

**STANDING COMMITTEE ON HOUSING
AND URBAN AFFAIRS
(2025-26)**

EIGHTEENTH LOK SABHA

**MINISTRY OF HOUSING AND URBAN AFFAIRS
(DEPARTMENT OF URBAN DEVELOPMENT)**

**Review of Sewerage and Septage Coverage in Cities with special
reference to interventions under Atal Mission for Rejuvenation and
Urban Transformation (AMRUT & AMRUT 2.0)**

TENTH REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

August, 2026/ Sravana, 1948 (Saka)

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Presented to Lok Sabha on 04.08.2026

Laid in Rajya Sabha on 04.08.2026



**LOK SABHA SECRETARIAT
NEW DELHI**

August, 2026/ Sravana, 1948 (Saka)

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**COMPOSITION OF THE STANDING COMMITTEE
ON HOUSING AND URBAN AFFAIRS (2025-26)**

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31. Shri Debashish Samantaray

SECRETARIAT

- | | | | |
|----|-----------------------|---|------------------|
| 1. | Shri Lalkithang | - | Joint Secretary |
| 2. | Smt. Archana Pathania | - | Director |
| 3. | Ms. Swati Parwal | - | Deputy Secretary |
| 4. | Shri Anunay Kumar | - | Under Secretary |

KEY ABBREVIATIONS

Abbreviation	Expanded version
AMRUT	: Atal Mission for Rejuvenation and Urban Transformation
ASCI	: Administrative Staff College of India
BIS	: Bureau of Indian Standards
BOD	: Biochemical Oxygen Demand
CCTV	: Closed-Circuit Television
COD	: Chemical Oxygen Demand
CPCB	: Central Pollution Control Board
CPHEEO	: Central Public Health and Environmental Engineering Organisation
CWAP	: City Water Action Plan
CWBP	: City Water Balance Plan
DISHA	: District Development Coordination and Monitoring Committee (DISHA)
DLRMC	: District Level Review and Monitoring Committee
FSSM	: Faecal Sludge and Septage Management
FSTP	: Faecal Sludge Treatment Plant
FY	: Financial Year
GIS	: Geographic Information System
GPS	: Global Positioning System
HAM	: Hybrid Annuity Model
IEC	: Information, Education and Communication
IoT	: Internet of Things
IRMA	: Independent Review and Monitoring Agency
IS	: Indian Standard
KLD	: Kilo Litres per Day
MBBL	: Model Building Bye-Laws
MLD	: Million Litres per Day
MIS	: Management Information System
MoHUA	: Ministry of Housing and Urban Affairs
NGT	: National Green Tribunal
NITI	: National Institution for Transforming India (NITI Aayog)
O&M	: Operation and Maintenance
OSS	: On-Site Sanitation System
PCC	: Pollution Control Committee
PPE	: Personal Protective Equipment

PPP	: Public-Private Partnership
PPT	: PowerPoint Presentation
SAAP	: State Annual Action Plan
SBM-U	: Swachh Bharat Mission–Urban
SCADA	: Supervisory Control and Data Acquisition
SHG	: Self-Help Group
SHpsc	: State High Powered Steering Committee
SLTC	: State Level Technical Committee
SNA- SPARSH	: Single Nodal Account-System for Payment Reconciliation and Allocation of Scheme Heads
SoP	: Standard Operating Procedure
SPCB	: State Pollution Control Board
STP	: Sewage Treatment Plant
ULB	: Urban Local Body
UT	: Union Territory
UWTP	: Used Water Treatment Plant
WRRC	: Water Resource Recovery Cell

INTRODUCTION

I, the Chairperson of the Standing Committee on Housing and Urban Affairs (2025-26), having been authorized by the Committee, present this Tenth Report (18th Lok Sabha) on the subject, 'Review of Sewerage and Septage Coverage in Cities with special reference to interventions under Atal Mission for Rejuvenation and Urban Transformation (AMRUT & AMRUT 2.0)' relating to the Ministry of Housing and Urban Affairs.

2. The present Report is a thematic review of sewerage and septage management under AMRUT and AMRUT 2.0, undertaken to assess the extent to which the Mission has progressed towards ensuring universal and equitable access to sewerage and septage management services in urban areas. The Committee had earlier examined the urban drinking water component of AMRUT and AMRUT 2.0 in their Seventh Report during the current term. The present Report builds upon that earlier examination by focusing on the equally important sewerage and septage component of the Mission.

3. The Committee were briefed on the subject by the representatives of Ministry of Housing and Urban Affairs on 24 March 2026.

4. The Committee wish to express their thanks to the officials of the Ministry of Housing and Urban Affairs for appearing before them and furnishing the information that were sought in connection with the examination of the subject.

5. The Committee would also like to place on record their deep sense of appreciation for the invaluable assistance rendered to them by the Officials of Lok Sabha Secretariat attached to the Committee.

6. The Committee considered and adopted Draft Report at their Sitting held on 30 July 2026.

7. For facility of reference and convenience, the observations/recommendations of the Committee are highlighted in bold letters in Part II of the Report.

PART-I

I. INTRODUCTORY

Urbanization in India has led to a significant increase in the demand for water for domestic, commercial and industrial purposes. At the same time, water resources are under increasing stress due to over-exploitation, pollution and the adverse impacts of climate change. The growing pressure on available water resources has made efficient water management a critical requirement for sustainable urban development. In this context, sewerage and septage management have acquired greater significance, not only from the perspective of public health and environmental protection but also as key enablers for promoting a circular water economy. Through the treatment and reuse of wastewater, recovery of resources such as water, energy and nutrients, and scientific management of sewage sludge and septage, urban local bodies can reduce dependence on freshwater sources and promote sustainable resource utilization. The issue assumes greater importance in urban areas, particularly for economically weaker sections and residents of informal settlements, who are often the most affected by inadequate access to safe water and sanitation services.

2. Recognising the importance of sustainable urban water and sanitation management, the Government of India supports the efforts of the States and Urban Local Bodies (ULBs) through various policy initiatives and centrally sponsored Missions. As sanitation is a State subject, the Ministry of Housing and Urban Affairs (MoHUA) supplements these efforts by providing financial and technical assistance, issuing policy advisories and facilitating capacity building under flagship programmes such as the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) launched on 25 June 2015, which was subsequently subsumed into AMRUT 2.0 upon its launch on 1 October 2021.

3. Against this backdrop and considering that a comprehensive examination of the urban drinking water component of AMRUT and AMRUT 2.0 had already been undertaken through the Committee's Seventh Report during the current term,

a detailed examination of sewerage and septage management under the Missions was subsequently taken up. This thematic review was undertaken to assess the extent to which the Missions have succeeded in ensuring universal and equitable access to sewerage and septage services in urban areas.

4. The present Report examines the status of sewerage and septage management in urban areas, including wastewater generation, collection, treatment and reuse. It also reviews the policy and institutional framework governing the sector and assesses the measures undertaken under AMRUT and AMRUT 2.0 for improving sewerage infrastructure, enhancing treatment capacity and promoting sustainable wastewater management. The Report further highlights the challenges in implementation and identifies measures required for achieving comprehensive and effective sewerage and septage coverage across cities in the country.

Urban Wastewater Scenario in India

5. A major challenge in sewerage and septage management is the substantial gap between wastewater generation and treatment capacity across urban areas. As per Niti Aayog report on Urban Wastewater Scenario in India, it is estimated that India generates 72,368 Million Litres per Day (MLD) of urban wastewater every day; however, only about 28 per cent (20,236 MLD) of this wastewater undergoes formal treatment. As a result, nearly 72 per cent of untreated sewage is discharged into rivers, lakes, groundwater and other water bodies, causing environmental degradation and posing serious risks to public health. The inadequate collection, treatment and safe disposal of sewage and septage have adversely affected the quality of urban water bodies and ecosystems. During periods of heavy rainfall and urban flooding, the overflow and mixing of untreated sewage with floodwater further aggravate sanitation and health concerns. The limited treatment, reuse and resource recovery from wastewater also constrain efforts to promote a circular water economy and have contributed to public apprehensions regarding the use of recycled water, thereby posing an additional challenge to sustainable urban water and sanitation management.

AMRUT Intervention

6. Recognising the growing challenges relating to urban sanitation, wastewater management and environmental sustainability, the Government of India launched the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in 2015, followed by AMRUT 2.0 in 2021. The Missions aim to strengthen urban infrastructure across key sectors, including water supply, sewerage and septage management, storm water drainage, urban transport and development of green spaces and parks. Given their direct bearing on public health, environmental protection and the quality of urban living, sewerage and septage management have remained central components of both the Missions. Reflecting this priority, AMRUT devoted a substantial share of its investments to the water and sanitation sectors, with nearly half of the approved State Annual Action Plan (SAAP) outlay earmarked for water supply and ₹32,456 crore, constituting 42 per cent of the total approved outlay of ₹77,640 crore, allocated to sewerage and septage management. A key objective of the Mission was to expand sewerage and septage coverage in Mission cities from approximately 31 per cent to 62 per cent.

7. Building upon the progress made under AMRUT, AMRUT 2.0 seeks to achieve universal coverage of sewerage and septage services across all 500 Mission cities while promoting wastewater recycling and reuse, rejuvenation of water bodies, aquifer management and urban water security. Sewerage and septage management continues to be a priority sector under the Mission, with 584 projects worth ₹65,625 crore sanctioned out of a total of 8,771 projects worth ₹1,92,483 crore. The Mission has also been extended up to 31.03.2027. On being asked to clarify the meaning of the term “universal coverage” in the context of sewerage and septage management under AMRUT 2.0, the Ministry stated as under:

“Under AMRUT 2.0, “universal coverage” refers to achieving 100% saturation of sewerage and septage management services for every household in 500 designated AMRUT cities. This marks a strategic shift toward ensuring all urban residents have access to functional waste disposal systems through a combination of centralized sewerage networks and scientific Faecal Sludge and Septage Management (FSSM), co-treatment, or FSTP facilities for less dense areas.”

II. MAPPING OF AMRUT INTERVENTIONS ACROSS THE SEWERAGE AND SEPTAGE MANAGEMENT VALUE CHAIN: CONTAINMENT, COLLECTION, TRANSPORT, TREATMENT AND REUSE & DISPOSAL

8. Sewerage and septage management encompasses a series of interlinked activities that together constitute the sanitation value chain, covering the safe containment, collection, conveyance, treatment, reuse and disposal of sewage, faecal sludge and septage. The effectiveness of urban sanitation systems depends on the proper functioning of each stage of this value chain, as deficiencies at any stage can adversely affect public health, environmental quality and service delivery outcomes. Recognising this integrated approach, the Committee sought to understand the extent to which AMRUT and AMRUT 2.0 have addressed the various challenges across the sewerage and septage management value chain. The Committee also desired to assess the effectiveness of the interventions undertaken under the Missions in strengthening urban sanitation infrastructure and improving service delivery outcomes. In response, the Ministry furnished details of the key challenges identified at different stages of the sanitation value chain, the policy, institutional and infrastructure interventions undertaken under AMRUT and AMRUT 2.0, and the qualitative and quantitative outcomes achieved thereunder. The information furnished by the Ministry is presented in the following table:

I. Containment (Toilets, Septic Tanks, Sewer Connections at Source)

#	Key Issues/ Systematic Gaps	Policy/Regulatory Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
1	Continued heavy reliance on on-site sanitation systems (OSS), reflecting limited sewer network penetration	• AMRUT and AMRUT 2.0 have supported augmentation of sewerage and septage infrastructure, including sewer networks, STPs, FSTPs, co-treatment facilities and reuse systems in 500 cities. Cities were motivated to assess the sanitation gaps & prepare action plans and take projects as per their priorities in CWBPs, CWAPs under AMRUT 2.0 in 500 AMRUT cities.	• ~7.4 crore urban households covered under sewerage & septage systems. • Under AMRUT & AMRUT 2.0, 59,261.67 Km network has been approved of which 27,418.87 km has been laid. • 13,114.38 MLD capacity of sewage

#	Key Issues/ Systematic Gaps	Policy/Regulatory Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
		• States/ULBs have been encouraged to adopt a city-wide inclusive sanitation approach instead of focusing only on conventional underground sewerage systems. • MoHUA issued advisory frameworks and operational guidelines for Faecal Sludge and Septage Management (FSSM), especially for smaller and medium towns where full sewerage systems may not be immediately feasible. • Financial assistance has been provided for decentralized wastewater treatment systems, septage management infrastructure and treatment facilities in uncovered urban areas. • Under SBM-U 2.0, MoHUA adopted the approach of “Sanitation for All”, recognizing both sewerage and non-sewerage sanitation systems as integral components of urban sanitation planning.	treatment plant and 2,499.67 KLD of FSTP has been approved under AMRUT/ AMRUT 2.0. • Of which, 6,054.46 MLD of STPs & 2,409.67 KLD of FSTPs has been developed.
2	Prevalence of poorly designed and non-standard septic tanks (single pits, unlined structures, direct outlets) leading to groundwater contamination	Chapter on standard septic tank designs in CPHEEO Manual on Sewerage and Sewage Treatment adoption; • Model building by-laws and sanitation advisories. • Capacity building and training programmes have been conducted for ULB engineers, masons, sanitation workers and field functionaries regarding safe septic tank construction practices.	Increasing standardisation through model bye-laws

#	Key Issues/ Systematic Gaps	Policy/Regulatory Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
		Information, Education and Communication (IEC) campaigns to create awareness among citizens.	
3	Direct discharge of greywater and blackwater into open drains due to absence of proper containment systems	- Under AMRUT and AMRUT 2.0, sewerage and septage including interception, diversion and treatment is an admissible component in 500 cities. - FSTPs, co-treatment facilities and decentralized wastewater treatment systems have been supported in cities lacking underground sewerage systems. - AMRUT 2.0 also focuses on rejuvenation of water bodies and reduction of untreated wastewater discharge into urban drains and natural water bodies. - Reuse and recycle of treated wastewater has been promoted through policy advisories and project funding support. SBM-U 2.0 promotes source segregation and scientific management of blackwater and greywater through decentralized and centralized systems.	Under AMRUT & AMRUT 2.0, 59,261.67 Km network has been approved of which 27,418.87 km has been laid. This has resulted in reduction in direct discharge into open drains in AMRUT cities.
4	Inadequate household sewer connections despite availability of trunk infrastructure ("last-mile connectivity gap")	Under AMRUT 2.0 funding provisions has been made for last-mile connectivity. Under Outcome based funding State may directly claim additional funds for last mile connectivity by providing connections in non-AMRUT/AMRUT 2.0 Projects	1.91 cr sewer connections including households covered under septage management provided under AMRUT /AMRUT 2.0 in convergence with State.
5	Absence of database/invent	In 500 AMRUT cities, Cities were asked to prepare assess the	Database regarding the households connected

#	Key Issues/ Systematic Gaps	Policy/Regulatory Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
	ory of septic tanks and containment systems at city level	sanitation gaps & prepare action plans under CWBP & CWAPs.	to STP and Septic Tanks is covered in CWBPs submitted by ULBs.
6	Weak enforcement of building by-laws and sanitation standards for containment systems	It is a State Subject. However, States are motivated through adoption of building by-laws under Reforms	35 states have adopted MBBL.
7	Cross-connections between sewer lines and stormwater drains	• AMRUT sewerage projects support scientific design and rehabilitation of sewer networks to reduce leakages and cross-connections. • Rehabilitation and replacement of old and damaged sewer infrastructure is an admissible project under AMRUT 2.0. States are advised to identify vulnerable crossings, and replacement of legacy/vulnerable infrastructure to prevent cross-connections and health hazards. • Preparation of GIS-based geo-spatial databases, digital mapping of sewer and water networks • MoHUA has issued technical guidance through CPHEEO manuals for proper segregation of sewerage and stormwater drainage systems.	Under AMRUT, GIS-based Master Plans prepared for 404 cities, with 289 notified. Under AMRUT 2.0. Under AMRUT 2.0, draft master plans have been prepared for 136 cities and Master Plan for 71 cities have been formulated. 163 cities have taken up GIS based sewerage network.
8	Disconnect between toilet construction (SBM-U) and safe containment infrastructure	Under AMRUT/ AMRUT 2.0 sewerage connection/ septage coverage and collection mechanism is included.	AMRUT Mission has significantly expanded urban infrastructure providing 191 lakh sewer connections while developing extensive treatment capacities.

II. Collection (Emptying / Sewer Network Interface)

#	Key Issues/ Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
1	Significant gaps in sewer network coverage, particularly in peri-urban areas, resulting in weak last-mile connectivity and continued reliance on on-site sanitation systems	States/ UTs are empowered to select and prioritise projects under AMRUT/ AMRUT 2.0. Under AMRUT 2.0, ULBs compile baseline data on household sewer/ septage connections, and worked out gaps in service delivery. Based on assessed gaps, potential projects are identified targeting functional outcomes.	~7.4 cr urban households covered under sewerage & septage systems
2	Lack of institutionalised, scheduled and regulated desludging mechanisms leading to ad hoc and unsafe emptying practices		AMRUT 2.0 has promoted structured septage management approaches through city-level planning, formalised service delivery mechanisms and integration of sewerage and septage management systems, improving regulation and reducing unsafe emptying practices.
3	Operational inefficiencies due to ageing infrastructure, frequent blockages and inadequate operation & maintenance (O&M) frameworks	Rehabilitation of sewerage system, Smart solutions like SCADA are admissible components under AMRUT 2.0. AMRUT 2.0 guidelines also provides that all admissible projects should have at least five-year O&M for infrastructure, which may be duly incorporated through the tender process.	Under AMRUT 23,297 km of new sewer network/ rehabilitation has been taken up of which 22,520 km has been completed. Under AMRUT 2.0, approved projects include creation of about 34,219 km of new sewer network and rehabilitation of 2,503 km of network. The mission guidelines mandate that all sanctioned infrastructure projects incorporate at least five years of operation and maintenance (O&M) into the tender process; under AMRUT 2.0, States have

#	Key Issues/ Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
			already assessed or planned ₹20,019.38 crore specifically for O&M costs across total 8,771 approved projects.
4	Inaccessibility and service delivery challenges in dense, unplanned, and informal settlements, limiting effective collection systems	Provision of decentralized sewerage systems, Interception & Diversion works, and context-specific solutions for dense and informal settlements, along with alternative sanitation and septage management where conventional networks are difficult	Improved service reach in hard-to-access settlements.
5	Continued prevalence of unsafe and manual desludging/sewer cleaning practices despite statutory prohibitions	Provision of mechanized sewer/septic tank cleaning, faecal sludge and septage management systems, and strengthening of sewerage and septage infrastructure.	Mechanised sewer and septic tank cleaning systems, along with faecal sludge and septage management interventions under AMRUT/ AMRUT 2.0, have encouraged safer sanitation practices and reduced dependence on manual sewer cleaning operations.
6	Absence of comprehensive GIS-based mapping and digital inventory of sewer connections and septic tanks, hindering planning and monitoring	AMRUT/AMRUT 2.0 has provision for preparation of GIS-based master plans, standardized digital base maps, and georeferenced inventory of urban infrastructure, including sewer network data structures and city-level planning tools.	Under AMRUT, GIS-based Master Plans prepared for 404 cities, with 289 notified. Under AMRUT 2.0, draft master plans have been prepared for 136 cities and Master Plan for 71 cities have been formulated. 163 cities have taken up GIS based sewerage network.

III. Transport (Conveyance of Sewage and Septage)

Sl. No.	Key Issues/Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
1	Inadequate and ageing sewerage conveyance infrastructure leading to leakages, overflows and inefficiencies	Augmentation, rehabilitation and replacement of sewerage infrastructure, including sewer networks, are admissible under AMRUT 2.0	A total of 594 sewerage and septage management projects worth ₹68,309.90 crore approved under AMRUT 2.0, including expansion and rehabilitation of sewer networks, interception and diversion systems, and conveyance infrastructure for improved sewage transport efficiency.
2	Limited mechanised and regulated septage transport systems, and heavy reliance on informal private operators	AMRUT 2.0, provision is there for faecal sludge and septage management systems, including mechanised collection and transportation arrangements.	AMRUT 2.0 has promoted formalised faecal sludge and septage management systems with mechanised collection and transportation arrangements, reducing dependence on unregulated and unsafe desludging practices.
3	Mismatch between desludging demand and availability of suction vehicles and transport fleet	AMRUT 2.0 provides for the ULBs to compile baseline data on household sewer/ septage connections, and work out gaps in service delivery; and identification of potential projects. Cities/ ULBs to prepare and prioritise projects.	States have taken up projects as per their requirements and priorities.
4	Lack of notified discharge points and transfer stations for desludging operators	There is provision for creation of sewerage and septage management infrastructure, including facilities required for collection, conveyance and treatment, to support	Co-treatment facilities have been provided in AMRUT STPs.

Sl. No	Key Issues/Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
		orderly discharge and transport arrangements.	
5	Weak integration between sewerage and septage transport systems (parallel, uncoordinated chains)	Provisions are for Integrated sewerage and septage management, including sewer networks, interception and diversion works, STPs, fecal sludge and septage management systems, and coordinated collection, transportation, treatment and reuse arrangements.	AMRUT 2.0 has strengthened integration of sewerage and septage systems through coordinated planning of sewer networks, interception and diversion works, STPs, FSTPs and reuse arrangements, promoting a unified sanitation value chain approach.

IV. Treatment (STPs, FSTPs, Co-treatment Systems)

#	Key Issues/Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
1	Inadequate and uneven treatment capacity vis-à-vis sewage generation	Provision are for augmentation and rehabilitation of STPs, UWTPs and co-treatment/FSTP facilities to bridge treatment capacity gaps against sewage generation	A total of 594 sewerage and septage management projects worth ₹68,309.90 crore have been approved under AMRUT 2.0, including creation and augmentation of 6,815 MLD sewage treatment capacity through STPs, FSTPs and co-treatment facilities.
2	Sub-optimal utilisation and performance of existing treatment infrastructure due to inadequate sewer connectivity and inflow	Sewerage network and last mile connectivity to households are covered under AMRUT 2.0	27,418 km of sewerage network and 1.91 crore household connections.
3	Non-functional or partially functional STPs due to poor O&M and financial constraints	AMRUT 2.0 guidelines provides that all admissible projects should have at least five-year O&M for infrastructure, which may	730 STPs/ UWTPs supported under Jal hi Amrit through incentives for upgradation/ improvement.

#	Key Issues/ Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
		be duly incorporated through the tender process. Operation and maintenance of used water treatment plants through structured O&M arrangements, trained operators, and asset management/monitoring systems. Incentives under 'Jal hi Amrit'	
4	Shortage of skilled manpower for plant operations	Ongoing training programs are being conducted by eminent institutes/industries. Capacity building and deployment of skilled manpower for plant operation and maintenance, including qualified engineers and trained O&M staff.	Capacity building initiatives under AMRUT and AMRUT 2.0 have trained more than 1 lakh functionaries in water and waste water sector.
5	Technology and infrastructure-related challenges and Energy-intensive treatment processes leading to high operational costs and sustainability concerns	Adoption of energy-efficient treatment technologies, reuse-oriented planning, and resource recovery measures such as treated wastewater reuse and WRRC-based circularity.	Technology Sub-Mission under AMRUT 2.0 has promoted innovative and energy-efficient wastewater treatment technologies, SCADA systems, reuse-oriented planning and circular economy approaches.
6	Delays in project execution and infrastructure creation	Time-bound project approval and implementation through the online AMRUT 2.0 portal, with mandatory State Water Action Plans, regular monitoring by SHPSC, SLTC, Apex Committee and IRMAs,	Regular monitoring through online AMRUT 2.0 portal, SHPSC, Apex Committee, video conferences, webinars, workshops and IRMAs has accelerated grounding and execution of projects, with more than 5,514 projects

#	Key Issues/ Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
		and release of funds linked to satisfactory compliance and progress.	grounded/completed under AMRUT 2.0.

V. Reuse and Disposal (Treated Wastewater and End Use)

Sl. No.	Key Issues/Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
1	Low levels of treated wastewater reuse despite policy mandates	Tertiary treatment with end-to-end reuse plan, provision of sewerage systems and tapping of used water for recycling	6012 MLD of treated used water is being reused. Another 1,931.86 MLD reuse capacity approved under AMRUT 2.0 with focus on recycle/reuse of treated wastewater and reduction in freshwater demand through circular water economy initiatives.
2	Absence of distribution infrastructure (tertiary networks) for reuse	Tertiary treatment, end-to-end reuse plan, and identification of bulk users for sale of recycled used water	States take up projects as per their requirement and priorities.
3	Concerns regarding quality, reliability and consistency of treated water and low stakeholder acceptance	City water balance plan, recycle/reuse of treated sewage, and provisions for sewerage/septage management with treatment and reuse. Jal hi Amrit initiative for qualitative improvements in the treated discharge effluent.	730 STPs/ UWTs supported under Jal hi Amrit through incentives for upgradation/ improvement.
4	Public perception and acceptance challenges in use of treated wastewater	Tapping of used water for recycling and facilitating use of recycled water by potential users such as industrial clusters, railways and similar bulk consumers.	~6012 MLD of treated water is being reused. Another 1931 MLD is under implementation.

Sl. No.	Key Issues/Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
5	Fragmented institutional responsibility for reuse across departments	Recycle/reuse of treated sewage as part of the circular economy of water and city water security planning. Setting up of Water Resource Recovery Cell (WRRC) under Jal hi Amrit initiative.	25 States have set up WRRC.

VI. Cross-Cutting Issues (Affecting Entire Value Chain)

Sl. No.	Key Issues/Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
1	Fragmented institutional framework and weak coordination.	Paperless implementation through City Water Action Plans, online portal-based submission, and multi-level monitoring by SHPSC, SLTC, Apex Committee and IRMAs.	Dedicated AMRUT 2.0 digital platform established with regular monitoring through Apex Committee meetings, video conferences, webinars, workshops and IRMAs, improving transparency, coordination and timely issue resolution.
2	Limited capacity and institutional strength of Urban Local Bodies (ULBs)	Capacity building of ULBs and States through technical support, GIS-based planning, and mission-linked monitoring arrangements	More than 1 lakh functionaries trained under AMRUT/ AMRUT 2.0. Capacity building extended to contractors, plumbers, plant operators, students, women and citizens through AMRUT 2.0 initiatives and Centres of Excellence.
3	Inadequate data systems and monitoring mechanisms	Robust technology-based monitoring and evaluation platform for projects, including online tracking of project progress and review mechanisms	Mission progress monitored through centralized dashboards, SNA SPARSH and online portals enabling real-time tracking of physical and financial progress, project monitoring and fund utilization.

Sl. No.	Key Issues/Systematic Gaps	Interventions under AMRUT & AMRUT 2.0	Outcome/Achievements
4	High capital and O&M costs of infrastructure	Central assistance is provided to the States/ UTs for the capital investment in projects.	Sewerage/Septage management Projects worth ₹42,633 crore (capex cost) grounded under AMRUT 2.0, which includes central assistance of ₹20,088 crore.
5	Limited adoption and scaling of appropriate technologies (IoT, robotics, decentralised systems).	AMRUT 2.0 guidelines have provision of taking up smart elements in all water and sewerage projects. Mission also promote start-ups under technology sub-mission, including identification of proven technologies and support to innovative solutions.	Over 2,000 water and sewerage projects approved with SCADA systems under AMRUT/AMRUT 2.0 Under Technology Sub-Mission 120 start-ups have been onboarded and mapped with 82 cities/ ULBs
6	Environmental and public health risks due to pollution and contamination	Emphasis on water security, wastewater treatment, reuse and rejuvenation of water bodies	AMRUT and AMRUT 2.0 supported creation and augmentation of 6,040 MLD sewerage treatment capacity, more than 2,900 water body rejuvenation projects, promotion of recycled treated water and reduction of urban flooding and pollution risks.
7	Low awareness of full sanitation value chain among citizens and stakeholders	Citizen-focused implementation through reform agenda, capacity building and awareness-oriented mission components, including outreach through stakeholders.	Citizen participation strengthened through AMRUT Mitra initiative, involvement of women SHGs in water quality testing and demand management, IEC activities and stakeholder-oriented awareness and reform initiatives.

III. CHALLENGES IN SEWERAGE AND SEPTAGE MANAGEMENT AND AMRUT INTERVENTIONS

9. The information furnished by the Ministry indicates that AMRUT and AMRUT 2.0 have supported a wide range of interventions across the sanitation value chain, resulting in significant expansion of sewerage and septage infrastructure, treatment capacity and service coverage in Mission cities. However, despite the progress achieved, several structural, institutional and operational challenges continue to impede the attainment of universal and sustainable sewerage and septage management. These challenges span the entire sanitation value chain, ranging from inadequate containment and collection systems to deficiencies in conveyance infrastructure, treatment capacity, wastewater reuse and resource recovery. The Committee, therefore, examined these issues in detail to assess the adequacy of the interventions undertaken under the Missions, identify persisting gaps and evaluate the measures required to strengthen sanitation systems and achieve the objectives of sustainable and circular water management. The major issues and challenges in sewerage and septage management is discussed below:-

i. Inadequate Access to Safe and Standardised Containment Systems

10. The issue of containment assumes critical importance in the sanitation value chain as it concerns the safe capture and storage of wastewater at its source through toilets, septic tanks and sewer connections. As per the NITI Aayog report on the Urban Wastewater Scenario in India, used water management in the country is carried out through two broad systems, namely on-site sanitation systems (OSS) and off-site sewerage systems. Under on-site systems, wastewater is retained in the vicinity of the toilet in pits or septic tanks, and the accumulated faecal sludge or septage is periodically emptied and transported for treatment. In contrast, off-site systems rely on household sewer connections and sewerage networks to convey wastewater from the source to sewage treatment plants (STPs) for treatment and safe disposal or reuse. Thus, the adequacy and quality of containment infrastructure, whether in the form of toilets connected to septic tanks or toilets connected to sewer networks, play a crucial role in ensuring the

effective functioning of the entire sanitation value chain and preventing environmental contamination and public health risks.

A. Continued Dependence on On-Site Sanitation Systems Due to Limited Sewerage Coverage

11. Under the current framework, Sewerage and septage management in statutory towns with a population of less than one lakh is undertaken under the Swachh Bharat Mission–Urban (SBM-U) 2.0, while towns having a population of more than one lakh are covered under the AMRUT Scheme. In order to assess the prevailing containment arrangements in urban areas and identify gaps in sewerage, the Committee sought to know the State-wise and city-wise position of urban households, including the total number of urban households, the number of households connected to sewer networks and those dependent on septic tanks and other on-site sanitation systems. In response, the Ministry stated that as per the City Water Balance plans (CWBP) (2025) submitted by the States and UTs, there are about 11.32 crore urban households. The State-wise list of households with sewer and septage connection is presented in the following table:

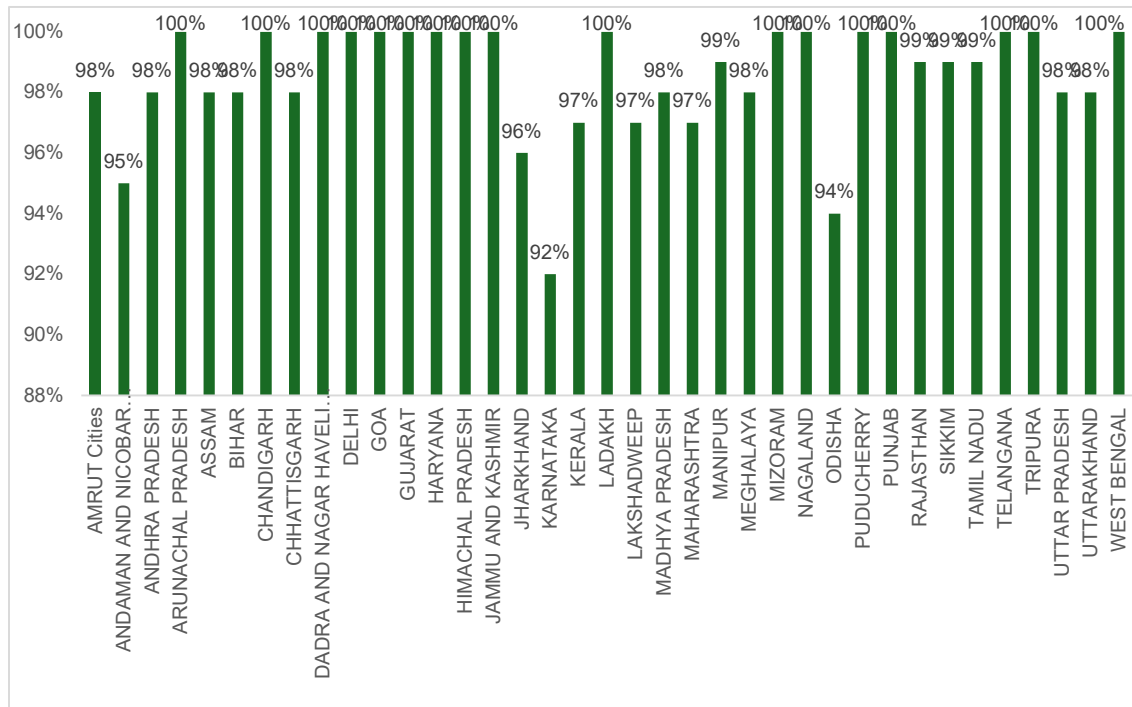
List of households with sewer and septage connections

Sl. No.	States	Household Covered by Sewer Connection	Household Covered by Septage Connections
1	ANDAMAN AND NICOBAR ISLANDS	0	48154
2	ANDHRA PRADESH	860598	1777495
3	ARUNACHAL PRADESH	0	23883
4	ASSAM	458	384068
5	BIHAR	113180	540895
6	CHANDIGARH	313580	1
7	CHHATTISGARH	172640	1232456
8	DADRA & NAGAR HAVELI & DAMAN & DIU	10121	22030
9	DELHI	2044571	77000
10	GOA	38013	38852
11	GUJARAT	6043369	1103177
12	HARYANA	1923789	407675
13	HIMACHAL PRADESH	82449	53816
14	JAMMU AND KASHMIR	120073	213352

15	JHARKHAND	66818	686533
16	KARNATAKA	3716788	1048151
17	KERALA	55447	375868
18	LADAKH	4938	0
19	LAKSHADWEEP	0	2246
20	MADHYA PRADESH	1050940	2991225
21	MAHARASHTRA	7500730	4159037
22	MANIPUR	5814	10626
23	MEGHALAYA	0	31025
24	MIZORAM	4158	6712
25	NAGALAND	0	911
26	ODISHA	65609	520093
27	PUDUCHERRY	82872	165184
28	PUNJAB	2166759	579823
29	RAJASTHAN	1600595	1364242
30	SIKKIM	22909	7053
31	TAMIL NADU	1833189	2657711
32	TELANGANA	1084908	616907
33	TRIPURA	3828	45556
34	UTTAR PRADESH	2112730	3691689
35	UTTARAKHAND	141367	38020
36	WEST BENGAL	1208601	3570926
	Grand Total	34451841	28492392

12. The above data indicates that urban sanitation in India continues to be characterised by the coexistence of sewerage and on-site sanitation systems. Out of about 11.32 crore urban households, in towns covered under the AMRUT Scheme, about 3.45 crore are connected to sewer networks, while nearly 2.85 crore households are served through septage-based sanitation systems. The data further reveals significant inter-State variations in sanitation infrastructure, with several States such as Madhya Pradesh, Tamil Nadu, West Bengal, Odisha, Jharkhand and Bihar reporting a greater dependence on septage systems than on sewer networks.

Sewerage/ Onsite Sanitation



13. During the sitting of the Committee held on 24 March, 2026, the representatives of the Ministry stated as under:

“if you look at these 500 cities overall, we have a coverage of around 58 per cent, while 42 per cent depends on septic tanks. Now, there are two infrastructure requirements, wherever you lay sewer lines, you connect the pipes to an STP, treat the sewage, and either reuse it or release it into the ecosystem. The second is having septic tanks, which take care of on-site treatment. Wherever there is sludge, further treatment through an FSTP or co-treatment in an STP is required.”

14. When the Committee drew attention to the continued heavy reliance on on-site sanitation systems (OSS), indicating limited sewer network coverage in urban areas, the Ministry outlined the following measures being undertaken to address the issue:

- “AMRUT and AMRUT 2.0 have supported augmentation of sewerage and septage infrastructure, including sewer networks, STPs, FSTPs, co-treatment facilities and reuse systems in 500 cities.
- Cities were motivated to assess the sanitation gaps & prepare action plans and take projects as per their priorities in CWBPs, CWAPs under AMRUT 2.0 in 500 AMRUT cities.
- States/ULBs have been encouraged to adopt a city-wide inclusive sanitation approach instead of focusing only on conventional underground sewerage systems.
- MoHUA issued advisory frameworks and operational guidelines for Faecal Sludge and Septage Management (FSSM), especially for smaller and medium towns where full sewerage systems may not be immediately feasible.
- Financial assistance has been provided for decentralized wastewater treatment systems, septage management infrastructure and treatment facilities in uncovered urban areas.
- Under SBM-U 2.0, MoHUA adopted the approach of “Sanitation for All”, recognizing both sewerage and non-sewerage sanitation systems as integral components of urban sanitation planning.”

B. Non-Standard Containment Systems and Environmental Risks

15. Standardised septic tank designs are essential for ensuring the safe containment and primary treatment of wastewater at the source. Septic tanks that do not conform to the prescribed standards of Bureau of Indian Standards (BIS) and Central Public Health and Environmental Engineering Organisation (CPHEEO), may result in leakage, groundwater contamination, environmental pollution and operational difficulties in desludging and treatment. Adherence to standard designs is, therefore, critical for the effective functioning of on-site sanitation systems and for safeguarding public health and environmental quality. In view of the same, the Committee sought to know the existing regulatory framework and guidelines governing the construction and maintenance of septic tanks and sewer connections, the mechanisms in place to ensure compliance by States and Urban Local Bodies (ULBs) and whether any monitoring, enforcement

or penalty framework had been prescribed to address instances of non-compliance. In response, the Ministry furnished the following information:

“Sanitation is a State subject and construction and operation of sewerage and septage systems is the responsibility of the State governments and Urban Local Bodies (ULBs). The Ministry of Housing and Urban Affairs (MoHUA) supplements the efforts of the States through schematic interventions/ advisories. The guidelines for construction and maintenance of septic tanks and sewer connections are given in the CPHEEO manuals, which serve as the definitive reference for ULBs to plan and maintain sewerage, septage, and water supply systems. Furthermore, under the AMRUT 2.0 framework, all grounded projects are required to include at least five years of operation and maintenance (O&M) within their contracts, ensuring local bodies have a structured plan for asset management and financial sustainability through user charges. Being a State subject, the States/ ULBs ensures compliance of these guidelines while approving building plans and at the time of issuance of completion certificate.”

16. The Committee also desired to ascertain whether any nationwide assessment or survey had been undertaken to evaluate compliance with such standards and the findings thereof. In response, the Ministry furnished the following information:

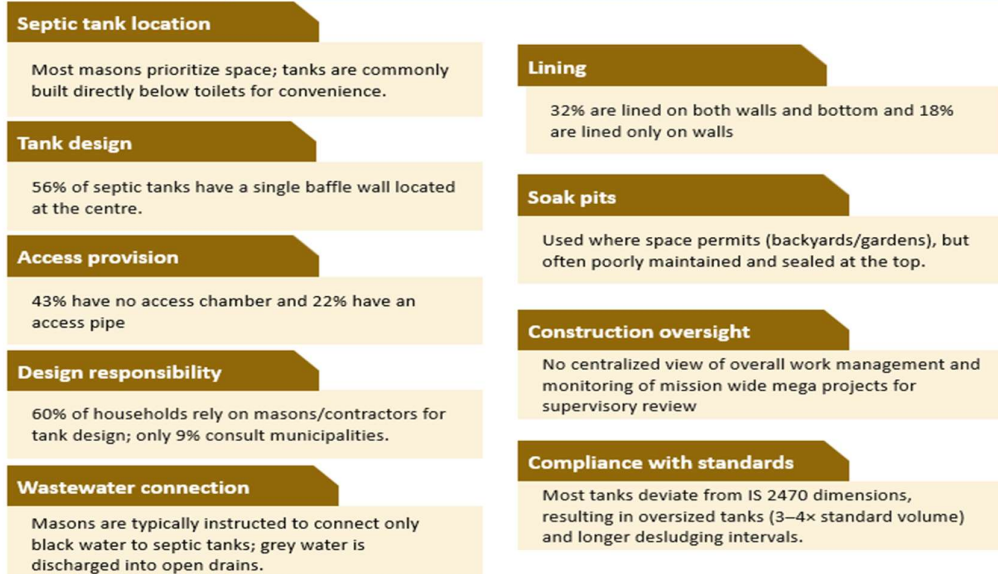
“The Ministry provides a comprehensive technical framework through CPHEEO manuals and the 2018 Standard Operating Procedure (SOP) for Cleaning of Sewers and Septic Tanks. State/UT-wise data on the physical conformity of individual septic tanks is not centrally maintained. Since sanitation is a State subject, the enforcement of these design standards remains the primary responsibility of State Governments and Urban Local Bodies.

The Ministry has conducted a survey of septic tanks in 15 States through Administrative Staff College of India (ASCI). The Septic Tank

Study Analysis conducted by ASCI highlights a significant prevalence of non-compliant infrastructure, revealing that 60% of urban households rely on untrained masons for design rather than municipal or technical guidance. This lack of professional oversight results in septic tanks that are typically 3-4 times larger than the standard volume required, deviating sharply from IS 2470 dimensions. Findings from 147 cities further indicate that approximately 43% of these tanks lack an access chamber for maintenance, and only 32% are properly lined on both the walls and the bottom, which often leads to the direct discharge of grey water into open drains.”

Septic Tank Study Analysis - ASCI

15,772 HHs surveyed across 147 Cities in 15 States/UTs



17. Considering that 60% of households rely on masons rather than municipal guidance and many tanks lacking proper access or lining, on being asked to explain the steps being taken to strengthen regulatory oversight, standardisation and capacity building at the local level, the Ministry replied as under:

“To strengthen regulatory oversight and standardisation, the Ministry has issued a comprehensive technical framework through CPHEEO manuals and advisories, including the *Manual on Sewerage and*

Sewage Treatment Systems (2013) and the Standard Operating Procedure (SOP) for Cleaning of Sewers and Septic Tanks (2018). To address the lack of professional execution at the ground level, the Ministry conducts capacity building programmes for municipal functionaries, contractors, and plumbers.”

18. Recognising that compliance with sanitation standards is closely linked to the effectiveness of building approval and regulatory mechanisms, the Committee sought to know whether the Model Building Bye-Laws incorporate mandatory provisions relating to sanitation infrastructure, including sewer connections and septic tank standards. The Committee also desired to ascertain the extent to which such provisions have been adopted by States and Urban Local Bodies (ULBs), and the measures being undertaken to strengthen approval, inspection and enforcement mechanisms to ensure compliance at the local level. In response, the Ministry furnished the following information:

“The Model Building Bye-Laws (MBBL), 2016, issued by the Ministry of Housing and Urban Affairs (MoHUA), serve as a guidance document. Chapter 4 “General Building Requirements and Services” of the MBBL 2016 has provisions for sanitation. These bye-laws specifically guide States in regulating on-site sanitation, including the implementation of decentralized wastewater treatment systems, which are essential for managing liquid waste in areas where centralized sewer networks are not yet grounded. Incorporation of these sanitation provisions has been completed by 35 States and Union Territories within their respective building bye-laws. Once adopted at the state or local level, these provisions become mandatory requirements for all new constructions, ensuring that future urban development conforms to national standards for scientific waste disposal and public health. The States/ULBs ensures compliance of these guidelines while approving building plans and at the time of issuance of completion certificate.”

C. Lack of Sanitation Containment System in expanding Peri-Urban and Informal Settlements

19. Rapid and often unplanned urban expansion has led to the growth of peri-urban areas and informal settlements where sanitation infrastructure frequently lags behind population growth. Ensuring safe and standardised containment systems in these rapidly expanding settlements is, therefore, essential for achieving universal sanitation coverage and preventing future sanitation deficits. In view of the same, the Committee sought to know how containment systems in such areas are being planned, regulated and integrated into the formal urban sanitation framework. The Committee also desired to ascertain whether any specific guidelines, policy measures or sub-schemes under AMRUT have been formulated to ensure safe containment in peri-urban and informal settlements, and the steps being taken to develop future-ready and resilient sanitation infrastructure capable of meeting the demands of continued urban expansion. In response, the Ministry furnished the following information:

“Sanitation is a State subject and function of its Urban Local Bodies (ULBs) and it is the responsibility of State/ ULBs to plan, design, execute and operate sanitation projects in the urban areas of the country. Ministry of Housing and Urban Affairs supplements the efforts of the States/ ULBs in providing infrastructure for basic services such as sewerage/sanitation infrastructure.

In peri-urban and informal settlements, containment is generally planned through city sanitation and sewerage/septage planning, with service gaps identified for household coverage, on-site sanitation, and faecal sludge management. AMRUT 2.0 does not have a separate sub-scheme exclusively for informal settlements, but it does support inclusive sanitation planning and convergence-based city sanitation approaches that can be applied to slums, peri-urban and vulnerable areas.

To ensure urban India develops future-ready and resilient sanitation infrastructure, AMRUT 2.0 focuses on making cities "self-reliant and water secure" which includes development of circular water economy to treat used water as a valuable resource. The Mission targets creating 10,000 MLD of reuse capacity by 2030, with plans to meet at least 20% of total city water demand through recycled used water. Innovation is further driven by the Technology Sub-Mission, which has onboarded 120 start-ups to pilot "path-breaking" solutions like nanotechnology-based sewage treatment and robotic manhole cleaners to eliminate hazardous manual entry.

Institutional sustainability and operational efficiency are maintained through mandatory five-year operation and maintenance (O&M) clauses in all project contracts, intended to be funded through user charges to prevent asset deterioration. To enhance monitoring, the Mission utilizes smart technologies, with over 2,000 water and sewerage projects approved with SCADA systems for real-time performance tracking. These technical measures are complemented by the capacity building of approximately 1,05,984 personnel."

ii. Gaps in Collection Systems and Faecal Sludge Emptying Services

20. While safe containment is the foundation of effective sanitation management, its benefits can be realised only when supported by adequate collection systems and regular faecal sludge emptying services. In many urban areas, limited sewer connectivity and inadequate desludging arrangements continue to impede the safe conveyance of wastewater and faecal sludge for treatment. The Committee, therefore, examined the existing gaps in collection and emptying services and the measures being undertaken under AMRUT and AMRUT 2.0 to address them.

A. Inadequate institutionalised desludging systems

21. Safe management of on-site sanitation systems requires regular and institutionalised desludging arrangements. In this regard, the Committee sought to

know whether States and Urban Local Bodies (ULBs) have adopted scheduled desludging policies, the extent of coverage achieved under such systems and the regulatory framework in place for formalising desludging services, including licensing of operators and compliance with safety standards. In response, the Ministry furnished the following information:

“Sanitation is a State subject and function of its Urban Local Bodies (ULBs). States/UTs and Urban Local Bodies (ULBs) have been empowered to plan and implement Faecal Sludge and Septage Management (FSSM) systems, including scheduled desludging mechanisms, based on local requirements. The details regarding adoption of scheduled desludging policies and the extent of coverage under such systems are not centrally maintained by the Ministry. AMRUT 2.0 supports sewerage and septage management projects, including FSSM-based solutions in cities where conventional sewerage systems are not feasible, along with digital monitoring, SCADA systems and capacity building of operators and sanitation workers.

As per the advisories and manuals issued by the Central Public Health and Environmental Engineering Organisation (CPHEEO), scheduled desludging is recommended as an essential component of urban sanitation management, particularly in unsewered and partially sewerred areas. CPHEEO guidelines recommend desludging of septic tanks once every 2–3 years and advise ULBs to shift from demand-based desludging to institutionalised scheduled desludging systems through preparation of household databases and zonal desludging plans. Advisory on Faecal Sludge and Septage Management in Small and Medium Towns.

Further, the National Policy on Faecal Sludge and Septage Management (2017) prescribe registration and licensing of desludging operators, mechanised desludging operations, adherence to occupational safety standards, use of PPE and compliance with the Prohibition of Employment as Manual Scavengers and their

Rehabilitation Act, 2013. ULBs have also been advised to establish standard operating procedures, safety protocols and designated treatment/disposal systems for safe faecal sludge management.”

B. Absence of Centralised Data on Septage Disposal Infrastructure and Enforcement Challenges

22. Considering that the availability of designated septage discharge points and transfer stations is critical for ensuring the safe disposal of collected faecal sludge and preventing its indiscriminate discharge into the environment, the Committee sought to ascertain the number and distribution of notified septage discharge points and transfer stations across cities, and the measures being undertaken to prevent illegal dumping of septage and ensure its safe conveyance to authorised treatment facilities. In response, the Ministry furnished the following information:

“Details regarding the number and distribution of notified septage discharge points, transfer stations and designated disposal facilities are maintained by the respective States/ULBs and are not centrally maintained by the Ministry.

Ministry has published guidelines and advisories on FSSM. As per the advisories and manuals issued by the Central Public Health and Environmental Engineering Organisation (CPHEEO) and the National Policy on Faecal Sludge and Septage Management, ULBs are required to establish designated septage discharge points, transfer stations and treatment facilities such as STPs/FSTPs for safe disposal and treatment of septage. To prevent illegal dumping, the guidelines prescribe registration and licensing of desludging operators, GPS-enabled monitoring of desludging vehicles, designated disposal arrangements, scheduled desludging systems and penalties for unauthorised discharge of septage into drains, water bodies or open areas.”

iii. **Inadequate Conveyance and Transport Infrastructure for Wastewater and Faecal Sludge Management**

23. Safe management of wastewater and faecal sludge requires effective systems for transporting waste from the point of containment to treatment facilities. In areas dependent on on-site sanitation systems, the safe collection and transportation of faecal sludge and septage through organised desludging services are critical for preventing unsafe disposal and environmental contamination. Similarly, in sewered areas, the efficient conveyance of sewage through well-maintained sewer networks is essential for ensuring its timely treatment and preventing leakages, overflows and pollution of water bodies. The Committee, therefore, examined the adequacy of existing transport and conveyance infrastructure and the measures being undertaken under AMRUT and AMRUT 2.0 to address these challenges.

A. **Fragmented Faecal Sludge and Septage Transport Systems in On-Site Sanitation Areas**

24. Recognising that the effectiveness of faecal sludge and septage management depends significantly on the availability of adequate transport infrastructure and regulated service providers, the Committee sought to know the availability of desludging vehicles and mechanised equipment across cities, the measures being undertaken to augment and modernise the existing fleet and the framework in place for regulation, monitoring and oversight of private desludging operators. In response, the Ministry furnished the following information:

“Sanitation is a State subject and the ULBs are responsible for maintaining the required fleet of desludging vehicles and mechanised equipment. The details regarding the city-wise availability of desludging vehicles, suction-cum-jetting machines and other mechanised septage transport equipment are maintained by the respective States/Urban Local Bodies (ULBs) and are not centrally maintained by the Ministry.

AMRUT 2.0 has provision for Faecal sludge and Septage management (FSTP cum STP Plant & collection mechanism) projects and the States/ UTs take up projects as per their priorities.

Regulation and monitoring of private desludging operators is undertaken by the respective States/ULBs in accordance with CPHEEO advisories and Faecal Sludge and Septage Management (FSSM) guidelines. These guidelines provide for registration/licensing of operators, mechanised desludging operations, use of safety equipment, designated disposal points, monitoring through digital platforms and adherence to the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.”

25. Considering that effective monitoring of the septage transport chain is essential to prevent unauthorised disposal, the Committee sought to know whether GPS- and IT-based tracking systems have been implemented for monitoring desludging vehicles and septage transportation and the mechanisms put in place to ensure end-to-end tracking, transparency and accountability across the faecal sludge management chain. In response, the Ministry responded as under:

Sanitation is a State subject and States/ ULBs are responsible for day to day septage transportation. MoHUA supports the States through technical advisories and guidelines.

As per the advisories and manuals issued by the Central Public Health and Environmental Engineering Organisation (CPHEEO) and the National Policy on Faecal Sludge and Septage Management, ULBs are encouraged to implement GPS-enabled tracking of desludging vehicles, digital trip/manifest systems, GIS-based mapping of desludging routes and designated disposal points for end-to-end monitoring of the septage transport chain. The guidelines also prescribe registration and licensing of private operators, monitoring of disposal at notified treatment facilities, maintenance of desludging records and imposition of penalties for illegal dumping to ensure accountability and safe disposal practices.

26. Considering the logistical and cost-related challenges associated with the transportation of faecal sludge and septage to treatment facilities and importance of ensuring economically viable and efficient sludge management systems, the Committee sought to know the measures being undertaken to optimise transport distances and costs and whether cluster-based, regional or decentralised treatment approaches are being adopted to improve operational efficiency and facilitate access to treatment facilities. In response, the Ministry stated as under:

“AMRUT 2.0 promotes sewerage and Faecal Sludge and Septage Management (FSSM) systems based on city-specific requirements, particularly in areas where conventional sewerage networks are not feasible. To address logistical and cost-related challenges in conveyance and treatment of septage, States/UTs and Urban Local Bodies (ULBs) are encouraged to adopt decentralised and localised wastewater management solutions, including Faecal Sludge Treatment Plants (FSTPs), co-treatment facilities at Sewage Treatment Plants (STPs), decentralised wastewater treatment systems and septage management infrastructure. The Mission also supports technology-based monitoring systems, GIS mapping and operational improvements for efficient service delivery.

As per the advisories and manuals issued by the Central Public Health and Environmental Engineering Organisation (CPHEEO) and the National Policy on Faecal Sludge and Septage Management, cluster-based and decentralised approaches are recommended for small and medium towns and densely populated urban areas to optimise transport distances and reduce operational costs. The guidelines encourage establishment of regional/cluster-based FSTPs, transfer stations and co-treatment arrangements at nearby STPs to minimise long-distance transport of septage. ULBs have also been advised to adopt route optimisation, scheduled desludging, GPS-enabled vehicle tracking and local treatment facilities for improving efficiency and reducing transportation time and costs.”

B. Ageing and Inadequate Sewer Conveyance Networks

27. Efficient sewerage conveyance networks are essential for transporting wastewater from households and commercial establishments to treatment facilities. Despite substantial investments under AMRUT and AMRUT 2.0, gaps in sewer network coverage continue to persist in several urban areas, affecting the collection and conveyance of sewage and resulting in continued dependence on on-site sanitation systems. During the Sitting of the Committee held on 24 March 2026, the representatives of the Ministry stated as under:

“...this is a very challenging sector and there is a lot that has been done, but a lot more that needs to be done. Now, when we see the common challenges in the cities are that we have a lot of ageing infrastructure. Under AMRUT, we are targeting a lot of ageing infrastructure and we are actually refurbishing this infrastructure, but still the demand is huge. So, because of the ageing infrastructure, the cross-connection between water and sewage pipe, we see the cases of contamination that recently also we saw in a few cities. Then, blockage of sewage lines due to non-maintenance. You know, there is choking and blockages. Then, no last mile connectivity. Now, STPs are made, but sewage connections have to be done at the last mile. Now, that is a big challenge. Then, septic tanks are constructed, but they are not constructed as per the standard designs of the CPHEEO. Then, operation and maintenance. So, huge water treatment plants are made, but operation and maintenance being the state and the ULB responsibility becomes a challenge. ...”

28. As per the information provided by the Ministry, 7.4 crore urban households have been covered under sewerage and septage systems and 59,261.67 Km network has been approved of which 27,418.87 km has been laid under AMRUT & AMRUT 2.0. When the Committee sought State-wise and city-wise details regarding sewerage network requirements, infrastructure created, household coverage achieved, existing coverage gaps and the timelines envisaged for achieving universal sewerage coverage, the Ministry replied as under:

“State-wise and City-wise data of length of sewer network required is not centrally maintained. The details of sewer networks laid under AMRUT/ AMRUT 2.0 is given below:

#	State/UT	Sewerage Network Coverage under AMRUT		Sewerage Network Coverage under AMRUT 2.0	
		Total Sewer network length planned	Total Sewer network length laid	Total sewer network length planned	Total Sewer network length laid
1	Andhra Pradesh	219.56	162.82	667.30	25.43
2	Arunachal Pradesh	19.73	2.37		
3	Assam			31.70	
4	Bihar			2464.40	
5	Chandigarh	40.00	40.00	152.53	12.13
6	Chhattisgarh			16.65	
7	Dadra & Nagar Haveli and Daman & Diu	26.60	26.60	39.60	38.47
8	Delhi	320.00	320.00	495.70	213.89
9	Goa	14.20	14.20	4.00	
10	Gujarat	1147.12	1385.12	3423.30	959.98
11	Haryana	*	1820.21	416.72	7.28
12	Himachal Pradesh	123.56	163.56	6.50	3.60
13	Jammu And Kashmir	82.22	76.03	272.17	
14	Jharkhand	*	102.86	587.00	
15	Karnataka	1998.16	1933.42		
16	Kerala	99.52	79.53	330.31	12.45
17	Ladakh			172.60	
18	Madhya Pradesh	*	3629.65	7166.93	
19	Maharashtra	2161.00	1822.00	8414.92	331.76
20	Manipur				
21	Meghalaya				
22	Mizoram			42.00	
23	Nagaland				
24	Odisha	190.32	190.32		
25	Puducherry	17.31	16.01	83.93	
26	Punjab	1381.58	1299.88	571.66	3.30
27	Rajasthan	2415.00	2404.15	4120.58	2265.74
28	Sikkim				
29	Tamil Nadu	3219.62	3019.83	3667.96	735.25
30	Telangana	434.00	520.27	1025.48	0.58

#	State/UT	Sewerage Network Coverage under AMRUT		Sewerage Network Coverage under AMRUT 2.0	
		Total Sewer network length planned	Total Sewer network length laid	Total sewer network length planned	Total Sewer network length laid
31	Tripura	7.65	7.65		
32	Uttar Pradesh	3171.00	3179.00	2547.97	269.24
33	Uttarakhand	95.58	93.66		
34	West Bengal	237.40	230.64		

29. It is stated above that State-wise and city-wise data regarding the total length of sewer network required is not centrally maintained by the Ministry. However, the data furnished on sewerage networks planned and laid under AMRUT and AMRUT 2.0 indicates substantial investments towards strengthening sewerage conveyance infrastructure across Mission cities. Under AMRUT, progress was reported in the creation of sewer networks, with the length of sewer pipelines laid in several States broadly corresponding to the planned targets. Under AMRUT 2.0, a much larger expansion of sewerage infrastructure has been envisaged, with substantial lengths of sewer networks planned across a number of States. While considerable progress has been reported in certain States, the extent of sewer networks laid so far remains lower than the total planned length, in many States.

30. On being asked the status of rehabilitation and augmentation of existing sewer networks, the extent of leakages, overflows and system failures reported annually, and the measures being undertaken to improve the integrity, reliability and operational performance of sewerage infrastructure, the Ministry furnished the reply as under:

“Under AMRUT, States/ UTs are empowered to select, appraised, prioritise and implement projects as per their local conditions/ constraints and needs. Under AMRUT 23,297 km of new sewer network/ rehabilitation has been taken up of which 22,520 km has been completed. Under AMRUT 2.0, approved projects include creation of about 34,219 km of new sewer network and rehabilitation

of 2,503 km of network. States/UTs and Urban Local Bodies (ULBs) are responsible for implementation, operation and maintenance of these systems, while the Ministry monitors progress through dedicated digital platforms, regular reviews, workshops and Independent Review and Monitoring Agencies (IRMAs).

Operation and Maintenance of sewerage/ septage systems in the city are responsibilities of States/ ULBs. Details regarding incidences of leakages, sewer overflows and system failures are not centrally maintained by the Ministry.

To improve infrastructure integrity and performance, the Ministry is promoting rehabilitation and modernization of sewer systems through technology-based interventions under AMRUT 2.0, including SCADA-enabled monitoring, mechanised sewer cleaning equipment, digital project monitoring platforms and adoption of innovative technologies through the Technology Sub-Mission. Capacity building programmes are also being conducted for operators, contractors and sanitation workers to improve operational efficiency, safety compliance and maintenance practices.”

31. On being asked to apprise whether any mapping or audit of sewer and stormwater networks has been undertaken to identify such cross-connections across cities and the corrective and preventive measures being adopted including the use of technological interventions to address and prevent such occurrences, the Ministry responded as under:

“The Ministry issued an advisory in January 2026 directing States to carry out comprehensive assessments and conduct digital mapping of existing water and sewer networks using geo-spatial databases. This mapping is intended to identify "vulnerable crossings" and areas where aging pipelines are in close proximity to one another. Additionally, through technology-based reforms, incentives are provided to cities for digitising stormwater drainage and sewerage network layers on a GIS platform.

MoHUA does not centrally maintain data on the number of cross-connections across all cities. Technical guidelines and manuals, such as the Manual on Water Supply and Treatment Systems (2024), now mandate specific horizontal and vertical separation norms and proper encasement at crossings. Preventive technological interventions include the widespread adoption of SCADA systems, GIS-based asset mapping, and IoT sensors for real-time monitoring of network integrity. These tools allow Urban Local Bodies (ULBs) to detect leakages, pressure drops, and overflows early.”

C. Operational Sustainability and O&M Deficiencies

32. Effectiveness of sewerage conveyance systems depends not only on the creation of network infrastructure but also on its regular maintenance and safe operation. However, concerns have been raised regarding frequent sewer blockages, overflows, inadequate maintenance practices and the continued reliance on manual intervention for sewer cleaning which has resulted in instances of accidents and fatalities among sanitation workers. On being asked about Operational inefficiencies due to ageing infrastructure, frequent blockages and inadequate operation & maintenance (O&M) frameworks, the reply of the Ministry is as under:

“Rehabilitation of sewerage system, Smart solutions like SCADA are admissible components under AMRUT 2.0.

AMRUT 2.0 guidelines also provides that all admissible projects should have at least five-year O&M for infrastructure, which may be duly incorporated through the tender process.

Under AMRUT 23,297 km of new sewer network/ rehabilitation has been taken up of which 22,520 km has been completed.

Under AMRUT 2.0, approved projects include creation of about 34,219 km of new sewer network and rehabilitation of 2,503 km of network.

The mission guidelines mandate that all sanctioned infrastructure projects incorporate at least five years of operation and maintenance (O&M) into the tender process; under AMRUT 2.0, States have already

assessed or planned ₹20,019.38 crore specifically for O&M costs across total 8,771 approved projects.”

33. When the Committee sought to know the status of maintenance mechanisms in place for sewer infrastructure, the measures being undertaken to promote mechanised sewer cleaning and the steps taken to eliminate unsafe practices, including manual cleaning of sewers and manual scavenging. In response, the Ministry furnished the following reply:

“AMRUT and AMRUT 2.0 focus on strengthening sewerage and septage management infrastructure through creation and augmentation of sewer networks, sewage treatment capacity and adoption of technology-based monitoring systems. Under AMRUT 2.0, States/UTs and Urban Local Bodies (ULBs) are responsible for implementation, operation and maintenance of sewer infrastructure. The Mission also promotes adoption of Supervisory Control and Data Acquisition (SCADA) systems for monitoring and operational management of sewerage infrastructure to improve efficiency and reduce operational failures.

As per the advisories and manuals issued by the Central Public Health and Environmental Engineering Organisation (CPHEEO), sewer infrastructure maintenance should include periodic inspection, preventive desilting, mechanised cleaning, condition assessment of sewer lines and maintenance of pumping stations and treatment facilities. CPHEEO manuals prescribe use of modern equipment such as jetting machines, suction machines, robotic devices and CCTV inspection systems for sewer maintenance to minimise blockages, overflows and manual intervention. Capacity building programmes under AMRUT 2.0 support training of operators, contractors and sanitation workers for safe and efficient sewer operations.”

iv. Inadequate Treatment Capacity and Operational Performance

34. Treatment stage constitutes a critical component of the sanitation value chain, as the benefits of safe containment, collection and conveyance can be fully realised only when sewage, faecal sludge and septage are adequately treated before disposal or reuse. Inadequate treatment capacity, under-utilisation of existing infrastructure, operational inefficiencies and non-compliance with environmental standards can undermine urban sanitation outcomes and pose significant risks to public health and the environment. The major issues underlying sewage, faecal sludge and septage treatment are discussed below-

A. Gap Between Sewage Generation and Treatment Capacity

35. Recognising the persistent gap between wastewater generation and treatment capacity in urban areas, the Committee sought to ascertain the quantity of sewage generated, the treatment capacity available and the extent of sewage actually being treated across States and Union Territories. The Committee also desired to examine the status of Sewage Treatment Plants (STPs), including their designed capacity, operational status and utilisation levels, as well as the extent of untreated sewage and treatment deficits. Further, considering concerns regarding environmental compliance and operational performance, the Committee sought to know the extent of compliance of STPs with prescribed discharge standards and the monitoring mechanisms in place for ensuring adherence to environmental norms. In response, the Ministry replied as under:

“Sanitation and sewerage management are State subjects and the planning, development, operation and maintenance of Sewage Treatment Plants (STPs), Faecal Sludge Treatment Plants (FSTPs) and co-treatment facilities are primarily the responsibility of the respective State Governments and Urban Local Bodies (ULBs). The Ministry of Housing and Urban Affairs (MoHUA) supplements the efforts of States/UTs through policy support and financial assistance under AMRUT and AMRUT 2.0 for development of sewerage and septage management infrastructure.

The inventorisation of STPs, including details regarding sewage generation, installed treatment capacity, operational status, utilisation levels, compliance with discharge standards and reasons for non-functionality of STPs, is monitored by the Central Pollution Control Board (CPCB) and respective State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs). Compliance of STPs with prescribed environmental discharge norms is monitored by CPCB/SPCBs/PCCs through consent mechanisms, inspections, sampling, online monitoring systems and real-time sensors, wherever available.

Based on the information furnished by the States/UTs before the Hon'ble National Green Tribunal (NGT) and reports of CPCB/SPCBs/PCCs, the details are placed at **Annexure** below.

State-wise summary of sewage management as given in NGT order dated 18.05.2023 (revised on 22.05.2023)

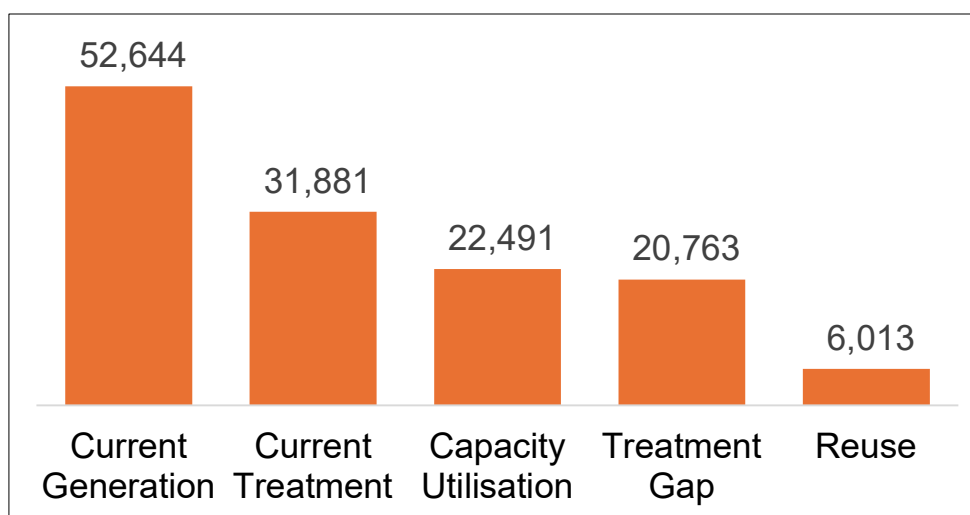
Sl. No.	State/UTs	Sewage Generation (in MLD)	Existing STP (capacity in MLD and No.)	Capacity Utilization as shown in data (In MLD)
1	Andhra Pradesh	1503.20	535.45	382.81
2	Arunachal Pradesh	236.48	Nil	Nil
3	Assam	435.35	-	-
4	Bihar	2371 (110 ULBs)	178.73	-
5	Chandigarh	220	242.63	216.75
6	Chhattisgarh	600	360.5	178.6
7	Delhi	3482 (768 MGD)	2865 (632 MGD)	2403
8	Goa	52.09	80.35	-
9	Gujarat	4414	4754	3409
10	Haryana	Urban: 1508 Rural: 104.5	1835 56.37	1465 56.37
11	Himachal Pradesh	91.95	114.80	Not given
12	J&K	523	242.4	242.4
13	Karnataka	3356.5	1929.1	1929.1
14	Kerala	1192 Sewage 2783 Sullage	-	-

15	Lakshadweep	2.83	2.83	2.83
16	Madhya Pradesh	Urban: 2183.7	1311.99	696.03
17	Maharashtra	9758.53	4338.2	4338.2
18	Meghalaya	51.0	0.115	0.115
19	Nagaland	91.2	-	-
20	Odisha	642.373	128	128
21	Puducherry	92.1	56	56
22	Rajasthan	1551	1085	700
23	Sikkim	Urban: 18.79 Rural: 28.89 Total: 47.68	18.79 22.50	18.79 22.50
24	Tamil Nadu	4001.02	3139.04	2519.54 3139.04
25	Telangana	2750	925.58	925.58
26	Tripura	Urban: 82.4 Rural: 145.03	8.72 25.83	- -
27	Uttar Pradesh	5500	3860	Not given
28	Uttarakhand	484.78	425.0	Not given
29	West Bengal	2758	1505.85	1268
30	Punjab	2128 (166 ULBs)	1786	1429
31	Andaman & Nicobar	19.20 (P BMC) 2.55 (GP) 21.75	2.303	2.303
32	Manipur	-	Urban: 85 Rural: 30	21 Nil
33	Mizoram	51.80	27.84	27.84
34	Ladakh	18.08	3.0	3.0
35	Dadra & Nagar Haveli & Daman & Diu	Urban: 21.63 Rural: 71.08 Total: 92.71	34.21 (septic tank/ soak pit)	4.39 -
36	Jharkhand	452	Not given	123.74
Total		52644.003	31885.138	22491.018

36. The above data indicates that urban areas in the country generate about 52,644 MLD of sewage, whereas the total installed sewage treatment capacity stands at approximately 31,885 MLD, revealing a treatment capacity deficit of over 20,700 MLD. Further, against the installed treatment capacity of 31,885 MLD, the actual sewage being treated is about 22,491 MLD, indicating significant under-utilisation of available treatment infrastructure in several States.

Treatment Capacity

(Figures in MLD)



Source: Submitted by States/UTs to NGT (2022-23)

37. The data also reveals considerable inter-State variations in treatment capacity and utilisation levels. Large urbanised States such as Maharashtra, Delhi, Gujarat, Uttar Pradesh, Tamil Nadu, Karnataka and West Bengal account for a substantial share of both sewage generation and treatment capacity, reflecting the scale of wastewater management challenges in these States. At the same time, a number of States and UTs either have very limited treatment infrastructure or have not reported operational treatment data. Further, in several States, existing treatment capacity remains substantially lower than the quantity of sewage generated, resulting in significant volumes of untreated wastewater.

B. Inadequate Faecal Sludge Treatment Plants (FSTPs) and co-treatment in STPs

38. Given the significant dependence of urban households on septic tanks and other on-site sanitation systems, Faecal Sludge Treatment Plants (FSTPs) and co-treatment facilities at Sewage Treatment Plants (STPs) play a crucial role in ensuring the safe treatment and disposal of collected sludge.

39. In view of the above, the Committee sought to know the extent to which Faecal Sludge Treatment Plants (FSTPs) and co-treatment facilities in STPs are

available across cities, particularly in the context of the continued reliance on on-site sanitation systems requiring treatment through dedicated FSTPs or co-treatment arrangements. The Committee also desired to ascertain the measures being undertaken to ensure the adequate availability of FSTPs and co-treatment facilities across urban areas to effectively manage and treat the volume of faecal sludge and septage generated. In response, the Ministry furnished the following information:

“Sanitation being a State subject, the responsibility for development, operation and maintenance of Faecal Sludge Treatment Plants (FSTPs) and co-treatment facilities at Sewage Treatment Plants (STPs) rests with the respective State Governments/Urban Local Bodies (ULBs). However, Government of India supplements the efforts of States/UTs through policy support, technical guidance and financial assistance under Swachh Bharat Mission–Urban (SBM-U) and AMRUT/AMRUT 2.0.

Considering the high dependence on On-Site Sanitation (OSS) systems in urban areas, the Ministry has issued advisories and guidelines on Faecal Sludge and Septage Management (FSSM), including setting up of standalone FSTPs and co-treatment of faecal sludge at existing STPs. States/UTs have been encouraged to adopt suitable treatment solutions based on city size, population, land availability and existing sewerage infrastructure. Co-treatment at STPs has been promoted as a cost-effective and efficient solution in cities where STPs are operational. In addition to STPs, under AMRUT 53 FSTP projects of capacity 2,500 KLD and worth ₹268.71 crore have been taken up.”

40. The Ministry has further informed that 13,114.38 MLD capacity of sewage treatment plant and 2,499.67 KLD of FSTP has been approved under AMRUT/AMRUT 2.0. of which, 6,054.46 MLD capacity of STPs and 2,409.67 KLD capacity of FSTPs have been developed.

C. Challenges relating to Institutional Capacity and Technology Adoption

41. As the effective operation and long-term sustainability of sewage and septage treatment infrastructure depend significantly on the availability of skilled manpower and robust operation and maintenance arrangements, the Committee sought to know the availability of trained personnel for operation of treatment facilities, the capacity-building initiatives undertaken for plant operators and technical staff, and the measures being adopted to strengthen operation and maintenance frameworks, including the use of Public Private Partnership (PPP) and Hybrid Annuity Model (HAM)-based approaches. In response, the Ministry replied as under:

“Sanitation and sewerage management being State subjects, operation and maintenance of treatment infrastructure and deployment of skilled manpower are the responsibility of respective State Governments and Urban Local Bodies (ULBs). The Ministry of Housing and Urban Affairs (MoHUA) supplements the efforts of States/UTs through policy support, technical guidance and capacity building initiatives under AMRUT and AMRUT 2.0.

Under AMRUT 2.0 reforms, the “Jal Hi AMRIT” initiative has been launched to incentivise States/UTs for efficient management of Sewage Treatment Plants (STPs) and promotion of recyclable treated water meeting environmental standards on a sustained basis. The initiative focuses on capacity building and improving the quality of treated discharge effluent. Under the initiative, 860 STPs with treatment capacity of 17,613 MLD have been enrolled. Over 7,000 have been trained and certifications issued to plant operators, plant managers and technical staff. In addition, 25 States/UTs have established Water Resource Recovery Cells (WRRCs) for planning, monitoring and scaling up resource recovery interventions and ensuring sustained governance and operational continuity.

Further, under AMRUT and AMRUT 2.0, technical trainings, workshops and exposure visits are being undertaken for engineers, plant operators, sanitation workers and ULB officials to strengthen operation and maintenance of sewerage and septage management infrastructure. Technical manuals, standard operating procedures (SOPs) and digital monitoring systems are also being promoted to improve operational efficiency, monitoring and service delivery.

States/UTs and ULBs are also being encouraged to adopt robust Operation & Maintenance (O&M) frameworks, including Public Private Partnership (PPP) and Hybrid Annuity Model (HAM)-based projects, for improved operational efficiency, performance-based management and long-term sustainability of sewerage infrastructure.”

42. Further, considering that the performance and sustainability of treatment infrastructure are influenced by the adoption of appropriate technologies suited to local conditions and resource constraints, the Committee sought to ascertain the extent of adoption of decentralised and energy-efficient treatment technologies, the challenges relating to land availability for treatment infrastructure and the steps being undertaken to ensure context-appropriate technology selection across cities. In response, the Ministry furnished the information as below:

“Under AMRUT and AMRUT 2.0, States/UTs have been empowered to select, appraise, approve and implement projects within the broad framework of the Mission. Technology adoption is guided by site conditions, land availability, service outcomes, capacity of Urban Local Bodies (ULBs) and local resource constraints, instead of adopting a uniform model for all cities.

Technology selection under AMRUT 2.0 is based on city-specific requirements, existing infrastructure, operation and maintenance capacity, and financial viability. States/UTs are encouraged to adopt an appropriate mix of centralised and decentralised approaches based on local conditions.

Energy-efficient pumping systems, SCADA-based smart systems, solar energy integration and reuse/recycle-based treatment technologies are also being promoted for improving operational efficiency and sustainability.

Availability of suitable land for sewerage and treatment infrastructure remains a challenge in several urban areas, especially in densely populated cities. To address this issue, States/UTs are encouraged to utilize available government land, adopt decentralised systems requiring smaller land footprints, and prioritize reuse, rehabilitation and upgradation of existing infrastructure, wherever feasible. Further, States are required to ensure availability of land and statutory clearances before commencement of project implementation.”

43. The Ministry made the following submission during the sitting of the Committee on 26 March 2026:

“... हमारा स्वच्छ भारत मिशन में और अमृत में भी यह उद्देश्य रहा है और हम उसे टेक्नोलॉजी से कर रहे हैं। हम उसको टेक्नोलॉजी से कर रहे हैं। आजकल जो स्टार्टअप्स हैं, वे रोबोटिक मैनुअल क्लीनर हैं, ताकि किसी को भी मैनुअली अंदर नहीं जाना पड़े। इसलिए आजकल जितने भी स्टार्टअप्स हैं, वे रोबोटिक, मैनुअल और मैकनाइज्ड क्लीनिंग के लिए कर रहे हैं। We have faecal sludge management. स्लज को, सेप्टिक टैंक्स को साफ करने के लिए भी आजकल टेक्नोलॉजीज़ हैं। There are vans which can actually handle very thick, solidified sludge and carry out septic tank cleaning. Also, there are nano-technology-based modular STPs, where there is less utilisation of space. This is with regard to technology. ...

V. Limited Reuse of Treated Wastewater and Resource Recovery

44. Treatment of sewage and septage represents only an intermediate stage in the sanitation value chain. The ultimate objective of sustainable urban sanitation management is to promote the safe reuse of treated wastewater and recovery of valuable resources such as water, energy and nutrients, thereby advancing the

principles of a circular water economy. Reuse of treated wastewater can contribute significantly to urban water security, reduce pressure on freshwater resources and improve the long-term sustainability of sanitation infrastructure. The Committee, therefore, examined the extent of wastewater reuse and resource recovery being achieved under AMRUT and AMRUT 2.0, as well as the challenges impeding wider adoption of such practices.

A. Low Levels of Wastewater Reuse and Reuse Infrastructure Deficits

45. The Ministry has stated that recognising the need to improve wastewater reuse and address infrastructure deficits, AMRUT 2.0 incorporates measures aimed at promoting a circular water economy, strengthening operational sustainability and enhancing the efficiency of urban sanitation systems. In this regard, the Ministry has informed as under:

"...To ensure urban India develops future-ready and resilient sanitation infrastructure, AMRUT 2.0 focuses on making cities "self-reliant and water secure" which includes development of circular water economy to treat used water as a valuable resource. The Mission targets creating 10,000 MLD of reuse capacity by 2030, with plans to meet at least 20% of total city water demand through recycled used water. Innovation is further driven by the Technology Sub-Mission, which has onboarded 120 start-ups to pilot "path-breaking" solutions like nanotechnology-based sewage treatment and robotic manhole cleaners to eliminate hazardous manual entry. ..."

46. On being asked about the extent of treated wastewater reuse, the Ministry has informed that 6012 MLD of treated used water is being reused. Another 1,931.86 MLD reuse capacity has been approved under AMRUT 2.0 with focus on recycle/reuse of treated wastewater and reduction in freshwater demand through circular water economy initiatives. In this regard, during the sitting on 24 March 2026, the Ministry deposed before the Committee as under:

"If you look at the overall scenario, we are currently achieving around 5,700 to 6,000 MLD of definitive reuse. In India, almost all water

released from STPs is used in peri-urban areas and villages. When I say “definitive reuse,” I mean that the water is treated to the required standards and then reused - for agriculture or industrial purposes. Some cities have taken up wonderful initiatives. Nagpur sends almost all its treated water to thermal power plants. Pune is also sending water to thermal power plants. Surat supplies water to the textile industry, Ahmedabad uses it for irrigation, and so on. The best example is Bangalore, where around 500 MLD is sent to Kolar for recharging the ecosystem, supporting rural areas and agriculture. So, under AMRUT, we have mandated that 20 per cent should be overall reuse, and 40 per cent of industrial demand should be met through this reuse.”

47. In order to assess the extent to which treated wastewater is being reused across States and Union Territories, the Committee further, sought to ascertain the quantity of treated wastewater generated, reused and discharged into water bodies, the progress made towards achieving the Mission target of at least 20 per cent reuse of treated wastewater and the extent of untreated wastewater continuing to be discharged into the environment. The Committee also sought to know the monitoring framework in place for tracking wastewater reuse and ensuring compliance with the reuse targets prescribed under the Mission. In response, the Ministry stated as under:

“As per the information provided by the State to NGT, the present operational capacity of STPs is around 22,891 MLD. ... As informed by the States and Study done by the CPHEEO on 54 Million plus cities the State/UT-wise Reuse capacity is as below:

State	Total reuse capacity (in MLD)
Andhra Pradesh	79.00
Chandigarh	27.00
Chhattisgarh	348.20
Delhi	697
Daman And Diu	4.21
Gujarat	1128.00
Haryana	65.75
Jammu And Kashmir	2.50
Jharkhand	7.00

Karnataka	552.25
Kerala	1.00
Madhya Pradesh	828.55
Maharashtra	1263.00
Punjab	3.00
Rajasthan	173.25
Tamil Nadu	201.00
Telangana	73.40
Uttar Pradesh	558.00
Uttarakhand	0.45
Grand Total	6012.56

48. The data indicates that against an operational sewage treatment capacity of about 22,891 MLD across the country, reported reuse capacity stands at approximately 6,012.56 MLD of treated wastewater.

49. Considering that successful reuse of treated wastewater depends not only on the availability of treatment capacity but also on the creation of adequate reuse infrastructure and demand-side linkages, the Committee sought to know whether distribution networks, storage facilities and other supporting infrastructure for supply of treated wastewater have been developed, the measures being undertaken to promote its utilisation in sectors such as industry, agriculture and construction and the steps being taken to create a sustainable and long-term market for treated wastewater. In response, the Ministry replied as under:

“Under AMRUT and AMRUT 2.0, reuse and recycling of treated used water is being promoted as a key component of sustainable urban water management and water security. States/Union Territories (UTs) have been encouraged to develop reuse infrastructure including tertiary treatment facilities, distribution networks and storage systems as part of sewerage and used water management projects. Reuse is an admissible project component under AMRUT 2.0 and States are encouraged to integrate end-to-end reuse systems within STP and sewerage projects.

Under AMRUT, 890 sewerage projects worth ₹34,449 crore have been undertaken, resulting in creation of 6,231 MLD STP capacity, of which 4,623 MLD has been completed. Under AMRUT 2.0, 585 sewerage and used water management projects worth ₹68,168 crore have been taken up, which include creation of 6,940 MLD additional STP capacity along with sewer networks and sewer connections. So far, 1,437 MLD of additional treated used water reuse capacity has been created under AMRUT, taking the total reuse capacity to 6,012 MLD, while another 1,931 MLD is under implementation. States are encouraged to scale up reuse capacity to 10,000 MLD by 2030.

Treated used water is being promoted for non-potable applications such as horticulture, landscaping, industrial use, agriculture, irrigation in peri-urban areas, construction activities and rejuvenation of water bodies in order to reduce dependence on freshwater sources. AMRUT 2.0 operational guidelines mandate meeting 20% of cities' water demand and 40% of industrial water demand in aggregate at the State level through reclaimed water. The Tariff Policy, 2016 also mandates thermal power plants located within 50 km of municipal STPs to utilize treated sewage.

To create a sustainable market for treated wastewater, AMRUT 2.0 includes reform incentives for States/UTs to notify Treated Used Water Reuse Policies and develop infrastructure for non-potable reuse. States are required to ensure adoption of reuse and recycling policies by Urban Local Bodies (ULBs). So far, 11 States have notified such policies. Financial incentives and performance-linked reforms have also been incorporated under the Mission. Further, under the "Jal Hi AMRIT" initiative, ₹1,300 crore has been earmarked to incentivize efficient operation of Sewage Treatment Plants (STPs), improve treated effluent quality and promote suitable reuse of treated water."

50. On being asked to provide the status of implementation of treated wastewater reuse targets across States and cities, the monitoring and compliance mechanisms established to track progress and ensure adherence to these targets,

and the incentive or penalty framework, if any, put in place to promote compliance and improve reuse outcomes, the Ministry furnished the following information:

“Under AMRUT and AMRUT 2.0, reuse and recycling of treated used water is being promoted as a key reform for achieving water security and circular urban water management. So far, 1,437 MLD of additional reuse capacity has been created under AMRUT, while another 1,943 MLD reuse capacity has been approved and is under implementation under AMRUT 2.0. At present, about 6,012 MLD of treated used water is being reused for identified non-potable purposes.

The Mission guidelines provide for formation of State High Powered Steering Committee (SHPSC) headed by the Chief Secretary of the State to monitor and supervise implementation of the Mission at the State/UT level. State Level Technical Committee (SLTC) headed by the Secretary, Urban Development & Housing Department provides technical support to SHPSC. Further, an Apex Committee constituted under the Mission guidelines periodically reviews and monitors implementation. For assessment and monitoring of works under AMRUT 2.0, Independent Review and Monitoring Agencies (IRMAs) have also been provisioned. In addition, progress is regularly reviewed through video conferences, webinars, workshops and site visits by the Ministry of Housing and Urban Affairs (MoHUA) with States/UTs. A dedicated AMRUT 2.0 online portal is also being used for tracking progress and monitoring of projects.

Further, under the “Jal Hi AMRIT” initiative launched under AMRUT 2.0 reforms, States/UTs are being incentivized for efficient operation of Sewage Treatment Plants (STPs) and for maintaining recyclable treated water meeting environmental standards on a sustained basis. The Mission also provides performance-linked reform incentives for States/UTs to notify Treated Used Water Reuse Policies and promote infrastructure for reuse of treated wastewater.”

B. Quality Assurance and Acceptance of Treated Wastewater

51. Recognising that long-term success of treated wastewater reuse depends upon maintaining the quality and reliability of treated water and fostering confidence among potential users, the Committee sought to know the mechanisms in place for quality assurance and monitoring of treated wastewater, including compliance with prescribed standards and measures being undertaken to enhance public and industrial acceptance of treated wastewater and promote its wider utilisation across sectors. In response, the Ministry furnished the following information:

“Sanitation and sewerage management including reuse is State subject and is responsibility of respective State Governments and Urban Local Bodies (ULBs). The Ministry of Housing and Urban Affairs (MoHUA) supplements the efforts of States/UTs through Advisory, technical and financial support.

As informed by the States/ ULBs treated water quality is monitored through regular testing of key parameters, process control, and compliance checks at treatment plants. Under AMRUT and AMRUT 2.0, States/UTs are encouraged to ensure compliance with prescribed environmental and discharge standards through appropriate treatment technologies. Real-time monitoring through SCADA and IoT-based systems is also being promoted for monitoring operational efficiency and quality parameters at Sewage Treatment Plants (STPs).

Further, under the “Jal Hi AMRIT” initiative launched under AMRUT 2.0 reforms, States/UTs are being incentivized for efficient operation of STPs and maintaining recyclable treated water meeting environmental standards on a sustained basis.

To enhance public and industrial acceptance, AMRUT 2.0 promotes reuse of treated used water for non-potable applications such as horticulture, industrial use, agriculture, construction activities and rejuvenation of water bodies. States/UTs are encouraged to adopt Treated Used Water Reuse Policies and undertake awareness

generation, capacity building, stakeholder consultations and training programmes for wider adoption of treated wastewater reuse.”

52. Given the need to promote circular economy principles in urban water management, the Committee sought to understand how wastewater reuse and resource recovery are being integrated into urban planning and policy frameworks and the roadmap envisaged for achieving long-term sustainability in used-water management through enhanced reuse of treated wastewater, resource optimisation and reduced dependence on freshwater resources. In response, the Ministry stated as under:

“Under AMRUT and AMRUT 2.0, reuse and recycling of treated used water is being integrated into urban planning and policy frameworks as part of the Mission's objective of creating ‘Water Secure Cities’ through a circular economy of water. The Mission promotes preparation of City Water Balance Plans focusing on recycle/reuse of treated used water, rejuvenation of water bodies, rainwater harvesting and water conservation. States/Union Territories (UTs) are encouraged to integrate reuse infrastructure, tertiary treatment systems and non-potable water applications within urban planning and sewerage projects. AMRUT 2.0 operational guidelines also mandate meeting 20% of cities’ water demand and 40% of industrial water demand in aggregate at the State level through reclaimed water.

The roadmap for long-term sustainability in used water management includes augmentation of sewerage and sewage treatment infrastructure, promotion of treated used water reuse, adoption of energy-efficient and decentralized technologies, strengthening of reuse policies, etc. Under AMRUT and AMRUT 2.0, significant investments have been made in sewerage and used water management projects for creation of additional treatment and reuse capacity. The Mission also promotes reuse of treated wastewater for horticulture, industry, agriculture, construction activities and rejuvenation of water bodies to reduce dependence on freshwater sources.

Further, reform incentives under AMRUT 2.0, including the “Jal Hi AMRIT” initiative, support efficient operation of Sewage Treatment Plants (STPs), improvement in treated effluent quality and sustainable reuse of treated water. Capacity building, digital monitoring systems, SCADA/IoT-based monitoring, policy support and stakeholder engagement are also being undertaken to strengthen long-term sustainability and resource-efficient urban water management.”

C. Resource Recovery and Beneficial Utilization of Municipal Sludge

53. Municipal sludge, often treated as a waste product of wastewater treatment, has considerable potential for resource recovery and can play an important role in promoting a circular urban economy. With the expansion of sewage and septage treatment facilities across the country, large quantities of sludge are being generated every day. If managed properly, this sludge can be converted into useful products such as renewable energy, fertilizers, soil conditioners, construction materials and fuel.

54. The Ministry has informed that Sewage Treatment Plants (STPs) in the country, with a total installed treatment capacity of about 31,885 MLD, generate nearly 8,000 tonnes of dried sludge daily. In addition, Faecal Sludge Treatment Plants (FSTPs) generate about 32 tonnes of sludge per day. After undergoing treatment processes such as digestion and dewatering, sludge can be used for producing compost, fertilizers and soil conditioners, as well as construction materials like bricks, blocks and tiles. It can also be utilized for fuel production. Further, methane generated during the treatment process can be used for electricity generation and other energy applications.

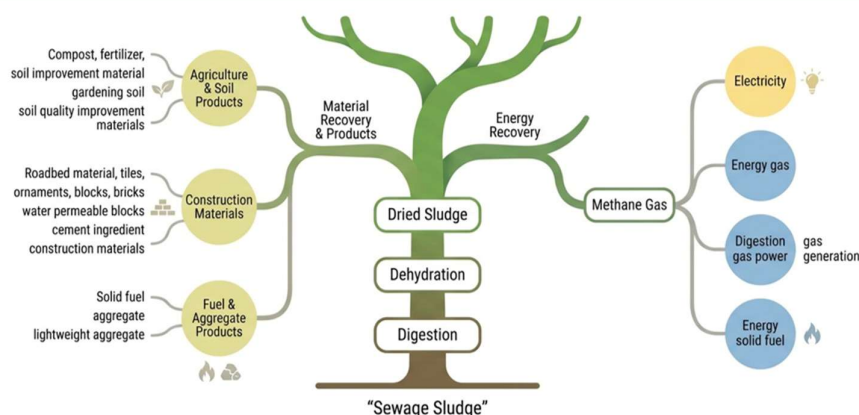
Municipal Sludge



31,885 MLD STP capacity, ~8,000 t/day dried sludge, while ~2,000 FSTPs produce ~32 t/day sludge generated



Sludge has resource recovery potential, including ~860 million kWh/year electricity through anaerobic digestion and ~97,500 tons of nutrients (N, P, K).



55. As regards utilisation of sludge, the Ministry made the following submission during the Committee Sitting held on 24 March 2026:

“...आजकल बड़े प्लांट्स बन रहे हैं, जैसे 250 एमएलडी, 350 एमएलडी, उनसे काफी स्लज निकलता है। वह स्लज भी, अंतर्राष्ट्रीय स्तर पर अगर हम देखें, उससे एनर्जी भी हम रिकवर कर रहे हैं, उससे गैस बनती है और उससे हम न्यूट्रिएंट्स भी रिकवर कर रहे हैं। पैन ग्लोबली हम देखते हैं कि सिंगापुर, आस्ट्रेलिया, यूएसए, वे स्लज का भी बहुत यूज करते हैं। उसका एग्रीकल्चर के लिए काफी यूज होता है। In India also, we see that cities like Bangalore, Chennai, have started using it. ...”

IV. OTHER ISSUES IN IMPLEMENTATION OF AMRUT

56. In addition to reviewing the challenges and interventions relating to various stages of the sewerage and septage management value chain, the Committee also examined certain cross-cutting issues relating to planning, financing, project execution, institutional coordination, monitoring and other implementation aspects with a view to assessing the overall performance of the AMRUT and AMRUT 2.0 missions and identifying areas requiring further attention.

(i) **Delays in Physical Progress**

57. Out of a total of 8,743 projects approved under AMRUT 2.0, only 594 projects, with an approved cost of ₹68,309.90 crore, pertain to sewerage and septage management, accounting for about 6.79 per cent of the total number of projects. In order to assess whether these projects are advancing in accordance with the timelines envisaged under the Mission, the Committee sought to examine their implementation status across States and UTs, including progress at various stages such as tendering, awarding, grounding, completion and ongoing execution.

58. The data furnished by the Ministry indicates that out of 594 sewerage and septage management projects approved under AMRUT 2.0 at a total cost of ₹68,309.90 crore, only 104 projects (17.51 per cent) have been completed, while 398 projects (67.00 per cent) are still under implementation. Further, 502 projects (84.51 per cent) have reached the awarded or grounded stage and 38 projects (6.40 per cent), involving an approved cost of ₹7,564.03 crore, continue to remain at the tender stage and are yet to enter the implementation phase. The details are placed in **Annexure I**.

59. The data further shows that the progress of sewerage and septage projects is uneven across States and Union Territories. While several States have made considerable progress in awarding and grounding projects, the number of completed projects remains relatively low in many States with large project portfolios and substantial investments, such as Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, Gujarat and Delhi. The Committee also note that in some States, including Jharkhand, progress in project grounding and implementation has been limited despite significant project allocations. In many cases, completed projects constitute only a small share of the total approved projects. On being asked about the delay in implementation and execution of sanitation projects, the Ministry made the following submission:

“The projects taken up under AMRUT 2.0 are large infrastructure projects with long gestation periods. A large number of projects have been completed and made operational, while some projects are at

various stages of implementation under AMRUT/AMRUT 2.0. The list of ongoing projects under AMRUT is placed below:

Sl. No.	State	No. of Projects	Total Project Cost (In ₹ Cr.)	Physical Completion (in ₹ Cr)	Work Remaining worth (₹ Cr)
1	Andaman and Nicobar Islands	1	0.44	0.33	0.11
2	Andhra Pradesh	46	1248.24	824.9799	423.2601
3	Arunachal Pradesh	1	38.08	26.656	11.424
4	Bihar	2	279.34	223.7952	55.5448
5	Chhattisgarh	2	93.72	87.1596	6.5604
6	Delhi	2	106.31	85.048	21.262
7	Gujarat	1	22.41	21.0654	1.3446
8	Haryana	5	468.58	387.311	81.269
9	Jammu and Kashmir	4	44.08	4.0045	40.0755
10	Jharkhand	15	1376.34	1088.3778	287.9622
11	Karnataka	6	486.12	430.0393	56.0807
12	Kerala	21	191.58	152.9386	38.6414
13	Madhya Pradesh	8	1317.38	1191.6617	125.7183
14	Maharashtra	15	1767.96	1646.9391	121.0209
15	Manipur	5	210.59	201.3764	9.2136
16	Meghalaya	2	7.12	6.9448	0.1752
17	Puducherry	1	1.78	1.424	0.356
18	Punjab	11	1014.35	794.3649	219.9851
19	Rajasthan	9	637.49	593.9375	43.5525
20	Tamil Nadu	6	2434.13	2196.3556	237.7744
21	Uttar Pradesh	13	1579.91	1458.0813	121.8287
22	Uttarakhand	4	10.22	7.6855	2.5345
23	West Bengal	5	436.54	405.3966	31.1434
Total		185	13772.71	11835.8727	1936.8373

As reported by the States from time to time, delay in execution of certain projects has been observed in some States/UTs due to factors such as delay in tendering and procurement processes, land acquisition and statutory clearances, contractor-related issues, limited technical capacity at ULB level, and disruptions caused during the COVID-19 period. In some cases, delays have also occurred due to changes in project scope and integration with existing infrastructure.

To ensure timely completion and accountability, the Ministry of Housing and Urban Affairs (MoHUA) regularly reviews the progress of projects with States/UTs through periodic review meetings, video conferences, field visits and online monitoring systems. States/UTs are advised to closely monitor project implementation and take corrective measures to address delays. Further, fund release is linked to physical and financial progress of projects. Third-party inspection, geo-tagging, online dashboards and Independent Review and Monitoring Agencies (IRMA) are also being utilized for monitoring, transparency and improving project implementation. Capacity building and technical support are also being provided to States/UTs and Urban Local Bodies (ULBs) for strengthening project planning, implementation and contract management.”

60. On being asked about the mechanisms put in place to ensure timely completion, real-time monitoring and accountability of implementing agencies and contractors, particularly in the context of delays observed in the execution of large-scale sewerage and septage infrastructure projects, the Ministry stated as under:

“To ensure the accountability and timely completion of approved projects, the Ministry utilizes a centralized digital dashboard (AMRUT Universe) and MIS portal for real-time tracking of physical and financial progress, supported by geo-tagged evidence. This is bolstered by the SNA SPARSH system, which enables real-time financial monitoring and ensures the proportionate release of Central and State funds directly to project accounts.

Strict oversight is enforced through Independent Review and Monitoring Agencies (IRMAs), whose third-party audits and satisfactory certification are mandatory for releasing central funds. Governance is further strengthened by a multi-tiered committee structure including the National Apex Committee, State-level SHPSCs, and district-level DISHA/DLRMC Committees to resolve logistical bottlenecks and ensure projects align with community needs.”

(ii) **Weak Financial Progress**

61. The total indicative outlay for AMRUT 2.0 is ₹ 2,77,000 crore including central share of ₹ 76,760 crore for five years from FY 2021-22 to FY 2025-26. As per the guidelines, funding for the projects is shared by Centre, States/ UTs and ULBs. Central share for various classes of ULBs is as under:

ULBs	Central share
Union Territories	100% project funds by Centre
North eastern States and Himalayan States	90% of the project funds by Centre
With less than one lakh population	50% of the project funds by Centre
With population one lakh to ten lakh (both included)	1/3rd of the project funds by Centre
With population more than ten lakh	25% of the project funds by Centre (except for projects taken up under PPP mode)

62. The Committee sought to assess the financial progress of sewerage and septage management projects under AMRUT and AMRUT 2.0, including the quantum of funds received from various sources, the share of funds allocated to sewerage and septage projects and the extent of fund utilisation across States and Mission cities. In response, the Ministry informed that under AMRUT and AMRUT 2.0, Central assistance is released to States and Union Territories on an overall Mission basis and not on a sector-wise basis.

63. On being asked to furnish details regarding the funding pattern and expenditure incurred on sewerage and septage management projects under AMRUT and AMRUT 2.0, including the extent of Central Assistance, State Government contribution and funds mobilised from other sources, the Ministry replied as under:

“The details of total central assistance committed and released under AMRUT and AMRUT 2.0 are as below. The remaining share of the project cost is borne by the State/ ULBs.

Central Assistance under AMRUT

Sl. No.	State/UTs	No. of Cities in which project taken	Source of Funds			
			Central Assistance			State/ULB & Others Assistance
			Committed	Released	Percentage of B vis-à-vis A	Committed
			A	B		C
1	A&N Islands	1	34.89	5.51	15.79%	0.00
2	Andhra Pradesh	117	2948.00	641.55	21.76%	6557.91
3	Arunachal Pradesh	16	171.19	44.00	25.70%	40.80
4	Assam	42	775.00	354.74	45.77%	211.98
5	Bihar	32	2604.86	441.77	16.96%	5562.92
6	Chandigarh	1	161.39	65.38	40.51%	5.00
7	Chhattisgarh	53	1303.00	436.12	33.47%	1861.87
8	Dadra-Nagar Haveli and Daman - Diu	1	30.00	23.00	76.67%	33.47
9	Delhi	2	2885.00	378.66	13.12%	2703.94
10	Goa	7	84.28	45.76	54.29%	100.13
11	Gujarat	161	4503.70	2284.67	50.73%	11812.62
12	Haryana	56	1495.82	565.14	37.78%	2327.72
13	Himachal Pradesh	31	256.00	172.67	67.45%	65.66
14	Jammu & Kashmir	56	867.00	333.60	38.48%	135.37
15	Jharkhand	46	1179.03	344.44	29.21%	3014.50
16	Karnataka	256	4603.15	2173.14	47.21%	5655.49
17	Kerala	93	1374.00	370.04	26.93%	2375.35
18	Ladakh	2	128.00	11.70	9.14%	780.90
19	Madhya Pradesh	418	4046.03	957.05	23.65%	8905.07
20	Maharashtra	133	8992.75	3410.16	37.92%	21087.17
21	Manipur	27	168.68	37.55	22.26%	27.81
22	Meghalaya	1	108.45	98.76	91.07%	12.55
23	Mizoram	23	140.04	58.00	41.42%	17.74
24	Nagaland	39	175.96	46.19	26.25%	42.94
25	Odisha	89	1373.00	1013.34	73.81%	2657.18
26	Puducherry	6	150.00	119.03	79.35%	46.41
27	Punjab	161	1635.21	459.69	28.11%	2080.17
28	Rajasthan	200	3552.00	870.32	24.50%	8008.07
29	Sikkim	5	40.00	22.00	55.00%	9.41
30	Tamil Nadu	604	4942.00	2614.18	52.90%	9695.74
31	Telangana	140	2788.03	516.00	18.51%	6796.22
32	Tripura	12	157.00	134.11	85.42%	34.53
33	Uttar Pradesh	378	8161.00	2246.67	27.53%	20245.73
34	Uttarakhand	32	585.00	202.40	34.60%	182.75
35	West Bengal	130	3640.07	1265.65	34.77%	6347.86

Total	66059.53	22762.99	34.46%	129442.97
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64. The financial data furnished by the Ministry indicates that against a total Central Assistance commitment of ₹66,059.53 crore under AMRUT 2.0, only ₹22,762.99 crore, representing 34.46 per cent of the committed amount, has been released so far. There is considerable variation across States and Union Territories in the pace of fund release. While a few States and UTs such as Meghalaya (91.07 per cent), Tripura (85.42 per cent), Puducherry (79.35 per cent), Dadra & Nagar Haveli and Daman & Diu (76.67 per cent) and Odisha (73.81 per cent) have received a substantial proportion of the committed Central Assistance, the percentage of funds released remains relatively low in several States with large project portfolios and significant infrastructure requirements. Delhi (13.12 per cent), Ladakh (9.14 per cent), Andhra Pradesh (21.76 per cent), Telangana (18.51 per cent), Rajasthan (24.50), Manipur (22.26), A&N Islands (15.79 per cent), Arunachal Pradesh (25.70 per cent), Bihar (16.96 per cent) and Madhya Pradesh (23.65 per cent) have received one-fourth or less than one-fourth of the committed Central Assistance.

65. The Committee further note that States are required to mobilise a substantial share of project financing from State Government, ULB and other sources. Against the committed Central Assistance of ₹66,059.53 crore, the corresponding State/ULB and other assistance amounts to ₹1,29,442.97 crore, which is nearly twice the Central contribution.

(iii) Weak Monitoring, Data Systems and Outcome Measurement

66. In order to assess the outcomes and impact of interventions undertaken under AMRUT and AMRUT 2.0, the Committee sought a consolidated assessment of progress achieved across key indicators relating to sanitation coverage, sewerage and septage management, treatment capacity, wastewater reuse, institutional reforms and capacity building. The Committee, therefore, requested the Ministry to furnish an Outcome Assessment Table capturing the status of these indicators at different stages of Mission implementation. In response, the Ministry furnished the following information:

“Sanitation including reuse of treated used water, is a State subject and is primarily the responsibility of respective State Governments and Urban Local Bodies (ULBs). The Ministry of Housing and Urban Affairs (MoHUA) supplements the efforts of States/Union Territories (UTs) through policy support, advisories, technical guidance and financial assistance under

AMRUT and AMRUT 2.0. The information in the format, as available, is as under:

SI No.	Key Indicator/Parameters	2015 (Pre-AMRUT)	2021 (End Phase of AMRUT)	2026 (Current & End Phase of AMRUT 2.0)
1	% of urban households with access to safe sanitation systems (sewer + septic)	31%	46.30%	55%
2	% of septic tanks constructed as per standards (BIS/CPHEEO)			
3	% of households connected to sewer networks			
4	% of AMRUT cities with approved building by-laws incorporating sanitation standards			35 States adopted Model Building Bye Laws.
5	% of households with functional sewer connections (last-mile)			
6	% of septic tanks under scheduled desludging regime			
7	% of sewer networks with mechanised maintenance			
8	% of cities with GIS-based mapping of sanitation assets			163 cities/towns
9	% of septage safely transported to designated treatment/disposal sites			
10	Number of vacuum trucks per lakh population			
11	% of cities with designated septage discharge points			
12	% of cities with GPS/IT-based tracking of desludging vehicles			

SI No.	Key Indicator/Parameters	2015 (Pre-AMRUT)	2021 (End Phase of AMRUT)	2026 (Current & End Phase of AMRUT 2.0)
13	% of sewage actually treated			60% (as in 2023)
14	Installed STP capacity (MLD)			31,885 MLD (as in 2023)
15	% of functional STPs			
16	Number of FSTPs/co-treatment facilities			53 FSTPs (under AMRUT)
17	Capacity of FSTPs/co-treatment facilities			2500 KLD (under AMRUT)
18	% compliance with discharge standards			
19	% of treated wastewater reused			26% (as in 2023)
20	Volume of treated wastewater reused (MLD)			6012 (as in 2023)
21	% of cities with reuse policy/mandate implementation			11 States have adopted reuse policy
22	% of cities with approved City Water Action Plans (CWAPs)			99.34% (4878 cities out of 4910 cities)
23	Number of personnel trained under capacity building programmes			7000 certificates issued under Jal hi Amrit
24	% of ULBs with cost recovery/ user charges for sanitation			

Under AMRUT and AMRUT 2.0, support for sewerage and septage management infrastructure is limited to the notified 500 AMRUT cities. States/UTs are empowered to identify, prioritize, appraise and implement projects based on their local requirements, infrastructure gaps and city-specific needs within the overall framework of the Mission. Accordingly, project scope, implementation approach and operational arrangements vary across States/UTs and cities. Therefore, the information in the format sought regarding household-level sanitation coverage, septic tank standards, mechanised maintenance, GIS mapping, desludging practices, reuse compliance,

staffing and other operational parameters is not centrally maintained under AMRUT/AMRUT 2.0.”

67. The above Outcome Assessment Table furnished by the Ministry indicates progress in certain broad outcome indicators relating to sanitation coverage, treatment capacity, wastewater reuse, institutional reforms and capacity building under AMRUT and AMRUT 2.0. The data reflects an increase in access to safe sanitation systems from 31 per cent in 2015 to 55 per cent in 2026, expansion of sewage treatment capacity to 31,885 MLD, reuse of treated wastewater to about 6,012 MLD, adoption of Model Building Bye-Laws by 35 States/UTs, preparation of City Water Balance Plans in almost all cities and capacity-building efforts through training and certification of treatment plant personnel. However, data against a large number of operational and outcome indicators has not been furnished. The Ministry has stated that such information is not centrally maintained under AMRUT and AMRUT 2.0, as implementation and operational responsibilities rest with the States, UTs and Urban Local Bodies.

(iv) Multiplicity of Schemes and Institutional Coordination Challenges

68. Urban sanitation and wastewater management is governed through a complex institutional framework involving the Ministry of Housing and Urban Affairs (MoHUA), State Governments, Urban Local Bodies (ULBs), regulatory agencies such as the Central and State Pollution Control Boards, programmes such as the Namami Gange Programme and oversight by judicial and quasi-judicial bodies including the National Green Tribunal. Since sanitation is a State subject under the Constitution, effective coordination among multiple stakeholders is essential to ensure convergence of interventions, avoid duplication of efforts and maintain uniform standards in planning, implementation, monitoring and regulatory compliance.

Sanitation is a State Subject (Constitution of India, Entry 6, State List).

- **Ministry of Housing & Urban Affairs:** Technical Advisories/ Manuals/ Financial and Schematic Interventions
- **Namami Gange Programme:** Pollution Abatement/Conservation & Rejuvenation of River Ganga
- **Central Pollution Control Board:** Formulation and monitoring of standards for used water/ UTPs/ FSSM standards
- **National Green Tribunal:** Statutory tribunal for Speedy Environmental Adjudication

69. While the governance of urban sanitation through multiple institutions and programmes enables wider coverage, it also raises concerns regarding coordination among implementing agencies, convergence of interventions and consistency in service standards and outcomes. During the Sitting of the Committee on 24 March 2026, the Ministry submitted as under:

“... if we talk about the institutional governance for the sanitation services. So, MoHUA, in this, we have two missions catering to this sector. One is AMRUT and the other one is Swachh Bharat Mission. Namami Ganga Programme, Central Pollution Control Board sets the standards that have to be followed, how much should be the COD, BOD, the faecal parameters. An entity also has some parameters and they do time-to-time monitoring in the cities.

Sir, for the overarching technical background, like this, it is a state subject. Now, from MoHUA, we provide financial and technical assistance. Now, technical assistance, we have CPHEEO here, ... the CPHEEO sets the standards....”

70. In this context, the Committee sought to ascertain the mechanisms in place to ensure effective coordination, monitoring and enforcement across various stakeholders so as to improve planning, implementation, regulatory compliance and service delivery outcomes in the sewerage and septage management sector. In response, the Ministry furnished the following information:

“MoHUA manages the institutional complexity of urban sanitation through a multi-tiered coordination framework. National progress is reviewed by the Apex Committee, while State High Powered Steering Committees (SHPSCs) and State Level Technical Committees (SLTCs) handle state-level policy alignment and technical scrutiny. Local accountability and social vigilance are further strengthened by District-level DISHA/DLRMC Committees, co-chaired by Members of Parliament, to ensure projects meet community needs.

The Mission utilizes a paperless digital model through the AMRUT portal, enabling real-time tracking of physical progress via geo-tagged evidence. Financial transparency is enforced via the SNA SPARSH system, which ensures the proportionate release of Central and State shares directly to project accounts. Rigorous oversight is maintained by Independent Review and Monitoring Agencies (IRMAs), whose third-party audits and satisfactory certifications are mandatory for releasing central funds beyond the first instalment.”

71. The Ministry of Housing and Urban Affairs is implementing AMRUT, AMRUT 2.0 and the Swachh Bharat Mission (Urban) to address the diverse sanitation and wastewater management requirements of cities of varying sizes and capacities. In this context, the Committee sought to understand the rationale for implementing multiple schemes for sewerage and septage management and the mechanisms put in place to ensure convergence, avoid duplication of efforts and maintain uniform standards in planning, implementation and monitoring across the various programmes. In response, the Ministry furnished the following information:

“The implementation of different schemes for urban sanitation follows a segmented strategy tailored to specific urban scales and geographical priorities. AMRUT 2.0 is dedicated to achieving 100% sewerage and septage management coverage across 500 major cities, while Swachh Bharat Mission-Urban (SBM-U) 2.0 focuses on used water management in smaller statutory towns with less than 1 lakh population. This convergence ensures that diverse infrastructure

needs, from massive urban centres to peri-urban areas, are addressed through targeted national priorities.

To prevent administrative overlap and the duplication of efforts, the Ministry employs a robust convergence-based approach integrated into city-level planning. Project selection is strictly guided by mandatory City Water Balance Plans (CWBP) and action plans that account for all existing and proposed infrastructure across different departments to ensure a unified approach. Institutional oversight is maintained through State High Powered Steering Committees (SHPS), which coordinate cross-departmental alignment and project approval at the state level.”

(v) Slow STP Capacity Installation

72. As per the NITI Aayog report on the Urban Wastewater Scenario in India, urban areas generate an estimated 72,368–90,000 MLD of wastewater daily, of which only about 28 per cent is treated. Consequently, nearly 72 per cent of wastewater is discharged untreated into rivers, lakes and other water bodies, posing significant environmental and public health concerns. Noting that creation of adequate sewage treatment capacity is critical for bridging the gap between sewage generation and treatment, the Committee sought to ascertain the extent of treatment infrastructure created under AMRUT and AMRUT 2.0. In response, the information provided by the Ministry is as below:

#	State/UT	STPs under AMRUT (Capacity in MLD)				STPs under AMRUT 2.0 (Capacity in MLD)			
		No. of STPs	Capacity	Operational Status (Capacity in MLD)		No. of STPs	Capacity	Operational Status	
				Completed /Functional	Under construction/Planned			Completed /Functional	Under construction/Planned
1	Andhra Pradesh	26	205	127	78		361.44	35.08	326.36
2	Arunachal Pradesh	1	3		3				
3	Assam						9		9
4	Bihar						212.29		212.29
5	Chandigarh								

#	State/UT	STPs under AMRUT (Capacity in MLD)				STPs under AMRUT 2.0 (Capacity in MLD)			
		No. of STPs	Capacity	Operational Status (Capacity in MLD)		No. of STPs	Capacity	Operational Status	
				Completed /Functional	Under construction/Planned			Completed /Functional	Under construction/Planned
6	Chhattisgarh	7	263.2	263.2			322		322
7	Dadra & Nagar Haveli & Daman and Diu	1	4.21	4.21			10	10	
8	Delhi	1	68	68			519.79		519.79
9	Goa								
10	Gujarat	38	1582.4	1582.4			928.1	79.1	849
11	Haryana	19	276.23	231.86	44.37		252.15		252.15
12	Himachal Pradesh	3	31.1	31.1			1.1		1.1
13	Jammu And Kashmir	2	8	8			30		30
14	Jharkhand	1	36		36				
15	Karnataka	17	210.55	132.55	78				
16	Kerala	9	27.8	26.7	1.1		65.14		65.14
17	Ladakh						11.1		11.1
18	Madhya Pradesh	43	962.5	748	214.5		1084.54		1084.54
19	Maharashtra	35	833	574	259		1060.5	73	987.5
20	Meghalaya	4	1.65	1.65					
21	Mizoram						4.1		4.1
22	Nagaland						10.58		10.58
23	Odisha	1	0.12	0.12					
24	Puducherry						29		29
25	Punjab	13	511.75	468.25	43.5		102		102
26	Rajasthan	40	294.75	272.75	22		273.69	171.79	101.9
27	Tamil Nadu	9	500	376.5	123.5		81.51	0	81.51
28	Telangana	2	18.25	18.25			1132		1132
29	Uttar Pradesh	14	408	408			211	289.1	
30	Uttarakhand	4	49.55	49.55					
31	West Bengal	1	4.3	4.3			104		104
	Total	291	6299.36	5396.39	902.97		6815.03	658.07	6235.06

73. From the data above, it may be seen that the pace of creation and operationalisation of sewage treatment capacity is relatively modest despite the substantial investments made under AMRUT and AMRUT 2.0. Under AMRUT, 291 STPs with a total treatment capacity of 6,299.36 MLD were taken up, of which 5,396.39 MLD (85.67 per cent) has become functional, while 902.97 MLD (14.33 per cent) remains under construction or yet to be operationalised. Under AMRUT 2.0, although projects amounting to 6,815.03 MLD of additional treatment capacity have been approved, only 658.07 MLD (9.66 per cent) has become functional so far, while a substantial 6,235.06 MLD (91.49 per cent) remains under construction or at the planning stage.

(vi) Gaps in Operational Performance, Standards Compliance and Sustainability of Treatment Infrastructure

74. The mere creation of treatment infrastructure does not guarantee improved sanitation outcomes unless such assets are efficiently operated, adequately maintained and consistently adhere to prescribed environmental standards. The findings of a third-party survey conducted across 485 cities in 2021 under the aegis of the Ministry to assess the existing gaps and water quality in STPs are as under:

Major Findings of Survey



75. On being asked about the fact that only 51 per cent of Sewage Treatment Plants (STPs) comply with the discharge standards notified in 2015 and only 15 per cent meet the stricter standards prescribed in 2019, the Ministry, during the Committee's sitting held on 24 March 2026, informed the Committee as under:

“... Since it is a challenging sector, to have a ground-level analysis of what is happening in the field, we conducted a third-party survey. ... The team visited 1,044 plants. They took samples of the output to see whether they were meeting the BOD, COD and faecal criteria or not. The total capacity of the plants that were visited was around 27,974 MLD, and the operational capacity was 24,000 MLD. What we found was very interesting. ... only 50 per cent of the STPs were complying with the CPCB standards of 2015. And if we see the NGT standards, it was only 15 per cent. The NGT standards are very stringent standards. It is like even better than drinking water. But look, it is that stringent. There has been a High Court case. ... Now, we are defining the CPCB standards as the best standards. Unless the water is going into the river, we want further treatment. The cost of treatment, if we adopt NGT standards, will be very, very high and it is not enough for the people. So, we are redefining the standards a little bit as per the CPCB standards. ... CPCB standards are more practical to follow. ... Now, there is a committee that has been formed under CPHEEO, and they have all the relevant experts and stakeholders for revision of the standards. ...”

76. When the Committee sought to know the measures being undertaken to improve the efficiency and reliability of STP operations, strengthen operation and maintenance practices and ensure compliance with prescribed environmental standards and discharge norms. In response, the Ministry submitted as under:

“To address performance and compliance gaps, the Ministry has launched the "Jal Hi AMRIT" (JHA) sub-scheme under AMRUT 2.0, which has already seen the enrollment of 860 Sewage Treatment Plants (STPs) via an online platform for assessment. These enrolled plants represent a cumulative treatment capacity of 22,202 MLD,

accounting for approximately 74% of India's total installed STP capacity. STPs are evaluated on 10 performance parameters—including treated water quality, safety, and innovation—to determine their rating. To support this initiative and build capacity for qualitative improvements in treated discharge, funds of ₹1,300 crore has been earmarked under AMRUT 2.0 Reforms to provide performance-linked incentives to high-performing plants. Furthermore, the mission guidelines mandate that all sanctioned infrastructure projects incorporate at least five years of operation and maintenance (O&M) into the tender process; under AMRUT 2.0, States have already assessed or planned ₹20,019.38 crore specifically for O&M costs across 8,771 approved projects.

Reliability and technical efficiency are being further strengthened through the adoption of smart technologies. 235 sewerage schemes under AMRUT 2.0 are approved with SCADA components to ensure real-time tracking of treatment quality. To institutionalise these improvements, Water Resource Recovery Cells (WRRCs) have been established in 25 States/Union Territories to coordinate resource recovery and the sustainable reuse of treated water. These technical measures are complemented by the large-scale capacity building of 1,05,984 personnel, including municipal functionaries, contractors, plant operators, and 7,000 dedicated Jal Hi Amrit assessors.”

77. Further, the Ministry made the following submission during the sitting of the Committee on 24 March 2026:

“... One of the corrective actions we took after the survey was the septic tank study, and the second was the ‘Jal Hi AMRIT’ initiative. Under the ‘Jal Hi Amrit’, what we observed in our ULBs is that very good standard STPs are constructed, but they are not operated and maintained well. Because of this, the output quality is poor, and we are unable to utilise the treated water effectively. We are spending so much amount on treating water, but that water is not put to definitive reuse. For this, we started the initiative ‘Jal Hi Amrit’, where we

introduced a performance-based grant or incentive for ULBs so that they have some incentive to properly operate and maintain their STPs. We first established a baseline, where all ULBs submitted their data. Then, we sent our special teams to verify it on the ground. Samples were taken in three phases, and we assessed how they were performing in terms of operation and maintenance. The incentive received can only be used for improvements at that specific plant. For example, some plants did not have SCADA or IoT systems, so they used this funding to install them or plan for them. Some aimed to shift to renewable energy, such as solar power, to reduce electricity costs and improve operations. Such improvements were undertaken directly at the sewage treatment sites. This was a first-of-its-kind performance-based incentive initiative to see whether it could nudge cities to improve operation and maintenance. If the output quality of STPs improves, it would also enable the reuse of treated water for industrial and other definitive purposes.

After three rounds of testing, we observed that some STPs had improved their standards. Around 114 STPs across the country met the parameters we had set and maintained their quality over three consecutive inspections. Based on this pilot, which ran for about one to one-and-a-half years, we are now planning to scale it up and give an opportunity to other STPs who were left out in the first round of this challenge. दूसरे लोगों को अच्छा करने के लिए प्रोत्साहन मिलेगा। They would also get money as an incentive. So, it is a performance-based grant they would get just to nudge them to operate it well. इसी के अंदर हमने लोगों की कैपेसिटी बिल्डिंग भी की। It was also mandatory for plant operators and managers to undergo training. Around 7,000 personnel completed these trainings and were given certificates online. Additionally, 25 States have established Water Resource Recovery Cells. This was the first beginning where we told them that it is a very serious subject, and they should create proper water recovery cells at the State level and get them approved. Also, 11 States have notified their reuse policy. So, these are broad outcomes that came out of it. ...”

(vii) Limited Institutional Capacity of ULBs

78. Recognising that the effectiveness and sustainability of sewerage and septage management systems depend significantly on the institutional and technical capacities of Urban Local Bodies (ULBs), the Committee sought to ascertain the availability of skilled manpower, the capacity-building measures undertaken under AMRUT and AMRUT 2.0 and the initiatives taken to strengthen planning, implementation, operation and maintenance frameworks at the city level. The Committee also sought to understand whether institutional constraints at the ULB level were contributing to delays in project execution and operational inefficiencies. In response, the Ministry informed as under:

“Sanitation and sewerage management being State subjects, operation and maintenance of treatment infrastructure and deployment of skilled manpower are the responsibility of respective State Governments and Urban Local Bodies (ULBs). The Ministry of Housing and Urban Affairs (MoHUA) supplements the efforts of States/UTs through policy support, technical guidance and capacity building initiatives under AMRUT and AMRUT 2.0.

Under AMRUT 2.0 reforms, the “Jal Hi AMRIT” initiative has been launched to incentivise States/UTs for efficient management of Sewage Treatment Plants (STPs) and promotion of recyclable treated water meeting environmental standards on a sustained basis. The initiative focuses on capacity building and improving the quality of treated discharge effluent. Under the initiative, 860 STPs with treatment capacity of 17,613 MLD have been enrolled. Over 7,000 have been trained and certifications issued to plant operators, plant managers and technical staff. In addition, 25 States/UTs have established Water Resource Recovery Cells (WRRCs) for planning, monitoring and scaling up resource recovery interventions and ensuring sustained governance and operational continuity.

Further, under AMRUT and AMRUT 2.0, technical trainings, workshops and exposure visits are being undertaken for engineers,

plant operators, sanitation workers and ULB officials to strengthen operation and maintenance of sewerage and septage management infrastructure. Technical manuals, standard operating procedures (SOPs) and digital monitoring systems are also being promoted to improve operational efficiency, monitoring and service delivery.

States/UTs and ULBs are also being encouraged to adopt robust Operation & Maintenance (O&M) frameworks, including Public Private Partnership (PPP) and Hybrid Annuity Model (HAM)-based projects, for improved operational efficiency, performance-based management and long-term sustainability of sewerage infrastructure.”

79. Further, in order to assess the effectiveness of the various reforms and capacity-building initiatives undertaken under AMRUT and AMRUT 2.0, including the training of personnel and the implementation of the Jal Hi AMRIT initiative, the Committee sought to ascertain the measurable outcomes achieved so far and the manner in which these interventions are expected to contribute to sustained improvements in urban used water management. In response, the Ministry stated as under:

“... To ensure technical and governance excellence, the mission has trained 1,05,984 personnel, including municipal officials, contractors, and women from Self-Help Groups. This includes specialized training for over 7,000 plant operators, plant managers and technical staff. under the Jal Hi AMRIT initiative and over 12,700 professionals in urban planning and geo-spatial technologies. Additionally, the Jal Hi AMRIT sub-scheme has enrolled 860 Sewage Treatment Plants-representing roughly 74% of India’s installed capacity-to benchmark performance across ten parameters, such as safety, cleanliness, and treated water quality. ...”

80. On being asked about the reasons for delays in project execution under AMRUT and AMRUT 2.0, the Ministry, *inter alia*, acknowledged that limited technical capacity at the ULB level has been a contributing factor and furnished the following reply:

“...As reported by the States from time to time, delay in execution of certain projects has been observed in some States/UTs due to factors such as delay in tendering and procurement processes, land acquisition and statutory clearances, contractor-related issues, limited technical capacity at ULB level, and disruptions caused during the COVID-19 period. In some cases, delays have also occurred due to changes in project scope and integration with existing infrastructure. ...”

81. Further, during the sitting of the Committee held on 24 March 2026, the Ministry made the following submission:

“... It is very important to build capacities if we have to achieve anything in the ULBs. Under AMRUT, we are undertaking various specialised capacity-building trainings for different categories of personnel. Planners have one kind of training, those dealing with sewage have another, and site engineers have a different kind of training. In fact, a range of specialised trainings is being conducted – starting from the highest-level officials down to the masons. We are trying to cover everyone. ...”

(viii) Slow Progress in Achieving Sewerage and Septage Connectivity and Capacity Targets

82. Noting the substantial gap between the target of 409 lakh sewer/septage connections envisaged under AMRUT and AMRUT 2.0 and the progress reported so far, the Committee sought to ascertain the reasons for the slow pace of achievement and the corrective measures being undertaken to accelerate coverage. In response, the Ministry stated as under:

“Under AMRUT and AMRUT 2.0, States/ UTs select, prioritise and implement the projects within broad framework of Mission guidelines. The target of 409 lakh sewer/septage connections under AMRUT and AMRUT 2.0 was an indicative estimate of the gap identified at the time of formulation of the Missions. However, based on actual number of projects proposals taken up by the States/UTs, a target of about 66

lakh new sewer connections under AMRUT 2.0 and 145 lakh new/rehabilitated sewer/septage connections under AMRUT has been envisaged through approved projects. Against this, around 192 lakh sewer/septage connections have been provided/rehabilitated so far. To accelerate implementation, the Ministry undertakes regular review meetings with States/UTs, monitoring project progress through online dashboards, conducting field visits and facilitate resolution of implementation bottlenecks. States/UTs have also been advised to expedite completion of ongoing projects, ensure timely award of pending works, strengthen project management and monitoring mechanisms, and prioritize provision of household connections to newly created sewerage infrastructure.”

83. As regards sewerage capacity, the Ministry, during the sitting held on 24 March 2026, informed the Committee as under:

“in AMRUT-I, we committed Rs.32,000 crore for putting up sewerage infrastructure, out of which we committed approximately 6,100 MLD of STP capacity, and around 5,000 MLD has been completed. In AMRUT 2.0 also, we have approved around 6,000 MLD of STP capacity, out of which 523 MLD has been completed. Under Swachh Bharat, 11,000 MLD of STP capacity has been approved for smaller cities, but these are still in the process of being built.”

(ix) Gaps in GIS-Based Planning, Digital Monitoring and Adoption of Innovative Decentralised Wastewater Management Solutions

84. Recognising that reliable and up-to-date data on sewer networks, household connections and on-site sanitation systems is essential for effective planning, operation and monitoring of urban sanitation infrastructure, and further considering the challenges posed by rapid urbanisation, land constraints and the growing need for cost-effective and sustainable wastewater management solutions, the Committee sought to assess the extent of adoption of GIS-based planning, digital monitoring systems and innovative decentralised treatment approaches under AMRUT and AMRUT 2.0. The Committee sought to ascertain

the status of GIS-based mapping of sewer networks, household sewer connections and septic systems, the utilisation of such data for infrastructure planning and service delivery, and the measures being undertaken to promote technological innovation and decentralised wastewater treatment solutions. In response, the Ministry furnished the following information:

“Under the sub-scheme ‘Formulation of GIS based Master Plan’ under AMRUT/AMRUT 2.0, GIS based Master Plans have been prepared for 404 AMRUT cities, of which 289 have been notified. For Class-II towns, draft master plans have been prepared for 136 cities and Master Plans for 71 cities have been formulated. The Design and Standards documents published by MoHUA for GIS based Master Plans provide for mapping of sewer networks, and States may map utilities on the GIS platform. As per information provided by States under the Scheme for Special Assistance to States for Capital Investment (Urban Reforms), 163 cities have taken up GIS-based sewerage network mapping.

Sanitation and urban water management being State subjects, GIS-based mapping of sewer networks, household sewer connections and septic tank/on-site sanitation systems is undertaken by respective State Governments and Urban Local Bodies as per local requirements and project planning needs. Under AMRUT and AMRUT 2.0, States/UTs and ULBs have been encouraged to adopt data-driven planning and digital monitoring systems, including GIS-based mapping and SCADA-based monitoring, for water supply and sewerage infrastructure.

85. As regards land constraints, the Ministry further added as under:

“To address urban space constraints, the Ministry supports a segmented strategy whereby larger cities implement decentralised treatment plants to manage wastewater at source, while smaller and less dense areas focus on scientific Faecal Sludge and Septage Management (FSSM) and co-treatment facilities. Innovation is being

promoted through the Technology Sub-Mission, which has onboarded 120 start-ups to pilot advanced technologies across 82 cities. Further, innovative systems in STPs are incentivised through the 'Jal Hi AMRIT' sub-scheme, which provides financial assistance for technology upgradation. These initiatives are supported by smart infrastructure tools, including SCADA systems, GIS mapping and IoT sensors for real-time monitoring, as well as advanced machinery for scientific cleaning of drainage and sewer networks."

PART-II
OBSERVATIONS AND RECOMMENDATIONS

Recommendation No. 1

Strengthening Containment Systems and On-Site Sanitation Management

The Committee note that safe containment of wastewater is the foundation of an effective sanitation system. While expansion of sewer networks remains important, the continued dependence on on-site sanitation systems (OSS) in several urban areas necessitates ensuring that septic tanks and other containment structures are scientifically designed, constructed and maintained to prevent environmental contamination and public health risks.

The Committee observe that out of approximately 11.32 crore urban households, around 3.45 crore households are connected to sewer networks, whereas about 2.85 crore households depend on septage-based systems. The Ministry has informed that sewerage and septage infrastructure is being augmented through AMRUT, AMRUT 2.0 and Swachh Bharat Mission-Urban 2.0, with emphasis on both sewered and non-sewered sanitation systems. The Ministry has also highlighted that Central Public Health and Environmental Engineering Organisation (CPHEEO) manuals and advisories provide the technical framework for septic tank construction and maintenance. However, the Administrative Staff College of India (ASCI) study conducted in 15 States has highlighted significant gaps in compliance, such as 60% of urban households rely on untrained masons for septic tank design and construction, absence of access chambers, inadequate lining of tanks, etc. The Committee also note that provisions relating to sanitation provided in the Model Building Bye-Laws (MBBL), 2016 have been incorporated by 35 States and UTs within their respective building bye-laws.

The Committee appreciate the measures undertaken by the Ministry but observe that the findings of the ASCI study indicate considerable deficiencies in the implementation of prescribed standards for septic tanks. The Committee are of the view that non-standard containment systems may compromise the effectiveness of on-site sanitation systems and lead to leakage, contamination and unsafe disposal practices and therefore, feel that merely issuing technical guidelines may not be sufficient unless supported by effective monitoring, enforcement and capacity building at the local level.

With a view to ensure safe and sustainable sanitation outcomes, the Committee recommend the Ministry to direct the States, UTs and ULBs

- (i) to build a mechanism for ensuring compliance with CPHEEO standards and prescribed septic tank designs for on-site sanitation systems.
- (ii) to ensure the implementation of sanitation provisions as per building bye-laws.
- (iii) to publicise the standard septic tank designs through local newspapers in vernacular languages to generate awareness with special focus on peri-urban and transitional areas.
- (iv) to conduct regular practical training sessions for private contractors and masons in septic tank construction in accordance with building bye-laws and to develop in consultation with States/UTs and ULBs, a mechanism for periodic empanelment of trained masons and contractors for construction of septic tanks and on-site sanitation system.

Recommendation No. 2

Institutionalising Desludging Systems and Strengthening Septage Management Infrastructure

The Committee note that effective management of on-site sanitation systems depends not only on safe containment but also on regular desludging, safe transportation and availability of adequate treatment and disposal infrastructure. Inadequate institutionalised desludging systems, limited availability of designated disposal facilities and lack of reliable data on septage management infrastructure pose challenges in ensuring safe handling of faecal sludge.

The Committee observe that while CPHEEO guidelines and the National Policy on Faecal Sludge and Septage Management recommend scheduled desludging and institutionalised faecal sludge and septage management systems. However, details regarding adoption of scheduled desludging policies, coverage achieved, availability of desludging vehicles, designated septage discharge points, transfer stations and disposal facilities are not centrally maintained by the Ministry. The Ministry has informed that States and ULBs are responsible for planning and implementing Faecal Sludge and Septage Management (FSSM) systems and that AMRUT 2.0 supports FSSM-based solutions, digital monitoring systems and capacity building. The Ministry has further stated that guidelines provide for registration of desludging operators, GPS-based tracking, designated disposal arrangements and penalties for unauthorised discharge.

The Committee are of the view that absence of comprehensive and centrally available data on desludging services, septage disposal infrastructure and enforcement mechanisms limits effective assessment of the status of sanitation management across cities. The Committee are concerned that gaps in

institutionalised desludging arrangements and inadequate monitoring of septage transportation may result in unsafe disposal of faecal sludge, thereby undermining the objectives of sanitation programmes.

With a view to strengthen the entire faecal sludge management chain, the Committee recommend the Ministry

- (i) to impress upon the States and ULBs to adopt desludging policies in all urban areas and develop a mechanism to monitor their implementation so that a time-bound desludging schedule is established and followed in all AMRUT cities.
- (ii) to ensure that all States and UTs create a State/UT level comprehensive database capturing details of desludging operators, registered vehicles, frequency of desludging services, septage treatment facilities, designated disposal points and compliance status of ULBs with access to MoHUA for national level compilation.
- (iii) to direct States and UTs to ensure mandatory registration and GPS-based tracking of desludging vehicles, regular inspection of disposal practices and integration of such data with existing digital monitoring platforms such as Integrated Command and Control Centres (ICCCs) to improve accountability and prevent unauthorised discharge of faecal sludge.

Recommendation No. 3

Strengthening Sewerage Transportation Infrastructure and Bridging Coverage Gaps

The Committee note that efficient sewerage conveyance infrastructure is essential for ensuring safe transportation of wastewater to treatment facilities. Despite substantial investments under AMRUT and AMRUT 2.0, gaps in sewer network coverage, limited last-mile connectivity and ageing sewer infrastructure continue to affect the effectiveness of urban sanitation systems.

The Ministry has informed that under AMRUT and AMRUT 2.0, significant sewerage infrastructure has been taken up, including creation and rehabilitation of sewer networks, household connections and sewage treatment capacity. Under AMRUT, 23,297 km of new sewer network/rehabilitation works have been taken up, of which 22,520 km have been completed, while under AMRUT 2.0, projects include creation of about 34,219 km of new sewer network and rehabilitation of 2,503 km. The Ministry has also highlighted that challenges such as ageing infrastructure, cross-connections between water and sewage pipelines, absence of last-mile connectivity and continued dependence on septic tanks remain areas requiring attention.

The Committee appreciate the efforts undertaken for augmentation of sewerage infrastructure but observe that the progress of sewer network creation remains uneven across States, with gaps between planned and completed networks in several areas. The Committee are of the view that lack of comprehensive data regarding total sewer network requirements, infrastructure gaps and system deficiencies affects effective planning and prioritisation of interventions. The Committee feel that expansion of sewerage infrastructure needs to be accompanied by ensuring household connectivity so that the benefits of created treatment capacity and sewer networks reach the intended beneficiaries.

With a view to ensure comprehensive and effective sewerage coverage, the Committee recommend the Ministry

- (i) to establish a comprehensive database of existing sewerage infrastructure, including network coverage, functional status, untreated wastewater generation and household connectivity gaps in coordination with States and ULBs, and undertake periodic gap assessments for evidence-based planning.
- (ii) to undertake periodic review of incomplete sewerage projects under AMRUT & AMRUT 2.0 and ensure their completion within defined timelines, particularly where infrastructure has already been created.
- (iii) to ensure that States/ULBs prepare time-bound action plans for extending sewer networks to uncovered areas, providing last-mile household connections and rehabilitating ageing or deficient networks.

Recommendation No. 4

Ensuring Sustainable Operation and Maintenance (O&M) of Sewerage Systems

The Committee note that creation of sewerage infrastructure alone cannot ensure effective sanitation outcomes unless supported by sustainable operation and maintenance (O&M) mechanisms. Inadequate maintenance, sewer blockages, overflows, leakages and operational inefficiencies may reduce the effectiveness of sewer networks and adversely impact public health and environmental safety.

The Ministry has informed that operation and maintenance of sewerage and septage systems is the responsibility of States and ULBs. The Ministry stated that AMRUT 2.0 guidelines provide for inclusion of minimum five-year O&M provisions in project contracts and that States have assessed/planned funds towards O&M requirements. The Ministry further informed that technology-based interventions such as SCADA systems, GIS-based asset mapping, IoT-based monitoring, mechanised sewer cleaning equipment and CCTV inspection systems are being promoted to improve monitoring and operational efficiency. The Ministry has also

highlighted the importance of preventive maintenance, condition assessment of sewer lines and capacity building of operators and sanitation workers.

The Committee appreciate the measures undertaken but observe that recurring issues of blockages, overflows, leakages and maintenance deficiencies indicate the need for stronger O&M practices. The Committee are of the opinion that inadequate maintenance of sewer infrastructure, coupled with continued dependence on manual intervention for sewer cleaning negatively affects system efficiency and pose risks to sanitation workers. The Committee feel that sustainable O&M requires a shift from reactive repairs to preventive maintenance supported by technology, adequate financial planning and skilled manpower.

In view of the above, the Committee recommend that

- (i) the Ministry impress upon States/ULBs to strictly follow advisories and manuals issued by the Central Public Health and Environment Engineering Organisation (CPHEEO) pertaining to sewer infrastructure maintenance.
- (ii) States and UTs to be advised to make adequate budgetary provisions for O&M of existing sewer networks in their States and ULB budgets and also to ensure that all future sanitation projects have an in-build provision for O&M as done under AMRUT 2.0.
- (iii) the Ministry may examine the feasibility of establishing a dedicated Urban Infrastructure Maintenance Fund and providing annual grants to ULBs to support the sustainable operation and maintenance of sewerage and septage infrastructure.
- (iv) capacity building programme should be undertaken for ULB personnel and sanitation workers to promote safe, mechanised and technology-enabled sewer maintenance practices.
- (v) the Ministry may advise the States/UTs and ULBs to ensure proper barricading of excavation sites, timely restoration of roads and prompt removal of construction debris after completion of sewerage works to safeguard public safety, and to put in place an appropriate mechanism whereby the release of final payments to contractors is made contingent upon compliance with these requirements.

Recommendation No. 5

Promoting Inclusive Sanitation Planning in Peri-Urban and Informal Settlements

The Committee note that rapid and unplanned urban expansion has resulted in the growth of peri-urban areas and informal settlements where sanitation infrastructure often remains inadequate and does not keep pace with population growth. The Committee observe that absence of safe and standardised

containment systems in such settlements may create sanitation deficits and adversely affect public health and environmental sustainability.

The Ministry has informed that sanitation being a State subject, planning, implementation and operation of sanitation infrastructure in urban areas rests with States and ULBs, while the Ministry supplements their efforts through various schemes and advisories. The Ministry stated that under AMRUT 2.0, there is no separate sub-scheme exclusively for informal settlements; however, the Mission supports inclusive sanitation planning and convergence-based approaches covering vulnerable areas, including peri-urban and informal settlements. The Ministry further highlighted that city sanitation and sewerage/septage planning are used for identifying service gaps relating to household coverage, on-site sanitation and faecal sludge management.

The Committee are of the opinion that the absence of dedicated interventions for peri-urban and informal settlements may result in fragmented planning and uneven access to sanitation services, particularly in rapidly expanding urban areas. The Committee feel that sanitation planning needs to anticipate future urban growth rather than addressing gaps only after they emerge. The Committee also note that containment systems in such areas require greater integration with city-level sewerage, septage management and wastewater treatment frameworks to ensure safe and sustainable sanitation outcomes.

In view of the above, the Committee recommend that

- (i) the Ministry, in coordination with States and ULBs, should require all cities to undertake GIS-based mapping and periodic updating of peri-urban areas and informal settlements including slums and migrant settlements, with identification of population growth trends, sanitation deficits, containment gaps, desludging requirements and treatment linkages.
- (ii) States and ULBs may be directed to prepare time-bound inclusive sanitation action plans for such settlements, with clear targets for extending sewerage where feasible, strengthening on-site sanitation systems where sewer networks are not viable, and ensuring access to safe containment, regular desludging and treatment facilities.
- (iii) the Ministry should issue model guidelines for integrating peri-urban and informal settlements into city sanitation and sewerage/septage plans, and that progress on coverage, service delivery and infrastructure creation in these areas should be monitored through annual reporting and linked to project approvals under relevant urban sanitation schemes.

Recommendation No. 6

Augmenting Faecal Sludge, Sewage and Co-treatment Infrastructure and Improving Operational Performance

The Committee note that adequate treatment capacity and efficient functioning of Sewage Treatment Plants (STPs), Faecal Sludge Treatment Plants (FSTPs), co-treatment facilities and other treatment systems are essential for completing the sanitation value chain. The Committee further note that around 42 per cent of urban households continue to rely on septic tanks and other non-sewered sanitation systems, making FSTPs and co-treatment facilities at STPs indispensable for ensuring safe collection, transportation, treatment and disposal of faecal sludge and septage. In the absence of adequate treatment arrangements, safe containment and collection alone may not translate into effective sanitation management.

The Ministry has informed that planning, development, operation and maintenance of STPs, FSTPs and co-treatment facilities are primarily the responsibility of the States and ULBs, while the Ministry supplements their efforts through policy support, technical guidance and financial assistance under SBM-U, AMRUT and AMRUT 2.0. States and UTs are encouraged to adopt treatment solutions based on city size, population, land availability and existing sewerage infrastructure, with co-treatment of faecal sludge at existing STPs being promoted as a cost-effective option in cities with operational sewerage systems and standalone FSTPs in areas dependent on on-site sanitation systems. The Committee further note that under AMRUT, 53 FSTP projects with a treatment capacity of 2,500 KLD at a cost of ₹268.71 crore have been taken up. Further, under AMRUT/AMRUT 2.0, STP capacity of 13,114.38 MLD and FSTP capacity of 2,499.67 KLD have been approved, out of which STP capacity of 6,054.46 MLD and FSTP capacity of 2,409.67 KLD have been developed.

The Committee further note that there are significant variations in estimates of wastewater generation and treatment in the country. As per the data provided by the Ministry, urban areas generate approximately 52,644 MLD of sewage, whereas installed treatment capacity is around 31,881 MLD, leaving a gap of more than 20,700 MLD. Actual sewage treatment is only about 22,491 MLD, indicating that a substantial part of the installed capacity remains under-utilised. In contrast, the NITI Aayog report on Urban Wastewater Scenario in India (August, 2022) estimates urban wastewater generation at about 72,368 MLD, of which only around 28 per cent, i.e. 20,236 MLD, undergoes formal treatment. The Committee are of the view that this divergence underscores the need for a robust, harmonised and regularly updated national database on wastewater generation, treatment capacity and actual utilisation. The Committee are also of the view that these aggregate figures may not fully reflect the situation in peri-urban areas and

informal settlements, where sanitation deficits, containment gaps and weak treatment linkages continue to persist. The Committee note with concern that several States have limited treatment infrastructure or incomplete operational data, making it difficult to assess actual treatment status and identify city-wise and settlement-wise gaps.

While appreciating the initiatives undertaken by the Ministry for expanding treatment infrastructure under SBM-U, AMRUT and AMRUT 2.0, the Committee observe that the available treatment capacity remains inadequate in view of the continued dependence of a large section of urban households on on-site sanitation systems and the significant gap between wastewater generation and treatment. The Committee are of the opinion that expansion of treatment capacity must be complemented by optimal utilisation of existing infrastructure, timely commissioning of completed projects, regular operation and maintenance, and strict compliance with prescribed environmental standards.

The Committee, therefore, recommend the Ministry:

- (i) to ask the State Governments/ULBs to ensure the optimum utilisation of installed capacity;
- (ii) to direct all the States and ULBs to prepare and annually submit to the Ministry a wastewater generation-treatment balance sheet indicating sewage generated, sewage treated, faecal sludge and septage generated and treated, installed treatment capacity, actual utilisation, underperforming treatment facilities, compliance with prescribed discharge standards and timelines for corrective action, thereby facilitating the creation of a harmonised and regularly updated national database on wastewater management;
- (iii) to encourage all the States and ULBs to prepare and implement a time-bound action plan based on such assessment, for creation and augmentation of STPs, FSTPs, co-treatment facilities and decentralised treatment systems, with clearly defined capacity targets, commissioning schedules and completion timelines;
- (iv) to strengthen performance monitoring through mandatory online monitoring systems, AI-enabled monitoring technologies, periodic third-party technical and environmental audits, and public disclosure of plant-wise operational performance and compliance with prescribed discharge standards, covering STPs, FSTPs, decentralised treatment systems and co-treatment facilities, so as to ensure that no untreated sewage or wastewater is discharged into rivers, lakes, seas or other water bodies, while promoting efficient operation of the entire wastewater treatment network and sustained environmental compliance.

Recommendation No. 7

Enhancing Treated Wastewater Reuse

The Committee note that treatment of sewage and septage alone cannot ensure sustainable sanitation outcomes unless accompanied by effective reuse of treated wastewater. The Committee observe that promoting a circular water economy through reuse of treated wastewater can reduce dependence on freshwater resources, improve water security and enhance the long-term sustainability of urban sanitation infrastructure. However, despite the availability of substantial sewage treatment capacity, the level of treated wastewater reuse remains limited.

The Ministry has informed that under AMRUT and AMRUT 2.0, reuse and recycling of treated used water has been identified as a key component of sustainable urban water management. The Mission aims to create 10,000 MLD reuse capacity by 2030 and meet at least 20% of total city water demand through recycled treated water. The Ministry has further informed that about 6,012.56 MLD of treated wastewater is presently being reused, while additional reuse capacity of around 1,931 MLD has been approved under AMRUT 2.0. The Ministry has stated that treated wastewater is being promoted for non-potable purposes such as industrial use, agriculture, irrigation, horticulture, construction activities and rejuvenation of water bodies. Further, States/UTs are encouraged to notify treated used water reuse policies and develop supporting infrastructure such as tertiary treatment facilities, distribution networks and storage systems. So far, 11 States have notified such policies.

The Committee appreciate the steps taken under AMRUT and AMRUT 2.0 but observe that the present reuse level remains considerably below the potential available from the wastewater generated and treated across urban areas. The Committee feel that limited reuse is not only due to treatment capacity constraints but also due to inadequate demand creation, lack of dedicated distribution infrastructure, absence of institutional mechanisms for supply and utilisation of treated wastewater and limited adoption of reuse policies by only 11 States/ULBs so far.

The Committee, therefore, recommend the Ministry

- (i) to follow-up with the remaining States/UTs which have so far not notified the treated wastewater reuse policy for early implementation of wastewater policy. Further, 11 States which have notified the policy should be asked to operationalise it and forward implementation status report to the Ministry annually.
- (ii) to establish a robust monitoring and reporting framework to periodically assess city-wise generation, treatment, quality, reuse quantum and end-use of

treated wastewater, and ensure that reuse outcomes are linked with performance evaluation under AMRUT 2.0.

(iii) to ensure that States/ULBs develop proper infrastructure and dedicated distribution network for supply and utilisation of treated wastewater.

(iv) to encourage States/UTs and ULBs to enter into structural agreements with bulk users such as industries, institutions, construction agencies etc. for assured utilisation of treated wastewater.

Recommendation No. 8

Ensuring Quality Compliance and Sustainable Operation of Treatment Infrastructure

The Committee note that the effectiveness of sewage treatment and wastewater reuse depends not merely on creation of treatment capacity but also on consistent quality of treated wastewater, compliance with prescribed standards and efficient operation and maintenance of treatment facilities. The Committee observe that inadequate operational performance of STPs, non-compliance with discharge standards and inconsistent quality of treated water may adversely affect public confidence and limit the potential for reuse of treated wastewater.

The Ministry has informed that monitoring of treated wastewater quality is primarily undertaken by States/UTs and ULBs, while the Ministry supplements their efforts through technical guidance and financial support. The Ministry has stated that treated water quality is monitored through regular testing, process control and compliance checks, with SCADA and IoT-based systems being promoted for real-time monitoring of STP performance. The Ministry has further informed that under the 'Jal Hi AMRIT' initiative, STPs are being assessed on performance parameters including treated water quality, safety and operational efficiency, with performance-linked incentives provided for improvement. The Ministry has also informed that 860 STPs with a combined capacity of 22,202 MLD have been enrolled under the initiative and ₹1,300 crore has been earmarked for performance-based incentives. Further, 235 sewerage schemes under AMRUT 2.0 have been approved with SCADA components, 25 States/UTs have established Water Resource Recovery Cells and capacity building has been undertaken for municipal functionaries, operators and other stakeholders.

The Committee further note that a third-party assessment of STPs across 485 cities revealed significant gaps in operational performance, with only around 51% of STPs complying with discharge standards notified in 2015 and only 15% meeting the more stringent standards prescribed in 2019. The Committee observe that while the Ministry has initiated corrective measures through performance-based incentives, digital monitoring and capacity building, sustained

improvement in treatment outcomes requires stronger focus on regular operation, maintenance and compliance monitoring at the ULB level.

The Committee feel that treatment infrastructure created through substantial public investment can achieve its intended objectives only when STPs function efficiently, produce quality treated wastewater and maintain compliance with environmental standards. The Committee also observe that reliable treated water quality is essential for building confidence among industrial, agricultural and other users and for achieving the objective of a circular water economy.

In view of the above, the Committee recommend that

- (i) the Ministry, in consultation with the concerned stakeholders, evolve a clear and uniform framework for treated wastewater quality standards, with a phased roadmap for compliance, so as to facilitate safe reuse of treated water while ensuring protection of public health and the environment.
- (ii) the Ministry strengthen compliance monitoring through periodic third-party audits, wider deployment of SCADA/IoT-based real-time monitoring systems, and a robust accountability framework for operation and maintenance to ensure sustained compliance with prescribed standards and improve the operational performance of treatment infrastructure.

Recommendation No. 9

Promoting Resource Recovery from Sludge and Septage

The Committee note that sludge generated from Sewage Treatment Plants (STPs) and Faecal Sludge Treatment Plants (FSTPs) has significant potential for recovery of resources such as energy, nutrients, compost, soil conditioners and construction materials. With increasing investments in sewage and septage treatment infrastructure, effective management and utilisation of sludge is essential for moving towards a circular urban economy and reducing dependence on conventional waste disposal practices.

The Ministry has informed that STPs with an installed treatment capacity of about 31,885 MLD generate nearly 8,000 tonnes of dried sludge daily, while FSTPs generate about 32 tonnes of sludge per day. The Ministry has stated that treated sludge can be utilised for production of compost, fertilisers, soil conditioners, construction materials and fuel, while methane generated during treatment can be used for energy generation. The Ministry has also informed that several cities have initiated practices for beneficial utilisation of sludge, including use in agriculture and resource recovery.

The Committee observe that while sludge presents significant opportunities for resource recovery, its utilisation remains at an emerging stage and requires greater institutional support, technological adoption and market linkages. The Committee feel that sludge management should not be viewed merely as a disposal challenge but as an opportunity for recovery of useful resources, generation of renewable energy and promotion of sustainable urban sanitation practices.

The Committee therefore, recommend that the Ministry should develop a structured framework for promoting sludge and septage resource recovery, including identification of suitable technologies, creation of standards for safe reuse, development of end-use markets and documentation of best practices from leading cities. States and ULBs may be encouraged to integrate resource recovery components into STP and FSTP planning so that sanitation infrastructure moves towards a more sustainable and circular model.

Recommendation No. 10

Strengthening Institutional Capacity of Urban Local Bodies for Sustainable Sanitation Management

The Committee observe that the effective implementation, operation and long-term sustainability of sewerage and septage management systems are closely dependent on the institutional, technical and managerial capacity of Urban Local Bodies (ULBs). The Committee note that while AMRUT and AMRUT 2.0 have supported creation of sanitation infrastructure and have undertaken capacity-building initiatives. However, limited technical manpower, inadequate specialised expertise and weak institutional mechanisms at the ULB level continue to affect project execution, operation and maintenance, and overall service delivery.

The Committee note the initiatives undertaken under AMRUT 2.0, including technical trainings, workshops, exposure visits, development of manuals and Standard Operating Procedures (SOPs), and the Jal Hi AMRIT initiative for improving STP management and treated wastewater quality. The Committee also appreciate the establishment of Water Resource Recovery Cells (WRRCs) in 25 States/UTs and training of more than 1 lakh personnel across various categories. However, the Committee feel that such capacity-building efforts need to be institutionalised and sustained to ensure that ULBs possess adequate in-house expertise for planning, technology selection, contract management, monitoring of service providers and efficient operation of sanitation assets.

The Committee, therefore, recommend that

- (i) the Ministry, in coordination with States/UTs, should develop a structured institutional capacity-building and enhancement framework for ULBs with periodic skill assessment, specialised training modules and certification programmes for engineers, plant operators, sanitation managers and other relevant personnel involved in sewerage and septage management.
- (ii) the Ministry should instruct States to fill up the vacancies in ULBs in a time-bound manner and build dedicated sanitation cells within ULBs.

Recommendation No. 11

Accelerating Creation of Sewage Treatment Capacity and Expanding Household Sewer Connectivity

The Committee note that adequate sewage treatment capacity is essential for effective wastewater management and preventing discharge of untreated sewage into the environment. The Committee observe that despite substantial investments under AMRUT and AMRUT 2.0, creation of sewage treatment capacity has progressed at a slower pace than required. Under AMRUT, against 291 STP projects with a total capacity of 6,299.36 MLD taken up, only 5,396.39 MLD has been operationalised. Similarly, under AMRUT 2.0, out of the approved STP capacity of 6,815.03 MLD, only 658.07 MLD has become operational, indicating delays in completion of a significant number of projects. The Committee are concerned that prolonged delays in execution of STP projects may continue to limit treatment of generated sewage and affect the intended outcomes of urban sanitation programmes.

The Committee further note that availability of treatment capacity alone would not yield desired results unless supported by adequate sewer network coverage and household-level connectivity. The Committee observe that against the identified requirement of 409 lakh sewer/septage connections under AMRUT and AMRUT 2.0, projects have been approved for around 211 lakh connections, of which only around 192 lakh connections have been provided or rehabilitated. The Committee feel that limited expansion of sewer connections, particularly in urban and peri-urban areas, restricts utilisation of available STP capacity and results in continued dependence on unsafe sanitation practices.

In view of the above, the Committee, recommend that

- (i) the Ministry, in coordination with States and Urban Local Bodies (ULBs) should undertake periodic review of delayed STP projects under AMRUT and

AMRUT 2.0 and ensure their time-bound completion, with priority to cities facing significant treatment gaps.

(ii) the sewer network expansion and household connections should be accelerated in a phased manner to ensure utilisation of created STP capacity.

(iii) the Ministry ensure that the remaining identified households are provided with sewerage/septage connections at the earliest so as to achieve universal coverage and optimise the utilisation of sanitation infrastructure.

Recommendation No. 12

Expediting completion of Sewerage and Septage Management Projects under AMRUT 2.0

The Committee note that the pace of implementation of sewerage and septage management projects under AMRUT and AMRUT 2.0 remains slow, thereby delaying the intended expansion of sanitation infrastructure and improvement in urban sanitation outcomes. Out of 594 sewerage and septage management projects approved under AMRUT 2.0 with a total approved cost of ₹68,309.90 crore, only 104 projects (17.51 per cent) have been completed, while 398 projects (67 per cent) continue to remain under implementation. Further, although 502 projects have reached the awarded/grounded stage, 38 projects involving an approved cost of ₹7,564.03 crore are still pending at the tender stage. The Committee also observe that while the Mission envisages significant financial support through a combination of Central Assistance, State Government/UT and ULB contributions, the pace of fund release under the Mission has remained low. Against the total Central Assistance commitment of ₹66,059.53 crore under AMRUT and AMRUT 2.0, only ₹22,762.99 crore (34.46 per cent) has been released so far. The Committee observe that delays in such critical infrastructure projects can adversely affect the timely creation of treatment capacity, sewerage connectivity and septage management systems, particularly in rapidly urbanising areas.

The Committee further observe that implementation delays have been attributed to multiple factors, including delays in tendering and procurement, land acquisition, statutory clearances, contractor-related issues, changes in project scope, integration with existing infrastructure and limited technical capacity at the ULB level. While the Committee appreciate the monitoring mechanisms adopted by the Ministry, including online dashboards, geo-tagging, Independent Review and Monitoring Agencies (IRMAs), field inspections and linkage of fund

release with physical and financial progress, they feel that stronger outcome-oriented monitoring is required to ensure timely completion of projects.

The Committee also note that sewerage infrastructure projects are long-gestation projects requiring effective coordination among States, ULBs, implementing agencies and contractors. Therefore, the Committee recommend that the Ministry should establish stricter timelines for States/UTs for completion of sewerage and septage management projects by introducing milestone-based monitoring, particularly in view of the extended Mission period ends on March 31, 2027. The Ministry should also undertake a comprehensive review of the financial progress of projects, identify States/UTs and Mission cities where fund release or utilisation is lagging and establish a time-bound monitoring mechanism for expediting expenditure and project completion.

Recommendation No. 13

Strengthening Data Systems, Monitoring Frameworks and Outcome-Based Assessment

The Committee observe that effective monitoring and evaluation of sanitation programmes require comprehensive, reliable and regularly updated data on key service delivery indicators, including sewage and wastewater generation, sanitation coverage, sewer and septage connectivity, treatment performance, wastewater reuse, operational efficiency and institutional capacity. The Committee note that while the Outcome Assessment Table furnished by the Ministry reflects progress in certain broad indicators under AMRUT and AMRUT 2.0, including improvement in access to safe sanitation systems from 31 per cent in 2015 to 55 per cent in 2026, creation of 31,885 MLD of installed sewage treatment capacity, reuse of about 6,012 MLD of treated wastewater and capacity building of treatment plant personnel, information relating to several critical operational indicators has not been furnished.

The Committee note with concern that indicators such as compliance of septic tanks with prescribed standards, household-level sewer connectivity, scheduled desludging practices, mechanised sewer maintenance, functional status of treatment infrastructure, compliance with discharge standards, GPS-based tracking of desludging vehicles, cost recovery mechanisms and actual service-level outcomes are not centrally maintained under AMRUT and AMRUT 2.0. The Committee feel that absence of a comprehensive and integrated data framework limits the ability to accurately assess the effectiveness of interventions, identify implementation gaps and undertake evidence-based planning for future sanitation investments.

The Committee acknowledge that sanitation is primarily a State subject and States/UTs and Urban Local Bodies (ULBs) have significant responsibility in

planning, implementation and operation of sanitation infrastructure. However, considering the scale of investments under AMRUT and AMRUT 2.0 and the long-term objective of achieving sustainable urban sanitation, the Committee recommend that the Ministry should develop a robust outcome-based monitoring framework in consultation with States/UTs and ULBs, with clearly defined indicators, reporting mechanisms and timelines. The Committee further recommend that a centralised national digital sanitation information system may be established to capture city-wise data on sewerage, septage management, treatment capacity, treated wastewater reuse, asset performance and service outcomes, enabling regular assessment of progress and facilitating timely corrective action so that planning, implementation and performance evaluation of urban sanitation programmes are guided by accurate and verifiable data.

Recommendation No. 14

Strengthening Institutional Coordination and Convergence among Sanitation Programmes

The Committee observe that urban sanitation and wastewater management involves multiple stakeholders, including the Ministry of Housing and Urban Affairs (MoHUA), State Governments, Urban Local Bodies (ULBs), regulatory authorities such as Central and State Pollution Control Boards, and programmes such as AMRUT, AMRUT 2.0, Swachh Bharat Mission–Urban and Namami Gange Programme. While this multi-institutional framework enables interventions across diverse urban contexts, the Committee note that multiplicity of agencies and programmes may create challenges relating to coordination, convergence, uniformity of standards, monitoring of outcomes and accountability for service delivery.

The Committee acknowledge the efforts of the Ministry in establishing coordination mechanisms through Apex Committees, State High Powered Steering Committees (SHPSCs), State Level Technical Committees (SLTCs), District-level DISHA/DLRMC Committees, digital monitoring platforms and Independent Review and Monitoring Agencies (IRMAs). The Committee also note that convergence-based planning through City Water Balance Plans and city-level frameworks is aimed at ensuring alignment of interventions. However, the Committee feel that gaps in coordination at the implementation level continue to affect wastewater management outcomes, particularly in ensuring compliance with prescribed treatment standards. The Committee note the different standards prescribed by the Central Pollution Control Board (CPCB) and the National Green Tribunal (NGT) for STPs, which require greater clarity and coordination among implementing agencies, regulatory authorities and ULBs for effective compliance. The Committee feel that variations in standards and monitoring requirements may

create challenges in uniform implementation, assessment of treatment performance and ensuring consistent wastewater management outcomes across urban areas.

The Committee therefore, recommend that the Ministry should strengthen the convergence framework among AMRUT 2.0, Swachh Bharat Mission–Urban, Namami Gange Programme and other sanitation initiatives by clearly defining institutional responsibilities for infrastructure creation, regulatory compliance and operation and maintenance. The Committee further recommend that common monitoring frameworks, including compliance-based indicators linked with STP performance, may be adopted across programmes to ensure effective oversight and timely corrective action. The Ministry should also strengthen coordination between ULBs and Pollution Control Boards for regular assessment of treatment performance and ensure that created sanitation infrastructure delivers outcomes in accordance with prescribed standards.

Recommendation No. 15

Strengthening Safety and Dignity of Sanitation Workers

The Committee note that sanitation workers perform essential functions in the operation and maintenance of sewerage and septage management systems. The Committee observe that despite legal provisions prohibiting hazardous manual cleaning of sewers and septic tanks, instances of unsafe manual intervention continue due to inadequate mechanisation, lack of safety equipment and insufficient enforcement at the local level.

The Ministry has informed that mechanised sewer-cleaning equipment, training programmes and capacity-building initiatives are being promoted under AMRUT and AMRUT 2.0. However, the Committee observe that comprehensive information regarding adoption of mechanised cleaning practices, availability of protective equipment, occupational safety measures and compliance with the provisions of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013, and compliance therewith at the ULB level is not maintained.

The Committee, therefore, recommend that:

- (i) the Ministry, in coordination with the States/UTs and ULBs, ensure the time-bound adoption of mechanised sewer and septage cleaning practices to eliminate hazardous manual intervention.
- (ii) a robust monitoring mechanism be established to ensure availability of mechanised equipment, provision of safety gear, compliance with occupational safety protocols and adherence to the provisions of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.

(iii) non-compliance with the provisions of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 be dealt with strictly by fixing responsibility on the concerned officials, agencies or contractors and taking appropriate penal action.

(iv) the Ministry may advise the States/UTs and ULBs to ensure compliance with minimum wages, provision of occupational health insurance and social security benefits and appropriate rehabilitation measures for sanitation workers, particularly those engaged on a contractual basis.

New Delhi;
30 July, 2026
8 Sravana, 1948 (Saka)

Magunta Sreenivasulu Reddy
Chairperson
Standing Committee on Housing
and Urban Affairs

Appendix-I

Progress of Sewerage and Septage Projects

Sl. No.	Name of State/UT	Total no. of Planned sewerage & septage Projects		Status of sewerage & septage Projects under AMRUT 2.0											
				Tender Stage			Grounded/Awarded			Completed			Ongoing		
		No. of projects	Approved total Project Cost	No. of projects	Approved total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects
	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv
1	ANDHRA PRADESH	71	2495.50			0.00	69	2415.69	97.18	11	57.43	15.49	58	2358.26	81.69
2	ASSAM	2	67.34			0.00	2	66.42	100.00			0.00	2	66.42	100.00
3	BIHAR	11	3445.08			0.00	7	1952.51	63.64			0.00	7	1952.51	63.64
4	CHANDIGARH	5	122.62			0.00	5	101.69	100.00	2	6.96	40.00	3	94.73	60.00
5	CHHATTISGARH	5	645.37			0.00	5	625.37	100.00			0.00	5	625.37	100.00
6	DADRA AND NAGAR HAVELI AND DAMAN AND DIU	1	63.47			0.00	1	63.47	100.00			0.00	1	63.47	100.00
7	DELHI	39	5513.26	10	2224.02	25.64	17	617.46	43.59	5	2.8622	12.82	12	614.60	30.77
8	GOA	1	21.26			0.00	1	18.47	100.00			0.00	1	18.47	100.00
9	GUJARAT	167	6877.24	3	643.75	1.80	162	5914.46	97.01	63	1137.578	37.72	99	4776.88	59.28

Sl. No.	Name of State/UT	Total no. of Planned sewerage & septage Projects		Status of sewerage & septage Projects under AMRUT 2.0											
				Tender Stage			Grounded/Awarded			Completed			Ongoing		
		No. of projects	Approved total Project Cost	No. of projects	Approved total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects
10	HARYANA	16	1353.24			0.00	16	640.99	100.00	2	19.2	12.50	14	621.79	87.50
11	HIMACHAL PRADESH	2	11.60			0.00	2	11.60	100.00			0.00	2	11.60	100.00
12	JAMMU AND KASHMIR	3	373.35			0.00	3	330.44	100.00			0.00	3	330.44	100.00
13	JHARKHAND	1	2284.02			0.00			0.00			0.00			0.00
14	KERALA	41	1184.08	4	404.33	9.76	31	291.82	75.61	6	1.3366	14.63	25	290.48	60.98
15	LADAKH	2	192.05			0.00	1	61.23	50.00			0.00	1	61.23	50.00
16	MADHYA PRADESH	36	5432.04	12	1775.82	33.33	21	3712.38	58.33			0.00	21	3712.38	58.33
17	MAHARASHTRA	46	12631.97	4	1265.98	8.70	39	9883.52	84.78	2	55.43	4.35	37	9828.09	80.43
18	MIZORAM	1	39.22			0.00	1	38.16	100.00			0.00	1	38.16	100.00
19	NAGALAND	2	93.92			0.00	1	61.63	50.00			0.00	1	61.63	50.00
20	PUDUCHERRY	4	107.14			0.00	4	120.47	100.00	1	4.4	25.00	3	116.07	75.00
21	PUNJAB	14	596.86			0.00	6	350.03	42.86			0.00	6	350.03	42.86
22	RAJASTHAN	48	5950.85			0.00	42	4656.80	87.50	3	270.07	6.25	39	4386.73	81.25
23	TAMIL NADU	30	6623.40			0.00	29	5974.78	96.67	3	306.109	10.00	26	5668.67	86.67
24	TELANGANA	12	5775.11			0.00	12	5901.35	100.00			0.00	12	5901.35	100.00
25	UTTAR PRADESH	32	6068.79	5	1250.13	15.63	24	3166.21	75.00	6	62.7594	18.75	18	3103.45	56.25

Sl. No.	Name of State/UT	Total no. of Planned sewerage & septage Projects		Status of sewerage & septage Projects under AMRUT 2.0											
				Tender Stage			Grounded/Awarded			Completed			Ongoing		
		No. of projects	Approved total Project Cost	No. of projects	Approved total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects	No. of projects	Awarded total Project Cost	% of total no. of planned projects
26	WEST BENGAL	2	341.11			0.00	1	84.94	50.00			0.00	1	84.94	50.00
	Total	594	68309.90	38	7564.03	6.40	502	47061.87	84.51	104	1924.135	17.51	398	45137.74	67.00

STANDING COMMITTEE ON HOUSING AND URBAN AFFAIRS (2025-26)

Minutes of the Fourteenth Sitting of the Standing Committee on Housing and Urban Affairs held on Tuesday, 24 March, 2026

The Committee sat from 1500 hours to 1645 hours in Committee Room 3, Ground Floor, Parliament House Annexe Extension, New Delhi.

PRESENT

Shri Magunta Sreenivasulu Reddy - Chairperson

Members

Lok Sabha

2. Smt. Lovely Anand
3. Smt. Misha Bharti
4. Smt. Hema Malini
5. Shri Selvam G.
6. Shri Shankar Lalwani
7. Smt. Mahima Kumari Mewar
8. Shri Naresh Ganpat Mhaske
9. Shri Rambhual Nishad
10. Shri Sanjay Dina Patil
11. Shri Chamala Kiran Kumar Reddy
12. Shri Kanwar Singh Tanwar
13. Shri Ram Shiromani Verma
14. Shri Ravindra Dattaram Waikar

Rajya Sabha

15. Dr. Medha Vishram Kulkarni
16. Smt. Maya Naroliya
17. Shri Sandeep Kumar Pathak

Secretariat

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|--------------------------|-----------------|
| 1. Shri Lalkithang | Joint Secretary |
| 2. Smt. Archana Pathania | Director |

Ministry of Housing and Urban Affairs

- | | |
|-------------------|----------------------|
| 1. Ms. D. Thara | Additional Secretary |
| 2. Ms. Isha Kalia | Joint Secretary |

2. At the outset, the Chairperson welcomed the Members and the representatives of the Ministry of Housing and Urban Affairs to the Sitting of the Committee convened to have a briefing on the subject **“Review of Sewerage and Septage Coverage in Cities with special reference to interventions under Atal Mission for Rejuvenation and Urban Transformation (AMRUT & AMRUT 2.0)”**.

3. The representatives of the Ministry of Housing and Urban Affairs (MoHUA), thereafter, briefed the Committee through a PowerPoint presentation on the subject. At the outset, the Committee were apprised of the status of urban wastewater management in the country and the institutional framework governing sanitation services. The presentation covered various advisories, guidelines and manuals issued with respect to sewerage systems and sewage treatment. It further highlighted key challenges in the sewage sector, along with noteworthy projects undertaken under AMRUT as well as various State initiatives. The presentation also elaborated upon the outlay and coverage of AMRUT 2.0, including sewerage and septage management initiatives under AMRUT and AMRUT 2.0. The Committee were also informed about the findings of third-party surveys conducted to identify gaps and issues across cities. In addition, the presentation included aspects of circularity in used water, innovative interventions and showcased good practices and success stories in the sector.

4. The Members raised several queries and concerns regarding gaps in sewerage coverage, large volumes of untreated sewage and absence of clear timelines to address these issues. They highlighted problems such as under-utilisation and poor maintenance of STPs, delays and inefficiencies in project execution and inadequate last-mile connectivity and expressed concerns over pollution of rivers due to untreated sewage and industrial discharge, along with weak monitoring and enforcement mechanisms. Members also pointed to ageing infrastructure, lack of public acceptance of treated wastewater and non-compliance with standards. They suggested decentralised solutions, stronger central monitoring, better coordination with States, stricter regulatory enforcement and sought detailed data on coverage gaps, reuse and financial requirements for achieving universal sewerage and septage management.

5. To conclude, the Hon'ble Chairperson thanked the witnesses for inputs provided by them on the subject and directed them that any pending information not readily available during the sitting be submitted to the Committee Secretariat, in writing, at the earliest.

The Committee, then, adjourned.

(Verbatim Proceedings of this Sitting of the Committee has been kept on record.)

STANDING COMMITTEE ON HOUSING AND URBAN AFFAIRS

Minutes of the Twenty-Second Sitting of the Standing Committee on Housing and Urban Affairs (2025-26) held on Thursday, 30 July, 2026

The Committee sat from 1000 hours to 1030 hours in Committee Room 2, Parliament House Annexe Extension, Block 'A', New Delhi.

PRESENT

Shri Magunta Sreenivasulu Reddy - Chairperson

Members

Lok Sabha

2. Smt. Lovely Anand
3. Shri Satpal Brahamchari
4. Shri Selvam G.
5. Shri Shankar Lalwani
6. Smt. Mahima Kumari Mewar
7. Shri Naresh Ganpat Mhaske
8. Shri Chamala Kiran Kumar Reddy
9. Shri Ram Shiromani Verma
10. Shri Ravindra Dattaram Waikar

Rajya Sabha

11. Shri G. C. Chandrashekhar
12. Shri R. Girirajan
13. Dr. Medha Vishram Kulkarni
14. Smt. Maya Naroliya
15. Shri A. A. Rahim
16. Shri Jogen Mohan
17. Shri Ramrao Sakharam Wadkute

Secretariat

- | | | |
|----|-----------------------|------------------|
| 1. | Shri Lalkithang | Joint Secretary |
| 2. | Smt. Archana Pathania | Director |
| 3. | Ms. Swati Parwal | Deputy Secretary |

2. At the outset, Hon'ble Chairperson welcomed the Members of the Standing Committee on Housing and Urban Affairs to the sitting of the Committee.

3. The Committee then took up for consideration the Draft Report on 'Review of Sewerage and Septage Coverage in Cities with special reference to interventions under Atal Mission for Rejuvenation and Urban Transformation (AMRUT & AMRUT 2.0)' and adopted the same with slight modifications.

* * * * *

The Committee then adjourned.
