the month of September enclosed herewith		Continuing
A(b)	Inspection & effluent quality monitoring of the Flats, industrial units, service stations, hospitals,hotels etc	KSPCB	Ongoing	Ongoing	Ongoing	Ongoing		Continuing
Long Term Plan								
A(b)	Ensuring installation of treatment facilities for at least 50% of the identified establishments	Thrissur Corporation	18 months					
A(b)	100% completion of treatment facilities for targeted institutions/ buildings	Thrissur Corporation	24 months					
A(b)	Construction of a drain 40 km with covering slabs to avoid the direct disposal of waste in to the open drain	Thrissur Corporation	24 months	34.65 KM of drain work and 5.705 KM of coveri ng	34.65 KM of drain work and 5.705 KM of coveri ng	35.05 KM of drain work and 5.80 KM of covering slabs completed and More		

				slabs completed and 50 More work proposed 48 numbers of work started and 46 numbers of work completed.	slabs completed and 50 More work proposed 48 numbers of work completed.	works proposed under annual plan and 48 numbers of work completed ..		
A(b)	Construction of a drain 9000 m with covering slabs to avoid the direct disposal of waste in to the open drain	Thrissur Corporation	24 months	34.65 KM of drain work and 5.705 KM of	34.65 KM of drain work and 5.705 KM of covering slabs	35.05 KM of drain work and 5.80 KM of covering slabs completed and More		

				cover ing slabs com plete d and 50 More work prop osed 48 num bers of work start ed and 46 num bers of work com plete d.	compl eted and 50 More work propo sed 48 numb ers of work compl eted	works proposed under annual plan and 48 numbers of work complete d.		
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A(b)	Construction of sewage treatment plant of 100 KLD and 360 KLD at Ramavarmapura m and District Hospital, Thrissur in Amrut Project	Thrissur Corporation	24 months			<p>1) 100KLD Septage Treatment Plant at Ramavarmapuram, Thrissur</p> <p>Administrative Sanction has been accorded for this project vide GO (Rt) No. 5/2018/LSGD dated 01/01/2018 for Rs. 3.50Cr.TS accorded for Rs. 3.10 Cr from the technical committee constituted for AMRUT sewerage projects. Selection memo has been issued to M/s Green Eco Water Systems, Hyderabad. Hon. Council has decided to get the consent to establish from PCB first and then to proceed for further steps of executing agreement. Consent to establish obtained from PCB on 28/05/2021. Contractor has not executed the agreement even after issuing several notices</p>
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					<p>in this regard. Hon.Council dated 29.01.2022 decided to terminate the contract under risk and cost of the contractor and also to black list the contractor. It has been also decided by the council to invite limited tender from accredited agencies as per rules. Now the schedule of rate changed from approved estimate. Recasted estimate amounting to Rs. 3.50 cr submitted to CE, LSGD for revised Technical sanction.</p> <p>2. 360 KLD Sewage Treatment Plant for</p>
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**General
Hospital, Thrissur**

Administrative Sanction has been accorded for this project vide GO (Rt) No. 5/2018/LSGD dated 01/01/2018 for Rs. 3.52Cr.TS accorded for Rs. 3.52Cr from the technical committee constituted for AMRUT sewerage projects. Work has been awarded to M/s Green Eco Water Systems, Hyderabad. Agreement executed on 14/10/2020. Consent to establish obtained from PCB on 17/12/2020. Even after conducting several meetings with the contractor, contractor has not started the work yet. Hon.Council dated 29.01.2022 decided to terminate the contract under risk and cost of the contractor

						<p>and also to black list the contractor. It has been also decided by the council to invite limited tender from accredited agencies as per rules. Now the schedule of rate changed from approved estimate. Corporation council dated 31.08.2022 approved the recasted estimate amounting to Rs. 4.50 cr. and the same has been submitted to CE, LSGD for revised technical sanction. SLTC dated 22.09.2022 recommended the revision of AS from 3.52 cr to 4.50 cr.</p>		
A(b)	Constructing decentralised sewerage scheme at Vachikulam covering most populated 7 divisions of Thrissur Corporation and more than 10000 houses & institutions	Thrissur Corporation	24 months	Revision estimate as per structural	Revision estimate as per structural veting	Revision estimate as per structural		2.50 MLD : Vide GO(Rt) No. 1926

				vetin g subm itted for revis ed TS at Chief Engin eers Offic e TVM.	submi tted for revis ed TS at Chief Engin eers Office TVM	vetin g sub mitt ed for revis ed TS at Chief Engi neer s Offic e TVM.		/202 2/LS GD dtd. 08.0 8.20 22, the Gove rnm ent cons titut ed a com mitt ee consi sting of Princ ipal Direc tor, LSGD , Distri ct Colle
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								ctor, Thris sur and missi on direc tor, AMR UT to reass ess the natu re of the prop osed land for the 2.50 MLD STP site insp ectio n
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								and meeting of the committee was held on 20.08.2022. The details along with the Principal Director, LSGD's note on
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								the matter were submitted to the Hon'ble Chief Secretary's office on 13.09.22. Agriculture department GO(Rt) No. 855/
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								2022 /AGR /dtd. 27.0 9.20 22 rejec ted the appli catio n dtd: 25.0 9.20 22 of Secr etary , Thris sur Corp orati on for conv ersio n of land.
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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 July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.	According to the latest GEC report there is no critical / over exploited blocks in Thrissur Dt.		
2	B(ii)	Ground water recharging / rain water harvesting		Proposal for one artificial recharge scheme(dug well recharge) submitted for technical sanction.	Proposal for two artificial recharge schemes(dug well recharge) submitted for technical sanction.		

					Two artificial recharge schemes tendered.		
3	B(iii)	Periodic ground water quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps	Water level data collected from GWD observation wells.	Water level data collected from GWD observation wells.	Water level data collected from GWD observation wells.		
4	B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices		Jal-shakthi-Abhiyan central team visited dug well recharge scheme @ Poomala PHC & coir geo textile work at Kundanthode ,Avanur GP.			

ACTION PLAN BY GRAMAPANCHAYATH

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
C	Removing weeds in Puzhakkal River	Adat Gramapanchayath	31.03.2020				100 %	com plet ed
C(ii)	Removing waste from all wards through kudumbasree	KUDUMBASREE	31.03.2020				100 %	com plet ed
C	water conservation projects-- tree plantation under GA in 18 wards 100000/ each	MGNREGS	31.03.2020				82%	18

C	ward 14 pachthurthu construction	Haritha Keralam Mission	31.03.2020				100%	completed
C	side protection to water bodies coir geo textile	MGNREGS	31.03.2020				92%	8

PUZHAKKAL						
Date of sampling - 05.09.2022						
SL. NO	PARAMETER	UNIT	SBA	KTH	PTU	MP
1	PH		8.65	7.31	8.34	8.67
2	EC	µs/cm	127.3	206.5	301.1	129.2
3	BOD	mg/L	1.66	1.47	1.28	0.32

4	DO	mg/L	8.64	6.4	6.4	6.15
5	COD	mg/L	8	8	4	4
6	TC	CFU/100ml	500	400	400	500
7	F C	CFU/100ml	300	200	100	300
8	FSC	CFU/100ml	40	20	20	20
SBA - NEAR SOBHA CITY, KIZHAKKUMMURI ROAD , PUZHAKKAL KTH - KURINJAKKAL THODU, PUZHAKKAL PTU - PANCHIKKAL THODU, PUZHAKKAL MP - MUPPUZHA, PUZHAKAL						

**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 BHARATHAPUZHA, PALAKKAD – SEPTEMBER2022

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	March 2021	Kerala Water Authority prepared a DPR for STP and submitted to the Government. The STP is proposed to be installed at Nambram in Pattambi municipality in about 50 cent of land.. The survey for the sewerage pipeline was also completed and it was also included in the DPR.
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured	Not proposed	
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	March 2021 (Primary STP and Septage Treatment Plant proposed, not STP)	Kerala Water Authority was prepared a DPR for sewerage network and STP and submitted for approval.
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 	Applicable at State level	Not Applicable
	<ul style="list-style-type: none"> • Monitoring at State level must take place 	Applicable at State level	Not Applicable
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 	Applicable at State level	Not Applicable

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>Primary STP (oil and grease trap with grit chamber)- March 2021</p> <p>Not Proposed</p> <p>Not proposed</p> <p>MSW treatment Plant – March 2021</p> <p>March 2021</p> <p>Implemented by January 2020</p>	<p>Kerala Water Authority is preparing a DPR for sewerage network and STP and submitted for approval.</p> <p>Not Applicable</p> <p>Not Applicable</p> <p>Implemented</p> <p>Water quality monitoring of polluted river stretch and two additional points were completed until July 2022. Results are complying with outdoor bathing standards.</p> <p>Management of dry wastes were achieved through the MCF and RCF facilities, BMW by CBWTF, E-Waste by authorised collection agencies.</p>
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(vii)Ground water regulation	No specific proposal	Not Applicable
(viii) Adopting good irrigation practices	No specific proposal	Not Applicable
(ix) Protection and management of food plain Zones (FPZ)	March 2021	DPR for regulating flood plain zone protection and management, and E-flow maintenance in the Bharathapuzha at Pattambi were prepared by Irrigation Department and submitted to the government several months ago. But funding did not get sanctioned.
(x) Rain water harvesting	No specific proposal	Not Applicable
(xi)Maintaining minimum Environmental flow of river	March 2021	A more comprehensive DPR by Irrigation Department and submitted for approval of State Government
(xii) Plantation on both sides of the river	No specific proposal	Not applicable
(xiii)Setting up biodiversity parks on flood plains by removing encroachment	No specific proposal	Not applicable

ACTION PLAN FOR RIVER BHARATHAPUZHA, KERALA

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of August2022	Progress in the month ofSeptember2022	% works completed	Details of works remaining
1	Establishment and Modernisation of MSW treatment Plant (Solid Waste Management)	Pattambi Municipality	March 2021	Implemented	Implemented	100% work completed	Nil
2	Material collection Facility (Solid Waste Management)	Pattambi Municipality	Implemented by January 2020	Implemented	Implemented	100% implemented	Nil
3	Resource recovery facility (Solid Waste Management)	Pattambi Municipality	Implemented by January 2020	Implemented	Implemented	100% implemented	Nil
4	Installing house hold and community level solid waste management units	Pattambi Municipality	March 2021	Unit supplied to house holds in 2021-2022.Tendering of 2022-23 in progress.	Tendered	Nil	100%
5	Door to Door Collection and Transportation of MSW	Pattambi Municipality	December 2020	Implemented	Implemented	Implemented	Nil
6	Regulating activities in flood plain zone protection and management of flood plain zone including side bank protection and greenery development	Irrigation department	March 2021	A more comprehensive DPR by Irrigation Department and submitted for approval of State Government. Planning Board approved budget of 500 Crore for NGT related projects.	DPR for regulating flood plain zone protection and management, and E-flow maintenance in the Bharathapuzha at Pattambi were prepared and submitted to the	Implementation not started	Full implementation remaining

				That fund may be utilised for the implementation of DPR.	government several months ago. But funding did not get sanctioned.		
7	Issues relating to E-flow, maintaining minimum environmental flow of river (by having watershed management provisions) including removal of light jungles and muddies from river courses	Irrigation department	March 2021	A more comprehensive DPR by Irrigation Department and submitted for approval of State Government	A more comprehensive DPR by Irrigation Department and submitted for approval of State Government	Implementation not started	Full implementation remaining
8	Management of Municipal plastics, hazardous, biomedical and electrical and electronic wastes	Panchayath Municipality	Implemented by January 2020	Implemented	Implemented	100% Implemented	Nil
9	Awareness programmes for sections of public	KSPCB	March 2021	Implemented	Implemented	100% Implemented	Nil
10	Monitoring of river water quality by sampling	KSPCB	2020-2021	Water quality monitoring in Bharathapuzha at Pattambi and two additional points were completed until August 2022	Water quality monitoring in Bharathapuzha at Pattambi and two additional points were completed until September 2022	Implemented.	Implemented. Will continue up to the full implementation of the action plan. Consistently achieving bathing standards

11	Primary Sewage Treatment Plant and Septage Treatment plant	Pattambi Municipality	March 2021	Kerala Water Authority prepared a DPR for STP and submitted it to the Government. The STP is proposed to be installed at Nambram in Pattambi municipality in about 50 cent of land. The survey for the sewerage pipeline was also completed and it is also included in the DPR.		Nil	100%
12	Installation of Modern Slaughter House and Rendering Plant	Pattambi Municipality	March 2021	Pattambi Municipality allocated funds for the installation of a modern slaughterhouse and assorted rendering plant but land could not be identified for the same.		Nil	100%
13	Construction of Sanitary Complex in Public Place	Pattambi Municipality	March 2021	DPR preparation on the renovation of two sanitary complexes and four new sanitary complexes at Pattambi Municipality is in progress.	Sanitary complex in taluk hospital under contribution.	20%	80%

14	Green Protocol implementation in all offices institution & public function	Pattambi Municipality	March 2021	Implemented	Implemented	100% Implemented	Nil
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**POLLUTED RIVER STRETCH MONITORING PROGRAMME
DATA SHEET SEPTEMBER 2022**

Nhangatiri Temple (U/S of NWMP-2)

Station Name		RIVER BHARATHAPUZHA AT PATTAMBI (NWMP-2)				
Type of Water body		RIVER				
Completed by		DO, PALAKKAD				
Agency		Kerala State Pollution Control Board				
1	Station Code	2	3	3	2	
2	Date and time of sample taken (DD/MM/YY, HH/MM)	9/3/2022				
		1	2	:	4	5
3	Weather	Cloudy	Clear	✓	Windy	Raining
4	Approximate depth of main stream	< 50 cm	50 – 100 cm	✓	>100 cm	Flood
5	Color & Intensity	Clear	Turbid	✓	Green	Brown
		1 = Light	2 = Moderate	✓	3 = High	
6	Odour	None	Fishy	✓	H ₂ 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 industrial area	D/s of town or industrial area	✓	Pilgrim center/Bathing Ghat/Water intake	None
11	Flow rate	43.2 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
		Organized water source	Cultivation	✓	Bathing Ghat	Others

Sl.No	Determinants	Values
1	Temperature, 0C	28
2	Dissolved Oxygen, mg/l	6.93
3	pH	8.02
4	Conductivity, μmhos/cm	219
5	BOD, mg/l	1
6	Nitrate-N, mg/l	0.392
7	Turbidity, NTU	BDL
8	Phenolphthalein Alkalinity, mg/l	BDL
9	Total Alkalinity, mg/l	70
10	Chloride, mg/l	22
11	COD, mg/l	5
12	TKN, mg/l	BDL
13	Ammoniacal-N, mg/l	BDL
14	Hardness as CaCO ₃ , mg/l	72
15	Calcium as CaCO ₃ , mg/l	41
16	Magnesium as CaCO ₃ , mg/l	31
17	Sulphate, mg/l	11
18	Calcium (Ca ²⁺), mg/l	16.4
19	Magnesium (Mg ²⁺), mg/l	7.533
20	Sodium, mg/l	17
21	Total Dissolved Solids, mg/l	133
22	Total Fixed Solids, mg/l	86
23	Total Suspended Solids, mg/l	BDL
24	Phosphate, mg/l	0.045
25	Boron, mg/l	BDL
26	Potassium, mg/l	2.6
27	Fluoride, mg/l	0.05
28	Total Coliform, MPN/100 ml	500
29	Fecal Coliform, MPN/100 ml	200
30	Fecal Streptococcus, MPN/100 ml	Absent
31	% SODIUM	32.91
32	SAR	0.87

**POLLUTED RIVER STRETCH MONITORING PROGRAMME
DATA SHEET SEPTEMBER 2022**

Veliampkallu regulator (D/S of NWMP-2)

Station Name		BHARATHAPUZHA AT PATTAMBI									
Type of Water body		RIVER									
Completed by		DO, PALAKKAD									
Agency		Kerala State Pollution Control Board									
1	Station Code	2	3	3	2						
2	Date and time of sample taken (DD/MM/YY, HH/MM)	9/3/2022									
3	Weather	Cloudy			Clear ✓			Windy		Raining	
4	Approximate depth of main stream	< 50 cm			50 – 100 cm			>100 cm ✓		Flood	
5	Color & Intensity	Clear ✓			Turbid			Green		Brown	
		1 = Light			2 = Moderate ✓			3 = High			
6	Odour	None ✓			Fishy			H ₂ 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 industrial area			D/s of town or industrial area ✓			Pilgrim center/Bathing Ghat/Water intake		None	
11	Flow rate	224 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		
		Organized water source			Cultivation		Bathing Ghat		Others		

Sl.No	Determinants	Values
1	Temperature, 0C	28.5
2	Dissolved Oxygen, mg/l	7.86
3	pH	8.06
4	Conductivity, μmhos/cm	217
5	BOD, mg/l	0.5
6	Nitrate-N, mg/l	0.463
7	Turbidity, NTU	BDL
8	Phenolphthalein Alkalinity, mg/l	BDL
9	Total Alkalinity, mg/l	77
10	Chloride, mg/l	23
11	COD, mg/l	4
12	TKN, mg/l	BDL
13	Ammoniacal-N, mg/l	BDL
14	Hardness as CaCO ₃ , mg/l	77
15	Calcium as CaCO ₃ , mg/l	44
16	Magnesium as CaCO ₃ , mg/l	33
17	Sulphate, mg/l	5
18	Calcium (Ca ²⁺), mg/l	17.6
19	Magnesium (Mg ²⁺), mg/l	8.019
20	Sodium, mg/l	15
21	Total Dissolved Solids, mg/l	137
22	Total Fixed Solids, mg/l	93
23	Total Suspended Solids, mg/l	BDL
24	Phosphate, mg/l	0.058
25	Boron, mg/l	BDL
26	Potassium, mg/l	2.6
27	Fluoride, mg/l	0.13
28	Total Coliform, MPN/100 ml	600

**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 BHAVANI, PALAKKAD- SEPTEMBER 2022

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	March 2020. Target achieved	Action plan completed. Septic tank systems are adopted for entire sewage treatment
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured	Not proposed	Not Applicable
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	STP not Proposed	Septic tank systems are adopted for entire sewage treatment
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 	Applicable at State level	Not Applicable
	<ul style="list-style-type: none"> • Monitoring at State level must take place 	Applicable at State level	Not Applicable
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 	Applicable at State level	Not Applicable

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>Drains contributing pollution to the River were not identified</p> <p>Not Proposed</p> <p>Not proposed</p> <p>Dec 2020</p>	<p>Not Applicable</p> <p>Not Applicable</p> <p>Not Applicable</p> <p>Dry waste- Implemented. Material Collection Facility and 80% of work completed for MSW treatment plant. Wet waste- 100% Managed at source level</p>
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<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>March 2021</p>	<p>Water quality monitoring of polluted river stretch and three additional points were completed until July 2022</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>Implemented by January 2020</p>	<p>Not applicable</p>
<p>(vii) Ground water regulation</p>	<p>No specific proposal</p>	<p>Not applicable</p>
<p>(viii) Adopting good irrigation practices</p>	<p>No specific proposal</p>	<p>Not applicable</p>
<p>(ix) Protection and management of food plain Zones (FPZ)</p>	<p>March 2021</p>	<p>A more comprehensive DPR prepared and submitted for approval by Irrigation Department - Check dams at Bhoothivazhi, Anakkal and Chemmanur are proposed in the DPR.</p>
<p>(x) Rain water harvesting</p>	<p>No specific proposal</p>	<p>Not applicable</p>

	<p>(xi) Maintaining minimum Environmental flow of river</p>	<p>March 2021</p>	<p>A more comprehensive DPR prepared and submitted to the Government for approval by Irrigation Department</p>
	<p>(xii) Plantation on both sides of the river</p>	<p>No specific proposal</p>	<p>Not applicable</p>
	<p>(xiii) Setting up biodiversity parks on flood plains by removing encroachment</p>	<p>No specific proposal</p>	<p>Not applicable</p>

ACTION PLAN FOR RIVER BHAVANI, KERALA

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
C(ii)	Establishment of MSW treatment Plant (Solid Waste Management)	Pudur Grama Panchayath	2019-2020	MSW treatment plant(MCF and RRF) was completed, machineries for RRF were purchased and waiting for KSEB connection for its installation.	MSW treatment plant(MCF and RRF) was completed, machineries for RRF were purchased and waiting for KSEB connection for its installation.	80% implemented	20% - installation of treatment equipment/ facilities are remaining
C(ii)	Material collection Facility (Solid Waste Management)	Pudur Grama Panchayath	2019-2020	Implemented	Implemented	100% Implemented	Nil
C(ii)	Construction of Compound wall Material collection Facility Plant	Pudur Grama Panchayath	2019-2020	Implemented	Implemented	Implemented	Nil
C(ii)	Installing of waste Bin in Colonies	Pudur Grama Panchayath	2019-2020	Minis MCF in the colonies of Pudur Panchayath were started as an alternative of installation of waste	Minis MCF in the colonies of Pudur Panchayath were started as an alternative of installation of	62% implemented	38 % implementation remaining

				bin in the colonies. Mini MCF facility were installed in the four wards and its coverage will be extend over all the 13 wards	waste bin in the colonies. Mini MCF facility were installed in the 8 wards and its coverage will be extend over all the 13 wards		
C(ii)	Preliminary expenses met for "harithakarmasena"	Pudur Grama Panchayath	2019-2020	Implemented	Implemented	100% implemented	Nil
A(b)	Construction of Community Toilets	Pudur Grama Panchayath	2019-2020	Construction of sanitary complex at Chavadiyururu under the "Take a Break Project" was completed	Construction of sanitary complex at Chavadiyururu under the "Take a Break Project" was completed	100 %	Nil
A(b)	Repair of Community toilets	Pudur Grama Panchayath	2019-2020	Not Applicable	Not Applicable	Nil	Nil
C(i)	Construction of Protection wall with fencing	Irrigation department	2020-21	River side protection of Thekkuvattathode(stream) was completed. Agreement executed for a new work on River Bhavani at Thekkuvatta LIS.	Side protection work near to Thekkuvatta LIS to be started	85%	15 %
C(i)	Seasonal clearance of jungle and muddies from river courses	Irrigation department	2020 - 21	Work in this season at two locations at Pampanthode&Rangan	Implemented	100	NIL

				athapuram were completed			
D	Construction of Check dams at the identified locations	Irrigation department	2020 - 21	Checkdam at Boothivazhy, Anakkal&Chemmannura re proposed in the DPR	Administrative sanction obtained for Bhoothivazhi and Aralikonam Check Dams & looking forward for TS. DPR for the check dams of Anakkal and Chemmannur were suggested to be revised by government. The revised DPR will be submitted on May 2022.	75%	25 %
D	Issues relating to Eflow, maintaining minimum environmental flow of river(by having watershed management provisions)	Irrigation department	2020 - 21	DPR prepared for comprehensive solution	DPR prepared for comprehensive solution	Implementati on not started	Full implementati on remaining
E	Information Education and Communication (IEC)	Pudur Grama Panchayath	2019 -20	Awareness programs conducted	Implemented	Implemented	Implemented
A(a)	Monitoring of river water quality by sampling	KSPCB	2019 -20	Water quality monitoring in Bhavani at Elachivazhi and three additional points	Water quality monitoring in Bhavani at Elachivazhi and	Implemented. Will continue up to the full implementati	Implemented.

				were completed until August 2022	three additional points were completed until September 2022	on of the action plan.	
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POLLUTED RIVER STRETCH MONITORING PROGRAMME

DATA SHEET SEPTEMBER 2022

Cheerakuzhi (U/S of NWMP-6)

Station Name		RIVER BHAVANI AT ELACHIVAZHI															
Type of Water body		RIVER															
Completed by		DO, PALAKKAD															
Agency		Kerala State Pollution Control Board															
1	Station Code	1	2	0	8												
2	Date and time of sample taken (DD/MM/YY, HH/MM)	9/20/2022															
		1	2	:	3	0											
3	Weather	Cloudy			Clear ✓			Windy			Raining						
4	Approximate depth of main stream	< 50 cm			50 – 100 cm ✓			>100 cm			Flood						
5	Color & Intensity	Clear ✓			Turbid			Green			Brown						
		1 = Light ✓			2 = Moderate			3 = High									
6	Odour	None ✓			Fishy			H ₂ 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 industrial area			D/s of town or industrial area			Pilgrim center/Bathing Ghat/Water intake			None ✓						
11	Flow rate	24 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 ✓							
		Organized water source			Cultivation		Bathing Ghat			Others							

Sl.No	Determinants	Values
1	Temperature, 0C	26
2	Dissolved Oxygen, mg/l	7.2
3	pH	7.41
4	Conductivity, μmhos/cm	68
5	BOD, mg/l	0.46
6	Nitrate-N, mg/l	0.126
7	Turbidity, NTU	BDL
8	Phenolphthalein Alkalinity, mg/l	BDL
9	Total Alkalinity, mg/l	26
10	Chloride, mg/l	7
11	COD, mg/l	4
12	TKN, mg/l	BDL
13	Ammoniacal-N, mg/l	BDL
14	Hardness as CaCO ₃ , mg/l	27
15	Calcium as CaCO ₃ , mg/l	18
16	Magnesium as CaCO ₃ , mg/l	9
17	Sulphate, mg/l	BDL
18	Calcium (Ca ²⁺), mg/l	7.2
19	Magnesium (Mg ²⁺), mg/l	2.187
20	Sodium, mg/l	3.9
21	Total Dissolved Solids, mg/l	44
22	Total Fixed Solids, mg/l	27
23	Total Suspended Solids, mg/l	BDL
24	Phosphate, mg/l	BDL
25	Boron, mg/l	BDL
26	Potassium, mg/l	0.6
27	Fluoride, mg/l	0.08
28	Total Coliform, MPN/100 ml	600
29	Fecal Coliform, MPN/100 ml	400
30	Fecal Streptococcus, MPN/100 ml	20
31	% SODIUM	23.39
32	SAR	0.33

**POLLUTED RIVER STRETCH MONITORING PROGRAMME
DATA SHEET SEPTEMBER 2022**

Chalayur Uru (U/S of NWMP-6)												
Station Name		RIVER BHAVANI AT ELACHIVAZHI										
Type of Water body		RIVER										
Completed by		DO, PALAKKAD										
Agency		Kerala State Pollution Control Board										
1	Station Code	1	2	0	8							
2	Date and time of sample taken (DD/MM/YY, HH/MM)	9/20/2022										
3	Weather	Cloudy			Clear ✓			Windy			Raining	
4	Approximate depth of main stream	< 50 cm			50 – 100 cm ✓			>100 cm			Flood	
5	Color & Intensity	Clear ✓			Turbid			Green			Brown	
		1 = Light ✓			2 = Moderate			3 = High				
6	Odour	None ✓			Fishy			H ₂ 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 industrial area			D/s of town or industrial area			Pilgrim center/Bathing Ghat/Water intake			None ✓	
11	Flow rate	20 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 ✓		
		Organized water source			Cultivation		Bathing Ghat			Others		

Sl.No	Determinants	Values
1	Temperature, 0C	27
2	Dissolved Oxygen, mg/l	7.6
3	pH	7.56
4	Conductivity, μmhos/cm	71
5	BOD, mg/l	0.26
6	Nitrate-N, mg/l	0.123
7	Turbidity, NTU	BDL
8	Phenolphthalein Alkalinity, mg/l	BDL
9	Total Alkalinity, mg/l	20
10	Chloride, mg/l	11
11	COD, mg/l	4
12	TKN, mg/l	BDL
13	Ammoniacal-N, mg/l	BDL
14	Hardness as CaCO ₃ , mg/l	20
15	Calcium as CaCO ₃ , mg/l	17
16	Magnesium as CaCO ₃ , mg/l	3
17	Sulphate, mg/l	BDL
18	Calcium (Ca ²⁺), mg/l	6.8
19	Magnesium (Mg ²⁺), mg/l	0.729
20	Sodium, mg/l	6.2
21	Total Dissolved Solids, mg/l	44
22	Total Fixed Solids, mg/l	27
23	Total Suspended Solids, mg/l	BDL
24	Phosphate, mg/l	0.409
25	Boron, mg/l	BDL
26	Potassium, mg/l	1.9
27	Fluoride, mg/l	0.11
28	Total Coliform, MPN/100 ml	200

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 KADALUNDI, MALAPPURAM

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		STP Repairing project DPC approved. Technical wing and Hotel & Restaurant Association meeting conducted for further action.
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning		Action plan prepared
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>Last updated report submitted was on September 24 ,2022</p> <p>(I) Identified 3 drains on 10/12/2018 at the hajiyyar pally stretch.</p> <p>(ii) Malappuram municipality – 30 KLD. Not completed revamping & not submitted application for consent as well till date. Given direction several times during DLTC meetings to submit the proposal for revamping and get it approved from Board .</p> <p>(iii) NIL</p> <p>(iv) Activities progressing with decentralised source level treatment method and 2506 devices are distributed. New Project approved for 6000 Ring compost unit. Further steps doing for TS&E-Tender</p> <p>(v) Attached Analysis Report for the month of September 2022. More activities are progressing under the “ Thelineer Ozhukum Navakeralam “scheme</p> <p>(vi) Actions being initiated to prevent illegal waste</p>
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<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>(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>dumping. Bio-Medical Waste collecting through IMAGE .Municipality has one MRF and 3 MCF's. Dry Waste Collecting through HKS and stored in these facilities from where recyclable materials are handed over to authorised recyclers and rejects, to KEIL through Clean Kerala Company.</p> <p>(vii) NA</p> <p>(viii) Complying</p> <p>(ix) NA</p> <p>(x) Complying</p> <p>(xi) Complying</p> <p>(xii) NA</p> <p>(xiii) NA</p>
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1.6	The discharge of waste water from the surrounding houses to the Valiyathodu - Blocking of discharge of liquid waste	Malappuram Municipality	completed	completed	completed	completed	completed	completed
1.7	Identification of illegal outlets into storm water drains and fine imposed on such units.	Malappuram Municipality	ongoing	completed	completed	completed	completed	completed
1.8	Biodegradable waste Bio gas plants- 186 Bio bins – 908 Bucket compost – 1445 Tumburmuzhi Aerobic bins - 4 Submitted proposal for 8000 ring compost systems	Malappuram Municipality	In progress	In progress	In progress	In progress	completed	Completed
1.9	Non biodegradable waste MCF & Plastic shredding and Bailing Echo Kiosk	Malappuram Municipality	Completed March 2020	Completed In progress	Completed In progress	Completed 40 mini MCF project submitted to DPC	Completed In progress	Completed Waiting for approval

1.10	Identification and monitoring of illegal activities/ CC TV Network installation	Malappuram Municipality	Ongoing	In progress	In progress	In progress	In progress	In progress
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2.KERALA STATE POLLUTION CONTROL BOARD

No.	Activity	Implementing agency	Time line	Progress in the month of July2022	Progress in the month of August 2022	Progress in the month of September 2022	% works Completed	Details of works remaining
2.1	River water quality Monitoring- Thirurangadi, Hajiyarpally National Water Quality Programme(NWMP)	KSPCB	Ongoing; Monthly frequency	100%				
2.2	River water quality Monitoring -	KSPCB	Ongoing; Seasonal - Pre -	100%				

	Thirurangadi, Kooriyad, Manikut, Hajiyarpally, Anakkayam, Oravambrum - State Water monitoring programme (SWMP)		monsoon, monsoon, post - monsoon					
2.3	Inspection and effluent quality monitoring of the flats, industrial units, service stations, hospitals, hotels etc. in Malappuram Municipalarea	KSPCB	Ongoing; Interval; Red – 1 month, Orange- 3 months, Green- 6 months	100%				
3.GROUND WATER DEPARTMENT								
No.	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August2022	Progress in the month of Septemb er2022	% works compl eted	Details of works remaining
3.1.	Ground Water resources and regulation of ground water extraction by	Ground water Department		<i>No action included in the approved action plan to be performed by Ground</i>	<i>No action included in the approved action plan to be performed by Ground</i>	<i>No action included in the approved action plan to be</i>		

	<p>industries particularly in over exploited as critical zones/blocks (Earlier status : As per Groundwater resources of Kerala, 2017 estimate a total number of 3 blocks (Mankada, Vengara and Malappuram) comes under the Kadalundi river basin. Out of three blocks Malappuram and Vengara are semi-critical blocks and the rest is a safe one, stage of groundwater extraction ranges from 69.43 % to 79.84%)</p>			<i>Water Department</i>	<i>Water Department</i>	<i>performed by Ground Water Department</i>		
3.2	<p>Ground water recharging / rain water harvesting (Earlier status : The average pre - monsoon</p>	Ground water Department		<i>No action included in the approved action plan to be performed by Ground Water Department</i>				

	groundwater level ranges from 7.59mbgl - 13.57 mbgl. Groundwater Department has implemented 3 no of roof top rain water recharging through recharge pit schemes in Vengarablock.)							
3.3	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or handpumps (Earlier status : Groundwater Department has 6 observation dug wells and 14 bore wells in the river stretch. (report attached) (Map No: 7 attached))	Ground water Department		<i>No action included in the approved action plan to be performed by Ground Water Department</i>				
3.4	For regulating use of ground water for irrigation purpose, adopting good irrigation practices	Ground water Department		<i>No action included in the approved action plan to be performed by Ground Water Department</i>				

<p>(Earlier status : The total irrigation draft in the area ranges from 979.683 - 1857.49 ha.m.)</p>							
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rNational 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 TIRUR, MALAPPURAM

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 Infra structure, Gap Analysis, Proposed along with completion timeline</p>	<p>Last updated report submitted was on September 24 , 2022</p> <p>(i) Identified 17 drains out of which 9 were additionally identified on 11.07.2019</p> <p>(ii) <u>Tirur Fish Market STP</u>– 45 KLD- Not working condition. As per Board directions to replace blower and renovate aeration tank, and to construct RVH for fish market, estimate of Rs.1, 88000/- prepared to place before the council. During DLTC meeting they have reported that the renovation work is over. Accordingly conducted site inspection by Board on 30.03.2022 to evaluate progress, No progress found. Informed that they have no proper technical personnel to give a technical sanction of the renovation work. Since about 3 years repeated directions are being issued for time bound renovation of fish market STP. The matter was discussed in the DLMC meeting conducted on 16/6/22. It was suggested by EE to give work order to a single contractor on DBOT basis as per latest govt. order dated 28/4/22 which gave permission to LSGD s for the same.</p> <p>(ii) <u>Tirur municipal Bus Stand STP</u>-50 KLD –Present status – Truss work of shelter completed and electrical installation works going on.95% of total work completed. Expected to be completed shortly.</p>
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<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>iii)NIL</p> <p>(iv)De centralised treatment facilities, Disposal using sanitary landfills, composting operations, MRF, MCF etc. Slaughter house- completed civil work. Electrical installation works started.</p> <p>(v)Attached as Annexure II-Analysis report during the month of September 2022)</p> <p>(vi)Actions are being initiated to prevent illegal waste dumping. BMW are being disposed scientifically through IMAGE. Municipality have MRF, MCF facilities</p> <p>(vii)NA</p> <p>(viii) Complying</p> <p>(ix) NA</p>
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	<ul style="list-style-type: none">(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		<ul style="list-style-type: none">(x) Complying(xi) Complying(xii) NA(xiii) Reported that encroachment survey is completed and now the process of laying survey stones is in progress.
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ACTION PLAN FOR RIVER TIRUR, KERALA

1. IRRIGATION DEPARTMENT								
1.								
No.	Activity	Implementing agency	Time line	Progress during month of	Progress during month of	Progress during month of	% works completed	Details of works remaining
			31.03.2020	july 2021	august 2022	September 2022		
1.1.1	Strengthening the right side bund of Tirur- Ponnani Puzha at Porur, ward no. 1 Tirur Municipality	Irrigation Department	6 Months		No progresses	Nil		
1.1.2	Cleaning and development of old Ponnani Thodu at Thazhepalam	Irrigation Department	6 Months			Nil		These two works are combined and estimate submitted for an amount of Rs 28.6Lakhs. No sanctions are approved till date..(price id-2021/4249/IA). Presently the estimate prepared in Price new Version and the estimate amounts to Rs 30.10 Lakhs (Price Id:IRR/IA/EST/4907/2022)

1.1.3	Repair and Rehabilitation of Koottayi Regulator cum Bridge across Tirur Ponnani Puzha in Mangalam Grama Panchayath in Malappuram Dist	Irrigation Department	18 Months	Civil work 0% and mechanical works 10%	Due to rain, the work can start in September.	No progress.	Civil work 0% Mechanical works 10%	Formation of ring bund, Apron extension and construction of cut off wall, installation of new shutters with hoisting arrangements and related mechanical works.
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2.TIRUR MUNICIPALITY

No.	Activity	Implementing agency	Time line	Progress during month of July 2021	Progress during month of August 2022	Progress during month of September 2022	% works completed	Details of works remaining
2.1	Provide septic tank for nearest houses	Tirur Municipality	Dec 2019	completed	completed	completed	100	NIL
2.2	Establishment of Solid waste Treatment Plant Thumboor Muzhi Model Aerobic Bin	Tirur Municipality	March 2020	completed	completed	completed	100	NIL
2.3	Establishment of Non Degradable waste treatment Plant, Resource Recovery facility, Plastic Shredding Unit Segregation shed	Tirur Municipality	March 2020	completed	completed	Completed	100	NIL
2.4	Slaughter House	Tirur Municipality	December	Machineries	Revised estimate of	Civil work and		

			2020	installation going on	biogasplant and ETP submitted for the approval	mechanical work on going	90%	In progress
2.5	Fencing on Bridgeside ThalakkadathurBridge	Tirur Municipality	December 2020	completed	completed	completed	100	NIL
2.6	Installation of CCTV Camera near the river Bank Thalakkadathur Bridge	Tirur Municipality	May 2020	Completed	completed	completed	100	NIL
2.7	Planting of Bamboo seedlings on the river bank (Thazhepalam)	Tirur Municipality	June 2020	Completed	completed	completed	100	NIL
2.8	Renovation of Effluent treatment plant at fish Market. AMC Granted ETP with Aerobic System	Tirur Municipality	June 2019	DPC approved The project amount of 20lakhs. No progress	Tender process started to prepare an estimate for the repair work of existing ETP at fish market. We have only civil engineers. So trying to get an estimate for the electrical and mechanical equipments to be replaced from the approved agency of Suchitwa mission. Then as soon as obtain the TS ,the works can be tendered,it is expecting to	Letter have been given to IRTC to hand over the work directly.	In progress	(See minutes)

					complete by the November of this year			
2.9	Setting up of STP at Private Bus stand	Tirur Municipality	June 2020	Mechanical work is going on.	Three phase connection to be obtained from KSEB .All the internal electrical works are completed,except the earth line works,which is being late because of the marshy land at the area.Sewerage line has to connect with STP.	Civil work completed. Application has been submitted to KSEB for three phase connection .	progressing	In progress
2.10	Setting up of a new drain after demolishing the old one. The old one was the hub of the waste water outlet of the shops and other establishments. The proposed drain is constructing in the middle of the road so as to avoid intrusion of pipes from outside	Tirur Municipality	June 2020	Completed	Completed	Completed	100	Completed

2.11	Identification of illegal outlets in to storm water drain sand fine shall be imposed on such units	Tirur Municipality						Fine imposing mechanism going on	NIL
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3.KERALA STATE POLLUTION CONTROL BOARD

No.	Activity	Implementing agency	Time line	Progress in the month of July 2021	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
3.1	River water quality Monitoring- Thalakadathur National Water Quality Programme(NWMP)	KSPCB	Ongoing; Monthly frequency					Ongoing monthly frequency
3.2	River water quality Monitoring State Water monitoring programme (SWMP)	KSPCB	Ongoing; Seasonal					Ongoing seasonal
3.3	Inspection and effluent quality monitoring of the flats, Industrial units, Service stations, hospitals, auditorium, hotels in Municipal area		Ongoing; Interval; Red – 1 month, Orange- 3 months, Green- 6 months					Ongoing

4. ACTION PLAN BY VARIOUS GRAMA PANCHAYATHS- THALAKKAD, VETOM, MANGALAM, CHERIAMUNDAM

No.	Activity	Implementing agency	Time line	Progress in the month of July 2021	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
4.1	Protection of Tirur Ponnani River	Thalakkad Grama Panchayath handover fund to District Panchayath	31.03.2020	Completed	Completed	Completed	100	NIL
4.2	Installation of CC TV camera on YetterikadavuKunjulikkadavuMangattiri Bridge, Aikkanchiri Bridge, Paravanna Bridge	Vettom - KS SECURITY SYSTEM	Spill over due to lack of fund	completed	completed	completed	100	NIL
4.3	Installation of CC TV camera	Mangalam Grama Panchayath Win Plus Agency, Kondotty	Completed	completed	completed	completed	100	NIL
4.4	Haritha KeralamThirur-Ponnanipuzha protection	Mangalam Grama Panchayath Nirmithi Kendra, Kozhikode	31.03.2020	- Dispute on making road in private property..Discussions going on to solve the issue.	Inprogress	Inprogress	70% protection of wall completed	Nearing completion Landscaping work remainig as per estimate

4.5	Fencing on bridge side Thalakkadathur	Cheriyamundam Grama Panchayath	March 2020	completed	completed	completed	100	NIL
5.GROUND WATER DEPARTMENT								
No.	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
5.1.	Ground Water resources and regulation of ground water extraction by industries particularly in over exploited as critical zones/blocks (Earlier status: As per Groundwater resources of Kerala, 2017 estimate a total number of 2 blocks (Tirur and Kuttippuram) comes under the Tirur river basin. These two blocks are semi-critical blocks and the stage of groundwater extraction ranges from 77.75 % to 77.92%)	Ground water Department Therefore, to regulate ground water resources in this area, no permission is granted for packaged drinking water industries or any other water induced industries	NA	No permits issued	No permits issued	No permits issued NO ACTION INCLUDE UNDER THIS PLAN BY GROUND WATER DEPARTMENT	NA	NA
5.2	Ground water recharging / rain water harvesting (Earlier status: The average pre -monsoon groundwater level ranges from 6.14mbgl - 8.49 mbgl.)	NA	NA		NO ACTION INCLUDED UNDER THIS PLAN BY GROUND WATER DEPARTMENT	NO ACTION INCLUDE UNDER THIS PLAN BY GROUND WATER DEPARTMENT	NA	NA
5.3	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand	Ground water Department			NA		NA	NA

	pumps	No observation well along the river stretches)						
5.4	For regulating use of ground water for irrigation purpose, adopting good irrigation practices (Earlier status: The total irrigation draft in the area ranges from 49.14 - 870.97 ha.m.)	Ground water Department No Data Available. No Updation after GEC 2017. (Report not published)			NO ACTION INCLUDED UNDER THIS PLAN BY GROUND WATER DEPARTMENT	NO ACTION INCLUDED UNDER THIS PLAN BY GROUND WATER DEPARTMENT	NA	NA

6.REVENUE DEPARTMENT

No	Activity	Implementing agency	Timeline	Progress July 2022	Progress August 2022	Progress September 2022	% works completed	Details of works remaining
6.1	Survey of boundaries of river side	Revenue department		In progress	In progress	Completed	100%	Encroachment survey completed.

**ANALYSIS REPORT OF POLLUTED STRETCH POINTS IN TIRUR RIVER
SEPTEMBER 2022**

SI NO	Name of point	PARAMETERS				
		P ^H	DO(mg/l)	BOD(mg/l)	COD(mg/l)	FC (cfu/100ml)
1	Drain near Tirur Railway station	Not accessible				
2	Thazhepalam drain	7.3	4.5	1.2	4.8	92
3	Naduvilangadi drain (old ponnani thodu)	Not accessible				
4	Annassery drain	7.6	6.7	1.9	7.6	100
5	Canal at CV Land	Not accessible				
6	Canal at Mangalam thuruth	7.5	5.3	1.6	6.4	64
7	Canal at Pullooni	7.5	3.2	1.0	4	76
8	Drain near Mangattiri bridge	7.3	3.8	1.3	5	88
9	Drain near Ettirikkadavu bridge	7.4	4.0	1.1	5	70
10	Epothingal	7.2	3.8	0.9	3.6	76
11	Asarikkadav	7.1	6.5	1.9	7	72
12	Kandanath kadav	7.1	6.4	1.1	4.4	96
13	Pancharamoola	7.2	2.0	1.1	5	60
14	Kakadav	7.3	4.6	1.2	4.8	120
15	Kanathkadav	7.3	5.5	1.4	5.6	88
16	Drain near tirur railway station	7.1	4.5	1.2	4.8	120
17	Payyanangadi(kadayithodu)	7.3	2.6	1.0	4	120

**ANALYSIS REPORT OF POLLUTED STRETCH POINTS IN KADALUNDY
RIVER SEPTEMBER 2022 ALONG HAJIYARPALLY**

<i>Sl.No</i>	Name of point	PARAMETERS				
		P ^H	DO (mg/l)	BOD(mg/ l)	COD(mg /l)	FC (cfu/100m l)
<i>1</i>	Valiyangadi drain	7.3	7.3	0.6	2	36
<i>2</i>	Valiyangadi bypass drain	Not accessible				
<i>3</i>	Valiyathod drain	7.5	7.6	1.6	6.4	88
<i>4</i>	Hajiyarpally	7.6	7.2	0.8	3.2	48

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 KALLAYI, KOZHIKODE

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	Medical college STP 31.03.2023 STP 13 MLD- 31.03.2023	
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		

	<ul style="list-style-type: none">• 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</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 KALLAYI, KERALA

Kozhikode Corporation								
No.	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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	2	5	1		
2	Waste to energy project proposed at Njeliyamparamba	KSIDC	30.06.2021					
3	Establishment of Aerobic compost units 24 units established in 6 sites	Kozhikode Corporation	Completed and functioning	C O M P L E T E D				
4	Segregation of solid waste at source level and treatment of house hold wastes 300 ring compost and 150 biogas plant	Kozhikode Corporation	30.06.2019	C O M				

	installed			P L E T E D				
5	Setting up of rendering treatment plant for chicken stall wastes Installed in Thamarassery panchayath. Now waste is collected from 170 units	Fresh cut agency	on trial run	O N G O I N G			100%	
6	Implementation of Green protocol unit	Kozhikode Corporation	30.06.19	C O M P L E T E D				
7	Setting up of common STP of(13 MLD) 7.1 At Kothi bridge- 6 MLD plant proposed 7.2 At Avikkal -7 MLD plant proposed	Kozhikode Corporation	31.03.2020	For 7 MLD STP On 23.06.202, Corporati	For 7 MLD STP Site clearance completed, As a per the	For 7 MLD STP Site clearance completed, As a	For 7 MLD STP Total station survey completed, construction of Fencing is	Construct ion of 6 & 7 MLD STPs and 98 KMS sewer

				<p>on has started the 7 MLD STP work at Avikkalthodu with police protection. work is in progress.</p> <p><u>For 6 MLD STP</u></p> <p>Awaiting final judgment from Hon: High court of Kerala to restart the work.</p>	<p>standard procedure the level were reported to Chief technical examiner's office for approval on 14.7.2022. Due to discrepancy in the foundation details in the DPR the work has been stopped. The consultant had agreed to re submit the design details. The structural redesigning is in</p>	<p>per the standard procedure the level were reported to Chief technical examiner's office for approval on 14.7.2022. The consultant had submitted the design details. The same has been submitted to Govt: engineering college</p>	<p>completed, soil investigation has been completed. Site cleared</p> <p><u>For 6 MLD STP</u></p> <p>Total station survey completed, construction of Fencing is completed</p>	<p>line.</p>
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					<p>progress. A case was filed by the protesters in the munsiff court Kozhikode, hearing is in progress.</p> <p><u>For 6 MLD STP</u> Awaiting final judgment from Hon: High court of Kerala to restart the work.</p>	<p>Thrissur for structural vetting on 06.09.2022. The structural vetting is in progress.</p> <p>The case in the munsiff court, the hearing was completed, waiting for the judgment.</p> <p><u>For 6 MLD STP</u> Awaiting final judgment from Hon: High</p>		
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						court of Kerala to restart the work.		
8	Cleaning of Canoli canal	Kozhikode Corporation	20.07.2019	C O M P L E T E D				
9	Purchasing of Solar Boat for Canoli canal cleaning	Kozhikode Corporation	31.03.2020	D R O P E D				
10	Installation of CCTV Camera for the Identification and monitoring of illegal activities	Kozhikode Corporation	31.03.2020	D R O P E D				
11	Establishment of Mobile Septage Units	Kozhikode Corporation	31.03.2020					

12	Action taken against dumping of wastes into river and public places	Kozhikode Corporation	Continuing					
13	Cleaning of B.K canal	Kozhikode Corporation	31.03.2020	Completed	Completed	Completed	100%	N.A
14	Establishment of treatment plant at Medical college (3 MLD plant) Tender over 14.1 -2 MLD plant proposed 14.2- 1 MLD plant proposed	Kozhikode Corporation	31.03.2020	<u>For 2.1 MLD STP</u> 1214 m pipe laying completed and construction of the collection tank is completed. Construction of receiving chamber is in progress.	<u>For 2.1 MLD STP</u> 1214 m pipe laying completed and construction of the collection tank is completed. Construction of receiving chamber is in progress. <u>For 1 MLD STP</u> Site cleared	Work has been delayed due to contractor's delay. Hence a notice has been issued.	30%	1086 ms pipe laying and Construction of 1 MLD STP is pending

				<u>For 1 MLD STP</u> Site cleared				
15	Construction of drains at Y.M.RC Ayyankar colony	Kozhikode Corporation	31.03.2020	Work has been stopped. Contract or asked higher rate for the items which exceeds more than 25% than the tendere d quantity. 30 th SHPSC for AMRUT project	Estimate preparation is in progress	Estimate has been prepared in price-2018	58 %	963 m drainage contractio n is remaining.

				dated 05.07.2022, chaired by Hon: Chief secretary , Kerala has decided to short close the work and retender the remaining portion of the work.				
16	Implementation of STP at Kottooli (13.5 MLD)	Kozhikode Corporation						
17	Treatment facility for waste water in Central market	Kozhikode Corporation						
18	Establishment of comfort stations	Kozhikode Corporation						

19	Provide facility for MRF,RRF, Super MRF 3 units existing 19.1 Njeliyanparamb 19.2 Industrial estate 19.3 Meyor bhavanjayanthinagar colony	Suchitwa Mission	Project in progress					
20	Identification of illegal outlets from house to storm water drain and issue Notice to such Houses	Kozhikode Corporation		2	5	1		
21	Establishment of Plastic shredding unit	Kozhikode Corporation	Project started					
22	Establishment of slaughtering unit	Kozhikode Corporation						
23	Cleaning of drains in Kozhikode Town	Kozhikode Corporation	Ongoing					

Irrigation Department

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
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1	Desilting of Kallayi river from Kaduppini to Kothi in Kozhikode Corporation	Irrigation department	31.03.21					
2	Provide fencing on the sides of the Bridge	Irrigation department	31.03.21					
3	Dredging, Desilting & removal of weeds from E K Canal (11.2 km)	Irrigation department	31.07.19					
4	Bio Park in Kozhikode District	Irrigation department						
5	Flood Prone Mapping in Kozhikode District	Irrigation department						
Kerala State Pollution Control Board								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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– 1month. Orange – 3 months. Green – 6 months .					

SuchitwaMission								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% 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 WaterDepartment								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining

B(i)	<p>Ground Water resources and regulation of ground water extraction by industries particularly in over exploited as critical zones/blocks</p> <p>(Earlier status: As per Groundwater resources of Kerala, 2017 estimate ,Kozhikkode Block comes under the Kallai river basin and the block is safe with stage of groundwater extraction 68.49%)</p>						
B(ii)	<p>Ground water recharging / rain water harvesting</p> <p>(Earlier status : The average pre-monsoon groundwater level is 7.23mbgl. Groundwater Department has implemented 3 no of dug well recharge schemes at Kozhikkode block)</p>						
B(iii)	<p>Periodic ground water quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps</p> <p>(Earlier status - Groundwater Department has 1 observation piezometer (BW)in the river stretch.)</p>						
B(iv)	<p>For regulating use of ground water for irrigation purpose, adopting good irrigation practices</p> <p>(Earlier status - The total irrigation draft in the block area is 488.76 ha.m.)</p>						

Action plan by irrigation Department

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
E	Dredging and desilting	Irrigation Dept	3 years					
E	E-flow (by micro water shed management)	Irrigation Dept	3 years					
E	Flood plain zone (protection and management)	Irrigation Dept	3 years					
E	Greenery development (plant in trees on the banks)	Irrigation Dept	3 years					

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 KAVVAYI, KANNUR

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		All houses and establishments have their own disposal facility
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured		No STP proposal
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	31.03.2022	Some of the works in action plan is completed already and some are ongoing as informed by local bodies
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		

	<ul style="list-style-type: none">• 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</u></p>	<p><u>RAMANTHALI</u> There are 5 natural drains meeting the river, all cleaned.</p> <p>RRF at block level</p> <p>Lab analysis reported by KSPCB is attached</p>
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	<p><u>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>(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</p>		<p>Implementing in all households as per KPBR rules</p>
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	removing encroachment		
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ACTION PLAN FOR RIVER KAVVAI, KERALA

Action Plan of LocalBody								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of December 2020	Progress in the month of August 2021	Progress in the month of September 2022	% works completed	Details of works remaining
A (b)	Sanitation Facility Septage treatment facility shall be provided by Local Bodies in various places.	Payyannurmunicipality		NIL	NIL	NIL	NIL	Sewage Treatment Plant –DPR Prepared. Waiting for the approval of Suchitwa mission
C(ii)	Biodegradable waste disposal Bio bins (2061) Pit Compost (10992) Bio gas Plant (687)	PayyannurMunicipality	2022	0	0	0	100%	Project implementation in progress
A(b)	Non-biodegradable Waste Disposal MCF and RRF	PayyannurMunicipality	2022					MCF and RRF in action

E	Awareness Youth, Asha workers and other stake holders and HarithasahayaSamithi	Payyannur Municipality	Ongoing project					Ongoing
E	Installation of CCTV cameras at major points	Kankol	2019	Got 1 CCTV By sponsorship and installation in progress	Not reported	CCTV Not installed		
C(ii)	Biodegradable waste disposal Bio bins, Pit Compost, Bio gas Plant(2460 Nos)	Kankol	Ongoing	completed	completed			
A(b)	Non-biodegradable Waste Disposal MCF	Kankol	Ongoing project	completed	completed			
E	Awareness Youth, Asha workers and other stake holders	Kankol	Once in a month	completed	completed			
A (b)	Sanitation Facility in markets	Ramanthali GP	2020	Available	Available	Available	100%	

A(b)	Non-Biodegradable waste disposal MCF	Ramanthali GP	2020	No	No	Yes	100%	On 09/2020 onwards waste collecting and transferred to MCF
A (b)	Drain Cleaning and side protection	Ramanthali GP	2022	Done	Done	Done	100%	There are 5 natural drains meeting the river, all cleaned
E	Renovation of Ponds & Construction of Platform to openwell (Implementation of Map of Kavvayi Wetland system of Northern Kerala)	Thrikkaripur - CWRDM	2019					
Action Plan by Irrigation Department								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of May 2022	Progress in the month of June 2022	Progress in the month of July 2022	% works completed	Details of works remaining
E	Desilting and rejuvenation of NarangaThodu in	Irrigation Department	2020		DPR submitted for FS approval (Amount 5.40 Lakhs)			

	Payyannur Municipality				
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1. Proper awareness among the inhabitants in the area is to be given for protecting the water bodies. Basic training for the people at the grass root level is to be provided for river management. All efforts for maintaining the quality of water bodies may be done by the Panchayat/Municipal authorities only with people's participation.
2. The nearby gramapanchayath and municipalities are mainly responsible for not providing municipal waste collection and treatment facilities in the locality. So they must be instructed to provide the required facility for scientific disposal of municipal solid waste as per the MSW rules 2016. The citizens as well as the municipal/gramapanchayath authorities need to be aware of the importance of scientific disposal of waste generated. Their attitude towards handling waste has to be changed. Reducing waste, recovering recyclable materials, return of nutrients to the eco system as well as generation of energy from waste are to be practiced. There has to be a valid scheme for collection, segregation, transportation, processing and safe disposal of waste by the authorities. For this affordable and viable waste to energy conversion technologies apart from conventional composting is to be implemented by the municipalities seeking technical expertise.
3. Propagation of vegetative cover in water shed will reduce soil erosion and enhance percolation of rain water into the sub surface. In downstream stretches where the river is saline, propagation of mangroves are essential.
4. Strict monitoring from the part of implementing as well as monitoring agencies is required for effective functioning of waste treatment facilities in waste generating units.
5. The practice of waste dumping into the river is to be prevented legally and strict action against this practice is to be adopted at panchayath and municipality level.

6. Re-survey of the river boundaries throughout the entire stretch is to be done urgently so as to prevent encroachment of the river.
7. The municipalities as well as the panchayaths are to be directed to provide proper waste management facilities of their own. All towns and cities must have Sewage Treatment Plants (STPs) that clean up the sewage. Facility for collection, segregation, transport, processing and scientific disposal of waste generated are to be provided by the local authorities in strict adherence to the Municipal Solid Waste Management Rules, 2016. For this, affordable and viable waste to energy conservation technologies apart from conventional composting is to be implemented seeking technical expertise.
8. Strict monitoring from the part of implementing as well as monitoring agencies is required for effective functioning of waste treatment facilities in waste generating units. The riverine stretches are to be monitored periodically at identified locations for water quality assessment.
9. Modern agricultural practices and technologies introduce the use of inorganic fertilizers with Nitrogen, Phosphorous, Potash and inorganic pesticides in farm lands and play important role in the river pollution. These may concentrate into the water body through run off causing algal blooms by which whole stretch of water become choked. Fertilizers and chemicals application in agricultural lands are to be strictly under technical expertise.
10. Rain water recharging measures must be adopted.
11. Eco tourism and water tourism projects are to be designed giving due importance for protecting the environment. The activities are to be organized in such ways which do not induce any types of pollution to the water body. Strict monitoring from the concerned authorities are recommended in functioning of the tourism projects.
12. Implement Green Protocol effectively in local self-governments. Prohibit littering of plastics in the area. Plastic

wastes shall be handled as per the provisions of Plastic Waste (Management and Handling) Rules,2018.

13. The existing waste water treatment facilities of Taliparamba Municipality shall be augmented in such a way so as to operate round theyear.

14. Actions shall be taken by the local bodies to clean the storm water drains. Rejuvenation of small streams, creeks leading into the river is to bedone.

15. Round the clock patrolling shall be provided so as to prevent waste dumping on public places.

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 KUPPAM, KANNUR

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		Almost all residence and commercial establishments have their own insitu sewage 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		A common STP is at Taliparamba
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	31.03.2021	
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	Monthly before 20 th of every month	

<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 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</p>	<p>Pipe compost-600 Biogas plant-25 Compost pit -100 Thumboor muzhi-1</p> <p>Lab report is attached</p> <p><u>MADAYI</u> ONGOING <u>Udayagiri</u> Door to door collection of biodegradable waste is collected by local body and measures for disposing biodegradable waste is practising. All existing HCF are disposing their bmw through CBMWTF</p> <p><u>Pattuvam</u> Door to door collection of biodegradable waste is collected by local body and measures for disposing biodegradable waste is practising. All existing HCF are disposing their bmw through CBMWTF</p>
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	removing encroachment		
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ACTION PLAN FOR RIVER KUPPAM, KERALA

Ref para no:48 as per NGT order 673/2018 dated:20.09.2018	Activity	Implementing Agency	Time of Completion	Progress in the month of December 2020	Progress in the month of August 2021	Progress in the month of September 2022	% works completed	Details of works remaining
Udayagiri GP								
A (b)	Sanitation Facility	Udaya giri GP	03/2020			Completed		
C (ii)	Biodegradable waste disposal	Udaya giri GP	Ongoing project					
C (ii)	Non bio degradable Waste Disposal	Clean kerala Company	Ongoing project					
E	Awareness	Youth, Asha workers and other stake holders	Ongoing project					
Chapparappadavu GP								
A (b)	Sanitation Facility	Chapparappadavu GP	06/2019		Not reported	Not reported		
C (ii)	Biodegradable waste disposal	Ward Sanitation Committee of Local Body	12/2019					
C (ii)	Non bio degradable Waste Disposal	Local body (Haritha Karma Sena)	03/2020					

E	Awareness	Youth, Asha workers and other stake holders	03/2020 (Will extend if necessary)					
		Pariyaram Panchayat						
A (b)	Sanitation Facility	Pariyaram Panchayat	03/2020	298 ring compost installation going to start	Not reported	Not reported		
C (ii)	Biodegradable waste disposal		03/2022	ongoing				
C (ii)	Non bio degradable Waste Disposal	Pariyaram Panchayat	On going project					
E	Awareness	Youth, Asha workers and other stake holders	Whenever necessary					
A (b)	Identification of illegal outlets in to drains and stoppage of the same	Pariyaram Panchayat	09/2019					
		Madayi GP						
A (b)	Sanitation Facility	Local Body	2022					
		Ward Sanitation	Bio bins, pit compost -2022		100 Ring compost	Order placed		

C (ii)	Biodegradable waste disposal	Committee of Local body			unit supplied	for another 96 units		
			Thumpoormuzhi = 2020			Tender approved and gave supply order		
C (ii)	Non bio degradable Waste Disposal	Haritha Karma sena	Ongoing project			ONGOI NG		
E	Awareness	Youth, Asha workers and other stakeholders	Ongoing project			ONGOI NG		
A (b)	Identification of illegal outlets in to drains and stoppage of the same	Local Body	2022					
Thalipparamba Municipality								
A (b)	Sanitation Facility	Municipality				Not reported		
C (ii)	Biodegradable waste disposal							
C (ii)	Non bio degradable Waste Disposal	Haritha Karma sena						
E	Awareness	Youth, Asha workers and other stakeholders	Once in a month					

		holders						
Pattuvam GP								
E	Awareness	Youth, Asha workers and other stake holders	Whenever necessary					
C (ii)	Removal of plastic wastes from the river bank							

Action Plan by Irrigation Department

Sl no	Activity	Implementing Agency	Time for completion	Progress in the month of May 2022	Progress in the month of June 2022	Progress in the month of July 2022	% works completed	Details of works remaining
1	Providing fencing on Kuppam bridge (NH) across Kuppam river at Thalipparamba in Thalipparamba Municipality	Irrigation department	2021					
2	Rejuvenation of Kuppam River - Flood plain Zone management : Construction of Marginal Earthen Bund at peringeel In Ezhome Grama Panchayath (PRICE ID : 2019/10484/IA)	Irrigation Department	2021					

3	Greenery development- Plantation plan. Plantation on both sides of the river, setting up biodiversity parks on flood plains by removing encroachment	Irrigation Department	3 years	In order to identify the land for plantation on both sides of the river, the boundary of government land should be fixed by the Revenue Department. Eviction of encroachment should be done. For the same, District collector Kannur has already been addressed from this office and subsequent bio cover works and planting trees have to be done by social forestry department	
4	Rejuvenation of Kuppam River - Maintaining E-Flow : Desilting of Kuppam river in Various Stretches in Chapparapadavu Grama Panchayath (PRICE ID : 2019/10517/IA)	Irrigation Department	3 years	<p>Initially the DPR was submitted for 30 lakhs. But as per the letter No.752755/C1/16/WRD Thiruvananthapuram dtd 30/09/2020 of the Additional Chief Secretary to Government, the estimate was recasted for an amount of 10.40 lakhs as per DSR 2016 by assessing the quantity of silt by scientific method. Since DSR 2018 was introduced, DPR was resubmitted for an amount of Rs. 12.80 lakhs for FS . The work includes desilting from Kooverikkadavu and Kattamballikkadavu.</p> <p>The “Room for River” campaign was launched to remove silt from all 44 rivers in Kerala in 2022. The work, Rejuvenation of Kuppam River - Maintaining E-Flow is coming under Rejuvenation of Kuppam river under Room for River programme. The Executive Engineer , Inland Navigation Division, Kannur was in charge of the Kuppam River.</p> <p>The work of silt removal from Kooverikkadavu is completed and was executed by the Assistant Engineer, Inland Navigation Section, Kannur. Since sand deposit was identified at Kattampallikkadavu, it was not removed under “Room for River” campaign . It should be done after sand audit and the procedure should be followed and it cannot be executed as a work by tender method. So this work may be treated as completed.</p>	

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Combined ActionPlan

	Proposed action	Agency	Timeline	Progress in the month of December 2020	Progress in the month of January 2021	Progress in the month of February 2021	% works completed	Details of works remaining
1	Providetoilets to residences with treatment and disposal system for sewage and sullage	Local Body						
2	Construction of new community toilets with treatment system	All local bodies SuchitwaMission, Revenue department	Proposed Construction Of new community Toilet at satellite points on the bank ofriver					
3	Entry of rain water and rain water recharging to all channels and drain	All local bodies , Kerala Water Authority	Drains are inspected before rain and all channels and stream are cleaned once in a year					
4	Sanitary facility in hotels (around 7) one hospital,Establishments situated in the ward for the segregation, treatment and disposal of solid wastes as per SolidWastesManagementRules,2016	Pollution Control Board ,Health department	Check they have board consent and sanitation facility is provided					
5	Adequate number of kitchen bins shall beprovided	Municipalities and local bodies	One project year					
6	Providing proper waste handling facility. For wastewater and solid wastes	Local body	One project year					

7	Rendering plant for poultry wastes	Local body	As per their project and fund availability					
8	Slaughter house waste disposal facility	Local body	One common slaughter house for 3 to 4 local body					
9	Strict monitoring of disposal of waste(sewage, sullage, degradable waste, non-biodegradable waste) surveyed area and also in the catchment of theriver i)Verify Whether consent to operate of the Board exists	Pollution Control Board	Six months					
10	Sanitation survey is to be conducted for 100m on either sides of the other parts of polluted stretch if any located nearby	Pollution Control Board	Six months					
11	Awareness for residence association:	Suchitwamission/L SGD/Corporation	Once in a month					

Action Plan by Ground WaterDepartment

Sl.No	Ref para no:48 as per NGT order 673/2018 dated:20.09.2018	Activity	Progress in the month of December 2020	Progress in the month of January 2021	Progress in the month of February 2021	% works completed	Details of works remaining
1	B(i)	Ground Water resources and regulation of ground water extraction by industries particularly in over expolited 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 PERUVAMBA, KANNUR

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		All houses and establishments have their own disposal facility
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured		No STP Proposal
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	31.03.2022	Some of the works in action plan is completed already and some are ongoing as informed by local bodies.
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		

	<ul style="list-style-type: none">• Member Secretary,CPCB		
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<p>6.1 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</p>	<p><u>RAMANTHALLI</u></p> <p>There are 5 natural drains meeting the river, of which 3 drains cleaned.</p> <ol style="list-style-type: none"> 1. Parappa Thodu (Ward 6)- 1 Km. 2. Chennakki Thodu (Ward 8) – 1.3 Km. 3. Kallayi Thodu (Ward 3&4) – 1 Km. <p>Two are partly cleaned and the cleaning work is in progress.</p> <ol style="list-style-type: none"> 1. Manthan Thodu (Ward 6) -1 Km 2. Ambachikundu Thodu (Ward 15) – 500 M (The work is slowly ongoing due to the higher level of water in stream, 40% Completed)
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	<p>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>(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 PERUVAMBA, KERALA

Action Plan of LocalBody								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of December 2020	Progress in the month of August 2021	Progress in the month of September 2022	% works completed	Details of works remaining
A(b)	Sanitation Facility STP proposed at market place	PayyannurMunicipal ity	2021	nil	nil	nil	nil	Sewage Treatment Plant –DPR Prepared. Waiting for the approval of Suchitwa mission
C(ii)	Biodegradable waste disposal Bio bins (2061) Pit Compost (10992) Bio gas Plant (687)	PayyannurMunicipa lity	2020	0	0	0	80%	Project implementat ion in progress
C(ii)	Non biodegradable Waste Disposal MCF and RRF	PayyannurMunicipa lity	Ongoing				1	MCF & RRF in function
E	Awareness Youth, Asha workers	PayyannurMunicipa lity	Ongoingproj ect	90%	100%	100%	ongoi ng	Completed

	and other stake holders and HarithasahayaSamithi							
A(b)	Sanitation Facility Scientific Septic Tank and Soak pit	Kunhimangalam Panchayath	2019		Not reported	-		
C(ii)	Biodegradable waste disposal Bio bins, Pit Compost, Bio gas Plant	Kunhimangalam Panchayath	Every year project					
C(ii)	Non biodegradable Waste Disposal MCF	Kunhimangalam Panchayath	Ongoing project					
E	Awareness Youth, Asha workers and other stake holders	Kunhimangalam Panchayath	Once in a month					
E	Side wall protection of drains	Kunhimangalam Panchayath	12/2019					
E	Installation of CCTV cameras at major points	Kankol Alappadamba GP	2019					
C(ii)	Biodegradable waste disposal Bio bins, Pit Compost, Bio gas	Kankol Alappadamba GP	Ongoing					

	Plant (2460 Nos)							
C(ii)	Non Biodegradable waste disposal MCF	Kankol Alappadamba GP	Ongoing					
E	Awareness Youth, Asha workers and other stake holders	Kankol Alappadamba GP	Once in a month					
A(b)	Sanitation Facility No markets and houses on the bank	Ramanthali GP		Available	Available	Available	80%	
C(ii)	Non Biodegradable waste disposal MCF and sending to RRF	Ramanthali GP	2020	no	Yes	yes	100%	
E	Drain Cleaning and Side protection	Ramanthali GP	2022	Done	Done	Done	100%	
E	Awareness Youth, Asha workers and other stake holders	Ramanthali GP	2022	Done	Done	Done	100%	
C(ii)	Bio degradable waste disposal Ring Compost – 1000 Nos Compost Pit – 2000 Nos Biogas Plant – 100	Ramanthali GP	2022	Ring Compost-100 Compost Pit –	Ring Compost-100 Compost Pit –	Ring Compost-290 Compost Pit –	100%	

	Nos			15 Biogas Plant- 10	0 Biogas Plant – 0	0 Biogas Plant – 0		
Action Plan by Irrigation Department								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of May 2022	Progress in the month of June 2022	Progress in the month of July 2022	% works completed	Details of works remaining
E	Providing fencing on Perumbabridge (NH) across Perumbariver at Payyannur in Payyannur Municipality	Irrigation department	2021	Initially the DPR submitted for 22lakhs. But as per the letter No.752755/C1/16/WRD Thiruvananthapuram dtd 30/09/2020 of the Additional Chief Secretary to Government, the estimate was recasted with items in DSR instead of observed data items. So the estimate prepared as per DSR 2016 and DPR submitted for FS for an amount of 20.5 Lakhs. Now the new estimate prepared as per DSR 2018 and DPR submitted for FS Rs.26.20 lakh				
E	Desilting and reconstruction of salt water exclusion cross bar across perumbathodu in Payyannur Municipality MI Class II Plan fund	Irrigation Department	2021	The flow in the perumbathodu is contaminated with the waste from payyanur market and its surroundings .If the existing SWECB was reconstructed and its shutters were closed , the polluted water will stagnated at the upstream side and serious environmental problems will be created. Hence at present reconstruction of SWECB is not environmentally feasible. If treatment facility is provided by local government and only fresh water releases to thodu the SWECB can be reconstructed. Hence now only desilting the thodu is included in this estimate and submitted for FS. Hence DPR submitted for FS Rs.4.10 lakh only				

E	Desilting and repair of salt water exclusion cross bar across Koykottuvayal thodu inKunhimangalam Panchayath State Disaster Response Fund	Irrigation Department	2020	Work completed under SDRF scheme by MI Division Kannur.
E	Regulating activities in flood plain zone, protection and management of flood plain zone Protection and management of flood plain zone for a period of 3 years with a fund of 0.50 crores	Irrigation Department		As per the observation forwarded from the government on submitted DPR vide No.757555/C1/16/WRD, dated 30.09.2020, This work shall not be considered until adequate study is conducted.
E	Greenery development- Plantation plan. Plantation on both sides of the river, setting up biodiversity parks on flood plains by removing encroachment Planting trees on the	Irrigation Department	3 years	To ascertain the encroachment if any and Purambokk along the polluted river stretch for the proposed work, land to be demarcated by the Revenue authorities after necessary boundary survey. For the same, District collector Kannur has already been addressed from this office and subsequent bio cover works and planting trees have to be done by social forestry department.

	bank of the river will be completed within 3 years from the commencement of works with a fund of 0.40 crores							
E	Issues relating to E-flow, maintaining minimum environmental flow of river (by having watershed management provisions) By Micro watershed management for a period of 2 years with a fund of 0.25 Crore from the available fund	Irrigation Department	2 years	Initially the DPR submitted for 25 lakhs. But as per the letter No.752755/C1/16/WRD Thiruvananthapuram dtd 30/09/2020 of the Additional Chief Secretary to Government and as per the present site condition of the proposed stretch, the estimate was recasted and renamed accordingly. The quantity of silt is assessed by scientific method. So the estimate prepared as per DSR 16 DPR submitted for FS for an amount of 10.70 lakhs. Now the new estimate prepared as per DSR 18 and DPR submitted for FS for 13.60 lakhs.				
Combined Action by KSPCB								
No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of December 2020	Progress in the month of January 2021	Progress in the month of February 2021	% works completed	Details of works remaining
1	Sanitation Providing of toilets to residences With treatment and	Local body						

	disposal system for sewage and sullage							
2	Community Toilet Proposed construction of new community Toilet at satellite points on the bank of river	All local bodies, Suchitwa Mission, Revenue department						
3	Rain water recharge Entry of rain water and rain water recharging to all thodu and drain	All local bodies, Kerala Water Authority,						
4	Solid waste management Check they have Board's consent and sanitation facility is provided.	Pollution Control Board, Health authority						
5	Household waste Adequate number of Kitchen bins shall be provided	Municipalities and local bodies						
6	Market Providing proper							

	waste handling facility for wastewater And solid wastes		Six months					
			30					
7	Rendering plant Rendering plant forpoultry wastes	Local body	Six months					
8	Slaughter house Slaughter house waste disposal facility	Local body						
9	Establishment like service station and workshops Strict monitoringof disposal of waste(sewage, sullage,degradabl e waste, non-biodegradablewa ste) surveyed area and alsoin the catchment of theriver i)VerifyWhether consent tooperate of the Board exists	PollutionControlBoa rd	Six months					
10	Sanitation survey should be done	PollutionControlBoa rd	Six months					

	Sanitation survey is to be conducted for 100m on either sides of the other parts of polluted stretch if any located nearby							
11	Awareness Awareness for residence association	Suchitwa Mission/ LSGD/Corporation	Once in a month					

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 December 2020	Progress in the month of January 2021	Progress in the month of February 2021	% 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 (Earlier Status : As per Groundwater resources of Kerala, 2017 estimate a total number of 2 blocks (Neeleswaram and Payyannur) comes under the Peruvamba river basin. All the blocks in the river stretch are safe with stage of					

		groundwater extraction ranges from 34.85% to 69.52%)					
2	B(ii)	Ground water recharging / rain water harvesting (Earlier Status :The average pre -monsoon groundwater level ranges from7.97mbgl - 8.81 mbgl. Department has implemented 5 no of bore well recharge structures and 3 dug well recharge at Cheemeni open prison in Neeleswaram block)					
3	B(iii)	Periodic ground waste quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps (Earlier Status :Groundwater Department has 1 observation dug well and 1 piezometer for routine studies in the river stretch.)					
4	B(iv)	For regulating use of ground water for irrigation purpose, adopting good irrigation practices (Earlier status :The total irrigation draft in the area ranges from 695.64 - 1326.85 ha.m.)					

Other than these following are some more suggestions from the part of pollution controlBoard.

1. Proper awareness among the inhabitants in the area is to be given for protecting the water bodies. Basic training for the people at the grass root level is to be provided for river management. All efforts for maintaining the quality of water bodies may be done by the Panchayat/Municipal authorities only with people's participation.
2. The nearby gramapanchayath and municipalities are mainly responsible for not providing municipal waste collection and treatment facilities in the locality. So they must be instructed to provide the required facility for scientific disposal of municipal solid waste as per the MSW rules 2016. The citizens as well as the municipal/gramapanchayath authorities need to be aware of the importance of scientific

disposal of waste generated. Their attitude towards handling waste has to be changed. Reducing waste, recovering recyclable materials, return of nutrients to the eco system as well as generation of energy from waste are to be practised. There has to be a valid scheme for collection, segregation, transportation, processing and safe disposal of waste by the authorities. For this affordable and viable waste to energy conversion technologies apart from conventional composting is to be implemented by the municipalities seeking technical expertise.

3. Propagation of vegetative cover in water shed will reduce soil erosion and enhance percolation of rain water into the sub surface. In downstream stretches where the river is saline, propagation of mangroves are essential.
4. Strict monitoring from the part of implementing as well as monitoring agencies is required for effective functioning of waste treatment facilities in waste generating units.
5. The practice of waste dumping into the river is to be prevented legally and strict action against this practice is to be adopted at panchayath and municipality level.
6. Re-survey of the river boundaries throughout the entire stretch is to be done urgently so as to prevent encroachment of the river.
7. The municipalities as well as the panchayaths are to be directed to provide proper waste management facilities of their own. All towns and cities must have Sewage Treatment Plants (STPs) that clean up the sewage. Facility for collection, segregation, transport, processing and scientific disposal of waste generated are to be provided by the local authorities in strict adherence to the Municipal Solid Waste Management Rules, 2016. For this, affordable and viable waste to energy conservation technologies apart from conventional composting is to be implemented seeking technical expertise.
8. Strict monitoring from the part of implementing as well as monitoring agencies is required for effective functioning of waste treatment facilities in waste generating units. The riverine stretches are to be monitored periodically at identified locations for water quality assessment.
9. Modern agricultural practices and technologies introduce the use of inorganic fertilizers with Nitrogen, Phosphorous, Potash and inorganic pesticides in farm lands and play important role in the river pollution. These may concentrate into the water body through runoff causing algal blooms by which whole stretch of water become choked. Fertilizers and chemicals application in agricultural lands are to be strictly under technical expertise.
10. Rain water recharging measures must be adopted.
11. Eco tourism and water tourism projects are to be designed giving due importance for protecting the environment. The activities are to

be organized in such ways which do not induce any types of pollution to the water body. Strict monitoring from the concerned authorities are recommended in functioning of the tourism projects.

12. Implement Green Protocol effectively in local self governments. Prohibit littering of plastics in the area. Plastic wastes shall be handled as per the provisions of Plastic Waste (Management and Handling) Rules, 2018.
13. The existing waste water treatment facilities of Taliparamba Municipality shall be augmented in such a way so as to operate round the year.
14. Actions shall be taken by the local bodies to clean the storm water drains. Rejuvenation of small streams, creeks leading into the river is to be done.
15. Round the clock patrolling shall be provided so as to prevent waste dumping on public places.
16. CCTV can be installed at suitable points in order to identify the persons/ establishments dumping waste in to river. All the local bodies must establish slaughter houses with modern facilities and unauthorized slaughter houses shall be strictly enforced.
17. Strict action shall be taken against non-violating person/ agency by the authorities when noticed. Plantation of trees and plants on the bank will be highly effective in controlling the waste disposal.

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 RAMAPURAM, KANNUR

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		<u>MADAYI</u> 16 soak pit,6 numbers of compost pits were completed.Supply order given for 10 MCF, out of this 5 numbers were supplied
	Commencement of setting up of STPs and connecting all the drains and other sources of generation of sewage to the STPs must be ensured	31.03.20 22	NIL
2	Timeline for completing all steps of action plans including completion of setting up STPs and their Commissioning	31.03.20 22	NIL
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		

waste generated from hotels, Ashrams, etc.

(vii) Ground water regulation

(viii) Adopting good irrigation practices

(ix) Protection and management of flood plain Zones (FPZ)

(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 RAMAPURAM, KERALA

Ref para no:48 as per NGT order 673/2018 dated:20.09.2018	Activity	Implementing Agency	Time of Completion	Progress in the month of December 2020	Progress in the month of August 2021	Progress in the month of September 2022	% works completed	Details of works remaining
A (b)	Sanitation Facility	Pariyaram GP	03/2020	100%	Not reported	Not reported		
C (ii)	Biodegradable waste disposal	Pariyaram GP	03/2022					
C (ii)	Non bio degradable Waste Disposal	Pariyaram GP	Ongoing project			Waste disposed through clean Kerala Company		
E	Awareness	Youth, Asha workers and other stakeholders	Whenever necessary		ongoing	Ongoing		
A (b)	Identification of illegal outlets in to drains and stoppage of the same	Madayi GP	09/2019	completed	completed	completed		
A (b)	Sanitation Facility	Madayi GP	2022		100 Ring compost unit supplied	Order placed for		

						another 96 units		
C (ii)	Biodegradable waste disposal	Ward Sanitation Committee of Local Body	2022		100 Ring compost unit supplied	Order placed for another 96 units		
E	Awareness	Youth, Asha workers and other stake holders	On going		Completed			

Action plan of Local body

1. **Public Toilet:** Construct public toilets using available funds on the bank of river near Tourist places, Fishing spots etc.
2. **Mini MCF:** Construct material collection facility in miniature form at suitable intervals on the bank of the river in order to prevent dumping of wastes in to water.
3. **Toilet at houses:** Construct toilets with scientific septic tank and Soak pit
4. **Retro Fitting:** Maintenance work of existing toilets of residences near the bank of river using performance incentive grant.
5. **Bio degradable waste Disposal:** Distribution of Bio gas Plant, Composting facility to residences near river for bio degradable waste disposal.
6. **Common Waste disposal facility:** For the disposal of bio degradable waste disposal at market places, provide community level bio gas plants, Thumboormozhi etc. Using suitable funds
7. **Common Sewage treatment facility:** Provide common sewage treatment facility for waste water generating from market places and disposing in to public drains.
8. **Septage treatment facility :** Construct septage treatment facility

In addition to above, CCTV can be installed at suitable points in order to identify the persons/ establishments dumping waste in

to river. All the local bodies must establish slaughter houses with modern facilities and unauthorized slaughter houses shall be strictly enforced.

Strict action shall be taken against non-violating person/ agency by the authorities when noticed. Plantation of trees and plants on the bank will be highly effective in controlling the wastedisposal.

Action Plan by Irrigation Department

Ref para no:48 as per NGT order 673/18 dated: 20. 9.18	Activity	Implementing Agency	Time for completion	Progress in the month of May 2022	Progress in the month June 2022	Progress in the month July 2022	% works completed	Details of works remaining
C (ii)	Providing fencing on Ramapuram bridge across Ramapuram river at Madayi GP	Irrigation department	2021	Initially the DPR submitted for 12 lakhs. But as per the letter No.752755/C1/16/WRD Thiruvananthapuram dated 30/09/2020 of the Additional Chief Secretary to Government and the present site condition, the estimate was recasted with items in DSR instead of observed data items. So the estimate prepared and DPR submitted for an amount of 14.5 lakhs as per DSR 2016. Now the new estimate prepared as per DSR 2018 and DPR submitted for FS for an amount of Rs.18.60 lakh.				
E	Desilting and repair of salt water exclusion cross bar at Ramapuram in cheruthazham GP	Irrigation Department	2020	An estimate for desiltation work on the u/s of Vayalapa SWECB has already been submitted. Now the desiltation work has been completed including the work under the scheme removal of excess sedimentation due to flood (Room for river). It was observed recently, while taking the bed levels of Ramapuram river for desilting work, that the bed levels of Ramapuram SWECB and Vayalapa RCB that is 1.65 km d/s are exactly same. Hence there will be overlapping of storage area if Ramapuram SWECB is restored. Hence the work is not technically feasible and has to be dropped.				
E	Rejuvenation of Ramapuram River - Flood plain zone management: Protection of flood plain zone near Ramapuram bridge in Cheruthazham Panchayath. (PRICE ID : 2019/10481/IA)	Irrigation Department		As per the observation forwarded from the government on submitted DPR vide No.757555/C1/16/WRD Dated 30.09.2020, This work shall not be considered until adequate study is conducted. To envisage the same purpose, LSGD has constructed a bund road with side protection in the same reach where irrigation department proposed a flood bank in Ramapuram action plan. Hence this may be removed from the action plan.				

E	Greenery development- Plantation plan. Plantation on both sides of the river, setting up biodiversity parks on flood plains by removing encroachment	Irrigation Department	2 years	To ascertain the encroachment if any and Purambokk along the polluted river stretch for the proposed work, land to be demarcated by the Revenue authorities after necessary boundary survey. For the same, District collector Kannur has already been addressed from this office and subsequent bio cover works and planting trees have to be done by social forestry department.
E	Issues relating to E-flow, maintaining minimum environmental flow of river(by having watershed management provisions)	Irrigation Department	2 years	DPR was submitted for the work previously and it was directed to find the desilting quantity based on level calculations. Hence the estimate have been submitted for FS after incorporating required corrections. DPR submitted for F.S (Rs.45.50 lakh)

Combined ActionPlan

	Proposed action	Agency	Timeline	Progress in the month of December 2020	Progress in the month of January 2021	Progress in the month of February 2021	% works completed	Details of works remainin g
A (b)	Providetoilets to residences with treatment and disposal system for sewage and sullage	Local Body	As there are residences with single pit toilet					
A (b)	Construction of new community toilets with treatment system	All local bodies SuchitwaMission, Revenue department	Proposed Construction Of new community Toilet at satellite points on the bank ofriver					
B (ii)	Entry of rain water and rain water recharging to all channels and drain	All local bodies , Kerala Water Authority,	Drains are inspected before rain and all channels and stream are cleaned once in a year					
C (ii)	Sanitary waste in hostels, establishments should be segregated, treated and disposed as per Solid Wastes Management Rules,2016 intheir respective wards.Aerocomposting and Material Collection Facility should be given in all wards near the river bank.	Pollution Control Board ,Health departmen t	Check they have board consent and sanitation facility is provided					
C (ii)	Adequate number of kitchen bins shall beprovided	Municipalities and local bodies	Six months					

C (ii)	Providing proper waste handling facility. For wastewater and solid wastes		Six months				
C (ii)	Rendering plant for poultry wastes	Local body	Six months				
C (ii)	Slaughter house waste disposal facility	Local body					
A (iv)	Strict monitoring of disposal of waste(sewage, sullage, degradable waste, non-biodegradable waste) surveyed area and also in the catchment of theriver i)Verify Whether consent to operate of the Board exists	Pollution Control Board	Six months				
A (b)	Sanitation survey is to be conducted for 100m on either sides of the other parts of polluted stretch if any located nearby	Pollution Control Board	Six months				
E	Awareness for residence association:	Suchitwamission/L SGD/Corporation	Once in a month				

Action Plan by Ground Water Department

Sl.No	Ref para no:48 as per NGT order 673/2018 dated:20.09.2018	Activity	Progress in the month of December 2020	Progress in the month of January 2021	Progress in the month of February 2021	% 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					

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 MOGRAL, 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 Progress Report may be comprised of details along with completion timelines on:

- (I) Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment.
- (II) Status of STPs, I&D and sewerage networks Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline
- (III) Status of CETPs
Details of Existing CETP and ETP Infrastructure, Gap Analysis, Proposed along with completion timeline, No. of industries and complying status
- (iv) Status of Solid Waste Management & Details of Processing Facilities
Details of Existing Infrastructure, Gap Analysis, Proposed along with completion timeline
- (v) Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river;
- (vi) Preventing dumping of waste and scientific waste management including bio-medical waste, plastic

	<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 MOGRAL, KASARAGOD DISTRICT, KERALA
MONTHLY PROGRESS REPORT FOR THE MONTH OF SEPTEMBER 2022

RIVER MOGRAL, KASARGOD

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
C	Material collection facility	Mogral Puthur Grama Panchayath	March 2020	Completed	Completed	Completed	100 %	NA
C	Waste collection including vehicle hire charge to collect waste.	Mogral Puthur Grama Panchayath	March 2020	NIL	NIL	NIL	0 %	
E	Installation of camera	Mogral Puthur Grama Panchayath	June 2020	NA	NA	NA	0%	
A (b)	Drainage Cleaning at Ballor, Kottakkunnu, Majal, Neerchal, Blarkode, Goovathadka, Pernadka, Shankra, Eriyal, KK Puram Arjal Vishnu Temple	Mogral Puthur Grama Panchayath	2019	Completed	Completed	Completed	100 %	NA

C(ii)	Haritha Karmasena Activity/ Collecting Non Bio degradable materials including Plastics from households	Mogral Puthur Grama Panchayath	On-going	Started	Started	Started	75%	
C(iii)	Bamboo Capital Bamboo Planting- aiming water conservation and raising water levels thus preventing solid erosion, waste dumping in public places	Mogral Puthur Grama Panchayath	On-going	Completed	Completed	Completed	100 %	NA
E	River cleaning	Mogral Puthur Grama Panchayath	2019	Completed	Completed	Completed	100 %	NA
C(iii)	Bamboo Plantation of Madhur	Madhur grama Panchayath	2019	18500 being maintained by NREGA	18500 being maintained by NREGA	18500 being maintained by NREGA	100 %	NIL
C(ii)	Viability Gap Funding for Haritha Karmasena	Madhur grama Panchayath	2019	Total Amount Rs 250000/- Expenditure RS 75000/-	Total Amount Rs 250000/- Expenditure RS 75000/-	Total Amount Rs 250000/- Expenditure RS 249965/-	25%	NIL
C(ii)	Material recovery facility centre	Madhur grama Panchayath	2019	Completed	Completed	Completed	100%	Completed

C(ii)	Construction of Plastic Shredding Machine building	Madhur grama Panchayath	2019	Completed	Completed	Completed	100 %	Completed
C(ii)	Purchase of Plastic shredding machine	Madhur grama Panchayath	2019	-----	-----	-----	-	Yet to float tender
C	Tying of net on both sides of the bridge	Irrigation Department	2019-2020	DPR submitted to Chief Engineer (Price ID: 2019/10715/IA) for approval. Present status reported to Superintending Engineer, Minor Irrigation Circle, Kozhikode on 20.07.2021	DPR submitted to Chief Engineer (Price ID: 2019/10715/IA) for approval. Present status reported to Superintending Engineer, Minor Irrigation Circle, Kozhikode on 20.07.2021	DPR submitted to Chief Engineer (Price ID: 2019/10715/IA) for approval. Present status reported to Superintending Engineer, Minor Irrigation Circle, Kozhikode on 20.07.2021	-	Work still under process.
A(a)	Water quality monitoring	KSPCB	Being done regularly					

Sd/-

Environmental Engineer

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 SEPTEMBER 2022
RIVER UPPALA, KASARGOD

No. (as per Action Plan)	Activity	Implementing agency	Time line	Progress in the month of July 2022	Progress in the month of August 2022	Progress in the month of September 2022	% works completed	Details of works remaining
C(ii)	Material collection facility. Operation	Mangalpady Grama Panchayath	2019	Not submitted the report	NIL	Not submitted the report	50%	After monsoon work will complete
C	Waste management including purchase of vehicle to collect waste.	Mangalpady Grama Panchayath/ Green Space Private company	2019- 2020	Not submitted the report	Proposed a project to buy a hydraulic facility vehicle	Not submitted the report	-	New projects will plan for the protection of river Uppala.
E	Installation of camera	Mangalpady Grama Panchayath	March 2020	Not submitted the report	Project got approval	Not submitted the report		Project will implement within 3 months
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	368.4 kg Plastic waste transported	650 kg kg plastic waste transported	2250kg plastic waste transported		Work yet to be completed.

E	Installation of camera	Manjeshwaram Grama Panchayat	March 2020	New Project formulated to Install 25 CC Cameras	New Project formulated to Install 25 CC Cameras	New Project formulated to Install 25 CC Cameras, project forwarded to PWD Electrical Wing, permission not yet received		Tendered
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. Present status reported to Superintending Engineer, Minor Irrigation Circle, Kozhikode on 20.07.2021	DPR submitted to Chief Engineer (Price ID: 2019/10825/IA) for approval. Present status reported to Superintending Engineer, Minor Irrigation Circle, Kozhikode on 20.07.2021	DPR submitted to Chief Engineer (Price ID: 2019/10825/IA) for approval. Present status reported to Superintending Engineer, Minor Irrigation Circle, Kozhikode on 20.07.2021	--	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		16.09.2022	
Nature and flow of the river		Medium flow, water level increased	
Sl.No	Parameters	Unit	Mogral Bridge
1	Temperature	°C	27
2	pH	-	7.18
3	Conductivity	µmhos/cm	393
4	Turbidity	NTU	1.9
5	BOD	mg/l	1.6
6	Dissolved Oxygen	mg/l	7.6
7	Total Coliforms	cfu/100ml	640
8	Feacal Coliforms	cfu/100ml	136
9	Feacal Streptococcus	cfu/100ml	20
10	Chlorides	mg/l	106
11	Total Alkalinity	mg/l	29
12	Total Hardness	mg/l	36
13	Calcium Hardness	mg/l	20
14	Magnesium Hardness	mg/l	16
15	Calcium	mg/l	8
16	Magnesium	mg/l	3.9
17	Total Dissolved Solids	mg/l	220
18	Sodium	mg/l	59.31
19	Potassium	mg/l	11.43

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		16.09.2022	
Nature and flow of the river		Water level increased, Medium flow	
Sl.No	Parameters	Unit	Puzhakkara
1	Temperature	°C	27
2	pH	-	7.25
3	Conductivity	µmhos/cm	101.3
4	Turbidity	NTU	0.6
5	BOD	mg/l	1.2
6	Dissolved Oxygen	mg/l	7.0
7	Total Coliforms	cfu/100ml	560
8	Feacal Coliforms	cfu/100ml	96
9	Feacal Streptococcus	cfu/100ml	10
10	Chlorides	mg/l	22
11	Total Alkalinity	mg/l	20
12	Total Hardness	mg/l	18
13	Calcium Hardness	mg/l	13
14	Magnesium Hardness	mg/l	5
15	Calcium	mg/l	5.2
16	Magnesium	mg/l	1.215
17	Total Dissolved Solids	mg/l	59
18	Sodium	mg/l	12.64
19	Potassium	mg/l	2.100

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		16.09.2022	
Nature and flow of the river		Moderate flow, water level increased	
Sl.No	Parameters	Unit	Uppala Bridge
1	Temperature	° C	27
2	pH	-	7.46
3	Conductivity	µmhos/cm	129.8
4	Turbidity	NTU	1.6
5	BOD	mg/l	0.8
6	Dissolved Oxygen	mg/l	7.5
7	Total Coliforms	cfu/100ml	480
8	Feacal Coliforms	cfu/100ml	108
9	Feacal Streptococcus	cfu/100ml	10
10	Chlorides	mg/l	26
11	Total Alkalinity	mg/l	29
12	Total Hardness	mg/l	21
13	Calcium Hardness	mg/l	15
14	Magnesium Hardness	mg/l	6
15	Calcium	mg/l	6
16	Magnesium	mg/l	1.458
17	Total Dissolved Solids	mg/l	76
18	Sodium	mg/l	16.4
19	Potassium	mg/l	3.7

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		16.09.2022	
Nature and flow of the river		Water level increased, moderate flow	
Sl.No	Parameters	Unit	Uppala River Near Bhagavathi Temple
1	Temperature	° C	27
2	pH	-	7.39
3	Conductivity	µmhos/cm	177
4	Turbidity	NTU	0.3
5	BOD	mg/l	0.6
6	Dissolved Oxygen	mg/l	7.7
7	Total Coliforms	cfu/100ml	400
8	Feacal Coliforms	cfu/100ml	84
9	Feacal Streptococcus	cfu/100ml	10
10	Chlorides	mg/l	36
11	Total Alkalinity	mg/l	34
12	Total Hardness	mg/l	34
13	Calcium Hardness	mg/l	28
14	Magnesium Hardness	mg/l	6
15	Calcium	mg/l	11.2
16	Magnesium	mg/l	1.458
17	Total Dissolved Solids	mg/l	102
18	Sodium	mg/l	20.114
19	Potassium	mg/l	4.07

Sd/-
Assistant Scientist