

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
LOK SABHA
UNSTARRED QUESTION NO. 593
TO BE ANSWERED ON 22.07.2026**

BIO TOILETS IN RAILWAY COACHES

593. SHRI SRIBHARAT MATHUKUMILLI:

Will the Minister of RAILWAYS be pleased to state:

- (a) whether any independent scientific study has been conducted during the last five years to assess the effectiveness of bio-toilets in railway coaches in achieving their intended objectives, if so, the details and key findings thereof;**
- (b) the total number of bio-toilets installed, the number that required major repairs, replacement/conversion to bio-vacuum toilets and the expenditure incurred on installation, maintenance and technological upgradation since 2014, year-wise;**
- (c) whether the Government maintains performance indicators relating to bio-toilet functionality, complaints, choking, odour, discharge quality, maintenance frequency and reduction in track corrosion, if so, the details thereof; and**
- (d) whether the Government has undertaken any comparative assessment of alternative sanitation technologies, including vacuum-based/depot-based waste collection and treatment systems, in terms of lifecycle cost, environmental performance and operational efficiency and if so, the details thereof?**

ANSWER

**MINISTER OF RAILWAYS, INFORMATION & BROADCASTING AND
ELECTRONICS & INFORMATION TECHNOLOGY**

(SHRI ASHWINI VAISHNAW)

(a) to (d) Passenger coaches on Indian Railways (IR) are equipped with bio-toilets and have substantially achieved their primary objective of preventing direct discharge of human waste on railway tracks, improving environmental hygiene, reducing corrosion of tracks and enhancing cleanliness across the railway network. IR continuously monitor the

performance of bio-toilets through periodic inspections, maintenance records, feedback received from passengers and field units.

All passenger coaches have been installed with bio-toilets so that no human waste is discharged from coaches on the track resulting in improved cleanliness level. The details of provision of bio toilets are as under:

Period	Number of Bio-Toilet fitted
2004-2014	9,587
2014- Till June 2026	3,63,990

There is no major repair required after installation of Bio-toilets. Choking & day to day problems are rectified during primary maintenance. Maintenance and repairs including replacement of components wherever required are carried out as part of routine maintenance practices. The expenditure on installation, maintenance and technological upgradation of bio-toilets is part of the overall coach manufacturing and maintenance expenditure. The cost of installation of a bio-tank is approximately one lakh.

Performance parameters of bio-toilets such as functionality, choking, odour, maintenance requirements, discharge quality and passenger complaints are regularly monitored to ensure effective functioning of bio-toilets. Bio-toilet effluent testing laboratories have also been set up at most of the coaching depots. IR maintains performance indicators by evaluating the treated effluent from bio-tanks for pH, Chemical Oxygen Demand (COD) and Faecal Coliform Count (FCC). These parameters assess overall treatment efficacy of the Bio-Toilet. COD verifies the breakdown of organic waste, FCC confirms pathogen eradication for hygienic safety and the pH test ensures the discharge is neutral, thereby preventing track corrosion. To guarantee proper system functioning, all bio-toilets undergo mandatory effluent testing once every 90 days.

IR continuously evaluates and adopts improved sanitation technologies based on operational experience and technological advancements. In this direction, Bio-Vacuum Toilets have been introduced on selected coaches as an improved sanitation system. The performance of such systems is being

monitored with respect to operational efficiency, passenger convenience, maintenance requirements and lifecycle considerations.

Further, to improve evacuation system for the first chamber of bio-tanks, all Zonal Railways have been advised to deploy pneumatic assisted sludge evacuation (suction based on venturi principle using compressed air) for First Chamber Evacuation (FCE) and Seven Chamber Evacuation (SCE) of bio-tanks.
