Executive Summary: Environment Management in Indian Railways

A wide ranging comprehensive and very innovative audit was carried out by SAI India in 2011-12 called **Environment Management in Indian Railways—Stations, trains and tracks** which reviewed the environmental impact of the operations of the railways in India.

Indian Railways (IR) is the single largest carrier of freight and passengers in the country. IR covers 64460 route kilometres and traverses through high density urban areas as well as vast rural and forest areas. It handles 7651 million passengers and carries 922 million metric tonnes of goods traffic per annum. It is the second largest carrier of passengers in the world and carries about 35 per cent of the total freight in the country. Operation and maintenance of the entire railway system in the country has considerable impact on environment as the IR is the bulk consumer of energy besides generator of waste in stupendous proportion.

The operations of IR not only cause air pollution but also cause water and noise pollution. It is a bulk carrier of several pollution intensive commodities like coal, iron ore, cement, fertilizers, petroleum etc. Being a major consumer of water and energy, policies adopted by the IR have a substantial impact on our environment and on the conservation of both water and energy in the country. The approach of IR towards protection of the environment, therefore, assumes great importance for tackling environment challenges to the country. **A major challenge faced by our audit was absence of criteria for many operations of the IR.** This report was presented to the Parliament in December 2012.

Major Audit Findings

- IR is yet to formulate comprehensive environmental guidelines for handling and transportation of bulk commodities which are pollution intensive like coal, iron ore, cement, fertiliser etc., at sidings/goods sheds and transportation of these commodities in open wagons. Thus, no specific criteria have been laid down by the Railway Board to assess the performance of each zone in minimizing environmental pollution.
- As per Air (Prevention and Control of Pollution) Act, 1981 all sidings[1] and good sheds should obtain Consent for Operation from Pollution Control Boards. The Railway Administration failed to adhere to the statutory provisions in respect of 50 % of the sidings test checked. In most of the zones[2], coal and iron ore were being carried in open wagons without covering with tarpaulin sheets, thus posing a health hazard to passengers/residents in neighbouring areas.
- The Railway Board had instructed that Effluent Treatment Plants (ETP) be installed at all major stations. On an average, one Effluent Treatment Plant was installed in each zone leaving most of the major stations without an ETP. In their absence, effluents were being discharged in the nearby low lying areas /water bodies and municipal drainage system resulting in contamination of surrounding surface and ground water.
- Railway Board had directed that Water Recycling Plants (WRP) be provided at locations where water is scarce. Test check revealed that in 12 out of 17 zones no provision of WRP had been made. The WRPs installed in three zones were sub-optimally utilized. Despite Railway Boards' instructions that Automatic Coach Wash Plants (ACWP) be planned for all coaching depots;

[1] A siding, in rail terminology, is a low-speed track section distinct from a running line or through route such as a main line or branch line or spurs.

[2] Operations of Indian Railways are divided into 17 distinct geographical areas, called zones.

only eight ACWPs had been commissioned over five zones. Similarly, out of 212 stations test checked, rain water harvesting systems were installed at only seven stations in five zones. This was indicative of low level of urgency attached to water conservation.

- The energy conservation policy of IR envisaged the use of non-conventional energy sources. Test check revealed that bio-diesel was used in only five zones and its consumption was insignificant. The initiatives of IR for production of bio-diesel remained largely unsuccessful due to short supply of raw material and slow progress in setting up of new esterification plants. It was seen that the overall achievement in electrification of level crossings with solar panels was far below the targets set for the period 2007-11. IR also failed in making major progress in tapping wind energy. During the period of review, only four wind power plants were sanctioned in three zones.
- 62 elephants died during the review period due to train hits. Despite some initiatives like imposition of permanent speed restrictions, display of signage, regular clearance of vegetation along the track etc., animal mortality rate due to train hits had not declined.
- Despite recommendation of the Public Accounts Committee to segregate waste, a test check revealed that in 16 out of 23 contracts entered into in four zones for disposal of garbage through outside agencies, no separate clause was incorporated for segregation of wastes. Disposal of garbage by outside agencies was being done either by burning or dumping in Railway premises in 37 stations. At 54 out of 212 stations test checked, the Railway Administration resorted to disposal by burning , dumping into adjacent canal, low lying areas, dumping on Railway land near the track, thereby causing environmental pollution.
- IR is yet to finalise the technology for 'green toilets', despite two decades of experimentation.

Summary of Recommendations

- ✓ IR needs to formulate a comprehensive environmental policy. It also needs to bring out appropriate guidelines for controlling air and water pollution on its station, yard, work places or in operations in coordination with Central and various State Pollution Control Boards.
- ✓ A monitoring mechanism needs to be put in place at all levels within IR including the Railway Board for checking compliance with pollution control laws/ guidelines and implementation of its guidelines/instructions on environment.
- ✓ Environment management may be recognized, monitored and reckoned as a key result area for all Zonal and Divisional Railway Authorities and schemes devised to incentivize better performance in this regard.
- ✓ To conserve water, measures like Water Recycling Plant, Automatic Coach Wash Plants and Rain Water harvesting system need to be implemented expeditiously by IR.
- ✓ IR needs to take urgent and effective steps to explore across the country scope for and to maximizing the use of alternative sources of energy besides taking initiatives in conservation of energy. The targets set for adopting energy efficiency measures need to be effectively implemented.
- ✓ IR needs to put in place a system of estimation of waste generated in IR and also a system for segregation of waste. Besides making provision for requisite infrastructure, an effective monitoring system needs to be put in place for ensuring compliance with the statutory regulations.