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Indian Railways: From Colonial Tracks to Crowded Dreams

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Abstract: ***Indian Railways, the fourth-largest rail network in the world, stretches over 69,000 km and serves as India's economic backbone. It employs 1.2 million people and transports billions of passengers and millions of tonnes of freight each year. This paper outlines its remarkable journey, starting from the first freight train on December 22, 1851, which was pulled by the Sahib, Sultan, and Sindh locomotives for 34 km from Bombay's Bori Bunder to Thane. It continues with the first passenger service on April 16, 1853, and moves on to modern advances such as air-conditioned local trains introduced in 2017 and the semi-high-speed Vande Bharat Express fleet launched in 2019. Major achievements include reaching 80% electrification by 2025, implementing advanced signaling systems like the Automatic Train Control (ATC), and expanding the network to 9,274 stations with over 13,000 daily trains. However, several ongoing challenges hinder its full potential. These challenges include severe overcrowding due to a reduction of general coaches from four to two in a 24-coach train and the discontinuation of affordable Jan Sadharan unreserved trains after the pandemic. Other issues include poor hygiene in general compartments, with clogged bio-toilets, paan- and gutka-stained walls, overflowing urinals, and litter-covered floors. Chronic delays arise from single-track bottlenecks and prioritization of premium expresses. Passengers have also reported dissatisfaction with pantry food, as seen in complaints like Viresh Narkar's tweet about dusty cornflakes on Vande Bharat and Bhumika's remarks about IRCTC meals tasting "like prisoners' rations." High-profile safety incidents, like the June 2023 Odisha triple-train collision that resulted in 296 fatalities due to a signaling failure, and the July 2006 Mumbai suburban train blasts that killed 188 and injured over 800 due to RDX explosives, highlight systemic vulnerabilities. This analysis draws on reliable sources, including the 2015 Ministry of Railways white paper, journalist Arvind Chauhan's vivid account of the Patna-Kota Express conditions, passenger accounts such as Sangeeta's 2022 experience on the Lucknow-Kota Express, and data from the Economic Times to examine how overcrowding, a lack of civic responsibility among passengers, and infrastructure gaps worsen these issues. While there are positive developments like the increase in women's participation in the workforce from 6.6% in 2014 to 8.6%, and the use of anti-collision Kavach technology shows promise, the paper argues that real resilience requires a blend of civic responsibility, such as anti-litter campaigns and ticket compliance, along with bold policy reforms like restoring unreserved capacity and optimizing tracks. Ultimately, the study emphasizes the vital role of Indian Railways in connecting millions each day, supporting economic growth, and fostering national unity, while insisting on upgrades to meet standards set by global counterparts like China's high-speed networks.***

Keywords: Indian Railways, overcrowding, hygiene, safety, Vande Bharat, electrification, Jan Sadharan, bio-toilets, policy reforms, civic sense.

I. INTRODUCTION

Indian Railways represents the heart of India's connectivity, resilience, and economic strength. It has dramatically transformed from its colonial beginnings with clunky steam locomotives into a vast network that supports the nation's daily life and growth. The journey began on December 22, 1851, when Asia's first passenger freight train departed from Bombay's Bori Bunder station (now Chhatrapati Shivaji Maharaj Terminus, or CSMT). It traveled 34 km to Thane in 85 minutes, pulled by three locomotives named Sahib, Sultan, and Sindh. This was followed by the first revenue passenger service on April 16, 1853, marking the start of organized rail travel in the subcontinent under British East India Company management. What began as a means for colonial resource transport—primarily for cotton, coal, and troops—has grown into the world's fourth-largest rail network, with over 69,000 km of track by 2025, an impressive 9,274 stations, and more than 13,000 trains operating daily. These trains carry around 23 million passengers and 3.5 million tonnes of freight each day.

Indian Railways employs about 1.2 million people, making it India's second-largest employer after the Indian Army. It generates revenue from various sources: 65% from freight (including essential goods like coal, iron ore, and food grains), 28% from passenger services, and 7% from catering, parking, and advertising. This revenue supports not only transportation but also the country's logistics, with freight alone contributing over ₹1.5 lakh crore annually in recent years.

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In major cities like Mumbai, the suburban network exemplifies this dependency, covering over 145 stations across the Western, Central, Harbour, and Trans-Harbour lines. It transports more than 7.5 million commuters every
day with over 2,300 services. However, chaos often reigns at key hubs like Dadar, which is India's busiest interchange with over 1 million footfalls daily, and Howrah Junction, which handles over 1 million daily passengers. In these areas, platforms overflow, and footboards become dangerous places to stand.

Technological advancements mark this history. Electrification began in 1925 with the 16 km Dabolao-Versova section using 1,500 V DC. This has expanded to cover 80% of the network by 2025, reducing diesel imports and emissions. The 1920s introduced electrified signaling, while 2007 saw the arrival of stainless-steel rakes for durability and GPS-based automated announcements for passenger convenience. The launch of air-conditioned local trains on Mumbai's Harbour Line in 2017 addressed the sweltering summers, and the Vande Bharat Express, a symbol of India's "Make in India" initiative since 2019, now includes over 18 trains with semi-high-speed capabilities, regenerative braking, and speeds reaching 180 km/h. Network growth has been strong. It increased from 67,950 km in 2019-20 to over 69,000 km today, aided by dedicated freight corridors like the Eastern (1,337 km) and Western (1,506 km) lines, which promise to relieve congestion on passenger routes.

Yet, amid these successes, serious issues persist. The 2023 Odisha crash, which resulted in 296 deaths due to a signaling failure, and the 2006 Mumbai blasts, in which bombs killed 188 and injured 800, reveal safety weaknesses. Hygiene problems also trouble general compartments, with walls covered in paan-spit, clogged bio-toilets despite 75% upgrades, and litter-strewn floors turning travel into a nightmare, as noted by journalists like Arvind Chauhan. Overcrowding, exacerbated by reduced general coaches and the removal of Jan Sadharan trains, forces low-income travelers to ride on footboards. Delays from track shortages frustrate millions. Food quality scandals—dusty cereals and meals described as "prisoner-like"—further complicate the situation as fares rise.

This paper explores these dynamics in detail, combining historical accounts, statistics from Ministry reports, passenger and journalist critiques, and policy analyses to evaluate the challenges faced by Indian Railways and propose a path forward. It examines how colonial legacies conflict with modern aspirations, how profit-driven changes burden everyday travelers, and how improvements like anti-collision systems and the increase of women in the workforce to 8.6% reflect progress. By investigating root causes, from infrastructure shortcomings to civic issues, the study suggests necessary reforms. It underlines that Indian Railways is more than just tracks and trains; it is a crucial thread in India's diverse tapestry, calling for upgrades to compete with global leaders.

II. LITERATURE REVIEW

Scholarly works and media reports depict Indian Railways as a story of significant achievements overshadowed by challenges. Historical accounts outline milestones such as the debut of the 1853 locomotives for 34 km (two trains daily) and the introduction of 1,500 V DC Harbour Line locals in 1925. The 2015 Ministry white paper describes cleanliness as a major concern, noting that 25% of over 50,000 coaches still had unhygienic direct-flush toilets before 75% were upgraded to bio-digesters. Journalist Arvind Chauhan provided a vivid description of the Patna-Kota Express, detailing the foul air, paan-stained walls, and clogged overflows in 72-seat sleepers. Sangeeta's 2022 account of the Lucknow-Kota route echoed issues with unusable toilets and long waits at Mathura. Srinad Jha (2017) attributed clogs to litter like bottles and cigarette butts. Safety studies highlight the 2023 Odisha crash, which led to 296 deaths, and the 2006 Mumbai blasts that resulted in 188 fatalities. Critiques have also surfaced about dusty food on Vande Bharat (Narkar/Bhumika tweets), while the Economic Times (2025) reported an increase in women's jobs to 8.6%. Overcrowding stems from cuts to Jan Sadharan trains and reductions in general coaches that favor AC services.

A. Research Objectives and Questions

To evaluate the historical growth, operational scale, and modernization of Indian Railways in light of challenges like hygiene, overcrowding, delays, and safety; to identify root causes and suggest civic-policy collaborations for improvement.

B. Research Questions

1) How has Indian Railways evolved technologically and in scale, with revenue and passenger statistics reflecting its economic significance?
2) What hygiene and overcrowding issues affect general and suburban compartments, according to reports?
3) How do delays, food quality, and safety issues reflect gaps in infrastructure?
4) What policy changes, such as coach reductions and the end of Jan Sadharan, have worsened issues, and how can initiatives like Vande Bharat address them?

III. ANALYSIS AND DISCUSSION

Indian Railways has impressive strengths, including network expansion from 67,950 km in 2019-20 to over 69,000 km by 2025. It has billions of daily passenger-kilometers and innovations like 2007 GPS announcements and Vande Bharat's aerodynamic designs. However, these strengths clash with deep-rooted flaws that undermine public trust and efficiency.

Overcrowding is a significant problem, largely due to changes in commercial policy. Before the pandemic, trains with 24 coaches included four general/unreserved coaches. This number has now been cut to two, which forces large crowds into sleeper and local trains. The Jan Sadharan scheme, which started in 2002 and added over 200 unreserved trains for low-income passengers, was terminated after COVID for financial reasons. This pushed those seeking affordable options to risk riding on footboards. Arvind Chauhan's experience on the Patna-Kota route, where 90 people occupy 72 seats, reflects the chaos seen in Mumbai's suburban trains. For instance, the Dadar area faces footboard accidents similar to the incident in Diva-Mumbra (Mayur Shah et al.), where backpacks got caught on passing trains. Mumbai locals, built for 1,700 passengers, now squeeze in over 5,000, raising safety risks for around 7.5 million commuters daily.

Hygiene issues arise from two main problems: passenger behavior and systemic neglect. Jha's 2017 report highlighted litter like bottles, cigarette butts, and napkins blocking 25% of direct-flush toilets, despite bio-toilets being available in 75% of coaches. Overcrowded general coaches make cleaning difficult, leading to dirty floors and basins that resemble crime scenes, with pan stains and overflowing toilets being common. Sangeeta's desperate situation in Mathura emphasizes the seriousness of these issues.

Delays affect 70% of long-distance trains, according to stats from 2024, due to single tracks that force express trains to sidings, bypassing local services. Food quality continues to erode trust, as evidenced by IRCTC's "prisoner" meals and Vande Bharat's dusty cornflakes, which persist despite efforts for e-catering and a 20% fare increase.

Safety has not improved, even with upgrades in signaling after the Odisha crash (2023) and the rollout of Kavach, which will cover 2,000 km by 2025. The 2006 blasts highlighted weaknesses in suburban safety. The increase of women in the workforce to 8.6% indicates progress towards inclusion, but profit-driven policies continue to burden the less fortunate.

Reforms need to strike a balance: restore four general coaches and the Jan Sadharan service, start anti-litter campaigns with ₹500 fines, quadruple tracks on critical routes, prioritize bio-toilets for general coaches, and educate passengers through onboard programs. The success of Vande Bharat, which boasts 90% occupancy, shows that scalable technology exists; combining it with community awareness could cut down on ticket evasion. Without these efforts, improvements will feel empty.

IV. CONCLUSION

Indian Railways remains India's vital link, connecting dreams and journeys across over 69,000 km of track. It has evolved from its colonial steam-powered origins to include "Make in India" innovations like Vande Bharat and Kavach. From being a freight pioneer in 1851 to today serving 23 million travelers daily with 13,000 trains, it accounts for 65% of freight income and employs 1.2 million people, uniting a billion-plus nation. Nonetheless, several significant issues persist: general compartment overcrowding (halved coaches, terminated Jan Sadharan service), poor hygiene (clogged bio-toilets, pan stains), delays caused by track limitations, and safety concerns (296 deaths in Odisha, 188 in Mumbai), along with disappointing food quality (dusty flakes, poor meals). These challenges arise not only from overloaded infrastructure—80% electrification masks single-line bottlenecks—but also from policies that favor AC service over equitable access, worsened by public neglect, such as littered drains, risky footboard rides, and fare evasion. There is an urgent need for a range of reforms. Bring back affordable unreserved options by reviving over 300 Jan Sadharan trains with dynamic pricing to alleviate pressure on sleeper and local services. Enforce cleanliness in bio-toilets using AI monitoring for clogs and implement daily deep cleans along with ₹500 fines for littering, complemented by community service. Speed up track expansion on busy routes like Mumbai-Delhi, aiming for 20,000 km by 2030, to reduce delays by 50%. Safety improvements are necessary: make Kavach mandatory by 2027, introduce AI-driven maintenance predictions, and fence suburban areas. Revive the food service by improving sourcing, conducting quality checks, and applying Vande Bharat-style modularity to all classes. Public awareness is crucial. Use videos on trains, murals at stations, and school partnerships to promote the "Swachh Rail, Swachh Bharat" message and reduce pan use and plastic waste. Aim to increase women's participation in the workforce from 8.6% to 15% through targeted hiring. Economically, combine profit generation with inclusivity—use freight profits (projected at ₹2 lakh crore by 2026) to support unreserved services without financial strain.

We can take inspiration from Japan's Shinkansen hygiene practices or China's extensive high-speed rail network but in a way that is uniquely Indian, utilizing UPI for ticketing (95% digital), establishing over 1,000 solar stations by 2025, and embarking on hydrogen trials. With strong political will, akin to the ₹2.5 lakh crore investment plan from 2014 to 2025, Indian Railways can thrive at a world-class level, balancing profit, equity, hygiene, and safety.

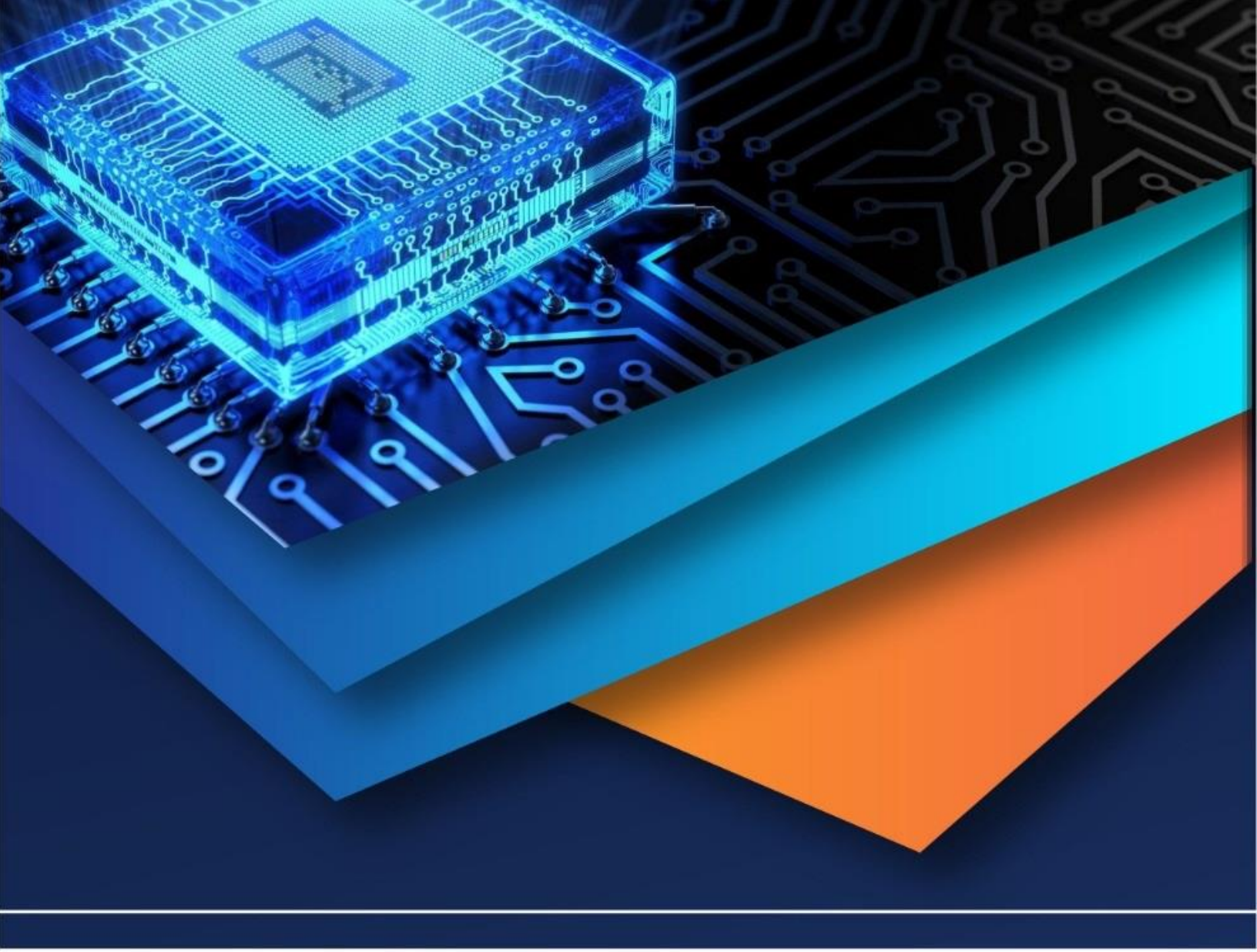
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It will not only carry people but also uplift aspirations, proving that railways are India's steadfast backbone in a developed Bharat by 2047. The future looks hopeful—if we all contribute responsibly.

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