



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: 26/06/2024

From

The Member Secretary

To

The Secretary

Ministry of Jal Shakthi,

Department of Water Resources, River Development & Ganga

Rejuvenation, Shram Shakti Bhawan, Rafi Marg,

New Delhi- 110001

Sub:-Forwarding Monthly Progress Report for the month of May 2024 -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.

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. The report prepared in revised format with respect to the progress in implementation of action plan of 18 polluted river stretches, for the month of May 2024 is submitted herewith.

Yours faithfully,

Encl: As above

MEMBER SECRETARY

National Mission for Clean Ganga
Monthly Progress Report for the month of May 2024 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.

• **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)

• **Details of Sewage Treatment Plant:**

- Existing no. of common STPs/FSTPs: 25 (common STPs and other STPs) and 4 common FSTPs and 2259 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: = 138.31 MLD
 - Total septage treatment capacity in the state through existing common FSTPs: 0.22 MLD
 - Sewage treatment capacity via individual STPs in establishments = 94.492 MLD
 - Treatment of sewage by septic tank- soak pit (Individual residences) -1011 MLD
 - Gap in treatment of sewage : = 13.869 MLD
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- In Kerala, 48% highland (>75 m altitude); 41.76% midland (7.5-75m) and a low land (<7.5 m) of 10.24% (<https://kerenvis.nic.in>). Kerala has a rural-urban continuous settlement pattern. In Kerala, flats are less compared to individual households. Individual households which are having septic tank /soak pit existing for toilets attached to them.
 - 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.
 - Sewage is discharged through septic tank/soak pit, 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.
 - Onsite sanitation is practiced in the majority of places, where septic tank, soak pit are provided. Septic tank, soak pit are already specified in CPHEEO manual and IS codes are available for their specification.
 - Based on the instruction from Jalasakthi, Status of liquid waste management in all local bodies 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 soak pit and for farming in household premises is also reported.
 - Asset mapping including septic tank and soak pit is completed in cities namely Kannur.
 - Besides the above, Sanitation survey is conducted near the polluted drains, sources of pollution is identified and action is taken to stop any discharge of sewage/ sullage into the drain.

- In the thickly populated/ urbanized low land areas, action is taken to divert the sewage into common sewerage system/ retrofitting measures based on local condition.

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.
- 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.

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.

- Direction 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.

Non installation of STP at Ernakulam Junction railway station, South:- Notice was issued to railway Station, South Ernakulam for noncompliance 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 conducted on 07/09/2023. The decisions taken in hearing were to provide a temporary facility to treat sewage generated from toilets in South railway station and housing complexes and excess quantity shall be collected and transported to the common facility at Elamkulam within a period of one month. Also proper treatment facility shall be provided to the effluent and septage from bio toilets and residential complexes. Sewage treatment plant of 750KLD for Ernakulam South is expected by October 2024.

Inspection was conducted with Railway official on 08.02.2024. Presently, the sewage from the railway station and railway housing complexes are disposed through the septic tank located near the KSRTC bus stand, Ernakulam South. Sewage is collected in two pump houses near the railway station and housing complexes and from there the sewage is pumped to the septic tank. Railway official informed that STP is proposed to be installed at the land near to the Railway housing complexes and the work can be started only after demolishing some housing complex buildings for clearing the land. The construction of STP has not started yet. Presently, the waste water is being disposed through the existing septic tank soak pit system.

Non installation of STP at Aluva station:- Principle approval for permanent STP of 50 KLD has been received and the proposal is under processing for final sanction.

Inspection was conducted by Board officials on 22.02.2024. Railway officials informed that they are not installing temporary STP and procedure for installation of permanent STP is going on. Currently waste water is being disposed to Septic tank-Soak pit system in 2 locations within the railway station compound.

Non installation of STP at Ernakulam North: Joint inspection was conducted along with railway officials on 08.02.2024. Railway officials informed that the construction of STP can be started only after completing the construction of the over bridge being constructed and relocating the current parking space. The temporary STP of capacity 10 KLD is installed. Temporary STP installed consists of Collection tank, anoxic tank, aeration tank, settling tank, filter units and finally to soak pit. The overflow of the soak pit is given to public drain.

Lapses in remediation of oil contaminated area at Diesel Loco Shed, Southern Railway, Ernakulam:- Removal of oily sludge near the diesel locoshed and remediation of the area is in progress. The proposed cost of the work is Rs.22 lakhs.

The Railway started the work at February 2024. Inspection was conducted on 20.02.2024 and the remediation work was progressing at the time inspection. Nearly 2000 sqft area was demarcated for remediation. The land is a marshy land. The top soil containing oil was removed and spread out for drying. The water containing oil content from the remediation area was

pumped in to a pit nearby and left open for drying. Inspections were conducted in every week since the commencement of remediation. Inspection was conducted by Board officials on 09.04.2024. Remediation work and filling of the land with red earth was seen completed. The excavated oil sludge will be disposed to KEIL. Even though there is a large extent of affected water logged area, the railway has now completed remediation of 2000sqm land area. 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 Phytoremediation waste water treatment technology by NEERI. NEERI, Nagpur 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 Pallikarai at Kollam district for an amount of Rs 45 lakhs and this proposal was approved by the Board and draft MOU has been signed. As per terms of payment in MoU, 1st installment of Rs 26,55,000/- including GST (Rupees Twenty Six Lakh Fifty Five Thousand Only) is released to the account of CSIR NEERI, Nagpur, Maharashtra. The scientists from NEERI will be inspecting the area in April 2024.
- 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. Co-treatment tank is provided at Guruvayoor STP.
- Action is also taken for the rejuvenation of Amayizhinanthodu, Ulloorthodu, Pattomthodu in Karamana catchment. 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 Velilake 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. Sanitation survey of Amayizhinanthodu, Pattom thodu, and Ulloor thodu is completed. Along the buffer distance of 100 metre from each bank of Amayizhinanthodu, Pattom thodu and Ulloor thodu, the assets mapped and the problem areas were identified. Sanitation survey report and action plan are under preparation. Based on major observations, instruction issued to TVPM corporation and KWA.
- At the district of Kollam, Manichanthodu and Thoppilkadav are stretches where major pollution was reported. Sanitation survey was conducted and the problem areas were identified. Sanitation survey report and action taken report are under preparation.
- 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 and 06.03.2024 chaired by MS, KSPCB. The members from CUSAT, Sree Sankaracharya University attended the meeting. The progress was also reviewed at Chief Secretary and Secretary, Environment Department level.

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

- Kollam Corporation have taken up a project of Rs. 87 Lakhs for providing biodigester toilets to BPL houses near Ashtamudi lake for replacing leach pits.

- 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.
- FSTPs with land readily available - 16 nos (10 nos under SBM(G) and 6 nos under SBM(U)(DPR Prepared- 4 Nos, Tendering stage- 9 Nos, DPR to be prepared 3 nos) Timeline expected is 18 months
- Mobile Treatment Unit technology is developed by WASH Institute and recommended by Principal Scientific Advisor (Sanitation) under Innovative Technologies list. In order to cover the areas where centralized treatment facility coverage is not available. Work order issued to two Local Self Government Institutions.
- 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.
- The State has executed over 165 Information, Education, and Communication (IEC) and capacity-building (CB) programs throughout its regions, showcasing a concerted effort towards enhancing Liquid Waste Management (LWM) initiatives. 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.
- **Condition Assessment and Management Plan for the Periyar River Basin**

The objective of the studies and management plan shall be to restore and maintain wholeness of the river ecosystem, improvement of ecological health, enabling rivers to perform its functions and to make the rivers Samarth supported on 5 pillars.
 – Unpolluted River Flow (Nirmal Dhara), Continuous River Flow (Aviral Dhara), River Conservation Synchronized Development, Connecting People and River Science & Management.

Earlier, in case of Ganga river basin, Ganga River Basin Management Plan (GRBMP) was prepared by the consortium of 7 IITs with IIT Kanpur as the lead partner. The centre for Ganga River Basin Management and studies (cGanga) has been established at IIT Kanpur to advise and providing continual scientific support to the Government for implementation and dynamic evolution of the Plan.

Similar methodology has been proposed for Periyar river basin by the consortium of IIT Palakkad and NIT Calicut with IIT Palakkad as lead institute.

- **Integrated Web Portal**

A unified web portal for implementation and monitoring of various activities related to Board. The key objective of the web portal includes analysis of water quality data from the National Water Monitoring Programme, State Water Monitoring Programme, Spatial mapping of all monitoring points and display of designated best use water, quality criteria-wise classes, Air Quality Index calculation, generation of Air & Water quality directory, Status of different solid and liquid waste treatment facilities in the State, Data of Industrial and Non-Industrial activities including Category, type, scale etc.

- **Lake Rejuvenation Projects by ULBs**

- For cleaning and upgrading the section from Manichithod to Ashtamudi Lake, a budget of Rs.1 Cr has been allotted. In addition to cleaning the canal, the project includes the installation of barricades at various places to prevent plastic waste from flowing in and the installation of nets on the side of the canal to prevent dumping of garbage. This work is in progress.
- Rs. 50,00,000/- (Fifty Lakhs) has been allocated through Development Fund of Kollam Municipal Corporation (Finance Commission Tied Grant) for the construction of toilets and septic tanks on the banks of Ashtamudi Lake and other coastal areas.
- Kollam Corporation along with '12 neighboring Panchayats have earmarked Rs. 4.20 Crores for Ashtamudi lake cleaning. This project includes cleaning, restoration and protection of various areas of the Kollam Corporation and nearby Panchayats on the banks of Ashtamudi Lake. This project is in progress. 48 jetties in the banks of Ashtamudi Lake have been cleaned under this project so far.

MGNREGS

In regions earmarked for the establishment of Fecal Sludge Treatment Plants (FSTPs), it is imperative to implement a comprehensive strategy for the effective management of greywater. To address this crucial aspect of decentralized wastewater management, a total of 53,662 household-level soak pits, with an investment of Rs. 48.295 crore, have been strategically constructed. Simultaneously, 3,392 community-level Grey Water Management (GWM) systems have been

implemented at a cost of Rs. 10.17 crore under MGNREGS & SBM G. These endeavors signify a significant financial commitment to ensuring the separate and efficient treatment of greywater in areas where FSTPs are anticipated. The construction of household-level soak pits and community-level GWM systems not only aligns with environmental sustainability goals but also contributes to the overall improvement of decentralized wastewater infrastructure, reinforcing the state's commitment to holistic and efficient sanitation practices.

Progress in Action plans

STPs are being planned for Irinjalakkuda Municipality, Thripunithura Municipality, Thikkakkara Municipality, additional STP requirement for 60 crores for Thiruvananthapuram District and for Taluk Hospital by Mavelikkara Municipality (300KLD). Revamping of STPs at Elamkulam (including capacity enhancement), Adwaithasramam & Aluva Market in Ernakulam District and enhancement of capacity utilisation of 107 MLD plant at Muttathara, Thiruvananthapuram are also being proposed.

FSTPs are being planned for Irinjalakkuda Municipality, Chengannur Municipality and Thiruvalla Municipality

The following CSTPs / STPs were completed :—

- 5 MLD STP at Medical College, Thiruvananthapuram
- 5 MLD at Elamkulam with septage treatment facility at Kochi, Ernakulam
- 0.01 MLD FSTP at Mattampuram, Thrissur
- 3 MLD at Chakkamkandam, Guruvayur, Thrissur.
- 2 MLD STP at Kozhikode medical College.
- 1 MLD STP at Kozhikode medical College.
- 500 KLD STP at Kozhikode medical College
- 0.01 MLD FSTP at Kalpetta, Wayanad
- 1 MLD CSTP at Padanappalam, Kannur
- 240 KLD STP at General Hospital, Alappuzha
- 360 KLD STP at General Hospital, Thrissur
- STP of capacity 0.03 MLD at Tirur Municipal Bus Stand, Malappuram



500 KLD STP at Kozhikode medical College



1 MLD STP at Kozhikode medical College



360 KLD STP at General Hospital, Thrissur



1 MLD CSTP at Padanappalam, Kannur

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. A total of Rs. 22.79 Crores has been utilized for the operation, maintenance of two plants at Muttathara and Septage treatment plant at Willington Island.
- 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 these 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. The proposal was examined by Ministry of Jal Shakti and as per their observations KWA was asked to prepare a detailed project report in guidelines of NRCP on 14.12.2023.

- Smart city mission has deposited Rs. 9.34 Crores to KWA for revamping of old sewer lines and laying new lines along the Smart city roads in TVPM. The work is progressing.
- A major project of 12 MLD capacity is being constructed at Kureepuzha, Kollam which is currently at 87% completion.
- 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.
- 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.
- 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. It 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. Council has approved the proposal for upgradation of 3 MLD STP (at Chakkamkandam) to 5 MLD STP (septage co-treatment).
- The other ongoing project is 1.1 MLD STP at Ambedkar Colony, Edakochi South, Ernakulam.

Sl. No.	City/Town	STP location	STP Installed capacity	Utilization	Status
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1	Thiruvananthapuram(PRS)	1.Common Sewage Treatment Plant, Muttathara, Trivandrum maintained by Kerala Water Authority (Co Processing facility for septage)	107 MLD (Activated Sludge Process)	80 MLD	• Operational (pH- 6.8, TSS-37 mg/L, BOD- 7.2 mg/L, COD-28 mg/L, oil and grease-BDL, Faecal Coliform-8400 cfu/100 ml as per analysis report dated 09.05.2024). • Action is being taken for preventing its exceedance. • Some quantity of treated water is used for irrigation, construction etc. • 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
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		2.STP at Medical College, Thiruvananthapuram-Phase I & II (PRS)	5MLD (MBBR)	1.7 MLD	- Operational (pH-6.5, TSS-8 mg/L, BOD- 5.8 mg/L, COD- 84 mg/L, oil and grease- BDL, Total Coliform- Absent cfu/100 mL, FC - absent as per analysis report dated 03.05.2024). - The matter is being followed up.
2	Pathanamthitta	3.Sewage Treatment Plant at Sannidhanam (5MLD) Maintained Travancore Devaswom Board : Seasonally Operated during festival season	5 MLD (UASB and SBR)	3.5 MLD	- Operational (pH-8.8, TSS-344 mg/l, BOD-30 mg/l, TDS- 526 mg/l, oil and grease- 6 mg/l, Total Coliform-196 cfu/100 ml as per analysis report dated 30.05.2024). - Letter issued to Travancore Devasom Board
		4.Sewage Treatment Plant at Pamba(3.5 MLD) maintained by Travancore Devaswom Board : Seasonally Operated during festival season	3.5 MLD (Coagulation & settling)	3.5 MLD	- Operational (pH-9, BOD-45 mg/l, COD – 224 mg/l, TSS-152 mg/l, Total Coliform-425 cfu/100 ml as per analysis report dated 30.05.2024). - Action is being taken for preventing its exceedance.
3	Alappuzha	5.DEWATS system, Chathanad (For 50 houses in slum area)	25 KLD (Anaerobic Baffle Reactor)	25 KLD	Operational (Ph – 7.8, BOD – 22.4 mg/l, SS – 0.3 mg/l, Oil and grease 0.002 mg/l as per the analysis report dated 07.06.2024)

		6. STP at General Hospital	0.24 MLD	Completed and commissioned	Electro coagulation.
4	Kottayam	7. STP for Houseboat (0.09 MLD)at Kumarakom maintained by DTPC, Kottayam	0.09MLD (Activated Sludge Process)	0.09 MLD	- Operational (pH- 7, COD - 64 mg/l, BOD - 20 mg/l, SS - 22 mg/l, Oil & Grease-BDL a per the analysis report dated 07.03.2024). - The quality of effluent conforming to standards.
5	Ernakulam	8 .STP owned by Greater Cochin Development Authority, Marine drive, Kochi	0.9 MLD (Activated Sludge Process)	0.9 MLD Proposed to augment to 2MLD Operational.	- Inspection conducted by Board on 03.01.2024 and noted blower of STP is under maintenance. - As per directions issued, issue was rectified and Board conducted inspection on 06.04.2024. - Samples were collected and forwarded to central lab.

		9. Septage Treatment Plant at Brahmapuram, Kochi Corporation, Ernakulam	0.1MLD (MBBR)	0.1 MLD	pH- 6.89, BOD- 3.15 mg/L, COD- 12 mg/L, Oil and Grease-BDL, Total Suspended Solids – BDL, Phosphate - 0.21 mg/L, Nitrate- 4 mg/L, Sulphates – 1.64 mg/L, Sulphides - BDL, Ammoniacal Nitrogen - 0.02, Phenolic Compounds - BDL, Faecal coliform – 4 cfu/ 100 ml, Faecal Streptococci- 60 cfu/ 100 ml as per analysis report dated 20.05.2024
		10. Septage Treatment Plant at Wellington Island, Kochi Corporation	0.1MLD (MBBR)	0.1 MLD	- Not working properly. - Site visit done by KSPCB on 18.01.2024. - Consent refusal intention notice issued.

		11. STP at Elamkulam, Kochi (AMRUT)	5 MLD(MBBR) with Co treatment 24 KLD	3MLD • Co-treatment is temporarily stopped due to choking in the plant. • Co-treatment will restart once the trouble is getting solved. • NIIST has submitted the report to KWA. Three options provided. • Treatment Option I : To optimize the performance of existing STP with existing infrastructure and existing BOD loads (i.e. 60 mg/L) without any possibility of co-treatment with septage. • Treatment Option II: possibility of co-treatment with septage was explored without compromising the hydraulic load but with the provision of additional infrastructure (MBBR tank). • Treatment Option III: the possibility of co-treatment with septage was explored with reduced hydraulic load harmonious with the existing infrastructure. • second option is selected based on discussion with concerned engineers.	• Analysis report dated 23.05.2024 (ph-6.28, TSS- 10.4 mg/l, nitrate - 12.64 mg/l, phosphates- 2.56 mg/l, ammoniacal nitrogen- 3.92, BOD-6.2 mg/l, COD-20 mg/l, oil & grease- BDL, total nitrogen- 4.48 mg/l). • Action is being taken for preventing its exceedance. • For restarting the septage treatment process, studies progressing • AS for 1.75 MLD sewer network received under RKI and work tendered. • PER prepared and submitted to GoK for clearance.
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		12. STP owned by GCDA, International Stadium Kaloor	0.75ML D(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. • Notice issued to GCDA seeking explanation for not complying with the standards. • Directed to install online monitoring system in the CSTP for the parameters pH, BOD, SS
		13. STP at Kalamassery, Market, Kalamassery Municipality (PRS)	10 KLD		Started operating

6	Idukki	14. Sewage treatment Plant at Comfort station, Adimaly Grama Panchayat, Idukki	0.01 MLD		• STP was not working. Letter issued to Adimaly Grama Panchayat secretary on 11.12.2023 and show cause notice issued on 05.02.2024 • Maintenance of STP is included in the annual plan of 2024-25 and Secretary, Adimaly GP assured that it will be made operational soon.
		15. Construction of 6 KLD ETP for Kumali Slaughter House Kumali GP, Idukki	0.006 MLD		• Slaughter house and ETP are not functional. E-KID
		16. 60 KLD STP at Taluk Hospital Adimaly, Adimaly Block Panchayat, Idukki	0.06 MLD		Operational MBBR

7	Thrissur	17. Sewage treatment Plant at Guruvayur, Thrissur District	3 MLD(Ac tivated Sludge Process)	0.5MLD	• Operational. (pH- 7.2, BOD-24 mg/l, COD -60 mg/l, Suspended solids-0.01 mg/l, Oil and grease- 0.7 mg/l, Faecal coliform-900 MPN/100 ml Analysis report dated 10.06.2024) • Instructions given for full utilization of treated effluent and for utilizing treated water. • Planning to reuse the treated effluent for gardening and septage dilution. • Provided dilution tank. • AMRUT-2.0: Council has approved the proposal for upgradation of 3 MLD STP (at Chakkamkandam) to 5 MLD STP (septage co-treatment) • AMRUT-1.0: Specification of the vehicle to be modified by the ULB as per site conditions. • Septage treatment not started. • Vehicle for septage collection procure by Municipality. • No. of connection less due to reluctance by public for remitting money for connection and road cutting.
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		18. FSTP at Mattampuram	0.01MLD(Biological)	Started functioning	BOD-3.2mg/l,COD-12mg/l, AmmonicalNitrogen-0.343,total nitrogen-2.436 as per analysis report on 21/08/2023. Started functioning. PCB issued permission for conducting trial run. Consent to operate issued
		19 .Revamping of 35 KLD STP at Kuriyanchira Slaughter House Corporation, Thrissur	0.035MLD (MBBR)	0.035 MLD	Operational (pH – 5.42, BOD – 12 mg/l, COD – 140 mg/l, SS – 2 mg/l, oil & grease – BDL as per the analysis report dated 04.03.2024)
		20. STP at General Hospital, Thrissur (AMRUT-1.0)	0.36 MLD		Operational
8	Malappuram (PRS)	21. Sewage treatment Plant at Malappuram Municipal Bus stand	0.03MLD(MBBR)	0.03 MLD	Project proposal for maintenance work have been approved.
		22. Sewage treatment Plant at Tirur (fish market)	0.045 MLD (Biological)		Operational
		23. STP at Municipal Bus Stand, Tirur (PRS)	0.05MLD(Biological)	Working	Operational (Ph – 6.7, BOD – 280 mg/l, COD – 800 mg/l, TSS – 70 mg/l, Oil and grease – BDL as per the analysis report on 16.03.2024) • Action is being taken for preventing its exceedance.
		24. ETP in Fish Market, Ponnundam GP , Malappuram	0.01MLD(Anaerobic)	Plant is working.	Operational

9	Kozhikode (PRS)	25. STP at Kozhikode Medical College.	2 MLD	Working	• Operational. • According to analysis report on 20.02.2024 the following values were observed. pH -6.7, SS- 9mg/l, COD- 32 mg/l, Oil and Grease- BDL, BOD-14.2 mg/l and the observed parameters are within limits
		26. STP at Kozhikode Medical College.	2 MLD With 100 KLD Co-treatment Facility		• Operational • According to analysis report on 20.02.2024 the following values were observed. pH -7.3, SS- 12.4 mg/l, COD- 64 mg/l, Oil and Grease- BDL, BOD-26.8 mg/l and the observed parameters are within limits
		27. STP at Kozhikode Medical College			
		28. STP at Kozhikode Medical College			
		29. Common Sewage Treatment Plant at Narayana nagaram, near stadium, Vatakara, Opp. New bus stand	1 MLD	Commissioned on 05.10.2023	• Operational • According to analysis report on 20.02.2024 the following values were observed. pH -6.5, SS- BDL, COD- 8 mg/l, Oil and Grease- BDL, BOD-1.4 mg/l and the observed parameters are within limits
			500 KLD		Operational

	Kannur	30. Sewage treatment Plant at Taliparambu (0.5MLD) Taliparambu Municipality, Kannur	0.5MLD (Activated Sludge Process)	0.5MLD	- Operational. - pH -7.29, SS – 30 mg/l, COD- 36 mg/l, BOD – 10 mg/l, Oil and Grease- 0.44 mg/l as per the analysis report dated 24.05.2024
		31. STP at old age home Kannur	0.010		MBBR (Operational) pH -8.02, SS – 5 mg/l, BOD – 7 mg/l, COD -16 mg/l, Oil and Grease- 1.04 mg/l, as per the analysis report dated 24.05.2024
		32. STP at Padannappalam	1 MLD		Rotating Media Bio Reactor
11	Wayanad	33. Sewage Treatment Plant at Taluk Hospital, Sulthan Bathery	0.14 MLD (MBBR)	0.05 MLD	- Operational - pH -8.2, SS – 5.1 mg/l, BOD – 2.8 mg/l, Oil and Grease- Nil, FC – 2 in 100 ml as per the analysis report dated 03.01.2024
		34. FSTP at Kalpetta	0.01MLD (Biological)	0.01 MLD	- Operational - pH – 5.8, SS – 40.5 mg/l, BOD – 34.8 mg/l, Oil and Grease- Nil, COD – 376 mg/l as per the analysis report dated 29.01.2024 - Action is taken to prevent exceedance.

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 Timeline
1	STP at Kureepuzha-Phase I & II, Kollam (AMRUT)	12	89%	21358 house sewer connections are envisaged as per the new sewer work added (balance of KSUDP).	Septage Co-treatment Unit: TS was issued on 03.06.2024 and tender to be floated by KWA. Sewage Network: Split into 4 packages. Work has been started for the Pallithottam – Thamarakulam under AMRUT-2.0. Other three packages are being taken up under AMRUT-2.0 and are to be placed in the SLTC/ SHPSC for approval for inclusion in Tranche-3 of AMRUT-2.0. After getting SLTC/ SHPSC approval the projects will be send to MoHUA for	STP: 89% works are completed. Expected to be completed by 15.08.2024 Septage Co-treatment Unit: Expected period of completion is 6 months from date of award.

					approval. AS will be issued by SLTC/ SHPSC after getting MoHUA's approval.	
2	FSTP at Cherthala Municipality , Alappuzha (IMPACT KERALA Ltd)	250 KLD Septage TP	60%		•70% Civil work Completed •Delay was due to issue in bill. O&M agreement to be executed between agency and Cherthala municipalit y	
3	STP at Pambad Housing Colony Malappuram Municipality, Malappuram	0.110	99 % Completed	Tendering for panel board completed. Electrical works completed. Part bill amount transferred to LB.	Directions given to complete all works . Waiting for the SM to pass the bill, facing some technical problems- estimate preparations , engineering issues	30.07.2024
4	Wastewater treatment plant at Kuttiyadi government taluk hospital, Kozhikode	0.080	90%	RE has been prepared. Electric works will be started after passing RE.	•Civil and Mechanical works completed. •Electrical estimated submitted to LB and tendered.	30.07.2024

					•Tender opening scheduled on 22.06.2024	
5	Construction of 45 KLD waste water treatment plant at Kalpetta Government Ayurveda Hospital DP , Wayanad	0.045	65% work completed	• District panchayat Wayanad terminated existing agency • M/S Ram biological confirmed implementation of projects.	Machineries has been supplied and civil work completed	30/08/2024
6	STP at Chitumala Old Age Home. Chitumala BP, Kollam	0.015	90% Completed	• Original contractor of the work was terminated in risk and cost, LB entrusted the accredited agency IRTC to do the rest of the work. • The agency prepared proposal. SM scrutinized and suggested to submit detailed estimate. It shall contain repairs and maintenance of already installed equipment and proposed new works. • Comparison chart is being prepared by the	• Joint inspection by the state technical officer and agency is arranged.	30.07.2024

				agency.		
7	STP at CHC Cherpu BP, Thrissur	0.01	98% Completed	Plant construction completed. Final bill is to be submitted by LB. Detailed estimate is under preparation.		30.07.2024
8	FSTP at Munnar, Idukki	50 KLD	5%	Due to a court case, work stopped temporarily District Collector Idukki has submitted report to Government for re-assigning the land to Munnar GP.		Under jurisdiction
9	190 KLD STP at Pathanapuram Market and Shopping Mall	0.190	38 %	O&G trap and manhole construction completed. Construction hindered due to funding.		31.07.2024
10	Decentralized Sewerage System (STP at Ambedkar Colony) – Div-16, Edakochi South, Kochi (AMRUT-1.0)	1.1	26%	1500 sewer connections are envisaged. SBR tank- side wall construction in progress. Collection Tank- side wall concreting is in final stage. Pipeline work 2500m completed.	*Work started on 27.11.2023. Works are in progress.	30.06.2025
11	Viyoor central jail STP (Thrissur)	0.05	30%	Work started at 23/04/2023	70% civil works completed. Electro mechanical	31.05.2024

					items to be fixed.	
12	Kunnumkulam, Thrissur	0.01	100%	Completion stage and ready for commissioning		

Total capacity= 13.91 MLD

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	<u>ERNAKULAM DISTRICT</u> 4 STPs are coming up under the KMRL's Integrated Water transport System project at Elamkulam(17.5 MLD), Vennala(24MLD), Muttar(16.5 MLD) Perandur(19 MLD)	17.5+24+16.5+19 =77	Tendering stage Funding sanction for Rs 341.97 crores received from KIIFB on 07.06.2023 DBOT tender published on 17.10.2023. Technical bid opening on 08.01.2024 DPR submitted at KIIFB. Expected funding sanction in upcoming KIIFB meeting. Tendering will be commenced after funding and technical sanction.	DPR for sewerline at Muttar, Perandoor, Vennala, Elamkulam forwarded to Ministry of Jalasakthi vide letter dated 31/01/2023 for funding under NRCP. KIIFB issued provisional sanction for funding the project.	
2	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	KWA is preparing a new DPR clubbing the proposals under AMRUT-2.0 (5MLD STP & network) & KMRL (17.5 MLD STP & network)	31.12.2025

			25.03.2023 was issued.		
3	Detailed Engineering Report for Sewerage Scheme in Kalamassery Municipality-Phase-1, Kochi	2.6 MLD	At DPR stage	DPR Submitted to Govt and RKI for AS on 14/03/2023	
4	Sewerage System for Aluva –Zone 1	1.72	DPR Submitted to Government of Kerala and RKI for AS on 19.09.2022	Work not commenced in site- land issue.	
5	ETP for slaughter house, Marakkadavu, Ernakulam	0.030	At DPR Stage	DPR under correction by the agency	
6	<u>KOZHIKODE DISTRICT</u> 27 MLD STP with 49.76 km Sewerage network at Sarovaram, Kozhikode	27 With Septage co-treatment 220 KLD	AS Issued	- Network estimate is under preparation, as 1010.6m of sewer network and 38 number of manholes was laid earlier under KSUDP project. Among this 20 manholes are now located underground. Therefore the exact position and invert level of the underground manholes are to be found out and necessary changes in the design should be made using the invert levels. - Action is being taken to add the above modification in the estimate	30.06.2026
7	STP at sewerage system in Zone A, Package A, Avikkalthodu ,Kozhikode (AMRUT) (PRS	7.0	AS to be issued: 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 th SLTC held on 30.09.2023 for	- The stay against the project is still continuing. - Next hearing of the case at District Court is posted on 10.06.2024. - Project was initially in Amrut 1.0 but since it was delayed, it is now moved to Amrut 2.0 - On 03.06.2024, the consultant submitted an estimate that was significantly higher than the previously submitted	31.12.2026

			placing in the next SHPSC.	estimate. Hence, the corporation has requested clarification on the same for the onward submission to the office of the MD AMRUT.	
8	Construction of 7ML D capacity Sewage Treatment Plant and Laying Sewerage Network to Vatakara Municipality, Kozhikode	7 MLD	At DPR stage	DPR Submitted to Govt and RKI for AS on 14/02/2023	
9	Sewerage system (with STP) in Zone A, Package B, Kothi, Kozhikode(AMR UT) (PRS)	6		- The SHPSC held on 14.12.2023 directed KWA to verify the project as the cost per household is high. - On 03.06.2024, the consultant submitted an estimate that was significantly higher than the previously submitted estimate. Hence, the corporation has requested clarification on the same.	31.12.2026
10	Kozhikkode corporation Zone F	4 MLD	At DPR stage	Submitted to Govt and RKI for AS on 29.09.2022	
11	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 Narayananagar am and ownership details not received for	DPR approved by RKI	-

			Thazhangadi.R eminder to Municipality given. Not yet submitted.		
12	<u>MALAPPURAM DISTRICT</u> 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	DPR Submitted to Government of Kerala and RKI for AS on 17.10.2022 and now it is revising as per the direction of SBM 2.0.	
13	Sewerage system for Ponnani municipality(Kottat hara Zone) with STP of capacity 4.2 MLD	4.2	DPR Submitted to Government of Kerala and RKI for AS on 20.10.2022	AS expected from GoK/RKI and it is revising as per directon of SBM 2.0	
14	District Hospital Perunthalmanna, District Panchayath, Malappuram	0.200	At DPR Stage	• Even after multiple revised submissions, DPR is of inferior quality. • Hence LB is going to find another competent agency. • Necessary instructions were given to LB.	
15	Eco-Friendly wastewater Treatment Plant (140 KLD) for Women and Children Hospital Ponnani Municipality, Malappuram	0.14	At tendering stage	• Total fund deposited to KWA by the LB. • Work yet to start. • Land finalized. • Tendering procedure yet to start.	
16	DPR on STP at District Hospital, Tirur, Malappuram	0.5	At TS Stage	• TS issued	
17	ETP at Tirur Municipality	0.060	At DPR Stage	LB to submit the revised DPR with revised DPC form	
18	ETP at Tirur Municipality Slaughter house	0.030	At tendering Stage	• Tender opened on 27.12.2023 and Work order given to an Agency. • Approval received from the council on 24.02.2024. • Work will start soon.	

19	<u>TRIVANDRUM DISTRICT</u> FSTP at Varkala Municipality, Thiruvananthapuram (IMPACT KERALA Ltd)	50 KLD FSTP	RKI issued AS on 28.2.2022. Financial bid opened on 11.12.2023. Negotiation with the L1 bidder done. Bidder submitted the negotiated rate. Meeting with the local body & contractor held on 08.01.24. Municipality submitted Council Resolution regarding acceptance of O&M cost. Placed in the Tender Acceptance Committee on 30.01.24, selection notice to be issued to the Contractor.	DPR approved by RKI and tender published	
20	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. Letter number F.NoJ-24025/1/2022-NRCD-11 dated 07.12.2023 was forwarded to KWA for necessary action.	
21	Preparation of DPR for proposed sewerage system to the Madhippuram colony and surrounding areas	5		DPR submitted to GoK and corporation on 20.10.2023	

	near Vizhinjam Harbour, TVM				
22	Detailed Engineering Report for Sewerage Scheme in Neyyattinkara Zone I, TVM	2.5 MLD		AS is expecting from GoK/ RKI and now it is revising as per the direction of SBM 2.0	
23	<u>PALAKKAD DISTRICT</u> Sewerage system for Pattambi municipality	5.4	DPR Submitted to Government of Kerala and RKI for AS on 06.08.2022	AS expected from GoK/RKI and it is revising as per direction of SBM 2.0	
24	Sewerage scheme in Shornur Municipality consisting of sewage network and FSSM with 2.5 MLD capacity STP with co-treatment unit, Palakkad	2.5 MLD	At DPR stage	DPR Submitted to Govt and RKI for AS on 16.2.23 and now it is revising as per the direction of SBM 2.0, but ULB move for FSTP	
25	STP at Ottappalam Municipality, Palakkad District (IMPACT KERALA Ltd)	1.50MLD Co-treatment	Site handed over to contractor on 16-10-2023 NOC for wet well from Railway and Road cutting permission from PWD/Railways pending. All applications uploaded in respective portals. Vetted design and drawings from IIT Jodhpur submitted by contractor. Approved by technical committee. Preliminary works commenced.	Beneficiary details to be finalised by Municipality after MCC.	15-10-2025

26	FSTP at Yakkara, Palakkad Municipality	0.1 MLD	70 cents of land has been received to the ULB for the plant. The ULB shall take urgent steps to tender the work. The Deputy Collector Palakkad reported that soil testing is completed	Agreement to be signed by the Contractor (Sainath Envirotech). The Contractor has given the structural & functional designs to the NIT for vetting for placing in the technical committee for approval. Steps are being taken to enter into the agreement with the contractor.	31.12.2024
27	CHC Alathur, Alathur Block Panchayat , Palakkad	0.090	At DPR Stage	• LB decided to call for tender with prefabricated STP plant agencies in DBOT model. • Retendering date extended till 30.04.2024.	
28	<u>ALAPPUZHA DISTRICT</u> Detailed Engineering Report for the Sewerage scheme in Alappuzha Municipality with STP – Phase 1	5 MLD	At DPR stage	DPR submitted SE on 20/12/22, Kochi to getting A S under AM RUT	
29	STP at Alissery with 13 KLD septage co-treatment and associated network	5		The SHPSC held on 14.12.2023 approved the project inclusion in SWAP-3. To be send to MoHUA for approval after finalization of SWAP-3 projects	
30	Sewerage system for Haripad municipality(Kottathara Zone) with STP of capacity 4.2 MLD	3.8	DPR Submitted to Government of Kerala and RKI for AS on 01.09.2022	AS expected from GoK/RKI and it is revising as per direction of SBM 2.0	
31	Detailed Engineering Report for the	2.6 MLD		DPR submitted to Govt and RKI for AS on 27.04.2023.	

	Sewerage scheme in Haripad Municipality - Sewage Treatment Plant of Capacity 2.6 MLD– Phase 1 and Sewerage Network of Length 58km – Phase 2, Alapuzha			AS is expecting from SBM 2.0	
32	STP at Thottumadi Colony, Alappuzha	0.05	Tendered but not awarded 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. The SHPSC held on 14.12.2023 decided to cancel the project as the same is not likely to be started by 31.03.2024.	30.06.2024
33	<u>THRISSUR DISTRICT</u> 5MLD capacity STP and sewerage system of Kottappuram zone of TSR corporation.	5 MLD		AS expected from AMRUT 2.0	
34	STP at Kottapuram with 22KLD septage co- treatment and associated network	5		The SHPSC held on 14.12.2023 approved the project inclusion in SWAP-3. To be send to MoHUA for approval after finalization of SWAP-3	

				projects.	
35	STP at Athani, Wadakkanchery Municipality, Thrissur (PRS)	350 KLD STP	Site identified . DPR under preparation	DPR approved by RKI	
36	Decentralized Sewerage Scheme (STP at Kokkala) (with STP), Thrissur Corporation	2.5	AS to be issued	- The stakeholder Departments agreed that the proposed area acquired for the project is a paddy land. - The Local Level Monitoring Committee has approved the proposal and now placed for the approval SLMC . Decision of SLMC is awaited. - To be placed in the SLTC/ SHPSC for approval for inclusion in the Tranche-3 projects after the land availability is confirmed.	30.06.2026
37	STP at Wadakkanchery Municipality, Thrissur (IMPACT KERALA Ltd) (PRS)	1.00ML D Co-treatment	Initially planned at Puramboke land. NOC to be obtained from district collector. Now municipality planning for decentralized plants at differnt locations which needs to be finalized in consultation with PCB. Municipality to submit DPR accordingly. Not yet submitted.	DPR to be prepared.	-
38	STP at Kunnamkulam Municipality, Thrissur	1.00ML D Co-treatment	Letter received from the Municipality on 28.12.2022 with Council	DPR approved by KIIFB	

	(IMPACT KERALA Ltd)		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 that they have not considered anything further on this regard.		
39	Pazhayanoor STP (Thrissur)	0.45 KLD	At Tendering	Total amount deposited to KWA. Tendering procedure completed. Agreement will be executed at the earliest. KWA Modified the existing design and send to KWA Sewerage circle, Kochi for approval. The work will start after the approval.	
40	General Hospital, Irinjalakuda Municipality , Thrissur (PRS)	0.150	At DPR Stage	DPR correction in progress by the agency	
41	35 KLD STP at Ramavarma District ayurveda hospital, Thrissur	0.035	At DPR stage	DPR under correction by the agency	
42	FSTP at Ramavarmapuram , Thrissur (AMRUT) (PRS)	0.1 MLD	Awarded but not started *The ULB selected the technical bid	• TS dated 19.10.2023 was issued by the CE, LSGD. • Agreement dated 04.01.2024 was executed.	31.12.2024

			submitted by M/s. SEUF. Vetted design & technology details were submitted by SEUF on 19.07.2023. . * The Technical Committee held on 23.08.2023 approved the technology and recommended issuance of TS.	• Work to be started. There is public protest at the location. The ULB is trying to negate the public protest	
43	<u>IDUKKI DISTRICT</u> Sewerage System for Kattappana Municipality	1.76	DPR Submitted to Government of Kerala and RKI for AS on 19/09/2022	AS expected from GoK/RKI and now it is revising as per the direction of SBM 2.0	
44	STP for Idukki district hospital and district Ayurveda hospital, Thodupuzha municipality, Idukki	0.205	Tendered	• Project modified as STP for Thodupuzha district hospital. SM verified the DPR • DPR under verification by State Mission	
45	STP at private bus station, Kothayikkunnu, Thodupuzha municipality Idukki	0.03	Tendering stage.	TS issued. Tendering works in progress. TS not issued for electrical works and waiting for the issuing of TS	
46	<u>KANNUR DISTRICT</u> Thalassery, Kannur	22	At DPR stage	DPR Submitted to Govt and RKI for AS on 28/11/2022	
47	Kannur corporation Zone 1	13	At DPR stage	DPR Submitted to Govt and RKI for AS on 25/11/2022	
48	Payyannur, Kannur	13 MLD	At DPR stage	DPR Submitted to Govt and RKI for AS on 25/11/2022	
49	STP plant at Maithanappally, Kannur with co-treatment capacity of 130 KLD	5		CWAP submitted by the ULB is to be placed in the next SLTC/SHPC for approval for inclusion in SWAP-3	
50	STP at Palayad,	1	At DPR Stage	• For the project land has to	

	Taliparamba municipality, Kannur			be purchased. • The municipality is interested in buying the land of the weavers society. • Reports are under preparation. • File regarding the Valuation report needs approval from the Tahsildar to continue the land acquisition is in progress.	
51	200 KLD Sewage Treatment Plant - Mattannur Municipality – Reg	0.2	At DPR stage	• M/s Ram Biologicals has attended the State Suchitwa Mission to discuss the corrections in DPR. • DPR under correction by the agency.	
52	STP at hospital, Pazhayangadi, Kannur	0.120	At tendering stage	• Project vetting completed. • Agency submitted a rough cost estimate for electrical components. • TS issued. Due to funding issues, new funding source needs to be found such as from urban agglomeration fund	
53	FSTP at Chellora, Kannur Corporation (AMRUT)	0.1 MLD	Awarded but not started. * *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	* Agenda has been placed in the 29th SLTC scheduled on 07.11.2023 for revision of AS. The SHPSC held on 14.12.2023 approved the revision of AS. *The ULB has submitted details to the CE, LSGD for placing in the technical committee for approval of TS * Revised TS has been issued.	31.12.2024

			M/s. IRTC to get the design vetted.		
54	<u>KOLLAM DISTRICT</u> STP at Mayyand GP, Kollam (IMPACT KERALA Ltd)	590KLD Co-treatment	RKI issued AS on 4/3/2022. 8 th Tender Acceptance Committee held on 14/11/23 approved selection of L1 bidder. Agreement executed with M/s Pollucon Technologies Ltd. on 30.12.2023. Contractor to submit vetted design within 2 months.	DPR approved by RKI.	-
55	<u>PATHANAMTHITTA DISTRICT</u> Taluk Hospital Thiruvalla , Thiruvalla Municipality, Pathanamthitta	0.225	At tendering stage	• TS issued. Tendering process stopped due to political issues. • Meeting proposed to be conducted in June by Municipal authorities so as to resolve the issue.	
56	<u>KASARGOD DISTRICT</u> 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	
57	Kasargod Zone 1	4 MLD	At DPR stage	Private land identified . Action to be taken from land aquisition	
58	Kasargod Zone 2	4 MLD	At DPR stage	DPR Submitted to Govt and RKI for AS on 23/11/2022	
59	Taluk Hospital , Neeleswaram Municipality Kasargod	0.040	At tendering stage	• Tender-qualified agency is unwilling to accept the work.	

				Hence action for council approval is being taken for arranging the work through accredited agency	
60	135 KLD Capacity decentralized sullage Treatment plant at Uppala Town Mangalpadi, Kasaragod	0.135	At DPR Stage	- DPR have to be modified to include sewer networks - The sewer network survey has been completed and DPR has been prepared.	
61	<u>KOTTAYAM DISTRICT</u> Comprehensive sewerage scheme- Government medical college, Kottayam	5 MLD	At DPR stage	DPR submitted to Kottayam medical college.	
62	Taluk Hospital Pampady, Pampady Block panchayat, Kottayam	0.085	At Tendering stage	- TS received, - Tendering in progress. KSPCB consent to establish proceedings in progress. - Tendering will be done after the approval of spill over projects by DPC	-
63	ETP at Kodimatha, Kottayam Municipality	0.030	At DPR Stage	- Process flow approved. - DPR to be modified by the agency.	
64	<u>WAYANAD DISTRICT</u> 65 KLD Sewage Treatment Plant at Taluk Head Quarters Hospital Vythiri, Kalpetta Block Panchayat, Wayanad	0.065	At DPR Stage	M/s Ram Biologicals attended Suchitwa Mission to discuss the corrections in DPR. Agency to submit the revised DPR to LB.	
65	Mananthavady, Wayanad	2 MLD	At DPR stage	Submitted to Govt and RKI for AS on 29/09/2022	
66	Construction of 2	2 MLD	At DPR stage	DPR Submitted to Govt and	

MLD capacity sewage treatment Plant and laying sewerage network at SulthanBethery, Wayanad			RKI for AS on 01/02/2023	
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IV.Details of Industrial Pollution:

- Total registered industrial and non industrial units –**129915 (Dossier)**
- 15095 consents issued in 2023- More industries are brought under consent purview
- 14422 + 5381 (dossier+ phoenix) effluent generating units
- The Board issue consent only after ensuring providing of treatment system and is monitored.
- OCEMS facility provided in 48 industries and is linked to the SPCB/CPCB servers. In case of exceedance follow up is done.
- Quantity of effluent generated from the industries in MLD = 182.59 MLD
- Quantity of Hazardous Sludge generated from the Industries in TPA : 2584.572
- Number of industrial units connected to CETP: As per the available data-95nos

Number and total capacity of CETPs (details of existing/under construction /proposed)

- 11 nos of CETPs are functional (Total Capacity – 9.545 MLD)
- Proposed CETPs –3 nos. (Total Capacity- 3.12 MLD).

1.Details of existing/under construction/proposed CETPs in the State						
CETP Name	Treatment Capacity	Operational Capacity	Status(Whether Operational or Non operational)	Number of member units	Number of complying units	Whether complying with parameters
Kinfra Apparel Park, St.Xavier's College P.O, Thumba, Thiruvananthapuram	4.5 MLD	4.5 MLD	Operational	10		pH- 7.1, TSS – 56 mg/l, BOD – 5.8 mg/l, COD – 56 mg/l, O & G – BDL, FC- 3400 cfu/100 ml as per analysis report dated 03/05/2024. Action is taken for preventing exceedance.
CETP,KINFR A,Elamannoor, Pathanamthitta	0.22 MLD	30 Cubic metre per day	Operational	4	4	pH-7.1, BOD-20 mg/L, COD-128 mg/L, SS-22 mg/L O&G-6.4 mg/L , as per analysis report dated 25.05.2024
Mega Food Park, Aroor Alappuzha	2 MLD	0.5 MLD	Operational	6		pH-8.3 mg/L, BOD-1.26 mg/L, SS-3.5 mg/L O&G-0.022 mg/L , as per analysis report dated 07.06.2024
Sea Food Park (India) Ltd., Aroor, Alappuzha	0.3 MLD	0.3 MLD	Operational	10		pH-7.8 mg/L, BOD-19.2 mg/L, SS-3 mg/L O&G-0.008 mg/L , as per analysis report dated 18.05.2024
Kinfra Small Industries Park Nellad, Mazhuvanoor	0.4 MLD	0.4 MLD	Operational	15		pH- 7.89, BOD- 11 mg/L, COD-44.0 mg/L, Oil and Grease-BDL,Total Suspended Solids - BDL, Fluorides-0.81 mg/L, Chlorides-41.99 mg/L, Phosphate – 1.73 mg/L, Nitrate- 11.17 mg/L, Sulphates – 14.86 mg/L, Sulphides - BDL, Ammoniacal Nitrogen - 0.06 mg/l, Phenolic Compounds - BDL, as per analysis report dated 25.05.2024 Action is taken for preventing exceedance.

Rubber Park India Private Limited (New Plant), Common Effluent Treatment Plant, 2 A, Kaudileeyam , Rubber Park, Valayanchirangara, Ernakulam-683556	0.25 MLD	0.25 MLD	Operational	17 Units Dormitory and Canteen		pH- 8.4, BOD- 4.1 mg/L, COD-24.0 mg/L,Oil and Grease-BDL,Total Suspended Solids - BDL, TSS-BDL, TDS – 1849 mg/l, Chlorides-44.98 mg/L, Sulphates – 107.04 mg/L, Sulphides - BDL, Fluorides-0.86 mg/L, Ammoniacal Nitrogen – 0.04, Phenolic Compounds - BDL, as per analysis report dated 25.05.2024 Action is taken for preventing exceedance.
CSEZ, Kakkanad, Cochin Special Economic Zone Ernakulam	1 MLD		Operational	14		- Ph-7.2,TSS-BDL, TDS-1733mg/l , phosphate-20 mg/l,sulphide , ammonical nitrogen , BOD- BDL, COD-24 mg/l, lead-0.10 mg/l, zinc- 0.54 mg/l, arsenic- 0.02 mg/l , iron-0.33 mg/l, total nitrogen-125. 82 mg/l according to the analysis report obtained from outlet of CETP, CSEZ, Kakkanad, Cochin. - Inspection conducted by Board on 14.02.2024 and noted that Nitrates and Phosphates exceeded the limit. - CSEZ operated tertiary units as

						trial run for calculating operation cost. If tertiary units are operated continuously, CETP can achieve ZLD Standards.
KinfraTechno Industrial Park, Kakkanchery Chelambara P.O, Malappuram	0.675 MLD	0.675 MLD	Operational	17	17	Parameters complied within limits (pH – 7.5, BOD – 10 mg/l, COD – 44 mg/l, TSS – 38 mg/l, oil & grease – BDL)
Kinfra Textile Centre, Nadukani, Pallivayal P.O, Thaliparambu, Kannur– 670142	0.2 MLD	0.2 MLD	Operational	2	2	Parameters complied within limits
CETP, Industrial department, Aroor	1.5 MLD	Proposed	- GM issued proceedings on 08/01/2024 to resume the 1 acre land from JIS international - The time line now given to the unit for handing over the land to the Industries Department, if it does not start industrial activities in the land, is extended for 6 more months from 19.01.2024.			NA
CETP, Chandiroor	1.5 MLD	Proposed	Not constructed (Land procured)			

KINFRA Spices Park, Muttom, Idukki	0.120 MLD		• ICO issued. CETP is ready to operate			
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Effluent Treatment Plants

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	Cochin Minerals And Rutile Ltd., Industrial Development Area, Edayar, Muppathadom P.O.	Chemical	1.995		Periyar - downstream of Pathalam bund	Neutralisation, Equalisation, Flash mixer, Secondary clarifier, vaccumbelt filter, filter press	31.01.2024	pH, SS, Hexachromium, oil and grease and total chromium	pH-7.09, SS - 32.3, Hexachromium-BDL, oil and grease-BDL, (total chromium - NA)	Parameters are conforming to the standards.
2	FACT Ltd., Udyogamandal Division, Eloor, Udyogamandal	Chemical Fertilizer	48	17	Periyar - downstream of Pathalam	Flash mixer, Clariflocculator, spray pond, pH neutralizer, guard	31.01.2024	pH - 6.5 - 8.0, nitrate - 10mg/l, free ammonia - 4	pH - 7.52, nitrate - NA, free ammonia - NA,	Parameters are conforming to the standards.

Effluent Treatment Plants

					bund	pond		mg/l, TKN - 150mg /l, oil and grease - 10mg/l , phosp hate - 5mg/l, ammo niacal nitroge n - 75mg/l , hexa chromi um - 0.1mg/ l, SS - 100mg /l, fluorid e - 1.5mg/ l, arsenic - 0.2mg/ l, vanadi um - 0.2mg/ l, total chromi um - 2mg/l	TKN - NA, oil and grease -BDL, phosph ate - NA, ammo niacal nitroge n - NA, hexa chromi um - NA, SS - 5.2, fluorid e - NA, arsenic NA, vanadi um - NA, total chromi um - NA	
3	Sud Chemie India Private Limited Edayar Industrial Developmen t Area	Chemical Catal yst Indus try	0.45	0.4 5	Periyar - downst ream of Pathal am		31.01. 2024	pH - 5.5- 9.0, SS - 100 mg/l, Hexa	pH - 8.16, SS - 34.8m g/l, Hexa chromi	Analysed parameters are conformin g to the standards.

Effluent Treatment Plants

	Binanipuram P.O. Pin – 683 502				bund			chromium - 0.1mg/l, oil and grease - 10mg/l, free ammonia - 5mg/l, ammoniacal nitrogen - 50mg/l	um - NA, oil and grease - BDL, free ammonia - NA, ammoniacal nitrogen - NA	
<u>Pathanamthitta District</u>										
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	Auto Cleanser, Eraviperoor	Car Wash				ETP	01.12.2023	pH - 6.5-8.5, TSS - 100, BOD-30, O&G	pH - 7.1, TSS - 90, BOD-24, O&G -	All parameters are within the limit

Effluent Treatment Plants

								- 10	9.2	
2	Malayalam Power Laundry & Dry Cleaning Co. Pvt. Ltd., Koipuram	Laundry				ETP	01.12.2023	pH - 6.5 to 9, TSS - 100, BOD - 30, O&G - 10	pH - 8.4, TSS - 86, BOD - 28, O&G - 8.8	All parameters are within the limit
3	Nippon Motor Corporation Pvt Ltd, Churilikkodu	Automobile servicing				ETP	27.01.2024	pH - 6.5 to 8.5, TSS - 100, BOD - 30, O&G - 10	pH - 6.8, TSS - 74, BOD - 24, O&G - 8.4	All parameters are within the limit
4	VP Service Station, Thiruvalla	Service Station				ETP	27.02.2024	pH - 5.5 to 8.5, TSS - 100, BOD - 30, O&G - 10	pH - 6.5, TSS - 64, BOD - 16, O&G - 3.6	All parameters are within the limit
5	SS Hyundai, Varadachandran	Automobile servicing				ETP	26.02.2024	pH - 5.5 to 8.5, TSS - 100, BOD - 30, O&G - 10	pH - 7, TSS - 64, BOD - 16, O&G - 3.6	All parameters are within the limit

Effluent Treatment Plants

	pura m							100, BOD - 30, O&G - 10	28, O&G - 4.8	
6	Terra Food India Privat e Limit ed, Kinfr a food proce ssing park, Elam annoo r, Adoo r, CETP	Food processing		0.1 14	Soakpi t	CETP- Bar Sreen, Oil & Grease trap, Diffused aeration, Anaerobi c digestion, settling tanks, sand filtration, disinfecti on & activated carbon filter	19.03. 2024	pH - 5.5 to 9, SS - 100, BOD - 30, O&G - 10, COD -250	pH- 7.2, BOD- 10.4, SS-14, O&G- 9.2, COD- 96	All parameters are within the limit
7	R.S. Whol esale Fish, Adoo r P.O., Patha namth itta	Fish Market	0.005	0.0 05	Soak pit	ETP	19.03. 2024	pH - 6.5 to 8.5, SS - 10, COD -50 O&G - 1	pH - 8.2, SS -8, COD- 48 O&G - 0.8	All parameters are within the limit

Effluent Treatment Plants

8	Super Clean Car Detailing, Aranmula	Service station				ETP	02.03.2024	pH - 6.5 to 8.5, SS - 50, COD -150 O&G - 10	pH - 6.4, SS -0.8, COD- 32 O&G - 5.2	All parameters are within the limit
9	Muthoot Motors (cochin) Mallappally	Automobile servicing				ETP	18.03.2024	pH - 6.5 to 8.5, SS - 100, BOD - 30, O&G - 10, COD -250	pH - 6.8, SS - 90, BOD - 96, O&G - 82.4, COD- 256	SS,COD, O&G exceeded the limit
10	New Evergreen Continental Restaurant, PTA	Hotel				ETP	18.03.2024	pH - 6.5 to 8.5, SS - 100, BOD - 30, O&G - 10, COD -250	pH - 6.8, SS - 4, BOD - 6, O&G - 1.2, COD- 32	All parameters are within the limit
11	Padma Cafe, Adoor,	Hotel				ETP	19.03.2024	pH - 6.5 to 8.5, SS - 100,	pH - 7.8, SS - 84, BOD - 86,	BOD,COD , O&G exceeded the limit

Effluent Treatment Plants

	adoor p.o							BOD - 30, O&G - 10, COD -250	O&G - 18.8, COD- 320	
12	Medi cal Missi on Hospi tal					Soak pit			pH - 6.8, BOD - 22 mg/l, FC - Nil	
KOTTAYAM										
S l. N o	Industry Name	Industry Type	Consu mption of water in MLD	Effl uent qua ntity in ML D	Mode of disposal	ETP Units	Date of monitor ing	Limiti ng Stand ards	Latest analysis report	Conforming to Standards or not if not steps taken
1	Kavana r Latex Limited	Crepe/cru mb rubber	0.321 2	0.3 212	Soak pit	ETP	16-02- 2024	pH - 5.5 to 9, SS - 100, BOD - 30, O&G - 10, COD -250	pH - 7.5, SS - 18, COD- 112 BOD - 36 O&G - BDL,	All parameters are within the limit

Solid Waste Management

Kerala's densely populated settlements and the rural-urban continuum contribute to this substantial waste output. This waste consists of both organic and inorganic components. Approximately 77% of the waste generated is organic material and remaining 23% is inorganic waste including 5% reject material, which has a combustibility rate of 79.2%. 3823 TPD of waste is produced in urban LSGIs and 6857 in rural LSGIs, respectively, based on the present population. The state of Kerala produces 10680 tonnes of waste every day in total based on current population (as per projected population data for 2024). Out of 3823 TPD waste generated, 2944 TPD is bio waste and 879 TPD is non bio waste including reject.

The state of Kerala adopts a decentralized waste management approach for handling wet waste. Various types of composting devices and smaller capacity biogas units are used for managing the wet waste at source. The compost produced by household waste treatment is utilised as manure for cultivation in the respective residences. 80% of the total bio waste generated at households is being managed at source. The remaining 20% and waste generated from community facilities are the responsibility of LSGIs. Based on the land availability, medium capacity decentralized composting facilities such as aerobic compost units, organic waste converters, windrow plants, biomethanation facilities etc are established at community level widely in Kerala. The compost generated from the treatment of waste at community facilities is branded and marketed as manure at Pattambi municipality, Wadakkanchery municipality, Perinthalmanna municipality and Munnar GP, and compost produced from many other facilities are being supplied to farmers groups at free of cost.

- 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 : 3797 TPD
- Gap in Municipal Solid Waste Management : 0 TPD
- The following projects are completed and functioning:
 - Black soldier plant 50 TPD Brahmapuram, Ernakulam by ZIGMA
 - Black soldier plant 50 TPD Brahmapuram, Ernakulam by FABCO

Online Vehicle Tracking Portal

Rule 16 (6) of Solid Waste Management Rules, 2016 and on the order of Hon'ble NGT board developed an online vehicle tracking portal through ULCCS to monitor inter-state waste movement. GPS/ Mobile tracking through app can be implemented through this portal.

Dumpsites Remediation

Legacy dump sites are remediated by biomining, in which microorganisms and natural processes are used to excavate, treat, segregate, and recover valuable materials from old, accumulated waste dumps (landfills). These legacy wastes contain organic matter, plastics, metals, and other materials that have been compacted and decomposed over decades.

As part of dumpsite identification, 44 legacy waste dump sites were identified. As part of a planned process, remediation by biomining has been completed on 18 sites. The quantity of waste processed on these sites is 2.46 lakh tonnes. The remediation work is ongoing in 12 sites. The quantity of waste processed on these sites is 3.94 lakh tonnes. The remediation process is initiated in 14 sites. The quantity of waste to be processed at these sites is 1.63 lakh tonnes. Total fund expended for legacy waste remediation is Rs 11.49 Cr. For clearing the existing legacy dumpsites, projects worth ₹120 Cr have been taken up under KWSMP and projects worth ₹56.60 Cr taken up under other funds. Total fund earmarked for legacy waste remediation is Rs 176.60 Cr.

The processed waste soil from bio mining is used for soil filling at various locations. Specific interventions have been done at Brahmapuram and remediation by biomining is in progress there. The biomining is successfully completed in Kureepuzha, Kollam and a total quantity of 92,874 T of legacy waste has been processed as part of this project. The total waste has been successfully segregated into soil, stones, RDF, glass aggregate, plastic aggregate, OBMS aggregate, S S aggregate, tyre aggregate, wood aggregate and footwear and a total of 74,093.00 T has been disposed of and remaining quantity is stocked.

Remediation Completed Sites

SL.No	District	Name of Local body	Name of Location	Volume of Waste (in tonnes)
1	TVM	Thiruvananthapuram	Palayam market	4804
2	TVM	Thiruvananthapuram	Erumakuzhi, near chala market	900
3	KLM	Kollam	Kureepuzha	74053.44
4	KKD	Kozhikode	Kalliyi, ward-56, beside the river	10
5	PTA	Pathanamthitta	Near Mini stadium	250
6	PTA	Pandalam	Near RRF Unit	400
7	TSR	Guruvayoor	Choolpuram	13638
8	PLK	Pattambi	Shangaramangalam	1041.15
9	MLP	Perinthalmanna	Kurinappalli	200
10	KKD	Koyilandi	Below bridge	25
11	ERKM	Kalamassery	Kalamassery	35000
12	PTA	Adoor	Kaimalapara, Ward no. 2	500
13	KKD	Kozhikode	Njaliyan parabur	65000
14	TSR	Kodungalloor	Pullut, Chappara	30000
15	MLP	Malappuram	Near Inkel city, Ward 38, Puliyettummal	32.5
16	MLP	Tirur	Trenching ground, Ottilathara	30
17	WYD	Kalpetta	Vellaramkunnu	18211
18	MLP	Manjeri	Vettekkode	2500

Remediation Work in Progress

SL.No	District	Name of Local Body	Name of Location	Volume of waste(in tonnes)	Status of remediation
1	PLK	Ottapalam	Panamanna	10050	70% work completed in Phase-1 (CFC Tied grant). Remaining work started and is ongoing by MCK Kutty.

2	TVM	Attingal	Chudukad	9250	50% land cleared in Ist phase completed for 7800 m ³ . Second phase work order given
3	TSR	Chavakkad	Chavakkad	2105	98% work completed
4	ALP	Alapuzha	Sarvodayapuram	11,250	Phase 1 completed, Phase II to be retendered
5	TSR	Thrissur	Laloor	19500	95% work completed
6	TSR	Kodungulloor	T.K.S. Puram	607	90% work completed
7	TSR	Kannur	Chelora	60161	60% work completed
8	ERKM	Kochi	Brahmapuram	150000	Restarted (12%)
9	KTM	Kottayam	Vadavathoor	40000	Started (10% completed)
10	KTM	Changanacherry	Fathimapuram	3650	Started
11	ERKM	Kothamangalam	Kumbalathumuri	12500	Started
12	KSGD	Kanhangad	Trenching Ground Chemmattamvayal	2803.5	Started

Remediation work about to start

SL.No.	District	Name of Local body	Name of location	Volume of waste (in tonnes)	Status of remediation
1	ALP	Kayamkulam	Murukkummoodu	3650	Work order issued
2	KNR	Iritty	Athithattu	1900	Work order issued
3	KNR	Kuthuparambu	Palapparamba	24500	Work order issued
4	TSR	Kunnamkulam	Kunnamkulam	8092	Work order issued
5	PLK	Palakkad	BPL Junction, Koottupatha	28500	Work order issued
6	KSGD	Kasaragod	Kelugudde	5612.5	Work order issued
7	IDK	Muvattupuzha	Kurianmala	18000	Work order issued

Clearing and beautification of Garbage Vulnerable Points

With active public participation in a mass campaign, garbage vulnerable points were pinpointed. These 1983 locations underwent clearing and beautification efforts, with students

and environmentalists playing a crucial role. The once unsightly wayside waste heaps transformed into attractive gardens, conveying a significant message on cleanliness to the public. The operation and maintenance (O&M) of each of these parks are scheduled to be carried out with the support of LSGIs, Resident Welfare Associations, trade unions, NGOs, etc.

Sanitary Waste Management

An incinerator plant for sanitary waste has been established in Palakkad district. Following satisfactory monitoring of its operation, new plants are now being proposed in all districts. The total number of planned projects for implementation in the state is 57. These plants will have a cumulative capacity of 44.80 TPD.

Community Level Sanitary Waste Incinerator Projects taken in local bodies

Sl No.	Name of District	Total Projects taken up in districts	Capacity (TPD)
1	Thiruvananthapuram	4	3.3
2	Kollam	7	5
3	Pathanamthitta	3	1.5
4	Alappuzha	5	3.5
5	Kottayam	4	4
6	Idukki	2	2
7	Ernakulam	3	4
8	Thrissur	4	4
9	Palakkad	3	3

10	Malappuram	5	5
11	Kozhikode	8	6
12	Wayanad	1	1
13	Kannur	6	3.5
14	Kasargod	1	1
TOTAL		56	46.80

Details of Existing Waste Management Facilities

Sl. No.	Waste management facility	Urban LBs		Rural LBs	
		No of units	Capacity (TPD)	No of units	Capacity (TPD)
I.	Wet Waste Management				
A	Composting Facilities				
	a. Household level composting devices	392750	907	1858310	2787
	b. Compost pits	495940	480	1845281	1845
	c. Institutional Composting Facilities	28420	83	694	2
	d. Community Level composting facilities	793	458	365	18
	e. Centralized composting facilities	24	228	103	52
	Total capacity of composting facilities		2156		4704
B	Bio methanation Facilities				

	a. Household level Biomethanation facilities	77250	386	57406	57
	b. Community Level Biomethanation facilities	117	58	310	78
	c. Centralized Biomethanation facilities	4	25	7	7
	Total capacity of Biomethanation facilities		469		142
C	Rendering plants	20	401	20	401
	Total Bio waste processing facilities		3026		5247
II	Dry Waste Management				
A	Dry waste processing facilities (Public Sector)	348	696	1800	1385
B	Dry waste processing facilities (Private Sector)	30	60	18	36
C	Sanitary waste disposal Facility (Community Level)	1	5	0	0
D	Sanitary waste disposal Facility (Institutional Level)	3272	10	17897	54
	Total Dry waste processing facilities		771		1475
	Total Capacity of Existing facilities		3797		6722

With the available financial support from central and state, 2625 TPD capacity bio waste management facilities have already been installed at household, institutional and community levels in urban areas. In addition to that, from 401 TPD poultry slaughter waste is converted to various products such as pet feed, protein supplement, compost etc.. For managing the dry waste including public and private sector there are 771 TPD capacity processing facilities have been established in the urban areas. As a whole 3797 TPD waste management facilities are in the state, to cater the present waste generated.

Local bodies, with the assistance of women's self-help groups known as Harita Karma Sena, manage the collection of dry waste from households and establishments. Subsequently, the collected waste undergoes segregation at Material Collection Facilities (MCFs) and Resource Recovery Facilities (RRFs). Recyclable waste is sent to recycling units, while non-recyclable waste is directed to co-processing facilities, such as cement plants, as Refuse-Derived Fuel (RDF) for energy recovery. To address specific waste components like sanitary waste, e-waste, construction & demolition waste, and hair waste, private partnerships are encouraged. Continuous monitoring of projects in this sector is conducted to ensure the effective maintenance of the system. The reject waste generated statewide in households/shops are segregated at MCFs and are sent to cement factories for onward utilization for energy generation.

Quantity of Reject Waste transferred to Cement Plants from January 2023 to December
2023

Quantity of Reject Waste transferred	By Govt sector	29,826 Tonnes
	By Pvt Sector	18,205 Tonnes
	Total	48,031 Tonnes

In order to manage the waste generated including the future requirements, projects have been planned & proposed in local bodies. Projects worth ₹ 45.2 cr have been taken up in local bodies for wet waste management and ₹18.54 cr have been taken up in local bodies for dry waste management. For clearing the existing legacy dumpsites, projects worth ₹120 cr have been taken up under KSWMP. and projects worth ₹56 cr taken up under other funds.

Details of Projects Undertaken by LSGI's for solid waste management (Excluding Ward Bank)

Name of Districts	Biomethanation	Composting	MCF/RRF/ MRF/Mini MCF	Sanitary
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	No. of Projects	Fund Earmarked (in Rs)	No. of Project s	Fund Earmarke d (in Rs)	No. of Project s	Fund Earmarked (in Rs)	No. of Projects	Fund Earmar ked (in Rs)
Thiruvananthapuram	76	45676434	245	263512921	205	256914050	7	13970925
Kollam	12	28165206	52	76370924	156	127928818	13	32684045
Pathanamthitta	3	2151062	7	27485623	20	19019521	2	5398091
Alappuzha	4	7865200	12	72602977	33	57928247	1	600000
Kottayam	2	700000	8	6006399	9	4324813	1	100000
Idukki	2	5000000	1	5583750	15	10100893	1	650000
Ernakulam	8	24713033	14	38229878	36	55856234	3	350000
Thrissur	8	18865944	24	101533565	68	102300901	4	2177774
Palakkad	-	-	7	21260294	24	28838153	3	15083344
Malappuram	2	463000	15	115701485	16	38340116	-	-
Kozhikode	6	848600	9	29458635	37	89730235	3	2735324
Wayanad	-	-	2	3742500	2	5000000	-	-
Kannur	3	2950000	17	84310090	29	51964428	3	9992350
Kasargod	2	185000	2	11456000	10	22091140	-	-
Total	128	137583479	415	857255041	660	870337549	41	83741853

Projects have been taken up by LSGIs in all districts for effectively addressing the gap in the processing capacity. Statewide 128 nos of biomethanation projects, 415 nos of composting projects, 660 nos of MCF/MRF and 41 nos sanitary waste treatment plants have been proposed by various LSGIs. A total outlay of 194.89 cr has been earmarked for these projects.

Details of world bank funded projects

No	KSWMP - World Bank funded SWM Project Components	Total Outlay in Rs. Cr	FY 2022-23 & FY 2023-24 till date (31/01/24)		Projected expenses till 31/03/24 in Rs. Cr
			Committed expenditure in Rs. Cr	Firm Contracts / Actual expenditure in Rs. Cr	
I	Component 1				
1	Planning, Execution, Admn Expenses & Capacity Building	3 20.00	50.00	44.00	16
II	Component 2				
2	ULB level Investments (procurement of SWM Goods & Works)	1,200.00	65.00	10.00	10
III	Component 3				
3	Dumpsite Remediation	1 20.00			10
4	Regional Infrastructure	7 60.00			10
	Total	2,400.00	115.00	54.00	46

Similarly, as part of KSWMP funded by World Bank a total outlay of 2400 cr has been earmarked for capacity building, procurement of SWM goods, dumpsite remediation and regional infrastructure.

Rendering plants

Meat rendering plants process animal by-product materials for the production of tallow, grease, and high-protein meat and bone meal. Plants operate in conjunction with animal slaughterhouses or poultry processing plants. The Government of Kerala developed guidelines for the operation of rendering plants which led to the standardization of facilities. The facilities use wastes as an input material to create valuable products as new outputs. The aim of resource-recovery is to reduce the amount of waste generated and optimize the values created from waste. Here, the newly functioning plants lead to the management of around 850 TPD of poultry waste which would have ended-up as waste and created a menace to the people.

Details of Existing Rendering Plants

District	Plants in ULBs		Plants in Rural local Bodies	
	No.	Capacity	No.	Capacity
Thiruvananthapuram	0	0	0	0
Kollam	0	0	2	9
Pathanamthitta	0	0	1	30
Alappuzha	0	0	0	0
Kottayam	0	0	0	0
Idukki	0	0	0	0

Ernakulam	0	0	7	242
Thrissur	0	0	2	6.5
Palakkad	2	36.25	6	102
Malappuram	2	13	17	236.5
Kozhikode	0	0	1	30
Wayanad	0	0	1	12
Kannur	1	40	1	14
Kasargod	0	0	2	110
	5	89.25	40	792

Rendering plants are available in 10 districts and the waste from other 4 districts are also processed through these plant.

Status of proposed Waste- to- Energy Plants

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).

Status report of Waste to Energy Plant				
Sl . N o.	Waste to Energyplant	Land Identified	Procured	Status
1	Kozhikode Njاليانparambu	Kozhikode corporation	(Govt. land)12.67acre at Njاليانparabu	• Work awarded to ZontaInfratech Private Limited for the construction of Waste to Energy Plant. • 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. • Biomining of legacy waste is 75% complete. The total area for biomining is 1.8 acres. • 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. Work will be started only after monsoon.
2	Kannur Chelora	Kannur Corporation	(Govt. Land) 9.7 acres at Chelora	• 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. • Tendering completed and DPR prepared by Blue planet. Consent application is yet to be received. • 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-AdharSevabhaviSanstha. Bio mining already started. Agreement to be executed Biomining is already started (6500) cum is biomined (50%).
3.	Palakkad Kanjikode	Palakkad Municipality	Land taken over from Kerala State Electricity Board Ltd. in advance possession 15 acres at Kanjikode	• Blue Planet Palakkad Waste Solutions Private Limited was formed to take up the development of the project. • Consent to establish was issued on 21-12-2021 to the project with a validity upto 30-11-2023. • 200T of municipal solid waste will be processed.
4	Kollam Kureepuzha	Kollam Corporation	7.05 acres at Kureepuzha (Govt. land)	• The SPV constituted for setting up of the Waste to Energy Plant of Kollam Corporation,

				• 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. • 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 • Biomining of legacy waste completed. • Financial closure for waste to energy plant is expected to be achieved by December 2022.
5	ErnakulamBrahmapuram	Kochi corporation	20 acres at Brahmapuram (Govt. land)	• Bio mining of legacy waste is progressing. 25% completed. • 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. • Corporation has been exempted from paying annual installment for 20 acres of land, which has been leased out to KSIDC for waste to Energy bplant under public private partnership from subsequent annual fund. • Tipping fee amount shall be obtained by increasing user fee collection from residential area and also by enhancing property tax by 8%.. • Above decision has put to council for approval.
6	Thrissur	Thrissur corporation		Land is yet to be Identified .Biomining 45% completed.
7	Malappuram	Malappuram munciplaity	8.09 acres of land at Kurumbathoor	• 8.09 acres of land identified by District Administration at Kurumbathur village.

			village in Tirur Taluk	Tirur taluk forsetting 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.
8	Thiruvananthapuram	Thiruvananthapuram Corporation		Land is not yet identified.

Other interventions taken by the State in Solid Waste Management

Door-to-Door Waste Collection

In the fiscal year 2023–2024, there has been a significant increase in door-to-door waste collection coverage across the State. 100% door to door collection is ensured by special interventions at LSGI level. HarithaMithram app facilitated developing systematic and professional approach on customized strategies for increasing the D2D coverage, user fee collection, segregated material movement, and scheduled transportation of waste from door steps to disposal facilities. During this period, the volume of dry waste delivered to MCF/RRF facilities has correspondingly risen. To accommodate the increased amount of collected waste, an additional 41 godowns were established. Currently, there are 57 godowns with a combined area of 4,97,000sqft to effectively manage the heightened volume of waste.

Details of Solid Waste Management facilities in the state

Facility	Up to March 2023	Up to Jan 2024
RRF	93 Nos	167 Nos
MCF	1182 Nos	1981 Nos
Mini MCF	9357 Nos	20904 Nos

Godown facility	16 Nos	57 Nos
Godown Area	85,250 sqft	4,97,000 sqft

The state has made significant investments in infrastructure for the storage of dry waste. Currently, there are 167 Resource Recovery Facilities (RRF), 1981 Material Collection Facilities (MCF), 20904 Mini Material Collection Facilities (Mini MCF), and 57 storage godowns covering an area of 4,97,000 square feet.

Registration of Unauthorized Dealers

Scrap dealers are pivotal in the non-biodegradable waste management process in Kerala, contributing significantly to the collection and processing of waste. They engage in collecting, sorting, and processing diverse scrap materials, such as metals, paper, plastics, and electronics, contributing to the reduction of waste reaching the mainstream. Efforts are underway to register them officially and evaluate the volume of waste they manage.

Lifting Plan and Forward Linkage

The transfer of waste from mini MCF to MCF and RRFs faced inefficiencies due to insufficient vehicle resources and a lack of professionalism. Through the assistance of Haritha Sahayasthapanams, a systematic plan for waste lifting has been devised and implemented. Additionally, a seamless disposal process for segregated waste has been established by identifying appropriate disposal facilities and recycling markets. To efficiently handle non-recyclable rejects, plans are underway to propose RDF plants at the district level.

Non-recyclable plastic waste is shredded in the MCF/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.

MCF Modernization

Most of the MCF/RRF facilities faced a shortage of sufficient space and machinery to handle the increased volume of waste. Technical measures have been implemented to recognize these gaps and upgrade the existing facilities. New projects have been initiated to address and bridge these gaps. 660 projects are taken up for an amount 87,03,37,549/- of this year for the construction of new MCFs and improvement and maintenance of existing MCFs.

GPS Tracking Facility

To control the illegal dumping of waste, GPS tracking systems have been mandated for vehicles transporting waste. The Kerala State Pollution Control Board has created a web portal for real-time monitoring of waste-carrying vehicles, both interstate and intrastate. Additionally, vehicles involved in the transfer of non-bio waste have been equipped with security stickers embedded with holograms.

Enforcement Action

To enforce waste management regulations and prevent open dumping, 23 squads were established in March 2023 to undertake enforcement actions. Single-use items constitute a significant portion of the waste discarded on roadsides. The enforcement team has conducted 33,405 inspections to date, identifying 9,078 violations and punishment actions have been taken. A fine amounting to Rs. 1,04,55,622/- has been collected. Additionally, approximately 161,456 kgs of single-use plastic items have been seized as a result of these enforcement efforts.

Control rooms have been decided to be set up at the District and Local Self-Government levels to closely monitor the existing collection of waste and their proper disposal. Control rooms are functioning effectively in 16 local self-government bodies, which are taken as pilot projects.

IEC Interventions

IEC initiatives have been intensified to improve door-to-door waste collection and eliminate open littering.

- An incentive program has been instituted to encourage public engagement in identifying Garbage Vulnerable Points.

- Technical assistance has been provided to BWGs to strategize and establish waste management facilities independently.
- For effective waste management, private partnership has been ensured
- Ranking of LSGIs based on their performance on waste management
- Ranking of public and private sector institutions based on cleanliness index
- 100% User Fee challenge among LSGIs

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 (KPSCB) 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:

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.

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

Prevention of Marine Littering

- The Govt. of Kerala along with German Company Plastic Fischer, initiated the Trivandrum Project in 2022, aiming to combat marine plastic pollution. By deploying TrashBoom systems in the identified locations, Plastic Fischer successfully collected and managed a total of 257 tons of plastic material from rivers, riverbanks, and beach cleanups until the end of 2023. Plastic Fischer obtained the required government permits and deployed 18 TrashBoom systems. Out of the total collected plastic material, 12 tons of plastic were recycled while 245 tons of non-recyclable material were sent to co-processing at cement plants.
- On 1 June 2023, "No More Beach Cleanups" was officially launched along the coastal line of city of Thiruvananthapuram in participation with GIZ to demonstrate behavioral change focused on awareness and action, beach clean-ups, youth mobilization, community engagement and promotion of plastic alternatives in selected locations. In participation with GIZ, at 8 beach locations, 44 beach cleanup drives were conducted in Trivandrum involving 2831 volunteers and 11.15 tonnes of waste were removed.
- Under the GIZ project, NCSCM joined hands in G20 beach clean-up. The clean-up drive was conducted at three beaches in Kerala-Trivandrum, Alappuzha, and Fort Kochi in Kerala (More than 500 volunteers across three beaches collected litter weighing around 1710 kg).

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.
- FSTP at Madakkathara, Thrissur is funded by UNICEF. The unit consists of Anaerobic Stabilization Reactor, Tiger Bio-filter, Intermediate Tank, PSF, ACF, Chlorination unit and Treated water tank.



- 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 Jharkhand 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.

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, 27.12.2023, 17.02.2024, 23.02.2024

- 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, 25.03.2024

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 PollutedRiver Stretches as per December 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. 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 streamline 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 24th December 2020.

XVI. Good Irrigation practices being adopted by the State:

Irrigation in Kerala is classified into two schemes.

- Major Irrigation and Medium Irrigation
- Minor Irrigation

As per the classification followed by the department, schemes having a cultivable command area upto2000ha 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 horticultrop are proposed under this scheme.

- 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.

1. 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 on 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 14th 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 12th plan period. In the 13th 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 km². 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:-

- Cheruthuruthy check dam
- Changanamkunnu regulator
- Manjummel regulator
- Purappallikavu regulator
- Velliyankallu regulator cum bridge
- 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. 300 petitions were forwarded to the revenue officials for remedial action. 133 petitions also received since then are also forwarded to the concerned.

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 be considered for maintaining e- flow during lean season. Storage structures/diversion structures needs to be proposed at certain locations to regulate the 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 IDRIB Chief Engineers office at VikasBhavan. 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 IDRIB 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 vizi) 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 Manimalariver 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. Based on the direction from the Administrative Department, an Expert committee was constituted for vetting the same. The first meeting of the committee is scheduled to be held on 10.01.2024. The present e flow calculation was done in line with the old methodology as per the direction of NGT. As per the existing NGT order the minimum E flow calculation required is 15-20. Since it is based on the flow of Himalayan fed rivers, the same method cannot be applied to Southern states which are monsoon fed. Hence a new methodology is required

XX. Plantation activities along the rivers

Proposal submitted by Irrigation Department. Waiting for approval.

XX1. 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 13th 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, Valapattanam river (b) Planting of Pandanus along canal banks
- Muzhakunnu Grama panchayat, Kannur – Puzhayora Oushada Sughandha Udyanam 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, Vechoochira and Naranammoozhi) 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. A 5 MLD tertiary treatment plant is proposed and the work is awarded for treatment of effluents of STP at Muttathara. The same is in the design 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 r

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 Kozhikode 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 KSPCB for all the nine quarry sites.

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 colouredKumkum 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)

Kadambrayar at Ernakulam – Priority V (from Priority IV)

Shir A. J

MEMBER SECRETARY

Status of compliance of ETPs less than 30 KLD

1	CHC Sooranadu, Sasthancotta Block Panchath, Kollam	0.028	At Tendering Stage	LSG planning to tender for DPR preparation. Tendering process for DPR preparation is in progress. Revision needed in the next DPC.	
2	STP at Community Health Centre Pazhayannoor Block Panchayath, Thirssur	0.025	Tendering Stage	Retendering process under progress	

3	Mobile Septage Units- 2 nos, Alappuzha (AMRUT)	0.02 (0.01 *2 nos.)	* 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.	* 29 th SLTC held on 07.11.2023 accepted the proposal for revision of AS. The SHPSC held on 14.12.2023 approved the revision of AS. * ULB had given notice to Eram Scientific who had submitted the quote but still there was no response * Work to be retendered / quotation to be invited. Work was retendered in GEM portal with 01.03.2024 as the last date of bid submission.	31.07.2024
4	Sewage Treatment Plant 20 KLD at Shopping Complex cum multiplex Theatre, Kallumutti, IruttiPayam, Grama Panchayath1, Kannur	0.02	65%	• Amount transferred to KWA on 26.02.2024. • Tendering process will start soon.	30/05/2024
5	STP for Convention Centre , Pinarayi Grama Panchayath, Kannur	0.02	60%	Site inspection completed by the agency and M/s IRTC submitted the revised DPR as an enhancement project of 40 KLD capacity.	

				DPR under verification by State Mission.	
6	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	-
7	STP at ShatabdhiMandiram, 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 ShathabdiMandiram will be covered under the sewerage sector proposal planned under AMRUT-2.0.	-
8	STP at Athani market, Wadakkanchery Municipality, Trissur (PRS) (IMPACT KERALA Ltd)	13.9 KLD STP	.	DPR Approved by KIIFB, KIIFB Proceedings awaited	-
9	ETP 10 KLD Capacity, Nedumangad Municipality, Thiruvananthapuram	0.01	At TS stage	TS issued. Tendered and agreement executed with agency. Work order given, but Agency not yet started the work	
10	Eco Friendly waste water Treatment plant 10 KLD in	0.01	At DPR Stage	Agency selection	

	vettam Community Health centre , Tirur BP			completed. DPR under correction by agency.	
11	10 KLD Sewage Treatment Plant at EMS Memorial Municipal Town Hall, Koyilandy Municipality, Kozhikkode	0.01	At tendering Stage	Municipality to transfer the fund to KWA.	
12	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	-
13	STP at old age home, Kannur	0.010	Tendering Stage	TS issued	
14	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. The fund will be dispersed after allotment of CFC fund. CFC fund was not allotted so far, so CFC was unable to transfer the fund.	
15	Waste water treatment plant at K R Narayanan memorial hall, Adat GP	0.0065	At DPR stage	TS was issued. As AS amount is less. Revised AS is needed.	

16	ETP of 2 KLD at Konnamkulam Milk Production Cooperative Society	0.002	At DPR Stage	Under technical scrutiny	
17	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	
18	Taluk Hospital Thiruvalla ,Thiruvalla Municipality, Pathanamthitta	0.09	At DPR Stage	Under technical scrutiny	
19	CHC Alathoor, Alathoor Block Panchath , Palakkad	0.09	At DPR Stage	• As decided in the Panchayat committee, LB decided to do limited tendering among the prefabricated STP service providers in DBOT model. • Tendering process is in progress.	
20	Taluk Hospital Pambady, Pambady Block panchayath , Kottayam	0.085	At DPR Stage	Under technical scrutiny	
21	The wastewater treatment plant at Kuttiyadi Government taluk hospital, Kozhikode	0.08	82%	• RE prepared • TS issued. • Electrical works will start soon.	30.04.2024
22	ETP at Tirur Municipality	0.060	At DPR Stage	DPR returned to LSGI	
23	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 the fund transferred to KWA. No further actions	

				taken	
24	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	
25	STP at Thottumadi Colony, Alappuzha (AMRUT)	0.05	Tendered but not awarded: 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.	
26	Taluk Hospital ,Neelaswaram, Kasaragod	0.040	At DPR Stage	Revised AS awaited	
27	ETP at Kodimatha, Kottayam Municipality	0.030	At DPR Stage	Revised DPR submitted to District Suchitwa Mission and returned for correction	
28	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	
29	ETP for slaughter house,	0.030	At DPR Stage	• DPR under	

	Marakkadavu, Ernakulam			correction by agency • Consent from the KSPCB is not yet to be received due to the less availability of land.	
30	ETP at GovtAyurvedic Hospital, Talayad, Panangad Grama Panchayath, Kozhikode	0.03	At DPR Stage	DPR under scrutiny by State Mission	
31	CHC, Sooranad Sasthamcotta Block Panchayat, Kollam	0.028	At Tendering Stage	LSG planning to tender for DPR preparation. Tendering process for DPR preparation is in progress	
32	CHC Kadayiruppu, Vadavucode Block Panchayat, Ernakulam	0.025	At DPR Stage	• Agency submitted revised drawing to LB. • LB preparing estimate in Price software • DPR under correction by the agency	
33	STP at Community Health Centre Pazhayannur Block Panchayat, Thirssur	0.025	At tendering stage	• Total TS amount deposited to KWA. • Work not yet started. • Tendering procedure completed. • Agreement will be	

				executed at the earliest	
34	STP for Convention Centre, Pinaryi GramaPanchayath, Kannur	0.02	60% works are completed	Site inspection completed by agency and M/s IRTC submitted the revised DPR as an enhancement project of 40 KLD capacity.	30/04/2024
35	Sewage Treatment Plant 20 KLD at Shopping Complex cum multiplex Theatre, Kallumutti, Iritti Payam, Grama Panchayat, Kannur	0.02	5% completed.	Total amount deposited in KWA on March 21st 2024. The detailed estimate under preparation for issuing Technical Sanction.	30/07/2024
36	10 KLD Sewage Treatment Plant at EMS Memorial Municipal Town Hall, Koyilandy Municipality, Kozhikode	0.01	At Tendering Stage	- Municipality to transfer fund to KWA, Trivandrum. - Fund is pending on treasury.	

37	DPR for Perumba fish market, Payyanur Municipality, Kannur	0.010	Work tendered	• Work Awarded to IRTC. Council Decision not yet taken by ULB for work Agreement.	
38	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	
39	ETP 10 KLD Capacity, Nedumangad Municipality, Thiruvananthapuram	0.01	• TS issued. Tendered and agreement executed with the agency. • Agency has not yet started the work.	The agency is facing technical issues regarding the placing of the ETP unit, which is 7m high, and cannot be placed in the 5m height slaughter house. • After the internal verification, it was decided to construct UASB for the anaerobic treatment. Intimation has been sent to municipality	

				for further actions.	
40	Waste water treatment plant at K.R Narayanan memorial hall, Adat GP	0.0065	At DPR stage	• TS issued. • As AS amount is less, revised AS is needed. • No further actions taken.	
41	CHC, Mangalpady, Manjeshwar Block Panchayath, Kasragod	0.014	At DPR tendering Stage	• New project taken. • Project revised as Mangalpady taluk hospital. • DPC approved. • DPR preparation by the agency • DPC approved. DPR preparation delayed due to fund ambiguity for STP at Gram Panchayats	
42	11 KLD effluent treatment plant at Kuravilangad Fish market, Kuravilangad Grama Panchayat, Kottayam	0.011	DPR stage	New project taken and DPC approved. Tendered for DPR preparation. But no offers have been received.	
43	Mobile Treatment unit – Chalakudy – by BHOUMA	0.036	Operational		

	ENVIROTECH PVT LTD				
44	Mobile Treatment Unit - Kodungalloor, Neyyattinkara, Chirayinkeezhu, Kumarakam, Wadakkancherry		proposal stage		

Total capacity=1.3639 MLD