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**KERALA STATE POLLUTION CONTROL BOARD**

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004  
പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004



PCB/HO/EE3/MPR/10/2023

Date: 29/12/2023

From

The Member Secretary

To

The Secretary  
Ministry of Jal Shakthi,  
Department of Water Resources,  
River Development & Ganga  
Rejuvenation, Shram Shakti  
Bhawan, RafiMarg,  
New Delhi- 110001

Sub:-Forwarding Monthly Progress Report for the month of November 2023 -reg.  
Ref:-.Order of the Hon'ble NGT in the matter of O.A.No.673/2018

Sir,

Kind attention is invited to the subject matter. The matter is reported for kind information.

The report prepared in revised format with respect to the progress in implementation action plan of polluted river stretches, for the month of November 2023 is submitted herewith. As per CPCB report on water quality 2022, 11 polluted river stretches were deleted and 8 new stretches were added and hence the number of polluted river stretches is currently 18. Considering the water quality data, CPCB was requested to delist 7 stretches. But the reply is yet to be received. As part of actions taken, samplings have been started in new rivers. It may kindly be noted that newly added river stretch Pullur is a very small stream and gets dried up in Summer months and from February, 2019 onwards the BOD values of Pullur river never exceeded 3 mg/l. From March, 2019 onwards the water quality of Uppala river never

2022. By analyzing last three years (2021-2023) data in Pulikkadavu monitoring station , BOD values have not exceeded 3mg/l. Hence Pulikkadavu stretch may be exempted from the list. Also Vettilapara, Kanjirappilly, Chalakudy monitoring stations in Chalakudy river have BOD value less than 3mg/l in the last three years (2021-2023). Mamom, Vamanapuram, Ayroor, Neyyar monitoring stations have BOD values not exceeded 3mg/l in the last six months June to November in 2023. Detailed report will be submitted soon. So these stations may be exempted from the list

*Encl: As above*

Yours faithfully,



**MEMBER SECRETARY**

***National Mission for Clean Ganga***  
***Monthly Progress Report for the month of November 2023 in the NGT***  
***Matter OA No. 673 of 2018 (in compliance to NGT order dated***  
***24.09.2020)***

***For the State of Kerala***

**Overall status of the State:**

***I. Total Population: Urban Population & Rural Population separately:***

As per Census 2011, Kerala has a population of 3,37,77,386. Rural population in Kerala is 2,58,40,501 and urban population in the state is 79,36,885. Population projected for 2020 for rural area is 2,70,05,078 and for urban area is 82,94,583. The water consumption and wastewater generated are calculated based on the population projected for 2020.

**II. Estimated Sewage Generation(MLD):**

A dossier on sewage and sullage generation in the State of Kerala has been prepared by the Board. Based on the report:

- Estimated Sewage and Sullage generation in Urban area - 1058 MLD (Sewage – 317 MLD, Sullage- 741MLD)
- Estimated Sewage and Sullage generation in Rural area - 2917 MLD (Sewage – 875 MLD, Sullage- 2042MLD)

Total Sewage and Sullage generation – 3975 MLD (Sewage – 1192 MLD, Sullage- 2783MLD)

**III. Details of Sewage Treatment Plant:**

- Existing no. of common STPs/FSTPs: 22 (common STPs and other STPs) and 4 common FSTPs and 2144 number of individual STPs
- No. of functional common STPs in the state: 14
- No. of functional common septage treatment plants in the state: 4
- Total sewage treatment capacity in the state through existing common STPs: =133.975 MLD
- Total septage treatment capacity in the state through existing common FSTPs: 0.22 MLD
- Sewage treatment capacity via individual STPs in establishments: 90.040 MLD
- Treatment of sewage by septic tank- soak pit (Individual residences) -1011 MLD
- Gap in treatment of sewage : 21.865 MLD

- Kerala is declared as open defecation free State. A survey of liquid waste management was conducted in 2016 for 66.7 lakh residences (www.haritham.kerala.gov.in). The study revealed that in most of the household sullage from( kitchen, bathroom) is separated from sewage (toilet).
- Sullage which forms 70% of domestic waste water and sewage is only 30%.The major quantity of sullage, which is not contaminated with faecal coliform, is disposed through soak pit and for farming in their own premises. Some instances of discharge to open public places were also identified and actions were taken to stop the same.
- Sewage is discharged through septic tank/soakpit, common/ individual sewage treatment plant. The mixing of sewage and sullage occurs in the case of common sewage treatment plant and individual STPs. Based on the survey results retrofitting measures are also adopted in the State.
- In Kerala,flats are less compared to individual households. Individual households which are having septic tank /soak pit existing for toilets attached to them. However action is being taken in urbanised areas to divert wastewater to common STPs.
- Based on the instruction from Jalsakthi,Status of liquid waste management in all localbodies including panchayat have been called for by means of google spreadsheet.From the data received so far, the sullage which is not contaminated is disposed through soakpit and for farming in household premises is also reported.

#### **Proposals submitted for NRCP fund**

- DPR for sewerage system in cluster 1 comprising Attukal, Ambalathara, Kalady, Kalippankulam, Kamaleswaram was forwarded to Ministry of Jalsakthi vide letter dated 24.11.2022 for funding under NRCP.
- DPR for sewer line at Muttar, Perandoor, Vennala, Elamkulam was forwarded to Ministry of Jalsakthi vide letter dated 31.01.2023 for funding under NRCP.

#### **Further action taken**

- Letter was issued to District Collector Thiruvananthapuram to complete the activities in Karamana action plan and copy of letter is enclosed. This includes following:
  - 1.Taking of urgent action for the full utilization of 5MLD plant of Medical college.
  2. DG sets in sewage pumping/lift stations are to be operated urgently,
  - 3.To stop discharge from sewage lift station of Plamoodu,
  - 4.Urgent corrective actions are to be taken to divert discharge waste water from Rajaji Nagar,
  - 5.Urgent action is to be taken for the rehabilitation of sewer networks
  6. Urgent action is to be taken for completion of construction of slaughter house at Kunnukuzhi
  - 7.Urgent action is to be taken to treat waste water in the market of Pangode, Kumarichanda
  8. Urgent action is to be taken for completion of sewer work in newly added areas( sewerage system from Block F to G, Block H to R, Block A to E.
  - 9.Urgent action is to be taken to provide 155 houses in Kurukuvilakom with septic and treatment system.



10. The process on addressing gap of 107 MLD plant at Muttathara is to be reported.

11. Urgent action is needed to finish the work of rehabilitation of 8150 families from the banks of river.

- Letter was given to district collectors to prepare action plan for new river stretches. Directions given to the District officers of PCB to start monitoring water quality of newly added polluted river stretches instead of deleted polluted river stretches from November onwards.
- Notice was issued to railway Station, South Ernakulam for non compliance of the Board's direction for installation of STP and for not providing treatment for the waste containing oil from locoshed. This has been brought to notice of CPCB vide letter dated 15.03.23.
- EC Notice issued to railway on 27/06/2023, Reply received on 17/07/2023 and hearing is conducted on 07/09/2023. It was informed that 50KLD sewage treatment plant for the railway stations of Alappuzha, Aluva, Angamali, and Thrissur will be provided by 31- 12-2023 and for Chengannur station, STP is expected in October 2024. Sewage treatment plant of 350KLD for Ernakulam Junction (Ernakulam North) is expected by June 2024. Sewage treatment plant of 750KLD for Ernakulam South is expected by October 2024. Sewage treatment plant of 475 KLD is reported to be provided under station development by 1-2-2026.
- In the hearing conducted by the Board with the railway officials on 7-9-2023, the need to treat the waste water before disposal was stressed. Action is now being taken by Railway for providing facility for stopping such discharge. For diesel locoshed of South Railway Station, it was reported that the work of removal of oily sludge accumulation in the area near locoshed; work of sludge removal and remediation of the area is expected to commence by 30.11.2023 and will be completed by end of December 2023. The proposed cost of the work is Rs.22 lakhs. For STP in Ernakulam Railway station (South) 750 KLD STP is proposed to be commenced by October 2024. For the time being the railway was asked to provide temporary facilities for the treatment of wastewater generated from railway station and housing complex. For the STP at Aluva railway station, proposal of permanent STP of 50 kLD is under processing for final sanction and meanwhile temporary STP of 30 kLD proposed and expected to be completed by 31.10.2023. The proposed 350 kLD STP at Ernakulam North (Town) is expected to be completed by March 2024. The matter is being followed up.
- In 5 MLD STP at Elamkulam of Kerala Water Authority, co-treatment started on July 2023. Kochi Corporation reported that byelaw for tracking and registration of tankers was approved by the Council and 92 vehicles have been registered. Action is also being taken for providing temporary measures like Phytoid waste water treatment technology by NEERI. Accordingly NEERI was addressed and online presentation was conducted on 13.03.23 by NEERI to the officials of the local body, Suchitwa Mission and KSPCB. Field visit was conducted by NEERI along with officials of KWA, KSPCB, Suchitwa Mission, LSGIs during 11/05/2023 to 13/05/2023. Proposal for feasibility study submitted by NEERI and order issued. NEERI ,Nagpur then furnished a proposal for the feasibility study on the development of process package of treatment of domestic sewage for meeting the environmental compliance at Edappally canal and Perandoor canal at Ernakulam and Pallikalar at Kollam district for an amount of Rs 45 lakhs and this proposal was approved by the Board and draft MOU has been submitted.
- Instruction was also given for the full utilization of Common STP at Guruvayur and Kureepuzha and they are taking steps for registering of tankers and byelaw approval.

- Action is also taken for the rejuvenation of Amayizhinajan thodu, Ulloor thodu, Pattom thodu in Karamana catchment. Action is also taken to provide Jhokasou treatment at Rajaji Nagar slum area.
- As per the meeting chaired by Chief Secretary on 05.09.2023 it was asked to do a sanitation survey on the drains reaching Akkulam Veli lake and its watershed by Socio Economic Unit Foundation (SEUF). As per the request SEUF gave a proposal for the rejuvenation of Akkulam Veli lake and its watershed. For doing sanitation survey a training programs have been conducted by SEUF on 07/10/2023 to Environmental Engineering students (M.Tech) in CET and to NSS volunteers with support of KSPCB. Sanitation survey is progressing.
  - At the district of Kollam, Manichithodu and Thoppil kadav are stretches where major pollution was reported. A site visit was conducted on 12/06/2023, 30/06/2023 and sewage contamination was observed. Direction was given to stop septage discharge near Santhinagar to Kollam Corporation, District Collector & Police. . For rejuvenation of Thoppil kadav, it was decided to conduct a Survey by Engineering Colleges..  
VC Meeting with 3 Engineering Colleges was conducted on this regard. it was decided to conduct survey to identify hotspot using A-SAN app, along the stretches of Manichithodu and TS Canal. Based on the meeting, it is decided to conduct a preliminary meeting to ensure co-ordination of the project and to assign specific areas of responsibility to each organization involved. Each institution was asked prepare a list of students who are willing to involve in this project. A preliminary meeting was organized on 27.10.2023 at 12 Noon with Engineering colleges.
- As per the decision of 6th Monitoring Committee Meeting held on 22.07.2023, combined study by Board and Irrigation Department to be conducted to find the scientific reason for the colour change in the downstream of Pathalam bund. A meeting was conducted in this regard on 01/11/2023 chaired by MS, KSPCB. The members from CUSAT, Sree Sankaracharya University attended the meeting

Besides above , the following action were taken by LSGI for liquid waste management:

- District Level Inspection Committee for checking the feasibility of proposal for setting up FSTPs in degraded land was constituted as per GO (Rt) No. 2558/2022/LSGD dated 21.10.2022.
- 36 sites have been identified across the State for setting up FSTPs by the Technical Committee and site reports prepared. For one project, construction started. DPR submitted for one project, for 11 projects, DPC approved for 26 projects. Action is being taken.
- IEC campaign by way of Jalsabhas and transect walk by volunteers, students and local communities across water bodies to gauge pollution and develop community understanding of the dangers of inadequate liquid waste management to the health of water bodies was conducted in all local bodies, both rural and urban.
- Technical experts and agencies for Liquid Waste Management have been empanelled. Malam bhootham –intensive campaign to highlight the dangers of faecal contamination and the urgent in intervention, has been launched
- In situ expertise is being encouraged through capacity building of structural engineers and other motivated civil engineers within LSGD, so as to able to undertake the projects on their own.

- Self Help Groups. Micro enterprises are being mobilized and trained to take on the O&M of such projects.
- Liquid waste management projects have been included in the panel of projects for regular priority review by the Honorable CM, so as to resolve interdepartmental, financial and other policy issues in taking these projects forward expeditiously.

Progress in Action plans

- CSTPs / STPs were completed as per the Action Plan submitted –
  1. STP of capacity 5 MLD at Medical College, Thiruvananthapuram,
  2. 3 MLD at Chakkamkandam, Guruvayur, Thrissur.
  3. 5 MLD at Elamkulam with septage treatment facility at Kochi,Ernakulam
  4. 0.01 MLD FSTP at Kalpetta, Wayanad
  5. 0.01 MLD STP at Mattampuram, Thrissur
  6. 0.75 MLD STP owned by GCDA,Kaloor stadium
  7. 1 MLD STP at Padanappalam, Kannur
  8. 2 MLD STP at Kozhikode medical College.

Details of existing STPs/ Common STPs/ common Septage treatment plants in the State :

- 107 MLD STP in Thiruvananthapuram District at Muttathara (Activated Sludge with extended aeration process). The present sewerage system cover 43 out of 100 wards of Thiruvananthapuram corporation area either partly or fully. 75% of capacity of the 107 MLD STP is utilized. Completion of ongoing works will enhance the utilization by 15%.Co processing of septage is also taking place. Control room is available for tanker transportation of septage. Letter issued to KWA for full utilization of common STP in Thiruvananthapuram District at Muttathara. Copy enclosed.
- Considering the contamination of Karamana river and for providing sewerage systems for the 19 wards on the bank of this river, DPR prepared and submitted to GoK on 16.10.2021 for issuing AS under RKI. Sewer laying work of this 19 wards can be finished by 31/12/23, subject to the availability of funds. DPR for the remaining 81 wards for the full capacity utilisation of 107 MLD STP is under preparation. DPR for sewerage system in cluster 1 comprising Attukal, Ambalathara, Kalady, Kalippankulam, Kamaleswaram was forwarded to ministry of Jalsakthi on 24.11.2022 for funding under NRCD.
- Medical College 5MLD STP Works of 5MLD STP under AMRUT for Medical College, Thiruvananthapuram completed and started functioning from Sep 2021. This STP is exclusively for Thiruvananthapuram Medical college campus. Letter have been issued for full utilization of STP. The present load is 2.5 MLD and on connecting two buildings to this STP the load comes to 4 MLD.

- 5 MLD STP (NEW PLANT) at Elamkulam is functional. Dilution tank constructed and co treatment of septage started from 4/8/2023. AS received for extra network for 1.75 MLD for an amount of Rs. 63.91 crores under RKI for the full utilization of plant and the work has been tendered.
- 3 MLD STP at Guruvayur (Activated sludge process)-The Guruvayoor Sewerage Project is planned to provide an effective sewerage system for the thickly populated area under Guruvayoor Municipality. The work completed and is functioning from September 2021. Length of network is approximately 7 km.Action is being taken for the complete utilization of STP.Dilution tank constructed for co treatment and trial run started. Instructions issued for full utilization of STP.
- 2 MLD STP –completed & inaugurated on 05.10.2023. O & M agreement to be signed between the Medical College and the Contractor.

Sl. No.	City/Town	STP location	STP Installed capacity	Utilization	Status
1	Thiruvananthapuram(PRS)	I.Common Sewage Treatment Plant, Muttathara, Trivandrum maintained by <b>Kerala Water Authority</b> (Co Processing facility for septage)	107 MLD (Activated Sludge Process)	80 MLD	Operational (pH-7, TSS-22,BOD-3.6, COD- 16, oil and grease-BDL, Faecal Coliform-absent as per analysis report dated 04/09/2023. DPR preparation of uncovered area of Corporation is under progress. On completion of ongoing works and on implementation of DPR under preparation, full utilization of 107 MLD can be achieved .Two DPRs submitted to GoK for AS. Directions issued to KWA for full utilization of plant

		2.STP at Medical College, Thiruvananthapuram -Phase I & II (PRS)	5MLD(MBBR)	1.7 MLD	pH -6.6, TSS-80mg/l,BOD-17.7 mg/l,COD-56mg/l,oil and grease – BDL, total Coliform-4000cfu/100ml, faecal Coliform-3000cfu/100ml.Total Coliform and faecal Coliform not within permissible limits. It is designed only for medical college campus.
2	Pathanamthitta	3.Sewage Treatment Plant at Sannidhanam (5MLD) Maintained Travancore Devaswom Board	5 MLD (UASB and SBR)	3.5 MLD	Seasonally Operated during festival season. Instructions given.
		4.Sewage Treatment Plant at Pamba(3.5 MLD) maintained by Travancore Devaswom Board	3.5 MLD (Coagulation & settling)	3.5 MLD	Seasonally Operated during festival season.Instructions given.
3	Alappuzha	5.DEWATS system, Chathanad(For 50houses in slum area)	25 KLD (Anaerobic Baffle Reactor)	25 KLD	Operational
4	Kottayam	6.STP for Houseboat (0.09 MLD)at Kumarakom maintained by <b>DTPC</b> , Kottayam	0.09MLD (Activated Sludge Process)	0.09 MLD	Operating with ( pH- 6.6, COD - 88 mg/l, BOD - 28 mg/l, SS - 14mg/l, Oil & Grease-BDL). The quality of effluent conforming to standards.
5	Ernakulam	7.STP owned by Greater Cochin Development Authority, Marine drive, Kochi (0.45 MLD)	0.9 MLD (Activated Sludge Process)	0.9 MLD	Proposed to augment to 2MLD Operational.

	8.Septage Treatment Plant at Brahmapuram, Kochi Corporation, Ernakulam	0.1MLD(MBBR)	0.1 MLD	pH-6.88, BOD-2.1mg/l, COD-8mg/l,SS-BDL,Phosphates-0.008, Sulphates-21.15mg/l, Sulphides-BDL, Ammonical Nitrogen – BDL, Faecal Coliform-nil,Faecal Streptococci-8 cfu/100ml. All Parameters except faecal streptococci are within limits as per analysis report of 17.10.2023
	9.Septage Treatment Plant at Wellington Island, Kochi Corporation	0.1MLD(MBBR)	0.1 MLD	Operational
	10. STP at Elamkulam, Kochi (AMRUT)	5.0 MLD(MBBR) with Co treatment 24 KLD	3MLD	1782 House hold connected. Septage Treatment started on 04/08/2023  Sewerage network under Scrutiny and Technical sanction to be obtained
	11.STP owned by GCDA, International Stadium Kaloore	0.75MLD(Activated Sludge Process)	0.05 MLD	Operational According to analysis report of sample collected on 07/09/2023 the value of faecal Coliform(1800cfu/100ml) exceeded the

					standard limits stipulated by KSPCB. Also notice was issued to GCDA seeking explanation for not complying with the standards. It was also directed to install online monitoring system in the CSTP for the parameters pH, BOD, SS
		12 STP at Kalamassery, Market, Kalamassery Municipality (PRS)	10 KLD		Operational
6	Idukki	13. Sewage treatment Plant at Comfort station, Adimaly Grama Panchayat, Idukki	0.01 MLD		Started functioning Electro coagulation
7	Thrissur	14. Sewage treatment Plant at Guruvayur, Thrissur District	3 MLD (Activated Sludge Process)	0.5MLD	Operational. (pH-8.01, BOD-16.88 mg/l, COD-44mg/l, SS-4.65 mg/l, Oil & Grease-0.89mg/l, FC-350 as per analysis report of sample collected on 21/08/2023 Instructions given for full utilization of treated effluent and for utilizing treated water. Planning to reuse the treated effluent for gardening and

				<p>sepatge dilution. Construction work of dilution tank completed. Tank</p> <p>Steps are been taken to give more sewer connections to bridge the gap between utilized and unutilized capacity.</p> <p>Bye-law prepared for septage collection is under scrutiny in the ULB.</p> <p>AMRUT-2.0:</p> <p>Council has approved the proposal for upgradation of 3 MLD STP (at Chakkamkandam) to 5 MLD STP (septage co-treatment)</p> <p>AMRUT-1.0:</p> <p>Specification of the vehicle to be modified by the ULB as per site conditions.</p>
	15.FSTP at Mattampuram	0.01 MLD(Biological)	Started functioning	<p>BOD- 3.2mg/l,COD- 12mg/l, Ammonical Nitrogen- 0.343,total nitrogen- 2.436. Started functioning. PCB issued permission for conducting trial run. A s on analysis report on 21/08/2023.</p>



					Letter to be issued to Mattampuram for full utilization.
		16.Revamping of 35 KLD STP at Kuriyanchira Slaughter House Corporation , Thrissur	0.035 MLD (MBBR)	0.035 MLD	Operational
8	Malappuram (PRS)	17.Sewage treatment Plant at Malappuram Municipal Bus stand	0.03 MLD(MBBR)	0.03 MLD	Consent application is submitted for the revamping activities.Application has been returned for clarification. Action plan prepared through KWA.
		18.Sewage treatment Plant-at Tirur (fish market)	0.045 MLD (Biological)		Not working condition. Accordingly conducted site inspection by Board on 09.11.2023 to evaluate progress. No progress found. Since about 3 years repeated directions are being issued for time bound renovation of fish market STP
		19.STP at Municipal Bus Stand, Tirur (PRS)	0.05 MLD(Biological)	Completed	Work completed, send letter to Suchitwa mission for technical evaluation and approvals, Preparing for trial run.
		20. ETP in Fish Market, Ponnundam GP	0.01 MLD(Anaerobic)	Plant is working.	Operational

		Malappuram			
9	Kozhikode (PRS)	21. STP at Kozhikkode Medical College.	2 MLD		Operational
		22. Common Sewage Treatment Plant at Narayana nagaram, near stadium, Vatakara, Opp. New bus stand	0.1MLD (MBBR)	0.1MLD	Operational
10	Kannur	23. Sewage treatment Plant at Taliparambu (0.5MLD) Taliparambu Municipality, Kannur	0.5MLD (Activated Sludge Process)	0.5MLD	Operational.
		24. STP at old age home Kannur	0.010		MBBR (Operational)
		25. STP at Padannappalam	1 MLD		RMBR
11	Wayanad	26. Sewage Treatment Plant at Hospital, SulthanBathery Wayanad	0.14 MLD(MBBR)	0.05 MLD	Operational
		27. FSTP at Kalpetta	0.01MLD (Biological)		0.01 MLD

Details of under construction of major ETPs / STPs in the State

No.	Location	Capacity of the plant in MLD	Physical Progress in %	Status of I&D or House sewer connections	Incremental progress	Completion Time line
1	STP at Kureepuzha-Phase I & II, Kollam (AMRUT)	12	86%	21358 house sewer connections are envisaged as per the new sewer work added (balance of KSUDP).	AMRUT-1.0: Physical progress - 84% Bore-well installation work has been completed for Septage Co-treatment. There is no progress because an issue was there with the contractor and now the issue was solved. As sewage line was not completed, action such as byelaws, registration of tankers are to be done. Electro mechanical work was under progress.	31.12.2023
2&3	STPs at Medical College with Septage Treatment, Kozhikode (AMRUT)	1MLD	90%	Only the buildings inside the Medical College campus will be connected.	1 MLD STP - work has been hindered due to collapse of soil and related protest of the Medical College students. Work to be restarted after starting the retaining wall work. Agreement was signed for the retaining wall work on 05.10.2023 and the work to started.	31.12.2023
4	FSTP at Cherthala Municipality, Alappuzha (IMPACT KERALA Ltd)	250KLD Septage TP	60%		Civil works are almost completed. The work is not progressing for 7 months, but now it is restarted	

5	STP at General Hospital, Thrissur (AMRUT-1.0)	0.36	65%	Only the buildings in the General Hospital campus will be connected.	First contractor put off the work and new contractor took the work. Now the work is in progress.	31.01.2024
6	STP at General Hospital, Alappuzha	0.24	99%	Only the buildings inside the General Hospital campus will be connected.	Trial run completed. To be commissioned. 1 building to be connected.	31.12.2023
7	190 KLD STP at Pathanapuram Market and Shopping Mall	0.1	37% completed	Cover slab of Oil and grease trap tanks are completed. Manhole construction is on-going.		30.05.2024
8	STP at Pambad Housing Colony Malappuram Municipality, Malappuram	0.110	99 % Completed	Tendering for panel board completed. Electrical works completed.	Directions given to complete all works	30/12/2023
9	Wastewater treatment plant at Kuttiyadi government taluk hospital, Kozhikode	0.080	82%	RE has been prepared. Electric works will be started after passing RE.	Works are in progress	31.01.2024
10	Taluk Hospital Adimaly, Adimaly Block	0.060	99%	Trial run on-going	.	30/12/2023

	Panchayath, Idukki					
11	Construction of 45 KLD waste water treatment plant at Kalpetta Government Ayurveda Hospital DP, Wayanad	0.045	65% work completed	The district panchayath took the decision to terminate the existing company, and give instructions to prepare a new estimate for balance work with the help of EE (LID & EW). Then complete the rest of the work with a Govt. agency in this field	Machineries has been supplied and civil work completed	30/04/2024
12	STP at Chitumala Old Age Home. Chitumala BP, Kollam	0.015	90% Completed	Committee has decided to avoid tendering and complete the balance work with an accredited agency IRTC. The estimate submitted by accredited agency is not satisfactory to the LB and to be placed in council for decision.		31/01/2024
13	STP at CHC Cherpu BP, Thrissur	0.01	94% Completed	Civil work completed. Electrical works except pump fixing are		31/01/2024

				completed.		
14	FSTP at Munnar, Idukki	50KLD	5%	Due to a court case, work stopped temporarily		
15	190 KLD STP at Pathanapuram Market and Shopping Mall	0.190	38 %	O&G trap and manhole construction completed. Part bill submitted.		31/05/2024
16	Fecal Septage Treatment Plant for Munnar Grama Panchayath, Idukki	0.05	5%	Due to a court case, work stopped temporarily.		

1. Details of proposed ETPs/ STPs in the State

No.	Location	Capacity of the STP proposed in MLD	Status of Project (at DPR Stage/ Under Tendering/ Work to be Awarded)	Incremental progress	Likely Date of Completion of DPR preparation
1	4 STPs are coming up under the KMRL's Integrated Water transport System project at Elamkulam(17.5MLD), Vennala(24MLD), Muttar(16.5 MLD) Perandur(19 MLD)	17.5+24+16.5+19=77	To be tendered	DPR for sewerline at Muttar, Perandur, Vennala, Elamkulam forwarded to Ministry of Jalasakthi vide letter dated 31/01/2023 for funding under NRCP. KIIFB issued provisional sanction for	

				<p>funding the project :  TRAN – 23  CIN001-11:  Integrated Urban  Regeneration and Water  Transport System in  Kochi-  Elamkulam  Sewerage  Project”, vide  Government  Order (Ms) No.  07/2018/  CSIND dated  12.11.2018</p>	
2	27 MLD STP with 49.76 km Sewerage network at Sarovaram, Kozhikode	27	DPR Stage	<p>DPR of 27MLD STP with 49.76 km Sewerage Network at Sarovaram (in KWA land) for Rs 164.2 Crores submitted to Corporation on 13/3/2023 and DPR of sewerage network for 61.71 km Kozhikkode Corporation submitted on 26.4.23 for Administrative Sanction under AMRUT2.0. As suggested by the AMRUT SMMU the DPR is under revision</p>	
3	Sewage Treatment Plant and Sewerage System for Ponnani Municipality (Harbour Zone)	7.12	DPR in PRICE 3 Submitted to Govt and RKI for AS on 17/10/2022	<p>DPR Submitted to Government of Kerala and RKI for AS on 17/10/2022</p>	

4	Sewerage system for Thiruvananthapuram Corporation-Cluster 1 Attukal, Ambalathara, Kaladi, Kalipankulam & Kamaleswaram	7.0(for utilizing existing 107 MLD)	DPR in PRICE 3 Submitted to Govt and RKI for AS on 15/10/2022	DPR was forwarded to Ministry of Jalsakthi on 24.11.2022 for funding under NRCP.	
5	STP at sewerage system in Zone A,Package A,Avikkal thodu ,Kozhikode (AMRUT) (PRS)	7.0	<b>Started but stalled:</b> The Council held on 27.06.2023 decided to terminate the existing contracts and retender the STP works. Revised estimate was accepted by the 10 <sup>th</sup> SLTC held on 30.09.2023 for placing in the next SHPSC.	*The judgment of the Munsiff Court on OS No. 459/ 2022 is to be obtained. * To be placed in the next SHPSC for approval for inclusion in the SWAP-3of AMRUT-2.0.	31.03.20 25
6	Sewerage system (with STP) in Zone A, Package B, Kothi, Kozhikode(AMRUT) (PRS)	6	<b>AS to be issued:</b> *The Munsiff Court disposed the case, OS No. 450/ 2022, in favour of the ULB. * The Hon'ble High Court disposed the case, WPC No. 40164/ 2022, in favour of the ULB. * Since the price escalation request of the Contractor can't be considered the 27 <sup>th</sup> SLTC held on 10.05.2023 directed the ULB to furnish their opinion regarding cancelling the existing contracts and retendering the works. * The Council held on 27.06.2023 decided to terminate the existing contracts and retender the STP works. Revised estimate was accepted by the 10 <sup>th</sup> SLTC held on 30.09.2023 for placing in the next SHPSC.	* The judgment of the Munsiff Court on OS No.217/ 2022 is to be obtained. * Revised estimate was accepted by the 10 <sup>th</sup> SLTC held on 30.09.2023 for placing in the next SHPSC.	31.03.20 25



7	Sewerage system for Pattambi municipality	5.4	DPR Submitted to Government of Kerala and RKI	DPR Submitted to Government of Kerala and RKI for AS on 06/08/2022	
8	STP with septage co-treatment at Elamkulam (AMRUT-2.0)	5	* The 5th SHPSC held on 02/03/23 approved the issuance of AS and G.O (711) dated 25.03.2023 was issued.	TS was issued by KWA Work to be tendered.	31.03.2025
9	Sewerage system for Ponnani municipality(Kottathara Zone) with STP of capacity 4.2 MLD	4.2	DPR in PRICE 3 Submitted to Govt	DPR Submitted to Government of Kerala and RKI for AS on 20/10/2022	
10	Sewerage system for Haripad municipality(Kottathara Zone) with STP of capacity 4.2 MLD	3.8	DPR Submitted to Government of Kerala and RKI	DPR Submitted to Government of Kerala and RKI for AS on 01/09/2022	
11	Decentralized Sewerage Scheme (with STP), Thrissur Corporation	2.5	<b>AS to be issued:</b> * To be retendered after obtaining permission from the Govt. for constructing the STP at the proposed location (Paddy Land). * The 28 <sup>th</sup> SLTC held on 14.06.2023 recommended LLMC to give clearance for the STP since the Agriculture Dept. has not furnished proof that the proposed site for the STP is coming under the Ramsar site category.  *The LLMC held on 25.07.2023 decided to approve the change in category of the proposed land.	*The LLMC held on 25.07.2023 decided to approve the change in category of the proposed land * Request is to be submitted by the ULB to the SLMC for changing the category of the proposed land. Decision of SLMC is awaited for placing the project in the SLTC/ SHPSC for approval for inclusion in the SWAP-3 of AMRUT-2.0.	31.03.2025
12	Sewerage System for Kattappana Municipality	1.76	DPR Submitted to Government of Kerala and RKI	DPR Submitted to Government of Kerala and RKI for AS on 19/09/2022	

13	Sewerage System for Aluva –Zone 1	1.72	DPR Submitted to Government of Kerala and RKI for AS on 20/08/2022	DPR Submitted to Government of Kerala and RKI for AS on 20/08/2022	
14	STP at Ottappalam Municipality, Palakkad District (IMPACT KERALA Ltd)	1.50MLD Co-treatment	G.O(Rt)No.165/2023/LSGD dtd 19.01.2023 received regarding tender acceptance & Revised Administrative Sanction from Govt. Tender file uploaded to KIIFB PFMS on 21.01.2023 and KIIFB approved the same. Selection notice to be issued. Agreement executed with contractor on 22-3-23. Contractor has to submit vetted design and drawings within 2 months and , has sought time extension for the same.Survey conducted by contractor for finalizing network design. Letters to concerned authorities submitted for NOC/road cutting permission related to network. District collector convened meeting to sort out issues on 17/8/23. .Issue regarding Railway NOC being sorted out. Site handed over on 16/10/23. Preliminary works initiated at site. STP Design vetting being done from IIT, Jodhpur.	DPR approved by KIIFB.	

15	STP at Decentralised Sewerage System - Kochi Corporation Div-16 (AMRUT)	1.1	<b>Awarded but not started:</b> * There is public protest against the project. Public stopped the starting of soil investigation work on 28/04/22. * A public meeting was conducted in the presence of the Hon'ble Mayor on 02.08.2023 to resolve the public protest * Soil testing was started on 09.08.2023 but was stopped again by the protestors on 10.08.2023.	The work was started on 25.11.2023 with the help of the Police.	30.06.2024
16	STP at Wadakkanchery Municipality, Thrissur (IMPACT KERALA Ltd) (PRS)	1.00MLD Co-treatment	Initially planned at Puramboke land. NOC to be obtained from district collector. Now municipality planning for decentralized plants at different locations which needs to be finalized in consultation with PCB. Municipality to submit DPR accordingly. Not yet submitted.	DPR to be prepared.	-
17	STP at Kunnamkulam Municipality, Thrissur (IMPACT KERALA Ltd)	1.00MLD Co-treatment	Letter received from the Municipality on 28.12.2022 with Council resolution that Municipality is not going ahead with the Project. Letter forwarded to CEO, KIIFB and ACS, LSGD regarding cancellation of the project on 11.01.2023. ACS directed Municipality to find place for LWM projects. Municipality informed	DPR approved by KIIFB	

			that they have not considered anything further on this regard.		
18	STP at Palayad Taliparamba municipality, Kannur	1	At DPR Stage	For the project land has to be purchased. The municipality is interested in buying the land of the weavers society. Need to submit reports regarding the land acquisition. Reports are under preparation	
19	STP at Mayyand GP, Kollam (IMPACT KERALA Ltd)	590KLD Co-treatment	RKI issued AS on 4/3/2022. Formal approval given by Technical committee for tendering. Tender published. Date of opening 7/6/23. No bids received. Retender published on 4/7/2023. Date extended upto 18/8/23 based on requests. Technical bid opened on 22/8/23. 3 bids received. Initial scrutiny completed. 1 bid rejected. Bidders Technical	DPR approved by RKI.	-

			<p>presentation conducted on 10/10/23 before technical experts. Clarification sought from them and obtained. PQ evaluation finalized. Financial bid of 2 qualified bidders opened on 2/11/23. 8<sup>th</sup> Tender Acceptance Committee held on 14/11/23 approved selection of L1 bidder. Selection notice to be issued</p>		
20	DPR on STP at District Hospital, Tirur, Malappuram	0.5	At DPR Stage	DPR under verification stage	
21	STP at Vadakara Municipality, Kozhikkode (IMPACT KERALA Ltd) (PRS)	0.5 MLD Sewage TP 20KLD FSTP 20KLD	DPR appraisal ongoing in KIIFB. Present council decided to drop FSTP and include another STP at the proposed FSTP site. Consultant modifying DPR as per that. Land issue. Unnotified land conversion required at Narayananagaram and ownership details not received for Thazhangadi. Reminder to Municipality given. Not yet submitted.	DPR approved by RKI	-

22	STP at General Hospital, Thrissur (AMRUT) (PRS)	0.36	Awarded but not Started- Agreement was executed on 14/10/2020. Consent. Submission of additional performance guarantee	Additional performance guarantee to be submitted by the Contractor	30.09.2023
23	STP at Athani, Wadakkanchery Municipality, Trissur (PRS)	350 KLD STP	Site identified. DPR under preparation	DPR approved by RKI	-
24	Taluk Hospital Thiruvalla, Thiruvalla Municipality, Pathanamthitta	0.225	At tendering stage	Vetting process in progress. Letter issued towards DPR preparation consultancy regd assistance in procurement	
25	STP for Idukki district hospital and district Ayurveda hospital, Thodupuzha municipality, Idukki	0.205	Tendered	Project modified as DPR for Taluk hospital alone with reduced capacity. DPR submitted to LB	
26	District Hospital Perunthalmanna, District Panchayath, Malappuram	0.200	At DPR Stage	DPR under correction by agency	
27	200 KLD Sewage Treatment Plant - Mattannur Municipality - Reg	0.2	At DPR stage	Soft copy sent to SSM. DPR under verification at SSM	
28	200 KLD Wastewater treatment plant at Tata Trust Govt Hospital, Kasargod	0.2	At DPR Stage	Local body decided to hand over the work of DPR preparation to another agency	

29	General Hospital, Irinjalakuda Municipality , Thrissur (PRS)	0.150	At DPR Stage	DPR correction in progress by the agency	
30	Eco-Friendly wastewater Treatment Plant (140 KLD ) for Women and Children Hospital Ponnani Municipality, Malappuram	0.14	At DPR Stage	DBOT Tendering in process. Fund for the project has been sanctioned and the fund transferred to KWA.	
31	135 KLD Capacity decentralized sullage Treatment plant at Uppala Town Mangalpadi, Kasaragod	0.135	At DPR Stage	Access was not available. NOC obtained from department concerned. DPR correction in progress	
32	STP at hospital, Pazhayangadi, Kannur	0.120	At DPR Stage	Project vetting completed Agency has submitted a rough cost estimate for electrical components. Steps for issuing TS are in progress	
33	FSTP at Ramavarmapuram , Thrissur (AMRUT) (PRS)	0.1 MLD	<b>Tendered but not awarded:</b> * The Contractor had requested the ULB to relieve them from the project citing reasons like financial crisis and increase in material & labour cost due to Covid pandemic. * The Council held on 29/01/22 decided to retender the work (TSP limited competitive tender). * The estimate recast as per DSR-2018 is to be approved. The corrected estimate & details were submitted to CE, LSGD office on 20/08/22. * The Technical	* TS dated 19.10.2023 was issued by the CE, LSGD. * Agreement to be executed with the contractor.	30.06.2024

			<p>Committee held on 17/10/22 directed to tender the work with the technology kept as open.</p> <p>* Tender was floated by the ULB on 24/12/22 with 09/01/23 as the last date of bid submission &amp; 11/01/23 as the date of bid opening. Last date of bid submission &amp; date of opening were extended till 13/01/23 &amp; 16/01/23 respectively as per the request of a prospective bidder. Only 1 bid was received, hence, retendered (2nd) on 18/01/23 with 25/01/23 as last date &amp; 28/01/23 as date of opening. Again, only one bid was received. The ULB invited quotations on 09/02/23 with 15/02/23 as the last date of submission. Three quotations were received.</p> <p>* The ULB selected the technical bid submitted by M/s. SEUF. Vetted design &amp; technology details were submitted by SEUF on 19.07.2023. The same were submitted to the CE, LSGD (letter dated 02.08.2023) for placing in the Technical Committee.</p> <p>* The Technical Committee held on 23.08.2023 approved the technology and recommended issuance of TS.</p>		
34	FSTP at Yakkara, Palakkad Municipality	0.1 MLD	<p><b>Tendered but not awarded:</b></p> <p>* The Cabinet Meeting of the Govt. held on 02/02/22</p>	<p>* 29<sup>th</sup> SLTC held on 07.11.2023 accepted the proposal for AS revision. To be placed in the next</p>	30.06.2024



			<p>decided to allow 70 Cents of land inside Palakkad Medical College Campus for the construction of the septage plant. Govt. Order, dated 04/03/22, was issued by Revenue Dept. allocating 70 Cents of land for the work.</p> <p>* The Contractor informed vide letter dated 31/03/22 that they are not willing to go ahead with the work due to financial crisis &amp; increase in material &amp; labour cost due to Covid pandemic.</p> <p>* Counter affidavit was filed by the ULB regarding the petitions (WPC-14660/ 2022 &amp; WPC-15105/ 2022) filed in the Hon' High Court against the construction of the Septage Plant.</p> <p>* The Council held on 12/07/22 decided to take further action based on the judgment of the Hon' High Court.</p> <p>* The judgment of the Hon' High Court disposing the petitions filed by the protestors in favour of the ULB was obtained on 15/11/22.</p> <p>* The Core Committee of the ULB held on 26/11/22 decided to select new consultant for preparation of revised DPR and the Council held on 16/12/22 gave consent for the same.</p> <p>* The ULB had approached IRTC for preparation of DPR but the response given by IRTC was not satisfactory for the ULB. Hence the Core</p>	<p>SHPSC</p> <p>* The Technical committee held on 20.11.2023 approved the L1 bid</p> <p>* TS to be issued by the CE, LSGD.</p>	
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		<p>Committee held on 06/01/23 decided to approach CDD for preparation of the DPR. The Core Committee held on 01.02.2023 &amp; the Council held on 25.02.2023 gave approval to transfer the project to AMRUT-2.0. The Council held on 11.03.2023 gave consent for the preliminary proposal (40 KLD) given by M/s. CDD.</p> <p>* The 27<sup>th</sup> SLTC directed the ULB to maintain the project in AMRUT-1.0 as the mission period has been extended.</p> <p>* The Core Committee of the ULB held on 27.05.2023 decided to float tender for DPR Consultant as the project cost &amp; O &amp; M cost as per CDD's proposal is high and can't be borne by the ULB. The Committee also decided to maintain the capacity as 100 KLD.</p> <p>* The 28<sup>th</sup> SLTC held on 14.06.2023 directed the ULB to float a tender for executing the work in DBOT mode instead of floating a tender for a DPR Consultant. The Core Committee held on 19.06.2023 agreed with the suggestion of the SLTC.</p> <p>* Tender (DBO) was floated by the ULB on 08.08.2023 with 24.08.2023 as due date but the same has been extended upto 05.09.2023 as per the request of prospective bidders. 3 bids were received &amp; 2 qualified.</p>	
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			Financial bid was opened on 11.09.2023. Technical committee members visited the works done in Coimbatore by the L1 (Sainath Envirotech). * The Council held on 30.09.2023 approved the bid received.		
35	FSTP at Chellora, Kannur Corporation (AMRUT)	0.1 MLD	<i>Awarded but not started.</i> * . Agreement was signed with M/s. IRTC to execute the project in DBOT mode. DPR to be submitted by M/s. IRTC. * DPR was submitted by IRTC on 30.06.2023. The same was approved by the council held on 25.07.2023. The ULB has directed M/s. IRTC to get the design vetted.	DPR submitted by IRTC was approved by the council held on 25.07.2023 * The ULB has directed IRTC to get the design vetted * The legacy waste removal from the proposed site is expected to be completed by Nov-23. The legacy waste removal from the proposed site is expected to be completed by Nov-2023. * Agenda has been placed in the 29th SLTC scheduled on 07.11.2023 for revision of AS. To be placed in the next SHPSC	30.06.2024
36	CHC Alathur, Alathur Block Panchayat , Palakkad	0.090	At DPR Stage	Since there issue regarding land availability and the suitability of proposed plant, board meetings at LB level were conducted. Decided to call for tender with prefabricated STP plant agencies.	
37	Taluk Hospital Pampady, Pampady Block panchayat,	0.085	At Tendering stage	TS received, tendering	-

	Kottayam			completed. KSPCB consent to establish proceedings in progress	
38	65 KLD Sewage Treatment Plant at Taluk Head Quarters Hospital Vythiri, Kalpetta Block Panchayat, Wayanad	0.065	At DPR Stage	Agency submitted New estimate and DPR to LB	
39	ETP at Tirur Municipality	0.060	At DPR Stage	LB to submit the revised DPR with revised DPC form	
40	FSTP at Varkala Municipality, Thiruvananthapuram (IMPACT KERALA Ltd)	50 KLD FSTP	RKI issued AS on 28/2/2022. Structural Scrutiny entrusted to CET on 17.05.2022. Fire NoC applied on 30.06.2022. Objection raised during site inspection. PCB NOC received on 21.05.22. Structural scrutiny received on 08.02.2023. Fire NOC issue sorted out as letter received from Fire dept that NOC not needed. Formal approval accorded by technical committee for proceeding with tendering. Tender documents modified. Tender published on 3/7/2023. Date of opening 4/9/23.	DPR approved by RKI and tender published	

			5 bids received. Under technical evaluation. Initial PQ evaluation completed. 1 bidder rejected. Bidders Technical presentation conducted on 4/11/23 before technical experts. Clarifications sought by experts. To be obtained by 30/11/23 for finalization of PQ evaluation.		
41	STP at Thottumadi Colony, Alappuzha	0.05	<b>Tendered but not awarded</b> The detailed engineering report submitted by the bidder was discussed in the Technical Committee held on 21/01/23 & the Committee directed the ULB to get the design & drawings vetted by an IIT or NIT. The ULB submitted the design & drawings to IIT Palakkad for vetting on 07/02/23. IIT officials visited the site.	Report on design vetting is awaited from IIT Palakkad for placing in the Technical Committee for approval of the bid received.	30.06.2024
42	Taluk Hospital , Neeleswaram Municipality Kasaragod	0.040	At tendering stage	TS issued, Tendering process delayed due to issues regarding rate changes in Price software. BOQ for Tendering under preparation	
43	ETP at Kodimatha, Kottayam Municipality	0.030	At DPR Stage	Revised DPR submitted to District Suchitwa Mission and returned for	

				correction	
44	ETP for slaughter house, Marakkadavu, Ernakulam	0.030	At DPR Stage	DPR under correction by the agency	
45	STP at private bus station, Kothayikkunnu, Thodupuzha municipality Idukki	0.03	Tendering stage.	TS issued.	
46	Mobile Septage Units- 2 nos, Alappuzha (AMRUT-1.0)	0.02 (0.01 *2 nos.)	<b>Tendered but not awarded:</b> * Work tendered 5 times but no bids received. * ULB's Technical Committee held on 30/06/22 decided to request the Technical Committee for Sewerage works to relax the payment terms so that bidder participation can be increased. * The Technical Committee for SEW & SEP works held on 26/08/22 decided to call for quotations without changing the payment terms. * Quotations were called for by the ULB with 15/11/22 as the last date of submission. One quotation received. In this regard a meeting was held by the CE, LSGD on 21/12/22 with the bidder and the ULB officials. * The detailed engineering report submitted by the bidder was discussed in the Technical Committee held on 21/01/23 & the Committee directed the ULB to get the design & drawings vetted by an IIT or NIT. The ULB	* 29 <sup>th</sup> SLTC held on 07.11.2023 accepted the proposal for revision of AS. To be placed in the next SHPSC.	31.03.2024

			submitted the design & drawings to IIT Palakkad for vetting on 13/02/23. A joint meeting was held by the ULB on 05/05/23 with the officials of IIT & the bidder. Design vetting report was submitted by the IIT Palakkad on 31/07/23. * The design vetting report was submitted to the CE, LSGD on 05.08.2023 for placing in the Technical Committee. The Technical Committee held on 23.08.2023 approved the technology and recommended the revision of the AS.		
47	ETP at Tirur Municipality Slaughter house	0.030	At DPR Stage	TS issued. Tendering is in progress	
48	35 KLD STP at Ramavarma District ayurveda hospital, Thrissur	0.035	At DPR stage	DPR under correction by the agency	

- The status of compliance of remaining STPs less than 30 KLD is attached as enclosure 1.

#### ***IV. Details of Industrial Pollution:***

- Total registered industrial and non industrial units – 154931
- 56045 consents issued from 2020 onwards- More industries are brought under consent purview

- 23,279 effluent generating units (large and medium=461; Small scale-17487) (as per dossier)
- The Board issue consent only after ensuring providing of treatment system and is monitored.
- OCEMS facility provided in 39 industries and are linked to the SPCB/CPCB servers. In case of exceedance follow up is done.
- Quantity of effluent generated from the industries in MLD: 169.838+0.636=170.464
- Quantity of Hazardous Sludge generated from the Industries in TPA : 2584.572
- Number of industrial units connected to CETP: As per the available data-64 nos
- Number and total capacity of CETPs (details of existing/under construction /proposed)

I. 11 nos of CETPs are functional (Total Capacity – 11.245 MLD), 1 CETP having capacity 0.25 MLD not operational due to non availability of waste water.

II. Proposed CETPs –2 nos. (Total Capacity- 3.1MLD).

#### 4.1.1.Details of existing/under construction/proposed CETPs in the State

<i>CETP Name</i>	<i>Treatment Capacity</i>	<i>Operational Capacity</i>	<i>Status (Whether Operational or Non operational)</i>	<i>Number of member units</i>	<i>Number of complying units</i>	<i>Whether complying with parameters</i>
Kinfra Apparel Park, St. Xavier's College P.O, Thumba, Thiruvananthapuram	4.5 ML D	4.5ML D	Operational	10		Faecal Coliform is not complying within limits according to analysis report on 04/09/2023
CETP, KINFRA, Elamannoor, Pathanamthitta	0.22 MLD	30 cubic metre per day	Operational	4	4	All parameters are within limits 21/09/2023
Mega FoodPark. Aroor Alappuzha	2ML D	0.5ML D	Operational	6		Parameters complied within limits
Sea Food	0.3 MLD	0.3	Operation	10		Parameters complied



Park (India) Ltd., Aroor, Alappuzha		MLD	al			within limits
SEZ, Kakkannad Cochin Special Economic Zone Ernakulam	1.6 M L D	1.6ML D				Parameters complied within limits
Kinfra Small Industries Park Nellad, Mazhuvanoor,  Ernakulam – 686 721	0.4 M L D	0.4 MLD	Operation al	15		Legal sample collected from the final outlet of CETP ,Kinfra, Nellad on 21.07.2023 shows that parameters such as BOD, COD, phosphates, sulphides, phenolic compounds and iron are not within permissible limits

Rubber Park  India Private  Limited, Common Effluent Treatment Plant, 2A, Kaudileeyam, Rubber Park, Valayanchirangara, Ernakulam - 683556	0.25 MLD	0.25  MLD	Operational	17  Units +  Dormitory and Canteen		Parameters not complied within limits. Show cause notice issued.
CSEZ, Kakkanad, Cochin Special Economic Zone Ernakulam	1 MLD		Operational		All units complying	Discharge standards complying
Kinfra Techno Industrial Park,  Kakkanchery Chelambara P.O, Malappuram	0.675 MLD	0.675 MLD	Operational	17	17	Parameters complied within limits
Kinfra Textile Centre,  Nadukani, Pallivayal P.O, Thaliparambu, Kannur - 670 142	0.2 MLD	0.2 MLD	Operational	2	2	Parameters complied within limits

Construction of 6 KLD ETP for Kumali Slaughter House Kumali GP, Idukki	0.006 MLD		Operational			
CETP, Industrial department, Aroor			Proposed CETP (Court case pending regarding allotted land)			NA
CETP, Chandiroor	1.5 MLD		Proposed CETP			NA

### Effluent Treatment Plants

#### Kasargod

Sl. No.	Industry Name	Type	Consumption of water in MLD	Effluent quantity in MLD	Mode of disposal	ETP Units	Date of monitoring	Limiting Standards	Latest analysis report	Conforming to Standards or not if not steps taken
1	<u>Govt. District Hospital Kanhangad</u>	<u>Hospital</u>	<u>0.25</u>	0.2	<u>Soak Pit</u>	SEPTIC TANK	19.10.23	pH 5.5-9, SS-100 l		
2	<u>Vpk Motors</u>	<u>Service Station</u>	<u>0.00575</u>	<u>0.005</u>	<u>Soak Pit</u>	ETP	20.10.2023	PH-6.5-8.5, BOD-30, TOTAL SUSPENDED SOLIDS-100, OIL AND GREASE-10, COD-250	Analysis report yet to be obtained	

#### Ernakulam District

Sl. No.	Industry Name	Industry Type	Consumption of water in MLD	Effluent quantity in MLD	Mode of disposal	ETP Units	Date of monitoring	Limiting Standards	Latest analysis report	Conforming to Standards or not if not steps taken
1	<u>The Fertilisers And Chemicals Travancore Ltd- Cochin Division,</u>	<u>Fertiliser</u>	<u>4.1</u>		<u>Chithrapuzha</u>	<u>equalisation, flash mixer, clarification, collection, pit, lime slurry tank, chemical mixing, guard pond, delapond</u>	<u>17.10.2023</u>	<u>pH- 5.5-9.0, BOD- 20mg/L, COD- 250mg/L, Oil &amp; grease- 5mg/L, SS- 100mg/L, Phosphates- 30mg/L, Ammoniacal Nitrogen- 75mg/L</u>	<u>pH- 6.38, BOD- 13.8mg/L, COD- 40 mg/L, Oil &amp; grease- BDL, SS- 177.2 mg/L, Phosphates 0.32mg/L, Ammoniacal Nitrogen- 50.87mg/L</u>	<u>SS exceeded from the limit</u>
2	<u>Hindustan Organic Chemicals Ltd.</u>	<u>Chemical</u>	<u>2.3</u>		<u>Chitrapuzha/Reuse</u>		<u>17.10.2023</u>	<u>pH- 6.5-8.5, BOD- 30mg/L, COD-</u>	<u>pH- 7.98, BOD- 8.4mg/L, COD- 40mg/L,</u>	<u>All the parameters are conforming to the</u>

							<u>250m</u> <u>g/L,Oil</u> <u>&amp;</u> <u>grease</u> <u>=</u> <u>10mg/</u> <u>L,TSS-</u> <u>100m</u> <u>g/L,Ph</u> <u>enolic</u> <u>Comp</u> <u>ounds</u> <u>=</u> <u>5mg/L</u>	<u>Oil &amp;</u> <u>grease-</u> <u>BDL,TSS-</u> <u>10.4mg/</u> <u>L,Phenoli</u> <u>c</u> <u>Compou</u> <u>nds-BDL</u>	standards
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Pathanamthitta District

Sl. No.	Industry Name	Industry Type	Consumption of water in MLD	Effluent quantity in MLD	Mode of disposal	ETP Units	Date of monitoring	Limiting Standards	Latest analysis report	Conforming to Standard or not if not steps taken
1	Greentech Solutions and Innovations, Payyanallor P.O Adoor	Rendering Plant				ETP	24.1 1.20 23	pH - 6.5 to 8.5, BOD-30, TSS - 10, COD - 50, O&G - 1	pH - 6.7, BOD-12, TSS - 16, COD- 48, O&G - BDL	All parameters are within the limit
2	Anila Food Products, Kadapra	Food Processing				ETP	25.1 1.20 23	pH - 5.5 to 9.0, TSS - 100, BOD - 30, O&G - 10	pH -6.5, TSS - 88, BOD - 32, O&G -9.2	BOD exceeded the limit

#### V. Solid Waste Management:

Total number of Urban Local Bodies and their Population: 93 Urban Local Bodies (6 Corporation and 87 Municipalities) , Total Urban Population : 79,36,885 (As per 2011 Census)

- Current Municipal Solid Waste Generation :3472 TPD (Urban local bodies- Based on population)
- Processing Capacity : 3231 TPD
- Gap in Municipal Solid Waste Management : 241 TPD

(The reduction in gap is due to the inclusion of recently commissioned rendering plants for processing the chicken waste . There is no live dump sites in the state . the quantity of 342 TPD is disposed through household facilities like compost pits and however action is being taken to divert it in the proposed centralized facility)

The District wise number of units are given below;

- 8 Waste to energy plants in progress (DPR stage-1 no, Tendering stage-1 no, Bid evaluation stage- 2 nos. , Initial stage of construction-2 nos, Land identified-2 nos)

- The Additional Chief Secretary ,Local Self Department has submitted the action taken Report on the implementation of Solid Waste Management in the state. Status report of Local self Government department is submitted herewith.

### 1. Status of proposed Waste- to- Energy Plants

Status report of Waste to Energy Plant				
Sl. No.	Waste to Energyplant	Land Identified	Procured	Status
1	Kozhikode Njaliyanparambu	Kozhikode corporation	(Govt. land)12.67acre at Njaliyanparabu	<ul style="list-style-type: none"> <li>Work awarded to Zonta Infratech Private Limited for the construction of Waste to Energy Plant.</li> <li>Consent to establish was issued to Malabar Waste Management Private Limited on 12-8-2020 with a validity upto 30-6-2023 for the generation of 6MW electricity and 20T of compost.</li> <li>Biomining of legacy waste is 75% complete. The total area for biomining is 1.8 acres.</li> <li>All licenses from the corresponding departments were obtained for the construction of waste to energy plant. Preliminary site work started. Financial closure is expected to be achieved by the end of the month.</li> </ul> <p>Work will be started only after monsoon.</p>
2	Kannur Chelora	Kannur Corporation	(Govt. Land) 9.7 acres at Chelora	<ul style="list-style-type: none"> <li>Work of WtE plant can be started only after the work of biomining is carried out. WtE plant is proposed in 9.7 acres of land after clearing the legacy waste.</li> <li>Tendering completed and DPR prepared by Blue planet. Consent application is yet to be received.</li> <li>For biomining, volume of legacy waste – 1,22,844 m3 (NIT). First given to Zonta and they asked to revise the amount of biomining. Again retendered and identified a suitable contractor, Jan-Adhar Sevabhavi Sanstha. Bio mining already started.</li> </ul> <p>Agreement to be executed Biomining is already started (6500) cum is biomined (50%).</p>
3.	Palakkad Kanjikode	Palakkad Municipality	Land taken over from Kerala State Electricity Board Ltd. in advance possession 15 acres at Kanjikode	<ul style="list-style-type: none"> <li>Blue Planet Palakkad Waste Solutions Private Limited was formed to take up the development of the project.</li> <li>Consent to establish was issued on 21-12-2021 to the project with a validity upto 30-11-2023.</li> <li>200T of municipal solid waste will be processed.</li> </ul>

4	Kollam Kureepuzha	Kollam Corporation	7.05 acres at Kureepuzha (Govt. land)	<ul style="list-style-type: none"> <li>• The SPV constituted for setting up of the Waste to Energy Plant of Kollam Corporation,</li> <li>• M/s. Venad Waste Management Private Limited had applied for Consent to Establish on 09.09.2021. The proposed waste to energy plant is bio methanation based and is having a capacity of 200 TPD.</li> <li>• Consent to establish was issued to project on 10-1-2022 with a validity upto 9-1-2025 for the production of 8.165TPD of compressed biogas from 200TPD of municipal solid wastes</li> <li>• Biomining of legacy waste completed.</li> <li>• Financial closure for waste to energy plant is expected to be achieved by December 2022.</li> </ul>
5	Ernakulam Brahmapuram	Kochi corporation	20 acres at Brahmapuram (Govt. land)	<ul style="list-style-type: none"> <li>• Bio mining of legacy waste is progressing. 25% completed.</li> <li>• For construction of Waste to Energy plant, work order was issued to M/s. Zonta Infra Tech. A meeting was convened on Hon'ble Minister chamber on 17/12/2022 ,and decision as follows.</li> <li>• Corporation has been exempted from paying annual installment for 20 acres of land, which has been leased out to KSIDC for waste to Energy plant under public private partnership from subsequent annual fund.</li> <li>• Tipping fee amount shall be obtained by increasing user fee collection from residential area and also by enhancing property tax by 8%..</li> <li>• Above decision has put to council for approval.</li> </ul>
6	Thrissur	Thrissur corporation		Land is yet to be Identified .Biomining 45% completed.
7	Malappuram	Malappuram munciplaity	8.09 acres of land at Kurumbathoor village in Tirur Taluk	<ul style="list-style-type: none"> <li>• 8.09 acres of land identified by District Administration at Kurumbathur village. Tirur taluk for setting up of WtE plant. The land is under possession of KSIDC. Details of this are reported to be submitted to Government already by LR Deputy Collector.</li> </ul>
8	Thiruvananthapuram	Thiruvananthapuram Corporation		<ul style="list-style-type: none"> <li>• Land is not yet identified.</li> </ul>

## 1. Status Report of Bio mining in the State of Kerala

In Kerala there are no live dump sites. 58 old dumpsites were identified in different parts of the State. Out of which 21 were bioremediated. Bio-mining of legacy waste is progressing at various stages in the remaining 37 dump sites.

In the State, for a Regional Sanitary Landfill 25 acre of land has been earmarked by KINFRA at site of FACT at Ernakulam and action is being carried out to set up. Another secured landfill is under construction in Attingal Municipality.



Bio mining of dumpsites

<i>Description</i>	<i>As on 01.12.2022</i>	<i>As on 13.10.2023</i>
Number of Dumpsites Identified	44	58
Remaining dumpsites to be bio-mined	26	37
a.Dumpsites where bio-mining is progressing	6	10
b.Number of dumpsites to be biomined	20	27 ( work order: 3, tender proceedings: 5 Tender process initiated: 19)
Fund earmarked	15.15 crore	
Fund utilized		13.7 crore

*Clearing of dump sites - Processing sites*

<i>Sl.</i>	<i>Location</i>	<i>Status of Bioremediation</i>
1	<i>Attingal, TVM</i>	75% remediated, process ongoing.
2	<i>Sarvodayapuram, ALP</i>	45% remediated.
3	<i>Vadavathoor, KTM</i>	8000 m3 dumpsite cleared in Phase 1, project taken up as KSWMP and 2 crore SBM(U) project in Phase 2.
4	<i>Brahmapuram, EKM</i>	Work retendered, Remediation work allotted to 'M/s Bhoomi'.
5	<i>Laloor, TSR</i>	80% completed.

6	<b>Njaliparambu, KKD</b>	Zone 3 biomining completed.
7	<b>Chavakkad, TSR</b>	75% completed.
8	<b>Chelora, KNR</b>	76 m3 remediated and bill passed. 25 tonne RDF given to cement factory (Karnataka).
9	<b>Ottapalam, PKLD</b>	Ist phase completed, II phase- Levels prepared and report send to CE office for TS.
10	<b>Kodungallur, TSR</b>	Work started and 25 % remediated

## 2. Status of Solid waste management System

As per the Solid Waste Management Rules, 2016, 100% door to door collection from households and establishments is to be done. This includes treatment in the centralized and de-centralized systems. Centralized Windrow composting system exists at Brahmapuram, Kochi and at Njaliyan parambu, Kozhikode. However household level decentralized solid waste management facilities do exist at Kochi and Kozhikode Corporation. 100% D2D collection of dry waste is achieved for households in 93 urban local bodies as in October, 2022. Haritha Karma Sena is working in 92 urban local bodies and 923 Grama Panchayaths for collection of dry waste . For wet wastes disposal decentralized treatment methods such as aero bins, pipe compost, compost pits, kitchen bins, biogas plants etc. are followed. Dry wastes are collected, segregated and disposed through recyclers. In Kerala there are 214 plastic recycling units, 21 Steel mills, and 7 craft paper units. Non-recyclable plastic waste is shredded in the RRFs and is used for the tarring of PWD and LSGD roads. During the period 2016-2023, Clean Kerala Company Limited (CKCL) has produced 34443.142 T of shredded plastics and given to various agencies (NHAI- 12-18 T, PWD-947.76 T, LSGI-1151.2 T). The total length of polymerized road constructed during this period using shredded plastic is 3838.04 km. 1174 MCFs and 204 Resource recovery facilities have been provided in LSGIs (Status as on April 2023) . The status report on the progress achieved from 2019-2022 is given as Annexure III -c

Haritha Karma Sena (HKS), an enterprise group formed through the State Poverty Eradication Mission (Kudumbasree) has been engaged for the Door-to-Door collection. The enterprise group is designed to have two persons for each ward for door-to-door collection of non-biodegradable waste on a regular basis and to help in managing the household institutional-community systems for composting biodegradable waste. The user fee is fixed by the respective local government depending on the services rendered and based on the guidelines issued vide G.O(Rt)No.2420/2017/ LSGD dated 15.07.2017. In order to sustain the operation of the door-to-door collection system, Government provided a Viability Gap Fund (VGF) support initially so as to make up the shortage of user fee collection in the initial stages such that each member of the group get at least minimum wage decided by the government.

The status of the present facilities for the treatment of biodegradable waste is given below.

1. Status of facility for treatment of Biodegradable waste

The Government of Kerala has taken efforts to implement the Solid Waste Management Rules, 2016 in the State. There are 6 Corporations, 87 Municipalities and 941 GPs in the State. The Kerala State Pollution Control Board (KSPSCB) issued repeated directions to all local bodies to ensure compliance of the Solid Waste Management Rules, 2016. 3472 TPD of solid waste is generated from the cities and towns. The status of the present facilities is given below:

Existing waste management facilities

<i>FACILITY</i>	<i>TYPE OF PLANT</i>	<i>NUMBER</i>	<i>LOCATION</i>	<i>CAPACITY (TPD)</i>
<i>Composting Facilities</i>				
<i>Centralized Plants</i>	<i>WINDROW COMPOSTING PLANT (LARGE)</i>	1	Kochi Corporation	25
		1	Kozhikode Corporation	100
		TOTAL	2	
	<i>WINDROW COMPOSTING PLANT (SMALL)</i>	1	Attingal	15
		1	Adoor	1
		1	Kothamangalam	4
		1	North Paravur	1
		1	Chalakydy	2
		1	Irinjalakuda	4
		1	Kodungaloor	4
		1	Guruvayoor	5
		1	Kunnamkulam	9
		1	Wadakancherry	10
		1	Palakkad Municipality	10
1	Chittur Thattamangalam	5		

		1	Pattambi	3
		1	Shornur	5
		1	Ottapalam	5
		1	Kalpetta	4
		1	Mattanur	2
		1	Koothuparamba	5
		1	Iritty	2
		1	Thaliparambu	1.5
	TOTAL	21		97.5

<i>FACILITY</i>	<i>TYPE OF PLANT</i>	<i>NUMBER</i>	<i>LOCATION</i>	<i>CAPACITY (TPD)</i>
<i>Centralized Plants</i>	VERMI COMPOSTING PLANT (SMALL)	1	Attingal	0.25
		1	Kattapana	0.5
		1	Mattannur	5
		1	North Paravur	1
		1	Chavakkad	2
		1	Chalakkudy	0.5
		1	Koothuparamba	1
		1	Perinthalmanna	2
		1	Manjeri	0.5

	<b>TOTAL</b>	9		12.75
<b>Community Facility</b>	<b>AEROBIC COMPOSTING UNIT</b>	773		443.39
<b>INSTITUTIONAL FACILITIES</b>	<b>SMALL COMPOSTING DEVICES</b>	28406		20
	OWC	1	Angamaly	0.5
		3	Thrissur corporation	16
		1	Kayamkulam	10
	<b>TOTAL</b>	5		26.5
<b>Household Level</b>	Composting devices	349815		699.63
	Compost Pits	476530		476.53
	<b>TOTAL</b>	826345		1176.16
<b>COMPOSTING FACILITIES TOTAL</b>		855538		1900.3 TPD

<b>BIOMETHANATION FACILITIES</b>				
<b>FACILITY</b>	<b>TYPE OF PLANT</b>	<b>NUMBER</b>	<b>LOCATION</b>	<b>CAPACITY (TPD)</b>
<b>Centralized Facilities</b>	<b>Large capacity Biogas plants</b>	1	Thodupuzha	8
		1	Manjeri	10
		1	Perinthalmanna	2
		1	Kattappana	5
		<b>TOTAL</b>	<b>4</b>	
<b>Community Level</b>	<b>TOTAL</b>	<b>117</b>		<b>58</b>
<b>Household Level</b>	<b>TOTAL</b>	<b>77070</b>		<b>385.35</b>
<b>BIOMETHANATION FACILITIES (TOTAL)</b>		<b>77191</b>		<b>469</b>
Non Bio waste management				
NBD waste collected by ULBs			614 TPD	

NBW collected by authorized waste collectors		60 TPD	
<i>Plastic/ NBD waste (Recycling)</i>			<b>696 TPD</b>
<b><i>Waste management capacity for the state</i></b>			<b>3927.55 TPD</b>

### Sanitary landfill

The non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and preprocessing rejects and residues from waste processing facilities shall only go to sanitary landfill and its specifications are given in zi of Rule 15 of the Solid Waste Management Rules, 2016.

In the State, for a Regional Sanitary Landfill 25 acre of land has been earmarked by KINFRA at site of FACT at Ernakulam and action is being carried out to set up. Another secured landfill is under construction in Attingal Municipality.

### 1. Rendering plant

Kerala state has more than 16,000 poultry stalls where around 18 lakh poultry are slaughtered and sold daily and it is estimated that about 1,080 TPD of poultry waste is produced. Policy framework to deal with the issues arising out of inappropriate management of chicken waste was issued vide GO(Ms.) No. 227/2021/LSGD dated 07.10.2021. These guidelines are intended to standardize facility requirement, procedure for licensing and operation of Poultry Meat Stalls in all Local bodies, regulate the approval, licensing and operation of Poultry waste rendering plants based on the quantity of waste generated and to develop a monitoring mechanism for the implementation of these regulations. A District Level Facilitation and Monitoring Committee (DLFMC) as per guidelines by GO (Ms.) No. 227/2021/LSGD dated 07.10.2021 constituted at all the districts to regulate the approval of proposed/existing rendering plants.

In Kerala there are 44 rendering plants with a capacity of 862.25 TPD. These units have been commissioned during the review period with the continuous efforts from various Departments in the State. The District wise number of units are given below;

#### DETAILS OF RENDERING PLANTS

Rendering Plants		
District	No .of Units	Capacity
Thiruvananthapuram	0	0
Kollam	3	

		81
Pathanamthitta	1	0
Alappuzha	0	0
Kottayam	0	0
Idukki	0	0
Ernakulam	6	156
Thrissur	2	6
Palakkad	7	103.25
Malappuram	24	302
Kozhikode	1	30
Wayanad	0	0
Kannur	2	44
Kasargod	2	

		110
	48	862.25

## 2. GPS tracking systems

Local Self Governments (LSGs) are engaging Clean Kerala Company Limited (CKCL) and private agencies for the collection and movement of waste to recycling/disposal facilities from collection centres/dumpsites. The Hon'ble National Green Tribunal in O.A.No.100/2021 'Dumping of Garbage foiled near Annamalai, trucks seized', directed on 29-7-2021 to create a mechanism for registering the vehicles which are entrusted with carrying waste to be disposed at designated dumpsites or treatment facilities, in order to supervise and to track the movement of such vehicles to find out whether the waste that is being entrusted to them is really reaching the designated treatment facility centers. Accordingly, LSGD issued Govt. Order G.O.(Rt.)No.1673/2021/LSGD dated 06/09/2021 regarding guidelines for registering vehicles transporting waste.

Letters were given to all District Collectors in Kerala, GST Commissioner, Excise Commissioner, Transport Commissioner, CPCB, Secretary to Government, Environmental Department, ACS LSGD to prevent and to take action regarding illegal transport of waste to Tamil Nadu. Letter was also given to DGP for vigil monitoring in check post. The honorable NGT vide order dated 24.12.2021 in OA 100/2021 directed to consider developing the possibility of a continuous online monitoring system to monitor the total input of raw materials procured, produced, how it is being used and disposed. In this connection, agency has been identified for developing online vehicle tracking mechanism following the tender procedure. Responsive web application for Pollution Control Board and waste generators. Android app for drivers, generators, and receptors are included in the scope of work. SRS was received and matter is being followed up.

## VI. Bio-medical Waste Management:

As per Annual Report in the whole state for the year 2022-23:

- Total Bio-medical generation: 62122.78 kg/day
- No. of Hospitals and Health Care Facilities: 17122
- Existing Total Bio- Medical treatment capacity (captive and CBMW) : 79.637 TPD
- Total Bio-Medical waste treated : 40.2 TPD (Common- 36817 kg/D + Captive- 3.39 TPD)

Board has entrusted Council of Scientific and Industrial Research organization, National Institute for Interdisciplinary Science and Technology (CSIR-NIIST) for conducting a detailed assessment of healthcare facilities in the Kerala state. The works include field inspection, field data collection, estimation of gap and for projected/ extrapolated requirements of CBWTF'S for next ten years and entered into an agreement.



VII. Hazardous Waste Management:

As per Annual Report in the whole state for the year 2022-23:

- Total Hazardous Waste generation: 46674.8567 Metric Tonne/year
- Total hazardous waste recycled: 3376.2752 Metric Tonne/year
- Total hazardous waste utilized: 11.88 Metric Tonne/year
- No. of Industries generating Hazardous waste: 2186
- Treatment Capacity of all TSDFs in the State: 27,50,000 MTA for 45 years
- Total hazardous waste treated (captive and Common) : 43272.46 Tonne/year

VIII . Plastic Waste Management:

- Total Plastic Waste generation: 71000 TPA(as per annual report in the whole state for the year 2021-22).
- Material Collection Facility – 1201 nos.; Resource Recovery Facility- 137 nos.
- Gap between current status and desirable level : 2641.8 TPA

IX. Details of Alternate Treatment Technology being adopted by the State/UT:

- Decentralized Wastewater Treatment System (DEWATS) system coupled with Phyto- remediation was provided in a slum area, Chathanad in Alappuzha, Kerala. The system consists of Anaerobic baffle reactor, planted gravel filter. Waste water from the houses in the colony is collected through pipe line and then it enters the anaerobic baffle reactor and then it is passed through planted gravel filter and treated sewage is discharged into drain (Photos of the same enclosed in AnnexureIII-g)

The Hon'ble NGT issued directions for bioremediation/ phytoremediation for the treatment of sewage. In OA 673/2018, the Oversight Committee submitted suggestions for controlling pollution due to sewage.

Centre for Water Resources Development and Management, Kozhikode submitted "proposal for the study of sewer infiltration into water resources via isotopic tracing and treatment of liquid waste by constructed wetland" submitted to Indian National Committee on Ground Water(INCGW) on 25-10-2021, a response is awaited from the INCGW.

Demonstration projects regarding phyto remediation at a relatively much lower cost with the help of environment experts so that these proposed projects could be realistically remodelled.

There is lack of expertise on phyto remediation projects. Though there are model project on phytoremediation in other states such as at Golf Links, Hyderabad, such models shall be showcased and action is highly needed for transfer of technology of such projects and to strengthen the environmental experts in our State. Online Presentation by NEERI was conducted on 13.03.2023 and site visit by NEERI officials conducted from 11/05/2023 to 13/05/2023. Proposal for feasibility study submitted by NEERI and order issued. NEERI, Nagpur then furnished a proposal for the feasibility study on the development of process package of treatment of domestic sewage for meeting the environmental compliance at Edappally canal and Perandoor canal at Ernakulam and Pallikalar at Kollam district for an amount of Rs 45 lakhs and this proposal was approved by the Board and draft MOU has been submitted.

The Ministry of water resources Jal Sakthi gave the reference of Mr. Kamal Tiwari, Chief Operating Officer, Daiki Axis India pvt. Ltd. For providing Jokhasou technology. Accordingly Mr. Kamal Tiwari visited Rajaji Nagar and Poojappura central jail in Trivandrum with the officials of Trivandrum corporation, Kerala Water Authority and KSPCB. Further a video conference was conducted on 24/08/2023. In the meeting it was decided to constitute a committee for the establishment of lokhasou model treatment plant at Rajaji Nagar Thiruvananthapuram.

As per MPRs in compliance to the Order of Hon'ble NGT in O.A.673/2018, the State requests for expertise aid in in-situ treatment.

X. Identification of polluting sources including drains contributing to river pollution and action as per Hon'ble NGT order on in-situ treatment:

- Polluting sources including drains contributing to river pollution were already identified and according to that action plans were prepared and submitted to CPCB. STPs were proposed in the action plans wherever necessary. Measures for management of waste were also incorporated in the action plans. In situ primary treatment were proposed for the river stretches Bharathapuzha and Pamba in the action plans. As part of the Cochin Metro Rail Limited's Integrated water transported system project 4 STPs are proposed at Elamkulam, Vennala, Muttar, and Perandur for treating the water coming through drains and discharging treated water to water bodies. DPR for sewer line at Muttar, Perandoor, Vennala, Elamkulam was forwarded to Ministry of Jalsakthi on 31.01.2023 for funding under NRCP.

XI. Details of Nodal Officer appointed by Chief Secretary in the State/UT:

Vide G.O.(Rt)No.93/2020/WRD dated 28.01.2020 Government of Kerala nominated Deputy Secretary (Projects), Water Resource Department as the nodal authority, Government of Kerala for monitoring the compliance of the directions in the order on fortnightly basis and to maintain record of progress and to act as an accountable person to the Chief Secretary for the purpose.

Vide G.O.(Rt)No.223/2020/WRD dated 12.03.2020 Government of Kerala appointed a monitoring committee comprising of Additional Chief Secretary, Water Resources Department as Chairperson and Principal Secretary, LSGD,

Principal Secretary, Environment, Secretary, Water Resources Department and Staff officer to Chief Secretary as nodal officers & members.

XII. Details of meetings carried under the Chairmanship Chief of Secretary in the State/UT:

Regarding OA 514/2019 (Solid Waste Management) Chief Secretary convened meetings on 22.09.2020 and 25.09.2020 Regarding OA 804/17 (Implementation of Hazardous and Other Waste Management Rules, 2016) Chief Secretary convened meeting of 16/10/2020. Additional Chief Secretary Labour Department had convened 1st meeting on the same for Chief Secretary on 09/10/2020. Meeting of State Level Advisory Committee (SLAC) on Waste Management, chaired by Chief Secretary is being conducted in the State regularly to discuss the various matters. 38 such meetings were conducted in Kerala so far. Last SLAC meeting was conducted on 12.02.2021.

Meetings were held by the Chief Secretary on 11-12-2020, 30-03-2021 and 05-04- 2021 with the Stake holder Departments/ Authorities, to review the progress in implementation of the projects taken up on the basis of orders of the Hon'ble National Green Tribunal in O.A. No. 673 of 2018(PZ).

RRC Meetings were held on 28/05/2021 and 23/06/2021 and Review meeting was held by the Chief Secretary on 31-05-2021. RRC meeting convened on 22.07.2021. Review meeting was held by the Chief Secretary on 27.07.2021. RRC meeting convened on 02.09.2021 and Review meeting was held by Chief Secretary on 09.09.2021. RRC meeting convened on 01.10.2021 and Review meeting was convened by Chief Secretary on 23.10.2021. RRC meeting convened on 29.11.2021 and Review meeting was convened by Chief Secretary on 16.12.2021. RRC meeting convened on 13.01.2022 and Review meeting was convened by Chief Secretary on 27.01.2022. RRC meetings convened on 23.02.2022, 01.04.2022, 15.07.2022, 13.10.2022, 2/12/2022, 08.02.2023, 13.04.2023, 20.05.2023, 11.08.2023, 11.10.2023.

Review meetings were convened by Chief Secretary on 31.03.2022, 19.04.2022, 26.5.2022, 21.6.2022, 15.07.2022 & 23.08.2022, 18/10/2022 & 21.12.2022, 09.02.2023, 31/07/2023, 06.11.2023.

XIII. Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river:

Latest Monthly Progress Report and Analysis report of 21 Polluted River Stretches as per October 2023 are attached as Annexure I.

XIV Action against identified polluters, law violators and officers responsible for failure for vigorous monitoring:

1176 notices under the provisions of Water Act has been issued from the Board to apartments/ hotels/houseboats/ industrial units as having no valid consent from the Board/ no sewage treatment plant / non functional sewage treatment plant so far. List of the units is submitted as Annexure-6. In Alappuzha district a total of 790 notices were issued including Closure Intention Notice and Consent Withdrawal Intention Notice were issued to 624 houseboats, 112 Closure Intention Notices and 54 Show Cause Notices were issued other units including peeling shed/ resorts/ hotels for illegal discharge (unauthorized units)

coming into the water bodies and to Vembanad lake. A total of 167 apartments/restaurants are served notice in Ernakulam district. In Kottayam notices were issued to 215 units including 106 house boats and 109 apartments/hotels/restaurants/ auditorium/ lodge/ service station/ nursing homes. In Kollam district 2 Closure Intention Notice and 2 show cause notices were issued to units functioning without Consent & functioning STP. Direction was also issued Neendakara secretary as wastewater discharge noticed from fish peeling sheds in Neendakara. List enclosed in Annexure III-i. Show cause notice issued to 2 corporations & 7 municipalities for isolations under Water Act and show cause notice for not imposing environmental compensation was issued to 2 corporations and 6 municipalities and hearing conducted on 07/09/2023.

#### XV Ground water regulation:

As per the consolidated report submitted in O.A.No.496/2016, the Ground water Department is implementing a "Scheme for Ground water Conservation and Recharge". Under this scheme, rain water collected from the roof-top is harvested for recharging the aquifer through dug wells and recharge pits. The recharging of deep aquifers through bore wells is also being experimented. The total budget outlay during the period 2019- 2020 was 450 lakhs. It is estimated that there are about 65 Lakhs dug wells in Kerala and the ground water extractions by means of traditional dug wells are prevalent source of fresh water. There are number of public dug wells left abandoned and needs renovation. These dug wells can be considered as suitable stretches to recharge ground water. The Central Groundwater Board has prepared a Block wise master plan in 2015 to take up artificial groundwater recharge to groundwater. The same can be used as a guideline to stream line groundwater recharge activities of the Department.

The State Government has enacted the Kerala Groundwater (Control and Regulation) act 2002 to provide for the conservation of groundwater and for the regulation and control for its extraction and its use in Kerala. The State Groundwater Authority has been constituted on 16.01.2004 to notify the area where groundwater abstraction is to be regulated. As per the Act Groundwater User' refers to the person who are using ground water from a pumping well (> 1.5 HP for Open dug wells and > 3 HP for BW/TW) for any purpose including domestic purpose. In notified blocks of the state, permission required for the construction of new groundwater abstraction structures.

The Groundwater Department has been conducting mass awareness programmes to public., students, people's representatives, government officials etc. on groundwater conservation and management in all Districts under the Plan Scheme "Control and Regulation of Groundwater Exploitation for the effective groundwater management. During the last 4 years, the department has conducted more than 100 numbers of awareness programs across the State.

The Ministry of Water Resources ,River Development & Ganga Rejuvenation (Central Groundwater Authority) has recently issued a new guide lines to regulate and control groundwater extraction in the country in pursuance of the directions of Hon'ble National Green Tribunal and the powers conferred under section 5 of the Environment (Protection) act, 1986 (29 of 1986) dated 24<sup>th</sup> December 2020.

## XVI Good Irrigation practices being adopted by the State:

Irrigation in Kerala is classified into two schemes.

1. Major Irrigation and Medium Irrigation
2. Minor Irrigation

As per the classification followed by the department, schemes having a cultivable command area upto 2000ha are treated as minor irrigation works. Medium irrigation works are those with irrigable command area of more than 2000 ha, but less than 10,000 ha. Those schemes above 10,000 ha are classified as Major irrigation schemes. Surface flow irrigation method is currently practiced in Kerala. As the department is more focusing on effective utilization of available water for irrigation as well as for its efficient use, new types of irrigation methods like micro/community irrigation for cash crops and horticulture are proposed under this scheme.

### 1. Major Irrigation and Medium Irrigation

The Irrigation department develops and maintains major and medium irrigation schemes/projects across the state. The primary activity of the Department is providing irrigation facility to the farmers of the State through its system comprising reservoirs, main canals, branch canals, feeder canals and other related infrastructure. The department maintains water distribution through the canal system. Water distribution is being carried out based on the cropping pattern of a particular area and a water distribution calendar prepared and approved by a committee headed by the District Collector with members of farming community, other stake holders and department officials. For proper distribution and maintenance of the canals Water Users Association (WUA)/ Farmers Association plays an important role.

### 2. Minor Irrigation

Minor Irrigation schemes are divided into Class-I and Class-II depending on the ayacut served. Schemes serving above 50Ha up to 2000Ha are classified as MI Class-I. Lift irrigation schemes are also Minor irrigation schemes serving at least 40Ha. Aims to Construct RCBs, SWECBs, ponds, VCBs, check dams, salt water barriers, storage weirs, cross bars, and protection works etc.

- MI Class-I schemes Minor works like improvements to tanks and rivulet, construction of check dams, sluices, regulators, bunds, vented crossbars, salt water barriers, layout of channels and drainage structures etc are usually undertaken under MI Class-I schemes.
- MI Class-II Schemes Minor irrigation works including construction of vented cross bars, canals, improvements to natural drains etc are taken up under this scheme.
- Lift Irrigation



- Lifting of water is required for irrigating fertile land at a higher elevation where gravity flow of stored water is not possible. Although mechanical lifting is required, these schemes are very useful and serve the marginal farmers of the State.
- Optimum utilization of water by supplying designed quantity
- Works involving lifting of water with a command area not less than 40 hectares come under this category.
- This will increase in the ground water table in high altitude areas, Ensure water availability to farmers before the cropping period.
- This will reduce agricultural loss in high altitude areas due to water scarcity, their by reducing distress to farmers.
- At present the Irrigation Department has under its control 450 Lift Irrigation Scheme (LI schemes) with a total Ayacut of 43170ha.
- Micro Irrigation
- Micro-irrigation system is a modern method of irrigation in which water is delivered slowly. Usually in the form of discrete droplets, continuous drops, streams, etc. Micro-irrigation system is popular these days for its low cost and water-efficiency.
- The benefits of micro irrigation and precision farming are well demonstrated with an average increase in yield by three times. Pepper as a case in point shows enhancement from 1.9 kg/wine to 6/wine on precision agriculture. Coconut also shows increase in productivity to 150 nuts per plant as against 45 without precision irrigation support.
- In the coming year department is planning to implement atleast one micro irrigation scheme in each district with the coordination of line departments and farmers. Steps are initiated to identify the location as well as crops in coordination with the agriculture department.

#### XVII Rain Water Harvesting:

In compliance with the Hon'ble NGT Order dated 11.09.2019 in O.A. No. 496/2016, the consolidated report of Kerala State regarding the present status of the implementation and action plans on rain water Harvesting for conservation of water was submitted by the Kerala State Government on 27.11.2019.

The State Groundwater Department has been implementing a scheme for Groundwater Conservation and Recharge under plan fund made available since 2004-05. The project

component includes roof top rainwater harvesting for groundwater recharge through dug wells, recharge pits, bore wells and recharge shafts and construction of subsurface dykes and small check dams un micro water shed basis. The recharge schemes are being implemented as a long term measures to achieve

sustainable groundwater development in the State. The Department is engaged in recharging groundwater through roof top rain water harvesting in public buildings and government schools and giving priority to implement such structures in notified blocks. The Department has successfully implemented roof top rainwater harvesting through recharge pits to enhance groundwater levels of dug wells in the Kattakkada Constituency of Thiruvananthapuram District. The Constituency was officially declared in November 14<sup>th</sup> 2019 as the first assembly constituency in Kerala to implement artificial groundwater recharging structures in all Government schools and offices. The State Groundwater Department has implemented 169 nos of recharge pit/direct dug well recharge schemes, 4 check dams and one sub surface dyke during the 12<sup>th</sup> plan period. In the 13<sup>th</sup> plan period as on October 2020, the Department has completed 370 nos of recharge pit/dug well recharge schemes and 18 nos of bore well recharge schemes.

The Department has also taken initiatives to implement roof top rainwater harvesting structures in order to replenish the aquifer system in Chittur (Over-Exploited), Malampuzha and Kasaragod (Critical) blocks under Jal Shakti Abhiyan Programme by Ministry of Jal Shakti Government of India.

#### XVIII Demarcation of Floodplain and removal of illegal encroachment:

- Kerala receives about 90% of the annual rainfall during the monsoon months from June to August and from October to November. The remaining period from December to May is practically dry. Most of the rain water received during monsoon period flows to sea within 48 hours of rainfall due to the character of the geographic terrain of the state.
- State Disaster Management plan 2016 was prepared by National Centre for Earth Science Studies in 1:50,000 scale using satellite images.
- Based on the request of central water commission, Government of Kerala constituted Regional Committee for scientific assessment of Flood prone areas in Kerala.
- Flood-level marking for the flood affected rivers has been carried out. Steps have been taken for conducting the studies regarding Flood plain Zoning. Due to the peculiar topography and dense population, evacuation of people from these zones is difficult.

Flood plain zoning is considered as an effective measure for flood management. As far as Kerala is concerned, the topography and total number of rivers, major lakes and other water bodies are entirely different compared to other states. Since Kerala has 44 rivers, except three rivers, all are west flowing; that is about every 14 km (average) there is a river. It may please be noted that the width of Kerala varying from roughly 30 to 120 km, and the total geographical area is 38863 km<sup>2</sup>. Kerala is the 21st largest Indian state by area. As per census of 2011 the density of population per square kilometer is 859. By considering the above facts, implementation of zonation and demarcation of priority areas/non development zones will affect the populace of Kerala or leads to displacement from their ancestral settlement. This is why the Model Bill of 1975 issued by CWC has not been implemented in Kerala. However intensive contour may delineate and notification of limits of flood plains through LSGIs is a possible way out as far as Kerala is concerned to avoid future developmental activities in such area, for which a policy decision is necessary. Desilting:- Flood havoc in 2018 & 2019 very much affected the storage capacity of several regulators and check dams due to the accumulation of silt/ sand and other debris. In some cases, the proper functioning of the regulators become halted due to the accumulation of the above said materials.

Vide G.O (Rf) No.50/2019/WRD dt 08-11-2019 Government issued AS for desilting of 6 structures, namely:-

1. Cheruthuruthy check dam
2. Changanamkunnu regulator
3. Manjummel regulator
4. Purappallikavu regulator
5. Velliyankallu regulator cum bridge
6. Pookkottumana regulator cum bridge

The work for desilting of 6 regulators/ check dams were tendered and the works are in different stages.

Along with irrigation structures action were taken to desilt the dams as a pilot project to enhance the storage capacity which results more outflows and ground water recharge. Mangalam dam, Chulliyar dam, Meenkara dam and Walayar dam are the four dams listed. Apart from the above Irrigation department has initiated action to prepare an inventory of the present status of all the rivers in Kerala by entrusting the job to Executive Engineers. The primary objective is to find out the obstructions to free flow in rivers. It is expected to complete the process within a month and draft reports/ status reports were also be ready. As a follow up, the department intends to desilt the river stretches which need urgent action to avoid flooding in the vicinity; by utilising the amount announced in the Budget.

Encroachments can be assessed after detailed survey with the help of Revenue Department. Executive Engineers entrusted with ownership of rivers have been directed to identify the encroachments along rivers and prepare a list at the earliest. Public Grievance report form has been developed in department website.

#### XIX.Maintaining minimum e-flow of river:

- As per order of the Hon'ble NGT dated 9/8/2017 in O.A.no 498/2015 it is mandatory to maintain 15% - 20% of average lean season flow.
- For lean flow calculation the process of data collection for the last 25 years of all 44 rivers during summer months ie. from January to May is been undertaken.
- Study of individual rivers needs to considered for maintaining e- flow during lean season. Storage structures/diversion structures needs to proposed at certain locations to regulate thee-flow.

As per order of the Hon'ble NGT Order in OA no.498/2015 it is mandatory to maintain 15%-20% of average lean season flow in the river. E-flow can be assessed in many ways. Hydrological methods and holistic methods are generally used for this purpose. A good Hydrological data is maintained at IDR B Chief Engineers office at Vikas Bhavan. Steps have been initiated to collect last 25 years average flow details of all 44 rivers during summer season, ie from January to May.

As per Order in OA 498/2015 Hon. NGT has directed all States to maintain 15-20 % of the average lean season flow of that river. Ministry of Water resources, RD& Ganga Rejuvenation issued a notification (SO.5195 (E) dated 9.10.2018) to maintain e-flow in River Ganga. Hon'ble NGT order has given some relaxation to status , which are unable to adhere to the average percentage fixed as e-flow CE (I&A),&CE (IDRB) made discussion in this regard and action has been taken by IDR B to compile the last 25 years discharge of rivers. As per the report of Kerala State Disaster Management Authority (KSDMA) nearly 15% of the land area of the state prone to flood. On two (2) occasions, GOI (CWC) and Ministry of



Environment Forest and climate change had circulated model bill on (i) Flood Plain Zoning (1975) (II) River Regulation Zone (2015). Considering the already enacted regulations viz i) Forest area ii) Coastal Regulation Zone (CRZ), the topography of the state, high population density, and number of rivers, Government has not yet taken a policy decision in this matter. The State Government has sent the apprehension of the State to GOI with regard to River Regulation Zone Bill.

As per the direction of the Additional Chief Secretary (WRD), meetings were conducted with Chief Engineer, IDRIB to discuss the availability of historical data. To carry forward the study of e-flow a training was arranged on 12.09.2021 to the engineers entrusted for e-flow calculation. A review meeting in this regard was also conducted on 01.10.2021 and in the meeting it was decided to calculate e-flow of the rivers, Meenachil and Manimala as pilot project. Data collection for Manimala river completed. Data collection for Meenachil, Kadalundi, Karamana and Vamanapuram is in progress.

*E-flow for forty rivers out of 40 have been worked out.*

: It was decided in the last RRC meeting that an expert committee to be constituted to recalculate the e-flow. Accordingly an initial discussion of the technical committee has been convened and it has been decided to recalculate the e-flow for the rivers on the revised methodology. Secretary WRD directed (08/2023) to conduct a meeting with KSEB authorities, to collect required data for the e Flow calculation. Also details of dam, ground water, amount of water ejected out from hydro electric projects in various seasons are to be collected for the calculation of flow. For these, ***the Expert committee framed for vetting e Flow needs to be restructured to include representatives from KSEB, Fisheries, Environmental Scientists, etc.*** Hence we have requested to the above departments to nominate suitable officials from their department /institution who have expertise in e-flow analysis/who can contribute to the same to be included in the Expert Committee. Follow-ups are going on

XX.Plantation activities along the rivers

Proposal submitted by Irrigation Department. Waiting for approval.

XXI Development of bio-diversity park:

As per the action plan for Kallai River, a bio park in Kozhikode district is proposed by Irrigation Department and as per the action plan of Karamana river, Bio diversity park at Karamana is implemented by Irrigation Department and 96% work is now completed and remaining work is in progress. Also, for other action plans of polluted river stretches, proposals are submitted by Irrigation Department and action is initiated. As stipulated by the Biological Diversity Act 2002, Biodiversity Management Committees (BMC) are mandated with conservation of Biodiversity in their localities. In Kerala BMCs has being established at all 3 tiers of local bodies. As part of the 13<sup>th</sup> five year plan, KSBB had started a project to empower Local Self Government Biodiversity Management Committee (BMC) as Model BMC to conserve Biodiversity by providing a minimal assistance of Rs 5.00 lakh. The lists of various projects relating to river bank conservation by planting suitable species/ biodiversity parks in the river banks being undertaken by BMCs during the last two years are given below:

- Ayiroor Grama panchayat, Pathanamthitta– Planting of Homonoiariparia along the banks of Pamba River
- Ayarkunnam Grama panchayat, Kottayam - Conservation of Homonoiariparia along the banks of Meenachil River.

- Mariyapuram Grama panchayat, Idukki - Harithapuram park- Eco restoration and conservation of Periyar River bank severely damaged due to flood.
- Kottur Grama panchayat, Kozhikode - (a) Establishment of Biodiversity Park near Kuttiyadi river (b) Biodiversity gardens (50 units)
- Vanimel Grama panchayat, Kozhikode - Conservation of Vanimel riverbank
- Kurumathur Grama panchayat, Kannur – (a) Afforestation along tributaries of river banks of Kuttikol river, Valapattanamriver (b) Planting of Pandanus along canal banks
- Muzhakunnu Grama panchayat, Kannur – Puzhayora Oushada SughandhaUdyanam along the banks of Aralam river.

As part of Rebuild Kerala Initiative a project on Riverine Biodiversity Rejuvenation of Pamba for an amount of Rs 200 crore is being undertaken. The project aims at Protecting riverbanks and conservation of riparian vegetation using locally available plants. The major activities on going are:

- Restoration of riparian vegetation on degraded river banks in selected 10 Grama Panchayats (Ayiroor, Cherukol, Kozhenchery, Ranni- Angadi, Ranni- Pazhavangadi, Ranni, Ranni-Perunad, Vadasserikkara, VechoochiraandNaranammoozhi) belonging to three Block Panchayats viz., Elanthoor, Koipuram and Ranni in Pathanamthitta district
- About 77,000 saplings of 93 species of riparian plants are being planted along a stretch of 93km.
- Ensure sustainable livelihood for the local people through providing training for developing microenterprises and establishing nursery of native species. Develop a sustainable community based management model of conservation of aquatic ecosystems.
- To create awareness and sensitize local population and students for promotion of riparian ecosystem services.

#### XXII.Reuse of Treated Water:

Possibility of utilizing the treated effluent for irrigation, gardening, industries, construction and recharge are being explored. The DPR for tertiary treatment of effluents of STP at Muttathara is ready and in TS stage.

#### XXIII.Model River being adopted by the State & Action proposed for achieving the bathing quality standards:

Tirur-Ponnani River, Malappuram

#### XXIV.Status of Preparation of Action Plan by the 13 Coastal States:

As per the NGT order in O.A 829/2019 dated 22.06.2020 regarding the remedial action to restore sea water quality along the Indian Coastal areas, the Hon'ble NGT ordered that "All States/UTs through their concerned departments such as Urban/Rural Development, Irrigation & Public Health, Local Bodies, Environment, etc. may ensure formulation and execution of plans for sewage treatment and utilization of treated sewage effluent with respect to each city, town and village, adhering to the timeline as directed by Hon'ble Supreme Court. STPs must meet the prescribed standards, including

fecal coli form . CPCB may further continue efforts on compilation of River Basin-wise data. Action plans be firmed up with Budgets/Financial tie up.” In compliance with the order, CPCB instructed that the State PCB shall associate National Centre for Coastal Research, Chennai under Ministry of Earth Science for monitoring and assessment of coastal water within the jurisdiction of the Kerala State up to 5 km from shore and to evolve strategies for protection of the coastal areas in association with Coastal Zone Management Authority in the State and Prepare time bound comprehensive action plan along with implementing agency in consultation with Kerala State Coastal Zone Management Authority for control of coastal pollution in Kerala State. Also the State Government has instructed the Board to prepare action plan by consulting CUSAT .Based on this, the Member Secretary of Kerala State Pollution Control Board has conducted meeting with officials of CUSAT, National Centre for Coastal Research, Kerala State Coastal Zone Management Authority and also with the field level officers through video conferencing.. The Action plan was forwarded to CPCB. CPCB put forward some suggestions and requested to modify the action plan upon concurrence with River Rejuvenation Committee. So, the Coastal Action Plan prepared has been forwarded to the concerned Stakeholder Departments for their remarks. Meetings in this regard convened on 23.07.2021 and 02.08.2021. The modified Coastal Action Plan was approved by RRC and the same has been submitted before State Govt. for approval. The Coastal Action Plan was submitted to CPCB with the approval of State Govt.

#### XXV. Regulation of Mining Activities in the State/UT:

Indian parliament has enacted the Mines & Minerals (Development & Regulation) Act, 1957 and it stipulates for the conservation, prudent and discriminate exploitation of minerals with a view

to secure maximum benefit to the community. In exercise of powers conferred by section 13 of Mines and Minerals (Development & Regulation) Act 1957, the Central Government has framed the Mineral concession Rules, 1960. The Central Government has also framed the Mineral Conservation and Development Rules, 1988 in exercise of the powers conferred by section 18 of the Act. These Rules are applicable to all minerals except coal, atomic minerals and minor minerals. The powers of framing rules for minor minerals have been delegated to the State under section 15 of the mines Act. In exercise of the powers conferred by section 15 (1) of the Act the State has framed the Kerala Minor Mineral Concession Rules 2015 and Kerala Minerals (Prevention of Illegal Mining, Storage and Transportation) Rules 2015 for the regulation and extraction of minor minerals. The Central Government in exercise of powers conferred by section 18 of the Act has also framed the Granite Conservation and Development Rules, 1999 for conservation & systematic development and scientific mining of the granite resources. The grant of reconnaissance permit, prospecting license or mining lease are governed by the central Act. The State with the prior approval of the Government of India grants permission for reconnaissance permit, prospecting license or mining lease for major minerals. The state Government issue quarrying permits and leases for minor Minerals based on the Kerala Minor Mineral Concession Rules, 2015. Other Acts and Rules which govern the mineral administration of India applicable to the State are the following:

- The Mines Act, 1952 (Act 35 to 1952)
- The Mines Rules, 1955 (35 of 1952)
- The Metalliferous Mines Regulations, 1961
- The Mines Rescue Rules, 1985

- Mines Vocational Training Rules, 1966
- Payment of wages (Mines Rules , 1966)
- Payment of undisbursed wages (mines rules, 1989)
- The Indian Explosive Act, 1884
- Air (Prevention & Control of Pollution) Act, 1981( 14 of 1981)
- Environment (protection) Act, 1986 (29 of 1986)
- Indian Registration Act, 1908 (Central Act of Act 16 of 1908)
- Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001
- Kerala paddy field and wetland conservation Act, 2008.
- Kerala Panchayath Act.

There is no large scale mining activity in Kerala as in other parts of the country. Almost all the mines are open cast and limited in areal extent. The important mines of major minerals are china clay, laterite/bauxite, limestone and lime shell. Mineral sands and silica sand are excavated by scooping and quartz is being extracted by taking trenches and pits. The important minor minerals in the state are granite, building stones, dimension stone, laterite, tile/brick clay and ordinary sand. The state owns mineral deposits like placers, china clay (kaolin), limestone, silica sand, bauxite, graphite, iron ore, granite etc.

The major mineral based industries like Indian Rare Earths Ltd. (Chavara), Kerala Minerals and Metals Ltd. (Chavara), Malabar cements (Walayar), Travancore cements Ltd. (Kottayam), Kerala ceramics (Kundara) Travancore Titanium products Ltd. And English Indian Clays Ltd, Thiruvananthapuram, Excel Glass Industry, Alappuzha, KeralaClays and Ceramic Products Ltd. (Pazhayangadi) are some of the mineral based industries working in the State since several years. A number of tile based industries are also functioning mainly in Thrissur and Kozhikide districts.

In exercise of the powers conferred by section 15(1) of the Mines and Mineral (Development & Regulation) Act, 1957, the State has framed the Kerala Minor Mineral Concession Rules 1967 for regulating the extraction of minor minerals. The State with prior approval of the Govt. of India grants permission for reconnaissance permit, prospecting license or mining lease for the first schedule minerals on first cum first served basis. In addition to EIA requirements as stipulated by the Central Govt, an EIA report is insisted on all mining activities before granting mining lease. No quarrying permits or leases are granted in the State unless there is a Mining plan duly approved by the competent authority. Afforestation of the reclaimed areas is promoted. Environment Rehabilitation is insisted in all mining projects.

The Kerala District Mineral Foundation Rules 2018 has been formed with an objective to work for the interest and benefit of persons and area affected by mining related

operations. The permissible activities under District Mineral Foundation includes among other things, developing sources of irrigation, development alternate sources of energy and rain water harvesting, conservation measures of biodiversity of the affected areas.

The expert study in all selected quarries in Kerala was carried out with one day for ambient air quality measurement (without the operation of quarry) and next day with the operation of the quarry. Individual site reports with the observations on dust, noise and mine pit water quality was prepared by the



monitoring team of 24 25 KSPCB for all the nine quarry sites. Combined site report of all nine quarries is annexed as Annexure iii

XXVI. Action taken status with regard to directions issued for prohibition of immersion of idols, puja materials and other items of religious offerings in rivers & other water bodies in particular during the occasion of festivals

- Regarding the Ganesh Utsav celebration and immersion of idols ,it may kindly be noted this is not widely practiced in the State of Kerala. The Board had instructed the District offices to conduct monitoring of water bodies where immersion of idols is practiced on a large scale. Water quality was carried out in three stages-pre immersion, during immersion & post immersion periods. A press release was also issued by the Board in connection with the festival for information of the public on the guidelines for immersion, issued by CPCB. In Kerala idol immersion are not celebrated as a major festival. The Govt. take steps to avoid water pollution due to immersion of idols. If to celebrate natural clay and colours are being used and that too in artificial ponds arranged by local authorities
- During Sabarimala festival season, there is a traditional celebration “ Pettathullal”, for the same the pilgrims will apply coloured Kumkum on their body. It was directed that only natural colours shall be used for the celebration. Separate arrangement like shower bath are provided for carrying out bath after the celebration, in order to avoid the reach of coloured water into the main waterbody. The waste water from the shower bath location will be treated in ETP provided.

XXVII Current status of water quality of rivers based on draft revised categorisation of CPCB

- Out of 21 stretches, the following 11 stretches delisted from PRS. Mogral- at Kasaragod,Kuppam, Peruvamba, Ramapuram, Kavvayi- at Kannur,Bharathapuzha, Bhavani- at Palakkad,Kutiyadi-Kozhikode, Kecheri, Karuvannur, Puzhakkal- at Thrissur
- Due to improvement in water quality priority class of the following 4 rivers has been shifted to lower priority class. No priority I rivers in Kerala now.  
Karamana, at Thiruvananthapuram- Priority III (from Priority-I) Manimala at Alappuzha – Priority V (from Priority IV)  
Pamba at Pathanamthitta – Priority V ( from Priority IV) Kadambayar at Ernakulam –Priority V (from PriorityIV)

*Shiva A*

MEMBER SECRETARY

Status of compliance of ETPs less than 30 KLD

1	CHC Sooranadu, Sasthancotta Block Panchath, Kollam	0.028	At Tendering Stage	Tendering process is in progress	
2	CHC Kadayiruppu ,Vadavukode Block Panchayath , Ernakulam	0.025	At DPR Stage	DPR send back to LSGI for corrections	
3	STP at Community Health Centre Pazhayannoor Block Panchayath ,Thirssur	0.025	Tendering Stage	Retendering process under progress	
4& 5	Mobile Septage Units- 2 nos, Alappuzha (AMRUT)	0.02 (0.01 *2 nos.)	<b>Tendered but not awarded:</b> The quotation received was discussed in the Technical Committee held on 21/01/23 & the Committee directed the ULB to get the design & drawings vetted by an IIT / NIT. The ULB submitted the design & drawings to IIT Palakkad for vetting on 13/02/23. A joint meeting was held by the ULB on 05/05/2023 with officials of IIT and the Bidder. Design vetting report was submitted by the IIT Palakkad on 31/07/2023. The design vetting report was submitted to the CE, LSGD on 05.08.2023 for placing in the Technical Committee. The Technical Committee held on 23.08.2023 approved the technology and recommended the revision of the AS.	* The design vetting report was submitted to CE, LSGD on 05/08/2023 for placing in the Technical committee * The technical committee held on 23.08.2023 approved the technology and recommended the revision of AS	31.12.20 23
6	Sewage Treatment Plant 20 KLD at Shopping Complex cum multiplex Theatre, Kallumutti, Irutti Payam, Grama Panchayath I, Kannur	0.02	65%	Second allotment of fund is awaiting	31/02/20 24
7	STP for Convention Centre ,Pinarayi GramaPanchayath,	0.02	60%	The Panchayath	31/02/2 024

	Kannur			board meeting decided to execute the mechanical works through IRTC Palakkad(Accredited Agency).	
8	STP at Ottuppara Market, Wadakkanchery Municipality, Trissur (IMPACT KERALA Ltd) (PRS)	18 KLD STP	DPR submitted to KIIFB as a part of the project "Modernisation of Ottuppara Market in Wadakkanchery Municipality".	DPR Approved by KIIFB	-
9	STP at Shatabdhi Mandiram, Alappuzha (AMRUT) (PRS)	0.015	To be cancelled: The Council held on 29/10/22 decided to cancel the work.The SLTC held on 24/12/2022 recommended the same to the SHPSC.	*The 32nd SHPSC held on 23/01/23 approved the cancellation of work since the Shathabdi Mandiram will be covered under the sewerage sector proposal planned under AMRUT-2.0.	-
10	STP at Athani market, Wadakkanchery Municipality, Trissur (PRS) (IMPACT KERALA Ltd)	13.9 KLD STP	.	DPR Approved by KIIFB, KIIFB Proceedings awaited	-
12	ETP 10 KLD Capacity, Nedumangad Municipality, Thiruvananthapuram	0.01	At Tendering stage	TS issued	
13	Eco Friendly waste water Treatment plant 10 KLD in vettam Community Health centre , Tirur BP	0.01	At DPR Stage	Agency selection completed. DPR preparation initiated.	

14	10 KLD Sewage Treatment Plant at EMS Memorial Municipal Town Hall, Koyilandy Municipality, Kozhikkode	0.01	At DPR Stage	This was included in the list of projects to be handed over to KWA. KWA prepared DPR. Funds to be transferred as deposit for carrying out the work.	
15	STP at Fish market, Payyannur Municipality, Kannur (PRS)	10 KLD STP	Technical committee verified the project. Suggested modification. DPR modification is going on	DPR modification is going on	-
16	STP at old age home, Kannur	0.010	Tendering Stage	TS issued	
17	DPR for perumba fish market Payyanur Municipality, Kannur	0.01	At DPR Stage	New DPC project form taken and balance amount will be transferred to KWA from Municipality as they receive the fund	
18	Waste water treatment plant at K R Narayanan memorial hall, Adat GP	0.0065	At DPR stage	DPR revision work is progressing	
19	ETP of 2 KLD at Konnamkulam Milk Production Cooperative Society	0.002	At DPR Stage	Under technical scrutiny	
20	Waste water Treatment ( 90 KLD) System for coastal housing and Tsunmai resettlement facility at karikuzhi mayyanad Grama Panchayath , Kollam	0.09	At DPR Stage	Transferred to KIIFB	



21	Taluk Hospital Thiruvalla ,Thiruvalla Municipality, Pathanamthitta	0.09	At DPR Stage	Under technical scrutiny	
22	CHC Alathoor, Alathoor Block Panchath , Palakkad	0.09	At DPR Stage	DPR under verification at Block Panchayath-project having issue with land availability	
23	Taluk Hospital Pambady, Pambady Block panchayath , Kottayam	0.085	At DPR Stage	Under technical scrutiny	
24	The wastewater treatment plant at Kuttiyadi Government taluk hospital, Kozhikode	0.08	Tendering stage		31.01.2024
25	ETP at Tirur Municipality	0.060	At DPR Stage	DPR returned to LSGI	
26	Eco Friendly waste water Treatment Plant ( 140 KLD ) for Women and Children Hospital Ponnani Municipality, Malappuram	0.14	At DPR Stage	Fund for the project has been sanctioned and and the fund transferred to KWA	
27	65 KLD Sewage Treatment Plant at Taluk Head Quarters Hospital Vithiri, Kalpetta BP, Wayanad	0.065	At DPR Stage	Agency prepared the new estimate and submitted	
28	STP at Thottumadi Colony, Alappuzha (AMRUT)	0.05	<b>Tendered but not awarded:</b> * Bid received in the 4th tender to be finalized. The ULB's Technical Committee held on 30/06/22 decided to recommend the lowest bid to the Technical Committee for Sewerage works for approval of the bid along with revised TS & for checking the reliability of O & M quoted by the bidder	*The Technical Committee for SEW & SEP works held on 26/08/22 approved the technology. Detailed engineering report is to be collected by the ULB from the	

				bidder.	
29	Septage Treatment Plant for Munnar Grama Panchayath, Idukki	0.05	5%	Due to a court case work stopped temporarily.	
30	Taluk Hospital ,Neelaswaram, Kasaragod	0.040	At DPR Stage	Revised AS awaited	
31	ETP at Kodimatha, Kottayam Municipality	0.030	At DPR Stage	Agency is revising the DPR with the new process flow given from SSM.	
32	Sewage Treatment plant at Private Bus stand, Thodupuzha Thodupuzha Municipality , Idukki	0.030	Tendering stage	TC held on 16.09.23 decided to give sanction to the recast estimate	
33	ETP for slaughter house, Marakkadavu, Ernakulam	0.030	At DPR Stage	DPR under correction by agency	
34	ETP at Govt Ayurvedic Hospital, Talayad, Panangad Grama Panchayath, Kozhikode	0.03	At DPR Stage	Submitted in TC held on 29.11.2023.  Correction points will be intimated to agency and LB	
35	CHC, Sooranad Sasthamcotta Block Panchayat, Kollam	0.028	At DPR Stage	DPR returned to LSGI- Planning to do tender for DPR Preparation	
36	CHC Kadayiruppu, Vadavucode Block Panchayat, Ernakulam	0.025	At DPR Stage	Agency submitted revised drawing to LB. LB preparing estimate in Price software	
37	STP at Community Health Centre Pazhayannur Block Panchayat, Thirssur	0.025	At tendering stage	Retendered. Work awarded. Preliminary work	

				initiated.	
38	STP for Convention Centre, Pinaryi Grama Panchayath, Kannur	0.02	60% works are completed	Site inspection completed by the agency and report preparation in progress.	30/04/2024
39	Sewage Treatment Plant 20 KLD at Shopping Complex cum multiplex Theatre, Kallumutti, Irutti Payam, Grama Panchayat, Kannur	0.02	65% completed.	Suchitwa Mission has to release fund to LB. Second allotment of fund is awaiting. Fund received at SM. Proceedings for issuing the amount is ongoing. Second allotment of funds is awaiting.	30/04/2024
40	10 KLD Sewage Treatment Plant at EMS Memorial Municipal Town Hall, Koyilandy Municipality, Kozhikode	0.01	At Tendering Stage	Municipality fund transferred to KWA, Trivandrum. Work yet to be started	
41	DPR for Perumba fish market, Payyanur Municipality, Kannur	0.010	At DPR Stage	Balance amount will be transferred shortly to KWA from Municipality as they receive the fund	
42	Eco- friendly waste water Treatment plant 10 KLD in Vettam community Health center, Tirur BP	0.01	At DPR Stage	Agency selection completed. DPR preparation in progress	
43	STP at CHC Mullassery Block Panchayat Thrissur	0.01	At DPR Stage	Project dropped	

44	ETP 10 KLD Capacity, Nedumangad Municipality, Thiruvananthapuram	0.01	At TS Stage.	TS issued. Tendering process completed.	
45	Waste water treatment plant at K.R Narayanan memorial hall, Adat GP	0.0065	At DPR stage	D PR revision work is under progress by the agency	
46	CHC, Mangalpady, Manjeshwar Block Panchayath, Kasragod	0.014		New project taken. Project revised as Mangalpady taluk hospital	
47	11 KLD effluent treatment plant at Kuravilangad Fish market, Kuravilangad Grama Panchayat, Kottayam	0.011		New project taken and DPC approved	