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**WORKPLACE CULTURE AND DISASTER RESPONSE EFFECTIVENESS ALONG
THE METRE GAUGE RAILWAY LINE SYSTEM, KENYA**

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Workplace Culture and Disaster Response Effectiveness Along the Metre Gauge Railway Line System, Kenya

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Abstract:

Purpose of the study: This study examined the influence of workplace culture, the psychological contract, and inhibiting factors on disaster response effectiveness along Kenya's Metre Gauge Railway (MGR) line system. It sought to determine how organizational culture, employee commitment, and institutional barriers collectively shape preparedness, coordination, and effective emergency response within railway operations.

Methodology: The study adopted a descriptive cross-sectional survey design using mixed methods. Data were collected from 322 valid respondents selected from 368 railway personnel through stratified random sampling using questionnaires, interviews, focus groups, and observation. Quantitative data were analyzed using SPSS through descriptive statistics, correlation, and multiple regression, while qualitative data were thematically analyzed.

Findings: The findings established that workplace culture significantly and positively influenced disaster response effectiveness ($r = 0.682$, $\beta = 0.421$, $p < 0.001$), with teamwork emerging as the strongest organizational strength, while communication systems and leadership support required improvement. The psychological contract also had a significant positive effect ($r = 0.615$, $\beta = 0.318$, $p < 0.001$), demonstrating that employees' commitment, trust, and perceived organizational support enhanced preparedness and emergency response performance. Conversely, inhibiting factors, including poor communication infrastructure, inadequate emergency equipment, insufficient training, bureaucratic delays, and weak inter-agency coordination, negatively affected disaster response effectiveness ($r = -0.598$, $\beta = -0.294$, $p < 0.001$). Overall, the regression model explained 54.9% of the variance in disaster response effectiveness ($R^2 = 0.549$), confirming the strong combined influence of organizational, psychological, and institutional factors.

Conclusion: The study concludes that effective disaster response along Kenya's Metre Gauge Railway (MGR) line depends on a strong workplace culture, positive psychological contracts, and supportive institutional systems. Strengthening communication, leadership, employee recognition, infrastructure, and inter-agency coordination will enhance organizational resilience and improve timely, coordinated, and effective emergency response to railway disasters.

Keywords: Workplace Culture, Disaster Response, Psychological Contract, Railway Safety, Emergency Management Theory, Kenya

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1. INTRODUCTION

Background of the Study

Disaster response is no longer simply a technical and operational task but also has a strong organisational and human-factors component, including organisational culture. Workplace culture is defined as the values, beliefs, attitudes, norms, leadership practices, communication styles, and safety behaviours that influence employee performance during a crisis and in routine operations (Duca & Gugg, 2023). Internationally, it is now understood that having disaster-response equipment and plans in place is not sufficient; personnel must be willing to cooperate, communicate, follow safe practice, and take responsibility during disasters (Hu, Yeo, & Kapucu, 2022). Research indicates that organisations with positive cultural environments, effective leadership, high employee engagement, and a culture of continuous learning respond to disasters more quickly, coordinate better, and recover more effectively (Hafeez, Abdullah, Zaheer, & Ahsan, 2022). Workplace culture has therefore emerged as a strategic asset for organisations operating in disaster-prone environments, particularly in critical infrastructure sectors such as transportation, aviation, and energy.

From a global perspective, the United States Federal Emergency Management Agency's National Incident Management System doctrine formalises accountable leadership, interagency cooperation, and continuous professional development as structural expressions of organisational culture within emergency-response institutions (Federal Emergency Management Agency [FEMA], 2023). At the multilateral level, the Sendai Framework for Disaster Risk Reduction 2015–2030 identifies the strengthening of institutional capacity, organisational resilience, and workforce preparedness as core pillars of effective disaster-risk governance (United Nations Office for Disaster Risk Reduction [UNDRR], 2023). A recent conceptual analysis of safety culture within disaster risk reduction contexts argues that safety culture must be understood as a socially and historically embedded phenomenon, shaped by cultural variability across communities, rather than as a uniform technical checklist that can simply be imported from one institutional setting to another (Duca & Gugg, 2023). This perspective is directly relevant to railway systems, where organisational history, workforce composition, and local operating conditions shape how safety norms are actually practised rather than merely documented.

Railway-specific evidence similarly shows that administrations combining visible leadership commitment, systematic incident reporting, and continuous workforce training sustain a resilient safety culture capable of supporting rapid emergency response (Bal, 2023). Complementing this, a recent integrated model of organisational resilience developed from safety-culture research in the healthcare workforce demonstrates that safety culture operates as a multidimensional process linking leadership commitment, employee safety compliance, and participatory safety behaviour to organisational resilience outcomes, a process directly transferable to other safety-critical sectors including rail transport (Hafeez et al., 2022). At the level of emergency-response coordination



specifically, a systematic review of emergency management network research found that network structure, inter-agency communication density, and the presence of designated boundary-spanning roles were the strongest and most consistently reported predictors of coordinated disaster response performance across the 58 empirical studies reviewed (Hu et al., 2022). A recent case study of coordination failures and successes during the 2022 New South Wales floods in Australia further demonstrated that even well-resourced emergency-management systems experience response delays when formal coordination protocols between agencies are absent or poorly rehearsed, reinforcing that cultural readiness and structural coordination capacity must develop together rather than in isolation (Kapucu et al., 2026).

At the regional level, emerging evidence from East African transport and industrial sectors shows that workplace safety culture remains inconsistently embedded and weakly linked to formal safety performance management. In Ethiopia, safety-climate research on transport companies found that fleet safety administration and driver safety culture remained underdeveloped relative to international benchmarks, constraining organisations' capacity to translate safety intentions into consistent operational practice (Hagos, Brijs, & Brijs, 2023). A related study of Ethiopian manufacturing enterprises found that safety culture and climate influenced safety performance indirectly through employee engagement, implying that culture alone does not guarantee safety outcomes unless channelled through active organisational support systems (Abeje & Luo, 2023). These regional findings suggest that strong workplace culture provides a necessary but not sufficient condition for effective disaster response in African industrial and transport contexts, and that the mechanism linking culture to outcomes runs substantially through employee engagement and organisational systems rather than through culture directly.

Within Kenya, the Metre Gauge Railway (MGR) line system continues to carry significant freight and passenger traffic despite the commissioning of the Standard Gauge Railway, operating with legacy infrastructure that heightens exposure to derailments, culvert failures, flooding, cargo broaching, and equipment failure. This operating environment, characterised by ageing track infrastructure, variable terrain, and a lean establishment of dedicated emergency-response personnel, places a premium on the behavioural and organisational readiness of railway staff to compensate for structural vulnerability through effective teamwork, communication, and coordinated action. While technical and engineering interventions have received considerable policy attention, the contribution of workplace culture, and the psychological contract between employees and the organisation, to disaster response effectiveness along the MGR system has received comparatively little empirical scrutiny. This is a significant gap, given that recent human resource management research has shown that psychological contract fulfilment mediates the relationship between organisational culture and employee affective commitment, meaning that the behavioural payoff of a positive workplace culture depends substantially on whether employees perceive the organisation as honouring its own obligations to them (Jehanzeb & Bashir, 2025). A parallel study of psychological contract dynamics found that employees' willingness to extend



discretionary effort in support of organisational goals, including effort beyond formally defined job roles, is strongly conditioned by ongoing perceptions of fairness and organisational support rather than by static employment terms alone (Pei, 2026). Understanding how these dynamics play out specifically in a high-hazard, infrastructure-constrained railway environment is the empirical gap this study was designed to address.

This study contributes to the literature in three respects. First, it provides empirical evidence on the influence of workplace culture on disaster response effectiveness from a legacy railway system in a developing economy, a context substantially under-represented relative to the North American, European, and East Asian settings that dominate existing safety-culture and emergency-management scholarship. Second, it examines the direct influence of the psychological contract on disaster response effectiveness, addressing recent calls in the organisational behaviour literature for greater empirical attention to how psychological contract fulfilment conditions the translation of organisational culture into employee behaviour (Jehanzeb & Bashir, 2025). Third, by explicitly modelling structural and institutional inhibiting factors alongside workplace culture and the psychological contract, the study offers a more complete account of disaster response effectiveness than studies that examine cultural or structural determinants in isolation, with direct implications for how Kenya Railways Corporation and comparable transport agencies in similar operating environments prioritise safety and resilience investment.

Statement of the Problem

The Metre Gauge Railway (MGR) line system in Kenya continues to experience recurrent disasters and operational emergencies, including derailments, flooding, theft and vandalism of railway infrastructure, cargo broaching, equipment failures, and collapsed culverts. These incidents disrupt passenger and freight transport, increase operational costs, compromise public and employee safety, and undermine the reliability of railway services. Despite investments in infrastructure rehabilitation, safety systems, and emergency preparedness by Kenya Railways, disaster response remains inconsistent, as reflected in repeated incidents and delayed recovery following emergencies. This suggests that improvements in physical infrastructure alone are insufficient to guarantee effective disaster response. Recent emergency management research demonstrates that effective disaster response depends on strong inter-organizational coordination, communication, leadership, collaborative decision-making, and adaptive organizational networks rather than solely on technical resources (Hu et al., 2022; Kapucu & Garayev, 2022). Similarly, organizational scholars argue that a supportive workplace culture strengthens employee commitment, teamwork, information sharing, and organizational resilience, all of which are essential during emergencies (Schein & Schein, 2021). However, studies on Kenya's railway sector have primarily concentrated on infrastructure modernization, operational efficiency, safety compliance, and accident prevention, with limited empirical attention given to how workplace culture influences disaster response effectiveness. Furthermore, recent evidence indicates that psychological contract fulfilment mediates the relationship between organizational culture and employees' affective



commitment, thereby enhancing cooperation and organizational responsiveness during crises (Jehanzeb & Bashir, 2025). Consequently, there is inadequate empirical evidence explaining how workplace culture contributes to disaster response effectiveness along the MGR line system in Kenya. Addressing this gap is necessary to generate evidence that will inform organizational policies and strengthen emergency preparedness, coordination, and disaster response within Kenya Railways.

Purpose of the Study

The purpose of this study was to examine the influence of workplace culture, the psychological contract, and inhibiting factors on disaster response effectiveness along the Metre Gauge Railway line system in Kenya.

Research Hypotheses

H0₁: Workplace culture tenets do not have a statistically significant effect on disaster response effectiveness along the MGR line system.

H0₂: The effectiveness of workplace culture tenets does not have a statistically significant effect on disaster response effectiveness along the MGR line system.

H0₃: Inhibiting factors do not have a statistically significant effect on disaster response effectiveness along the MGR line system.

H0₄: The psychological contract does not have a statistically significant effect on disaster response effectiveness along the MGR line system.

2. LITERATURE REVIEW

Theoretical Review

Organizational Culture Theory

Organizational Culture Theory (OCT) was developed by Edgar Schein (1985) to explain how collective beliefs, values, assumptions, and norms influence organizational behavior and performance. The theory argues that organization members collaborate over time to solve internal integration and external adaptation issues, with these deeply held assumptions becoming institutionalized and affecting employee behavior, communication, decision-making, and problem-solving (Schein & Schein, 2021). It suggests that organizational culture operates as an invisible force transcending explicit rules, significantly impacting organizational effectiveness. Scholars like Handy (1993), Deal and Kennedy (1982), and Groysberg et al. (2018) have expanded OCT, demonstrating how different cultural types affect leadership, productivity, innovation, and strategy implementation. The theory is relevant to this study since it explains why some organizations perform better during disasters than others, with strong cultures characterized by



cohesion, teamwork, and effective communication enabling rapid decision-making and coordinated action during crises. The theory's strength lies in its comprehensiveness in addressing social and behavioral aspects affecting organizational performance, fostering employee commitment through shared vision and purpose. However, its weakness includes difficulty in quantifying cultural effects objectively across different departments, and its tendency to overlook external factors like political conditions, government interventions, and resource scarcity that also influence disaster response. Despite these limitations, OCT provides an ideal framework for examining how organizational culture impacts disaster response in Kenya Railways Corporation's Meter Gauge Railway system.

Emergency Management Theory

Emergency Management Theory (EMT) originates from disaster management literature and public administration, with significant contributions from Thomas E. Drabek (1986), Dennis Mileti (1999), David Alexander (2002), and Kathleen Tierney (2007). The theory argues that managing disasters requires an integrated process involving preparedness, response, recovery, and mitigation phases. It suggests that organizations must develop strategies for timely decision-making, establish restoration frameworks, and reduce long-term vulnerability through coordinated planning and communication systems. The theory is relevant to this study since it offers a structured methodology for examining emergency response procedures in Kenya's Metre Gauge Railway system, helping analyze preparedness activities, response systems, recovery processes, and mitigation plans implemented by Kenya Railways Corporation and other disaster management agencies. The theory's strength lies in its systematic approach to disaster management, providing an organizational framework that enhances institutional coordination through inter-agency cooperation. Alexander (2002) emphasizes that effective response requires adequate resource mobilization and agency coordination, while Tierney (2007) highlights communication and leadership as crucial for organizational resilience. However, the theory's weakness includes under-emphasizing individual and group behavior in complex organizational environments and assuming that plans and procedures will function as intended in chaotic disaster situations. Combined with OCT, EMT provides a robust conceptual basis for examining institutional preparedness and disaster response effectiveness within the railway transport sector.

Empirical Review

The Workplace Culture Tenets on Disaster Response Implemented Along the Railway System Line

The conceptual foundation of safety culture in high-risk industries was established by Reason (1997), whose seminal work on organizational accidents and human error introduced a "safety culture" framework that has become a cornerstone in railway operations globally. Reason identified just culture, learning culture, and informed culture as essential components of a robust



safety framework widely adopted by rail operators worldwide. The tendency to blame individuals for errors most of which arise from systemic pressures rather than deliberate risk-taking creates a significant barrier to effective safety culture, as employees will not report errors if they fear being blamed (Reason, 1997). This insight fundamentally shifted safety management approaches from punitive responses toward systemic improvement, recognizing that organizational factors rather than individual failings often underlie accidents. The just culture concept, in particular, has been instrumental in encouraging incident reporting and fostering transparency in railway organizations, enabling them to learn from near-misses and prevent future disasters.

McCabe (2003) examined safety culture specifically within the railway context, focusing on unsafe behaviour amongst railway track workers. The study found that traditional approaches focusing on individuals involved in incidents, implementing disciplinary action, and increasing training are often short-term and ineffective methods for improving safety culture within an organisation. This approach fails to consider the latent organisational factors that contribute to events, reinforcing Reason's argument that organisations must move beyond blame-focused responses to build true safety cultures (McCabe, 2003). McCabe's research emphasized that track workers often engage in unsafe behaviours due to systemic pressures including time constraints, inadequate resources, and conflicting priorities between productivity and safety, rather than personal negligence. The study advocated for participatory approaches involving workers in safety decisions, recognizing their frontline expertise as essential for identifying latent hazards that management may overlook.

Nyamwamu (2007) conducted an evaluation of crisis communication at Kenya Railways Corporation, finding that the organisation had no proper crisis management plan and that crisis communication was not effectively used, resulting in a persistent image problem. The study revealed that Kenya Railways was not proactive but only reactive to crises, with the majority of respondents never having heard of a crisis management plan at the corporation. Furthermore, the relationship between Kenya Railways and its stakeholders was regarded as generally poor, with respondents believing that effective communication at all levels would improve their relationship with the organisation (Nyamwamu, 2007). This research highlighted how the absence of structured crisis communication protocols undermines both internal coordination during emergencies and external stakeholder confidence, creating reputational damage that persists long after the immediate crisis has passed.

Schneider et al. (2013) provided a comprehensive theoretical framework linking organisational climate and culture to performance outcomes. While not railway-specific, their model effectively connects leadership perception, organisational support, and employee values to measurable outcomes including job satisfaction and operational efficiency. These universal principles have particular relevance for railways undergoing technological and structural transformation, emphasising culture's importance at all organizational levels for long-term success (Schneider et al., 2013). The authors demonstrated that organizational climate serves as a crucial mediator



between human resource practices and performance outcomes, suggesting that railway organizations must actively manage both formal policies and informal cultural norms to achieve safety and operational excellence.

Moderating Effects of Psychological Contract on the Relationship Between Workplace Culture and Disaster Response

The psychological contract defined as the perceptions about obligations, often unwritten and even unspoken, between employees and employers has emerged as a critical construct in understanding employee attitudes and behaviours in the workplace. Research has established that the psychological contract is underpinned by the concept of mutuality and creates significant risk to business continuity and operational resilience if damaged or broken (Conway & Briner, 2005). Unlike formal employment contracts, psychological contracts encompass implicit expectations regarding job security, career development, fair treatment, and organizational support, making them particularly influential in shaping employee discretionary behaviours during emergencies. Conway and Briner (2005) provided a comprehensive overview of psychological contract theory and research, examining what employees really expect from work and what happens when the contract, or 'the deal', is broken. Their work established the theoretical foundation for understanding how implicit and unwritten aspects of the employment relationship affect employee behaviour, particularly relevant for understanding employee responses during organisational crises (Conway & Briner, 2005).

Griep and Cooper (2018) edited the *Handbook of Research on the Psychological Contract at Work*, which examines the aftermath of psychological contract violation, including employee-organisational interplay and socio-cognitive coping in vulnerable work populations. The handbook provides comprehensive coverage of how psychological contracts inform employee emotions, attitudes, and behaviours in the workplace, offering theoretical frameworks applicable to understanding employee responses in high-risk railway environments (Griep & Cooper, 2018). The editors synthesized decades of research demonstrating that psychological contract breach triggers emotional responses including anger, betrayal, and decreased organizational commitment, which may manifest as reduced safety compliance, increased absenteeism, and diminished crisis response capabilities.

Research has established that the state of the psychological contract should be of extreme interest to those charged with developing and maintaining organisational resilience. When psychological contracts are damaged or broken, it creates significant risk to business continuity and operational resilience (Conway & Briner, 2005). In the railway context, this has particular relevance for understanding how employee expectations about safety training, disaster insurance, and job security affect their commitment to disaster preparedness procedures. Employees who perceive that their employer is committed to their safety and well-being are more likely to embrace safety initiatives and respond proactively during emergencies, whereas those who feel betrayed or



undervalued may disengage precisely when their commitment is most needed. The concept of mutuality underlying the psychological contract suggests that when employees perceive mutual responsibility between themselves and their employers, they demonstrate greater compliance with emergency procedures and take greater initiative during disaster situations. Conversely, when psychological contracts are violated, employees may show decreased engagement and reduced adherence to disaster-related procedures (Griep & Cooper, 2018). This reciprocal relationship between organizational support and employee commitment is particularly critical in safety-sensitive railway operations where human factors significantly influence disaster outcomes.

Workplace Culture Tenets in Enhancing Disaster Response

Research has consistently demonstrated that workplace culture plays a critical role in determining the effectiveness of disaster response in railway operations. Organisations with a positive safety culture characterised by awareness, assessment, and action on safety matters supported by an open communications style throughout the whole organisation demonstrate more effective emergency responses (Reason, 1997). Such organizations prioritize learning from incidents rather than assigning blame, encourage reporting of safety concerns without fear of reprisal, and invest in continuous improvement of safety systems. The TrackSAFE Foundation (n.d.) has developed trauma management frameworks for the rail industry, emphasising that creating a trauma-informed workplace culture where everyone feels seen, supported, and psychologically safe has been identified as a key factor in supporting railway employees exposed to traumatic events. Practical guidance for railway organisations includes providing emotional first aid immediately following incidents and establishing embedded structures that create ongoing support. However, compromised workplace cultures can significantly undermine disaster response effectiveness. As documented in analyses of railway incidents, a deeply compromised workplace culture where people are hesitant to ask questions or push back on safety concerns can contribute to technical safety failures (Reason, 1997). Network Rail's experience with launching a "bespoke safety culture programme" following a site collision where racial tensions were found to have contributed to the incident demonstrates the importance of addressing cultural factors in railway safety (McCabe, 2003).

Inhibiting Factors for Effective Disaster Response

Aging Infrastructure

Aging infrastructure has been identified as a critical inhibiting factor for effective disaster response in railway systems globally. Railway systems are increasingly vulnerable to geological hazards driven by climate change, aging infrastructure, and escalating operational demands. These hazards can cause major service disruptions, escalate maintenance costs, and endanger public safety. The safety and resilience of railway systems are increasingly challenged by aging infrastructure, spatial inequality, and intensifying climate extremes (Transportation Safety Board of Canada [TSBC],



2022). In Europe, weather-related interruptions to railway services between 2015 and 2024 amounted to the equivalent of one to three years of railway service across the region. Over 70% of rail managers have reported growing disruption from extreme weather, with the European Parliament noting that aging infrastructure is often a cause of accidents, underscoring the urgency of implementing real investment policy in equipment modernization (TSBC, 2022).

Inadequate Employee Training

Inadequate employee training and skills mismatch have been identified as significant barriers to effective disaster response. U.S. federal regulations require that a railroad's emergency preparedness plan address individual employee responsibilities and provide for initial training, as well as periodic training at least once every two calendar years (TSBC, 2022). However, research has found that many railways do not provide adequate recurrent training on critical skills. The Transportation Safety Board of Canada (2022) found that while Canadian Pacific Railway provides Crew Resource Management training to new operating employees, it does not provide formal dedicated recurrent CRM training. The Railway Employee Qualification Standards Regulations have no requirement for operating crews to complete a separate module on CRM when they qualify or re-qualify, representing a significant gap in ongoing employee development (TSBC, 2022). In contrast, BNSF Railway in the United States trains 3,000 to 10,000 local emergency responders annually in Railroad Emergency Response and Hazardous Material Awareness through online and in-person sessions, demonstrating the importance of sustained training investment (TSBC, 2022).

Weak Institutional Structures and Corruption

Weak institutional structures and disparate transport policies impede disaster response within railway systems, particularly in Sub-Saharan Africa. The Nigerian Safety Investigation Bureau has entered into a strategic partnership with the UK's Rail Accident Investigation Branch to strengthen rail accident investigation capacity (Nyamwamu, 2007). However, experts have stressed the need for a stronger, independent role for safety investigation bureaus in all transport-related accident investigations, with formal agreements with emergency agencies to ensure coordinated responses. The Eséka train disaster in Cameroon in 2016 represents one of the worst train disasters in African history and has been examined as a case study in challenges managing technological disasters in the region, highlighting significant gaps in institutional preparedness and coordination (Nyamwamu, 2007).

Bureaucratic inefficiency and corruption have been identified as significant obstacles to effective disaster response in the rail sector. In Kenya, the Motorists Association has called upon the Ethics and Anti-Corruption Commission and the Ombudsman to probe Kenya Railways following fatal accidents, asserting that Kenya Railways has failed to prioritize public safety (Nyamwamu, 2007). The EACC's investigations into claims that Sh700 million set aside for SGR feasibility studies had

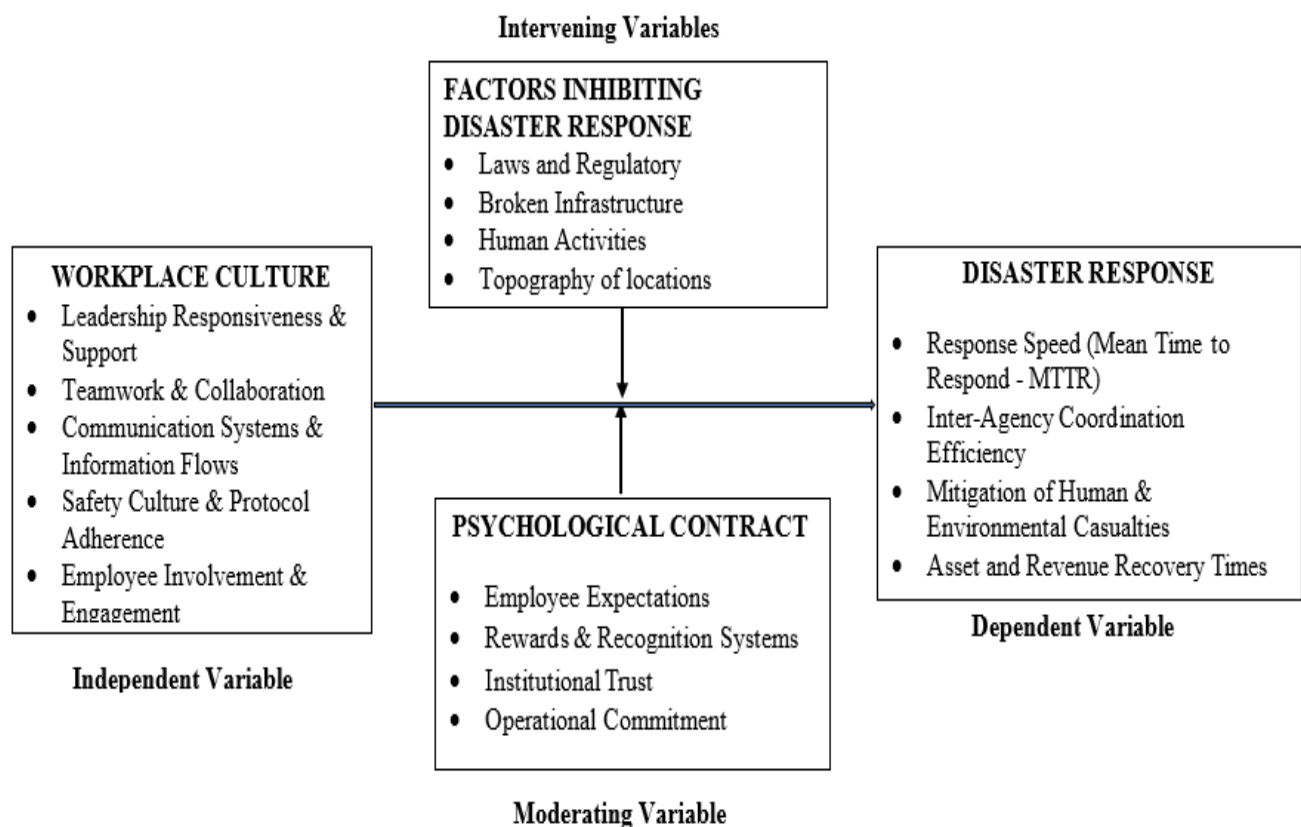


been misappropriated found that it had been redirected to settle outstanding claims. Historical accounts document that Kenya Railways was "submerged in corruption and mismanagement," with the government having to "bring in a new broom to sweep out the cobwebs of corruption and inefficiency" (Nyamwamu, 2007, p. 78). The High Court of Kenya has ordered the Inspector General to investigate Kenya Railways officials over the deadly Mai Mahiu mudslide, ruling the disaster stemmed from infrastructural negligence and was "not simply an act of God" (Nyamwamu, 2007), demonstrating the judicial recognition of institutional accountability in railway disasters.

Conceptual Framework

The conceptual model depicted the linkage between the variables under investigation and offered an effective roadmap for the research process. The model revealed how the workplace culture (independent variable), psychological contract (moderating variable), and disaster response (dependent variable) were linked at the Metre Gauge Railway (MGR) Line System in Kenya.

Figure 2.1 Researcher's Conceptual Framework



3. RESEARCH METHODOLOGY

This study adopted a descriptive cross-sectional survey design using a mixed-methods approach to examine the influence of workplace culture on disaster response effectiveness along Kenya's



Metre Gauge Railway (MGR) line system. The study was conducted across selected operational stations, depots, and control centres along the MGR corridor because of their continued strategic role in passenger and freight transport and their vulnerability to disasters such as derailments, flooding, equipment failure, and vandalism. The target population comprised railway operations staff, safety officers, disaster response personnel, and Railway Police officers. A stratified random sampling technique was employed to select 368 respondents. In addition, key informant interviews, focus group discussions, and observation checklists were used to triangulate quantitative findings. Data were collected using a structured five-point Likert-scale questionnaire whose validity was established through expert review and pilot testing. Reliability was assessed using Cronbach's alpha coefficients, with all constructs exceeding the recommended threshold of 0.70, indicating good internal consistency. Quantitative data were analysed using SPSS Version 26 through descriptive statistics, Pearson correlation, and multiple linear regression, while qualitative data were analysed thematically to complement the statistical findings. Ethical clearance was obtained before data collection, and respondents' confidentiality, informed consent, and voluntary participation were ensured throughout the study. Although the cross-sectional design and self-reported data limited causal inference and may have introduced response bias, triangulation of data sources enhanced the credibility and trustworthiness of the findings.

4. RESEARCH FINDINGS AND DISCUSSION

Response Rate

A total of 368 structured questionnaires were administered to railway operations, safety, and disaster response personnel along the Metre Gauge Railway (MGR) corridor. Of these, 322 questionnaires were completed and returned, representing a response rate of 87.5%, while 46 questionnaires were either not returned or were incomplete. The high response rate demonstrates strong participation by the respondents and provides sufficient data for meaningful statistical analysis and generalization of the findings.

Table 1: Response Rate

Response Category	Frequency	Percentage (%)
Questionnaires Distributed	368	100.0
Valid Questionnaires Returned	322	87.5
Unreturned/Incomplete Questionnaires	46	12.5
Total	368	100.0

Source: Survey Data (2026)

The response rate of 87.5% was considered highly satisfactory and exceeded the minimum response rate recommended for social science research. A high response rate reduces the likelihood of non-response bias and increases confidence that the findings accurately reflect the views of the target population. The high level of participation suggests that respondents were interested in the



study and recognized the importance of disaster response within the railway sector. Consequently, the dataset was considered adequate for descriptive and inferential statistical analyses.

Demographic Characteristics of Respondents

To establish the characteristics of the respondents, information was collected on gender, age, educational level, and work experience. The results are presented in Table 2.

Table 3: Demographic Characteristics of Respondents

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	198	61.5
	Female	124	38.5
Age (Years)	18–29	74	23.0
	30–39	112	34.8
	40–49	86	26.7
	50 and Above	50	15.5
Highest Education	Secondary	68	21.1
	Diploma	134	41.6
	Bachelor's Degree	98	30.4
	Postgraduate	22	6.9
Work Experience	Less than 5 Years	108	33.5
	5–10 Years	129	40.1
	Above 10 Years	85	26.4

Source: Survey Data (2026)

The findings indicate that 61.5% of the respondents were male, while 38.5% were female, suggesting that railway operations and disaster response functions within the MGR system continue to be male-dominated. This distribution is consistent with the technical and operational nature of railway work, where male employees have traditionally constituted a larger proportion of the workforce.

Regarding age, the majority of respondents (61.5%) were between 30 and 49 years, indicating that most participants were in their economically productive and professionally active years. This age group is likely to possess substantial operational experience and practical knowledge of railway disaster response, making them well positioned to provide reliable information on workplace culture and emergency management practices.

The educational profile shows that 72.0% of respondents possessed either a Diploma (41.6%) or a Bachelor's degree (30.4%), while 6.9% held postgraduate qualifications. This demonstrates that most respondents had formal technical and professional training relevant to railway operations,



safety management, and emergency response. The educational background of the respondents therefore enhanced the credibility of the information collected.

The findings further reveal that 66.5% of the respondents had five or more years of work experience, including 40.1% with between five and ten years and 26.4% with more than ten years of service. This suggests that the majority of respondents had accumulated considerable practical experience in railway operations and disaster management, enabling them to provide informed opinions on workplace culture and disaster response effectiveness.

Descriptive Statistics for Workplace Culture

Workplace culture was measured on a five-point Likert scale across five items assessing teamwork, safety culture, communication, leadership support, and adherence to safety procedures. Table 3 presents the descriptive statistics.

Table 3: Descriptive Statistics for Workplace Culture and Disaster Response (n = 322)

Item	Mean	Std. Dev.
Teamwork improves emergency response effectiveness	4.10	0.76
Safety culture is strongly emphasised in operations	3.92	0.81
Employees adhere to safety procedures	3.88	0.84
Communication during emergencies is effective	3.74	0.90
Leadership supports disaster preparedness	3.69	0.96
Composite Workplace Culture Index	3.87	0.85

Source: Survey Data (2026)

The composite mean of 3.87 (SD = 0.85) indicates that respondents generally perceived workplace culture as contributing positively to disaster response. Teamwork recorded the highest mean (M = 4.10, SD = 0.76), consistent with evidence that collaborative, network-based response behaviours are among the most consistently reported predictors of coordinated emergency response performance in the empirical emergency-management literature (Hu et al., 2022). Communication during emergencies (M = 3.74) and leadership support (M = 3.69) recorded the lowest means, indicating a perceived weakness in command coordination. Qualitative data corroborated this pattern: respondents described strong mutual support during incidents, while several noted delays in communication from control centres and slow leadership response.

Descriptive Statistics for the Psychological Contract



Table 4: Descriptive Statistics for Psychological Contract and Disaster Response (n = 322)

Item	Mean	Std. Dev.
Employees feel obligated to respond to disasters	3.91	0.82
Employees feel valued during emergencies	3.76	0.88
Organisation fulfils obligations during crises	3.71	0.89
Trust exists between employees and management	3.69	0.90
Reward systems motivate response efforts	3.54	0.96
Composite Psychological Contract Index	3.72	0.89

Source: Survey Data (2026)

The composite mean of 3.72 (SD = 0.89) indicates a moderate psychological contract. Employees' felt obligation to respond during emergencies recorded the highest mean (M = 3.91, SD = 0.82), reflecting strong intrinsic motivation, while perceived reward-based motivation was comparatively weak (M = 3.54, SD = 0.96). This pattern is consistent with recent evidence that psychological contract fulfilment operates as an actively managed, relational process rather than a fixed transactional exchange, and that employees' sense of obligation can remain strong even where formal reward mechanisms lag behind (Jehanzeb & Bashir, 2025; Pei, 2026).

Descriptive Statistics for Inhibiting Factors

Table 5: Descriptive Statistics for Factors Inhibiting Disaster Response (n = 322)

Item	Mean	Std. Dev.
Poor communication systems hinder response	4.12	0.83
Infrastructure limitations delay response	4.08	0.87
Insufficient equipment limits response capability	4.05	0.85
Lack of training reduces response competence	3.96	0.90
Inadequate coordination among agencies hinders response	3.89	0.92
Composite Inhibiting Factors Index	4.02	0.88

Source: Survey Data (2026)

Structural and institutional constraints were rated highly across all items (composite mean = 4.02, SD = 0.88), with poor communication systems (M = 4.12) and infrastructural limitations (M = 4.08) identified as the most significant barriers to effective disaster response, followed by insufficient equipment, inadequate training, and weak inter-agency coordination. This pattern is consistent with systematic evidence that the absence of designated boundary-spanning communication roles between agencies is one of the strongest predictors of poor emergency-response network performance (Hu et al., 2022).

Inferential Statistics



Correlation Analysis

Pearson product-moment correlation was used to assess the strength and direction of the relationship between the study variables and disaster response effectiveness. Results are presented in Table 6.

Table 6: Correlation Between Study Variables and Disaster Response Effectiveness

Variable	Pearson r	p-value
Workplace culture tenets	0.682	< 0.001
Effectiveness of workplace culture tenets	0.701	< 0.001
Psychological contract	0.615	< 0.001
Inhibiting factors	-0.598	< 0.001

Source: Survey Data (2026)

The findings indicate that all study variables were significantly associated with disaster response effectiveness at the 1% level of significance. The strongest positive relationship was observed between the perceived effectiveness of workplace culture tenets and disaster response effectiveness ($r = 0.701$), followed closely by workplace culture tenets ($r = 0.682$). These results suggest that organizations with cultures characterized by effective communication, teamwork, leadership support, employee involvement, and shared organizational values are more likely to respond effectively to emergencies. The findings imply that disaster response is influenced not only by technical preparedness but also by behavioural and organizational factors that facilitate coordinated action during crises.

The positive relationship between the psychological contract and disaster response effectiveness ($r = 0.615$) indicates that employees who perceive fairness, trust, and mutual obligations between themselves and their employer are more willing to cooperate, share information, and respond promptly during emergencies. This finding supports Social Exchange Theory, which argues that employees reciprocate organizational support through positive workplace behaviours, including organizational citizenship behaviours that become particularly valuable during emergencies (Cropanzano et al., 2017).

Conversely, inhibiting factors exhibited a statistically significant negative relationship with disaster response effectiveness ($r = -0.598$), demonstrating that inadequate communication systems, bureaucratic procedures, insufficient training, inadequate emergency resources, and weak inter-agency coordination reduce the effectiveness of emergency operations. This finding confirms that organizational weaknesses can diminish disaster response performance even where positive workplace relationships exist.

The findings are consistent with Hu et al. (2022), whose systematic review concluded that effective emergency response depends heavily on organizational communication networks, coordination mechanisms, and collaborative governance. Similarly, Kapucu and Garayev (2022) observed that



organizations characterized by strong collaboration and effective information sharing demonstrate greater disaster resilience and faster emergency response. The findings also support Schein and Schein (2021), who argue that organizational culture shapes employee behaviour, collaboration, and adaptability, particularly during periods of uncertainty and crisis.

Regression Analysis

Multiple linear regression was used to test the combined predictive power of workplace culture, psychological contract, and inhibiting factors on disaster response effectiveness. Table 7 presents the model summary and ANOVA results, and Table 8 presents the regression coefficients.

Table 7: Regression Model Summary and ANOVA

Statistic	Value
R	0.741
R ²	0.549
Adjusted R ²	0.541
F statistic	89.34
Significance (p)	< 0.001

Source: Survey Data (2026)

The regression model produced an R² value of 0.549, indicating that the independent variables jointly explained 54.9% of the variation in disaster response effectiveness. The adjusted R² of 0.541 suggests that the model provides a reliable estimate of the relationship between the study variables and disaster response effectiveness. Furthermore, the ANOVA results (F = 89.34, p < 0.001) demonstrate that the overall regression model was statistically significant, confirming that workplace culture, psychological contract, and inhibiting factors collectively predict disaster response effectiveness.

Table 8: Regression Coefficients for Predictors of Disaster Response Effectiveness

Predictor	β	t	p-value	Decision
Workplace culture tenets	0.421	7.82	< 0.001	H0 ₁ Rejected
Effectiveness of workplace culture tenets	0.356	7.01	< 0.001	H0 ₂ Rejected
Inhibiting factors	-0.294	-6.02	< 0.001	H0 ₃ Rejected
Psychological contract	0.318	6.44	< 0.001	H0 ₄ Rejected

Source: Survey Data (2026); Significance assessed at p < 0.05

The regression results demonstrate that workplace culture tenets emerged as the strongest predictor of disaster response effectiveness ($\beta = 0.421$, p < 0.001). This finding suggests that organizations characterized by supportive leadership, effective communication, teamwork, employee participation, and shared values are better positioned to coordinate emergency operations and



respond effectively to disasters. A positive workplace culture promotes trust, rapid information sharing, and collaborative decision-making, all of which are essential during emergency situations.

The effectiveness of workplace culture tenets also exerted a significant positive influence ($\beta = 0.356$, $p < 0.001$), indicating that merely possessing desirable organizational values is insufficient unless those values are consistently implemented and experienced by employees. This finding reinforces the argument of Schein and Schein (2021) that organizational culture influences organizational performance only when shared assumptions and values are translated into everyday practices and behaviours.

Psychological contract significantly predicted disaster response effectiveness ($\beta = 0.318$, $p < 0.001$), suggesting that employees who perceive that their organization fulfils its obligations are more committed to organizational objectives and more willing to undertake discretionary responsibilities during emergencies. This finding concurs with Jehanzeb and Bashir (2025), who found that psychological contract fulfilment enhances employee commitment and strengthens positive organizational outcomes through improved trust and reciprocal behaviour.

Inhibiting factors had a statistically significant negative effect on disaster response effectiveness ($\beta = -0.294$, $p < 0.001$). This indicates that poor communication infrastructure, inadequate emergency equipment, insufficient training, bureaucratic delays, and ineffective coordination substantially reduce organizational capacity to respond to disasters. Although workplace culture positively influences emergency response, these structural barriers can significantly weaken organizational resilience if left unaddressed.

5. SUMMARY OF THE STUDY

This study examined the influence of workplace culture, the psychological contract, and inhibiting factors on disaster response effectiveness along the Metre Gauge Railway line system in Kenya. A descriptive cross-sectional survey design was employed, with 322 valid responses retained from 368 distributed questionnaires, representing a usable response rate of 87.5%. All study constructs achieved Cronbach's alpha coefficients above 0.80, confirming good internal consistency reliability. Data were analysed using descriptive statistics, Pearson correlation, and multiple regression in SPSS.

Descriptive analysis revealed that respondents perceived workplace culture as contributing positively to disaster response (composite mean = 3.87), with teamwork rated highest and leadership support rated lowest. The psychological contract was found to be moderate (composite mean = 3.72), sustained mainly by intrinsic obligation rather than formal reward systems. Inhibiting factors were rated highly (composite mean = 4.02), with poor communication systems and infrastructural limitations identified as the most significant barriers. Inferential analysis found that workplace culture, the effectiveness of workplace culture tenets, and the psychological



contract each exerted a statistically significant positive effect on disaster response effectiveness, while inhibiting factors exerted a statistically significant negative effect, leading to the rejection of all four null hypotheses. The integrated regression model explained 54.9% of the variance in disaster response effectiveness ($R^2 = 0.549$, $F = 89.34$, $p < 0.001$).

6. CONCLUSION

The study concludes that workplace culture has a significant and positive influence on disaster response effectiveness along Kenya's Metre Gauge Railway (MGR) line system. A workplace culture characterized by effective communication, teamwork, supportive leadership, employee commitment, and shared organizational values enhances the ability of railway personnel to prepare for, coordinate, and respond to disaster incidents. The findings further indicate that a positive psychological contract strengthens employees' willingness to cooperate, take initiative, and remain committed during emergencies, thereby improving overall disaster response effectiveness. However, the study also establishes that organizational culture alone is insufficient to guarantee effective disaster response. Persistent challenges, including weak communication systems, inadequate emergency infrastructure and equipment, limited training opportunities, bureaucratic decision-making processes, and ineffective inter-agency coordination, continue to undermine the efficiency of emergency operations along the MGR corridor.

The study further concludes that the current reliance on employees' intrinsic commitment, without adequate institutional support through structured recognition, continuous capacity building, and well-coordinated emergency management systems, may not be sustainable in the long term. Therefore, strengthening workplace culture should be complemented by investments in communication technology, employee development, emergency preparedness, and collaborative governance mechanisms. Overall, the study demonstrates that disaster response effectiveness within Kenya's MGR system is determined by the combined influence of organizational culture, employee commitment, and institutional capacity. Consequently, improving disaster response requires an integrated approach that simultaneously strengthens organizational, human, and operational systems to enhance resilience and ensure timely, coordinated, and effective responses to emergencies.

7. RECOMMENDATIONS

Based on the findings of this study, several recommendations are proposed to improve disaster response effectiveness along the Metre Gauge Railway (MGR) line system in Kenya. First, Kenya Railways Corporation should strengthen emergency communication by investing in integrated, technology-enabled communication systems that enable real-time information sharing between control centres and field response teams. This will facilitate timely decision-making, enhance coordination, and reduce delays during emergency response. Second, the Corporation should establish a structured reward and recognition system for employees who actively participate in



emergency response activities. Such a framework would reinforce employee commitment, encourage teamwork, and sustain high levels of motivation in disaster preparedness and response. Third, the Corporation should review and streamline emergency response procedures by reducing unnecessary bureaucratic approval processes and delegating appropriate decision-making authority to field supervisors to enable faster response during incidents. Fourth, the Ministry of Roads and Transport, in collaboration with Kenya Railways Corporation, the Railway Police, county governments, and other emergency response agencies, should develop and implement standardized inter-agency coordination protocols supported by regular joint training exercises, simulation drills, and information-sharing mechanisms to strengthen collaborative disaster management. Additionally, railway safety policies should incorporate organizational culture, communication effectiveness, leadership responsiveness, teamwork, and coordination capacity as key performance indicators alongside conventional infrastructure and engineering standards. Integrating these organizational dimensions into routine safety audits and disaster risk management frameworks will enhance institutional resilience and improve overall emergency response effectiveness. Finally, future research should adopt longitudinal and comparative designs to examine how workplace culture influences disaster response over time and across different railway systems in Kenya, thereby providing broader evidence to inform policy and practice.

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