

"ENHANCING RAILWAY SAFETY: CHALLENGES AND MEASURES" – PAPER - III



Railways are crucial to India's transportation system, connecting millions across the country. However, the recent tragic accidents, including the deadly triple train collision at Bahanaga Bazar railway station and the collision of the Kanchenjunga express with a Goods train underscore the pressing need to address railway safety.

Major Railway Accidents and Recent Improvements

In recent years, India has witnessed several devastating railway accidents. The triple train collision at Bahanaga Bazar railway station in Odisha on June 2, 2023, which resulted in over 280 fatalities, is one of the most tragic. Such incidents often lead to widespread public outcry, calls for resignations, and intense scrutiny of the railway system.

Historically, the Indian Railways has faced a high number of accidents. However, recent statistics reveal a positive trend. The number of derailments, which are a significant part of railway accidents, has dropped dramatically from around 350 per year in the early 2000s to just 22 in 2021-22. This decline is a testament to the improvements in safety measures and infrastructure.

Reasons for Railway Accidents

Railway accidents in India are often attributed to several factors:

1. **Infrastructure Defects:** The railway infrastructure, including tracks, bridges, and rolling stock, often suffers from defects due to poor maintenance, ageing, and insufficient

funds. Many parts of the infrastructure were built in the 19th and 20th centuries and have not been updated to meet modern standards. Overloading and congestion also increase the risk of accidents.

2. **Human Errors:** Railway staff, responsible for operating and maintaining trains and tracks, can make errors due to fatigue, negligence, or inadequate training. These mistakes might include wrong signaling, miscommunication, or overlooking defects.
3. **Accountability:** Accountability in railway accidents is crucial for preventing future tragedies. After major accidents, such as the recent triple train collision in Odisha, calls for accountability arise. Railway officials and employees are often suspended or arrested based on preliminary findings. For instance, following the Balasore accident, several railway staff faced suspension and arrests, highlighting the need for stringent oversight. Systemic lapses identified in safety reports underscore the importance of holding individuals and departments accountable. Effective measures include rigorous investigations, enforcement of safety protocols, and a focus on both personnel and systemic improvements to enhance overall safety and prevent future incidents.
4. **Signaling Failures:** The signaling system controls train movements and can fail due to technical glitches, power outages, or human errors. For instance, the Bahanaga Bazar accident was reportedly caused by issues with electronic interlocking not communicating properly to the train drivers.
5. **Unmanned Level Crossings (UMLCs):** UMLCs are dangerous as they lack barriers or signals to manage vehicle and pedestrian traffic, posing a high risk of accidents. While the Indian Railways has made efforts to eliminate UMLCs, many manned level crossings still pose risks.

Recent Accidents and Their Causes

The recent collision of the Kanchanjunga Express with a goods train near New Jalpaiguri on June 7, 2024, highlights ongoing safety concerns. This accident resulted in 10 fatalities and over 25 injuries, indicating that despite improvements, significant risks remain. The Commission of Railway Safety identified systemic lapses and emphasized the need for better adherence to safety protocols.

Measures Taken to Prevent Accidents

The Indian Railways has implemented several measures to enhance safety:

1. **Rashtriya Rail Sanraksha Kosh (RRSK):** Established in 2017-18, this safety fund has a corpus of Rs 1 lakh crore for critical safety-related works such as track renewals and signalling upgrades.
2. **Technological Upgradation:** This includes introducing modern design features in coaches and wagons, such as the LHB (Linke Hofmann Busch) design coaches, which are safer and more durable. Other innovations include GPS-based fog pass devices and automatic fire detection systems.
3. **Modern Track Structure:** The use of stronger materials and advanced construction techniques improves track durability and safety.
4. **Ultrasonic Flaw Detection (USFD):** This non-destructive testing method helps identify and address rail defects that could lead to accidents.
5. **Mechanization of Track Maintenance:** Automated machines are used for track maintenance to reduce human error and improve efficiency.
6. **Interlocking System:** Modern interlocking systems centralize control of points and signals, reducing the risk of human error.
7. **Elimination of UMLCs:** The Indian Railways is progressively replacing UMLCs with road overbridges or underbridges to enhance safety.

Budget 2024-25 and Rail Safety

The Interim Budget for 2024-25 allocated Rs 2.55 trillion to Indian Railways, marking a 5.8% increase from the previous year. This budget includes significant investments in infrastructure and safety. Key programs include:

1. **Economic Railway Corridors:** These include energy, mineral, and cement corridors, along with port connectivity and high-traffic density corridors, aimed at improving multi-modal connectivity.
2. **Upgrading Rail Coaches:** Plans to convert 40,000 rail bogies to Vande Bharat standards will enhance passenger safety and comfort.

Suggestions for Enhancing Railway Safety

To further improve railway safety in India, several measures could be considered:

1. **Increased Investment in Safety:** Allocate more funds for critical safety works, including track renewal and coach refurbishment.
2. **Enhanced Staff Training:** Provide regular and comprehensive training to railway staff on new technologies, equipment, and safety protocols.
3. **Elimination of Level Crossings:** Continue efforts to replace unmanned and manned level crossings with safer infrastructure.
4. **Adoption of Advanced Technologies:** Expand the use of anti-collision devices and real-time monitoring systems across the network.
5. **Performance-Based Incentives:** Implement a system to reward railway staff based on their performance and adherence to safety standards.
6. **Outsourcing Non-Core Activities:** Transfer non-essential functions to private or public entities to improve efficiency and focus on core operations.
7. **Establish a Statutory Railway Safety Authority:** Create an independent body with the authority to set safety standards, conduct audits, and investigate accidents.
8. **Confidential Incident Reporting:** Implement a system similar to CIRAS to encourage staff to report safety issues in real time, maintaining confidentiality.
9. **Review Indian Railways Management Service (IRMS):** Evaluate the IRMS scheme to ensure it supports specialization and safety management effectively.

In conclusion, while the Indian Railways has made progress in reducing accidents and improving safety, continuous efforts are needed to address persistent challenges. By investing in infrastructure, adopting new technologies, and enhancing safety measures, the Indian Railways can work towards ensuring a safer future for all its passengers.

MAIN PRACTICE QUESTIONS

Question 1:

Discuss the role of accountability in improving safety measures in the railway sector. Analyze recent incidents such as the triple train collision in Odisha and the Balasore accident to illustrate the importance of holding individuals and departments accountable. How can systemic improvements be implemented to prevent such accidents in the future?

ANSWER GUIDELINE:

1. Introduction (50-60 words):

- Define accountability in the context of railway safety.
- Briefly mention recent incidents like the Odisha and Balasore accidents.

2. Role of Accountability (70-90 words):

- Explain how accountability ensures adherence to safety protocols.
- Discuss the impact of holding officials responsible on safety improvements.

3. Case Study Analysis (70-90 words):

- Detail the consequences faced by officials in the Odisha and Balasore accidents.
- Highlight how these incidents brought accountability issues to the forefront.

4. Systemic Improvements (50-60 words):

- Suggest systemic measures such as regular audits, enhanced safety protocols, and better training.
- Emphasize the need for both individual and systemic reforms to prevent future accidents.

5. Conclusion (30-40 words):

- Summarize the importance of accountability in fostering a culture of safety.
- Reinforce how both immediate and systemic responses are essential for long-term safety improvements.

Question 2:

Evaluate the effectiveness of the current accountability mechanisms in the Indian railway sector. Consider recent railway accidents and the responses from railway authorities. What changes would you recommend to enhance accountability and ensure better safety outcomes in the future?

Answer Guideline:

1. Introduction (50-60 words):

- Describe the existing accountability mechanisms in the Indian railway sector.
- Mention recent accidents to provide context.

2. Effectiveness of Current Mechanisms (70-90 words):

- Assess how effective current accountability measures have been in addressing safety issues.
- Use examples from recent accidents to illustrate effectiveness or shortcomings.

3. Responses from Authorities (70-90 words):

- Discuss the actions taken by railway authorities following major accidents.
- Analyze whether these responses were adequate or lacking in addressing accountability issues.

4. Recommendations for Improvement (50-60 words):

- Propose specific changes to enhance accountability, such as stricter enforcement of safety regulations, more comprehensive investigations, and better training for personnel.

5. Conclusion (30-40 words):

- Summarize the need for stronger accountability mechanisms.
- Emphasize how these changes can lead to improved safety outcomes in the railway sector.