



International Case Study: Sewage Treatment in Kerala

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1. Introduction

The Indian state of Kerala has a population of about 3.3 crore people according to the 2011 Census¹. Kerala has a mixed settlement pattern where highly urbanised districts including Ernakulam, Kozhikode, and Thrissur, coexist with predominantly rural districts including Idukki, Wayanad, and Pathanamthitta.

Kerala generates nearly 8,000 cubic metres of sewage every day². However, the Kerala Water Authority reports that only 4% of the state currently has central sewerage coverage³.

Untreated sewage, from both domestic wastewater and industrial discharges, continue to pollute rivers, canals, lakes, and groundwater across many districts in Kerala³. Therefore, a proper sewage management system is an important public health and environmental priority.

2. Existing Sewage Treatment Infrastructure

Kerala currently operates 14 common sewage treatment plants, with a further 2,000 individual treatment plants functioning across apartments, hotels, hospitals, and industries⁴. However, 96% of Kerala relies on decentralised on-site

sanitation systems, particularly in rural districts and low-density settlements³ where extending conventional sewerage networks is technically difficult and financially expensive¹.

Most households manage wastewater through on-site sanitation systems including septic tanks and soak pits⁴. Individual households generally organise the operation and maintenance of these systems independently. Faecal sludge is periodically collected by licensed desludging operators and transported to treatment facilities where available.

Mobile Septage Treatment Units have been introduced in several municipalities to provide flexible treatment where permanent facilities are not practical.

3. Current Challenges and Government Response

Direct financial subsidies for individual household septic tanks remain limited across Kerala. However, the state's central planning, technical guidance, monitoring, and awareness programmes and institutional support help local bodies and private system owners improve their wastewater management practices.

¹ Kerala.gov.in, 2023, <https://kwa.kerala.gov.in/en/sewerage-plan/>

² Mohan, 2024, <https://www.newindianexpress.com/states/kerala/2024/Jul/25/kerala-to-set-up-underground-sewage-treatment-plants-to-combat-pollution>

³ Kerala.gov.in, 2025, <https://kwa.kerala.gov.in/en/sewerage/>

⁴ The Hindu Bureau, 2025, <https://www.thehindu.com/news/national/kerala/gaps-found-in-stp-infrastructure-for-liquid-waste-management-in-urban-areas/article69952149.ece>

The Kerala State Pollution Control Board (KSPCB) conducts inspections and regulatory enforcement. It requires sewage treatment plants to follow standards for certain factors which include location, design, treatment efficiency, sludge handling, monitoring, and worker safety⁵.

Treatment plans that are above 100 kiloliters per day need to maintain larger buffer zones. Operators are also required to obtain Consent to Establish and Consent to Operate from KSPCB⁵.

KSPCB also manages public awareness programmes to encourage safe wastewater management practices among institutions and communities⁵. It has issued more than 1,100 notices to those violating wastewater management rules under the Water Act⁴.

Meanwhile, the Kerala Solid Waste Management Project supports institutional capacity building, technical assistance, training programmes and information, education and communication campaigns for local bodies⁶.

The Kerala government has also strengthened the Kerala Water Authority through the creation of a dedicated Sewerage Vertical³ which is responsible for planning, designing, and implementing sewage projects throughout the state.

4. Future Plans and Sustainable Management

In accordance with the National Green Tribunal's statement that all states in India must prepare and implement sewage treatment plans within fixed timelines³, the Kerala Government has a long-term sewerage and faecal sludge management plan for the 30-year period from 2023 to 2063¹.

Low-density rural panchayats are expected to continue to rely on on-site sanitation systems. Sludge generated from nearby non-

networked settlements will be transported to new treatment plants¹.

The government has already introduced new underground sewage treatment plants in Thiruvananthapuram and Kannur to serve clusters of households and public buildings². Those allow the available land above the facilities to remain available for parks, parking areas, or playgrounds, while reducing pollution and public opposition to waste projects.

Progress reports submitted to the National Mission for Clean Ganga show that treatment plants in districts of Thrissur, Kannur, Wayanad, and Kozhikode have already become operational⁷.

Additional new facilities are either under construction or undergoing trial runs to improve wastewater management across Kerala.

5. Conclusion

Kerala's planned expansion of faecal sludge treatment plants, Mobile Septage Treatment Units, and underground treatment facilities demonstrate the government's intention to increase its public sewerage coverage across the state.

However, Kerala's mixed settlement pattern means that privately owned septic tanks and soak pits will remain essential to dispersed rural households and businesses.

Those rural communities will continue to benefit from Kerala's integrated faecal sludge management system, where locally managed wastewater systems are combined with centralised technical guidance, monitoring, and public awareness programmes.

⁵ HECS, 2025, <https://www.hecspstp.com/kerala-state-pcb-sewage-treatment-plant-guidelines/>

⁶ Lsgkerala.gov.in, 2026, <https://lsgkerala.gov.in/index.php/en/kswmp>

⁷ NMCG, 2023, https://nmcg.nic.in/writereaddata/fileupload/ngtmpr/44_Kerala%20-%20February%202023%20MPR.pdf