

## Chapter 5: Conclusion and Recommendations

### 5.1 Conclusion

Railway Board has been monitoring the work of induction of bio-toilets in new and existing coaches through the Joint Working Group, which has members from various stakeholders and they have been taking feedback from field offices and deliberating on relevant issues. Different variants of bio-toilets were installed in seven trains on a trial basis during January 2011 to April 2012. However, before the test results in respect of these rakes could be analysed, JWG in their 4<sup>th</sup> meeting (November 2011) recommended large scale proliferation of 10,000 bio-toilets to be planned in the near future. IR issued instructions for large scale proliferation of bio-toilets in passenger coaches in November 2011. Though the JWG recommended standardization of the design of bio-toilets in November 2011, a variety of designs with respect to pan size, ball valve, opening/closing mechanism of valve, design of connector between pan and P trap etc. continue to be deliberated in various monitoring meetings and yet to be standardized. Provision of dustbin inside the toilet was recommended by JWG in April 2011, however the design of dustbin could be finalized only by November 2013.

Railway Board set the target of turning out 100 *per cent* passenger coaches (both conventional and LHB coaches) with bio-toilets in 2015-16. However, three PUs in IR turned out 5.7 *per cent* coaches without bio-toilets in 2016-17. 6.7 *per cent* LHB coaches were also turned out with bio-toilets in 2016-17. As regards retrofitment of bio-toilets in existing coaches during mid-life rehabilitation, POH in Carriage Workshops and regular maintenance in Coaching Depots, Zonal Railways could not achieve the targets in 2014-15 and 2015-16. In 2016-17, the target of 20,000 for retrofitment was achieved.

None of the Workshops of Indian Railway carried out scheduled maintenance of bio-toilets. Due to delays in procurement of bio-tanks, bio-toilets could not be fitted in coaches as targeted. Non-standardization of design by the Railway Administration also led to non-provision of bio-toilets in coaches as targeted. Funds allotted to Zonal Railways for retrofitment of bio-toilets could not be utilised fully in all the three years.

Stations and corridors nominated as Green Train Station and Green Corridor did not adhere to the necessary conditions laid down for the same.

Supply of adequate numbers of bio-toilets for retrofitment in Workshops and Zonal Railways was a constraint. Only 43 *per cent* of ordered quantity of 80,000 bio-toilets was supplied till March 2017. Out of nine firms on which the orders were placed, three firms have been delisted and contract with one firm has

been proposed for cancellation. Railways have a target of induction of 40,000 (2017-18), 60,000 (2018-19) and 30,000 (2019) bio-toilets during the next three years, for achievement of which timely supply of bio-toilets would be essential. There were deficiencies in the available infrastructure in Workshops and Coaching Depots such as storage facilities for bio-tanks and bacteria inoculum. Annual Maintenance and Operations Contracts were not awarded in 12 Coaching Depots of nine Zonal Railways. Evacuation systems were not made available to maintain the bio-toilets fitted in coaches received in the Coaching Depots. Prescribed chlorination tablets ( $\text{KMnO}_4$  Tablets) were not being used in any of the 32 selected Coaching Depots, instead Chlorine tablets continued to be used.

Analysis of data on instances of defects/problems such as choking/foul smell, non-availability of dust-bins, and mugs etc. in 15 Zonal Railways in selected 30 Coaching Depots showed that out of 613 trains being handled in these Coaching Depots, 160 trains did not have any bio-toilets fitted. In remaining 453 trains having 25080 bio-toilets (either full complement or partial), 199689 instances of deficiencies /complaints were noticed during 2016-17. There was an increase in cases of choking per bio-toilet in the year 2016-17 as compared to 2015-16. During joint inspections of 1,788 bio-toilets installed in 688 coaches during October 2016 to January 2017 by Audit similar problems were noticed. Large numbers of instances of choking and foul smell needed to be addressed through proper maintenance of bio-toilets in Coaching Depots.

Training to non-Supervisory staff responsible for effective maintenance and upkeep of bio-toilets fitted in passenger coaches needs to be given priority. Adequate Passenger Awareness drives were not undertaken to make passengers aware about working and usage of bio-toilets resulting in bio-toilets frequently being found choked.

## 5.2 Recommendations

- 1. The issues relating to standardisation of design may be effectively addressed. This will also help in effective handling of maintenance issue of bio-toilets.***
- 2. Issues of quality and quantity in supply of bio-toilets by private firms may be addressed urgently and the process streamlined so as to ensure achievement of ambitious targets of fitment of bio-toilets in the next few years.***
- 3. The checks prescribed by Research, Design and Standards Organisation for visual inspection and testing of effluent discharge from the bio-toilets fitted may be exercised regularly, so as to monitor the performance of bio-***

*toilets effectively. Checks prescribed for bio-toilets during periodical overhaul should be exercised and scheduled maintenance of bio-toilets may be carried out for their smooth operation in trains.*

- 4. Augmentation of capacity for in-house production and procurement of bio-tanks from private firms for supply of adequate number of bio-tanks needs to be ensured to facilitate achievement of the target set for fitment of bio-toilets in all coaches.*
- 5. Adequate facilities for bacteria generation needs to be installed urgently.*
- 6. Zonal Railways may consider adequate provision of infrastructure such as fork lifts, storage facilities and evacuation machines etc. in Workshops and Coaching Depots on priority to ensure timely retrofitment and proper maintenance of bio-toilets.*
- 7. Training to adequate number of non-Supervisory staff in the Workshops and Coaching Depots entrusted with the responsibility of upkeep and maintenance of bio-toilets and their retrofitment may be ensured.*
- 8. Annual Maintenance and Operations Contracts may be finalised for all Coaching Depots.*
- 9. Passenger Awareness Drives may be organised at regular intervals to create awareness about proper usage and working of the bio-toilets, by utilising electronic and print media and short films displays at major stations. Railways may consider highlighting elimination of manual scavenging through use of bio-toilets to make these drives more effective.*

New Delhi

Dated:

(Nand Kishore)

Deputy Comptroller and Auditor General

Countersigned

New Delhi

Dated:

(Shashi Kant Sharma)

Comptroller and Auditor General of India