

**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

OA.No. 159 of 2021 (SZ)

Kankana Das, Kolkata

...Applicant

Versus

**Union of India,
Through Secretary,
MoEF&CC
and Ors.**

...Respondents

**REPORT FILED BY SMT. BINDHU RADHAKRISHNAN, CHIEF
ENVIRONMENTAL ENGINEER OF KERALA STATE POLLUTION
CONTROL BOARD IN THE MATTER OF O.A NO.159/2021 IN
ACCORDANCE WITH THE ORDER DATED 17.10.2023 OF HON'BLE
NGT**

Dated at Chennai on 21st November, 2023



REMA SMRITHI VK

Standing Counsel for KSPCB - R12

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI IN

Original Application No. 159 of 2021 (SZ)

REPORT FILED BY BINDHU RADHAKRISHNAN, CHIEF ENVIRONMENTAL ENGINEER OF KERALA STATE POLLUTION CONTROL BOARD IN THE MATTER OF O.A NO.159/2021 IN ACCORDANCE WITH THE ORDER DATED 17.10.2023 OF HON'BLE NGT

I, Bindhu Radhakrishnan, D/o. M.P Krishnan kutty (Late), aged 54 years, am the Chief Environmental Engineer of Kerala State Pollution Control Board and I am duly authorised to file this report.

The Hon'ble NGT vide order dated 17.10.2023, has directed to file suggestions/response to the observation of the CPCB in the State Action Plan. Accordingly the template furnished by CPCB was circulated among the concerned departments and State Action Plan was modified based on the informations furnished by the respective departments. The same was submitted to Central Pollution Control Board vide letter no. KSPCB/135/2023-CEE dated 02.11.2023. Copy of the said letter along with the State Action Plan of Kerala submitted to CPCB is attached as **Annexure R11 (A)**.

Dated this the 16th day of November 2023.



Bindhu Radhakrishnan
BINDHU RADHAKRISHNAN
Chief Environmental Engineer

On behalf of Respondent No. 11 in OA no. 159/2021

☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairman: 2318150 Member Secretary: 2318151
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KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004



No.KSPCB/135/2023-CEE

Date: 02.11.2023

From

The Member Secretary

To

The Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar
Delhi -110032



Sub: Submission of State Action Plan in OA 159/2021 - Observations received from CPCB - reg

- Ref: 1. Hon'ble NGT Order dated 15.03.2023 in OA 159/2021.
2. Letter No. A3/27/2023-ENVT dated 13.04.2023 from Additional Chief Secretary to Government, Environment Department, Government of Kerala.
 3. E-mail dated 20.04.2023 received from NCAP Team, CPCB Delhi HO
 4. Letter No. A3/27/2023-ENVT dated 24.04.2023 from Additional Chief Secretary to Government, Environment Department, Government of Kerala.
 4. Hon'ble NGT Order dated 17.10.2023 in OA 159/2021.

Sir,

Kind attention is invited to the references cited. The State Action Plan for Kerala in OA 159/2021 was submitted vide ref cited 2nd as per the Hon'ble NGT Order dated 15.03.2023 in OA 159/2021. Vide ref cited 3rd and 4th, observations made by CPCB in the State Action Plan of Kerala in OA 159/2021 was received. As per the Hon'ble NGT Order dated 17.10.2023 in OA 159/2021, it was directed to file suggestion/response for the observations of CPCB. Accordingly, the updated State Action Plan of Kerala is enclosed for further necessary action.

Yours faithfully,

MEMBER SECRETARY



BINDHU RADHAKRISHNAN
Chief Environmental Engineer

— o/c —

Indicative template for STATE ACTION PLAN - KERALA

1. Industrial Emissions

S. No.	Activities	Status of activity (Completed/ Ongoing/ To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implications (Yes/ No)	Funds Allocated (Rs crore)	Funds Utilized as on date (Rs crore)
	<p>Policy for permitting new industries in Critically Polluted Areas (CPAs) -KSPCB</p>	No Critically Polluted Areas in Kerala	NA	NA	NA	NA	NA
	<p>Guidelines for laying city gas distribution network -Oil companies, PESO etc.,</p>	The code of practice for Quality of service for city or local Natral Gas Distribution Networks vide G.S.R 720(E) dated 1.9.2010 and further amendment on 15.3.2018 was issued by Petroleum and Natural gas Regulatory Board	Being Utility project, these are ongoing projects. However timelines prescribed by the Petroleum & Natural Gas Regulatory Board (PNGRB) shall be adhered to.	Coverage as per the Minimum Work Program prescribed by the Petroleum & Natural gas Regulatory Board (PNGRB)	No financial implication to State Govt	Project funded by Company. Total Project Cost for 8 years is approx Rs. 5000 Crs	Approx. Rs. 850 Crs have been spent on the project
	<p>Policy for replacement of heavy oil (eg., furnace oil, diesel etc.) based industries to alternate energy sources (CNG/ PNG/ Electricity) -</p>	National policy will be followed.	Ongoing	100%	Industries will incur to expenditure for clean fuels.		
	<p>3. alternate energy sources (CNG/ PNG/ Electricity) -</p>	KSRRTC Dispose the used oil/ heavy oil through successful bidders in MSTC auctions possessing valid registration of Central & State pollution control board.	Ongoing	100%	No	NA	NA



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<p>Industries department/ EMC/ KSPCB etc.,</p>	<p>This policy is for the purpose of prohibiting / regulating the use of furnace oil to reduce air pollution and its impact on the environment. BPCL Kochi Refinery is using Low Sulphur fuel / furnace oil in heaters / boilers to reduce SO2 emission. In addition to the above, Kochi Refinery is using low hydrocarbon fuel for reducing load of emission.</p>	<p>Continuous</p>	<p>100%</p>	<p>Company's own fund</p>		
<p>4</p> <p>Policy for restriction on usage of Pet coke for (Industries department)</p>	<p>The Hon'ble Supreme Court vid order dated 24-10-2017 in WP(C)13029/1985 banned use of pet coke and furnace oil in National Capital region states as these fuels emit more sulphur dioxide compared to conventional fuels. The Hon'ble NGT vide order dated 16-5-2017 in OA 471/16 directed all State Governments to take decision as to whether pet coke is an approved fuel or not. Hon'ble NGT vide order dated 4-7-2019 directed that Petcoke and furnace oil may not be allowed in terms of reports of CPCB dated 15-3-2019 as follows: " Considering the various directions and orders of hon'ble Supreme Court regarding use of pet coke and furnace oil containing higher sulphur, it is required that states, to formulate fuel policies regarding use of pet coke and furnace oil in the light of Supreme /court order dated 24-10-2017(banning use of petcoke and FO in NCR and 17-11-2017(suggesting states to take similar measurs) and further Hon'ble supreme Court order dated 13-12-2017, 5-2-2018 and 26-7-2017 allowing use of pet coke in industris /processes which pet coke and furnace oil eithe as feed stock (Calcine Pet coke units, Aluminium industries) or where they get absorbed along with product in manufacturing process(cement, lime kiln, calcium carbide industries). It is relevant to mention that use of raw petroleum coke in CPC units has been allowed with condition of 90% recovery of SO2 emission. The instruction ofCPCB to use petcoke in lime kiln will be followed and monitoring will be done for compliance.</p>	<p>Ongoing</p>	<p>100%</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>



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<p>5. Rules and Regulations on uninterrupted power supply in State/ UT(KSERB)</p>	<p>Notification of Ministry of Power is followed. No separate regulations, specifically for Uninterrupted Power Supply is currently notified in Kerala. SOP notified vide No.1/1/KSERC-2015 dated 15.12.2015</p>	<p>Total installed capacity of power in the State as on September 2023 is 3765.32 MW, of which, hydel power contributed the major share of 2173.77 MW (57.73 per cent); while 696.34 MW (159.96MW - KSEBL +536.38 MW-Private -IPP & CPP) was contributed by thermal projects (18.49 per cent), 824.94MW (21.91 per cent) from solar and 70.28 MW from wind (1.87 per cent).</p>	<p>98%</p>	<p>No</p>	<p>NA</p>	<p>NA</p>
<p>7. Policy for use of DG sets</p>	<p>Regulations of DG sets in the State are as per the notification of Ministry of Environment and Forests and Climate Change. Kerala SPCB issued order No. PCB/HO/SEE3/Tech/82/2019 dated 9-12-2020 and 26-3-2021 on retrofitting of emission control devices/equipments in DG sets of capacity of 500 KVA and above in the State of Kerala</p>	<p>Ongoing</p>	<p>100% wherever applicable</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>
<p>8. Policy regarding installation of CAAQMS based on the emission potential or capacity of air polluting industries.</p>	<p>Central Pollution Control Board issued direction B-29016/04/06PCI-I /5401 dated 5-2-2014 for the providing of CAAQMS in the State. There are 20 number of 17 category units. Of which, seven are emission potential units and three have provided CAAQMS. Besides the above, three units have provided CAAQMS. Installed CAAQMS Stations: 9 no.s (Plamoodu, Kariavattom, Kollam, Eloor, Thrissur, Kannur, MG Road Ernakulam, Vytilla Ernakulam, Palayam Kozhikode) Proposed CAAQMS Stations: 4 no.s (Idukki, Malappuram, Alappuzha, Palakkad)</p>	<p>9 Installed 4 Proposed : 1 Year</p>	<p>All Kerala</p>	<p>Yes</p>	<p>Rs. 1 crore approx. for each station</p>	<p>Rs. 1 crore approx. for each station</p>
<p></p>	<p>BPCL Kochi Refinery has 6 continuous ambient air quality monitoring stations (AAQMS) installed at the peripheries of the refinery to enable close monitoring of ambient air quality near the refinery.</p>	<p>Continuous</p>	<p></p>	<p>Company's own fund</p>	<p></p>	<p></p>



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9	<p>Mechanism to be devised for expansion of OCEMS to air polluting industries are not covered currently (such as emission from utility stacks in 17 categories, etc.)</p>	<p>There are 17 category industrial units have provided OCEMS. Besides the above, 21 industrial units have provided OCEMS. Guidelines for bringing industries under OCEEMS (Online Consent Effluent & Emission Monitoring System) has been issued by the Board vide PCB/HO/SEE-3/TECH/136/2021 dated 28-2-2022.</p>	<p>On going In 2 years</p>	<p>100%</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>
	<p>9.</p>	<p>BPCL Kochi Refinery : Online data from all the AAQMS is transmitted to KSPCB / CPCB on a continuous basis. The ambient air quality information is also communicated to general public through an electronic display board. In addition to the above, a third party monitoring system is also being maintained which is accredited by NABL Lab to ensure emission and ambient conditions are well within prescribed limits.</p>	<p>Continuous</p>	<p>100%</p>	<p>Company's own fund</p>		
		<p>In the Consent to operate/establish issued by the Board, condition for controlling fugitive emission is included. The standards for ambient air quality with respect to particulate matter is prescribed for the industrial units especially crushers. The compliance of consent condition is also checked.</p>	<p>On going</p>	<p>100%</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>



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<p>10. Mechanisms to control fugitive emissions sources - KSPCB, Industries department</p>	<p>BPCL Kochi Refinery : Various measures are taken and maintained to minimise VOC emissions from storage, transport, and effluent handling facilities.</p> <ul style="list-style-type: none"> - Double seal floating roofs ensure low vapourisation and avoids escape of hydrocarbon vapours. - Double mechanical seals are provided for pumps - Closed loop sample points are employed for sampling. - Fixed VOC meters are provided in Petrochemical complex. - In addition to the above, a third - party monitoring system accredited by NABL Lab is also being done periodically (LDAR Program) - In addition, VOC control and treatment system are installed in ETP for VOC vapours generated in the effluent treatment area. 	Continuous	100%	company's own fund		
<p>11. Regulations for conversion of brick kilns to clean technologies-KSPCB</p>	<p>Kerala PCB vide circular no. KSPCB/122/2022-SEE-3 dated 31-8-2022 issued direction that the standards for particulate matter in stack emission and minimum stack height specified in the notification of Ministry of Environment and Climate Change shall be strictly addressed to.</p> <p>All new brick kilns shall be allowed only with zig zag technology or vertical shaft or use of piped natural gas as fuel in brick making. The existing brick kilns which are not following as above shall be converted to, within a period of two years.</p> <p>In accordance with MOEF & CC notification, the consent of existing temporary or seasonal brick kilns can be renewed up to 31/08/2023 subject to compliance of all the conditions in notification and prevailing circulars.</p> <p>CPCB has also been addressed for advice in the case of temporary or seasonal brick kilns.</p>	In 2 years	100%	No	NA	NA
<p>12. Regulations for Emission Trading Scheme (ETS)-KSPCB, Industries department, Energy Management</p>	<p>Ministry of Power, Government of India published draft Carbon Credit Trading Scheme (CCTS). They requested comments from the stakeholders on the draft CCTS and not yet finalised.</p>	To be started	100% wherever applicable	NA	NA	NA



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13. Policy to set up e-waste recycling unit in industrial areas in compliance with e-waste management rules-KSPCB, Industries department	E-Waste Management Rules, 2016 is followed in the State. E-waste inventory has been prepared for the State through NIIST by the Kerala PCB. In Kerala, two dismantling units are in operation. Consent to establish for a recycling unit attached to the operational dismantling unit at Idukki by the independent private unit (M/s. Sahya Solutions Group) started functioning. Consent to operate and EPR registration issued. Govt. has taken initiatives to provide more units.	Completed	North and South Kerala	No	NA	NA
14. Any other Policy / Rules/ Standards/ Guidelines pertaining to industrial emissions-KSPCB	Board issued guidelines for controlling emission from hot mix plants, rendering plants. Local Self Government in Kerala issued guidelines for rendering plants	On going (in 2 years)	100%	NA	NA	NA
15. Number of industries in the state complying emission standards -KSPCB	1212 industrial units in the State and are complying emission standards. Of which 132 are in red category, 1058 are in orange category and 22 are in green category	Completed	100%	NA	NA	NA
16. Inventory of fuel consumed in the industries (type and quantity) -Oil companies, Industries dept	Apr-Mar'23 consumption of various types of fuel & qty on industry basis is as below: (Data extracted from industry Y2 file). MS (Petrol): 1784.78 TMT HSD (Diesel): 2639.26 TMT SKO (Kerosene): 24.08 TMT LPG: 1135.37 TMT FO (Furnace Oil): 422.64 TMT Bitumen: 219.28 TMT Lubes/Greases: 41.31 TMT CNG: 29.03 TMT	NA	NA	NA	NA	NA



	<p>KSRTC: Consumption of various types of fuels & quantity on the period of April 2022 to March 2023 is as below: MS (qty in ltr) : 1,53,84,500 HSD (qty in ltr) : 11,91,55,930 CNG (qty in ltr) : 38,662</p>	NA	NA	NA	NA	NA	NA
<p>17. Shifting of industries/ commercial units to gaseous fuels (CNG/ PNG/ CBG) -oil companies, Industries dept</p>	<p>Pipeline network of natural gas is available at / near all the major industrial hubs in the districts of Ernakulam, Thrissur, Palakkad, Malappuram, Kozhikode, Kannur and Kasaragod.</p> <p>However there is no policy / Guideline for shifting of industries from using pollutant fuels to PNG. Policy is to be issued by the industries department.</p> <p>Major industries are extensively using solid fuels and FO especially those located in Ernakulam city.</p> <p>Pipeline network is being laid to provide Natural Gas from LCNG located in DIC Kochuveli, which will cater to major industries in Trivandrum, further network is being developed in Alappuzha & Kollam for CNG & PNG</p> <p>Industries and entities are still using briquettes, and need to shift to PNG as pipeline network is available in DIC Kochuveli, Trivandrum Dist. Kollam & Alappuzha</p>	31-3-2024	100%	NA	NA	NA	NA


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		<p>As a part of Eco friendly initiative, KSRTC has decided to run a pilot project prior to the mass conversion of HSD buses to CNG.</p> <p>5 HSD Buses have been successfully converted to CNG. KSRTC has also purchased 2 new CNG engine and conversion kits from M/s. Ashok Leyland.</p> <p>The newly purchased CNG retro - fitment kits are fitted in 2 fast passenger buses of KSRTC.</p> <p>The above mentioned converted buses are now in regular service operation</p>	Ongoing		No			
18. shifted to PNG/ LPG-Oil companies	<p>Number of households shifted to PNG/ LPG-Oil companies</p>	<p>For LPG, there are 94,60,743 connections. "PNG infrastructure is ready in the districts of Emakulam, Thrissur, Palakkad, Malappuram, Kozhikode, Kannur and Kasaragod, to cater to over 50,000 households</p> <p>PNG is more safer and cleaner fuel than LPG. Govt. should promote PNG in urban areas where PNG is available."</p> <p>3,200 customers are currently using PNG in Trivandrum & Alappuzha district, pipeline network is being laid to connect 80,000 households by Mar 2024</p>	On going	2024	80,000 households	NA	NA	NA
Any other activity/ project pertaining to industrial emissions	<p>BPCL Kochi Refinery: KR is complying statutory requirement pertaining to Industrial emission norms.</p>		Continuous		100%	Company's own fund		



BINDHU RADHAKRISHNAN
Chief Environmental Engineer

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2. Vehicular Emissions

S. No.	Activities/ Action plan	Status of activity (Completed/ Ongoing/ To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implications (Yes/ No)	Funds Allocated (Rs crore)	Funds Utilized as on date (Rs crore)
1.	Notification for phasing out old vehicles (Commercial: 10 years; Private: 15 years) -Transport, MVD etc.,	Notification of the Ministry is followed. All the 15 year old vehicle registered under Central Govt, State Govt, LSGD,public sector has been phased out. The Registration of those vehicles remain cancelled in VAHAN software.	Ongoing	100%	No	Nil	Nil
2.	Policy for scrapping old vehicles -Transport, MVD etc.,	Kerala State Road Transport Corporation own 5435 buses including 50 electric buses. 238 buses below 5 years ; 2302 buses of age 5 -10 years; 2702 buses of 10-15 years and 193 buses of 15-17 years. As per the Government order no GO (P No 11/2023/FIN Dated 31.01.2023, Stage Carriage and other category type vehicles having age more than 15 years has to be removed from the existing fleet. At present KSRTC have 236 stage carriage buses and 153 other vehicles which are having age more than 15 years by 1.04.2023. KSRTC via order no ML3/002 389/17 dated 07.02.2023 has requested Government for an extension on the age of vehicles condemned for scrapping. Govt has entrusted KSRTC to set up Scrapping Centres (RVSF) through GO (P) No: 100/2023/TRANS dated 9/3/2023. All the 15 year old vehicle under the ownership of Govt (Central, State) related departments shall be scrapped through RVSF. The decision for the same has been taken GO (P) No: 17/2023/TRANS. The scrapped vehicles can use the Certificate of Deposit to buy new vehicle with reduced tax. This direction being given through GO(P) No: 18/2023/TRANS.	Ongoing	100%	Yes	Nil	Nil
3.	Policy/ Plan for Li-battery waste management from scrapped vehicles -KSPCB	MoEF &CC notified Battery waste Management Rules 2022 including the plan for Li Battery waste management from scrapped vehicles. This rule is followed.	On going	100%	No	Nil	Nil



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Chief Environmental Engineer

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4.	<p>Policy / Scheme for Eco-Friendly Mass Rapid Transport Systems -Transport, MVD etc.,</p>	<p>Kochi Metro Rail Limited (KMRL) is a centre-state joint venture company entrusted with the implementation of Kochi Metro Rail Project and Kochi Water Metro Project.</p> <p>The Phase I of Kochi Metro Rail Project extending from Aluva to Petta over a length of 25.20 km with 22 stations is fully operational currently. The Phase I extension of Kochi Metro Rail Project extending from Petta to Thripunithura over a length of 3 km and 3 stations is partially commissioned (2 stations and 1.8km).</p> <p>The Union govt. had approved the Phase II corridor of Kochi Metro Rail Project, extending from JLN Stadium to Infopark via Kakkanaad over a length of 11.2 km with 11 stations, in September 2022, and the project implementation has commenced currently. According to the funding plan, the Centre government and State government will give Rs. 274.90 Crore each as equity share in the project.</p> <p>The Kochi Water Metro Project which a first of its kind water transport project in India using electric boats is also in the implementation stage. It is a 76 km long integrated transport system connecting 10 islands with mainland Ernakulam city through a network of 16 routes comprising 38 stations. For enhancing first and last mile connectivity electric vehicles has been exempted from availing permits (STA/RTA) separately.</p>	Implemente	Presently at Kochi			
5.	<p>Policy for augment e-vehicles Industries, Transport, MVD, EMC, ANERT etc.,</p>	<p>An Electric Vehicle Policy (GO No:24/2019/TRANS- EV Policy of the State) is in place for the State of Kerala. The policy aims at enhancing e mobility activities such as promotion of Electric Vehicles, development of resilient charging infrastructures etc. Registration fee for electric vehicle has been exempted in the State. As per GO (P) No: 12/2021/TRANS dated 23/2/2021, 50% (fifty percentage) tax reduction for a period of five years with effect from the 1st day of April, 2021 has been provided on the rate of tax levied for Electric Transport Vehicles. Also tax has been exempted for first five years in the case of electric 3 Wheelers. For the Non Transport Vehicle Category a consolidated tax percentage of 5% of the invoice price is levied in the place of 10 to 20 % of invoice price.</p>	On going	100% wherever applicable			
6.	<p>Notification and enforcement of PUC norms - Transport, Motor Vehicles department</p>	<p>Notified and the updated pollution norms are in place. Vehicles complying BS6 pollution norms only can be registered in the State from 1/04/2020. Pollution testing centres are now directly linked to Parivahan system. The pollution testing centres, testing of vehicles and pollution under control certificate issued by the centre are now being monitored centrally by the Motor Vehicles Department. All the two wheelers with BS4 pollution norms are mandated with a PUC validity of 6 months instead of one year validity.</p>	on going	100%			



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7.	<p>Online monitoring of PUC implementation-Transport, MVD</p>	<p>Pollution testing centres are now directly linked to Parivahan system. The pollution testing centres, testing of vehicles and pollution under control certificate issued by pollution testing centres are now being monitored centrally by the Motor Vehicles Department. Each enforcement can digitally monitor the status of pollution certificate for a particular vehicle in field itself.</p>	<p>on going</p>	<p>100%</p>		
8.	<p>Mechanism for centralized record maintenance of PUC checks, certification and cross check by the concerned transport authorities to be incorporated - Transport, Motor Vehicles department etc.</p>	<p>Notified and the updated pollution norms are in place. Pollution testing centres are now directly linked to Parivahan system. The pollution testing centres, testing of vehicles and pollution under control certificate issued by the centre are now being monitored centrally by the Motor Vehicles Department. Department is ensuring the calibration of testing equipments through the provisions of parivahan system.</p>	<p>on going</p>	<p>100%</p>		
	<p>Kollam- alappuzha bypass</p>	<p>ongoing</p>				
	<p>Under the scheme Development of Urban links NH fund allocation is Rs. 226.53 Lakhs, expenditure is Rs.31.66 Lakhs</p>	<p>ongoing</p>	<p>100%</p>	<p>Yes</p>	<p>2.26</p>	<p>0.31</p>
	<p>Traffic safety measures at NH urban links Fund allocation is 1647.45Lakhs,Expenditure is 532.59</p>	<p>ongoing</p>	<p>100%</p>	<p>Yes</p>	<p>16.47</p>	<p>5.33</p>
	<p>CRF Roads (Ordinary Allocation) Fund allocation is 5094.72 Lakhs, Expenditure is 2421.57 Lakhs</p>	<p>ongoing</p>	<p>100%</p>	<p>Yes</p>	<p>50.95</p>	<p>24.22</p>
	<p>CRF Bridges ,Fund allocation is 6.52 Lakhs,Expenditure is 6.52 Lakhs</p>	<p>ongoing</p>	<p>100%</p>	<p>Yes</p>	<p>0.065</p>	<p>0.065</p>
	<p>Construction of Bypass in NH</p>	<p>Ongoing</p>	<p>100%</p>	<p>Yes</p>	<p>0.0083</p>	<p>0</p>
	<p>Construction of bypass / ring</p>					



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BINDHU RADHAKRISHNAN
 Chief Environmental Engineer

9.	roads- Highways, PWD, NATPAC	Construction of bylanes in selected town along NH Fund allocation is 101.03Lakhs, Expenditure is 80.44 Lakhs	on going	100%	Yes	1.01	0.8
		Roads of economic importance (CSS) having 50%, Fund Allocation is 0.83 Lakhs, Expenditure is 0	Ongoing	100%	Yes	0.0083	0
		Elevated Highway in Wayanad-bandipur of NH 212 (Cost sharing with NHAI)	Ongoing	100%	Yes	0.0083	0
		Investigation and planning	Ongoing	100%	Yes	0.5	0
		Land Acquisition C, Fund Allocation is 1000Lakhs, Expenditure is 121.6Lakhs	Ongoing	100%	Yes	10	1.22
		Land Acquisition V, Fund Allocation is 100 Lakhs, Expenditure is 0	Ongoing	100%	Yes	1	0
10.	Re-filling Stations retrofitted with Vapor Recovery System -Oil companies	Direction of Central Pollution Control Board are followed. 31 vapour recovery system already provided	On going	100% wherever applicable	No		
11.	Incentive of setting up R&D facilities related to EVs- Industries, MVD	NA					



Bindhu

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<p>12. Any other Policy / Rules/ Standards/ Guidelines pertaining to vehicular emissions - Transport, MVD etc.</p>	<p>With more than 100 CNG Stations operational in the State, Govt. may consider policy to</p> <ol style="list-style-type: none"> 1. Convert all govt. vehicles to CNG. 2. All public transport to be converted on CNG - KSRTC buses, School buses, Autos, Taxis, City buses, Contract buses, etc 3. All LCVs also should be converted to CNG 4. IOAGPL / AGP City Gas is converting a Govt Boat on CNG as a pilot project. Govt may consider policy to ban liquid fuels to be in vessels used for inland navigation to control the marine and air pollution. <p>Kerala State Road Transport Corporation has initiated the following steps :</p> <ol style="list-style-type: none"> 1. KSRTC purchased and introduced 50 nos of fully built 9 metre non AC electric buses for operating city circular services in Thiruvananthapuram City. 2. As a part of eco-friendly initiatives and reduction in fuel cost KSRTC envisages conversion of its existing 5 diesel buses to CNG. Now the trial conversion has completed and put in regular service operation for performance evaluation. 3. KSRTC has given purchase order to produce 131 BSVI diesel buses for super fast services and 113-9 metre non AC electric buses for city operations. 4. KSRTC has purchased new BSVI diesel buses under latest pollution norms. 5. KSRTC has participated in National Electric bus programme initiated by Convergence Energy Service Limited (CESL). As a part of deploying electric buses CESL has invited unified e-tender and KSRTC participated in the e-tender to procure 450-12 meter non AC standard floor electric buses under GCC model on wet lease basis through M/s. Switch Mobility. Now the tender procedures are under progress. 	<p>Ongoing</p>	<p>100% wherever possible</p>			
<p>Assessment of the number of vehicles which are more than 15 year old has been taken</p>						




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3. Burning

S. No.	Activities/ Action plan	Status of activity (Completed/ Ongoing/ To be Started)	Timeline for completion	Target Coverage / Percentage	Financial implications (Yes/ No)	Funds Allocated (Rs crore)	Funds Utilized as on date (Rs crore)
1.	Notification and Enforcement of municipal solid waste (MSW) management rules	Notification Done. Enforcement of SWM Rules Ongoing. Vide G.O.(Rt)No. 673/2023/LSGD Dated 21.03.2023 Enforcement squad has been formed for monitoring and penalizing the violators against implementation of SWM rules, 2016	Completed	100%	No	NIL	NIL
2.	Policy for MSW management	Kerala Solid Waste Management Policy notified in 2018. GO(P) No: 65/2018/LSGD dated 13.09.2018	Completed	100%	No	NIL	NIL
3.	Policy for legacy waste management at dumpsites	Policy approved for remediation of legacy sites . Process of Biomining completed at 22 sites and process ongoing at 9 locations. Work order has been given to 3 sites and tender proceedings are ongoing in another 5 sites. Tender process is initiated in 19 sites. Vide G.O.(Rt)No:2629/2022/LSGD Dated 29/10/2022, Government has approved guidelines for Remediation of Legacy Waste Dumpsites through Bioremediation.	22-completed 9 - ongoing	100%	No		



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4.	<p>Policy for implementation of ban on single use plastics</p>	<p>Ban on Single Use Plastics notified by Government of Kerala.</p> <ol style="list-style-type: none"> G.O.(Rt) No.06/2020/ENV.T. dated 11.05.2020 G.O.(Rt) No.04/2020/ENV.T. dated 16.02.2020 G.O.(Ms)No.2/2020/Env.t. dated 27.01.2020 G.O.(Ms)No.8/2019/Env.t. dated 19.12.2019 <p>Two Enforcement teams formed; (a) LSGD (23 teams) and (b) Vigilance squad (14 teams)</p> <p>Enforcement team formed for monitoring open dumping, open burning, open littering.</p> <p>Training for Haritha Karma Sena and Enforcement team conducted.</p> <p>Swap shops, Eco alternative products expos have been conducted by Kudumbaree mission and other SHGs in the state.</p> <p>IEC activities are being carried out through Print-dailies in state.</p>	Ongoing	100%	No		
5.	<p>Policy for development and Construction of Waste to Energy Plants</p>	<p><u>Assessment of alternatives to plastic in the state of Kerala, DATA REPOSITORY</u></p>	Completed	100%	No		
	<p>Policy for development and Construction of Waste to Energy Plants</p>	<p>Draft guidelines for engaging private agencies for implementation of waste management projects is being prepared and submitted to government.</p>					
	<p>(a) non-recyclable / combustible dry waste</p>	<p>(a) Cogo Ecotech Solutions Private Limited (10 TPD) plant in Thiruvananthapuram is planned.</p>	2025-26	80%			
	<p>(b) Bio- methanation / Bio CNG</p>	<p>(b) Bio CNG plant (150 TPD) is Brahmapuram is planned.</p>					
	<p>(c) Composting plant etc.</p>	<p>Recycling plants are planned.</p> <p>Waste to Energy plants are proposed.</p>					



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6.	Any other Policy / Rules/ Standards/ Guidelines pertaining to MSW Management	Policy for Domestic Hazardous Waste approved and is being implemented. Policy for management of Construction and Demolition waste approved and the process to be started.	2025	100%			
		Policy for EPR (Extended Polluter Responsibility)	2024	100%	No		

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4. Municipal Solid Waste

S. No.	Activities/ Action plan	Status of activity (Completed/ ongoing/ To be Started)	Target Number (No.)/ (%)	Total Capacity (TPD) / Coverage (Acres)	Funds Allocated (Rs. crore)	Timeline for completion	Target Completed as on date	Funds Utilized as on date (Rs crore)
1.	Waste collection status in the city (%)	Data of each ULB consolidated in a separate sheet. Waste Generated = 3472 TPD Waste Collected/ treated = 3231 TPD	100%	Coverage: 19,505 wards		12 months	84.83%	
2.	Waste segregation status in the city (%)	Data of each ULB consolidated in a separate sheet.	100%	Coverage: 19,505 wards				
3.	Material Recovery Facility	MCF functional in all ULBs. 223 proposed projects of MRF under SBM (U) having Rs 37.1 crore fund. Already 1191 MCF and 174 RRF existing in Kerala.	223	228.5	Total cost Rs 37.1 crore under SBM (U). Rs 8.26 crore central share.	2023-26	1149 Functional MCFs 31/03/2024	To be implemented through KSWMP
4.	Waste to Energy plants	9 Waste to Energy plants proposed: 1. Thiruvananthapuram - land not yet identified 2. Kollam - Biomining of legacy waste completed 3. Kochi - Biomining of legacy waste completed 4. Thrissur - land not yet identified 5. Palakkad - Land take over by KSEEB Ltd 6. Malappuram - Land identified 7. Kozhikode - Work awarded 8. Kannur - Work awarded 9. Munnar - Work awarded	9	200 TPD each	PPP model	2026	-	-
5.	Waste to compost plants	Existing Decentralised Aerobic Thumboormuzhi (2150 BINS) in all ULBs, projects yet to be started under SBM(U) 2.0	809	717.4	140.97 SBM(U) 2.0	2026	nil	-



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6.	Remediation of dumpsites in the city	18 Urban Dumpsites cleared. Process ongoing at 11 sites and Remaining 15 LSGIs are at planning stage .	44	66233 T	93.94 SBM 2.0	2025	22	13.7
7.	Control open burning of MSW	Executive Directive No. 9/2016 instructing the Special drive for take penal actions against the waste dumping and burning has been issued from the DGP& State Police Chief. Notification No. G.O.(Rt)No. 673/2023/LSGD Dated 21.03.2023 has been issued on formation of Enforcement squad. Enforcement Squads and Night Squads are conducting frequent inspections..IEC activities and campaigns ongoing.	100%	NA	NIL	2026		
8.	Any other activity/ project pertaining to MSW Management	5 Mechanized road sweepers are proposed under SBM(U) 2.0 projects	5	-	3.2	2026		-



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5. Construction & Demolition Waste and Road Dust Management

S. No.	Activities/ Action plan	Status of activity (Completed/ Ongoing/ To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implications (Yes/ No)	Funds Allocated (RS crore)	Funds Utilized as on date (RS crore)	Status
	1. Policy for development of projects/ plants for C&D waste management	Construction and Demolition Waste Management Rules 2016 is followed in the State. Kerala Government vide GO(Ms)No. 168/2022/LSGD dated 30-7-2022 published "Guidelines for managing construction and demolition waste in Kerala" and vide GO (Rt) No. 811/2020/LSGD dated 1-5-2020 published integrated waste management -strategy document. The CPCB has already published 'Guidelines on Environmental Management of Construction & Demolition Wastes' and "Guidelines on dust mitigation measures in handling construction material and C & D wastes"	Ongoing	100%	No	NA	NA	
	2. Policy for use of C&D waste in laying and construction of State highways.	Construction and Demolition Waste Management Rules 2016 is followed in the State. vide GO(Ms)No. 168/2022/LSGD dated 30-7-2022 published "Guidelines for managing construction and demolition waste in Kerala". The Building Materials and Technology Promotion Council (BMTPC) IN 2016 released infrastructure in housing schemes of the Government ". The construction & demolition (C&D) waster guidelines pertain to building industry. The Central Public Works Department (CPWD), the PARR IV:Guidelines on reuse and recycling of construction and demolition (C&D)waste is available in CPWD's Guidelines for Sustainable Habitatat (March 2014)-also address the building sector	Ongoing	100% wherever applicable	No			



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3. Demand creation for C& D waste and alternative use of C& D waste material	<p>Usage of C&D waste and demand creation for the material is incorporated in the "Guidelines for managing construction and demolition waste in Kerala". IS: 383(2016) Indian Standard COARSE AND FINE AGGREGATE FOR CONCRETE – SPECIFICATION. Utilisation of C&D waste permitted in various concrete works by IS: 383(2016). National Building Code (NBC-CED 46) of India 2005 : Part 11 of NBC 2005 on 'Approach to Sustainability' states the reuse of recycled construction materials. Building Materials and Technology Promotion Council (BMTPC) in 2016 released "Guidelines for utilization of C & D waste in construction of dwelling units and related infrastructure in housing schemes of the Government". d. The PART IV of Central Public Works Division (CPWD): The "Guidelines for Sustainable Habitat (March 2014)" discusses 'Guidelines on reuse and recycling of Construction and Demolition (C & D) waste'.</p> <p>e. Indian Road Congress has permitted the use of produce of C&D waste processing and has issued IRC: 121-2017 "Guidelines for use of construction and demolition waste in road sector".</p>	2025	100% wherever applicable	No			
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<p>4. Schemes for development of green belt/ open spaces and street sides greening on State highways</p>	<p>No activity</p>						
<p>5. Penalty provisions for non-compliance of C&D waste management rules at construction sites</p>	<p>Report of the CPCB in-house Committee on Methodology for assessing environmental compensation and action plan to utilize the fund by CPCB for evaluating Environmental compensation associated with Construction and demolition rules.</p>						

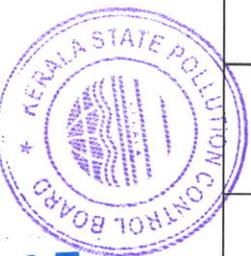


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6. Maintenance, repair and paving of State highways	<p>Roads are being maintained by various agencies in Kerala, like Local Governments, Public Works Department (PWD) (Roads and Bridges) and National Highways, Municipalities, Corporations, Irrigation, Forests, Railways etc.</p> <p>Total road length in Kerala is 2,38,773.02 km.</p> <p>This includes classified and non-classified roads as stipulated by Indian Road Congress. Road density in Kerala is 548km per 100 sq. km, which is roughly three times the national average.</p> <p>The length of road per lakh population is 993.54km and almost 90 per cent of the road network is single lane.</p> <p>The National Highways, considered to be the primary network, carries 40 percent of the total traffic, and the State Highways and Major District Roads (MDRS) - the secondary road network – carries another 40 percent of the road traffic. Thus around 12 per cent of the road network handles almost 80 per cent of the traffic in the State.</p>	Ongoing	100%			
7. Monitoring of road dust especially in and around hotspot areas and in the vicinity of State highways	<p>Action plan for setting up Mechanical Road Sweepers got approval under SBM(U)2.0 for Thiruvananthapuram and Kochi corporations</p>	2026	100% wherever applicable			Ongoing
8. Mechanism for development and maintenance of road states and infrastructures for industrial clusters	<p>N/A</p>					
9. Any other Policy / Rules/ Standards/ Guidelines pertaining to C&D waste and Road dust management	<p>Construction and Demolition Waste Management Rules 2016 is followed in the State. Kerala Government vide GO(Ms)No. 168/2022/LSGD dated 30-7-2022 published "Guidelines for managing construction and demolition waste in Kerala" and vide GO (Rt) No. 811/2020/LSGD dated 1-5-2020 published integrated waste management -strategy document. The CPCB has already published 'Guidelines on Environmental Management of Construction & Demolition Wastes' and "Guidelines on dust mitigation measures in handling construction material and C & D wastes"</p>	100%				



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10. C&D waste processing plants	- Consent to Establish certificate issued to two private companies for setting up C&D waste plants - C&D waste processing plant of capacity 100-150 TPD is proposed to be constructed in a total area of 2 acres of land under PPP mode in Edayar Industrial Area, Ernakulam.	2026	133 TPD		7.98		
11. Greening of open spaces/ parks developed							
12. Any other activity/ project pertaining to C&D waste and Road dust management	Kerala PCB published the standard operating procedure of siting requirements and pollution control measures CPCB published "Guidelines on dust mitigation measures in handling construction materials and C&D wastes and Guidelines for environment management of C&D waste. Action plan for setting up Mechanical Road Sweepers got approval under SBM(U)2.0 for Thiruvananthapuram and Kochi corporations	completed	Trivandrum Corporation-1 Vehicle Kochi Corporation-4 Vehicles		3.2		




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7. Emissions due to burning of agro residues

S. No.	Activities/ Action plan	Status of activity (Completed/ Ongoing/ To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implications (Yes/ No)	Funds Allocated (Rs crore)	Funds Utilized as on date (Rs crore)
1.	In-situ treatment of biomass residues for management of stubble burning						
	a) Schemes for procurement of agriculture machinery	Burning of crop residues /stubble burning is not practised in Kerala. The crop residue is usually ploughed back to the field after the harvest of crop.					
	b) Assistance for establishment of farm machinery banks/ custom hiring centres						
	c) Use of decomposer for in-situ Crop residue						
2.	Ex-situ treatment of biomass residues for management of stubble burning						
	a) Schemes for balers/ pellet/ briquette machines, etc.	Nil					



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3.	Biomass projects with respect to the hotspots of crop residue burning						
4.	Use of biomass / crop residue based pellets mass blending with coal and its co-firing in thermal power plants with blending ratio which needs no modification in boilers						
5.	Policy for supply chain mechanism for in-situ and ex-situ management of stubble						
6.	Supply chain for crop residues to cow shelters						
7.	Development of effective protocol for monitoring of fire incidents including crop area consideration and crop fire area data						



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8.	Collaboration with ISRO and preparation of Satellite based maps for monitoring of fire incidence						
9.	Any other scheme/ program that may help in reducing air pollution						



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6. Household Emissions

S. No.	Activities/ Action plan	Status of activity (Completed/ Ongoing/ To be Started)	Timeline for Completion	Target (Covera ge/ Percent	Financial implicatio ns (Yes/ No)	Funds Allocated (Rs crore)	Funds Utilized as on date
1.	Schemes for use of LPG/ PNG for cooking fuels	PMUY Phase 1 and PMUY Phase 2 IOAGPL has made PNG infrastructure ready for over 50,000 houses in the districts of Ernakulam, Thrissur, Palakkad, Malapuram, Kozhikode, Waynad, Kannur & Kazargod. AGP City Gas has made PNG infrastructure ready for over 20,000 houses in the districts of Trivandrum & Alappuzha.	3/1/2020 for Phase 1	100%	1600/- Per connection	NA	NA
2.	Amendments to the building by-laws for “ Indoor air quality management”	National rule will be followed		100%	No		
3.	Any other Policy / Rules/ Standards/ Guidelines pertaining to Household emissions						



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Additional Instructions:

- Air quality is affected by both regional and background contributions hence actions at state and regional levels which also consider the airshed approach are required.
 - Identification of prominent air polluting sources: Inventory of air pollution sources in State/UT including hotspots or areas of concern pertaining to air pollution should be carried out.
 - Hotspots of air pollution: Hotspots with respect to air pollution (such as stubble burning, illegal waste burning, un-authorised operations, cluster activities, forest fires etc.) should be identified and localised action plan for mitigation of the same should be prepared.
- Categorization of industrial zones into red, orange, and green sectors has already been implemented so states may choose to permit or ban an industry depending on the state of the environment in their state or zones, for example- in TTZ some industries are banned. A similar strategy could be adopted by other states.
- Ambient air quality data: Plan to get access to available air quality monitoring stations in the State/UT operated by both public and private agencies. Quantification of improvement in existing air quality.
- Awareness on Air Quality: To develop Mobile App / Online portal for dissemination of air quality as well as to take complaints on local air pollution.
- State Action plan may dwell upon other relevant action points as per need and requirement of that state which are not mentioned in above template.



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<p>For Kerala is concerned, on the eastern side, Western ghats exist and on the western side, there is Arabian sea. Hence there is restriction on the flow of air from neighbouring states namely Tamil Nadu and Karnataka.</p> <p>Action is being taken to study source apportionment study of the two main cities of Kerala namely Trivandrum and Kochi. Expression of interest has been invited and action is taken to scrutinise the proposals.</p> <p>In Kerala, the extent of paddy fields is very less and is located only on a few parts of Kerala. In those areas, hay will be used as feed for cattle and stubble is burnt. In order to avoid illegal waste burning, door to door collection by authorised agencies like Haritha Karma Sena has been provided and efforts are being taken to collect non biodegradable waste from source itself and this will in turn reduce the illegal waste burning operations. Regarding forest fires, localised action plan will be collected from the Forest department.</p>
<p>In Kerala, there are only a few industrial units having emission potential. Altogether there 1212 units in red, orange and green category. Control measures are insisted in these units through conditional consent issued.</p>
<p>In Kerala there are nine continuous ambient air quality stations and the same with air quality index is available in the website of the KSPCB. The quality is being assessed.</p>
<p>Ambient air quality data from continuous air quality monitoring stations are available in the website of the Board for the public.</p>



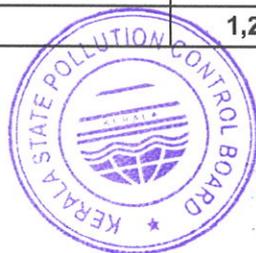
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As per SLTC Approved Action Plan				
SI No.	District	ULB Name	Legacy waste quantity proposed in action plan (MT)	Proposed Cost (Cr.)
As per SLTC Approved Action Plan				
SI No.	District	ULB Name	Legacy waste quantity proposed in action plan (MT)	Proposed Cost (Cr.)
1	Trivandrum	Trivandrum corporation	1,600	0.152
2	Kollam	Kollam Corporation	104,907	11.8545
3	Alappuzha	Alappuzha	30,102	3.7025
4	Kottayam	Kottayam	80,000	7.6
5	Kottayam	Changanacherry	7300	0.6935
6	Kottayam	Erattupetta	8000	0.76
7	Idukki	Kattappana	8,000	0.76
8	Idukki	Thodupuzha	28000	2.66
9	Ernakulam	Kochi Corporation	496713	27.3192
10	Ernakulam	North Paravoor	18565	1.0211
11	Ernakulam	Kothamangalam	4000	0.44
12	Ernakulam	koothatukulam	2500	0.2625
13	Ernakulam	Muvatupuzha	76000	7.98



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SI No.	District	ULB Name	As per SLTC Approved Action Plan	
			Legacy waste quantity proposed in action plan (MT)	Proposed Cost (Cr.)
14	Thrissur	Thrissur Corporation	54,000	5.13
15	Thrissur	Kodungallur	1,600	0.088
16	Thrissur	Chalakkudy	4,918	0.2705
17	Thrissur	Chavakkad	5,040	0.2772
18	Thrissur	Irinjalakkuda	24,000	1.32
19	Thrissur	Kunnamkulam	24,660	1.3563
20	Thrissur	Wadakkancherry	60960	3.3528
21	Palakkad	Palakkad	57,960	5.4098
22	Palakkad	Ottappalam	20000	1.866
23	MALAPPURAM	MANJERI	15433	1.7594
24	MALAPPURAM	TIRUR	1010	0.1
25	Kozhikode	Kozhikode Corporation	24,720	1.3596
26	Kannur	Thalassery	56783	5.3944
27	Kasaragod	Kanhangad	5,600	0.45
28	Kasaragod	Kasaragod	11000	0.605
			1,233,371	93.9443



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SI No.	District	ULB Name	As per Approved Action Plan		
			No. of units	Capacity (TPD)	Cost (Cr)
1	Trivandrum	Trivandrum corporation	179	112.8	28.9
2	Trivandrum	Attingal	0	0	0
3	Trivandrum	Varkala	31	7	1.17
4	Trivandrum	Nedumangad	45	4.5	0.925
5	Trivandrum	Neyyatinkara	23	2.8	0.46
6	Kollam	Kollam Corporation	0	0	0
7	Kollam	Punalur	8	1.2	0.56
8	Kollam	Karunagappally	3	0.15	0.066
9	Kollam	Kottarakara	10	0.2	0.088
10	Kollam	Paravur	3	0.15	0.063
11	Pathanamthitta	Thiruvalla	1	6	1.08
12	Pathanamthitta	Adoor	1	5	0.675
13	Pathanamthitta	Pathanamthitta	1	6	1.08



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SI No.	District	ULB Name	As per Approved Action Plan		
			No. of units	Capacity (TPD)	Cost (Cr)
14	Pathanamthitta	Pandalam	2	4	0.74
15	Alappuzha	Alappuzha	18	9	1.26
16	Alappuzha	Kayamkulam	12	2	0.4
17	Alappuzha	Mavelikkara	2	4	0.6
18	Alappuzha	Cherthala	1	6	0.9
19	Alappuzha	Chenganoor	2	4	0.68
20	Alappuzha	Haripad	5	1	0.256
21	Kottayam	Kottayam	6	23	2.645
22	Kottayam	Changanacherry	9 locations-120 aerobic bins	3	0.8362
23	Kottayam	Pala	5	2	0.5596
24	Kottayam	Vaikom	16	1	0.3802
25	Kottayam	Erattupetta	8	5	1.7736
26	Kottayam	Ettumanoor	1	1	0.35
27	Idukki	Kattappana	2	4.5	0.7015
28	Idukki	Thodupuzha	1	6	0.9



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SI No.	District	ULB Name	As per Approved Action Plan		
			No. of units	Capacity (TPD)	Cost (Cr)
29	Ernakulam	Kochi Corporation	1	225	45
30	Ernakulam	Perumbavur	10	1	0.2
31	Ernakulam	North Paravoor	1	6	0.7
32	Ernakulam	Aluva	1	0.5	0.12
33	Ernakulam	Kothamangalam	1	5.5	0.6325
34	Ernakulam	koothatukulam	1	0.5	0.2
35	Ernakulam	Kalamassery	0	0	0
36	Ernakulam	Maradu	0	0	0
37	Ernakulam	Thrikkakara	1	9.5	1.0925
38	Ernakulam	Eloor	0	0	0
39	Ernakulam	Muvatupuzha	3	3.6	0.87
40	Ernakulam	Piravom	21	6	1.15
41	Ernakulam	Angamaly	0	0	0
42	Ernakulam	Tripunithura	20	4	3
43	Thrissur	Thrissur Corporation	68	11.3	5.085



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SI No.	District	ULB Name	As per Approved Action Plan		
			No. of units	Capacity (TPD)	Cost (Cr)
44	Thrissur	Kodungallur	2	2.5	0.29
45	Thrissur	Chalakkudy	1	5	0.75
46	Thrissur	Chavakkad	0	0	-
47	Thrissur	Irinjalakkuda	14	1.4	0.32
48	Thrissur	Kunnamkulam	1	1	0.25
49	Thrissur	Wadakkancherry	1	4	0.46
50	Thrissur	Guruvayur	0	0	-
51	Palakkad	Palakkad	1	3	0.555
52	Palakkad	Chittur Tathamangalam	1	1.5	0.2775
53	Palakkad	Cherpulassery	1	8	1.48
54	Palakkad	Pattambi	10	1.5	0.39
55	Palakkad	Shornur	6	1	0.26
56	Palakkad	Mannarkkad	1	8	1.48
57	Palakkad	Ottappalam	1	5	0.925
58	MALAPPURAM	MALAPPURAM	1	16.5	1.8975



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SI No.	District	ULB Name	As per Approved Action Plan		
			No. of units	Capacity (TPD)	Cost (Cr)
59	MALAPPURAM	MANJERI	19	10	1.15
60	MALAPPURAM	THIRURANGADI	3	6	0.69
61	MALAPPURAM	PONNANI	5	10	1.15
62	MALAPPURAM	KONDOTTY	1	7	0.805
63	MALAPPURAM	KOTTAKKAL	6	4	0.46
64	MALAPPURAM	NILAMBUR	1	9	1.035
65	MALAPPURAM	PARAPPANAGADI	3	5	0.575
66	MALAPPURAM	TIRUR	3	7	0.805
67	MALAPPURAM	PERINTHALMANNA	2	3	0.345
68	MALAPPURAM	TANUR	3	7	0.805
69	MALAPPURAM	VALANCHERI	2	4	0.46
70	Kozhikode	Kozhikode Corporation	24	1.2	0.6
71	Kozhikode	Koduvally	23	1.15	0.575
72	Kozhikode	Payyoli	34	1.7	0.85
73	Kozhikode	Mukkam	19	0.95	0.4751



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SI No.	District	ULB Name	As per Approved Action Plan		
			No. of units	Capacity (TPD)	Cost (Cr)
74	Kozhikode	Ramanattukara	16	0.8	0.4
75	Kozhikode	Vatakara	8	0.6	0.36
76	Kozhikode	Feroke	22	1.1	0.55
77	Kozhikode	Koyilandy	18	0.9	0.45
78	Wayanad	Kalpetta	1	4.5	0.6783
79	Wayanad	Mananthavady	5	10.7	1.7249
80	Wayanad	Sulthan Bathery	4	6.2	0.97394
81	Kannur	Kannur Corporation	1	20	3
82	Kannur	Anthoor	1	2	0.3
83	Kannur	Kuthuparamba	1	3	0.45
84	Kannur	Mattannur	1	6	0.9
85	Kannur	Payyannur	1	4	0.6
86	Kannur	Sreekandapuram	2	6	0.9
87	Kannur	Taliparamba	1	3	0.45
88	Kannur	Iritty	1	3	0.45



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BINDHU RADHAKRISHNAN
 Chief Environmental Engineer

SI No.	District	ULB Name	As per Approved Action Plan		
			No. of units	Capacity (TPD)	Cost (Cr)
89	Kannur	Panoor	1	8	1.2
90	Kannur	Thalassery	1	5	0.75
91	Kasaragod	Kanhangad	0	0	0
92	Kasaragod	Kasaragod	20	2	0.508
93	Kasaragod	Nileshwaram	1	1	0.115
			809	717.4	140.97434



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