☎:General:0471-2312910,2318153,2318154,2318155Chairman: 2318150MemberSecretary:2318151
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KERALASTATEPOLLUTIONCONTROLBOARD

PattomP.O.,Thiruvananthapuram–695004

PCB/HO/EE3/NGT/673/2018/VOL-VIII/02/2021 Date: 19/01/2022

From

The Member Secretary

To

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

Sub:-Forwarding Monthly Progress Report for the month of December 2021-reg.

Ref:- Order of the Hon'ble NGT in the matter of O.A.No.673/2018

Sir,

This has reference to the above. The report prepared in revised format with respect to the progress in implementation of action plan of 21 polluted river stretches, for the month of December 2021is submitted herewith.

Yours faithfully,

A B Pradeep Kumar Digitally signed by A B Pradeep Kumar
Date: 2022.01.21 10:54:39 +05'30'

MEMBER SECRETARY

Encl: As above

National Mission for Clean Ganga
Format for submission of Monthly Progress Report 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 population of 3,37,77,386. Rural population in Kerala is 25,840,501 and urban population in the state is 79,36,885. Population projected for 2020 for rural area is 27,005,078 and for urban area is 82,94,583. The water consumption and wastewater generated are calculated based on the population projected for 2020.

II. Estimated Sewage Generation(MLD):

A draft dossier on Sewage and Sullage generation in the State of Kerala has been prepared by the Board. Based on the draft report:

- Estimate Sewage and Sullage generation in Urban area - 1058 MLD (Sewage – 317 MLD, Sullage- 741MLD)
- Estimate Sewage and Sullage generation in Rural area - 2917 MLD (Sewage – 875 MLD, Sullage- 2042MLD)
- Total Sewage and Sullage generation – 3975 MLD (Sewage – 1192 MLD, Sullage- 2783MLD)

III.Details of Sewage Treatment Plant:

- Existing no. of common STPs/FSTPs: 19 common STPs and 3 common FSTPs
- No. of functional common STPs in the state:18
- No. of functional common septage treatment plants in the state:2
- No. of common STP which has not started functioning:1
- No. of common FSTP which has not started functioning:1
- Total sewage treatment capacity in the state through existing common STPs: 129.476 MLD
- Total septage treatment capacity in the state through existing common FSTPs: 0.21MLD
- Sewage treatment capacity via individual STPs in establishments: 69MLD
- Treatment of sewage by septic tank- soak pit (Individual residences) -1011MLD
- Gap in treatment of sewage: 51.314MLD

- STPs completed as per the Action Plan submitted – 1) STP of capacity 0.01 MLD at Kumarichantha, Thiruvananthapuram 2) STP of capacity 0.03 MLD at Tirur Municipal Bus Stand, Malappuram. 3) **STP of capacity 5 MLD at Medical College, Thiruvananthapuram, STP of capacity 3 MLD at Chakkamkandam, Guruvayur, Thrissur.**
- Institutional level sewage/ septage treatment plant details received from Suchitwa Mission, Local Self Government Department, has additionally included in the MPR

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. At present only 60% of the 107 mld STP is used. Completion of ongoing works will enhance the utilization by 20%. Full utilization can be achieved only by expanding the sewer network.
- Considering the contamination of Karamana river and for providing sewerage systems for the 19 wards on the bank of this river, DPR prepared and submitted to GoK on 16.10.2021 for issuing AS under RKI. Sewer laying work of this 19 wards can be finished by 31/12/23, subject to the availability of funds. DPR for the remaining 81 wards for the full capacity utilisation of 107 mld STP is under preparation and expected to be completed by December 2021.
- 4.5 MLD STP at Elamkulam , Kochi (Activated sludge process) The existing Sewage Treatment Plant located at Elamkulam is having a capacity of 4.50 mld. The plant works in activated sludge treatment process. In Kochi existing sewerage system covers only 5% of Kochi Corporation. Present utilisation capacity of this plant is only 3MLD. DER for utilizing unutilized capacity of Elamkulam plant is under preparation. The plant was commissioned as early in 1959 and maintenance of the sewage Treatment Plant is done by KWA.
- 3 MLD STP at Guruvayur (Activated sludge process) The Guruvayoor Sewerage Project is planned to provide an effective sewerage system for the thickly populated area under Guruvayoor Municipality. The work completed and is functioning from September 2021. Length of network is approximately 7 km.
- 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.

Sl. No.	City/Town	STP location	Status	STP Installed capacity	Utilization	Process
1	Thiruvananthapuram**(PRS)**	Common Sewage Treatment Plant, Muttathara, Trivandrum maintained by Kerala Water Authority	Operational (Parameters complied with standards stipulated except for TSS)	107 MLD	65 MLD	ASP
		STP at Kumarichanda	Operational	0.01MLD	0.01 MLD	Bio membrane bioreactor Technology
		STP at Medical College, Thiruvananthapuram-Phase I & II **(PRS)**	Functional	5 MLD	Completed and Started Functioning	Biological
2	Pathanamthitta	Sewage Treatment Plant at Sannidhanam (5MLD) Maintained by Travancore Devaswom Board	Seasonally Operated during festival season**(**Parameters complied with standards)	5 MLD	3.5 MLD	UASB and SBR
		Sewage Treatment Plant at Pamba(3.5 MLD) maintained by Travancore Devaswom Board	Seasonally Operated during festival season(Parameters complied with standards stipulated	3.5 MLD	3.5 MLD	Coagulation &settling

			)			
3	Kottayam	STP for Houseboat (0.09 MLD)at Kumarakom maintained by District Tourism Promotion Council, Kottayam	Operational	0.09MLD	0.09 MLD	ASP
4	Ernakulam	Sewage treatment unit, Kerala Water Authority, Elamkulam, (3MLD)	Operational	4.5MLD	3 MLD	ASP
		STP owned by Greater Cochin Development Authority, Kadavanthra, Kochi (0.45 MLD)	Operational	0.45MLD	0.45 MLD	ASP
		Septage Treatment Plant at Brahmapuram, Kochi Corporation, Ernakulam	Operational	0.1MLD	0.1 MLD	MBBR
		Septage Treatment Plant at Wellington Island, Kochi Corporation	Operational	0.1MLD	0.1 MLD	MBBR
		STP at Kalamassery Market, Kalamassery Municipality(PRS)	Operational	0.01 MLD	started operation	
5	Kannur	Sewage treatment Plant at Taliparambu(0.5	Operational	0.5MLD	0.5MLD	ASP

		MLD) Taliparambu Municipality, Kannur				
6	Thrissur	Sewage treatment Plant at Guruvayur, Thrissur District	Commissioned	3 MLD	Not started functioning	ASP
		FSTP at Mattampuram	Completed. Not started functioning. *PCB issued permission for conducting trial run*	0.01 MLD	Not started functioning	BIOLOGICAL
7	Malappuram **(PRS)**	Sewage treatment Plant atMalappuram Municipal Bus stand	Operational	0.03 MLD	0.03 MLD	MBBR
		Sewage treatment Plant- at Tirur (fish market)	Operational	0.045 MLD	0.045 MLD	BIOLOGICAL
8	Adimaly Grama Panchayat, Idukki	Sewage treatment Plant at Comfort station, Adimaly Grama Panchayat, Idukki	Operational	0.01 MLD	Started functioning	Electro coagulation
9	Kozhikode **(PRS)**	Common Sewage Treatment Plant at Narayana nagaram, near stadium, Vatakara, Opp. New bus stand	Operational	0.1MLD	0.1MLD	MBBR
10	Wayanad	Sewage Treatment Plant at Taluk Hospital, SulthanBathery ,	Operational	0.14 MLD	0.05 MLD	*MBBR*

		Wayanad				
11	Thrissur	Revamping of 35 KLD STP at Kuriyanchira Slaughter House Corportation , Thrissur	Operational	0.035 MLD	0.035 MLD	*MBBR*
12	Idukki	Construction of 6 KLD ETP for Kumali Slaughter House Kumali GP, Idukki	Operational	0.006 MLD		EKID
13	Malappuram	STP at Municipal Bus Stand, Tirur **(PRS)**	Functional	0.05 MLD	Completed and Started Functioning	Biological
PRS – Polluted River Stretches						

Details of under construction ETPs / STPs in the State

No.	Location	Capacity of the plant in MLD	Physical Progress in %	Status of I&D or House sewer connections	Incremental progress	Completion Timeline
1	STP at Pambad Housing Colony Malappuram Municipality, Malappuram	0.110	75 % Completed	Work ongoing	Civil structure completed. *Mechanical equipment transported to the site.* Mechanical and Electrification going on.	*20/01/2022*
2	ETP in Fish Market, Ponmundam GP , Malappuram	0.01	98 % Completed	Work ongoing	Units are installed and trial runs are conducted. *Electrical TS obtained*	*20/01/2022*
3	STP at CHC Cherpu BP, Thrissur	0.01	45 % Completed	*Work delayed and will restart on 23/12/2021*	Concreting and plastering works completed.	*01/03/2022*
4	STP at	0.015	95 %	Work is delayed	Civil	*18/12/20*

	Chitumala Old Age Home. Chitumala BP, Kollam		Completed		structure, mechanical completed, partition, plastering, pipe connection and electrification work completed.	*21*
5	Constructio n of 45 KLD waste water treatment plant at Kalpetta Governmen t Ayurveda Hospital DP , Wayanad	0.045	60% work completed	*Work ongoing*	Tank construction and plastering completed.	*30/12/20 21*
6	STP at Kureepuzha-Phase I & II, Kollam (AMRUT)	12	*20%*	* *Clarifier (No.I), MBBR (No.II & III), Chlorine Room & Compound Wall works (all in undisputed land) are in progress.*	* *There is boundary dispute with nearby land owner. Public protest is there against the construction of STP at the location. Present progress is 23% can be completed by June 2022. But the land acquisition issue is yet to be sorted out*	*31.05.2 022*
7	STP at Elamkulam, Kochi (AMRUT)	5	*65%.*	* *MBBR Tank (No.I), Inlet Chamber, Secondary Clarifier & Equalization Tank works are in progress.*	Present project progress is 65%. Current project is going as per schedule and expected to be completed by March 2022	*30.06.2 022*

8 & 9	STPs at Medical College with Septage Treatment, Kozhikode (AMRUT)	3.1 (2 MLD with 100 KLD septage treatment & 1MLD)	*20%*	*Work started* * *2.1 MLD STP & sewer pipe laying works are in progress.*	* *2.1 MLD STP & sewer pipe laying works are in progress.*	*30.09.2022*
10	*Decentralized sewerage network with STP in old Kannur Municipal area, Kannur (AMRUT)*	*1*	* *7%*	*Work started* * *Work is in progress.*	** Vetted civil structure drawing was received from the Govt. Engg. College, Kannur on 11/11/21.* ** Approved network drawing was given by the Consultant on 16/11/21.* ** There is public protest against the construction*	*31.12.2022*

					of STP. ** Site office cabin erection, construction fencing & setting out works have been completed.* *Piling works are expected to be started soon.*	
11	*135 KLD Capacity decentralized sullage Treatment plant at Uppala Town Mangalpadi, Kasaragod*	*0.135*	*Tendering stage*	*Delayed due to land dispute.Now settled*		*69*
12	*Sewage Treatment plant at Private Bus stand, Thodupuzh a Thodupuzha Municipality , Idukki*	*0.030*	*Tenderin g stage*	*Tendering stage*		
13	*Taluk Hospital Adimaly ,Adimaly Block Panchayath , Idukki*	*0.060*	*Tendered and agreement executed*	*Retendering was done. Five numbers participated. 3 numbers quoted below. Placed in the panchayat committee for decision.*		
14	*STP for Idukki district Hospital and District Ayurveda hospital, Thodupuzha*	*0.205*	*Tenderin g Stage*			
15	*The wastewater treatment plant at Kuttiyadi government taluk hospital, Kozhikode*	***0.080***			***Tendering stage***	

Details of proposed ETPs/ STPs in the State

No.	Location	Capacity of the STP proposed in MLD	Status of Project (at DPR Stage/ Under Tendering/ Work to be Awarded)	Incremental progress	Likely Date of Completion
1	Taluk Hospital Thiruvalla ,Thiruvalla Municipality, Pathanamthitta	0.09	At DPR Stage	*Under technical scrutiny*	*1/03/2022*
2	Taluk Hospital Pambady, Pambady Block panchayath , Kottayam	0.085	At DPR Stage	***DPR under verification at Block Panchayat***	*01/03/2022*
3	General Hospital, Irinjalakuda Municipality , Thrissur (PRS)	0.150	At DPR Stage	*DPR returned to agency*	*01/03/2022*
4	District Hospital Perunthalmanna , District Panchayath, Malappuram	0.200	At DPR Stage	*DPR returned to LSGI*	*01/03/2022*
5	Taluk Hospital ,Neelaswaram, Kasaragod	0.040	At DPR Stage	*under technical scrutiny*	*01/03/2022*
6	CHC Alathoor, Alathoor Block Panchath , Palakkad	0.090	At DPR Stage	*DPR under verification at Block*	*01/03/2022*
7	CHC Kadayiruppu ,Vadavukode Block Panchayath , Ernakulam	0.025	At DPR Stage	**DPR returned to LSGI**	*01/03/2022*
8	CHC Sooranadu, Sasthancotta Block Panchath, Kollam	0.028	At DPR Stage	DPR returned to LSGI	*01/03/2022*
9	CHC Kilimanoor, Kilimanoor Block	0.096	At DPR Stage	**Under technical scrutiny.**	*01/03/2022*

	Panchayath , Trivandrum				
10	CHC Mangalpadi, Manjeswar Block Panchayath, Kasragod	0.014	At DPR Stage	**DPR returned to LSGI**	*01/03/2022*
11	CHC Konni, Konni Block Panchayath, Pathanamthitta	0.032	At DPR Stage	***Committee decided to hand over to LSGI***	*01/03/2022*
12	65 KLD Sewage Treatment Plant at Taluk Head Quarters Hospital Vithiri, Kalpetta BP, Wayanad	0.065	At DPR Stage	DPR returned to LSGI	*01/03/2022*
13	10 KLD Sewage Treatment Plant at EMS Memorial Municipal Town Hall, Koyilandy Municipality, Kozhikkode	0.01	At DPR Stage	***Committee decided to hand over to KWA***	*01/03/2022*
14	11 KLD effluent Treatment plant at Kuravilangad Fish Market, Kuravilangad Grama Panchayath , Kottayam	0.011	At DPR Stage	DPR returned to LSGI	*01/03/2022*
15	Eco Friendly waste water Treatment Plant (60 KLD) for Women and Children Hospital Ponnani Municipality, Malappuram	0.06	At DPR Stage	***Committee decided to hand over to KWA***	*01/03/2022*
16	Waste water Treatment (90 KLD) System for coastal housing and Tsunmai resettlement facility at karikuzhi mayyanad Grama Panchayath , Kollam	0.09	At DPR Stage	Transferred to KIIFB	30.12.2021
17	STP for Convention Centre, Pinaryi Grama Panchayath , Kannur	0.02	At DPR Stage	***Under technical scrutiny.***	*01/03/2022*
18	STP at CHC Mullashery Block	0.01	At DPR Stage	DPR returned to LSGI	*01/03/2022*

	Panchayath , Thrissur				
19	Eco Friendly waste water Treatment plant 10 KLD in vettam Community Health centre , Tirur BP	0.01	At DPR Stage	DPR returned to LSGI	*01/03/2022*
20	Sewage Treatment Plant 20 KLD at Shopping Complex cum multiplex Theatre, Kallumutti, Irutti Payam, Grama Panchayath, Kannur	0.02	At DPR Stage	***Committee decided to hand over to KWA***	*01/03/2022*
21	Sewage Treatment Plant 50 KLD, Angal Block Panchayath , Kollam	0.05	At DPR Stage	*Under Technical Scrutiny*	*01/03/2022*
22	ETP 10 KLD Capacity, Nedumangad Municipality, Thiruvananthapuram	0.01	At DPR Stage	*DPR returned to LSGI*	*01/03/2022*
23	ETP Karavaram Grama Panchayath, Thiruvananthapuram	0.01	At DPR Stage	DPR returned to LSGI	*01/03/2022*
24	STP at Community Health Centre Pazhayannoor Block Panchayath ,Thirssur	0.025	At DPR Stage	***Committee decided to hand over to KWA***	*01/03/2022*
25	STP for government ayurveda hospital, Kodakara GP, Thrissur	0.035	At DPR Stage	Under Technical Scrutiny	*01/03/2022*
26	ETP at Kodimatha, Kottayam Municipality	0.030	At DPR Stage	DPR returned to LSGI	*01/03/2022*
27	STP at hospital, Pazhayangadi, Kannur	0.120	At DPR Stage	*Under Technical Scrutiny*	*01/03/2022*
28	ETP at Tirur Municipality	0.060	At DPR Stage	DPR returned to LSGI	*01/03/2022*
29	ETP for slaughter house, Marakkadavu, Ernakulam	0.030	At DPR Stage	DPR returned to LSGI	*01/03/2022*
30	STP at old age home, Kannur	0.010	At DPR Stage	DPR returned to LSGI	*01/03/2022*
31	DPR for perumba	0.01	At DPR Stage	*Council decided to*	*01/03/2022*

	fish market Payyanur Municipality, Kannur			*hand over to KWA*	
32	FSTP at Cherthala municipality, Alappuzha	0.25	AS issued. TS working going on	DPR modification is going on. Transferred to Impact Kerala and RKI for funding	-
33	STP at Decentralised Sewerage Scheme - Thrissur Corporation (AMRUT) **(PRS)**	2.5	***To be retendered:*** *To be retendered after conversion of the category of selected land & approval of revised TS by CE, LSGD.* • *Proposed land for the STP falls under Paddy Land category & hence category change to be done in the Govt. data bank through SLMC. The necessary documents in this regard were submitted to the Secretary, Agriculture Dept. (NCA)*	• *Delay in converting the category of the selected land through SLMC.* • *Estimate to be revised as per DSR-2018 & revised TS to be obtained.* • *Consent to establish is to be obtained from KSPCB. Permission is to be obtained from Railways.* • *To be retendered after conversion of the category of selected land & approval of revised TS.*	*31.03.2023*
34	STP at Decentralised SewerageSystem -Kochi Corporation Div-15 (AMRUT)	1.4	**Selection notice issued but Agreement to be executed**: • Selection notice was issued on 04/05/21	• *The Council decided to cancel the work due to non-availability of sufficient land & due to the price escalation requested by the Contractor.*	*31.03.2023*
35	STP at Decentralised Sewerage System - Kochi Corporation Div-16 (AMRUT)	1.1	**Selection notice issued but Agreement to be executed:** • Selection notice was issued on 04/05/21 (JV - Green Way Solutions, Kochi &	• *The Contractor has requested for approval of price escalation on top of the tender excess already approved and has not executed the*	*31.03.2023*

			Zero Discharge Technologies Pvt. Ltd., Coimbatore - 25.95% above TPAC). Agreement to be signed.	*Agreement.* * *The Council decided not to approve the price escalation claimed by the Contractor & to go ahead with the work.* * *Agreement to be executed by the Contractor.*	
36	Decentralized Sewerage System(with STP) – Kochi Corporation Div-17,Per umpadappu(STP opposite St.Juliana Public School, Pai Road) (AMRUT)	*1.4*	**Selection notice issued but Agreement to be executed**: * Selection notice was issued on 04/05/21 (JV - Michael & Michael Pipes Pvt. Ltd., Ernakulam, Reena Engineers & Contractors Pvt. Ltd., Kannur & KSP Hydro Engineers Pvt. Ltd., Jaipur - 25.92% above TPAC). Agreement to be signed.	*The Contractor has claimed price escalation on top of the tender excess already approved and has not executed the Agreement.* *There is public protest against the construction of STP at the location The Council decided to cancel the work due to price escalation requested by the Contractor & due to public protest.*	*31.03.2023*
37	STP at Division 1 - 4 under Cochin Smart City Mission	6.5	Awarded not started	Awarded not started	-
38	5 STPs are coming up under the KMRL's Integrated Water transport System project at Elaamkulam,Vennala, Edapally, Puthukalavattom, Perandur	10 + 10 + 2+ 5+ 4 =31	To be tendered	To be tendered	-
39	FSTP at Andamukkam, Kollam Corporation (AMRUT)	0.1	**Cancelled:** * The proposal put forwarded by the Kollam Corporation to cancel the septage project & use the amount available	* Project cancelled.	-

			from the project as well as the unused amount till date in Sewerage Sector of Kollam under AMRUT for implementing the balance sewer network (balance of KSUDP) was approved by the SHPSC held on 20/02/21.		
40	FSTP at Vasoorichira, Kollam Corporation (AMRUT)	0.1	**Cancelled:** * The proposal put forwarded by the Kollam Corporation to cancel the septage project & use the amount available from the project as well as the unused amount till date in Sewerage Sector of Kollam under AMRUT for implementing the balance sewer network (balance of KSUDP) was approved by the SHPSC held on 20/02/21.	* Project cancelled.	-
41	FSTP at Karikkuzhi Ela, Kollam Corporation (AMRUT)	0.1	**Cancelled:** * The proposal put forwarded by the Kollam Corporation to cancel the septage project & use the amount available from the project as well as the unused amount till date in Sewerage Sector of Kollam under AMRUT for implementing the balance sewer network (balance of KSUDP) was approved by the SHPSC held on 20/02/21.	* Project cancelled.	-
42	FSTP at		**Selection notice**	* *The Contractor is*	*31.12.2022*

	Ramavarmapuram, Thrissur (AMRUT) **(PRS)**	0.1	**issued but Agreement to be executed:** • Selection notice was issued on 31/12/19 (Green Eco, Hyderabad - 25% below TPAC). • Consent to establish dated 28/05/21 was issued by the KSPCB. • The Council held on 16/06/21 gave approval for signing the Agreement & for taking further necessary actions.	*not willing to go ahead with the works and has requested the ULB to relieve them from the project. Way forward to be decided by the ULB.*	
43	FSTP at Yakkara, Palakkad Municipality (AMRUT)	0.1	**Selection notice issued but Agreement to be executed:** • Selection Notice was issued on 04/08/20 (Dora Infrastructures, Kochi - 6.5% below TPAC).	• *Permissive sanction is still awaited for the selected land.*	*31.12.2022*
44	FSTP at Chellora, Kannur Corporation (AMRUT)	0.1	**Work started but stalled:** * Agreement was signed on 09/01/20 (M/s.Green Eco, Hyderabad - 8.7% below TPAC). * Consent to Establish dated 08/07/20 was issued by KSPCB. * The report on legacy waste quantification was received from NIT Kozhikode on 25/09/21.	* *Legacy waste dumped at the proposed location to be removed for starting physical works. Legacy waste rehabilitation work to be retendered.* * *The Council decided to cancel the contract with M/s.Zonta (KSIDC Project) & retender the legacy waste removal work.* * *The Contractor for the*	*31.12.2022*

				septage plant work has informed the ULB that they are not willing to execute the works due to the delay in removal of legacy waste. * *The legacy waste removal work has been retendered on 04/01/22 with 20/01/22 as date of opening.*	
45	FSTP at Chakkumkan dam, Guruvayur Municipality, Thrissur (AMRUT)	0.1	**Work started but stalled:** * Agreement was signed on 27/11/19 * Consent to Establish dated 30/06/20 was issued by the KSPCB. * Land filling works started by the Contractor has been stopped since 23/01/20 for want of permission from Revenue Department. The Revenue Development Officer (RDO) informed on 29/12/20 that the land is coming under 'Wet Land' category & recommendation of LLMC is required for changing the category of land in the Govt. databank.	* *The SHPSC meeting held on 04/01/22 directed the ULB Secretary to take necessary action for conversion of land category for construction of the septage plant & to go ahead with the project since it has already been tendered & awarded.*	*31.12.2022*
46 & 47	Mobile Septage Units- 2 nos, Alappuzha (AMRUT)	0.02 (0.01 *2 nos.)	***Tendered but not awarded** :* * *The TS Committee held on 26/05/21 decided to issue TS based on certain conditions.*	* *NIT was published by the ULB on 23/12/21 with 10/01/22 as due date & 12/01/22 as date of opening. The*	*30.06.2022*

			Accordingly TS was issued by the CE, LSGD office on 13/08/21. * *The Council held on 15/11/21 decided to proceed with 2nos. of 10 KLD mobile septage units.*	*due date is likely to be extended further.* *	
48	STP at General Hospital, Alappuzha (AMRUT)	0.24	**Awarded but not started**: * Consent to Establish was issued by KSPCB on 27/07/20. * Agreement dated 27/08/21 was executed * Demolition works of the existing building at the location were completed on 02/09/21.	*Works to be started by the Contractor*	*30.09.2022*
49	STP at Shatabdhi Mandiram, Alappuzha (AMRUT) **(PRS)**	0.015	***To be tendered:*** * *The TS Committee held on 26/05/21 decided to issue TS based on certain conditions. Accordingly TS was issued by the CE, LSGD office on 13/08/21.* * *Work to be tendered after finalization of tender documents by the ULB & after obtaining TS for electrical works from the Electrical Works Committee of Zilla Panchayath. The Technical Committee meeting was held on 04/01/22 & the corrections suggested by the Committee are to made in the tender*	* *Delays in obtaining TS for electrical works & finalization of tender documents* * *Work to be tendered after obtaining TS for electrical works & finalization of tender documents.*	*31.12.2022*

			documents.		
50	STP at Thottumadi Colony, Alappuzha (AMRUT)	0.05	***To be tendered:*** • *The TS Committee held on 26/05/21 decided to issue TS based on certain conditions. Accordingly TS was issued by the CE, LSGD office on 13/08/21.* • *Work to be tendered after finalization of tender documents by the ULB & after obtaining TS for electrical works from the Electrical Works Committee of Zilla Panchayath.The Technical Committee meeting was held on 04/01/22 & the corrections suggested by the Committee are to be made in the tender documents.*	* *Delays in finalization of tender documents.* • *Work to be tendered after finalization of tender documents.*	*31.12.2022*
51	STP at General Hospital, Thrissur (AMRUT) **(PRS)**	0.36	**Awarded but not started:** • * Agreement was signed on 14/10/20. • Consent to Establish dated 11/12/20 was issued by the KSPCB. • Demolition works of the existing building at the location has been completed.	• *The Contractor is yet to take possession of the site even though the ULB has agreed to waive the additional performance BG on submission of an affidavit. Way forward to be decided by the ULB.*	*30.09.2022*
52	STP at District Hospital, Palakkad (AMRUT)	0.27	**Work started but stalled:** • Agreement was signed on 17/06/20 • Consent to Establish	• *The Contractor stopped the excavation works and suggested*	*30.09.2022*

			dated 25/08/20 was issued by KSPCB.	*changes in the design & estimate. Same is yet to be finalized.*	
53	Sewage Treatment Plant & associated network at Sundaram Colony, Palakkad (AMRUT)	0.8	**Selection notice issued but Agreement to be executed**: * Selection notice was issued on 17/05/21 . * Consent to establish dated 22/07/21 was issued by the KSPCB.	*Delay in the ULB in deciding the way forward with regard to signing of Agreement.* * *The Contractor is willing to sign the Agreement only if the fine is not imposed on them. Way forward is to be decided by the ULB.*	*31.12.2022*
54	STP at Sewerage system in Zone A, Package A, Avikkal Thodu, Kozhikode (AMRUT) **(PRS)**	7.0	**Awarded but not started:** Agreements were signed on 24/02/21 * Consent to Establish dated 05/07/21 was issued by the KSPCB. * The KCZMA meeting held on 12/08/21 gave CRZ clearance. *	* *The commencement of STP work was stopped by the public on 11/11/21.* *Road cutting permission is to be obtained from PWD. MoU to be signed.* * *There is public protest against construction of the STP at the location & the ULB is trying to resolve it.*	31.03.2023
55	STP at Ottappalam Municipality, Palakkad District (IMPACT KERALA Ltd)	1.50MLD Co-treatment	PCB NOC obtained. Fire NOC to be obtained. Technical Sanction Process ongoing. KMBR exemption order received from government. All statutory clearances obtained. Request given to KIIFB for revised AS.	DPR approved by KIIFB.	31.12.2022

56	STP at Kunnamkulam Municipality, Thrissur (IMPACT KERALA Ltd)	1.00MLD Co-treatment	Secretary informed that the present council has decided not to implement the present project and they have requested the consultant to re-design at new location and submit within 2 months. Intimation to KIIFB given. Reminder to Municipality given. Not yet submitted.	DPR approved by KIIFB	31.12.2022
57	STP at Vadakara Municipality, Kozhikkode (IMPACT KERALA Ltd) **(PRS)**	0.5 MLD Sewage TP 20KLD Septage TP	DPR appraisal ongoing in KIIFB. Present council decided to drop FSTP and include another STP at the proposed FSTP site. Consultant modifying DPR as per that. Land issue. Reminder to Municipality given. Not yet submitted.	DPR modification ongoing.	-
58	STP at Cherthala Municipality , Alappuzha (IMPACT KERALA Ltd)	250KLD Septage TP	AS accorded by RKI. PCB and Fire NOCs received. NOC obtained from district collector for Puramboke land. Technical committee decided to accord TS after getting revised AS from RKI. Gave letter to RKI for Revised AS. .	DPR approved by RKI. *Tender published on 3/12/21. Prebid meeting conducted on 15/12/2021*	-
59	STP at Wadakkanchery Municipality, Thrissur (IMPACT KERALA Ltd) **(PRS)**	1.00MLD Co-treatment	Puramboke land. NOC to be obtained from district collector. Soil test done.	DPR under preparation	-
60	FSTP at Varkala Municipality, Thiruvanant ha puram (IMPACT KERALA Ltd)	50 KLD Septage TP	DPR submitted to RKI for AS.		-
61	STP at Mayyand	590KL	DPR submitted		-

	GP, Kollam (IMPACT KERALA Ltd)	D Co-treatment	to RKI for AS.		
62	STP at Ottuppara Market, Wadakkanchery Municipality, Trissur (IMPACT KERALA Ltd) **(PRS)**	18 KLD STP	DPR submitted to KIIFB as a part of the project "Modernisation of Ottupara Market in Wadakkanchery Municipality".	DPR Approved by KIIFB	-
63	STP at Athani market, Wadakkanchery Municipality, Trissur**(PRS)** (IMPACT KERALA Ltd)	13.9 KLD STP	DPR submitted to KIIFB as part of the project "Modernisation of Athani Market in Wadakkanchery Municipality".	DPR Approved by KIIFB, KIIFB Proceedings awaited	-
64	STP at Fish market, Payyannur Municipality, Kannur **(PRS)**	10 KLD STP	Technical committee verified the project. Suggested modification.	DPR modification is going on	-
65	STP at Athani, Wadakkanchery Municipality, Trissur **(PRS)**	350 KLD STP	Site identified.	DPR under preparation	-
66	Sewerage system (with STP) in Zone A, Package B, Kothi, Kozhikode (AMRUT) (PRS)	6	**Awarded but not started:** • Agreements were signed on 24/02/21 • Consent to establish dated 28/07/21 was issued by the KSPCB. • Site clearance work was stopped by the public on 17/12/21. The Additional Chief Secretary, LSGD visited the STP site on 27/12/21 & interacted with the public & ULB officials. The ULB conducted an all party meeting on 02/01/22 to resolve the public protest.	• *Site clearance work was stopped by the public on 17/12/21.* • *Road cutting permission is to be obtained from PWD. MoU to be signed.* • *There is public protest against the construction of STP at the location & the ULB is trying to resolve it.*	31.03.2023
67	**STP at Palayad**	**1**	**At DPR Stage**	***DPR returned to***	***01/03/2022***

	Taliparamba municipality, Kannur			***LSGI***	
68	***Waste water treatment plant at K R Narayanan memorial hall, Adat GP***	***0.0065***	***At DPR Stage***	***Under technical scrutiny***	***01/03/2022***
69	***ETP of 2 KLD at Konnamkulam Milk Production Cooperative Society***	***0.002***	***At DPR Stage***	***Under technical scrutiny***	***01/03/2022***
70	***200 KLD Wastewater treatment plant at Tata Trust Govt Hospital, Kasargod***	***0.2***	***At DPR Stage***	***Under technical scrutiny***	***01/03/2022***

I. V. Details of Industrial Pollution:

- No. of industries in the State: 143990(Registered in the web portal of KSPCB)
- No. of water polluting industries in the State:4629
- Quantity of effluent generated from the industries in MLD: 168.7684
- Quantity of Hazardous Sludge generated from the Industries in TPD : 2584.572
- Number of industrial units having ETPs: 3786 nos
- Number of industrial units connected to CETP: As per the available data-**64 nos**
- Number and total capacity of CETPs (details of existing/under construction /proposed)

- 7 nos of CETPs are functional (Total Capacity – 7.925MLD), 1 CETP having capacity 0.25 MLD not operational due to non availability of raw material. Proposed CETPs – 3 nos. (Total Capacity- 5.5 MLD). 1 CETP having capacity 1 MLD is under construction (12 CETPs- capacity- 14.425 MLD)

Details of existing/under construction/proposed CETPs in the State				
No.	**CETP location**	**CETP Installed capacity**	**CETP Utilisation capacity**	**Operational Status**
1	Kinfra Apparel Park, St. Xavier's College P.O, Thumba, Thiruvananthapuram	4.5MLD	4.5MLD	**Operational**
2	Sea Food Park (India) Ltd., Aroor,	0.3 MLD	0.3 MLD	***Operational(Parameters complied with standards stipulated)***

	Alappuzha			
3	SEZ, Kakkanad, Cochin Special Economic Zone Ernakulam	1.6M LD	1.6MLD	**Operational**
4	Kinfra Small Industries Park Nellad, Mazhuvanoor, Ernakulam – 686 721	0.4M LD	0.4MLD	***Operational (Parameters complied with standards stipulated)***
5	Rubber Park India Private Limited, CommonEffluent Treatment Plant, 2A, Kaudileeyam, Rubber Park, Valayanchirangara, Ernakulam – 683556	0.25 MLD	0.25 MLD	***Operational(Parameters complied with standards stipulated)***
6	Kinfra Techno Industrial Park, KakkancheryChelambara P.O, Malappuram	0.675 MLD	0.675MLD	***Operational(Parameters complied with standards stipulated)***
7	Kinfra Textile Centre, Nadukani, Pallivayal P.O, Thaliparambu, Kannur – 670 142	0.2 MLD	0.2 MLD	***Operational(Parameters complied with standards stipulated)***
8	KSIDC, Valiyavelicham, Kuthuparamba Kannur	0.25 MLD	-	**Not Operational due to non availability of waste water**
9	CETP, Chandiroor	1.5 MLD	-	**Proposed**
10	CETP, Food Park, Cherthala	2.5 MLD	-	**Proposed**
11	CSEZ, Kakkanad, Cochin Special Economic Zone Ernakulam	1 MLD	-	**Under Construction**

IV. <u>Solid Waste Management:</u>

- Total number of Urban Local Bodies and their Population :**93 Urban Local Bodies (6 Corporation and 87 Municipalities) , Total Urban Population : 79,36,885 (As per 2011 Census).**
- Current Municipal Solid Waste Generation :**3543 TPD (Based on Population)**
- Treated : **2550 TPD**
- Gap in Municipal Solid Waste Management: **993 TPD**

- 10 Waste to energy plants in progress (DPR stage-3 nos, Tendering stage-3 nos, under construction-2 nos, Initial stage-2 nos)
- Number, installed capacity and utilization of existing MSW processing facilities in TPD (bifurcated by type of processing eg- Waste to Energy (Tonnage and Power Output), Compost Plants (Windrow, Vermi, decentralized pit composting), bio-methanation, MRFetc:
- The proposal for EPR Registration as per Solid Waste Management Rules, 2016 has been submitted to the State Government for approval. The main objective is to collect fee from brand owners based on the weight of packaging and to divert the fee amount to the authorized collectors of the local bodies.
- Details of dumpsites in Kerala is attached with annexure-III

Status of Present MSW processing facilities is given below:

Facility	Type of plant	Number	Location and Capacity
Centralised plant	Windrow composting plants (large)	2	Ernakulam, Kozhikode (100TPD)
	Windrow composting plant(Small)	12	1. Attingal(13TPD), 2.NorthParavur(3TPD), 3. Chalakkudy(2TPD), 4. Kodungallur (4 TPD), 5.Kothamangalam, 6. Kunnamkulam, 7. Guruvayoor(2.TPD), 8.ChitturThathamangalam(4TPD), 9. Ottappalam (5TPD), 10. Palakkad(4TPD), 11.Thaliparambum, 12. Payyannur
Communit y level	Vermi composting plants(Smal l)	7	1.Attingal(0.25TPD); 2.Thodupuzha; 3. North Paravur(1 TPD); 4.Chavakkad(1.5 TPD); 5. Manjeri(0.5TPD); 6.Koothuparamba; 7.Mattannur(5TPD)
	Aerobins	406	
	Biogas plants	287	
	Biobins in flats	500+	Thiruvananthapuram, Ernakulam, Thrissur
	Material Collection Facility	483	
	Resource recover facility	68	
Household level	Pipe compost	1,34,270	Total-3,62,294
	Kitchen bin	50,399	
	Biogas plant	25,255	

	Biocomposter, biobin, pot bin	49,730	
	Ring compost	20,283	
	Bucket compost	6,903	
	Compost pit	75,454	
Institutional level	Biogas plants, aerobins, biobins		

Status of Waste- to- Energy Plants:

Sl. No.	Plant Location	Status of operation	Power generation (MW)
1.	-Njaliyamparambu-Kozhikode (Govt. land 12.67 acre	Work awarded to Zonta Infratech Private Limited for the construction.	
2.	Chelora- Kannur (Govt. land 9.7 acre)	The legacy waste which was ought to have started clearing by M/s. Zonta Infratech during last May , they found the quantity is 3 times more that the quantity tendered to them (40000 m^3). So they wanted to get the quote revised by 3 times. The Govt has now directed the Corporation to retender the work. Meanwhile the draft preparation of DPR is over. Again collection points have to be finalized. Construction work of WtE can be started only after the bio-mining is carried out.	Re-tendering stage
3.	Kureepuzha-Kollam (Govt land- 7.05 acre)	The SPV constituted for setting up of WtE plant of the Kollam Corporation. M/s. Venad Waste Management Private Limited had applied for Consent to Establish on 09.09.2021. The proposed WtE plant is bio-methanation based and is having a capacity of 200 TPD. Application was returned for Clearance s/NOC with respect to CRZ and Wetland as the proposed project site was near to Ashtamudi lake. The application was not yet re submitted.	DPR stage
4.	Kanjikode-Palakkad(Land taken over from Kerala State Electricity Board Ltd.- 15 acre)	Blue Planet Palakkad Waste Solutions Private Limited was formed to take up the development of the project. Integrated Consent to Establish was issued to the project.	Product: Compressed Bio Gas- 4018 kg/Day By-products: 1. RDF- 60000 kg/day 2.Recyclables-6000 kg/day 3. Waste for Sanitary landfill- 12000 kg/day 4. Dry Organic compost/manure from sale-35751 kg/day
5.	Brahmapuram-Ernakulam, Kochi Corporation (Govt.land-20 acre)	The technical bids submitted by the Bidders needs to be evaluated by the Bid-Evaluation Committee and the proposal has been submitted to Govt to re-constitute	Bid evaluation stage

		the Committee. It was reported by LSGD that steps have been taken to re constitute the Bid evaluation committee and order in this regard will be issued soon. Also they expressed that a restriction can be brought into the tender conditions to prevent one particular company being awarded more than 3 WtE projects on PP mode in a particular project development time. This is to ensure more competition and also easier financial closure.	
6.	Munnar-Idukki Municipality (2 acre)	The committee observed that the Consortium is meeting the technical and financial legibility criteria. The consortium made a detailed presentation of their technical plan before the Bid Evaluation Committee. SLAC after detailed discussion resolved to accord sanction to proceed with the financial evaluation of the Bid	Bid evaluation stage
7.	Ollookkara-Thrissur	Land identified by Thrissur Corporation at Ollookkara Village. Vide GO (Rt) No.111/2020/LSGD dated 13.01.2020 State Govt has accorded sanction to Thrissur Municipal Corporation to purchase the identified land at Ollookkara Village and to hand over the same on lease basis to KSIDC for the development of the project. Secretary, Thrissur Corporation to report the status of price negotiation done with the owners of the land identified.	
8.	Kurumbathoor, Tirur-Malappuram(8.09 acres of land)	8.09 acres of land identified by District Administration at Kurumbathur Village Tirur Taluk for setting up of the WtE plant. The land is under possession of KSIDC. Details of this are reported to be submitted to Government already by LR Deputy Collector.	

● Action plan to bridge gap between Installed Capacity and Current Utilization of processing facilities (if Gap >20%)

● No. and capacity of C&D waste processing plants in TPD (existing, proposed and under construction)

● no. of wards, no. of wards having door to door collection service, no. of wards practicing segregation at source

● Details of MSW treatment facilities proposed and under construction(no., capacity, and technology):

Solid Waste processing facilities setup:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization
1	Centralised windrow composting plants– 2(Large);12(Small)	Community level-7	Community level-287 Household level-	Nil

2	Community level-1,193(aerobin, biobins)		25255	
3	Household level - 3,37,039			

Solid Waste Processing facility operational:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization
1. 2. 3.	Centralised windrow composting plants – 2(Large); 12(Small)	Community level-7	Community level- 287 Household level- 25255	Nil
	Community level-1,193(aerobin, biobins)			
	Householdlevel-3,37,039			

Solid Waste Processing facility under installation/planned:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletisation
	Being planned/installation for decentralized units	-	Being planned/installation for decentralized units	

A. Progress in establishing Waste to Energy plants in Eight cities/towns having population above 1lakh

Sl. No	Municipality	Identified site	Area (acre)	Status
1)	Kozhikode	Njaliyanpa-rambu (Govt. land)	12.67	1.1 Waste to Energy Plant • Work awarded to Zonta Infratech Private Limited for the construction of Waste to Energy Plant at Njaliyanparambu. A company namely M/s.Malabar Waste Management Limited was formed. The Concessionaire has informed that the

				Financial Closure for the project has been achieved – SBI has agreed for a debt funding of Rs 146 crores. • Consent to establish was issued to the waste to Energy plant. • Clearing of ground for the plant is undergoing. • Land development works are undergoing. Alternate road has been constructed on the periphery and vehicles started moving through alternate roads. The main road through the Centre for the site has now been closed. Request submitted to Social Forestry department for cutting trees in the site. Laying of water supply line to the site is nearing completion. M/s. MITCON Consultancy and Engineering Services has been appointed as the project management consultant for the development of the project with WtE facility at Kozhikode 1.2 Biomining at Njaliyanparambu M/s Zonta Infratech Pvt Ltd started the work of clearing of legacy waste on 3rd March, 2020. The clearing work of legacy waste resumed at the dumpsite on 4th May 2020 and 40% of legacy waste in Zone I has been removed. • The work is in progress at the site.
2)	Kannur	Chelora (Govt. Land)	9.7 acres	2.1 Waste to Energy Plant Blue Planet Kannur Waste Solutions Private Limited was formed to take up the development of the project. Waste Characterization study was conducted by SPCB SLAC directed MD, KSIDC & Secretary,

				Kannur Municipal Corporation to take immediate steps to execute the Lease Agreement and Concession Agreement for the project. KSIDC has completed the tender process and the final offer along with details of the contractor, draft agreement to be executed with the Contractor and the technical proposal submitted by the Contractor has been forwarded to Kannur Corporation on 07th August 2020 for further proceedings. KSIDC modified the Lease Deed addressing the Kannur Corporation's concern on alienation of 9.7 acres of land at Chelora. The modified lease deed was submitted to the Secretary Corporation for execution. Further a stake holder meeting was held to explain the project details to the councilors on 24th August 2020 and all concerns raised were discussed and explained. Despite all these steps, Kannur Corporation has not leased the land at Chelora to KSIDC and a council resolution authorizing the Secretary Kannur Corporation to execute the concession agreement has not been passed. Concession agreement can be executed only on receiving land to KSIDC. The concessionaire has reported that the field studies including waste characterization and waste quantification studies, as part of DPR preparation will be commencing next week. 2.2 Legacy waste Govt vide GO(Rt) No. 714/2020/LSGD dated 27-3-2020 issued direction to Kannur Municipal Corporation to hand over the 9.75 acres of the land identified at Chelora on lease basis to KSIDC for the development of Waste to Energy project and to execute MoU with KSIDC for clearing the existing legacy waste at dump site in Chelora.

				Detailed waste characterization of study of dumpsite at Chelora was done by the Pollution Control Board. SLAC directed the Board to submit final study report along with remarks to KSIDC for further proceedings. The Board submitted the report to KSIDC. Agreement has been executed with M/s Zonta Infratech Pvt Ltd, the selected bidder on 21st October for carrying out the rehabilitation of MSW dumpsite at the site. Asked Secretary Kannur Municipal Corporation to take immediate steps with the Contractor to expedite the works for rehabilitation of MSW dumpsite at Chelora.
3)	Palakkad	Kanjikode (Land takenover from Kerala State Electricity Board Ltd. in advance possession)	15	3.1 Waste to Energy Plant Blue Planet Kannur Waste Solutions Private Limited was formed to take up the development of the project. The Concession Agreement for the project has been executed and the Concessionaire has taken steps for preparing the DPR for the project. The Concessionaire has engaged M/s Dun & Bradstreet for preparing the DPR and that the study is in the final stages. As instructed by the Committee, modifications are incorporated in the DPR. Final DPR submitted. ICE was issued from KSPCB
4)	Kollam	Kureepuzha (Govt. land)	7.05	4.1 Waste to Energy Plant • M/s Venad Waste Management Solutions Pvt Ltd has submitted the draft DPR for the Integrated Solid Waste Management project with a Waste to Biogas facility of 200 TPD processing capacity. • DPR was evaluated by the Committee and it has been modified and final DPR submitted to LSGD. • Concessionaire has taken steps to submit applications to the concerned

				departments and agencies for statutory approvals and clearances. 4.2 Biomining • For biomining the site, the Corporation informed that draft agreement to be executed with M/s.Zonta Infratech Pvt Limited is vetted by the Corporation's Standing Counsel and the same will be placed in the next Council meeting for approval. • SLAC directed the Secretary Kollam Corporation to take necessary steps to ensure either the Contractor follow the tender conditions or cancel the present tender and go for re-tender immediately. Again the project has been retendered by the Corporation.
5)	Ernakulam	Brahmapur am (Govt. land)	20 acres	6.1 Waste to energy plant • KSIDC was authorized to take immediate steps to float an RFP for the selection of suitable concessionaire to set up Waste to Energy plant at Brahmapuram. The last date for submission of bids has been extended to 14th September 2020. • Technical bids submitted by the Bidders needs to be evaluated by the Bid Evaluation Committee and the proposal has been submitted to Government to re constitute the Bid Evaluation Committee. It was reported by LSGD that steps have been taken to re constitute the Bid Evaluation Committee and order in this regard will be issued soon. Also expressed that a restriction can be brought in the tender conditions to prevent one particular company being awarded more than 3 WtE projects on PPP mode at a particular project development time, so

				as to ensure more competition and also easier financial closure. 6.2 Biomining • KSIDC floated e-tender to identify a suitable agency for the rehabilitation of MSW dump site at Brahmapuram. KSIDC submitted a proposal to constitute a Technical Evaluation Committee for technical evaluation of the bids. Evaluation of technical bid is in process. • LSGD issued directions to Kochi Corporation to examine the quantity of legacy waste assessed and rate quoted by the bidder in consultation with PCB within 30 days
6)	Idukki Munnar	Idukki Municipality	2 acres of land at Munnar	The committee observed that the Consortium is meeting the technical and financial legibility criteria. The consortium made a detailed presentation of their technical plan before the Bid Evaluation Committee. SLAC after detailed discussion resolved to accord sanction to proceed with the financial evaluation of the Bid
7)	Thrissur			7.1 Waste to Energy Plant • Thrissur Corporation identified land at Ollookkara village in Thrissur district. • Vide GO (Rt) No 111/2020/LSGD dated 13/01/2020 State Government has accorded sanction to Thrissur Municipal Corporation to purchase the identified land at Ollookkara Village in Thrissur district and to hand over the same on lease basis to KSIDC for the development of the project Secretary, Thrissur Municipal Corporation to report the status of price negotiation done with the owners of the land identified. 7.2 Biomining of legacy waste

				Proposal submitted to Suchitwa mission for sanction.
8)	Malappuram		8.09	KSIDC reported that Land Board has issued orders to District Administration Malappuram to hand over 8.09 acres of land at Kurumbathoor village in Tirur Taluk to KSIDC and that KSIDC has submitted necessary application in prescribed format to District Administration. SLAC directed to expedite the process.

B. Progress in establishing Waste to Energy Plants in two towns having population below 1 lakh

Sl. No	Municipality	Identified site	Area (acre)	Status
9)	Wayanad	Sulthan Bathery (Govt. Land)	0.5	• Construction of platform completed • Action to be taken on the installation of machinery
10)	Idukki	Munnar (Land handed over by M/s Kannan Devan Hills Plantations Pvt. Ltd)	2	10.1 Waste to Energy Plant • Evaluated the technical bid submitted by the Consortium of M/s Al Bucheeri General Transport Est, Pathanamthitta, M/s Al Bucheeri Transporting Est UAE and M/s Organic Recycling Systems Pvt Ltd, Mumbai on 19th August 2020. • The Committee observed that the Consortium is meeting the technical and financial minimum eligibility criteria. The consortium made a detailed presentation of their technical plan before the Bid Evaluation Committee. • SLAC after detailed discussion resolved to

				accord sanction to proceed with the Financial evaluation of the Bid 10.2 Biomining started at Munnar Panchyath. Macro particles like plastic, tyres, metal particles etc already finished with the help of JCB. Action for installing machinery for further process is going on for turning it into briquettes for construction purpose.

- No. and area (in acres) of uncontrolled garbage dumpsites and Sanitary Landfills:

Disposal of solid waste:

- Landfill sites identified : 2 (One at the regional level at Ernakulum)
- Landfill constructed : Nil
- Landfill under construction : **1**

For Regional Sanitary Landfill, land (25 acre) has been identified at sit e of FACT at Ambalamedu, Ernakulam and action is being taken for take over.

Solid Waste Dumpsites :

- Total number of existing dumpsites :51
- Dumpsites reclaimed :9
- **Biomining** started at Njalianparmbu dumpsite and work awarded at Kureepuzha Kollam. Tendering stage at Kottayam, Bhramapuam, Chelora..
- Proposal for **co-incineration** facility at Malabar cements is under consideration.

Monitoring at Waste processing/Landfills sites

Sl. No.	Name of facilities	Ambient air	Groundwater	Leachate quality	Compost quality	VOCs
1.	Windrow composting plant, Kozhikode	Yes	Yes	Yes	No	No
2.	Windrow Composting plant, Brahmapuram	Yes				

● No. and area (in acres) of legacy waste within1kmbuffer of both side of the rivers:

● No. of drains falling into river sand no. of drains having floating racks /screens installed to prevent solid waste from falling into the rivers:

Status of ULB wise Management of Solid Waste

Sl.No	District	Local body	Population as per 2011 Census	Projected population (2019)	Quantity of Waste generated based on population (TPD)	Percentage of D2D Collection(Dry waste)		No of collectors	As reported by localbodies		Quantity of waste processed(TPD)	Waste treatment technology used	Institutional level SWM Plants	Community Level SWM Plants	Household Level SWM Plants	Centralized	Non-Biodegradable Waste Management	Site identified for Sanitary land fill	Dump sites identified	AuthorizationApplied	Authorization granted	Annual report (Form IV)
						Household (%)	Non-residentialpremises (%)		Quantity of waste Collected (TPD)	Quantity of waste processed (TPD)												
1	Thiruvanthapuram	Thiruvanthapuram City	958000	996204	456	19.4	92.1	12 service providers	42.95	242.23	222	De centralized management facility	Biobin 109 of 15 TPD	Biogas Plant 18 Nos of 18.4TPD Aerobin(Thumboormuzhi model)53Nos having 12 TPD	Pipe compost-87000 Nos., (50,000 working) of 43.5TPD Kitchen Bin-19000Biocomposter-15833 Biogas plant-3982 Nos of 2.39TPD; other units-109	Land identified for the solid waste processing plant for setting up the plant at Vizhinjam. The approval of the Board of VISL is to be obtained by the Board for the transfer of 15 acres of landonleasetoKSIDC.The Board approval is to be communicated to the Port Department to issue necessary orders. Tendering has been done for the WtEplant	Material Collection Facility in 54 locations Resource Recovery Unit - 4 numbers Plastic Shredding Units - 2 Nos Bailing Unit - 1 Number	Regional landfill site identified at Kochi	3 (Of which one dumpsite cleared)	Yes	Under processing	Yes

2	Kollam	Kollam City	397000	412832	183	59.9	48.9	124	10.5	10.5	147	De centralized management facility	Not reported	13 biogas plants of 5.6TPD; 13aerobins of 3.9TPD	Biogas plant-1273 Nos. (working)of 2.5 TPD; Pipe compost - 462 (working) of 1 TPD; 720 biocomposter, biopot of1.5 TPD	Letter of Intent (LOI)issued to the consortium by M/s. Zonta Infratech Pvt Ltd.,the successful bidder of the project on 12-3-2020 and consortium accepted the LOI and the Consortium has taken steps to incorporate the SPV and reserved Venad Waste Management Private Limited as the name oftheSPVwiththeMinistry of CorporationAffairs. Consortium requested for an extension of time for the incorporation of SPV due to current lock down announced as part of Covid 19 pandemic	Material collection facility (200 sq ft)-one Plastic shredding machine (150 sq ft) - one number	Regional landfill site identified at Kochi	1(Kureepuzha) • For biomining the site, the Corporation informed that draft agreement to be executed with M/s.ZontaInfratechPvt Limited is vetted by the Corporation's Standing Counsel and the same will be placed in the next Council meeting for approval.	Yes	Yes	No

3	Ernakulam	Kochi City	677000	703999	352	90	60	1200	308	215	304	Centralized treatment - Windrow composting at Brahmapuram	Not reported	Nil	Biogas plant-60 Compost pits-1212	Biodegradable waste in dumping yard at Brahmapuram . Windrow composting. Retenderingof waste to energy plant at Brahmapuram	MCF- 8, RRF-5	Regional landfill site identified at Kochi	1(Retendering of biominingof dumpsite at Brahmapuram)	Yes	Under processing	Yes
4	Thrissur	Thrissur City	317526	330189	153	23.3	19.7	145	103	103	114	Decentralised facility	Total quantity of biodegradable managed-6.71TPD Non biodegradable 0.7TPD	Organic Waste Converter-2 Nos of 4 and 8TPD Biogas plant-9	Biogas plant-632;Compost pit- 20118;50 biocomposter, biobin and four other units	Thrissur Corporation identified land at Ollookkaravillage in Thrissur district. Vide GO (Rt) No 111/2020/LSGD dated 13/01/2020 State Government has accorded sanction to Thrissur Municipal Corporation to purchase the identified land at Ollookkara Village in Thrissur district and to hand over the same on lease basis to KSIDC for the development of the project.The matter is being placed before the Council for approval and further proceedings.	Material collection facility-8 Resource recovery facility-3	Regional landfill site identified at Kochi	1 (Laloor)	No	No	Yes

5	Kozhikode	Kozhikode	550000	571934	300	66.4	69.3	602	98	95	140	Centralized treatment - Windrow composting at Njaliyanprambu	Non-biodegradable-0.75TPD	Biogas plant at public utility place-4Nos Aerobins-28	Biogas-261 Pipe compost-10250	Windrow Composting. Work awarded to Zonta Infratech Private Limitedforthe construction of Wasteto Energy Plant at Njaliyanparambu. A company namely M/s.Malabar Waste Management Limited was formed and they applied for registration in KeralaSingle Window Clearance Portal (KSWIFT) and to individual departments forclearance. The company obtainedNOC from State Environmental Impact Assessment Authority. Suchitwa Mission submitted the proposal to Ministry of Housing and Urban Affairs for approval of their sharein the VGF for theproject. Clarification on the points was called for by the Ministry and the same is being processed.	Material collection facility-2	Regional landfill site identified at Kochi	1(Njaliyanparambu) Biomining started	Yes	Yes	Yes

6	Kannur	Kannur	356000	370197	109	63.5	89.3	44	15	15	107	LandFilling	Not reported	Biomethanation of 0.25 TPD Trenching	Kitchen bin-102 Biogas - 40(working) Pipe Compost 1682(working)	M/s Organic Recycling Systems Private Limitedand M/s. Blue Planet Environment SolutionsIndia Limited have completed the incorporation of SPVs inthename of Blue Planet Kannur Waste Solutions Private Limited to take up the development oftheproject. Consortium has selected agency for the preparationof DPR, waste quantification and characteristic study in Kannur district and the agency could notcommence due to lock downannounced in connection with Covid19 pandemic. Govt vide GO(Rt)No. 714/2020/LSGD dated 27-3-2020 issued direction to Kannur Municipal Corporation to hand over the 9.75 acres of the land identified at Chelora on lease basis to KSIDC for the development of Waste to Energy project and to execute MoU with KSIDC for clearing the existing legacy waste at dump site in Chelora.	Material collection facility-2 Plastic shredding unit at Chelora-1	Regional landfill site identified at Kochi	1(Chelora)MoU with KSIDC for clearing the existing legacy waste at dump site in Chelora	Yes	Under processing	Yes

7	Thiruvanathapuram	Attingal	37648	39150	17	48.5	100	43	16	16	17	Centralised anddecentralised systems	Biogas Plant(Dheenabandhu) 6 Nos with capacity of 1TPD Biogas plant (Portable) 5 Noswith capacity of 107.5 kg/day	Windrow composting plant of 13TPD, Biogas Plant 6 Nos - 3.25 TPD Vermi Compost 1 No wih capacity of 0.25 TPD	Biogas Plant 407 Nos-0.85TPD	Windrow composting plant, vermic composting plant, and biogas plant	Resource Recovery Facility - SWM Plant, Chudukadu Plastic Shredding Machine-SWM Plant, Chudukadu	Yes	1	Yes	Under processing	Yes
8		Nedumangad	60161	62561	25	6.2	62.5	22	1.5	1.5	8	Decentralised treatment		Aerobins-37 Ring compost -15	Biogas plant-200 Kitchen bin-2617	Nil	MCF-1; RRF-1	At regional level	Nil	No	No	Yes
9		Neyyattinkara	70850	73676	30	48	18.3	88	3	3	10	Decentralised treatment	Boiogas plant-20	Aerobins 21 Biogas plant 10	Biogas plant-104 Compost pit-14360	Nil	MCF- 1	At regional level	Nil	No	No	Yes

10		Varkala	40048	41646	17	69	88	18	4.8	4.8	9	Decentralised treatment		Compost (Thumboormuzhi Model) 33 bins at 33 locations with capacity of 33 Cubicles Biogas Plant 1 No-100Kg	Biogas Plant - 200 Nos Pipe Compost - 2500	Nil	MCF-3; RRF-1	At regional level	Yes -one	Yes	Yes	Yes
11	Kollam	Karunagapally	47483	49377	21	29.4	20.6	35	7	1	6	Decentralised treatment	2.9TPD of biodegradable waste and 0.3TPDof biodegradable waste is managed.	Compost pit, Vermicomposting.	Biogas plant-21 Compost pit-8521	Nil	MCF-1; RRF-1	At regional level	Nil	Yes	Yes	Yes
12		Kottarakara	31256	32503	13	66.6	20.1	58	1.34	1	4	Decentralised treatment	Biogas Plant - 1 No - Taluk Hospital Biogas Plant (Portable) 1 No-Boys HSS Total -16 biogas plants	Biogas Plant 1 No - Market, Chandamukku Aerobic compost - 8	Biogas Plant - 106 Nos Ringcompost-250 Pipe Compost 28	Nil	MCF-29; RRF-1	At regional level	Nil	Yes	Yes	Yes
13		Paravur (South)	36798	38266	15	100	100	32	2	2	5	Decentralised treatment	10 biogas plant	8 biogas plant,Aerobins-4	Pipecompost-162 Biogas plant-121	Nil	MCF	At regional level	Nil	Yes	Under processing	Yes

14		Punalur	48648	50589	20	100	100	127	20	10.5	20	Decentralised treatment	Not reported	Aerobic compost -2 bins at 2 locations withcapacity of 12 cubicles	Biogas-1250 Pipe Compost-5000 Compost pit - 6500	Nil	Material Collection Facility - 233sq ft - 233 locations Small collection facilities)	At regional level	Nil	Yes	Yes	Yes
15		Adoor	29171	30335	12	0	3.5	4	1	0.8	4	Decentralised treatment	1.4TPDof biodegradable waste is managed	Aerobins- 6 bins 3 unit	Pipe compost-1010 s Ring compost - 250	Nil	MCF-1; RRF-0	At regional level	Nil	No	No	Yes
16		Pandalam	41604	43264	17	60	0		1.5	1.5	5	Decentralised treatment	0.89TPD of waste is managed		Compost bins 2650	Nil	Not given	At regional level	Nil	No	No	Yes

17	Pathanamthitta	Pathanamthitta	38002	39518	16	28	8	17	1	1	5	Decentralised treatment	0.92TPD of biodegradable waste and 0.35TPD of non biodegradable waste managed	Biogas Plant 2 Nos Aerobin-5	Biogas plant - 400 Compost pits-520	Nil	MCF-3; RRF-1	At regional level	Nil	Yes	Under processing	Yes
18		Thiruvalla	52883	54992	22	100	100	55		1.4	12	Decentralised treatment	4.79TPD of biodegradable waste and 1.5TPD of non biodegradable waste	Biogas Plant 2 with capacity of 350kg Biogas Plant 1 with capacity of 750Kg	Biogas Plant - 170Nos Pipe Compost 2360 Nos	Nil	MCF-1	At regional level	Nil	No	No	Yes
19		Alappuzha	174000	180953	72	94	82	76	58	25.15	21	Decentralised treatment	Not given	Aerobic Compost (Thumboormuzhi Model) 29 units	Biogas Plant-1964Nos. Pipe compost-1263Nos. Biobin- 6000 Nos	Nil	MCF-23; RRF-3	At regional level	1 (Sarvodayapuram)	Yes	Under processing	Yes
20		Chengannur	23456	24393	10	13	60	25	0.5	0.85	3	Decentralised treatment	Not given	Aerobic Compost (Thumboormuzhi Model) - 12 bins at 1 location		Nil	MCF-1	At regional level	Nil	Yes	Under processing	Yes

21	Alappuzha	Cherthala	45827	47658	19	74	98	35	0.6	0.6	6	Decentralised treatment	Not given	Aerobic Compost (Thumboormuzhi Model) - 26 bins at 2 locations	Composting units-90 Biogas plant-350 Compost pits-850	Nil	MCF-1 RRF - 1	At regional level	Nil	yes	Under processing	Yes
22		Haripad	15588	16211	13	93	77	30	1	1	5	Decentralised treatment	2.02TPD is managed	Aerobic unit 5	Composting units-783 Biogasplants-87 Compost pits-1579	Nil	Plastic Shredding Machine - 1 Number	At regional level	Nil	Yes	Under processing	Yes
23		Kayamkulam	71376	74228	30	31	40	9	2.72	2.5	10	Decentralised treatment	0.06 TPD is managed	Biogas Plant Aerobic compost (Thumboormuzhi Model4 bin) Location withcapacity of 24 kg/day	Composting unit-1431 Biogas plant-364 Compost pits-4450 Pipe Compost 1950	Nil	Material Collection Facility - 1location Resource Recovery Facility 1 location	At regional level	Nil	Yes	Under processing	Yes
24		Mavelikara	26421	27477	11	69	85	6	1.3		3	Decentralised treatment	Not given	Aerobic Compost (Thumboormuzhi Model) 12 bins at 1 location with capacity of 10kg/day	Biogas plant-242 Pipe Compost 165	Nil	MCF-1 RRF - 1	At regional level	Nil	Yes	Under processing	Yes

25	Kottayam	Changanassery	127987	133102	54	21	0	Not given		3	20	Decentralised treatment	Not given	Aerobins -36 treating 2TPD	8800 Ring compost 1800 Biobin unit included in 2019-20 project and is under process	Nil	MCF-1 RRF - 1	At regional level	1	No	No	Yes
26		Erattupetta	29675	30861	13	78	2	62	3.5	3	7	Decentralised treatment	Not given	Aerobic composting (Thumboormuzhi mode) - 24 bins Biogas plant: 28 nos	750 biobin included in 2019-20 project and will supply from march 2020	Nil	MCF-1 RRF - 1	At regional level	1	No	No	Yes
27		Ettumanoor	26423	27479	11	10	57	56			4	Decentralised treatment	Not given	Biogas Plant at location withcapacity of 500kg	Ring Compost - 450 Nos Bucket Compost- 150 Nos	Nil	MCF-1 RRF - 1	At regional level	Nil	No	No	No
28		Kottayam	136812	142279	57			104			18	Decentralised treatment	Not given	Aerobic Compost (Thumboormuzhi Model)- 62 Biogas Plant 52	Biogas plant - 1400 Nos Pipe Compost- 2300 Nos	Nil	MCF-1 RRF - 1	At regional level	1 (Vadavathoor)	No	No	No

29		Pala	123000	127915	52	35	21	14	2	7	26	Decentralised treatment	Not given	Aerobic Compost (Thumboormuzhi Model) - 6 bins at 1 location with capacity of 30kg Biogas Plant 1 location withcapacity 100 Kg	Biobin - 43 Nos Vermi Compost - 26 Nos Biodigester Pot - 4 Nos Ring Compost - 59 Nos Bucket Compost -170 Nos Pipe Compost 5162 Nos	Nil	MCF-1	At regional level	Nil	No	No	Yes
30		Vaikom	23234	24162	10			64			3	Decentralised treatment	Aerobic composting (Thumboormuzhi mode)-4 bins at 2 locations Biogas Plant - 1 bin at 1 location	Aerobic composting (Thumboormuzhi mode)-3 bins at1 location	Biogas Plant - 135	Nil	MCF-1	At regional level	Nil	No	No	No
31	Idukki	Kattapana	42646	44350	18	77	98	82	3.24	3.24	11	Decentralised treatment	Not given	Not given	Composting unit-1505 Biogas plants-345 Compost pit-450	Nil	MCF-1 Nos RRF-1 No	At regional level	Nil	No	No	Yes

32		Thodupuzha	52045	54125	22	67	1	81	4	4	10	Decentralised treatment	Not given	Biogas Plant 2 Nos 1 Tonne Vermi compost - 7 bin at 1 location	Biogas Plant - 928	Nil	MCF- 2 Nos Resource Recovery Facility (300s ft)- 1 No	At regional level	Nil	No	No	Yes
33		Aluva	24110	25073	10	43	23	Not given	7.84	Not given	3	Centralisedtreatment	Not given	Centralised plant at Brahmapuram	Kitchen bin - 10 Pipe compost 43	Centralised plant at Brahmapuram	RRF - 1	At regional level	Nil	No	No	Yes
34		Angamaly	33465	34802	14	0	0	Not given	0.5	0	4	Decentralised treatment	Aerobins-2	Biogas plant 1No	Biogas - 504 Nos Pipe compost 979		RRF-2 Nos; MCF-1; Biodigester bins-300Nos SWAP shop-1 No.	At regional level	Nil	No	No	Yes

35	Eloor	31468	32726	14	36	91	81	0.87	0.87	5	Decentralised treatment	Biogas Plant - Hospitals, Hotels, TCC Canteen	Aerobic Compost (Thumboormuzhi Model) 4 bins at 4 locations with capacity 1TPD	Biogas Plant - 310 Nos Biodigester Pot - 350 Nos	Nil	MCF-1	At regional level	Nil	No	No	Yes

36	Kalamassery	71038	73877	30	42	40	19	Not given	Not given	9	Centralised treatment	Not given	Centralised plant at Brahmapuram	Biogas plant-9 Compost pit-800	Centralised plant at Brahmapuram	MCF-1; MRF-1	At regional level	1	No	No	Yes
37	Koothattukulam	17942	18659	8	0	Not given	2	0.8	0	3	Decentralised treatment	Not given	Biogas Plant 1 No with capacity 150kg	Biogas 16	Nil	Nil	At regional level	Nil	No	No	Yes
38	Kothamangalam	114574	119153	48	62	52	25	6	6	14	Decentralised treatment	Not given	Windrow compost plant	Biogas plant-202 Compost pit-2303 Kitchen bin 10000	Nil	MCF-1; MRF-1	At regional level	1	No	No	Yes
39	Maradu	44704	46490	19	12	7	66	0	0	6	Centralised treatment	Not given	Not given	Biogas Plant - 166 Nos Biodigester Pot - 215 Nos Bucket Compost - 2330 Nos Pipe Compost 940 Nos	Centralised plant at Brahmapuram	MCF-4; RRF-1	At regional level	Nil	No	No	Yes

40	Ernakulam	Muvattu puzha	30397	31612	13	7	3	28			7	Decentralised treatment	Not given	Composting - 5 bins at 1 location (not working)	Kitchen bin 24	Nil	MCF-1	At regional level	1	No	No	No
41		North Paravur	31503	32762	14	100	89	185	2	2	7	Decentralised treatment	Aerobic composting (Thumboormuzhi model) -1 bin at 1 location with capacity 4 Cubic (Not Operating)	Biogas Plant 1 bin with capacity 100kg (not working) Vermi Compost - 1 bin with capacity 1 TPD Windrow Compost - bin with 3 TPD Capacity	Biogas Plant - 25 Nos Pipe compost 2500 Nos	Nil	MCF-1; RRF-1	At regional level	1	No	No	Yes
42		Perumbavoor	28110	29233	12	29	0	12	2.32	1	8	Decentralised treatment	0.75TPD of biodegradable waste is managed 0.75TPD of non biodegradable waste is managed	Bio-gas, aerobic compost, MRF	Biogas Plant - 161 Nos Biodigester Pot - 1500 Nos Ring Compost - 1000 Nos Pot compost-894	Nil	MCF-1; RRF-1	At regional level	Nil	No	No	Yes

43		Piravam	27229	28317	12	41	100	66	2.04	2.04	5	Decentralised treatment	Not given	Not given	Biogas -150 Pipe compost-874	Nil	MCF-1; RRF-1	At regional level	Nil	No	No	Yes
44		Thrikkakkara	77319	80409	33	80	100	124	7	7	10	Centralized treatment	Not given	Not given	Biogas 31	Centralised plant at Brahmapuram	Nil	At regional level	Nil	No	No	Yes
45		Thripunithura	92522	96219	39	87	86	46	Notgiven	Not given	14	Decentralised treatment	Aerobic composting (Thumboormuzhi model) -2 bins at 2 locations with capacity 14 unit& 8 unit Biogas Plant - 1 No with 100 kg capacity	1.62TPD of biodegradable waste is managed 0.124 non biodegradable waste is managed. Thumburmuzhimodel at Anapparambu -41 ward	Biogas Plant - 300 Nos Biodigester Pot - 125 Nos Bucket Compost - 2400Nos Pipe Compost 10000Nos	Centralised plant at Brahmapuram	Material Collection Facility - 1 No (Non Operation) Plastic Shredding Machine 1 No Baling Machine 1 No	At regional level	Nil	No	No	No

46		Chalakkudy	49525	51504	21	100	60.5	54	5	5	10	Decentralised treatment	5 SWM Plants(50kgcapacity)	Thumburmuzhimodelat Anapparambu (41 ward)Vermicomposting Biogas - 3(33kg/day)	83 SWM Plants(207.5 kg capacity)	Windrow composting (2tpd)	MRF-1; RRF-1	At regional level	Nil	Yes	Under processing	Yes
47		Chavakkad	39098	40660	17	42	100	31	4	Not given	14	Decentralised treatment	Not given	Vermicomposting 1.5TPD	Biogas Plant - 614Nos Pot Compost - 548Nos	Nil	MCF-1; RRF-1	At regional level	1	No	No	Yes
48		Guruvayur	70012	72810	29	32	96	58	4	4	15	Decentralised treatment	Biogas Plant(3.5tpd)	Bio organic management	Biogas Plant-400 Composting units-2545 Compost pits-1899 Kitchen Gardening	Windrow Compost (2TPD),	MCF-1; RRF-1	At regional level	Nil	No	No	Yes

49	Thrissur	Irinjalakuda	62532	65031	26	47	86	130	5.51	1.5	12	Decentralised treatment	SWM plt-2 (600KG)	SWM-2(600kg)	Biogas Plant -382 Nos Composting units-2577 Compost pits-5702	Nil	MCF-2; RRF-1	At regional level	1	No	No	Yes
50		Kodungallur	94883	98675	40	70	80	84	10	9	22	Decentralised treatment	Aerobic Compost (Thumboormuzhi Model)-6 bins at 3 locations with capacity of 10kg/day	Aerobic composting	Biogas Plant -650Nos Pipe Compost 2600 Nos Compost pits-4840 Composting units-455	Windrow Compost -1No-with capacity of 4TPD	Non biodegradabl e waste segragated at source level and collected and handed over to Clean Kerala Company andother private agencies for	At regional level	Nil	No	No	Yes
51		Kunnamkulam	54071	56232	23	100	100	6	3	3	10	Decentralised treatment	Aerobic compost (Thumboor Mozhi model)	composting plant 1.889TPD Biodegradable waste managed, 0.81 TPD Non biodegradabl	Bio bin -1628 Nos Biogas-73, Compost pits-2906, Compost unit-508	Windrow Composting Plant-4.5 TPD; 5 Acres of land is available with the llocal bodies for waste processing.	MCF-1; RRF-1	At regional level	Nil	No	No	Yes

52		Vadakkanchery	15674	16300	23	34	100	40	1.6	Nil	9	Decentralised treatment	1.93TPD waste managed(Bio&Nonbiodegradable)		Compost units 1918, Biogas-100,Compost pits-4471	Nil	MCF-2; RRF-1	At regional level	1	No	No	Yes
53		Cherupl assery	30730	31958	13	58	89	22	0.2	1.2	4	Decentralised treatment	0.482 TPD biodegradable waste managed, 0.427 TPD Non biodegradable waste managed.	1.43 TPD Nonbiodegradablewaste managed.	Pipe Compost 1000 Nos Biogas Plant - 200 Nos Composting units-1050	Nil	MCF-1; RRF-1	At regional level	Nil	Yes	Under processing	Yes
54		Chitttur-Thattamangalam	33000	34319	14	100	100	56 Nos	2		7	Decentralised treatment	Biogas Plant - 5 bins at 5 locations	Aerobic bin (Thumboormuzhi) - 8 bins at location with capacity 50kg/day/bin	Biogas Plant - 55 Nos Bucket Compost - 1168 Nos Ring Compost - 239Nos Composting units-1407	Aerobic Windrow Composting Plant -1 bin with capacity 3 Tons/day	MCF-7; RRF-1	At regional level	Nil	Yes	Under processing	Yes
55		Mannarkadu	39463	41040	17	Not given	84	58	0	0	6	Decentralised treatment	Not given	Not given	Pipe compost-40;biogas plant -20; Biocomposter-315	Nil	MCF-1	At regional level	Nil	No	No	Yes

56	Palakkad	Ottapalam	53792	55942	23	81	89	56	1.4		8	Decentralised treatment	Not given	Not given	Biogas plant-58 Pipecompost 182	Windrow compost	MCF-1; RRF-1	At regional level	1	No	No	Yes
57		Palakkad	131000	136235	55	40	11	156	0.2	1	29	Decentralised treatment	Not given	Biogas plant 1	Pipe compost-2500; Ring compost-60	Windrow composting is in operation. 15 Acres of land is available at Kanjikodefor setting up solid waste processing plant. Tendering process is going on. Asper annual report 2.1 Hectre of land is available.	MCF-7; RRF-1	At regional level	1(BPL Koottupatha)	Yes	Under processing	Yes
58		Pattambi	28632	29776	12	0	0	20	1		3	Decentralised treatment	Not given	Open composting in trench	Biogas plant-69		MCF-1; RRF-1	At regional level	Nil	Yes	Under processing	Yes
59		Shornur	43533	45273	19	100	82	65	4.5	2.8	6	Decentralised treatment	Not given	Biobin	Biogas 276	Nil	MCF-1; RRF-1	At regional level	Nil	No	No	Yes
60		Kondotty	28794	29945	12	80	12	160	0.12	0.12	4	Decentralised treatment	Not given	Not given	Pipe compost-420; Biogas plant-18(45kg/day); Ring compost-123	Nil	MCF-1	At regional level	Nil	No	No	No

61	Kottakkal	44382	46156	18	13	26	15	1.2	1.2	5	Decentralised treatment	Biogas Plant - 1 number with capacity of 250kg/day (not working) Aerobic bin compost-10bins	Aerobic compost - 12 bins	Not given	Incinerator. MRF,MCF,SWAP SHOP, BIOBIN, Ring compost under construction)	Material Recovery Fcaility - 3 number Plastic Shredding Machine - 1 number Baling Machine - 1 number, Reuse (Swap shop, Repair shop, Recycling industries) -1 unit	At regional level	Nil	No	No	Yes
62	Malappuram	101000	105036	43	80	27	24	2.2	2.2	13	Decentralised treatment	Not given	Composting	Biogas plant-31; Composting units-1061	1 Hectre land is available for waste processing	MCF3; RRF-1	At regional level	Nil	Yes	Under processi ng	Yes

63	Malappuram	Manjeri	97104	100984	41	0	44	16	3	1	15	Decentralised treatment	Biogas-1 (1000kg)	Aerobic Compost (Thumboormuzhi model)-8 binsat ward33 Biogas Plant at ward 14 Vermi Compost-Trenching Ground-500kg	Pipe Compost 2844 Nos	Windrow Compost-1 TPD Trenching Ground-1 ton	MCF-3	At regional level	1	Yes	Under processing	Yes
64		Nilambur	46366	48219	20	37	Not given	29	0.3	0.3	8	Decentralised treatment	Not given	Not given	Biogas Plant - 71 Nos. Pipe compost-135; Biocomposter-75	Nil	Temporary	At regional level	Nil	No	No	Yes
65		Parappanangadi	35243	36651	15	100	53	90	1	1	4	Decentralised treatment	Not given	Not given	Biogas Plant - 200 Nos Biodigester Pot - 300 Nos	Nil	MCF-1; RRF-1	At regional level	Nil	Yes	No	Yes

66	Perinthal manna	49723	51710	21	38	34	52	6	6	12	Decentralised treatment	Not given	Windrow Compost - 1 No	Bio bin - 1000 Nos Biogas Plant - 480 Nos Biodigester Pot - 1189 Nos Pipe Compost 700 Nos	Nil	Material Recovery Facility - 1No Plastic Shredding Machne - 1No Baling Machne - 1 No	At regional level	Nil	Yes	Under process i ng	No
67	Ponnani	90491	94107	38	80	70	49	4	4	15	Decentralised treatment	Not given	Aerobin -1	Pipe compost-364; Biogas plant-22; Biocomposter-686; Bucket compost-235	One (Private parties property used for landfilling)	MCF-8; RRF-1	At regional level	Nil	No	No	Yes
68	Thanoor	44973	46770	19	29	79	0	0.3	0.3	6	Decentralised treatment	Biogas Plant in 4 locations	Not given	Pipe Compost 200 Nos ODF Latrine - 400 Nos Ringcompost-67	Nil	MCF-1; RRF-1	At regional level	Nil	No	No	Yes
69	Thiroora ngadi	56632	58895	24	45	25	28	1.4	1.4	10	Decentralised treatment	Not given	Not given	Pipe Compost 1850 Nos	86 Cents of land is available	MCF-1	At regional level	Nil	No	No	Yes
70	Tirur	56058	58298	24	100	100	38	1.7	1.1	8	Decentralised treatment	Not given	Aerobin	Pipecompost-230(0.21TPD) ; Kitchen bin-1480(1.2TPD) ; Biogas plant-	Nil	MCF-1; RRF-1	At regional level	1	No	No	Yes

71		Valanchery	35795	37225	15	100	30	13	0.04	0.04	5	Decentralised treatment	Biogas plant -14	Not given	Biogas plant-28; Composting-230	Nil	MCF - 1	At regional level	Nil	No	No	Yes
72	Kozhikode	Faroke	32122	33406	14	48	5	18	2	2	6	Decentralised treatment	Not given	Aerobin-1 (50 kg/day)	Pipe compost 1550; Biogas plant-50;	Nil	MCF-1	At regional level	Nil	No	No	Yes
73		Koduvally	48678	50623	21	100	100	72 (Haritha Karma Sena	0.6	0.6	7	Decentralised treatment	Not given	Not given	Not given	Nil	MCF-1	At regional level	Nil	Yes	Under processing	Yes
74		Koyilandy	71873	74745	30	60	8	100	10	2.5	11	Decentralised treatment	Not given	1. Thumboor muzhi model composting - 11 unit 2. biogas plant - 500 kg per day	1. Portable biogas 250 nos 2. pipe, ring and vermi compost - 1933 nos	Nil	1. Material Collection Facility - 2 2. MRF - 1 3. plastic shredding mechine- 2 4. Bailing Mechine 1	At regional level	Nil	No	No	Yes
75		Mukkam	40670	42295	17	90	91	38	0.525	0.525	5	Decentralised treatment	Not given	Not given	Kitchen bin 301	Nil	MCF-1	At regional level	Nil	No	No	Yes

76		Payyoli	23576	24518	10	100		Not given	0.25	0.25	3	Decentralised treatment	Not given	Not given	Pipe compost 100 Kitchen bin 300	Nil	Not given	At regional level	Nil	No	No	Yes
77		Ramanattukara	35937	37373	15	100	100	Nil	0.01	0.2	4	Decentralised treatment	Not given	Not given	Ring Compost - 320 Nos	Nil	Not given	At regional level	Nil	No	No	Yes
78		Vadakara	75295	78304	32	89	100	63	7	10	18	Decentralised treatment	Compost-20, Thumboormuzhi-1, Ring compost-1	Not given	Pipe Compost 520 Nos, Ring compost-615, Biogas- 100, Bucket compost-450,Biobin-150		MCF-13, RRF-2	At regional level	1	No	No	Yes
79	Wayanad	Kalpetta	31580	32842	14	60	81	32	6	6	4	Decentralised treatment	0.508 TPD Biodegradable waste managed,0.561TPD Non biodegradable waste managed.	1.3 TPD Biodegradable waste managed, 0.869TPD Nonbiodegradable waste managed.	0.4 TPD Biodegradable waste managed, 0.11 TPD Nonbiodegradable waste managed	8 Acres of land is available in VellaramkunnuKalpetta.	MCF-1; RRF-1	At regional level	1	Yes	Under processing	Yes
80		Mananthavady	34663	36048	15	40	47	26	0.2	0.2	4	Decentralised treatment	1.7401 TPD Biodegradable waste Managed.		Vermicomposting 317 Biogas 217 Pipe compost 4100		MCF-1	At regional level	Nil	No	N0	Yes

81		Sulthanbathery	23333	24265	10	0	0	23	0.5	9.1	14	Decentralised treatment		Not given	Biogas plant - 192	0.5 Acres of land is available in Sulthanbathery construction of the plant is going on.	MCF-1	At regional level	1	No	No	Yes
82		Anthoor	36290	37740	16	100	98	28	1	1	5	Decentralised treatment	Aerobic Compost (ThumboormuzhiModel) - 6 units at3 locations with capacityof 2000 kg/bin; Biogas Plant - 1 unit with capacity 40kg/day	Not given	Biogas Plant - 179 Nos Ring Compost - 3033 Nos	Nil	Material Collection Facility - (40m2) - 1No; Plastic Shredding Machine - 1No; Baling Machine - 1No; Reuse strategy(SWAP Shop, Repair shop etc.) Swap shop -10	At regional level	Nil	No	No	Yes
83		Iritty	40369	41982	17	98	65	39	2.5	2.25	7	Decentralised treatment		Windrow Compost - 1 bin with capacity of 5TPD (Not working)	Biogas plant5 Pipe compost 110 Ring compost 341	Nil	MCF-1	At regional level	Nil	Yes	Under processing	Yes

84	Kannur	Koothuparambu	29619	30803	13	100	90	64	2	0.5	13	Decentralised treatment	Aerobic Compost (Thumboormuzhi Model) - 5 Bins	Vermi composting andtrenching Aerobic Compost (Thumboormuzhi Model) - 21 Bins	Pipe compost 2752 Nos	Nil	Material Collection Facility - 310 sqft Material Recovery Facility - 4000 sqft	At regional level	1	No	No	Yes
85		Mattanur	47078	48959	20	96	69	52	13	13	7	Decentralised treatment	Not given	Biogas Plant 1 bin with capacity 250kg/day Vermi Compost -1 bin with capaciy 5TPD	Ring compost 2500 Nos. Pipe Compost 1500 Nos.	Nil	MCF-1; RRF-1; Plastic Shredding Machine - 1number	At regional level	Nil	No	No	Yes
86		Panoor	17438	18135	8	60	26	40	2.5	0	2	Decentralised treatment	Not given	Not given	Kitchen bin and ring compost - 1200	Nil	Nil	At regional level	Nil	No	No	Yes
87		Payyanur	72111	74993	30	100	71	44	6	6	15	Decentralised treatment	Not given	Windrow composting	Pipe compost-1750;Kitchen bin-645;other units-1440	Nil	MCF-1;RRF-1; Plastic shredding	At regional level	1	Yes	Under processing	Yes

88		Sreekantapuram	17630	18335	8	100	88	30	0.5		3	Decentralised treatment	Not given	Vermi Compost - bin with capacity -1 TPD(Not working since2007)	Ring Compost - 125 Nos	Nil	Road side locked bins for collecting non biodegradablewaste - 20 locations	At regional level	Nil	No	No	Yes
89		Thalassery	92558	96257	39	51	1	97	5	5	20	Decentralised treatment	Not given	Biogas Plant 3 bins at 3 locations withcapacity of 1Ton	Biogas Plant - 1021Nos Pipe Compost 5200Nos	Nil	MCF-1	At regional level	1	Yes	Under processing	Yes
90		Thaliparambu	72465	75361	31	87	19	34	1.5	1.5	11	Decentralised treatment	Not given	Windrow Composting	Composting units-4800	Nil	MCF-1; RRF-1	At regional level	Nil	No	No	Yes
91	Kasaragod	Kanhangad	73536	76475	31	100	28	43	8	20	11	Decentralised treatment	Aerobic Compost (ThumboormuzhiModel)- 9 bins at 2 locations with capacityof 1000 kg/bin	Aerobic Compost (ThumboormuzhiModel) - 20 bins at 3 locations withcapacity of 1000 kg/bin	Biogas-2220 Ring compost-2500, Kitchen Bin-17400, Pipe compost-3222.	0.5 Hectre land is avaiilable.	Material Collection Facility -(1000sqft)- 1No Resource Recovery Facility -1000sqft -1No Plastic Shredding Machine -1No. Baling Machine -1No.	At regional level	1	Yes	Yes	Yes

92		Kasaragod	131000	136235	55	86	32	17	3	3	20	Decentralised treatment	Not given	Not given	Pipe compost-800, Biogas-13, Ring compost-8244	Nil	MCF-4; RRF-1	At regional level	1	Yes	Under processing	No
93		Nileshwaram	40802	42433	17	100	100	30	1	8	8	Decentralised treatment	Biogas-44, Thumboor muzhi (4 unit having2 bins),(1 unit having4	Aerobic compost (21bin 1 unit, 4bin 1unit, 3bin 2 unit)	Biogas-2840 Pipe Compost 2840 Nos, Ring compost-1998, Biobin-3350	80 Cents land is available.	MCF-1; RRF-1	At regional level	Nil	Yes	Yes	Yes
					3521				**880**	**932**	**1837**											

V. Bio-medical Waste Management:

As per Annual Report in the whole state for the year 2019-2020:

- Total Bio-medical generation: **42932kg/day**
- No. of Hospitals and Health CareFacilities:**13869**
- Status of Treatment Facility/ CBMWTF: The Common Bio Medical Waste Treatment Facility in Kerala is IMAGE situated at Kanjikkode, Palakkad which treated about **36852.931 kg/day** of Bio-Medical Waste.

VI. Hazardous Waste Management:

As per Annual Report in the whole state for the year 2019-2020:

- Total Hazardous Waste generation: **35919.278 Metric Tonne/year**
- Total hazardous waste recycled/utilized **: 8727.31 Metric Tonne/year**
- No. of Industries generating Hazardouswaste:**1617**
- Treatment Capacity of all TSDFs:**90MetricTonne**
- Avg. Quantity of Hazardous waste reaching the TSDFs and Treated :**43.732MetricTonne**
- Details of on-going or proposed TSDF :**Nil**

VII. Plastic Waste Management:

- Total Plastic Waste generation: **1,31,400TPA**(as per annual report **in the whole state**

  for the year 2019-2020.

- Treatment/ Measures adopted for reduction or management of plastic waste:

  - Ban of single use plastic items including plastic carry bags irrespective of thickness in the State w.e.f 01/01/2020 vide G.O.(Ms)No.6/2019 Env dated 27/11/2019;G.O.(Ms) No. 2/2020 /ENVT dated 27-1-2020 and vide GO no G.O.(Ms) No.4/2020 Envtdated16/02/2020

  - **Material Collection Facility - 837**; **Resource Recovery Facility-151**; Recyclable plastics (hard and soft plastics) are taken by rag pickers for recycling in the State and outside the State; Clean Kerala Company collected 655.59 T of plastic(soft) in the year 2019-2020. Tarring of 308.92 km of PWD roads and 764.8 km of LSGD roads was done during the year 2019-20. Almost all the brand owners who obtained registration from the Central Pollution Control have not furnished reports to the State Pollution Control Board and hence it is not possible to quantify or verify the quantity of plastic waste if any taken back by them.

  - As per the direction in GO(Ms) No 6/2019/Envt Dated 27.11.2019 officials from District Pollution Control Board inspected various shops

and market places through out the state and identified 93 number of violators. Notice imposing and mahasar were issued to the violators. Notice imposing Rs 10,000/- issued as fine to each violators.

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

- Electro coagulation method is being adopted for sewage treatment in STPs. Consent for the same is being issued by the SPCB subject to certain conditions such as safe disposal of sludge uninterrupted power supply, regular maintenance of electrodes, etc.
- Decentralized Wastewater Treatment System (DEWATS) system coupled with Phyto-remediation was provided in a slum area, Chathanad in Alappuzha, Kerala. The system consists of Anaerobic baffle reactor, planted gravel filter. Waste water from the houses in the colony is collected through pipe line and then it enters the anaerobic baffle reactor and then it is passed through planted gravel filter and treated sewage is discharged into drain (Photos of the same enclosed in Annexure I)
- Constructed wetland is also provided for the treatment of waste water from the ladies hostel of College of Engineering, Trivandrum (Photos of the same enclosed in Annexure I)

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

Polluting sources including drains contributing to river pollution were already identified and according to that action plans were prepared and submitted to CPCB. STPs were proposed in the action plans wherever necessary. Measures for management of waste were also incorporated in the action plans. In situ primary treatment were proposed for the river stretches Bharathapuzha and Pamba in the action plans. As part of the Cochin Metro Rail Limited's Integrated water transported system project 5 STPs are proposed at Elamkulam, Vennala, Edapally, Puthukalavattom and Perandur for treating the water coming through drains and discharging treated water to water bodies.

X. 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 DepartmentandStaffofficertoChiefSecretaryasnodalofficers&members.

XI. 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

XII. 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, **Analysis report of 21 Polluted River Stretches & Overall Status of Water Quality Analysis as per November 2021**are attached as **Annexure I**.

XIII. 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 are also being experimented. The Central Groundwater Board has prepared a Block wise master plan in 2015 to take up artificial groundwater recharge to groundwater.

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 programmes across the State.

XIV. Good Irrigation practices being adopted by the State:

Irrigation in Kerala is classified into two schemes.

1. Major Irrigation and Medium Irrigation
2. Minor Irrigation

As per the classification followed by the department, schemes having a cultivable command area upto2000ha are treated as minor irrigation works. Medium irrigation works are those with irrigable command area of more than 2000 ha, but less than 10,000 ha. Those schemes above 10,000 ha are classified as Major irrigation schemes. Surface flow irrigation method is currently practiced in Kerala. As the department is more focusing on effective utilization of available water for irrigation as well as for its efficient use, new types of irrigation methods like micro/community irrigation for cash crops and horticrop are proposed under this scheme.

XV. 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 KeralaStateGovernmenton27.11.2019.ThesameisattachedasAnnexureII.

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, theDepartmenthascompleted370nosofrechargepit/dug well recharge schemes and 18 nos of bore well recharge schemes.

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

XVI. 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 Kilometres (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:-

(1)Cheruthuruthy check dam

(2) Changanamkunnu regulator

(3) Manjummel regulator

(4) Purappallikavu regulator

(5) Velliyankallu regulator cum bridge

(6) Pookkottumana regulator cum bridge

The work for 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 followup, 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.

XVII. <u>Maintaining minimum e-flow of river:</u>

- As per order of the Hon'ble NGT dated 9/8/2017 in O.A.no 498/2015 it is mandatory to maintain 15% - 20% of average lean season flow.
- For lean flow calculation the process of data collection for the last 25 years of all 44 rivers during summer months ie. from January to May is been undertaken.

- Study of individual rivers needs to considered for maintaining e- flow during lean season. Storage structures/diversion structures needs to proposed at certain locations to regulate thee-flow.

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

As per Order in OA 498/2015 Hon. NGT has directed all States to maintain 15-20 % of the average lean season flow of that river. Ministry of Water resources, RD& Ganga Rejuvenation issued a notification (SO.5195 (E) dated 9.10.2018) to maintain e-flow in River Ganga. Hon'ble NGT order has given some relaxation to status , which are unable to adhere to the average percentage fixed as e-flow CE (I&A),&CE (IDRB) made discussion in this regard and action has been taken by 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 viz i) Forest area ii) Coastal Regulation Zone (CRZ), the topography of the state, high population density , and number of rivers, Government has not yet taken a policy decision in this matter. The State Government has sent the apprehension of the State to GOI with regard to River Regulation Zone Bill.

As per the direction of the Additional Chief Secretary (WRD), meetings were conducted with Chief Engineer, 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 projects. Data collection for Manimala, Meenachil and Ancharakandi rivers completed. Data collection for Karamana and Vamanapuram is in progress.

XVIII. <u>Plantation activities along the rivers:</u>

Proposal submitted by Irrigation Department. Waiting for approval.

XIX. <u>Development of bio-diversity park:</u>

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

the works remaining are finishing work of floor only. The lists of various projects relating to river bank conservation by planting suitable species/ biodiversity parks in the river banks being undertaken by Bio-Diversity Board of Kerala is attached with Annexure-III.

XX. Reuse of Treated Water:

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

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

Tirur-Ponnani River, Malappuram

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

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.

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

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.

XXIV. <u>Action against identified polluters, law violators and officers responsible for failure for vigorous monitoring:</u>

Notices have been issued from the Board to51 Grama Panchayaths, 11 Urban local bodies, 127 health care facilities and directions have been issued to 2 Corporations for violation of the rules noticed.

Notices have been issued to 4 Corporation, 8 Municipalities and issued Direction to two Corporations . Hearing conducted with 10 Municipalities in connection with levying of EC.

A B Pradeep Kumar

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MEMBER SECRETARY

MONTHLY BOD & FC-YEAR 2021

Sl no	Polluted river stretch	Parameters	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Maximum
1	Karamana,TVM	BOD (mg/l)	2.7	7.8	8	7	8.2	8.1	8.2	7.8	8	4.1	5.4	8.2
		FC (MPN/100ml)	4900	4600	4800	4300	4600	4100	4900	4800	4600	4000	4600	4900.0
2	Pamba,PTA	BOD (mg/l)	0.9	0.9	1.1	1.5	0.6	1.5	1.6	1.7	1.6	1.1	1.2	1.7
		FC (MPN/100ml)	160	110	90	80	70	110	150	110	100	110	100	160.0
3	Manimala	BOD (mg/l)	2.7	3.1	2.5	2.2	1.9	1.7	2.5	BDL	BDL	BDL	2.4	3.1
		FC (MPN/100ml)	580	400	200	840	940	2200	200	BDL	200	100	490	2200.0
4	Chitrapuzha	BOD (mg/l)	2.8	2.1	1.3	BDL	3.2	3.0	3	3.2	3.2	3.2	3.2	3.2
		FC (MPN/100ml)	3100	3400	2400	1400	1200	1100	2200	1400	3400	4300	4800	4800.0
5	Kadambrayar	BOD (mg/l)	2.8	2.6	3.2	3.6	3.2	2.4	2.8	3	3.2	4	2.4	4.0
		FC (MPN/100ml)	1200	630	540	380	310	1100	4000	1700	2700	2500	3500	4000.0
6	Periyar	BOD (mg/l)	2.9	2.1	3.9	2.9	2.4	2.1	2.7	1.1	2.3	1.9	2.2	3.9
		FC (MPN/100ml)	6300	2700	2100	6300	4800	1700	4000	2700	3400	2300	7000	7000.0
7	Karuvannur	BOD (mg/l)	1.7	1.5	1.8	1.6	BDL	BDL	BDL	BDL	1.9	1.3	2.1	2.1
		FC (MPN/100ml)	1000	920	200	700	NA	NA	NA	NA	NA	NA	NA	1000.0
8	Kechery	BOD (mg/l)	2.0	1.1	1.6	1.2	1.5	1.1	1.3	1.2	2.4	1.4	2.2	2.4
		FC (MPN/100ml)	200	200	200	490	NA	NA	NA	NA	NA	NA	NA	490.0
9	Puzhakkal	BOD (mg/l)	2.0	1.9	BDL	BDL	1.3	1.6	1.5	1.3	2.2	1.6	1.4	2.2
		FC (MPN/100ml)	1500	1400	310	490	NA	NA	NA	NA	NA	NA	NA	1500.0
10	Kallai	BOD (mg/l)	BDL	1.1	1.2	1.3	BDL	BDL	2.5	1.1	1.3	1.6	1.9	2.5
		FC (MPN/100ml)	11000	17000	1000	24000	6300	12000	2800	2000	6800	38000	25000	38000.0
11	Kuttiyady	BOD (mg/l)	BDL	BDL	BDL	BDL	1.6	BDL	BDL	BDL	BDL	BDL	BDL	1.6
		FC (MPN/100ml)	1100	310	110	84	600	940	2400	810	310	2500	700	2500.0
12	Bharatapuzha,Plkkd	BOD (mg/l)	1.67	1.7	1	1.33	1.33	1.7	1.2	1.6	1.5	2	2.1	2.1
		FC (MPN/100ml)	150	150	150	250	Absent	540	700	610	2000	250	460	2000.0
13	Bhavani, Plkkd	BOD (mg/l)	1.1	1.2	0.9	0.7	1.1	BDL	BDL	BDL	BDL	BDL	BDL	1.2
		FC (MPN/100ml)	100.0	150.0	100.0	200.0	50.0	470	350	310	1100	840	400	1100.0
14	Tirur,Mlpm	BOD (mg/l)	1.1	BDL	2.4	1.8	_	1.1	1.1	1.1	1.5	BDL	BDL	2.4
		FC (MPN/100ml)	38	36	63	70	_	43	48	63	63	79	40	79.0
15	Kadalundi,Mlpm	BOD (mg/l)	2.9	BDL	2.8	1.3	_	1.4	BDL	BDL	BDL	BDL	BDL	2.9
		FC (MPN/100ml)	48	40	70	79	_	70	63	61	94	79	70	94.0
16	Kavvayi, KNR	BOD (mg/l)	0.2	1.14	0.34	0.87	2.1	BDL	BDL	BDL	BDL	BDL	1.5	2.1
		FC (MPN/100ml)	100	40	30	20	60	31	20	49	49	63	70	100.0
17	Kuppam, KNR	BOD (mg/l)	0.54	1	1	2.2	1.7	BDL	1.5	1.3	1.1	1.6	BDL	2.2
		FC (MPN/100ml)	60	40	80	60	120	20	61	61	79	94	63	120.0
18	Peruvamba,KNR	BOD (mg/l)	0.27	0.53	0.46	0.6	BDL	BDL	1.1	1.1	1.5	BDL	2	2.0
		FC (MPN/100ml)	80	60	60	30	40	20	40	81	70	84	79	84.0
19	Ramapuram,KNR	BOD (mg/l)	0.6	0.8	0.47	0.27	1.9	BDL	BDL	2.1	BDL	BDL	2	2.1
		FC (MPN/100ml)	80	40	60	50	84	70	81	70	70	63	49	84.0
20	Uppala,KSGD	BOD (mg/l)	2.1	2.4	2.3	BDL	1.1	BDL	1.7	1.3	1.1	BDL	2	2.4
		FC (MPN/100ml)	94	110	120	84	100	70	48	94	79	120	210	210.0
21	Mogral,KSGD	BOD (mg/l)	2.1	2.4	2.3	BDL	1.1	1.4	1.9	2.3	BDL	BDL	BDL	2.4
		FC (MPN/100ml)	94	110	120	84	100	84	110	63	84	110	250	250.0