# STATUS REPORT FILED BY THE GOVERNMENT OF KERALA , THE 2ND RESPONDENT IN OA No. 606/2018 BEFORE THE HON'BLE NGT PRINCIPAL BENCH, NEW DELHI

It is submitted that the State has given due importance to waste management and sanitation sectors and Kerala is declared as open defecation free State in 2016.

2.However, non-availability for suitable land, public litigation and protests against waste management projects have been hampering implementation of projects. Sensitizing the public on the need for scientific waste management is done through awareness programmes and meetings. The high density of population of State coupled with the varied and unique topographic features have rendered many areas unsuitable for setting up waste treatment facilities. Kerala is crisscrossed by 44 rivers and lined by coastline of about 580 km length at the western boundary and the ecologically fragile Western Ghats on the eastern boundary. The State is also blessed with considerable number of ponds and backwaters as well. The State also experiences two major monsoon periods. All this call for a unique treatment for the State. The above features renders a considerable portion of the available land unsuitable for waste treatment projects.

3.Setting up of new Faecal Sludge Treatment Plant in the State is the need of the hour, but projects for the same have been hampered seriously by the non-availability of land, primarily due to local agitations and resistance. It has been decided to explore the scope of identifying degraded lands including quarries, which have road access, and no human in habitation nearby, for the purpose of setting up f new FSTPs. It is highly essential that the feasibility of using such sites for FSTPs assessed, for which a site suitability check list has been drawn up in consultation with service providers and experts in liquid waste management. Urgent steps are being taken in this

direction.

4.The State has come up with many new policies in addressing the land shortage. It has been decided to explore the scope of identifying degraded lands including quarries, which have road access, and no human habitation nearby, for the purpose of setting up FSTPs.

5. 15 State level meetings were held since September 2020 by the Chief Secretary for assessing progress made in implementing action plans for remediation of polluted river stretches. 14 State level meetings were held by the Chief Secretary on solid waste management. Overall 64 meetings were taken at the level of the Chief Secretary for addressing matters connected with the National Green Tribunal. High priority has been given to all NGT matters, at State and District levels. District Level Technical Committees (DLTCs) and District Level Monitoring Committees (DLMCs) are functioning under the chairmanship of District Collectors at District level to review the progress in action plans for remediation of polluted river stretches and solid waste management issues at field level. Weekly meetings are also taken by the Local Self Government Department to review the progress in these sectors. Kerala Water Authority under Water Resources Department is also involved in setting up and operating septage and sewage treatment plants. Periodic review meetings also taken by Water Resources Department and Kerala Water Authority. It is submitted that all out efforts are taken to bridge the gap in waste management sector at the earliest. The current status on waste management in the State is submitted herewith as **Annexure**.

6.In light of the above, it is humbly prayed that the State may be exempted from levy of environmental compensation as all possible efforts are taken by the State in bridging the gap in waste management sector.

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ENVIRONMENT DEPARTMENT GOVT. SECRETARIAT

Annexure

## Status of Solid waste management

There are 6 Corporations, 87 Municipalities and 941 GPs in the State of Kerala. Current municipal solid waste generation from 93 Urban Local Bodies (6 Corporations and 87 Municipalities) is estimated as 3472 TPD. The local governments are primarily responsible for waste management within their jurisdictions. The State government facilitates their efforts through policy interventions, monitoring and coordination with various stakeholders. Suchitwa Mission, Clean Kerala Company Limited and Haritha Kerala Mission are technical support and coordination entities giving technical guidance and management support to Local Self Government Institutions (LSGIs) in the Waste Management sector.

## 1.Non Biodegradable waste management

All the 93 urban local bodies have instituted door to door collection of segregated waste from both households and waste generating institutions. Kerala has a unique demogrpahic distribution pattern that is ribbon like - instead of clustering of households, in both urban and rural areas, homesteads are present in linear spread. Therefore there is a deeply , entrenched traditional practice of management of solid and liquid waste (sullage) within the homestead, through compost pits, ring compost units, and of late bio bins. In the matter of - wet waste disposal, decentralized treatment methods such as aerobic bins, pipe compost, compost pits, kitchen bins, biogas plants etc. are extensively adopted by households. Dry - wastes are collected, segregated and disposed through recyclers. Clean Kerala Company _ Limited (CKCL) is a

major partner in the transportation and safe disposal of waste. The Company has produced 3183.145 MT of shredded plastics and sold 2872.954 MT to various agencies (NHAI- 13.708 T, PWD- 1345.93 T, LSGI-1513.31 T). The total length of polymerized road constructed during this period using shredded plastic is 5142.92 km.

Haritha Karma Sena (HKS), an enterprise group formed through the State Poverty Eradication Mission (Kudumbasree) has been engaged for the Door-to-Door collection. The enterprise group is designed to have two persons for each ward for door-to-door collection of non-biodegradable waste on a regular basis and to help in managing the household institutional-community systems for composting biodegradable waste. The user fee is fixed by the respective local government depending on the services rendered and based on the guidelines issued vide G.O(Rt)No.2420/2017/ LSGD dated 15.07.2017. In order to sustain the operation of the door-to-door collection system, the Government provides a Viability Gap Fund (VGF) support initially so as to make up for the shortage of user fee collection in the initial stages such that each member of the group gets at least minimum wage decided by the government. There are nearly 30000 active haritha karma sena members in the State.

"Haritha mithram" smart garbage app was introduced in the State to quantify the waste collected from residences as well as establishments, and to coordinate waste management activities, generate data for realistic waste projections and planning and undertake grievance redressal on real time basis. As phase I, 375 LSGIs have started registering households on the app with QR code.

1174 Material Collection Facilities (for collection, separation and storage of segregated waste) and 204 Resource Recovery Facilities (RRF with

shredding and baling facilities) have been provided in LSGIs. In Kerala there are 214 plastic recycling units, 21 Steel mills, and 7 craft paper units. Non-recyclable plastic waste is shredded in the RRFs and is used for the tarring of PWD and LSGD roads.

15 godowns (Ermakulam -2) other 2 (non recyclable ) about 4146 tonnes of rejects have been collected by the CKCL from 65 ULBs & 274 rural local bodies in the last quarter. All the vehicles used for waste transportation are registered, GPS fitted. (Guidelines have been issued regarding GPS tracking of vehicles). About 200 TPD waste is processed through authorized recyclers. The 262 vehicles used for waste transportation have been registered under the LSGIs and fitted with GPS tracking systems. The state is planning to introduce hologram embedded security stickers for the identification of waste transporting vehicles. GPS tracking facility is insisted upon for ensuring the proper transportation and disposal of plastic waste at authorized places. The State Government has issued guidelines for the GPS tracking system for vehicles in waste management, for chicken rendering plants, for management of domestic hazardous waste including sanitary waste and for construction & demolition waste.

Government imposed complete ban on single use plastic in the State with effect from 01.01.2020 vide GO(Ms) No 6/2019/Envt Dated 27.11.2019. In order to minimize the generation of plastic waste several awareness programs were conducted for the implementation of SUP ban. Task force was constituted and several inspections were conducted. An amount of more than 50 lakh was levied/charged for violations. Nearly all - LSGIs have issued their own by-laws in the matter of plastic waste management, on the basis of the model by-law given by the State. Similarly LSGIs have also issued solid waste management

by-laws.

## 2. Biodegradable waste management in the State

In Kerala biodegradable waste is managed at both centralized and decentralized levels. At the centralized level, there are two large windrow composting plants of 330 TPD and 20 plants of capacity 87.5 TPD . At community level, there are 8 vermi compost plants 8.25TPD ;674 aerobic units 424 TPD, Bio gas plants ,bio bins in flats. At household level, biogas plants ,kitchen bins,bio bins,bucket compost, ring compost,pipe compost are provided for treatment. A detailed report is submitted herewith as Exhibit A . The existing facilities for the treatment of both biodegradable and nonbiodegradable thus have a total capacity of 3205 TPD. The total quantity of waste generated is 3472 TPD. Gap in waste treatment is 267 TPD. 5 Waste to energy plants in the State under PPP mode in the city corporations, and encompassing nearby LSGIs are in the process of being set up.

## 3. Legacy waste management in the State

In Kerala there are no live dump sites. 44 old legacy dumpsites were identified in different parts of the State, out of which 18 were remediated. Process for bio-mining of legacy waste is progressing at various stages in the remaining 26 dump sites, among which 6 sites with large volumes are under remediation. Action is being taken to start remediation work at the other 20 small dumpsites having a total capacity of 2.67 lakh tonnes. LSGIs have struggled to find the resources for complete remediation of the legacy waste sites. The Suchitwa mission has helped in finding resources for the same. Part of the funds come from Swachh Bharat Urban, part from tied funds of the FFC and part from the State, and all remaining LSGIs have been able to submit their proposals for DPC approval to undertake remediation.

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

| | |
|---|---|
| Total number of dumpsites identified | 44 |
| Total quantity of waste dumped at identified sites (Tons) | 7.51 Lakh |
| Number of dumpsites remediated till date | 18 |
| Quantity of Waste cleared till date (Tons) | 2.46 Lakh |
| Number of dumpsites under remediation | 6 |
| Quantity of Waste being remediated (Tons) | 2.38 lakhs |
| Number of dumpsites to be remediated (No) | 20 |
| Quantity of Waste to be remediated (Tons) | 2.67 lakhs |

In order to bridge the gap as well as to modernize the existing facilities and for biomining of dump sites all the ULBs have prepared action plans under SBM(U) schemes. For 26 sites the Bio remediation works will cost an amount of Rs. 80.73 Cr. An amount of Rs. 23.61 cr has been earmarked under the Swatchh bharat Urban scheme. Balance fund will be met by the LSGI. For the local bodies lacking adequate plan funds it is planned to make the KSWMP fund available. All the 93 ULBs of the State have put forward the proposal for SWM projects including C&D waste processing, under the Swatchh Bharat

Mission Urban (SBM-U) funds, a total project cost of Rs 198 crores has been approved by the SLTC, out of which Rs 46.99 crores will be provided by the central ministry and balance fund will be pooled from ULB + State share. For the financial year 2022-23, for sanitation and waste management (SLWM) a total amount of Rs 46 crores has been earmarked under the Suchitwa mission plan fund. The State harnessed an amount of Rs. 2344 Crores in total for waste management projects.

## B.
## LIQUID WASTE MANAGEMENT IN KERALA .

### 1.DOMESTIC WASTE WATER MANAGEMENT

In Kerala, 317 MLD of sewage and 741 MLD of sullage is generated in Corporations and municipalities. In 943 grama panchayaths, 875 MLD of sewage and 2042 MLD of sullage is generated. Kerala has been declared as open defecation free State in the country in 2016. A survey of liquid waste management was conducted in 2016 for 66.7 lakh residences (www.haritham.kerala.gov.in). The study revealed that in most of the household sullage is separated from sewage . Sullage, which is not contaminated with toilet waste, is disposed through soak pit and for farming in their own premises. Some instances of discharge to open public places were also identified and actions were taken to arrest the same. Sewage is discharged through septic tank/soakpit, common/individual sewage treatment plant. Based on the survey results retrofitting measures were also adopted in the State.

The details of liquid waste management in the State is given below:

## I. Estimated Waste water Generation(MLD):

- 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- 2042 MLD)

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

## II. Details of Sewage Treatment Plant:

- Existing no. of common STPs/FSTPs: 20 (6 common STPs and 14 other STPs) and 4 common FSTPs .

- No. of functional common STPs in the State: 14

- No. of functional common septage treatment plants in the State: 4

- Total sewage treatment capacity in the State through existing common STPs: 134.51 MLD

- Total septage treatment capacity in the State through existing common FSTPs: 0.21 MLD

- Sewage treatment capacity via individual STPs in establishments: 73

MLD.

- Treatment of sewage by septic tank, soak pit (Individual residences) -1011 MLD

- Gap in treatment of sewage: 42.314 MLD (Kerala is declared as open defecation free State. In Kerala, majority individual households are having septic tank/soak pit system for toilets. However initiatives are taken to divert the same from urbanized areas to common STPs).

- The status of major CSTP/FSTP which are operation in the State are given below:

| Sl No. | City/Town | Installed capacity & Utilisation | Process | Status |
|---|---|---|---|---|
| 1 | CSTP, Muttathara, Trivandrum | 107 MLD, 80 MLD | Activated sludge Process | Operational. Effluent quality conforming to standards |
| 2 | CSTP, Medical College Hospital Trivandrum | 5 MLD, 3 MLD | MBBR | Operational. Effluent quality conforming to standards |
| 3 | STP at Sannidhanam | 5 MLD, 3.5 MLD | UASB & SBR | Seasonally operated during |

| | | | | |
|---|---|---|---|---|
| | | | | Festival season |
| 4 | STP at Pamba | 3.5 MLD, 3.5 MLD | Coagulation and settling | Seasonally operated during Festival season |
| 5 | CSTP for houseboats, Kumarakom | 0.09 MLD, 0.09 MLD | ASP | Operational. Effluent quality conforming to standards |
| 6 | CSTP at Elamkulam, Kochi | 4.5 MLD, 3 MLD | ASP | Operational |
| 7 | CSTP at Elamkulam, Kochi | 5 MLD | MBBR | Operational |
| 8 | CSTP by GCDA at Kadavanthra, Kochi | 0.45 MLD,0.45 MLD | ASP | Operational. Effluent quality conforming to standards |
| 9 | FSTP at Wellington, Kochi | 0.1 MLD, 0.1 MLD | MBBR | Operational. |
| 10 | FSTP at Brahmapuram, Ernakulam | 0.1 MLD, 0.1 MLD | MBBR | Operational. Effluent quality conforming to standards |
| 11 | STP at | 3 MLD | ASP | Operational. |

| | | | | |
|---|---|---|---|---|
| | Guruvayoor | | | |
| 12 | FSTP at Mattampuram, Thrissur | 0.01 MLD | Biologica l | Operational. |
| 11 | CSTP , Vatakara | 0.1 MLD, 0.1 MLD | MBBR | Operational |
| 12 | CSTP at Taliparamba, Kannur | 0.5 MLD,).5 MLD | ASP | Operational |
| 13 | STP at Taluk hospital, Sulthan Bathery | 0.14 MLD, 0.05 MLD | MBBR | Operational |
| 14 | FSTP at Kalpetta | 0.01 MLD | Biologica l | Operational. |

In addition to the above there are 10 nos of CSTP/FSTP (4 are nearing completion, more than 70% progress in installation work) and sewer network in Kazhakuttam (total capacity 30 MLD) are under construction. DPR is approved for 13 MLD STP but work stalled because of public protest and High court Order is awaited. For many other projects DPRs are approved and fund allocation awaited.

Addressing belligerant behaviour of local communities who oppose setting up waste plants, particularly sewage treatment plans is a critical need. The thelineer ozhukum navakeralam campaign which organised jalasabhas and local communities for conscientisation regarding liquid waste is now being followed up with strong | messaging about the need for institutionalised FSTPs.

Suitable land for setting up of facal sludge treatment plants is currently being identified under the watchful guidance of the District Collectors.

## INDUSTRIAL WASTEWATER MANAGEMENT

- Total registered industrial and non industrial units - 1,25,142

- 49560 consents issued from 2020 onwards- More industries are brought under consent purview

- 11551 effluent generating units (large and medium=298; Small scale- 11, 253)
  (as per dossier)

- For industrial units ETP is provided. Primary Treatment facility provided for all the units.

- Online Continuous Effluent Monitoring system is provided in the Red Large Industries (25 nos) and the results are linked to the SPCB/CPCB servers. It is being monitored - In case of exceedance follow up is done.

- Quantity of effluent generated from the industries in MLD: 168.768

- Number of industrial units connected to CETP: - 64 nos

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

- 9 nos of CETPs are functional (Total Capacity - 10.145 MLD), 1 CETP having capacity 0.25 MLD not operational due to non availability of waste water.

- Proposed CETPs - 3 nos. (Total Capacity- 4 MLD). 1 CETP having capacity 1 MLD is under construction.

Industries are brought under the consent purview to ensure pollution control facilities and discharge of effluent meeting standards. Regular monitoring is being done to ensure compliance to the consent conditions.

Exhibit A

Existing waste management facilities

| FACILITY | TYPE OF PLANT | NUMBER | LOCATION | CAPACITY (TPD) |
|---|---|---|---|---|
| | | Composting Facilities | | |
| Centralized Plants | WINDROW COMPOSTING PLANT (LARGE) | 1 | Kochi Corporation | 230 |
| | | 1 | Kozhikode Corporation | 100 |
| | TOTAL | 2 | | 330 |
| | WINDROW COMPOSTING PLANT (SMALL) | 1 | Palakkad Municipality | 10 |
| | | 1 | Attingal | 15 |
| | | 1 | Adoor | 1 |
| | | 1 | North Paravur | 1 |

| | | | | |
|---|---|---|---|---|
| | | 1 | Kothamangalam | 4 |
| | | 1 | Chalakudy | 2 |
| | | 1 | Irijalakuda | 4 |
| | | 1 | Kodungaloor | 4 |
| | | 1 | Kunnumkulam | 9 |
| | | 1 | Wadakancherry | 3 |
| | | 1 | Guruvayoor | 5 |
| | | 1 | Chittur Thattamangalam | 5 |
| | | 1 | Pattambi | 3 |
| | | 1 | Shornur | 5 |
| | | 1 | Perinthalmanna | 2 |
| | | 1 | Thaliparamba | 1.5 |
| | | 1 | Mattanur | 2 |
| | | 1 | Ottapalam | 5 |
| | | 1 | Iritty | 2 |
| | | 1 | Kalpetta | 4 |
| | TOTAL | 20 | | 87.5 |

| FACILITY | TYPE OF PLANT | NUMBER | LOCATION | CAPACITY (TPD) |
|---|---|---|---|---|
| Centralized Plants | VERMI COMPOSTING PLANT (SMALL) | 1 | Attingal | 0.25 |
| | | 1 | Kattapana | 0.5 |
| | | 1 | North Paravur | 1 |
| | | 1 | Chavakkad | 2 |
| | | 1 | Chalakkudy | 0.5 |
| | | 1 | Koothuparamba | 1 |
| | | 1 | Perinthalmanna | 2 |
| | | 1 | Kuthuparamba | 1 |
| | TOTAL | 8 | | 8.25 |
| Community Facility | AEROBIC COMPOSTI | 674 | | 424.78 |

| | | | | |
|---|---|---|---|---|
| INSTITUTIONAL FACILITIES | NG UNIT SMALL COMPOSTING DEVICES | 28406 | | 13.5 |
| | OWC | 1 | Angamaly | 0.5 |
| | | 3 | Thrissur corporation | 16 |
| | | 1 | Kayamkulam | 10 |
| | TOTAL | 5 | | **26.5** |
| Household Level | Composting devices | 306670 | | 460 |
| | Compost Pits | 476530 | | 540 |
| | TOTAL | 783200 | | **1000** |
| COMPOSTING FACILITIES TOTAL | | 812317 | | **1916.53 TPD** |

**BIOMETHANATION FACILITIES**

| FACILITY | TYPE OF PLANT | NUMBER | LOCATION | CAPACITY (TPD) |
|---|---|---|---|---|
| Centralized Facilities | Large capacity Biogas plants | 1 | Thodupuzha | 8 |
| | | 1 | Manjeri | 10 |
| | | 1 | Perinthalmanna | 2 |
| | | 1 | Kattappana | 5 |
| | TOTAL | 4 | - | 25 |
| Community Level | TOTAL | 111 | | 57 |
| Household Level | TOTAL | 76800 | | 385 |
| BIOMETHANATION FACILITIES (TOTAL) | | 76914 | | **466.87** |

| | | | |
|---|---|---|---|
| Rendering Plants | 40 Units | 737 TPD | |
| Qty of waste managed from urban sector | | | 147 TPD |
| NBD waste collected by ULBs | | 614 TPD | |
| NBW collected by authorized waste collectors | | 60 TPD | |
| Plastic/ NBD waste (Recycling) | | | 674 TPD |
| Waste management capacity for the state | | | 3205 TPD |

## DETAILS OF RENDERING PLANTS

| Rendering plants in Kerala | | |
|---|---|---|
| District | No.of existing plants | Plant capacity (TPD) |
| Thiruvananthapuram | 0 | 0 |
| Kollam | 2 | 6.5 |
| Pathanamthitta | 1 | 30 |
| Alappuzha | 0 | 0 |
| Kottayam | 0 | 0 |
| Idukki | 0 | 0 |
| Ernakulam | 4 | 135 |
| Thrissur | 1 | 5 |
| Palakkad | 7 | 103.25 |
| Malappuram | 19 | 331.5 |
| Kozhikode | 1 | 60 |
| Wayanad | 1 | 12 |
| Kannur | 2 | 39 |

| | | |
|---|---|---|
| Kasargod | 2 | 15 |
| TOTAL | 40 | 737.25 |

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