



Analysis of Causal Factors of Bandung Raya and Turangga Train Accidents and Implementation of Passenger Safety Guarantees

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Abstract

This study provides an original contribution to the discourse on transportation safety by focusing on the specific case of the PT. KAI train accident in Cicalengka, Bandung, which highlights underexplored aspects of corporate responsibility in accident scenarios. The research objectives are to identify the root causes of the accident and to evaluate the responsibility measures undertaken by PT. KAI (Persero) in its aftermath. Employing a qualitative literature study method, this research synthesizes and analyzes data from various online media news texts to derive insights. Empirical results reveal that the accident was primarily caused by a combination of human error, infrastructure deficiencies, and procedural lapses, while PT. KAI demonstrated accountability through compensation programs, safety audits, and public communications. The implications of this study emphasize the need for strengthened safety assurance frameworks in transportation systems, including regular training and transparent reporting mechanisms, to mitigate future risks. This analysis offers practical recommendations for enhancing corporate accountability and operational safety in the railway sector.

Keywords:

Causes, Safety Assurance, Transportation

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INTRODUCTION

The definition of transportation itself is the movement of people or goods from the starting point to the final destination (Whis Alriz Luth'v, 2022). Of the many land transportation in Indonesia, the most frequently used and most in demand is train transportation. Of the many trains in Indonesia, the train operated by PT Kereta Api Indonesia (Persero) itself is one of the vehicles frequently used in people's daily activities and this vehicle has the advantage of having a high carrying capacity (Tumewu, 2021).

PT Kereta Api Indonesia (Persero) is a company engaged in the field of transportation services, especially in the operation of railway transportation. In carrying out its operations, this company cannot be separated from the existence of level crossings which are an important part of the railway infrastructure. The existence of these level crossings has direct implications for the safety and smoothness of train travel and other road users. Therefore, as a public transportation service provider, PT Kereta Api Indonesia (Persero) is directly responsible for the management and supervision of these level crossings. This responsibility is in line with the provisions stipulated in the applicable laws and regulations, which emphasize the company's active role in ensuring safety and compliance with operational standards at each crossing point (Afrizal Riyadi, 2016).

PT KAI must be responsible for transporting goods or people it transports to the final destination. Based on the provisions of the current transportation agreement used, PT. KAI is responsible for any losses suffered by passengers, unless PT KAI can show that the loss was caused by circumstances beyond the control of the employee. If passengers suffer losses or injuries during transportation as a direct or indirect result of the performance of their obligations, they may be able to file a claim for compensation. The K3 management system is also regulated nationally through the Regulation of the Minister of Manpower and Transmigration of the Republic of Indonesia No. 5 of 1996.

Based on Article 133 paragraph 1 of Law Number 23 of 2007, railway transportation service providers are required to prioritize the safety of passengers and goods because safety and goods are very important (Primawati, 2024). Furthermore, there are limitations on compensation based on Article 167 of Law Number 23 of 2007, namely as follows:

1. Service users or passengers who suffer, are injured or die as a result of the implementation of railway transportation
2. This task based on paragraph (1) is to move service customers from the first destination station to the second destination station.
3. The actual loss incurred is used to determine liability.
4. Compensation for death and injury to passengers not related to the provision of this transportation is not the responsibility of the railway facility provider.

According to Article 1 paragraph (1) of Law No. 2 of 1992 which discusses Insurance Business, "Insurance is an exchange agreement between the insurer and the insured. The insurer receives insurance premiums from the insured. The insured receives compensation from the insurer for losses, damage, loss of profits, or legal liability. Insurance is one effort to overcome the risks faced by the community. A healthy insurance business can help overcome the risks of the community." This insurance applies from the time the train passenger arrives at the station until they arrive at their destination station. Hazard identification is the first step in the risk management process (Saefullah & Hajar, 2022) According to (Agustina et al., 2023), most work accidents occur due to unsafe acts.

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On Friday, January 5, 2024, there was a pile-up on the Cicalengka-Haurpugur Station line between the Turangga train and the Bandung Raya Commuter (CL) Local Train with the number KA 350. This disaster resulted in 37 deaths and 4 fatalities. The CL 350 Bandung Raya train departed from Rancaekek Station towards Haurpugur Station, precisely in the Padalarang area, with the direction of Cicalengka being the starting point of the chronology of the accident case. The inaugural departure of the Baraya Commuter Line train was KA 350. Meanwhile, the Turangga train with the number KA PLB 65A immediately went through Nagreg Station at 05.59 WIB, the train carrying 191 passengers arrived in Haurpugur at 05.51 WIB or right on schedule. At Cicalengka Station, the Turangga train with a capacity of 287 passengers was nine minutes late. Then the 350 CL Bandung Raya train departed for Cicalengka Station. KA 350 CL Bandung Raya then departed for Cicalengka Station. The accident occurred at 06.30 WIB when two trains collided between KA CL Bandung Raya and KA Turangga. This was caused by an unexpected signal from the mechanical block signaling displayed on the Haurpugur Station monitor after Cicalengka Station issued a "safe block" signal. Complacency, especially from the signaling system and confirmation bias, influenced the decision-making process. In this condition, no disturbance was recorded or previously known, so the potential for this risk problem was not identified. PPKA departed the train from the station(WIKIPEDIA, 2024).

1. The meaning of accountability

The use of a total ergonomic approach can improve work efficiency and safety (Manuaba, 2003). One definition of responsibility is that a corporation as a legal entity is obliged to uphold its rights as a transportation business entity, especially railway transportation (Saefullah et al., 2025). This obligation is in the form of paying compensation to victims of injuries suffered in accidents and cooperating with insurance companies whose liability weight is borne as business actors. This is related to the problem of transporting goods and delays in travel time, in addition to protecting passengers from accidents. PT. KAI is also responsible for providing services to consumers to obtain their rights.

According to (Hariyanto, (2020))said that self-responsibility is a view according to an individual in the form of an attitude that informs and does what is expected by other individuals. Efforts to develop work skills to achieve the desired goals. which are needed through obligations carried out by all targeted members (Dr. Y. Sari Murti Widiastuti.SH., 2020).

Articles 1365, 1366, and 1367 of the Civil Code leave the right for individuals to file a lawsuit. According to the definition of the phrase "legal act", a person who feels aggrieved can file a lawsuit against the person who caused the loss, even if the judge does not approve the lawsuit. In other words, a number of factors still determine whether the lawsuit is granted, such as whether the violated legal norm is intended to protect his interests (Schuztnormtheorie). Whether the perpetrator committed a mistake or not is another requirement. People in primitive life did not distinguish between losses suffered due to acts committed intentionally or carelessly and losses caused by unplanned actions, thus resulting in bearing all the dangers associated with the act.

2. Safety concept for users of railway service carriers.

The fact is that the train can be seen as a civil law without an intermediary considered a passenger who has a contract with the transportation company PT. Kereta Api Indonesia

(Persero). The legal relationship creates rights and obligations between the carrier and the passenger, where the carrier and the passenger receive a guarantee of legal certainty regarding their legal status and their rights and obligations if an accident occurs in transportation that results in losses to passengers (Setiawan, 2024).

Seeing trains as a public transportation service, the number of passengers transported every day, so actions that refer to the safety of workers and passengers need to be a top priority. In this train transportation, the technical process still uses human power, and safety factors and accident risks can still occur. It is undeniable that there are negligence factors that will occur during operation or other factors that can have negative impacts and bad consequences. The consequences of this negligence can harm all parties including passengers and officers who are on duty at that time. This is not regulated in written regulations but how do we create and overcome and prevent the risk of accidents that can occur, our way to overcome and prevent risks must be done from the beginning to the end of the train's journey (Nila Parwadi, 2019).

METHODS

This research employs a qualitative literature study design to conduct an in-depth analysis of the Cicalengka train accident and the subsequent corporate responsibility of PT Kereta Api Indonesia (Persero). This approach is selected to enable a comprehensive synthesis of information from diverse textual sources, facilitating a holistic understanding of the event within its legal, operational, and social contexts.

Research Design

The methodology is structured as a systematic literature review, which involves identifying, evaluating, and synthesizing all relevant published and unpublished records pertaining to the research problem. This design is appropriate for achieving the research objectives, as it allows for the integration of multifaceted data—from technical accident reports to legal analyses and public discourse—to build a robust and evidence-based argument.

Data Sources

Data for this study were sourced from a wide array of documentary evidence to ensure triangulation and enhance the validity of the findings. The primary sources include:

1. **Official Documents and Legislation:** These encompass Indonesian laws and regulations concerning railway transportation and liability, such as Law Number 23 of 2007 on Railways and the Indonesian Civil Code.
2. **News Media Reports:** A systematic collection of news articles from reputable online media platforms published in the immediate aftermath and subsequent months following the January 5, 2024, accident. These reports provide real-time accounts, official statements, and initial analyses.
3. **Academic Literature:** Scholarly journals, books, and conference papers focusing on transportation safety, corporate social responsibility, ergonomics, and Indonesian public service law were consulted to provide the theoretical framework.

Data Collection Techniques

Data collection was conducted in a staged process. Initially, a comprehensive search was performed using keywords such as "KAI Cicalengka accident," "train safety Indonesia," "railway

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corporate responsibility," and "transportation law Indonesia" across digital libraries and search engines. The relevant documents were then selected based on their credibility, relevance to the research objectives, and publication date, with a priority given to sources from 2020 onwards to ensure contemporary relevance. The final stage involved a critical reading and systematic extraction of data points related to accident causes and corporate response measures from the selected literature (Zulfi, 2021).

Data Analysis

The collected data were analyzed using qualitative content analysis. This involved systematically coding the textual data to identify recurring themes, patterns, and categories. The process consisted of:

1. **Data Organization:** Categorizing the data into two primary clusters: (a) data pertaining to the causes of the accident (e.g., signaling failure, human error, procedural lapses) and (b) data related to PT KAI's post-accident responsibilities (e.g., compensation schemes, public communications, safety investigations).
2. **Thematic Extraction:** Within these clusters, specific themes were identified and refined. For instance, under "accident causes," themes like "technological infrastructure failure" and "workplace complacency" were developed.
3. **Synthesis and Interpretation:** The extracted themes were then synthesized to draw connections between the immediate causes of the accident and the nature of the corporate response. This synthesis forms the basis for answering the research objectives and discussing the implications for safety assurance in railway transportation. The analysis continually referred back to the established legal and theoretical frameworks to contextualize the findings.

RESULT AND DISCUSSION

Empirical Results: Accountability and Compensation in the Cicalengka Accident

The analysis of the Cicalengka train accident reveals a clear framework of accountability and compensation enacted by PT KAI. The empirical evidence indicates that PT KAI acknowledged its responsibility as the railway facility operator. The company, in collaboration with the state-owned insurance provider PT Jasa Raharja, disbursed compensation to the victims and their families. The compensation structure was tiered based on the severity of the outcome: deceased victims, including the train driver and assistant driver, received amounts ranging from Rp 87,000,000 to Rp 96,000,000, while injured passengers received Rp 20,000,000 for medical expenses. Furthermore, PT KAI provided additional forms of support, such as educational scholarships for the children of deceased employees and opportunities for family members to work within the company. This response was implemented within the 30-day timeframe stipulated by regulations, demonstrating a structured post-accident responsibility mechanism.

Legal Framework of Railway Operator Liability

The actions taken by PT KAI are firmly grounded in the Indonesian legal framework. As articulated by (Foekh, 2024), liability arises from the transportation agreement initiated upon ticket purchase. Article 157 of the Railway Law (Law Number 23 of 2007) crucially limits the

operator's responsibility to losses "caused by the operation of railway transportation." This was the definitive context in the Cicalengka case, as the collision was a direct result of operational activities. The provision of compensation, therefore, was not merely a discretionary act of goodwill but a fulfillment of a legal obligation under PP Number 72 of 2009, which mandates the settlement of assistance and medical costs within 30 days.

This finding aligns with the theoretical perspective of , who posits that the passenger-carrier relationship is a civil law contract that confers legal certainty and rights to compensation in the event of accidents. The empirical data from Cicalengka validates this theory, showing a direct application of contractual and statutory liability. However, it also highlights a limitation in the law: the compensation value is predetermined by regulation (e.g., PP No. 72 of 2009 and Law No. 33 of 1964), which may not always reflect the full "actual loss" as mentioned in Article 167 of the Railway Law, potentially leading to disputes if victims perceive the amount as insufficient.

Systemic Safety Failures and the Gap in Proactive Assurance

While the post-accident compensation was administered systematically, the empirical results point to a significant failure in proactive safety assurance. The accident's cause—an erroneous "safe block" signal from a malfunctioning mechanical block system—exposes a critical vulnerability in the railway's operational technology and human-system interaction. The fact that this signal was "unexpected" and that "no disturbance was recorded or previously known," as reported, indicates a failure in hazard identification, which is the foundational step of risk management (Arief Suryono and Andien Muarifah Primawati, 2024).

This finding is consistent with the theory of (Arizki et al., 2024) which attributes most accidents to unsafe acts and conditions. In this case, the unsafe condition was the faulty signaling infrastructure, and the unsafe act was likely the operational decision made based on that faulty information, potentially influenced by complacency. This contrasts with the ideal safety management system described by the ILO (2001), which requires that OSH be an integral part of overall management. The Cicalengka accident suggests that the integration of a robust, fail-safe safety management system was incomplete. The signaling system, a critical piece of infrastructure, was not technically "ready to be operated safely" as required by Article 67 of the Railway Law at the moment of the accident. This creates a paradox: while the operator is legally accountable for the consequences of the failure, the root cause lies in a systemic failure to ensure the infrastructure's constant operational eligibility.

3.4. Beyond Compensation: The Imperative for Systemic Reform

The discussion, therefore, must extend beyond the adequacy of compensation. The empirical results show that PT KAI fulfilled its reactive legal responsibilities. However, its primary responsibility—to prevent the accident from occurring in the first place—was not met. The novelty of this case study is that it demonstrates how a technical failure directly translates into a failure of corporate responsibility, not in terms of post-accident response, but in the core mandate of safety assurance.

Compared to the ergonomic approach suggested by (Aisha et al., 2025) to improve work efficiency and safety, the Cicalengka incident reveals a system where human operators were dependent on a non-robust technological interface. A total ergonomic approach might have highlighted this human-technology gap and led to the implementation of redundant verification systems or more advanced automated safeguards. The compensation, while crucial for the

victims, is a remedial action. The more profound implication of this research is that true corporate accountability must be measured by the effectiveness of investments in and the meticulous maintenance of safety-critical infrastructure and procedures, moving beyond mere legal compliance towards a genuinely resilient safety culture.

CONCLUSION

This study concludes that the Cicalengka train accident was fundamentally caused by a critical failure in the safety-critical signaling infrastructure, specifically the mechanical block system that erroneously displayed a "safe block" indication. This technical malfunction, potentially exacerbated by human operational factors, directly resulted in the catastrophic collision. In response, PT KAI demonstrated corporate accountability by fulfilling its post-accident legal obligations, providing timely and structured compensation to victims through its partnership with PT Jasa Raharja, and extending additional social support to the families of deceased employees. These actions confirm the company's adherence to the reactive components of its responsibility as stipulated by Indonesian transportation law. Based on these findings, several policy recommendations are imperative. Firstly, PT KAI must prioritize a comprehensive modernization program for its aging safety-critical systems, replacing obsolete signaling with fail-safe electronic or computer-based technologies that incorporate automated train protection. Secondly, the implementation of a more robust and proactive Safety Management System is essential, mandating recurrent human factors training for staff to combat complacency and establishing rigorous protocols for hazard identification. Finally, regulatory bodies should strengthen oversight mechanisms with more frequent and stringent safety audits of both operational procedures and infrastructure integrity. By adopting these measures, PT KAI and regulators can catalyze a crucial shift from a reactive model of compensation to a proactive culture of prevention, thereby fundamentally upholding the public's right to safe railway transportation.

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