



Original Article

Strengthening Road Transport Policy for Efficient EXIM Logistics: Challenges and Opportunities for Viksit Bharat

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Abstract

In India, road transport moves nearly 65% of the country's freight, making it the backbone of domestic and cross-border trade (MoRTH, 2023). As the nation works towards its long-term development vision of Viksit Bharat by 2047, the efficiency of Export-Import (EXIM) logistics becomes more critical than ever. But the system still faces several roadblocks. Multimodal connectivity remains patchy, key trade corridors are often clogged with traffic, and many ports still rely on outdated infrastructure. Add to those regulatory delays, and the result is slower movement of goods and higher costs. While recent estimates by NCAER suggest logistics costs have come down to 7.97% of GDP (2024), older figures—ranging from 13–15%—still reflect the pressure on Indian exporters and importers. Globally, most advanced economies operate within the 8–10% range (Economic Survey, 2023–24). Beyond these numbers, there are other pain points: unsafe roads, and slow adoption of digital tools. Even with major programmes like Bharatmala Pariyojana aiming to improve highway connectivity and logistics efficiency, several bottlenecks continue to hold back India's EXIM potential. This paper takes a closer look at these challenges and explores how policy reforms—can help modernise and strengthening road transport also add to fostering dignity for drivers as essential contributors to the economy, reduce logistics costs, and strengthen India's position in global trade by 2047.

Keywords: Road Transport, EXIM Logistics, Bharatmala Pariyojana, Logistics Costs, Viksit Bharat

Introduction

The transport sector holds an very important place in India's economic framework. As per the Ministry of Statistics and Programme Implementation (MoSPI), transport services contribute approximately 17.5% to the country's GDP under the services category, reflecting their importance in facilitating trade, mobility, and growth. Among the various modes, road transport plays a dominant role, accounting for over 60% of the total freight movement in the country (MoRTH, 2023). It serves as the backbone of India's Export-Import (EXIM) logistics, connecting production centres, industrial corridors, and ports. However, despite its significance, the sector continues to face several operational and structural challenges.

Congestion at major ports such as Jawaharlal Nehru Port Trust (JNPT) and Chennai Port etc, coupled with inadequate last-mile connectivity, leads to delays and escalated logistics costs (Ministry of Ports, Shipping and Waterways, *Maritime India Vision 2030*). These inefficiencies have historically pushed India's logistics costs to 13–15% of GDP, although recent estimates by NCAER suggest a reduction to 7.97% (2024).

To address these concerns, the Government of India has launched key initiatives like the National Logistics Policy (2022) and the PM Gati Shakti Master Plan. These programmes aim to improve multimodal connectivity, streamline infrastructure planning, and reduce logistics costs through better integration of road, rail, and port networks (Ministry of Commerce & Industry, [Logistics.gov.in](https://logistics.gov.in)).

Enhancing EXIM logistics is not merely a technical requirement—it is a strategic imperative. As India strives to become a \$5 trillion economy and realise the vision of Viksit Bharat by 2047, strengthening road transport policy will be crucial to unlocking trade potential and ensuring inclusive development (Economic Survey of India, 2023–24).

This study examines the draft National Road Transport Policy released by MoRTH, along with other flagship initiatives, to assess how India can overcome current bottlenecks in EXIM logistics.

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It identifies gaps in infrastructure, policy coordination, and technology adoption, and explores opportunities to make India's road transport system more efficient, resilient, and future-ready.

Objectives of the research

1. To evaluate the cost-efficiency of road transport in India's EXIM logistics.
2. To identify infrastructure bottlenecks affecting port-road connectivity.
3. To assess the impact of regulatory fragmentation and customs delays on freight movement.
4. To examine the adoption of digital technologies in road-based logistics.
5. To highlight the working conditions of freight drivers and their effect on logistics performance.
6. To explore opportunities for multimodal integration and green logistics reforms.

Literature Review

India's road transport sector continues to face structural challenges that significantly impact the efficiency of EXIM logistics. Studies have consistently highlighted issues such as inadequate road infrastructure, poor port-road connectivity, and urban congestion, all of which contribute to delays and elevated logistics costs (ICRIER, 2021; TERI, 2021). Despite infrastructure initiatives like Bharatmala Pariyojana, key corridors linking ports to inland regions remain underdeveloped, limiting the smooth movement of goods (Indian Ports Association, 2020). The World Bank's Logistics Performance Index (2020) also ranks India unfavourably in terms of port-to-road connectivity, underscoring persistent bottlenecks at major hubs such as Jawaharlal Nehru Port Trust (JNPT).

India's logistics costs—estimated at 13–15% of GDP—remain among the highest globally, affecting the competitiveness of Indian exports (NITI Aayog, 2018). These costs are driven by inefficiencies in road transport, high fuel consumption, and fragmented supply chains (ICRIER, 2021). TERI (2021) identifies poor road quality and congestion as key contributors to long delivery times and elevated operational expenses. Regulatory inefficiencies, including complex customs procedures and inconsistent coordination across government levels, further exacerbate delays and inflate costs (Chakravarthy & Mishra, 2020). Technological adoption in EXIM logistics has been slow, despite India's broader push for digital infrastructure. TERI (2021) notes that digital tracking systems, AI-based traffic management, and real-time analytics are not yet fully integrated into road transport operations. ICRIER (2021) similarly highlights gaps in customs automation and shipment visibility. Gupta et al. (2021) argue that technologies such as blockchain and IoT can significantly enhance supply chain transparency and enable smarter logistics management, but implementation remains limited.

Regulatory fragmentation continues to hinder seamless freight movement. Although the Goods and Services Tax (GST) was introduced in 2017 to unify tax regimes, state-level variations and enforcement gaps persist (ICRIER, 2021). TERI (2021) reports that trucks still face delays at interstate borders due to tax checks and documentation requirements. Bharatmala's rollout has also been slowed by land acquisition disputes and regulatory complexities (Ministry of Road Transport and Highways, 2020). Jain et al. (2021) emphasise the need for streamlined policy frameworks to reduce procedural bottlenecks and improve logistics efficiency.

Despite these challenges, India's road transport sector presents opportunities for modernisation. TERI (2021) highlights the potential of green technologies—such as electric vehicles (EVs) and alternative fuels—to reduce emissions and improve operational efficiency. Government schemes like FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) support this transition. ICRIER (2021) and Chakravarthy & Mishra (2020) recommend digitising logistics operations through smart infrastructure, automated tolling, and AI-based platforms. Gupta et al. (2021) further advocate for multimodal integration across road, rail, and waterways to unlock India's EXIM trade potential.

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Research gaps :

Despite growing attention to India's logistics sector, several critical research gaps persist. First, while high logistics costs are frequently cited, there is limited empirical analysis comparing mode-wise cost efficiency—particularly the disproportionate cost of road transport relative to rail and coastal shipping. Second, the socio-operational conditions of freight drivers remain underexplored, despite their central role in sustaining EXIM logistics; issues such as long working hours, lack of rest infrastructure, and safety risks are rarely addressed in policy literature. Third, although port-road connectivity is acknowledged as a bottleneck, existing studies lack granular assessments of how these infrastructure gaps affect cargo turnaround times and multimodal coordination. Fourth, the impact of regulatory fragmentation post-GST is insufficiently analysed, especially regarding state-level enforcement disparities and persistent customs delays. Fifth, while digital technologies like AI, IoT, and blockchain are recognised as transformative, there is limited evaluation of their actual deployment and barriers to adoption—particularly in Tier 2 and Tier 3 logistics hubs.

Methodology

This study uses a qualitative, document-based research methodology to critically examine the role of road transport in shaping the efficiency of India's export-import (EXIM) logistics. The approach is based on policy analysis and thematic synthesis, enabling a structured evaluation of government initiatives, institutional frameworks, and sectoral outcomes. By focusing on secondary data from authoritative govt. sources, the research tries to interpret policy intent, assess implementation progress, and identify systemic gaps that influence logistics performance and EXIM.

The analysis is solely based by four interlinked dimensions. First, policy content analysis is used to unpack the strategic objectives and design features of flagship initiatives such as the National Logistics Policy (2022), PM Gati Shakti Master Plan (2021), and Bharatmala Pariyojana. This involves reviewing official documents, press releases, and implementation guidelines to

understand the intended reforms and institutional coordination mechanisms. Second, implementation assessment draws on progress reports, infrastructure statistics, and stakeholder feedback to evaluate the extent to which these policies have translated into measurable improvements—particularly in road connectivity, multimodal integration, and port access.

Third, the study applies sectoral impact analysis to examine logistics costs, freight movement efficiency, and operational challenges. This includes synthesising data from the NCAER Logistics Cost Study (2024), MoRTH's Basic Road Statistics (2023), and the Economic Survey of India (2023–24), alongside insights from industry bodies such as AITWA and FICCI. Special attention is given to underexplored themes such as driver welfare, regulatory fragmentation, and digital readiness, which are often overlooked in mainstream transport literature. Fourth, comparative benchmarking is used to position India's logistics reforms against global best practices, drawing lessons from countries with advanced multimodal systems and lower logistics costs—such as Germany, South Korea, and China.

The research relies exclusively on publicly available secondary sources, ensuring transparency and academic integrity. All documents are reviewed systematically, and findings are coded thematically to identify recurring patterns, contradictions, and policy gaps. No primary data collection is undertaken, and ethical considerations are addressed by maintaining proper attribution and avoiding any form of data manipulation or misrepresentation.

By integrating policy analysis with sectoral evaluation and global comparison, this methodology provides a robust foundation for understanding the structural and operational dynamics of India's road transport system. It supports the research objectives by linking policy frameworks to real-world logistics outcomes and identifying reform opportunities aligned with the *Viksit Bharat 2047* vision.

Results , Findings and Conclusions :

This study's findings are outcome of a qualitative analysis of policy documents, government reports, and institutional publications, using document review, content analysis, and comparative benchmarking. The results reveal systemic inefficiencies in India's road transport sector and its impact on EXIM logistics performance.

India's freight movement remains heavily reliant on road transport, which accounts for approximately 65% of total cargo volume (MoRTH, 2023). While road transport offers flexibility and reach, it is one of the expensive mode, with an average cost of ₹11.03 per tonne-kilometre (TOTAL LOGISTICS MOVEMENT COST) Whereas on the contrary the Assessment of Logistics Cost in India September, 2025 report states that(₹3.78)PTPKM (NCAER, 2025) —higher than rail (₹1.96) and coastal shipping (₹1.80) (NCAER, 2024). This cost disparity reflects operational inefficiencies, congestion, and limited multimodal integration, especially along long-haul EXIM corridors.

The implementation of the National Logistics Policy (2022) and PM Gati Shakti Master Plan (2021) has contributed to a measurable reduction in logistics costs. India's logistics cost now stands at 7.97% of GDP, down from earlier estimates of 13–15% (NCAER, 2024). However, this figure remains above global benchmarks, with countries like South Korea and the United States maintaining logistics costs closer to 7–8%. Persistent cost drivers include fuel price volatility, fragmented supply chains, and regulatory delays at state borders and ports.

Infrastructure development under Bharatmala Pariyojana has progressed unevenly. Of the 34,800 km approved under Phase I, only 19,826 km had been constructed by early 2025, with 4,610 km of greenfield corridors completed (MoRTH, 2025). Despite these advances, port-road connectivity remains a critical bottleneck, particularly at major EXIM hubs such as JNPT, Chennai, and Kolkata, where poor last-mile access contributes to longer dwell times and reduced cargo throughput.

Technology adoption has accelerated through platforms like ULIP and FASTag, improving visibility and tolling efficiency. However, advanced tools such as AI-based traffic systems, IoT-enabled fleet monitoring, and blockchain for customs clearance are still in early stages. Digital integration remains uneven, especially in Tier 2 and Tier 3 cities, limiting the scalability of reforms and the responsiveness of India's logistics network.

Regulatory fragmentation continues to hinder seamless cargo movement. Despite the rollout of GST, interstate checkpoints, inconsistent enforcement, and manual documentation persist. Customs clearance delays at ports, coupled with the absence of a unified single-window system, exacerbate inefficiencies. Stakeholder feedback from AITWA and FICCI indicates that policy execution varies widely across states, affecting multimodal coordination and increasing transaction costs.

A critical but often overlooked finding is the poor working conditions of truck drivers, who form the backbone of India's road logistics. Reports from AITWA and SaveLIFE Foundation (2023) highlight long working hours, lack of rest facilities, exposure to unsafe driving conditions, and limited access to healthcare. Driver fatigue and stress contribute to high accident rates and operational delays, undermining both safety and efficiency. Despite their central role in EXIM logistics, driver welfare remains inadequately addressed in current policy frameworks.

In summary, while India's logistics reforms are directionally sound and have yielded measurable improvements, execution gaps, regulatory inconsistencies, uneven technology adoption, and poor driver conditions continue to constrain the full potential of road transport in supporting EXIM efficiency. These findings, derived from structured qualitative analysis, validate the relevance of the selected methodology and inform the recommendations presented in the next section.

Acknowledgment

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper

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