

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
(SOUTHERN ZONE BENCH, CHENNAI)
IN
ORIGINAL APPLICATION NO. 395 OF 2013 (SZ)**

REPORT SUBMITTED BY THE ENVIRONMENT DEPARTMENT

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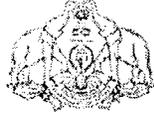
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Dated at Chennai on this the 25th day of November 2021.

M/s. E.K.KUMARESAN

Standing Counsel for State Government of Kerala - NGT(SZ) Chennai Bench

File No.ENVT-A3/108/2020-ENVT



GOVERNMENT OF KERALA

Environment (A) Department

No.A3/108/2020-ENVT

16/08/2021, Thiruvananthapuram

From

Additional Chief Secretary to Government

To

Adv. E.K.Kumaresan
Standing Counsel
National Green Tribunal
Chennai

Sir,

Sub: Environment Department - O.A.395 /2013 - Holistic action plan regarding pollution in river Periyar – Report forwarding of - Reg.
Ref: NGT Order dated 10.06.2021 in O.A. 395/2013

I am to forward herewith the interim Periyar Rejuvenation Action Plan including short term and long term action plans prepared by the Joint Committee constituted based on the orders of Hon'ble NGT in OA 395 2013 and to request you to file the same before the Hon'ble Tribunal.

Yours Faithfully,

Sharmila C
Joint Secretary
For Additional Chief Secretary to Government.

PERIYAR RIVER REJUVENATION ACTION PLAN
SHORT TERM MEASURES

Sl No	Activity	Implementing agency	Cost Rs.	Source of fund	Time line	Expected outcome
1	Identification of industries/ establishments/ commercial complexes/ flats / hotels etc discharging the sewage / waste water to the public drain/ stream/ river from Idukki to Azheekode-Munambam	Local bodies/ KSPCB	80 lakh	Plan scheme	6 months	KSPCB carried out preliminary identification of industries/ other establishments from Idukki stretch to Azheekode-Munambam
2	Periodical inspection in the industries/ establishments/ commercial complexes/ flats / hotels etc.	KSPCB	No fund needed		periodically	The STP/ETP shall be monitored to assess the efficiency
3	Installation of Septage Treatment Plant, Munnar	Munnar Grama panchayat	2.5 Cr/ Panchayat need to specify	Panchayat need to specify	Two year	Reduces the pollution load at Periyar River
4	Identification of the establishments/ commercial complexes /flats/ houses/ hotels etc who is discharging the sewage to the public drain leading to Periyar	Munnar Grama panchayath	Not required	own	Six month	Reduces sewage pollution load at Periyar River
5	Augmentation and Revamping of existing STP at near Adwaitha Ashramam and to increase the capacity of STP so as to treat more sewage generated in the municipality	Aluva Municipality	Aluva Municipality	Action initiated for estimation.	Source of fund to be reported by Aluva	Time line already elapsed, new one to be fixed

							Municipality	
6	Augmentation and Revamping of existing STP at Aluva Market and to increase the capacity of STP so as to treat more sewage generated in the municipality	Aluva Municipality	15 Lakhs	Plan	Time line already elapsed, new one to be fixed	Reduces the pollution load at Periyar River		
7	Installation of Septage /sewage Treatment Plant for Perumbavoor Municipality for the township area	Perumbavoor Municipality	ction to be initiate for estimation.	Plan fund	time line to be fixed	Reduces the pollution load due to sewage contamination		
8	Discharge of sewage from township to the River through drain near Periyar Hotel shall be stopped.	Aluva Municipality	5 Lakhs	Source of fund to be reported by Aluva Municipality	Time line already elapsed, new one to be fixed	To prevent the sewage discharging to drains		
9	Augmentation and revamping of existing STP at Aluva Market and to increase the capacity of STP so as to treat more sewage generated in the municipality	Aluva Municipality	To be estimated	Plan	Time line already elapsed, new one to be fixed	Reduces the pollution load due to sewage contamination at Periyar River		
10	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	May be done as a part of routine work	Source of fund to be reported by Aluva Municipality	. A time line of 6 months for completion	Reduces the sewage contamination at Periyar River Survey need to be conducted, action Shall be initiated		

11	Periodical inspection in the Industries, Flats, hotels monitoring of STP,ETP.	KSPCB			Own fund	Periodical	The STP/ETP shall be monitored to assess the efficiency
12	Installation of modern abattoirs.	Aluva Municipality	To be estimated	plan		new one to be fixed	unauthorized Slaughtering waste disposal Need to be controlled.
13	Procurement of sewer cleaning machines and equipment maintenance	Aluva Municipality	To be estimated	Plan		time line already elapsed, new one to be fixed	The sewers shall be cleaned and maintained properly in order to avoid block, mosquito breeding etc
14	Installation of cameras at the waste dumping spots	Aluva Municipality	To be estimated	plan		time line to be fixed	The waste dumping practices can be minimized.
15	Construction of retaining wall with HDPE liner at Kalamassery dumping yard in order to prevent the leachate discharge from the yard to Thoombungal Thodu	Kalamassery Municipality	1.40 Cr	Plan		Time line already elapsed, new one to be fixed	Reduces the pollution load at Thoombungal thodu. Prevent leaching from dumping yard to thoombungal thodu. Construction work of retaining wall progressing
16	Constitution of squads for night surveillance for finding the unauthorized dumping of sewage at NAD wet lands Kalamassery	Kalamassery Municipality Police department	To be done as a part of routine job	own		Six month	Prevents unauthorized dumping of septage which reaches the thoombungal thodu

17	Installation of common STP	Kalamassery Municipality	To be estimated	plan	Time line already elapsed, new one to be fixed	Stops the discharge to the drain which joins at Puthalamkadavu
18	Operation & Maintenance ETP at market	Kalamassery Municipality	To be estimated	plan	to be fixed	Reduces the pollution problems and improve the water quality
19	Monitoring of industries in Kalamassery Estate in order to find unauthorized activities during night	KSPCB	Own fund	plan	continuous	Unauthorized activities can be controlled.
20	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain.	Kalamassery Municipality	Not required	plan	continuous	Detailed Survey to be conducted
21	Installation of cameras at the waste dumping spots	Kalamassery Municipality	To be estimated	plan	One year	The waste dumping practices can be minimized.
22	Identification of sources of sewage discharged to drain near Puthalam bridge and action to stop the discharge which reach river Periyar from hotels, labour camps etc In case the quantity of sewage generated is assessed to be more STP need to be installed	Eloor Municipality KSPCB (for monitoring)	To be estimated	plan	One year	Detailed Survey to be conducted
23	Installation of cameras at the waste dumping spots	Eloor Municipality	To be estimated	plan	One year	The waste dumping practices can be

24	Periodical inspection in the Industries, Flats, hotels for monitoring of STP,ETP located in Cochin corporation.	Cochin Corporation KSPCB	Nil	plan	One year	To assess the efficiency of STP and to prevent unauthorized discharge
25	Inventory of sources of pollution through a rapid study/Study for identification of pollution sources at Edapally thodu	Cochin Corporation	10 Lakh	Plan fund	3 months	Can Identify the sources of sewage discharged to tributaries ultimately reaching at River Periyar at downstream of Manjummal bund
26	Issuing notice to the defaulters waste water discharge and taking follow up actions	Cochin Corporation and other LSGIS	Nil	plan	6 months	To warn the defaulters and to direct them to make alternative arrangements for disposal of the waste including construction of treatment plants.
27	Periodical inspection in the flats, hotels, shops located along the river	Panchayat, Municipality Corporation	Nil	plan	Periodical	Prevent illegal dumping and unauthorized discharges
28	Identification of natural drains reaching river and cleaning of weeds, grasses, removing solid waste, installing waste collection traps etc	Irrigation department/ LSGI	To be estimated	plan fund	2 years	River flow can be maintained and also prevent encroachment.
29	Clearing of weeds, grasses at the river bank in order to ensure the smooth flow of water	Irrigation department	To be estimated	plan fund	2 years	River flow can be maintained and also encroachments can be prevented
30	Maintaining of Minimum flow in river	Irrigation department	To be	Plan	3 year	To avoid stagnation of

	during lean period and periodical operation of Regulators at River in-order to maintain minimum flow.		estimated				water and prevents algal bloom and fish death
31	Common Effluent Treatment Plant at Edayar Industrial Estate	Industries department	3.0 Cr	Plan	To be fixed	All small scale industries can treat their effluent in common ETP and in turn helps in water pollution control. The existing proposal for the CETP of industries department was withdrawn due to public protest.	
32	Construction of internal roads and proper drainage in Edayar industrial estate	Industries department	5 Cr	Work progressing	To be fixed	No proper storm water drains provided in the industrial belt. Proper drainage helps to segregate the storm water and prevent stagnation and water logging	
33	Installation of common discharge pipe line at downstream of Pathalam Regulator Bridge	Industries department for execution and Irrigation department for monitoring	3.0 Cr 50 lakhs	plan fund	To be fixed	Discharge of all industrial treated effluent at downstream of pathalam regulator Bridge (estuary) helps to improve the water quality at upstream area.	
34	Installation of Night vision surveillance	KSPCB	2Cr	Plan Fund	To be fixed	At present 9 cameras	

	cameras at the River Bank side						already installed by PCB at River side. Installation of more cameras helps ineffective surveillance of industries
35	Periodical Monitoring of Eloor, Edayar, Kalamassery and Angamaly Industrial belts	KSPCB	5 lakhs	Plan Fund	To be fixed	Control water pollution due to industrial discharge	
36	Monitoring of quality of water at various intake point	Kerala Water Authority	own	Plan	To be fixed	Ensure the quality of treated water supplied to the communities	
37	Installation of additional continuous online River water monitoring station	KSPCB	2 Cr	Plan Fund	Two year	At present one station installed at downstream of Periyar. Additional facility can be provided. Helps to monitor the river water quality. Data will be connected to the server and can be shared in public domain.	
38	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Kadungallur Panchayath	Not required	Plan	Six month	Detailed Survey to be conducted	
39	Installation of cameras at the waste dumping spots	Kadungallur Panchayath	5 lakhs	Plan	One year	The waste dumping practices can be minimized.	

40	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Choorikkara Panchayath	nil	Plan	Six month	Detailed Survey to be conducted
41	Installation of cameras at the waste dumping spots	Choorikkara Panchayath	5 lakhs	Plan	One year	The waste dumping practices can be minimized.
42	Installation of Septage /sewage Treatment Plant for Kalamassery Municipality for the township area	Kalamassery Municipality	To be estimated	Rebuild Kerala	time already elapsed, new one to be fixed	Preventing sewage and septage contamination
43	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Kodungalloor Municipality	Not required	own	Six month	Reduces sewage pollution load at Periyar River
44	Installation of Septage /sewage Treatment Plant for kodungalloor Municipality	Kodungalloor Municipality	To be estimated	Rebuild Kerala	Time to be fixed	Preventing sewage and septage contamination
45	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Kodungalloor Municipality	Not required	own	Six month	Reduces sewage pollution load at Periyar River

46	Installation of Septage /sewage Treatment Plant for Eloor Municipality	Eloor Municipality	To be estimated	Rebuild Kerala	Time to be fixed	Preventing sewage and septage contamination
47	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Eloor Municipality	Not required	own	Six month	Reduces sewage pollution load at Periyar River
48	Installation of Septage /sewage Treatment Plant for Aluva Municipality	Aluva Municipality	To be estimated	Rebuild Kerala	Time to be fixed	Preventing sewage and septage contamination
49	Installation of Septage /sewage Treatment Plant for Angamaly Municipality	Angamali Municipality	To be estimated	Rebuild Kerala	Time to be fixed	Preventing sewage and septage contamination
50	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Angamali Municipality	Not required	own	Six month	Reduces sewage pollution load at Periyar River
51	Installation of Septage /sewage Treatment Plant for Perumbavoor Municipality	Perumbavoor Municipality	To be estimated	Rebuild Kerala	Time to be fixed	Preventing sewage and septage contamination
52	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	Perumbavoor Municipality	Not required	own	Six month	Reduces sewage pollution load at Periyar River
53	Installation of Septage /sewage Treatment Plant for Aluva Municipality	Aluva Municipality	To be estimated	Rebuild Kerala	Time to be fixed	Preventing sewage and septage contamination

									contamination
54	Installation of Septage /sewage Treatment Plant for Municipality	N.Paravoor Municipality		To be estimated	Rebuild Kerala	Time to be fixed			Preventing sewage and septage contamination
55	Identification of the establishments/commercial complexes/flats/houses/hotels etc who is discharging the sewage to the public drain	N.Paravoor Municipality		Not required	own	Six month			Reduces sewage pollution load in Periyar River
56	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.	Adimaly Panchayat Grama		Not required	own	Six month			Health Department conducted inspection to prevent the discharge of sewage and other effluent to rivers. Collect and Collect and handing over the non-bio-degradable materials
57	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.	Moonnar Panchayath Grama		Not required	own	Six month			Reduce sewage pollution load
58	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.	Pallivasal Panchayat Grama		Not required	own	Six month			Reduce sewage pollution load

59	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.	Rajakkadu Grama Panchayat	Not required	own	Six month	Reduce pollution load	Reduce sewage pollution load
60	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.	All other Panchayaths in the watershed area	Details not yet received.	To be estimated	own	Reduce pollution load	Reduce sewage pollution load
61	Cleaning / desilting and side projecting all streams leading to periyar and its tributaries	All other Panchayats in the watershed area	Details not yet received.	To be estimated	own	Prevent the pollution	Prevent the pollution
62	Cleaning / desilting and side projecting all streams leading to periyar and its tributaries	All municipalities in the watershed area	Details not yet received.	To be estimated	own	Prevent the pollution	Prevent the pollution
63	Identification of the scientific reason for the colour change in the downstream of Pathalam bund	KSPCB	Own fund	Own fund	June 2022	To prevent the color change of river during summer season	To prevent the color change of river during summer season
64	Remediation of contaminated sites along the stretch of periyar river and its tributaries, especially for those areas for which DPR has been made	KSPCB, Industries, Revenue	To be recalculated	Plan	To be fixed	For preventing the river contamination due to hazardous waste.	For preventing the river contamination due to hazardous waste.
65	Converting the service stations in the watershed area to zero discharge unit for preventing oil pollution and ensuring water	KSPCB/ LSGI	Own fund	Own fund	To be fixed	To prevent the oil pollution of the river.	To prevent the oil pollution of the river.

	conservation		To be calculated	Plan	To be fixed	For ensuring environmental flow in the river during lean period.
66	Ensuring rain water harvesting and ground water recharge by industries, commercial establishments and residences	KSPCB, Industries, Water resource, district administration	To be calculated	Plan	To be fixed	For ensuring environmental flow in the river during lean period.
67	Ensuring the treated water reuse in major industries to reduce effluent discharge and pollution load in river due to industrial discharge. Encouraging the best performing industries for sustainable conservation measures.	KSPCB, Industries,	To be calculated	Own fund	To be fixed	For preventing the river contamination due to industrial discharge
68	Communicating and publishing monthly water quality data between the department and also for the information of public	KSPCB, Water resource	Not required	Own fund	To be fixed	For introducing transparency and Ensuring public support for river protection.
69	Organizing awareness programs, webinars, river walk, boating for students and public to increase the public support for river conservation	LSGI, district administration, KSPCB, Water resource	To be estimated	Plan fund	To be fixed	For introducing transparency and Ensuring public support for river protection.
70	Encouraging water sports and Establishing tourism spots across the river so that both the local and tourist people will feel ownership of river	LSGI, Irrigation, Tourism, District administration	To be estimated	Plan fund	To be fixed	People will feel ownership of river and collectively act for protecting the river
71	Install trash trap across all tributaries and check dams to collect whatever floating	LSGI, Tourism, District administration in	To be estimated	Plan fund	To be fixed	Prevent the solid waste contamination

	debris coming through it.	association with Irrigation,			Plan	Within month	of the river at source level
72	Build a volunteer force of river keepers incorporating nature lovers, fishermen, anglers, natural photographers, fishing enthusiasts of local population.	LSGI, District administration	Nil		Plan	six month	People will feel authority and act for protecting the river
73	Legacy waste management by Bio mining in Munar Grama panchayat	LSGI, District administration	To be estimated		Plan	six month	protecting the river water from leachate contamination in Nallathanni Rver
74	Solid waste management in Munar Grama panchayat	LSGI, District administration	To be estimated		Plan	six month	protecting the river water from leachate contamination in Nallathanni Rver
75	Controlling the excessive use of pesticides for farming	LSGI, District administration Agriculture,	To be estimated		Plan	Within one year	protecting the river water from pesticide contamination
76	NGT- Removing the silt deposit and vegetation obstructing the flow of Periyar river upstream side of Pathalam Lock Cum Regulator. (PRICE ID -2020/5673/IA)	Irrigation Department	10 Lakhs		Plan	6 Months	Estimate submitted for FS to Chief Engineer, Irrigation & Administration, TVM on 22-12-2020 through PRICE.
77	NGT - Desilting of the delta formed in Periyar river near Muttinakam Kadavu in Eloor municipality (PRICE ID - 2021/26/IA)	Irrigation Department	40 Lakhs		Non-Plan	8 Months	Estimate submitted for FS to Chief Engineer, Irrigation & Administration, TVM on 07-07-2021 through

							PRICE.
78	NGT desilting and side protection works to Edathodu in periyar river in Eloor Municipality. (PRICE ID- 2021/24/IA)	Irrigation Department	75 lakhs	Non-Plan	8 Months	Estimate submitted for FS to Chief Engineer, Irrigation & Administration, TVM on 07-07-2021 through PRICE.	
79	SDRF-Removing the silt deposit and vegetation obstructing the flow of Periyar at upstream side of Pathalam Regulator cum Bridge	Irrigation Department	15 Lakhs	SDRF	6 months	The work of removing silt from the upstream side of Pathalam Regulator cum Bridge has already been completed	
80	NGT-Preventing pollution of Periyar through the pipe installed near upstream of Pathalam regulator leading to Edayattuchal paddy field	Irrigation Department	1 lakh	Non-Plan	1 month	During the joint inspection with the KSPCB Officials on 11/01/2021, it was found that polluted water in red colour is flowing through the said pipe towards the Pathalam Regulator side. Since the bottom level of the pipe is found to be at a higher level than the highest water level in the river, the pipe laid doesn't serve the purpose of Irrigation	

						to the Edayattuchal agriculture land. For the identification of unauthorized discharge, arranged a work amounting to Rs.1,00,000/-. Even though a PVC pipe was found discharging polluted water, it was unable to find out the source of the residue. So the pipe was blocked using concrete and cleared the inspection chamber.
81	NGT - Desilting and side protection works to Kuthuthodu towards Periyar river in Kadungalloor GP(PRICE ID -2021/20/IA)	Irrigation Department	80 Lakhs	Non-Plan	8 Months	Estimate submitted for FS to Chief Engineer, Irrigation & Administration, TVM on 07-07-2021 through PRICE.
82	NGT Desilting and side protection works to Valiyachal thodu towards periyar river in Eloor Municipality (PRICE ID-2021/21/IA)	Irrigation Department	15 Lakhs	Non-Plan	3 Months	Estimate submitted for FS to Chief Engineer, Irrigation & Administration, TVM on 07-07-2021 through PRICE.

83	NGT-Desilting and side protection works to Eerezhuchal Pancha thodu towards Periyar river in Eloor Municipality (PRICE ID-2021/22/IA)	Irrigation Department	80 Lakhs	Non-Plan	8 Months	Estimate submitted for FS to Chief Engineer, Irrigation & Administration, TVM on 07-07-2021 through PRICE.
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LONG TERM MEASURES

TABLE -2

Sl No	Activity	Implementing agency	Cost Rs. Cr	Source of fund	Time line	Expected outcome
1	Installation of modern abattoirs including poultry and meat rendering plants.	District Ernakulum / panchayat / priwet entrepreneurs	To be estimated	Plan PPP mode	Three year	The unauthorized slaughtering with proper waste disposal system can be controlled.
2	Installation of modern abattoirs including poultry and meat rendering plants.	District panchayat Idukki / priwet entrepreneurs	To be estimated	Plan PPP mode	Three year	The unauthorized slaughtering with proper waste disposal system can be controlled.
3	Installation of modern abattoirs including poultry and meat rendering plants.	District Thrissur / panchayat / priwet entrepreneurs	To be estimated	Plan PPP mode	Three year	The unauthorized slaughtering with proper waste disposal system can be controlled.

4	Installation of FSTPs for septage treatment at least in block level	District Ernakulam / entrepreneurs	District panchayat / privat entrepreneurs	To be estimated	Plan PPP mode	Three year	Prevent septage contamination in river by unauthorized discharging of septage by fly by night privet contractors
5	Installation of FSTPs for septage treatment at least in block level	District panchayat / privat entrepreneurs	District panchayat Idukki / privat entrepreneurs	To be estimated	Plan PPP mode	Three year	Prevent septage contamination in river by unauthorized discharging of septage by fly by night privet contractors
6	Installation of FSTPs for septage treatment at least in block level	District Thrissur / entrepreneurs	District panchayat / privat entrepreneurs	To be estimated	Plan PPP mode	Three year	Prevent septage contamination in river by unauthorized discharging of septage by fly by night privet contractors
7	Construction of walkway, ring roads etc at the Periyar River bank.	LSGI/ department	Irrigation department	20 Cr	plan fund	4 years	Helps in monitoring of industries and can easily find any un authorized discharge from industries
8	Fencing of the river along the banks along the stretches of waste disposal	Cochin Corporation	Municipal Corporation	1 Lakh	Plan fund	1-2 years	Throwing of waste materials into the river bodies can be prevented by this
9	Beautification of the river stretches	Cochin Corporation	Municipal Corporation	1 Lakh	CSR funds	1-2 years	Ensuring the public participation in river conservation
10	Collection and disposal of domestic hazardous waste	LSGIs/ PPP/ KSPCB	LSGIs/ PPP/ KSPCB	To be estimated	plan	1-2 years	Ensuring the public participation in river conservation
11	Collection and safe disposal of Electronic waste	LSGIs/ PPP/ KSPCB	LSGIs/ PPP/ KSPCB	To be estimated	plan	1-2 years	Ensuring the public participation in river conservation
12	Collection and safe disposal of domestic biomedical waste	LSGIs/ PPP/ KSPCB	LSGIs/ PPP/ KSPCB	To be estimated	plan	1-2 years	Ensuring the public participation in river conservation



Handwritten signature and date: 16.8.21.

Dr. VENU V IAS
Additional Chief Secretary

Higher Education, Government
A-Subordinate, Revenue Department

