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KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004

PCB/HO/EE3/MPR/10/2023

Date: 21.11.2024

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 September 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 September 2024 is submitted herewith. MPR for the month of September is prepared by calculating the water consumption and wastewater generated based on the population projected for 2024.

Yours faithfully,

Encl: As above

MEMBER SECRETARY

National Mission for Clean Ganga

Monthly Progress Report for the month of September 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 2024 is 3,56,40,084. The water consumption and wastewater generated are calculated based on the population projected for 2024.

- **Estimated Sewage Generation(MLD):**

Based on population projected for 2024, the estimated sewage and sullage generation is as given below:

- Estimated Sewage and Sullage generation in Urban area - 1018 MLD

  Sewage = 305.4 MLD

  Sullage = 712.6 MLD

- Estimated Sewage and Sullage generation in Rural area - 2981 MLD

  Sewage = 894.3 MLD

  Sullage = 2086.7 MLD

Total Sewage and Sullage generation – 3999 MLD

- **Details of Sewage Treatment Plant:**

- Existing no. of common STPs/FSTPs: 28 (common STPs and other STPs) and 4 common FSTPs and = 1822 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 *: =138.3 MLD

Urban area = 129.596 rural=8.704MLD

- Total septage treatment capacity in the state through existing common FSTPs: 0.22 MLD (MLD if converted to

- Sewage treatment capacity via individual STPs in establishments = 91 MLD (The list of individual STPs are attached as **Annexure A**

- In Kerala, individual houses have septic tank/ soak pits existing for toilets attached to them.
- Gap in treatment of sewage in terms of sewage treatment plant = 84.58 MLD (Urban)

- 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 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 Jalsakthi, 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. MoJS examined the proposal and requested KWA to prepare detailed project report in line with the guidelines of NRCP based on their observations. (Letter No.J-24025/1/2022-NRCD-II dated 07.12.2023). Board has requested KWA (Letter No. KSPCB/1852/2023-AE-13 dated 05.09.2024) to prepare detailed project

report in line with the guidelines of NRCP and submit the same to MoJS through WRD. The same was intimated to Environment Department and Water Resource Department.

- 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. MoJS was requested to release the fund via Letter No KSPCB/1852/2023-AE-13 dated 08.07.2024.

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.

Board has informed railway that, inspite of repeated direction; Railway has not taken proactive steps to install a permanent STP at Ernakulam South Railway Station even after 3 years from issue of consent. This lapse is viewed serious and Board is to take further action in case of violation of Board's direction. (Letter No. KSPCB/586/2023-EE-1 dated 28.06.2024)

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. Board has informed railway that, inspite of repeated direction; Railway has not taken proactive steps to install a permanent STP at Aluva Railway Station even after 3 years from issue of consent. This lapse is viewed serious and Board is to take further action in case of violation of Board's direction. (Letter No. KSPCB/586/2023-EE-1 dated 28.06.2024)

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. Board has informed railway that, inspite of repeated direction; Railway has not taken proactive steps to install a permanent STP at Ernakulam North Railway Station even after 3 years from issue of consent. This lapse is viewed serious and Board is to take further action in case of violation of Board's direction. (Letter No. KSPCB/586/2023-EE-1 dated 28.06.2024)

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 disposed to KEIL Even though there is large extent of affected water logged area, the railway have now completed remediation 2000sqm land area.

- Action is also being taken for providing temporary measures and 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 Pallikalar 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, Ist 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 conducted site inspection and monitored different canals/drains in Kochi and Kollam from April 14–19, 2024 and a preliminary report was submitted on 12.09.2024. Second field visit is made from October 15-21, 2024 for further data collection.

- 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 Amayizhinajanthodu, Ulloorthodu, Pattomthodu in Karamana catchment. As per the meeting chaired by Chief Secretary on 05.09.2023. A sanitation survey on the drains reaching AkkulamVelilake and its watershed was done by Socio Economic Unit Foundation (SEUF). Along the buffer distance of 100 metre from each banks of Amayizhanchan thodu, Pattom thodu and Ulloor thodu, the assets mapped and the problem areas were identified and action plan was prepared. Based on major observations, instruction issued to TVPM corporation and KWA. A stake holder meeting was held with Trivandrum corporation, PCB, KWA, Irrigation Department and SEUF survey team

- At the district of Kollam, Manichithodu 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 has taken up a project of Rs. 87 Lakhs for providing biodigestor 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**

Stakeholder Advisory (SAC) committee of the project CAMP for six river basins was convened by MoJS on 31.05.2024 and Periyar was one among the six river basins. The objective of the studies and management plan shall be to restore and maintain wholesomeness of the river ecosystem, improvement of ecological health, enabling rivers to perform its functions and to make the rivers Samarth supported on 5 pillars. – Unpollutted 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 Program, State Water Monitoring Program, 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 grey water. 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 Thiruvanathapuram 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 90% completion.

- 5 MLD STP 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 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).

Sl. No.	STP location	STP Installed capacity	Utilization	Status
THIRUVANANTHAPURAM				
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-6.6, TSS-48 mg/L, BOD- 16.4 mg/L, COD-32 mg/L, oil and grease-BDL, Faecal Coliform- 13200 cfu/100 ml as per analysis report dated 29.08.2024). • 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
2	STP at Medical College, Thiruvananthapuram-Phase I & II (PRS)	5MLD(MBBR)	3 MLD	• Operational (pH-6.3, TSS-48 mg/L, BOD- 10.7 mg/L, COD- 68 mg/L, oil and grease-BDL, Total Coliform- Nil, FC – Nil as per analysis report dated 29.08.2024). • The matter is being followed up.
PATHANAMTHITTA				
3	Sewage Treatment Plant at Sannidhanam (5MLD) Maintained by Travancore Devaswom Board	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 31.05.2024). • Letter issued to Travancore Devasom Board (Letter No. PCB/PTA/ICO/2781/2017 dated 30.07.2024)
4	Sewage Treatment Plant at Pamba(3.5 MLD) maintained by Travancore Devaswom Board	3.5 MLD (Coagulatio n & 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.
ALAPPUZHA				
5	DEWATS system,	25 KLD	25 KLD	• Operational

	Chathanad (For 50 houses in slum area)	(Anaerobic Baffle Reactor)		(pH – 9.2, BOD – 16.2 mg/l, SS – 10 mg/l, Oil and grease BDL as per the analysis report dated 17.10.2024)
6	STP at General Hospital	0.24 MLD	0.1 MLD	Electro coagulation.
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, BOD - 28 mg/l, SS - 43 mg/l, Oil & Grease-BDL a per the analysis report dated 05.07.2024). • The quality of effluent conforming to standards.
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.	• The treated waste water samples collected from the filter outlet on 06.04.2024 was found not complying with the standards stipulated and a letter was issued to Superintendent Engineer, GCDA, Kochi. (Letter No. PCB/EKM/DO-1/GEN-09/23 dated 29.05.2024) • pH – 7.12, TSS- 12 mg/l, Phosphate 7.47 mg/l, Ammonia as Nitrogen – 5.6 mg/l, BOD – 7.64 mg/l, COD – 20 mg/l, Oil and Grease – BDL, Total Kjeldahl Nitrogen – 7.84 mg/l, Nitrate as Nitrogen – 17.83 mg/l as per the analysis report dated 20.05.2024
9	Septage Treatment Plant at Brahmapuram, Kochi Corporation, Ernakulam	0.1MLD(MBBR)	0.1 MLD	• Inspection was conducted by Board on 11.06.2024 and some defects were noticed. A Show Cause Notice was issued regarding the same. • pH- 6.77, BOD- 1.05 mg/L, COD- 8 mg/L, Oil and Grease-BDL, Total Suspended Solids – 76mg/l, Phosphate - 0.018 mg/L, Nitrate-BDL, Sulphates – BDL, Sulphides - BDL, Ammoniacal Nitrogen - 0.026, Phenolic Compounds - BDL, Faecal coliform – 8 cfu/ 100 ml, Faecal Streptococci- 4 cfu/ 100 ml as per analysis report dated 18.09.2024
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	4 MLD	• Co-treatment is temporarily stopped due to choking in the plant. • 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.
12	STP owned by GCDA, International Stadium Kaloor	0.75MLD(Activated Sludge Process)	0.05 MLD	• Operational • According to analysis report of sample collected on 07/09/2023 the value of Faecal Coliform (1800cfu/100ml) exceeded the standard limits stipulated by KSPCB. • 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

IDUKKI				
14	Sewage treatment Plant at Comfort station, Adimaly Grama Panchayat, Idukki	0.01 MLD		• STP was not working. • Show Cause Notice issued on 05.02.2024 • Inspection conducted on 15.07.2024 & direction will be issued
15	Construction of 6 KLD ETP for Kumali Slaughter House Kumali GP, Idukki	0.06 MLD		• Slaughter house is not functioning.
16	60 KLD STP at Taluk Hospital Adimaly, Adimaly Block Panchayat, Idukki	0.006 MLD		**Operational** **MBBR**
THRISSUR				
17	Sewage treatment Plant at Guruvayur, Thrissur District	3 MLD(Activated Sludge Process)	0.5MLD	• Operational. (pH-6.46, BOD-5.2 mg/l, COD -36 mg/l, Suspended solids-0.06 mg/l, Oil and grease-7.5 mg/l, Faecal coliform- 880 MPN/100 ml Analysis report dated 14.10.2024) • Instructions given for full utilization of treated effluent and for utilizing treated water. • Planning to reuse the treated effluent for gardening and sepatge 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.

18	FSTP at Mattampuram	0.01MLD(Biological)	Started functioning	**BOD-3.2mg/l,COD-12mg/l, Ammonical Nitrogen-0.343, total nitrogen- 2.436 as per analysis report on 21/08/2023. Started functioning.**
19	Revamping of 35 KLD STP at Kuriyanchira Slaughter House Corportation, Thrissur	0.035MLD (MBBR)	0.035 MLD	**Operational** (pH – 7, BOD – 165.6 mg/l, COD – 524 mg/l, SS – 0.63 mg/l, oil & grease – 15.2 as per the analysis report dated 02.09.2024) Action is being taken for preventing its exceedance.
20	STP at General Hospital, Thrissur (AMRUT-1.0)	0.36 MLD	0.2 MLD	Operational. Sample was collected on 20.07.2024
MALAPPURAM				
21	Sewage treatment Plant at Malappuram Municipal Bus stand	0.03MLD(MBBR)	0.03 MLD	Project proposal for maintenance work have been approved. ICE issued to the unit vide consent No.KSPCB/MA/ICE/10022893/2024 dated 24/01/2024 valid till 24/02/2024
22	Sewage treatment Plant at Tirur (fish market)	0.045 MLD (Biological)		Operational Ph- 6.3, BOD – 103 mg/l, COD – 330 mg/l, TSS – 64 mg/l, Oil & Grease – BDL as per analysis report dated 22.10.24 • Action is being taken for preventing its exceedance.
23	STP at Municipal Bus Stand, Tirur (PRS)	0.05MLD(Biological)	Working	Operational (Ph – 6.6, BOD – 12.4 mg/l, COD – 48 mg/l, TSS – 24 mg/l, Oil and grease – BDL as per the analysis report on 12.08.2024) • Action is being taken for preventing its exceedance. • Sample was collected on 18.07.2024. Analysis being done in district laboratory.
24	ETP in Fish Market, Ponmundam GP , Malappuram	0.01MLD(Anaerobic)	Plant is working.	The unit has submitted ICE of the Board on 18.03.2023. Inspection was carried out on 12.05.2023. ETP is operational but sample could not be taken. STP file has been returned for clarification on 29.05.2023.

KOZHIKODE				
25	STP at Kozhikode Medical College.	2 MLD Old plant.	Working	• **Operational.** • According to analysis report on 19.06.2024 the following values were observed. pH -7, SS- BDL, COD- 96 mg/l, Oil and Grease- BDL, BOD-29.07 mg/l, Turbidity – 17.4 mg/l and Ammoniacal – N 1.391 mg/l
26	STP at Kozhikode Medical College.	2 MLD With 100 KLD Co-treatment Facility	Commissioned on 05.10.2023	• **Operational** • According to analysis report on 18.10.2024 the following values were observed. pH -8, SS- BDL, COD- 8 mg/l, Oil and Grease- BDL, BOD-2.27, Turbidity – 4 mg/l and Ammoniacal – N 16.936 mg/l
27	STP at Kozhikode Medical College.	1 MLD	0.1 MLD	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, Turbidity – 17.4 mg/l and Ammoniacal – N - BDL mg/l
28	STP at Kozhikode Medical College	500 KLD		Operational • According to analysis report on 18.10.2024 the following values were observed. pH -9, SS- 4.4, COD- 8 mg/l, Oil and Grease- BDL, BOD-0.5, Turbidity – 10 mg/l and Ammoniacal – N – 0.134
29	Common Sewage Treatment Plant at Narayana nagaram, near stadium, Vatakara, Opp. New bus stand	0.1 MLD		A Show Cause Notice was issued (PCBRKD/17/2023-AE2 dated 20.07 2024), as the plant was found not operational and have not yet obtained Consent to Operate from the Board.

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
	STP at old age home Kannur	0.010	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	0.3 MLD	Operational Rotating Media Bio Reactor • pH -6.94, SS – 4 mg/l, BOD – 12 mg/l, COD – 224 mg/l; Oil and Grease- 1 mg/l, TSS – 4 mg/l as per the analysis report dated 25.03.2024
WAYANAD				
33	Sewage Treatment Plant at Taluk Hospital, Sulthan Bathery	0.14 MLD(MBBR)	0.05 MLD	• Operational • pH -10.5, TSS – 9.3 mg/l, BOD – 8.68 mg/l, COD – 224 mg/l; Oil and Grease- 0.017 mg/l, FC – 1 mg/l as per the analysis report dated 15.10.2024
34	FSTP at Kalpetta	0.01MLD(Biological)	0.01 MLD	• Operational • pH – 6.5, TSS – 7.4 mg/l, BOD – 8.68 mg/l, Oil and Grease- 0.026, COD – 52 mg/l as per the analysis report dated 15.10.2024

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

No.	Location	Implementing Agency	Capacity of the plant in MLD	Physical Progress in %	Status of I & D or House sewer connections/ Previous status	Incremental progress	Timeline of Completion
THIRUVANANTHAPURAM							
1	FSTP at Varkala Municipality, Thiruvanantha puram (IMPACT KERALA Ltd)	AMRUT	50 KLD FSTP	Work Awarded	• Work awarded after DBO tender. Design being vetted by Anna University.	• Site office erected.Trial mix, steel,cement testing done.Legacy waste removal from the site for the past one month has been	February 2025

						completed. Site preparation for foundation ongoing. Excavation for foundation works to be started.	
KOLLAM							
2	STP at Kureepuzha, Kollam (AMRUT-1.0)	Kerala Water Authority/ AMRUT	12	90%	12471 sewer connections are envisaged under AMRUT-2.0. STP (AMRUT-1.0): Physical progress - 90%. FSTP (AMRUT-1.0): KWA retendered the work. Last date of submission was extended till 30.09.2024, 3 bids received & L1 is 48% above. KWA retendered the work on 19.10.2024 with 01.11.2024 as the last date of bid submission. Two bids received & L1 is 41% above. Decision on award of work to be taken by KWA.	Sewer Network (AMRUT-2.0): # Pallithottam-Thamarkkulam package - The contractor had filed a case (WPC No.32715/2024) against KWA for relieving them from the work. As per the judgment dated 13.09.2024, the MD, KWA has to consider the request of the firm and take a decision and inform the court within 2 months. A hearing was held by the MD, KWA on 22.10.2024 with the Contractor and decision is awaited. # Iron Bridge, Vaady-Karumalil & Asramom packages - MoHUA's approval was received on 01.10.2024. The DPR of the project submitted by the ULB is to be placed in the next SLTC / SHPSC for approval of AS.	STP: 30.11.2024 FSTP: 31.05.2025 **Sewer Network:** 31.12.2026
3	STP at Chitumala Old Age Home. Chitumala BP, Kollam		0.015		Original contractor• of the work was terminated in risk and cost,	Joint inspection by the state technical officer and agency was arranged. The	

					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 agency.	agency will submit a revised estimate along with new DPR.	
4	190 KLD STP at Pathanapuram Market and Shopping Mall		0.190		38%	O&G trap and manhole construction completed. Construction hindered due to fund withdrawal issues.	31.12.2024
5	STP at Mayyand GP, Kollam	IMPACT KERALA Ltd	590KLD Co-treatment	Work Awarded	• Agreement executed with the Contractor M/s Enrec Engineers on 29.02.2024. • Contractor submitted vetted process design. Submitted to KWA and got approval.	Base of 4 tanks at Thanni & Valiyavila completed, Dhawalakuzhy in progress. Wall construction started at Thanni & Valiyavila.	April 2025
ALAPPUZHA							
6	FSTP at Cherthala Municipality , Alappuzha	IMPACT KERALA Ltd	250 KLD Septage TP		Work on going at site. 95% of civil work completed.	Electro Mechanical Items reached site can be installed after transformer procurement. Municipality has to procure transformer.	31.10.2024

IDUKKI							
7	FSTP at Munnar, Idukki		50 KLD		5% work completed.	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
KOCHI							
8	STP at Ambedkar Colony, Div-16, Edakochi South (AMRUT-1.0)	Kochi Corporation/ AMRUT	1.1	43%	1500 sewer connections are envisaged.	Physical progress - 43%. Work in progress.	30.06.2025
THRISSUR							
9	Viyoor central jail STP (Thrissur)		0.05		65% work completed	Civil works completed. Electromechanical and pipe laying works pending.	31.10.2024
10	Kunnumkulam, Thrissur		0.01		Completion stage and ready for commissioning		
11	STP at CHC Cherpu BP, Thrissur		0.01		Plant construction completed. Final bill is to be submitted by LB. Detailed estimate is under preparation.	The revised estimate has been prepared, received and is currently under verification by Suchitwa Mission.	
12	STP at Community Health Centre Pazhayannoor Block Panchayath ,Thirssur		45 KLD		Work Started		31.03.2025
PALAKKAD							
13	STP at Ottappalam Municipality, Palakkad District	IMPACT KERALA Ltd	1.50ML D Co-treatment	Work Awarded	Railway NOC and KRFB demand note received. PWD NOC in process.	Work in progress. Preparation of pile cap work is in progress. KRFB NoC- LB paid fee. Railway NoC and PWD NoCin process. Beneficiary	15.10.2025

						meeting to be convened by Municipality by the end of November.	
	FSTP at Yakkara, Palakkad Municipality (AMRUT-1.0)	Palakkad Municipality/ AMRUT	0.1			Site clearance, electrical connection and temporary labor shed construction works are ongoing. Physical progress - 6%. Work in progress.	31.03.2025
MALAPPURAM							
14	STP at Pambad Housing Colony Malappuram Municipality, Malappuram		**0.110**		**99%**		30.12.2024
KOZHIKODE							
15	Wastewater treatment plant at Kuttiyadi government taluk hospital, Kozhikode		0.080		90%	Physical work completed. Electrical work pending	30.12.2024
KANNUR							
16	Sewage Treatment Plant 20 KLD at Shopping Complex cum multiplex Theatre, Kallumutti, Irutti Payam, Grama Panchayath1, Kannur		0.02		Amount transferred to KWA on 26.02.2024. Tendering process will start soon.	Estimate prepared. Work to be tendered by 30.11.24	31.12.2024
17	STP for Convention Centre, Pinarayi Grama Panchayath, Kannur		0.02	.		Now DPR correction progressing.	30.12.2024
18	FSTP at Chelora, Kannur Corporation (AMRUT-1.0)	Kannur Corporation/ AMRUT	100 KLD	35%	NA	Physical progress - 35%. Work in progress.	31.03.2025

WAYANAD							
19	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.	Remaining works to be tendered after the spillover.	

Details of proposed ETPs/ STPs in the State

No.	Location	Implementing Agency	Capacity of the STP proposed in MLD	Project status Status of Project (at DPR Stage/ DPR Approved/ AS issued/ TS issued/ Tendering Stage/ Tendered/ Work Awarded)	Status of Project (in Detail)	Incremental progress	Likely Date of Completion of DPR Preparation/ Tendering
THIRUVANANTHAPURAM							
1	ETP 10 KLD Capacity, Nedumangad Municipality, Thiruvananthapuram		0.01	Tendering Stage	TS issued. Tendered and agreement executed with agency. Work order given, but Agency 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.	Work will start soon.	

KOLLAM							
2	CHC Sooranadu, Sasthancotta Block Panchayath, 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.	
3	Waste water Treatment (90 KLD) System for coastal housing and Tsunmai resettlement facility at karikuzhi, mayyanadGrama Panchayath , Kollam		0.09	At DPR Stage		Transferred to KIIFB	
PATHANAMTHITTA							
4	Taluk Hospital Thiruvalla , Thiruvalla Municipality, Pathanamthitta		0.225	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.	Tendering Documents submitted to State Suchitwa Mission for verification	
5	Taluk Hospital Thiruvalla ,Thiruvalla Municipality, Pathanamthitta		0.09	DPR Stage	Under technical scrutiny		
ALAPPUZHA							
6	STP with Septage Cotreatment Capability at Alissery, Alappuzha Municipality (AMRUT-2.0)	Kerala Water Authority/ AMRUT	5	DPR Approved	The Tranche-3 projects were finalized in the SHPSC held on 02/08/24. The Tranche-3 proposals inclusive of this proposal were submitted to MoHUA on 24/08/24 for approval.	MoHUA's approval was received on 01.10.2024 . The DPR of the project submitted by the ULB is to be placed in the next SLTC /	31.12.2026

						SHPSC for approval of AS.	
7	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 directon of SBM 2.0	
8	STP at Bhajanamadom Colony, Alappuzha Municipality (AMRUT-2.0)	AMRUT	0.012	DPR Stage	The Tranche-3 projects were finalized in the SHPSC held on 02/08/24. The Tranche-3 proposals inclusive of this proposal were submitted to MoHUA on 24/08/24 for approval.	MoHUA's approval was received on 01.10.2024 . The ULB will engage TAGS Forum as DPR preparation agency of the project only after the ownership of the land for the STP is transferred to the ULB by the Bhajanamadom Church. The DPR is expected to be submitted by 30.11.2024 for placing in the SLTC / SHPSC for approval of AS.	31.12.2026
KOTTAYAM							
9	Taluk Hospital Pampady, Pampady Block panchayat, Kottayam		0.085	Tendering stage	TS received Tendering in progress. KSPCB consent to establish proceedings in progress. Tendering will be	Tendering will be done after the approval of spill over projects by	-

					done after the approval of spill over projects by DPC	DPC	
10	ETP at Kodimatha, Kottayam Municipality		0.030	At DPR Stage	• Process flow approved. • DPR to be modified by the agency.	DPR under verification by Suchitwa Mission.	
11	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.	Tendered for DPR preparation . But no offers have been received.	
12	FSTP at Vellor GP			DPR stage	Draft Agreement Submitted by IRTC is under verification with the Local Body. Agency will submit the DPR within 10-15 days after the approval of agreement.		
13	FSTP at Manganam			DPR stage	Land proposed is of KWA. DPR under preparation.		
IDUKKI							
14	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	DPR under correction by the agency after placing in Technical Committee	
15	STP at private bus station, Kothayikkunnu, Thodupuzha municipality Idukki		0.03	Tendering stage.	TS issued. Tendering works in progress.	TS issued for electrical works. Technical Sanction of mechanical items needs to be issued.	

ERNAKULAM							
16	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+ 1 6.5+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,Per andoor,Ven nala, Elamkulam forwarded to Ministry of Jalasakthi vide letter dated 31/01/2023 for funding under NRCP. KIIFB issued provisional sanction for funding the project.	
17	STP with Septage Cotreatment Capability at Elamkulam, Kochi Corporation	AMRUT/Kerala Water Authority	5	To be Tendere d	The 5thSHPSC held on 02/03/23 approved the issuance of AS and G.O dated 25/03/23 was issued.KWA split the work into 5 sub works and issued TS.Later the KWA decided to combine the proposals under AMRUT-2.0 & KMRL. In the meeting held by the Hon'ble Minister of LSGs on 24/07/24 the KWA was directed to go ahead with the proposal under AMRUT-2.0 instead of the combined proposal involving KMRL. TS of the STP is being revised by KWA.	TS was issued by KWA for the STP package in the last week of Oct-2024 and tender is expected to be floated by 15.11.202 4. TS is being revised by KWA for the network packages.	31.12.2026
18	ETP for slaughter house, Marakkadavu, Ernakulam		0.030	DPR Stage		DPR under correction by the agency. Consent	

						from the KSPCB is not yet to be received due to the less availability of land.	
19	CHC Kadayiruppu, Vadavucode Block Panchayat, Ernakulam		0.025	DPR Stage		LB preparing estimate in Price software. DPR under correction by the agency.	
20	FSTP at Brahmapuram, Kochi Corporation (AMRUT-2.0)	AMRUT/ Kochi Corporation	1	DPR Approved	The Tranche-3 proposals wer discussed in the Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will be issued after getting MoHUA's approval.	MoHUA's approval was received on 01.10.2024 . The ULB has engaged IRTC to execute the work in DBOT mode. The DPR of the project is expected to be submitted by 30.11.2024 for placing in the SLTC / SHPSC for approval of AS.	31.12.2026
21	STP at RAY Flats, Fort Kochi, Kochi Corporation (AMRUT-2.0)	Kochi Corporation	0.105	DPR Approved	The Tranche-3 proposals were discussed in the Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will be issued after getting MoHUA's approval.	MoHUA's approval was received on 01.10.2024 . The ULB has engaged IRTC to execute the work in DBOT mode. The DPR of the	31.12.2026

						project is expected to be submitted by 15.11.2024 for placing in the SLTC / SHPSC for approval of AS.	
THRISSUR							
22	STP with Septage Cotreatment Capability at Kottapuram, Thrissur Corporation (AMRUT-2.0)	Kerala Water Authority/ AMRUT	5	DPR Approved	The Tranche-3 proposals wer discussed in the Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will be issued after getting MoHUA's approval.	MoHUA's approval was received on 01.10.2024. The DPR of the project submitted by the ULB is to be placed in the next SLTC / SHPSC for approval of AS. There is public protest against the project and action in this regard is to be taken by the ULB.	31.12.2026
23	STP at Athani, Wadakkanchery Municipality, Thrissur (PRS)		350 KLD STP		Site identified. DPR under preparation	DPR approved by RKI	
24	STP at Kokkala, Thrissur Corporation (AMRUT-2.0)	Thrissur Corporation/ AMRUT	2.5	DPR Stage	The Tranche-3 proposals were discussed in the Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will	MoHUA's approval was received on 01.10.2024. The ULB has submitted	31.12.2026

					be issued after getting MoHUA's approval.	the DPR for approval of AS but the SLMC rejected the ULB's request to convert the proposed land for the STP on 25.10.2024 (via G.O No. 917/2024/ AGRI dated 29.09.2024). Further action is to be taken by the ULB.	
25	STP at Wadakkanchery Municipality, Thrissur (PRS)	IMPACT KERALA Ltd		DPR Stage	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.		-
26	Pazhayanoor STP (Thrissur)		0.45 KLD	Work awarded	Design vetted by Sewerage Circle, Kochi. Work to be started by the contractor	Work to be started by the contractor	
27	General Hospital, Irinjalakuda Municipality, Thrissur (PRS)		0.150	DPR Stage		DPR correction in progress by the agency	
28	35 KLD STP at Ramavarma District ayurveda hospital, Thrissur		0.035	DPR Stage		DPC needs to be revised for changing the implementi	

						ng officer.	
29	FSTP at Ramavarmapuram, Thrissur Corporation	Thrissur Corporation/ AMRUT	0.1	Work Awarded	Due to public protest the bridge work has been stopped on 03.07.2024 and the FSTP work couldn't be started.	**The Joint Director, Thrissur, held a meeting with the public at the site on 28.10.2024 but the issue could not be resolved. The matter is expected to be taken up at the Minister level.**	31.03.2025, if public protest is resolved
30	STP at Ottuppara Market, Wadakkanchery Municipality, Trissur (IMPACT KERALA Ltd) (PRS)	IKL	18 KLD STP		DPR submitted to KIIFB as a part of the project "Modernisation of Ottupara Market in Wadakkanchery Municipality" .	Under design review by KIIFB	-
31	STP at Athani market, Wadakkanchery Municipality, Trissur(PRS) (IMPACT KERALA Ltd)	IKL	13.9 KLD STP		DPR submitted to KIIFB as a part of the project "Modernisation of Ottupara Market in Wadakkanchery Municipality" .	Under design review by KIIFB	-
32	Waste water treatment plant at K R Narayanan memorial hall, Adat GP		0.0065	DPR stage		TS issued. As AS amount is less, revised AS is needed.	
33	ETP of 2 KLD at Konnamkulam Milk Production Cooperative Society		0.002	DPR stage		Under technical scrutiny	
34	Augmentation of existing 3 MLD STP at	Kerala Water Authority/ AMRUT	2	DPR stage	The Tranche-3 proposals were discussed in the	MoHUA's approval was	31.12.2026

	Chakkamkandam to 5 MLD with Septage Cotreatment Capability, Guruvayur Municipality (AMRUT-2.0)				Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will be issued after getting MoHUA's approval.	received on 01.10.2024. The DPR of the project has been submitted by the ULB but correction is required in the DPR. The corrected DPR is expected to be submitted by 15.11.2024 for placing in the SLTC / SHPSC for approval of AS.	
PALAKKAD							
35	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	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	
36	STP for Municipal Buildings, Palakkad Municipality (AMRUT-2.0)	Palakkad Municipality/ AMRUT	0.030	AS to be Issued	The Tranche-3 proposals wer discussed in the Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will be issued after getting MoHUA's approval.	MoHUA's approval was received on 01.10.2024. The DPR is to be submitted by the ULB for placing in the SLTC/ SHPSC for approval of AS. The ULB has decided to	31.12.2026

						float DBOT tender when the model code of conduct expires after the election on 20.11.2024 .	
37	CHC Alathur, Alathur Block Panchayat , Palakkad		0.090	DPR Stage		Single agency only participated in tender within the stipulated time limit. Hence retendered, tender date closes on 15.07.2024 . Tender opening on 19.07.2024	
38	FSTP at Shornur					Railway land to get. Application submitted.	
MALAPPURAM							
39	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 Gok for AS. But AS not received.	
40	Sewerage system for Ponnani municipality(Kot tat 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	
41	STP at District Hospital Perunthalmanna, District Panchayath, Malappuram		0.200	DPR Stage		Even after multiple revised submission s, DPR is of inferior quality. Hence LB is going to	

						find another competent agency. Necessary instructions were given to the LB.	
42	Eco-Friendly wastewater Treatment Plant (140 KLD) for Women and Children Hospital Ponnani Municipality, Malappuram		0.14	Tendering stage	Total fund deposited to KWA by the LB. Work yet to start. Land finalized.	Tendering procedure yet to start.	
43	DPR on STP at District Hospital, Tirur, Malappuram		0.5	TS issued		Tendered	
44	ETP at Tirur Municipality		0.060	DPR Stage		LB to submit the revised DPR with revised DPC form	29.07.2025
45	ETP at Tirur Municipality Slaughter house		0.030	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.	
46	Eco Friendly waste water Treatment plant 10 KLD in vettam Community Health centre , Tirur BP		0.01	DPR Stage		Agency selection completed. DPR under correction by agency.	
47	FSTP at Perinthalmanna	Aquatechnics Water Treatment Technologies Pvt. Ltd. Ernakulam				DPR under modificatio n. Soil Testing will be completed by 14.06.2024 .	
48	FSTP at Valancheri	IRTC-PIUMUNDUR				DPR placed on TC on 25.05.2024 at Suchitwa Mission. Process flow	

						conditionally approved.	
KOZHIKODE							
49	STP with Septage Cotreatment Capability at Sarovaram, Kozhikode Corporation	AMRUT/ Kerala Water Authority	27	TS to be issued	The 7thSHPSC held on 14/12/23 approved the issuance of AS and G.O dated 08/01/24 was issued.	TS was issued by KWA for the STP package in the 3rd week of Oct-2024. TS is to be issued by KWA for the network package. The STP & network packages are expected to be tendered by 30.11.2024	31.12.2026
50	STP at Avikkal thodu, Kozhikode Corporation (AMRUT-2.0)	Kozhikode Corporation/ AMRUT	7	DPR Stage	The Tranche-3 proposals wer discussed in the Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will be issued after getting MoHUA's approval.	MoHUA's approval was received on 01.10.2024 . The DPR is to be submitted by the ULB for placing in the SLTC/ SHPSC for approval of AS. The ULB has called for Expression of Interest for executing the project in DBOT mode on 30.10.2024 with 20.11.2024 as the due date.	31.03.2027
51	STP at Kothi, Kozhikode Corporation (AMRUT-2.0)	Kozhikode Corporation/ AMRUT	6	DPR Stage			
52	Construction of		7ML D	DPR stage	DPR Submitted to		

	7ML D capacity Sewage Treatment Plant and Laying Sewerage Network to Vatakara Municipality, Kozhikode				Govt and RKI for AS on 14/02/2023		
53	Kozhikkode corporation Zone F		4 MLD	DPR stage		Submitted to Govt and RKI for AS on 29.09.2022	
54	STP at Vadakara Municipality, Kozhikkode	IMPACT KERALA Ltd	0.5 MLD Sewage TP 20KLD FSTP 20KLD	DPR stage	G.O(MS)No.88/2024/AGRI dated 13.08.2024 received from Agriculture (NCA) Department regarding land conversion.	Land identified is wetland. Unnotified land conversion process ongoing. **Consultant submitted modified DPR. TAR reply to be obtained.**	-
55	10 KLD Sewage Treatment Plant at EMS Memorial Municipal Town Hall, Koyilandy Municipality, Kozhikkode		0.01	Tendering Stage		Municipality to transfer the fund to KWA.	
56	ETP at Govt Ayurvedic Hospital, Talayad, Panangad Grama Panchayath, Kozhikode		0.03	DPR Stage		DPR under correction by the agency after placing in Technical Committee	
KANNUR							
57	Thalassery, Kannur		22	DPR Stage		DPR Submitted to Govt and RKI for AS on 28/11/2022	
58	Kannur corporation Zone 1		13	DPR Stage		DPR Submitted to Govt and RKI for AS on 25/11/2022	

59	Payyannur, Kannur		13 MLD	DPR Stage		DPR Submitted to Govt and RKI for AS on 25/11/2022	
60	STP with Septage Cotreatment Capability at Maithanappally, Kannur Corporation (AMRUT-2.0)	Kerala Water Authority	5	AS to be Issued	The Tranche-3 proposals were discussed in the Apex Committee of MoHUA held on 23.09.2024 and approval is awaited. AS will be issued after getting MoHUA's approval.	MoHUA's approval was received on 01.10.2024. The DPR of the project is expected to be submitted by 30.11.2024 for placing in the SLTC / SHPSC for approval of AS.	31.03.2027
61	STP at Palayad, Taliparamba municipality, Kannur		1	DPR Stage		Valuation report has been approved by the Tahsildar. Decided to assigned revenue inspector for land registration process.	
62	200 KLD Sewage Treatment Plant - Mattannur Municipality – Reg		0.2	DPR Stage		• M/s Ram Biologicals has attended the State Suchitwa Mission to discuss the corrections in DPR. DPR under correction by the agency.	
63	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	
64	STP at old age home, Kannur		0.010		Tendering Stage	TS issued	
65	DPR for perumba fish market Payyanur Municipality, Kannur		0.01	Work tendered	New DPC project form taken and balance amount will be transferred to KWA from Municpality as they recieve 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 Work Awarded the fund. to IRTC. Council Decision not yet taken by ULB for work Agreement.	Estimate under preparation. Rs.66.5 lakhs deposited to KWA. Municipality to deposit the balance amount of Rs24 lakhs	
66	FSTP at Valliyayi, Mokeri GP				DPR under preparation. DPR will be submitted at SLTC on 06/06/2024 for approval.		
WAYANAD							
67	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.	DPR under verification by Local body	
68	Mananthavady, Wayanad		2 MLD	DPR Stage		Submitted to Govt and	

						RKI for AS on 29/09/2022	
KASARGOD							
69	200 KLD Wastewater treatment plant at Tata Trust Govt Hospital, Kasargod		0.2	DPR Stage		Local body decided to hand over the work of DPR preparation to another agency	
70	Kasargod Zone 1		4 MLD		At DPR stage	Private land identified . Action to be taken from land aquisition	
71	Kasargod Zone 2		4 MLD		At DPR stage	DPR Submitted to Govt and RKI for AS on 23/11/2022	
72	Taluk Hospital , Neeleswaram Municipality Kasaragod		0.040		At tendering stage	The tender-qualified agency is unwilling to accept the work. Hence action for council approval is being taken for arranging the work through accredited agency.	
73	135 KLD Capacity decentralized sullage Treatment plant at Uppala Town Mangalpadi, Kasaragod		0.135	DPR Stage	• DPR have to be modified to include sewer networks • The sewer network survey has been completed and DPR has been prepared.	DPR has been prepared.	
74	CHC, Mangalpady, Manjeshwar Block Panchayath, Kasragod		0.014	DPR tendering Stage	New project taken. Project revised as Mangalpady taluk hospital. DPC approved. DPR preparation by the agency DPC	DPR preparation delayed due to fund ambiguity for STP at Gram	

					approved. DPR preparation delayed due to fund ambiguity for STP at Gram Panchayats	Panchayats	
75	FSTP at Manjeswaram, Manjeswaram GP				DPR under preparation. Tendering process will start after the Election procedures.(06.06. 2024)		

Proposed Sewerage System

1	Sewerage system for Thiruvananthapuram Corporation-Cluster 1 Attukal, Ambalathara, Kaladi, Kalipankulam& K amaleswaram		7.0(for utilizing exixsting 107 MLD)		DPR in PRICE 3 Submitted to Govt and RKI for AS on 15.10.2022		
2	Preparation of DPR for proposed sewerage system to the Madhippuram colony and surrounding areas near VizhinjamHarbour, TVM		5				
3	Detailed Engineering Report for Sewerage Scheme in Neyyattinkara Zone I,TVM		2.5 MLD				
4	Detailed Engineering Report for the Sewerage scheme in Alappuzha Municipality with ST P – Phase 1		5 MLD		At DPR stage		
5	Detailed Engineering Report for the Sewerage scheme in		2.6 MLD				

	Haripad Municipality - Sewage Treatment Plant of Capacity 2.6 MLD– Phase 1 and Sewerage Network of L ength 58km – Phase 2, Alapuzha						
6	Comprehensive sewerage scheme-Government medical college, Kottayam		5 MLD		At DPR stage		
7	Sewerage System for Kattappana Municipality		1.76		DPR Submitted to Government of Kerala and RKI for AS on 19/09/2022		
8	Detailed Engineering Report for Sewerage Scheme in Kalamassery Municipality-Phase-1, Kochi		2.6 MLD		At DPR stage		
9	Sewerage System for Aluva –Zone 1		1.72		DPR Submitted to Government of Kerala and RKI for AS on 19.09.2022		
10	Sewerage system for Pattambi municipality		5.4		DPR Submitted to Government of Kerala and RKI for AS on 06.08.2022		
11	Sewerage system for Ponnani municipality(Kot tathara Zone) with STP of capacity 4.2 MLD		4.2		DPR Submitted to Government of Kerala and RKI for AS on 20.10.2022		
12	Decentralized Sewerage Scheme (STP at Kokkala), Thrissur Corporation (AMRUT-2.0)		2.5	AS to be Issued	Decision of SLMC on changing the category of the proposed land is awaited.	The 12thSLTC held on 11.07.2024 has recommen ded the proposal to the SHPSC and the same will	31.12.2026

						be placed in the next SHPSC scheduled on 02.08.2024 . * It will be sent to MoHUA for approval after getting the approval of the SHPSC. AS will be issued after getting the MoHUA's approval.	
13	Sewerage System for Zone-A, Kozhikode Corporation (AMRUT 2.0)		13	AS to be issued:	Due to public protest and the ongoing court cases (there isa a stay by the Munsiff Court regarding the Avikkalthodu STP work) the ULB has proposed to combine the Kothi & Avikkalthodu sewerage projects and has proposed a 13 MLD STP at a new location (West Hill Industrial Estate).The 12thSLTC held on 11/07/24recommended the proposal to the SHPSC	The Tranche-3 projects were finalized in the SHPSC held on 02.08.2024 . The Tranche-3 proposals inclusive of this proposal were submitted to MoHUA on 24.08.2024 for approval. AS will be issued after getting MoHUA's approval	

Mobile FSTP

No.	Location	Implementing Agency	Capacity of the STP proposed in MLD	Status of Project (in Detail)	Incremental Progress - June	Likely Date of Completion of DPR preparation/ Tendering
1	Mobile Treatment unit – Chalakudy – by BHOUMA ENVIROTECH PVT LTD		0.036	Operational		
2	Mobile Septage Units- 2 nos, Alappuzha Municipality (AMRUT-1,0)	Alappuzha Municipality/ AMRUT	0.02 (0.01 x 2 nos.)	Under Construction	Installation of components and process of registering the vehicles are ongoing. Delivery of one unit is expected by 06.11.2024 and the other by 30.11.2024	31.10.2024
3	Mobile Treatment Unit - Kodungalloor, Neyyattinkara, Chirayinkeezhu, Kumarakam, Wadakkancherry			proposal stage		

IV.Details of Industrial Pollution:

As per Dossier: As on 2020

- Total registered industrial and non industrial units –**129915**
- Total Effluent and Sewage & Sullage Generating units: 14422 (Large & Medium: 1298; Small: 13124)
- Quantity of Effluent and Sewage & Sullage generated from 14422 units = 178.36 MLD (Large & Medium: 156.3 MLD – mentioned in MPR for the month of Jan, 2021; Small: 22.059 MLD)
- Total Effluent Generating units: 11551 (Large & Medium: 298; Small: 11253)
- Quantity of Effluent generated from 11551 units = 107.08 MLD (Large & Medium: 94.3 MLD ; Small: 12..78 MLD)

(Note: the value is recalculated by considering only effluent generating industries)
New units as per Online Consent system of the Board (from 2022 onwards)

- Total Effluent Generating units: 400
- Quantity of Effluent generated = 13.771 MLD
- Quantity of effluent generated from the industries in MLD = 120.851 MLD
- 15095 consents issued in 2023- More industries are brought under consent purview
- 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.
- 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- 7.6, TSS – 32 mg/l, BOD – 4 mg/l, COD – 28 mg/l, O & G – BDL, FC- Nil as per analysis report dated 29/08/2024.
CETP,KINFRA,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
KSIDC Mega Food Park, Pallipuram, Cherthala, Alappuzha	2 MLD	0.5 MLD	Operational	6		pH-8.8 mg/L, BOD-78 mg/L, SS- 10 mg/L O&G-BDL , as per analysis report dated 18.10.2024
Sea Food Park (India) Ltd., Aroor, Alappuzha	0.3 MLD	0.3 MLD	Operational	10		pH-8.4 mg/L, BOD-60 mg/L, SS-10 mg/L O&G-BDL , as per analysis report dated 17.10.2024
Kinfra Small Industries Park Nellad, Mazhuvanoor	0.4 MLD	0.4 MLD	Operational	15		pH- 7.12, BOD- 10.18 mg/L, COD-44 mg/L, Oil and Grease-BDL, Total Suspended Solids – 194 mg/l, Fluorides < 1 mg/L, Chlorides-284.9 mg/L, Phosphate – 0.95 mg/L, Nitrate- 3.87 mg/L, Sulphates – 23.79 mg/L, Sulphides - BDL, Ammoniacal Nitrogen -

						0.0069 mg/l, Phenolic Compounds - BDL, as per analysis report dated 15.10.2024 Action is taken for preventing exceedance. EE DO-2 is authorized to initiate legal actions as per letter No. KPCB/172/2024-EE-1 dated 20.02.2024 and action is being taken.
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- 7.75, BOD- 6.31 mg/L, COD- 112 mg/L, Oil and Grease-BDL, Total Suspended Solids - 180, TDS – 6.99 mg/l, Chlorides-34.99 mg/L, Sulphates – 41.78 mg/L, Sulphides - BDL, Fluorides < 1 mg/L, Ammoniacal Nitrogen – 0.018 mg/l, Phenolic Compounds - BDL, Phosphates – 0.68 mg/l, Nitrate – 9.68 mg/l and Total Residual Chlorine - BDL as per analysis report dated 15.10.2024 Action is taken for preventing exceedance.
CSEZ, Kakkanad, Cochin Special Economic Zone Ernakulam	1 MLD		Operational	14		• pH-7.9,TSS-19 mg/l, phosphate-0.47 mg/l, sulphide-BDL , ammonical nitrogen - BDL, BOD-3.6 mg/l, COD-12 mg/l, iron-0.36 mg/l, Nitrate as

						nitrogen- 44 mg/l, Fluorides – 0.2mg/l, Sulphate – 110 mg/l, Oil & grease – BDL, Phenolic compounds – BDL, cyanide – BD, Copper- BDL analysis report dated 19.04.2024 • Inspection conducted by Board on 14.02.2024. As per the analysis report dated 31.07.2023, all parameters except Nitrates and Phosphates exceeds the prescribed limit. • Meanwhile CSEZ operated a tertiary units (Softner, degaser, RO, MEE etc.) as trial run.
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 as per report dated 09.02.2024
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)	Sanctioned Rs. 10 crore in the 2024-25 annual budget for the construction CETP	ACCEPT Environment Solutions have submitted a project proposal.	
KINFRA Spices Park, Muttom, Idukki	0 .120 MLD		• ICO issued. CETP is ready to operate		Industries have not started functioning.	

Effluent Treatment Plant

Sl. No.	Industry Name	Industry Type	Consumption of water in MLD	Effluent Quantity in MLD	Mode of disposal	ETP Units	Date of monitoring	Limiting Standard	Latest Analysis report	
KOLLAM										
1	Kollam Dairy	Dairy	0.2	0.12	Irrigation and gardening	Screen Chamber,Collection	19-08-2023	pH 5.5-9, SS-100 mg/L,	pH-8.5, S.S-85.4, BOD-28, Oil&gre	

						Sump,Anaerobic Reactor – I & II,Aeration Tank,Secondary Clarifier,Dual Media Filter,Sludge Drying beds,Treated water pond		BOD-30, Oil&grease-10mg/L	ase-0.0317	
PATHANAMTHITTA										
1	Muthoot Honda ,Muthoor , TVLA ,PTA	Service Station				ETP	11.09.2024	pH-5.5 to 9, BOD-30,SS-100,O&G-10	pH-7.5,BOD-17,SS-82,O&G-7.6	All parameters are within the limit
2	Maniyattu,Auditorium,Kumbanad, Thiruvalla	Auditorium				ETP	13.09.2024	pH-6.5 to 8.5, COD-150,SS-50,O&G-10	pH-7.9,COD-144,SS-76,O&G-12	
3	Kreem Foods PVT LTD ,Maroor P.O, Elamannoor	Food Processing Unit				ETP		pH - 5.5 to 8.5, TSS - 100, BOD - 30, O&G - 10	pH - 8.5 to 8.5, TSS - 220, BOD - 14, O&G - 10	
KOTTAYAM										
1	Kavanar Latex Limited	Crepe/crumb rubber	0.3212	0.3212	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 parameter are within the limit

IDUKKI										
ERNAKULAM										
1	Fact Ltd., Petrochemical Division, Eloor, Udyogamandal	Petrochemical Unit	13.97	5.04	Periyar-downstream of Pathalam bund	Neutralisation, Equalisation, Bio pond, Guard pond, Final clarifier, Denitrification reactor	25/05/2024	pH - 6.5 - 8.0, nitrates - 20mg/l, free ammonia - 5 mg/l, TKN - 100mg/l, oil and grease - 10mg/l, phenolic compounds - 1mg/l, ammoniacal nitrogen - 50mg/l, SS-30mg/l, BOD - 30mg/l, COD - 250mg/l	pH - 6.67, nitrates -NA, free ammonia - NA, TKN - NA, oil and grease - BDL, phenolic compounds - NA, ammoniacal nitrogen - NA, SS-56, BOD - 12mg/l, COD - 80mg/l	Analysed parameters are conforming to the standards.
MALAPPURAM										
1	HOTEL DELICIA MALAPPURAM				soakpit	screen chamber,oil and grease,trap collection tank,aeration tank,settling tank - filter feed tank,pressure sand filter,chlorination,activated carbon	23.05.2024	PH-6.5-8.5,BOD-30,COD-250,TOTAL SUSPENDED SOLIDS-100,OIL AND GREASE-10	PH-7.3,BOD-120,COD-600,TOTAL SUSPENDED SOLID-106,OIL AND GREASE-BDL	Analysed parameters are conforming to the standards.

						filter				
KASARAGOD										
1	Standard green enegy	Rendering plant	0.035	0.034	Cooling tower, boiler feed, vehicle washing, gardening and soak pit	ETP	29.06.2024		pH - 7.41, TSS - 14, BOD - 16, Oil and grease - 10	

Solid Waste Management

- The state has taken strong measures to implement effective waste management systems and enforce regulations designed to streamline the operations. Acknowledging the urgent need for sustainable waste practices, a comprehensive strategy has been developed that encompasses infrastructure improvements, public education initiatives, and the establishment of strict policies. To support this, the Government of Kerala enacted Amendment Ordinances to the Kerala Municipality Act and the Kerala Panchayat Raj Act on December 8, 2023.

- Under the revised legislation, all citizens are required to submit segregated waste to their local body or to an authorized agency for proper scientific processing. Local bodies may also face fines for failing to act in accordance with state government directives. Furthermore, institutions and commercial establishments are now obligated to keep their premises litter-free and ensure that all waste generated is disposed of properly. These activities are closely monitored at both the local and state levels to ensure effective implementation.

- In the state, a total quantity of 10076.17 TPD waste is being generated as per present population, in which 3011.23 TPD of waste is produced in urban and 6561.12 TPD in rural areas, respectively, Approximately 73% of the waste generated is organic material and in the remaining portion, 22% is inorganic waste and 5% reject material. Out of 10076.17 TPD waste generated in the state, 7398.64 TPD is biodegradable waste, 2173.72 TPD is non biodegradable waste and 503.81 TPD is inert.

- The State's policy on biodegradable waste management adopts a decentralized approach, emphasizing source-level treatment of biowaste generated by households. This policy encourages the use of composting devices and biogas plants at the household level to process organic waste, thereby reducing the burden on centralized waste management systems. To address gaps where households may lack capacity, community facilities are implemented to manage surplus waste. This integrated approach promotes sustainability by minimizing transportation needs, reducing landfill waste, and fostering the production of renewable resources like compost and biogas, while also encouraging community participation and local solutions.

- Dry waste generated from households and institutions is collected and transported to Material Collection Facilities (MCFs) or Resource Recovery Facilities (RRFs), where it is segregated into recyclable and non-recyclable waste. The recyclable waste is sent to recycling units, while non-recyclable waste is directed to co-processing facilities, such as cement plants, for energy recovery. After separating biodegradable and non-biodegradable waste from the total waste generated, the remaining portion, known as inert waste, is utilized to fill low-lying areas, offering an environmentally sustainable method of disposal`

1. BIODEGRADABLE WASTE MANAGEMENT

For biodegradable waste management in the state, various composting devices and biogas units are utilized to manage wet waste at its source. The compost produced from household waste treatment is used as fertilizer for gardening in individual residences. Approximately 80% of the total biodegradable waste generated is managed at the source, while the remaining 20% is handled by community-level facilities operated by local bodies.

Depending on land availability, a range of medium-capacity decentralized composting facilities—such as aerobic compost units, organic waste converters, windrow plants, and biomethanation facilities—have been widely established across Kerala. The compost generated from community facilities is branded and marketed as fertilizer to local farmers through the Krishi Bhavans within the local body. Additionally, centralized facilities, like compressed biogas (CBG) plants, are being planned and implemented to manage waste more economically. Construction of a CBG plant in Ernakulam district has already begun, and six

other projects are in the planning stages.

Table 1. Biodegradable Waste Management Facilities in the State

District Name	Total BDW Generation (TPD)	Total capacity of Compost plants (TPD)	Total capacity of Bio methanation plants (waste to energy plants) in TPD	Total Rendering Capacity (TPD)	Total BDW Processing Capacity (TPD)
01 Thiruvananthapuram	774.83	750.68	90.87	0.00	841.54
02 Kollam	567.14	347.93	67.28	15.00	430.21
03 Pathanamthitta	224.92	159.62	27.97	30.00	217.60
04 Alappuzha	424.15	410.21	62.08	0.00	472.29
05 Kottayam	393.31	325.35	31.12	27.00	383.47
06 Idukki	208.38	260.04	17.86	0.00	277.90
07 Ernakulam	779.34	571.42	72.48	242.00	885.90
08 Thrissur	691.90	530.48	92.47	6.50	629.45
09 Palakkad	601.79	424.06	99.66	93.25	616.97
10 Malappuram	968.70	534.50	126.00	278.50	938.99
11 Kozhikode	744.15	742.64	63.67	30.00	836.31
12 Wayanad	170.56	184.52	14.40	12.00	210.92
13 Kannur	564.81	477.63	57.91	54.00	589.54
14 Kasaragod	284.68	190.41	27.99	110.00	328.40
Grand Total	**7398.64**	**5909.49**	**851.74**	**898.25**	**7659.48**

For managing the 7398.64 TPD of biodegradable waste generated, there is a facility of 7659.48 TPD across the state and hence there are no existing gaps. In order to account for the future generation, the state is taking steps to strengthen the source level treatment system in rural areas and to establish centralized facilities in urban areas. With the available financial support from central and state, 2926.39 TPD capacity bio waste management facilities have

already been installed at household, institutional and community levels in urban areas.

2. NON-BIODEGRADABLE WASTE MANAGEMENT

For managing dry waste, women's self-help groups known as Harita Karma Sena collects primarily segregated dry waste from households and establishments, transferring it to Material Collection Facilities (MCFs) and Resource Recovery Facilities (RRFs) for further sorting and processing. At these facilities, after secondary segregation, recyclable waste is sent to recycling units, while non-recyclable waste is transported to co-processing facilities, such as cement plants, where it is used as Refuse-Derived Fuel (RDF) for energy recovery. Both government and private agencies ensure the safe transportation of waste.

Table 2: Details of Solid Waste Management facilities in the state

Facility	Up to March 2023	Up to Oct 2024
RRF	93 Nos	167 Nos
MCF	1182 Nos	1272 Nos
Mini MCF	9357 Nos	19156 Nos
Godown facility	16 Nos	67 Nos
Godown Area	85,250 Sqft	481548 Sqft
Container storage facility		198 No.s

The state has made significant investments in infrastructure for the storage of dry waste. Currently, there are 167 Resource Recovery Facilities (RRF), 1272 Material Collection Facilities (MCF), 19156 Mini Material Collection Facilities (Mini MCF), and 67 storage godowns covering an area of 4,81,548 square feet. Additionally, 198 used shipping containers have been repurposed for waste storage, facilitating easier transportation of waste.

Table 3. Non Biodegradable Waste Management Facilities in the State

District Name	Total NBDW Generation	Facilities in Local Bodies (TPD)	CKCL Godown Facility (TPD)	Pvt agency Godown facility (TPD)	Total NBDW processing Capacity (TPD)
01 Thiruvananthapuram	239.67	127.68	87.36	23.20	238.24
02 Kollam	166.30	124.43	92.94	6.25	223.61
03 Pathanamthitta	63.41	61.87	29.74	28.98	120.59
04 Alappuzha	121.05	137.13	44.61	4.00	185.74
05 Kottayam	111.78	108.09	74.35	2.00	184.44
06 Idukki	57.58	58.77	89.22	0.46	148.44
07 Ernakulam	239.46	151.45	78.07	10.50	240.02
08 Thrissur	203.75	212.45	44.61	3.00	260.06
09 Palakkad	169.08	132.62	31.23	9.00	172.85
10 Malappuram	278.08	166.42	102.60	14.60	283.63
11 Kozhikode	226.63	127.07	29.74	49.96	206.77
12 Wayanad	48.43	29.10	37.17	5.00	71.28
13 Kannur	168.45	164.94	118.96	2.45	286.35
14 Kasaragod	80.06	84.46	74.35	1.00	159.81
Grand Total	**2173.72**	**1686.48**	**934.94**	**160.40**	**2781.83**
Kerala Enviro Infrastructure Ltd (KEIL)					16.00
Grand Total (TPD)					**2797.83**

All local bodies have developed comprehensive plans for the movement of vehicles to collect waste from households and transport it to processing facilities. The implementation of these plans is monitored at both the district and state levels through the Harithamithram App, ensuring efficient waste collection without accumulation and adequate availability of vehicles

for waste management. To enhance oversight, all waste-transporting vehicles are required to have GPS tracking, and the Kerala State Pollution Control Board has set up a web portal for real-time monitoring of waste-carrying vehicles, both within and across state borders.

Efforts are also underway to equip Material Collection Facilities (MCFs) and Resource Recovery Facilities (RRFs) with the necessary tools for effective waste management, such as conveyor belts and baling machines. To enable easier transportation and reduce the reliance on landfills, the generated reject waste can be converted into Refuse Derived Fuel (RDF). In line with this, four RDF plants have been established in the Thiruvananthapuram and Cochin Corporations. Additionally, the government is working with local bodies to implement interventions for setting up cluster-level facilities across the state. RDF plants help divert non-recyclable waste from landfills, which reduces the volume of waste that needs to be disposed of, extending the lifespan of landfills and reducing the associated environmental hazards.

Additionally, Information, Education, and Communication (IEC) initiatives have been intensified to discourage open littering. Local Self-Government Institutions (LSGIs), as well as public and private sector entities, are being ranked based on their performance in waste management and cleanliness. To enforce regulations and prevent illegal dumping, 23 enforcement squads were established in March 2023 to carry out inspections and ensure compliance. Furthermore, control rooms are being set up at the district and local self-government levels to closely monitor waste collection and ensure its proper disposal.

3. LEGACY WASTE MANAGEMENT

Legacy dump sites are remediated through biomining, a process that utilizes microorganisms and natural methods to excavate, treat, segregate, and recover valuable materials from long-accumulated waste dumps. These legacy wastes consist of organic matter, plastics, metals, and other materials that have been compacted and decomposed over many years. The soil produced from biomining is utilized to fill low-lying areas at various locations. This process effectively sorts the waste into various categories, including soil, stones, RDF, glass, plastic, tires, wood, and footwear.

A total of 59 dump sites have been identified across the state, consisting of the previously reported 44 sites and 15 newly identified sites. Bioremediation has been completed at 24 sites,

while work is currently ongoing at 10 sites. The remediation process is set to commence at 25 additional sites. The quantities of processed and unprocessed waste are detailed in the table below.

Table 4. Details of processed quantity of biomining sites

	Number of Sites	Processed quantity (MT)	Unprocessed quantity (MT)
Total Reported sites	**44 Nos.**	**17,61,871.98 T**	
Completed Sites	19	345793.15 T	
Work in progress	10	461367.00 T	644157.16 T
Not yet started	15		310554.19 T
Total		**807160.15 T**	**954711.35 T**
Newly identified sites after 2018	**15 Nos.**	**129486.19 T**	
Completed Sites	5	12,485.4 T	
Not yet started	10		117001.19 T

Remediation Completed Sites

	Name of Districts	Name of Local Body	Legacy waste site (district wise)	Quantity of waste (in MT) in each site
1	Thiruvananthapuram	Thiruvananthapuram Corporation	Palayam market	4804
2	Thiruvananthapuram	Thiruvananthapuram Corporation	Erumakuzhi, near chala market	900
3	Kollam	Kollam Corporation	Kureepuzha	83926
4	Pathananmthitta	Pathanamthitta Municipality	Near Mini stadium, PTA	800
5	Pathananmthitta	Adoor Municipality	Kaimalapara, Ward no. 2, Adoor	500
6	Pathananmthitta	Pandalam Municipality	Near RRF Unit, pandalam	400
7	Ernakulam	Kalamassery Municipality	Kalamasseri	35000

8	Thrissur	Kodungalloor Municipality	Pullut, Chappara, Kodungalloor	26000
9	Thrissur	Guruvayur Municipality	Choolpuram, Guruvayoor	20000
10	Thrissur	Kodungalloor Municipality	T.K.S. Puram, Kodungalloor	607
11	Palakkad	Pattambi Municipality	Pattambi, Sankara mangalam	1041.15
12	Malappuram	Malappuram ulb	Puliyettummal,Near Inkel city, Malappuram	5079
13	Malappuram	Tirur ulb	Trenching ground, Ottilathara	3079
14	Malappuram	Perinthalmanna Municipality	Perinthalmanna, Kunnappalli	200
15	Malappuram	Manjeri Muncipality	Vettekkode, Manjeri	13902
16	Kozhikkode	Kozhikode Municipal Corporation	Kalliyi,ward-56,beside the river	15
17	Kozhikkode	Koyilandy Municipality	Koyilandi	40
18	Kozhikkode	Kozhikode Municipal Corporation	Njaliyan parambu	130,000
19	Thrissur	Thrissur Corporation	Laloor	19500
		Total		**345793.79**

Remediation work in progress

Sl No.	Name of Districts	Name of Local Body	Legacy waste site (district wise)	Quantity of waste (in MT) in each site
1	Thiruvananthapuram	Attingal Municipality	Attingal, Chudukad	11365
2	Kottayam	kottayam municipality	Vadavathoor, Kottayam	80943.2
3	Ernakulam	Kothamangalam Municipality	Kumbalathumuri, Kothamangalam	19146
4	Idukki	Thodupuzha Municipality	Parakadavu, Thodupuzha	28000

5	Ernakulam	Kochi Corporation	Brahmapuram, Kochi	843000
6	Thrissur	Chavakkad Municipality	Chavakkad	5000
7	Thrissur	Wadakkanchery Municipality	Kumbalangad	21063
8	Palakkad	ottapalam municipality	Panamanna, Ottappalam	37600
9	Kannur	Kannur Corporation	Chelora	43727.32
10	Kannur	Mattannur Municipality	Mattannur, Karithurparamba	15680
		Total		**1105524.16**

Remediation Work about to start

SL No.	Name of Districts	Name of Local Body	Legacy waste site (district wise)	Quantity of waste (in MT) in each site
1	Alappuzha	Kayamkulam Municipality	Murikkummoodu, Kayamkulam	6567.04
2	Alappuzha	Alappuzha Municipality	Sarvodhayapuram	57200
3	Kottayam	Changanassery Municipality	Fathimapuram, Changanassery	7300
4	Kottayam	Erattupetta Municipality	Erattupettah, Thevarrupara	8000
5	Idukki	Kattappana Municipality	Kattappana, Puliyanmala	12000
6	Ernakulam	Muvattupuzha Municipality	Kurianmala, Muvattupuzha	44589
7	Thrissur	Irinjalakuda Municipality	Iringalakkuda, Mangadikunnu, Porathissery	14000
8	Palakkad	Palakkad Municipality	Koottupatha, Kodumba	73827
9	Wayanad	Kalpetta Municipality	Vellaramkunnu, Kalpetta	9485.375
10	Kannur	Thalassery Municipality	Thalassery, Punnoolpetty palam	45430.4
11	Kannur	Iritty Municipality	Iritty, Athithattu	1618.49
12	Kannur	Payyannur Municipality	Payyannur, Moorikkovval	2100
13	Kannur	Kuthuparamba Municipality	Palapparamba, Kuthuparambu	12081.6
14	Kasaragod	Kasaragod Muncipality	Kelugudde, Kasaragod	12873.6
15	Kasaragod	Kanhangad	Kanjhangad, Trenching	3481.69

		Muncipality	Ground Chemmattamvayal	
				310554.195

Newly identified sites

Sl. No.	Name of Districts	Name of Local Body	Legacy waste site (district wise)	Quantity of waste (in MT) in each site
1	Thiruvananthapuram	Thiruvananthapuram Corporation	Vizhijam	3177.1
2	Kollam	Kottarakara Municipality	Ugrankunnu, Kottarakkara	6596
3	Alappuzha	Mavelikkara Municipality	Puthiyakavu, Mavelikkara	2880
4	Kottayam	Mundakkayam Grama Panchayat	Mundakkayam	4000
5	Kottayam	Erumeli Grama Panchayat	Erumeli	1500
6	Idukki	Munnar Grama Panchayath	Munnar	18163
7	Ernakulam	Koothattukulam Municipality	Town-Ward 15, Koothattukulam	1346
8	Ernakulam	North Paravoor Municipality	Vedimara, North Paravoor	18666
9	Thrissur	Chalakudy Municipality	Near Cosmos Club, Chalakkudy	6769
10	Thrissur	Wadakkanchery Municipality	Wadakanchery, Kumblangad	16152
11	Palakkad	Alathur Gram Panchayat	Alathur	1824
12	Palakkad	Vadakkancheri Gram Panchayat	Vadakkanchery	1520
13	Palakkad	Nemmara Grama Panchayat	Nemmara	3641.4
14	Kozhikode	Vatakara Municipality	Puthiyappu, Vadakara	30693.6
15	Kasaragod	Mangalpady Grama Panchayat	Kubanoor	12557.6
		Total		**129486.19**

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

- Current Municipal Solid Waste Generation : 3011.23 TPD (Urban local bodies- Based on population)
- Processing Capacity : 3870.35 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.

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

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 27. These plants will have a cumulative capacity of 23.05 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	2	2
2	Kollam	7	5
4	Alappuzha	1	1
5	Kottayam	2	2
6	Idukki	1	1
7	Ernakulam	1	3
8	Thrissur	4	0.55
9	Palakkad	1	1

10	Kannur	4	2.5
11	Kasargod	4	5
TOTAL		**27**	**23.05**

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 is segregated at MCFs and is sent to cement factories for onward utilization for energy generation.

Quantity of Reject Waste disposed off

	Reject Quantity (TPD)
From LB Facility	403.37
From CKCL facility	337.08
From Private Facility	59.89
TOTAL	**800.34**

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 Word Bank)

Name of Districts	Waste Management Projects		
	No. of Projects	Fund Earmarked (in Cr.)	Fund Expended
Thiruvananthapuram	1449	158.32	3.77
Kollam	1357	114.93	2.84
Pathanamthitta	870	47.03	1.3
Alappuzha	1192	92.64	4.42
Kottayam	1187	80.4	3.27
Idukki	765	53.52	2.13
Ernakulam	1483	129.11	4.65
Thrissur	1400	134.3	7.38
Palakkad	1251	80.85	4.61
Malappuram	1446	103.75	9.49
Kozhikode	1271	131.74	5.31
Wayanad	397	34.69	1.48
Kannur	1066	110.31	7.11
Kasargod	692	54.22	2.45
Total	**15829**	**1325.81**	**60.21**

Details of World Bank funded projects

World Bank funded					
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 31/03/25 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	320	96.88	56.82	154.82
II	**Component 2**				
2	ULB level Investments (procurement of SWM Goods & Works)	1,200.00	284	2.85	79.85
III	**Component 3**				
3	Dumpsite Remediation	120	61	0.28	62
4	Regional Infrastructure	760			82.28
	Total	**2,400.00**	**441.88**	**59.95**	**378.95**

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 **1068** TPD of poultry waste which would have ended-up as waste and created a menace to the people.

Details of Existing Rendering Plants

District	**No. of plants**	**Plant Capacity (TDP)**
Thiruvananthapuram	0	0
Kollam	1	185
Pathanamthitta	1	30
Alappuzha	0	0
Kottayam	0	0
Idukki	0	0
Ernakulam	7	242
Thrissur	2	6.5
Palakkad	6	93.25
Malappuram	16	305.5
Kozhikode	1	30
Wayanad	1	12
Kannur	2	54
Kasargod	2	110

	39	**1068.25**

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

Status of proposed Waste- to- Energy Plants

Status report of Waste to Energy Plant				
Sl. No.	Waste to Energyplant	Land Identified	Procured	Status
1	Kozhikode Njaliyanparambu (450 TPD)	Kozhikode corporation	(Govt. land)12.67acre at Njaliyanparabu	• Concessionaire not achieved financial closure. • Recommended for termination
2	Kannur Chelora	Kannur Corporation	(Govt. Land) 9.7 acres at Chelora	• Work of - 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.Biomining already started. • Agreement to be executed Biomining is already started (6500) cum is biomined (50%).
3.	Palakkad Kanjikode	Palakkad Muncipality		• Concession awarded. • DPR approved. • Financial closure achieved.

				• Statutory clearances obtained • Construction of plant to commence on September 2024.
4	Kollam Kureepuzha	Kollam Corporation	7.05 acres at Kureepuzha (Govt. land)	• Concessionaire not achieved financial closure. • Recommended for termination
5	Ernakulam Brahmapuram	Kochi corporation		• Construction of CBG Plant ongoing
6	Thrissur	Thrissur corporation		Land is yet to be Identified.
7	Malappuram	Malappuram munciplaity	8.09 acres of land at Kurumbathoor village in Tirur Taluk	• 8.09 acres of land identified by District Administration at Kurumbathur village. 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. Haritha Mithram 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.

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 2016-2024, Clean Kerala Company Limited (CKCL) has produced 3617 MT of shredded plastics and given to various agencies (NHAI - 13.93 MT, PWD - 1635.25 MT, LSGI - 1710.64 MT). The total length of polymerized road constructed during this period using shredded plastic is 5925.78 km.

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 46,906 inspections to date, identifying 12,409 violations and punishment actions have been taken. A fine amounting to Rs. 1,56,76,606/- has been collected. Additionally, approximately 172,535.409 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 650 local self-government bodies, on date.

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

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 Manageme
nt 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 2023-24:

- Total Bio-medical generation: 68122.53 kg/day
- No. of Hospitals and Health Care Facilities: 24196
- Existing Total Bio- Medical treatment capacity (captive and CBMW) : 71.8 TPD
- Total Bio-Medical waste treated : 62.33 TPD (Common- 60.97 kg/D + Captive- 1.36 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 2023-24:

- Total Hazardous Waste generation: 44915.3351 Metric Tonne/year
- Total hazardous waste recycled: 2727.8695 Metric Tonne/year
- Total hazardous waste utilized: 54.165 Metric Tonne/year
- No. of Industries generating Hazardous waste: 2302
- Treatment Capacity of all TSDFs in the State: 27,50,000 MTA for 45 years
- Total hazardous waste treated (captive and Common) : 57451.16 Tonne/year

VIII . Plastic Waste Management:

- Total Plastic Waste generation: 71000 TPA (as per annual report in the whole state for the year 2023-24).
- Material Collection Facility – 17699 nos.; Resource Recovery Facility-136 nos.
- Gap between current status and desirable level : 2317.266 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
- 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, Hydrabad, 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 on24/08/2023. .In the meeting it was decided to constitute a committee for the establishrnent of .lohkasou 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, 23.03.2024, 12.06.2024,01.08.2024

- 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, 08.07.2024

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 dlem 2024 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. 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 of167 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. 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 65Lakhs dug wells in Kerala and the ground water extractions by means of traditional dug wells are prevalent source of fresh water. There are number of public dug wells left abandoned and needs renovation. These dug wells can be considered as suitable stretches to recharge ground water. The Central Groundwater Board has prepared a Block wise master plan in 2015 to take up artificial groundwater recharge to groundwater. The same can be used as a guideline to stream line groundwater recharge activities of the Department.

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

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

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

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.

Major Irrigation and Medium Irrigation

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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 un micro water shed basis. The recharge schemes are being implemented as a long term measures to achieve sustainable groundwater development in the State. The Department is engaged in recharging groundwater through roof top rain water harvesting in public buildings and government schools and giving priority to implement such structures in notified blocks. The Department has successfully implemented roof top rainwater harvesting through recharge pits to enhance groundwater levels of dug wells in the Kattakkada Constituency of Thiruvananthapuram District. The Constituency was officially declared in November 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 Departmenthascompleted370 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 AbhiyanProgramme by Ministry of Jal Shakthi 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 desiltating 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 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 IDRB 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.

- 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 IDRB 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, IDRB 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.

- 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. An interdepartmental Expert Committee has been constituted for calculation of e-flow. 3 Meetings of the committee have been convened, and as per decision of the committee, Kuttiyadi river was selected as pilot project for arriving the new methodology for e flow calculation, and CWRDM is assigned with carrying out same.

- Fisheries data for Kuttiyadi river was obtained from the Fisheries Department and data collection regarding cross section of river from the Hydrographic survey wing is in progress. Reconnaissance survey for 14.6 Km has been conducted by Hydrographic survey wing and detailed estimate submitted to Head office for approval. The methodology for E flow calculation of Meenachil river was carried out by IDRB. The methodology in this regard is under review. The methodology was presented in the 4th meeting of the Expert committee 06.06.2024

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
- AyarkunnamGrama panchayat, Kottayam - Conservation of Homonoiariparia along the banks of Meenachil River.
- MariyapuramGrama panchayat, Idukki - Harithapuram park- Eco restoration and conservation of Periyar River bank severely damaged due to flood.
- KotturGrama panchayat, Kozhikode - (a) Establishment of Biodiversity Park near Kuttiyadi river (b) Biodiversity gardens (50 units)
- VanimelGrama panchayat, Kozhikode - Conservation of Vanimel riverbank
- KurumathurGrama panchayat, Kannur – (a) Afforestation along tributaries of river banks of Kuttikol river, Valapattanamriver (b) Planting of Pandanus along canal banks
- MuzhakunnuGrama panchayat, Kannur – PuzhayoraOushadaSughandhaUdyanam along the banks of Aralamriver.

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

- Restoration of riparian vegetation on degraded river banks in selected 10 Grama Panchayats (Ayiroor, Cherukol, Kozhenchery, Ranni- Angadi, Ranni- Pazhavangadi, Ranni, Ranni-Perunad, Vadasserikkara, VechoochiraandNaranammoozhi) belonging to three Block Panchayats viz., Elanthoor, Koipuram and Ranni in Pathanamthitta district
- About 77,000 saplings of 93 species of riparian plants are being planted along a stretch of 93km.

- Ensure sustainable livelihood for the local people through providing training for developing microenterprises and establishing nursery of native species. Develop a sustainable community based management model of conservation of aquatic ecosystems.
- To create awareness and sensitize local population and students for promotion of riparian ecosystem services.

XXII. Reuse of Treated Water:

Possibility of utilizing the treated effluent for irrigation, gardening, industries, construction and recharge are being explored. 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

egarding the remedial action to restore sea water quality along the Indian Coastal areas, the Hon'ble NGT ordered that "All States/UTs through their concerned departments such as Urban/Rural Development, Irrigation &Public Health, Local Bodies, Environment, etc. may ensure formulation and execution of plans for sewage treatment and utilization of treated sewage effluent with respect to each city, town and village, adhering to the timeline as directed by Hon'ble Supreme Court. STPs must meet the prescribed standards, including fecal coli form . CPCB may further continue efforts on compilation of River Basin-wise data. Action plans be firmed up with Budgets/Financial tie up." In compliance with the order, CPCB instructed that the State PCB shall associate National Centre for Coastal Research, Chennai under Ministry of Earth Science for monitoring and assessment of coastal water within the jurisdiction of the Kerala State up to 5 km from shore and to evolve strategies for protection of the coastal areas in association with Coastal Zone Management Authority in the State and Prepare time bound comprehensive action plan along with implementing agency in consultation with Kerala State Coastal Zone Management Authority for control of coastal

pollution in Kerala State. Also the State Government has instructed the Board to prepare action plan by consulting CUSAT .Based on this, the Member Secretary of Kerala State Pollution Control Board has conducted meeting with officials of CUSAT, National Centre for Coastal Research, Kerala State Coastal Zone Management Authority and also with the field level officers through video conferencing.. The Action plan was forwarded to CPCB. CPCB put forward some suggestions and requested to modify the action plan upon concurrence with River Rejuvenation Committee. So, the Coastal Action Plan prepared has been forwarded to the concerned Stakeholder Departments for their remarks. Meetings in this regard convened on 23.07.2021 and 02.08.2021. The modified Coastal Action Plan was approved by RRC and the same has been submitted before State Govt. for approval. The Coastal Action Plan was submitted to CPCB with the approval of State Govt.

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

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

2015. Other Acts and Rules which govern the mineral administration of India applicable to the State are the following:

- The Mines Act, 1952 (Act 35 to 1952)
- The Mines Rules, 1955 (35 of 1952)
- The Metalliferous Mines Regulations, 1961
- The Mines Rescue Rules, 1985
- Mines Vocational Training Rules, 1966
- Payment of wages (Mines Rules , 1966)
- Payment of undisbursed wages (mines rules, 1989)
- The Indian Explosive Act, 1884
- Air (Prevention & Control of Pollution) Act, 1981(14 of 1981)
- Environment (protection) Act, 1986 (29 of 1986)
- Indian Registration Act, 1908 (Central Act of Act 16 of 1908)
- Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001
- Kerala paddy field and wetland conservation Act, 2008.
- Kerala Panchayath Act.

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

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

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

The Kerala District Mineral Foundation Rules 2018 has been formed with an objective to work for the interest and benefit of persons and area affected by mining related operations. The permissible activities under District Mineral Foundation includes among other things, developing sources of irrigation, development alternate sources of energy and rain water harvesting, conservation measures of biodiversity of the affected areas.

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

MEMBER SECRETARY