National Mission for Clean Ganga (NMCG)
Format for submission of Monthly Progress Report in the NGT Matter OA No. 673 of 2018 (in compliance to NGT order dated 26.09.2020)

State/UT : Union Territory of Lakshadweep
Month & Year : November, 2024

Overall status of the state:

I. Total Population: Urban Population & Rural Population separately:

Total population of Lakshadweep as per 2011 census is 64,473 out of which urban census population is 50,332 and rural census population is 14,141. The total population growth in this decade was 6.30 percent while in previous decade it was 17.19 percent. The population of Lakshadweep forms 0.01 percent of India in 2011.

II. Estimated sewage generation (MLD):

The Liquid Waste consists of:

a. Grey Water: from bathing, utensil and cloth washing, cleaning of floors etc. which do not contain significant pathogens.
b. Black Water: (with faecal sludge): discharged from toilets containing human excreta, flush water and urine.

The total liquid waste generated in Lakshadweep is estimated to be 2.8 MLD, as tabulated below:

Sl No	Name of the island	Total population (census 2011)	Estimated sewage generation in MLD		Total (MLD)
			Grey Water	Black Water	
1	Agatti	7560	0.21	0.12	0.33
2	Amini	7656	0.22	0.12	0.34
3	Androth	11191	0.32	0.17	0.49
4	Bitra	271	0.007	0.003	0.01
5	Chetlat	2345	0.07	0.03	0.10
6	Kadmat	5389	0.16	0.08	0.24
7	Kavaratti	11221	0.32	0.17	0.49
8	Kalpeni	4419	0.12	0.07	0.19
9	Kilthan	3947	0.11	0.06	0.17
10	Minicoy	10474	0.30	0.16	0.46
Total		**64473**	**1.84**	**0.98**	**2.82**

(Data Estimated based on Manual Grey Water Management, Department of Drinking Water and Sanitation, Ministry of Jal Sahkti, Government of India)

III. Details of sewage treatment plant:

- Existing no. of STPs and treatment capacity (in MLD):

At present in the UT of Lakshadweep, sewage treatment plant (STP) is at Bangaram island resort with a treatment capacity is 0.024 MLD.

- Capacity utilization of existing STPs: 0.018 MLD
- MLD of sewage being treated through alternate technology:

The Union Territory of Lakshadweep has no city/town/urban local body, and it comprises only rural areas with the liquid waste majorly generated from households. The islands also do not have any major industries or factories. There is no large scale sewage/liquid waste generated in Lakshadweep.

The main source of sewage on the island includes individual households, private commercial establishments and government establishments. All these establishments in Lakshadweep have septic tanks and soak pits for faecal waste and separate soak pits for non-faecal wastewater management. UTLA has also provided 1618 Bio-Digesters in three islands of Andrott, Kavaratti and Bitra.

Grey water management in Lakshadweep:

The water is generally discharged into the ground through a soak pit or used in Kitchen Garden. Ultimately, this water reaches the ground after natural sand filtration. In UT of Lakshadweep, there are two types of sand beds noticed, one with 20 to 50 cm hard strata (Coral rock) and the other without hard strata. The natural filtration is effective in the first case, and hence the grey water from these areas can be managed through soak pits. Traditionally, the construction of dwelling units in the islands was in areas having hard strata. The filtered water ultimately reaches the groundwater aquifer, and the groundwater is used for purposes other than drinking and cooking like bathing/washing (reuse).

As per a study report by the Water, Sanitation and Hygiene (WASH) Institute, the stagnation of grey water was not observed owing to the fast percolation of water in the sandy soil. It was also observed that there is insufficient data to show any impact of greywater on the groundwater in the islands. It further stated that "*Onsite Grey Water Management seems to be the best method for the household in the islands, and that households should be encouraged to use kitchen gardens to dispose of grey water, as kitchen garden maximizes the vertical distance between the point of disposal and groundwater, thereby increasing the pathogen reduction".*

Black water management in Lakshadweep

- Constituted a High-Level Monitoring Committee (HLMC) on Liquid Waste Management and other environmental matters in UT of Lakshadweep. Committee consisting of concerned Departmental Secretaries of UTLA, and 3 external technical members.

- An online meeting was held with WASH Institute on 15.05.2024 to review the Liquid Waste Management in Lakshadweep based on the

earlier reports submitted by the Institute. The WASH Institute made a detailed presentation, highlight the following aspects with respect to Liquid Waste Management:

a. Faecal Sludge Management in the Islands
b. Grey Water Management in the Islands
c. Current practices on drinking water
d. Proposed approach and solution for Faecal Sludge Management
e. Treatment options like MBBR, MTU, PDB etc.
f. Action plan for implementing proposed solutions.

The WASH Institute in its report, has inter-alia made the following major recommendations:

(i) **Septic Tanks:** Onsite sanitation systems such as single and twin pits need to be converted into septic tanks in areas where the groundwater table may rise to less than 3 meters below ground level (BGL). Further, for tanks with leach pits in areas where the groundwater table may rise to 1.8 meters BGL, the leach pit arrangement must be bypassed, and trenches above or partially buried should be created. The septic tanks should be installed with a pipe and gap access. For greywater management, the Institute recommended that households should be encouraged to use kitchen gardens.

(ii) **Technologies for Faecal Sludge Management**: The MBBR-based faecal sludge treatment plant design may not be effective in the context of Lakshadweep. Instead, a Planted Drying Bed (PDB) model of a faecal sludge treatment plant has been proposed. PDB drying bed model has a proven track record for ease of operation and low cost of ownership. It also requires a very basic skill set to operate. Model design for this technology is available in the FSSM manual published by the DDWS, Ministry of Jal Shakti, Government of India. An additional pathogen removal (disinfection) unit, such as an ultraviolet filter, can be included in the design to reduce any chance of groundwater contamination from treated water. Anaerobic digestion modules can be considered a primary treatment prior to Planted Drying Beds if the Total Volatile Solids /Total Solids ratio in the faecal sludge is > 60% Vehicle mounted Mobile Treatment Units can be considered for islands where acquiring land for faecal sludge treatment plants is an issue and where the population is greater than 10,000. However, sufficient additional spares need to be arranged to ensure seamless operation of the unit.

(iii) **Bio-digestors** need to be adopted after careful consideration.

The recommendations made by the WASH Institute were examined by the Technical Sub-Committee consisting of Dr. Girish R. Pophali, Chief Scientist, NEERI, Nagpur, Dr. Anas Abdul Aziz, Scientist, CSIR-NIO, Kochi, Dr .Robin R.S., Scientist, NCSCM, Chennai and Shri C.N. Shajahan, Superintending Engineer, Lakshadweep Public Works Department. These recommendations and the remarks were then placed before the High Level Monitoring Committee (HLMC) during its meeting held on 23.08.2024, based on which the following

major decisions were taken by the Committee. It was decided that a uniform design for septic tanks needs to be irnplernented across the households through Panchayat to improve the quality of discharge.

Dr. Girish R Pophali, Chief Scientist, CSIR-NEERI, Nagpur rnade a detailed presentation on Schematic design and expected performance of Engineered Natural Sewage Treatment System (ENSeTS). It was stated that it is a modified anaerobic system with integrated black water and grey water management. Technical Members submitted a joint report on 20.08.2024, and the said report was considered by the HLMC in its 3rd meeting held on 23.08.2024 and decided that Lakshadweep Public Works Department (LPWD) shall construct 5 new ENSeTS in the various islands of Lakshadweep as a pilot project. The LPWD has now invited tenders for nine new Septic Tanks as per the ENSeTS technology.

The HLMC also decided to implement the PDB system on an experimental basis in Minicoy Island, for which the WASH Institute has been requested to assist UTLA in the preparation of the RFP. Based on this decision, the Lakshadweep Public Works Department has approached WASH Institute and its representatives have visited Lakshadweep. The WASH Institute is now repairing the RFP for the implementation of PDB in Minicoy Island.

Department of Drinking Water Sanitation (DDWS) advised WASH Institute vide letter dated 15.02.2023 to undertake assessment options for faecal sludge management in the islands of Lakshadweep and advise the UT Administration appropriately. As advised by the Ministry, field visit were carried out by the WASH Institute team between 7th - 11th March, 2023 to Kavaratti, Agatti and Kadmat islands. The WASH Institute submitted its report to the DDWS. The Director, DDWS vide his email dated 24.08.2023 requested WASH Institute to submit a more detailed report which should also include details of Mobile Treatment Unit (MTU) technology. It was further stated that the report shall also give information about the following aspects:

(i) Land requirement for each of the technology options, both for the centralised single unit and island-wise breakup.

(ii) Financial implication i.e. Capex and O&M etc. both for the centralized single unit and island-wise break up.

(iii) Pros and cons of each treatment option.

Accordingly, WASH institute submitted the report while drawing a comparison between technologies such as MBBR system, PDB and MTU.

The committee constituted by UT of Lakshadweep Administration (UTLA) to identify the suitable technology for the treatment of faecal sludge in Lakshadweep islands, based on the report submitted by WASH Institute and the visit of the Director (Panchayat) of UTLA to Dindigul, recommended that the Mobile Septage Treatment Unit (MTU) is viable solution in the fragile ecosystem of the island conditions and to procure Mobile Septage Treatment Unit (MTU) for each island except Bitra. Accordingly, the tender for Supply, Installation, Testing, Commissioning, Operation and Maintenance (SITCO&M)

for 1 number of MTU for Kavaratti was floated, and a work order has been issued on 04.11.2024.

Accordingly, UTL Administration is exploring the various measures viz, Planted Drying Bed, Engineered Natural Sewage Treatment System (ENSeTS), High Performance Biodigester Technology (HPDB) and Mobile Septage Treatment Unit (MTU) for management of liquid waste management in the islands.

- Gap in treatment capacity in MLD:
- No. of operational STPs:1
- No. of complying STPs: 1
- No. of non-complying STPs: Nil

Details of each existing STP in the State

No.	Location	Existing STP capacity	Capacity being utilized	Operational status of STP	Compliance status of STP
1	Bangaram Beach Resort	24000 l/d	18000 l/d	Operational	

Details of under construction STPs in the State

No.	Location	Capacity of the plant in MLD	Physical progress in %	Status of incision and drainage or house sewer connections	Incremental progress	Completion timeline
1	INS Dweepraksh ak Kavaratti	0.025 MLD	Complete d (100%)	Local Arboriculture	-	Completed

Details of proposed 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	Naval Detachment, Minicoy	0.025 MLD	Work Order issued and commences work.	-	-

IV. Details of industrial pollution:

- No. of industries in the state: There are no major industries.
- No. of water polluting industries in the state: NIL
- Quantity of effluent generated from the industries in MLD: NIL
- Quantity of hazardous sludge generated from the industries in TPD: NIL
- Number of industrial units having ETPs: NIL

- Number of industrial units connected to CETP: NIL
- Number and total capacity of ETPs (details of existing / under construction / proposed): NIL
- Compliance status of the ETPs: Not applicable (NA)
- Number and total capacity of CETPs (details of existing / under construction / proposed) : Not applicable (NA)
- Status of compliance and operation of the CETPs

Town	No. of industries	Industrial discharge	Status of ETPs	Status of CETPs (existing, under construction & proposed)
-	Nil	NA	NA	-

V. Solid waste management:

Total number of urban local bodies and their population:

The Union Territory of Lakshadweep has no city/town/urban local body, and it comprises only rural areas. One Village (Dweep) Panchayat in every inhabited islands and a District Panchayat for entire territory of Lakshadweep.

The population as per the census 2011 of each island is as follows:

Sl No	**Island**	**Population**
1	Agatti	7560
2	Amini	7656
3	Androth	11191
4	Bitra	271
5	Chetlat	2345
6	Kadmath	5389
7	Kavaratti	11221
8	Kalpeni	4419
9	Kilthan	3946
10	Minicoy	10474

- Current municipal solid waste generation:

Solid waste generation in the UT of Lakshadweep islands is 18 tonnes per day (TPD). (12 TPD non-biodegradable wastes and 6 TPD biodegradable wastes specially kitchen wastes.

It is to pointed out that the kitchen waste generated from households is consumed at the generation site itself, and no net biodegradable kitchen garbage pile is noticed anywhere on the islands.

- Number, installed capacity and utilization of existing MSW processing facilities in TPD (bifurcated by type of processing e.g.- waste to energy (tonnage and power output), compost plants (windrow, Vermi, decentralized pit composting), bio-methanation, MRF etc

The residents/ people of the UT are encouraged to manage the Kitchen waste at the household level, such as by feeding it to animals like cattle, goats, poultry, etc. Department of Science and Technology, UTLA has also installed and commissioned 35 biogas plants across Kavaratti, Minicoy, and Kalpeni islands, with varying capacities of 1 m^3, 2 m^3, 0. 75 m^3, and 0.6 m^3 **.** These plants collectively can manage up to 269.5 kg of kitchen waste per day.

- Action plan to bridge gap between installed capacity and current utilization of processing facilities (if gap > 20%)

UT of Lakshadweep Administration has also decided to install Biogas plants in various Government Guest Houses and Schools in a phased manner. Accordingly, the Public Works Department and Education Department carried out an assessment of the kitchen waste. The Lakshadweep PWD has thereafter invited tenders for the installation of a Biogas unit in Agatti Guest House in the first instance.

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

  - In UT of Lakshadweep no C&D waste processing plants.
  - People of Lakshadweep consider construction and demolition waste as resource for filling the plinth area for new construction.

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

The UTL Administration took a policy decision in April 2021 to manage solid and plastic waste through Public Private Participation (PPP) on each island. The Village Panchayat on each Island has been appointed as “Local Body” under Solid Waste Management Rules, 2016.

The entire process of waste management comprises 3 stages, which are:

(i) Door-to-Door Collection, Segregation and Internal Transportation to the Central Garbage Depository (CGD)

The Department of Panchayat has engaged agencies for Door to- Door waste Collection, Segregation and Transportation to Central Garbage Depository Site (CGD) in each of the 10 inhabited islands. The Central Garbage Depository (CGD) site is used as a segregation area for the

segregation of non-biodegradable waste into recyclable and incinerable waste in the islands

(ii) Packing and Transportation of segregated waste to the mainland

The segregated recyclable waste is then packed and transported to the mainland. The Packaging and Transportation contracts in all the islands have been finalized by the Department of Panchayat.

(iii)Recycling of the Waste at the Mainland.

The Department of Panchayat has also entered into a contract with a recycler at Calicut, Kerala, to receive recyclable waste transported from all the islands

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

Considering that a part of the Non-Biodegradable waste is incinerable, two Municipal Solid Waste Management incinerators of a capacity of 100 Kg/hour were also installed in the islands of Kavaratti and Agatti during the year 2019-2020 for the incineration of incinerable waste generated in islands. At present, 1925 MT of waste in all islands remains to be incinerated, primarily due to the limited capacity of the incinerators. To address the challenge, the Department of Panchayat has decided to install Incinerators of capacities 100/50/20 Kg/hour (based on the quantity of incinerable waste) in the remaining 8 islands for which tenders have been invited.

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

No uncontrolled garbage dumpsite and sanitary landfill site in the UT of Lakshadweep

- No. and area (in acres) of legacy waste within 1km buffer of both side of the rivers

NIL

- No. of drains falling into rivers and no. of drains having floating racks/screens installed to prevent solid waste from falling into the rivers

NIL

Status of ULB wise management of solid waste

ULB	Total MSW generation in TPD	Total MSW being processed in TPD	Existing MSW facilities	Utilization capacity of the existing MSW facilities	Proposed MSW facilities & completion Timeline
No ULB present in Lakshad weep.					

VI. Bio-medical waste management:

- Total Bio-medical generation:

As per the annual report submitted by the Department of Health Services, UTLA, the total bio medical waste generation is 100 Kg/day in Lakshadweep islands.

- No. of Hospitals and Health Care Facilities:

46

- Status of Treatment Facility/ CBMWTF:

The Common Biomedical Waste Treatment facilities (CBMWTF's) are not available in any of the islands and it is not feasible due to geographical isolation of island and lesser quantity of biomedical waste generation. The yellow category wastes are disposed through incinerator in Kavaratti. In the remaining islands the incinerator shall be installed. The other treatment facilities like autoclaves, needle destroyer, concrete pit etc are available in all the HCEs in Lakshadweep islands.

VII. Hazardous waste management:

- Total Hazardous waste generation:

2500 Liter Per Annum (used oil) from electricity diesel generators.

- No. of Industries generating Hazardous waste

In the UT of Lakshadweep, there is no hazardous waste generating unit. However, in the UT of Lakshadweep, diesel generators are used as major source of power generation by Department of Electricity, UTLA. The discarded/ used oils from the diesel generator are being transported to mainland for recycling by the Department of Electricity.

- Treatment Capacity of all TSDFs

Nil

- Avg. quantity of hazardous waste reaching the TSDFs and treated

Not applicable

- Details of on-going or proposed TSDF

Not applicable

VIII. <u>Plastic Waste Management:</u>

- Total Plastic Waste generation:

46 Ton per annum

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

Lakshadweep has no plastic waste recylers and manufactures. • Plastic wastes that are collected from households are sorted and packed in common depository site and stored for transporting to mainland for recycling. • Lakshadweep Administration has imposed ban on all type plastic pick up carry bags and also sale and usage of identified 23 items of single use plastics. • A three tier committee at state, district and island level is constituted to monitor the activities under the action plan on elimination of identified single use plastics in Lakshadweep. • UTL Administration has conducted frequent awareness among the public in the reduction and management of plastic wastes.

IX. Details of alternate treatment technology being adopted by the State/UT

Lakshadweep has no plastic waste recylers and manufactures, all the plastic wastes are packed in common depository site and stored for transporting to mainland for recycling.

X. Identification of polluting sources including drains contributing to river pollution and action as per NGT order on insitu treatment:

No river in the Lakshadweep.

XI. Details of Nodal Officer appointed by Chief Secretary in the State/UT:

Director, Department of Science & Technology, Kavaratti, U.T. of Lakshadweep

XII. Details of meetings carried under the chairmanship Chief of Secretary in the State/UT:

Meeting conducted under the chairmanship of Advisor to the Administrator of UT of Lakshadweep for the waste management in Lakshadweep in 26.04.2024, 06.06.2024, 05.07.2024, 09.07.2024, 23.08.2024.

XIII. Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river;

Not applicable, since no river in Lakshadweep

XIV. Ground water regulation:

UTLA has constituted UT level committee for formulating the guidelines/additional conditions for groundwater extraction of Lakshadweep on 06.11.2020 and the meeting was held on 11.11.2020.

XV. Good irrigation practices being adopted by the State

UTL is having 1731 small ponds (average size of 10 to 30 square meters). The conservation of these traditional ponds is highly relevant in the island scenario as the usage of these ponds will minimize the extraction of ground water and also enhance recharging of ground waters through rain. Action has been initiated for the rejuvenation, repair and rehabilitation of existing ponds. Out of 456 identified abandoned/damaged ponds 218 have been rejuvenated during the year 2021. Lakshadweep is the smallest union territory scattered in the Arabian Sea consists of ten inhabited islands. The largest island Androtт is 4.84 km^2 while the smallest inhabited island Bitra has an area of 0.10 Km^2. The main crop cultivation is coconut, due to the scarcity of availability of underground water, irrigating these crops happens only during the nursery stage.

XVI. Rain Water Harvesting:

A total of 4532 houses have been provided with rainwater harvesting tanks in capacities of 5000 - 10000 liters during the period from 2000 to 2010. In addition, 49 community rainwater tanks have been provided with capacities of 40000 – 100000 liters during 2000 to 2004. About 355 liters of rainwater per annum is harvested in Lakshadweep. The overflow from the rainwater structures are connected to nearby dug wells for accelerating the recharge of ground water.

XVII. Demarcation of floodplain and removal of illegal encroachments:

Not applicable

XVIII. Maintaining minimum e-flow of river:

Not applicable

XIX. Plantation activities along the rivers

Not applicable

XX. Development of biodiversity park:

Not applicable

XXI. Reuse of treated water:

Not applicable

XXII. Model river being adopted by the State & action proposed for achieving the bathing quality standards:

Not applicable

XXIII. Status of preparation of action plan by the 13 coastal states:

Lakshadweep Administration has prepared an action plan for coastal pollution management and submitted to the CPCB. The CPCB has examined the proposal and intimated the gaps observed and suggested to modify the action plan. The modified action plan was presented before the River/Coastal Rejuvenation Committee. After the approval of the committee, the Action Plan submitted to CPCB on 03.03.2022.

XXIV. Regulation of mining activities in the State/UT

No mining activities in the UT of Lakshadweep

XXV. Action against identified polluters, law violators and officers responsible for failure for vigorous monitoring

Nil

***Note: Incremental progress made by the State/UT in each activity to be provided.**