

# Mitigating Operational Risk in Community-Based Tourism: Evidence from Tugu Utara Tourism Village, Indonesia

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## **Abstract**

*Operational risk in a tourism village refers to failures or deviations in the execution of tourism activities, which, if left unaddressed, may escalate into reputational risks. This study investigates strategies for mitigating operational risks in Tugu Utara Tourism Village, Bogor Regency, West Java, Indonesia. Adopting a qualitative case study approach, data were collected through focus group discussions involving 15 key stakeholders, including tourism village managers, representatives from tourism village associations, and officials from the Bogor Regency Culture and Tourism Office. Thematic analysis was employed to identify and interpret patterns, with findings presented through fishbone diagrams and summary tables. Results reveal four core pillars for operational risk mitigation: system risk, human resource risk, internal risk, and infrastructure and supporting facilities risk. These findings contribute to the growing discourse on community-based tourism resilience by offering a contextualized framework for operational risk governance in rural destinations.*

**Keywords:** Tourism Village, Operational Risk, Rural Development, Resilience, Sustainability

## **INTRODUCTION**

Tourist motivations have undergone a notable paradigm shift in recent years, with increasing emphasis on safety, comfort, well-being, and sustainability (Ardiansyah et al., 2023; Kumar Jha, 2022; Mihalic, 2024; Sharma, 2020). In response, tourism destinations—including community-based tourism villages—must adapt strategically to align with these evolving expectations (Ismawati et al., 2023; Nel-lo Andreu et al., 2021; Wulandari, 2024; Ariyani & Fauzi, 2024; Dewi Agustine & Dwinugraha, 2021; Polukhina et al., 2021; Tang et al., 2022). A tourism village refers to a rural area where tourism activities are organized by community-established institutions and supported by village government or higher-level authorities (Bahri et al., 2020). Typical activities include sightseeing, participation in local traditions, purchasing locally made products, engaging in agricultural work, learning about rural ecology, and exploring local wisdom through storytelling (Bahri et al., 2020). Fundamentally, tourism village development is rooted in community initiative, with the dual objectives of improving local welfare and conserving the natural and cultural environment. The four key pillars of tourism village development are location, sustainability, community-based management, and visitor experience (Bahri et al., 2020; Wirdayanti et al., 2021).

The rapid expansion of tourism villages across Indonesia has amplified the importance of robust risk management, given that the sector's success hinges on tourist satisfaction with service quality, infrastructure, and overall experience. In such contexts, effective operational risk management serves as a critical tool to safeguard service delivery, maintain destination competitiveness, and foster resilience (Bong et al., 2019; Santi Palupi & Sugiarto, 2014). Risks in tourism operations may arise from natural hazards, wildlife interactions, or human

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factors—whether deliberate, negligent, or accidental (Bong et al., 2019; Sugiarto, 2023a). These risks can be mitigated, transferred, or avoided through good governance, well-defined systems and procedures, competent human resources, insurance coverage, and structured safety programs. If inadequately addressed, risks can escalate into crises and even disasters, jeopardizing both the tourist experience and destination sustainability (Bong et al., 2019; Sugiarto, 2023a, 2023b). Strengthening operational risk management not only enhances tourist satisfaction but also contributes to the long-term resilience of rural tourism destinations (Bahri et al., 2025; Sugiarto et al., 2024a).

Unlike other industries, tourism villages exhibit distinct characteristics that necessitate tailored risk management approaches. In the banking sector, for example, credit risk is a dominant concern, whereas in tourism villages it is relatively insignificant. Instead, operational risk—stemming from poorly managed attractions, inadequate infrastructure, insufficiently trained personnel, and substandard service delivery—presents a more immediate and persistent challenge. These vulnerabilities can directly lead to visitor dissatisfaction when products or services fail to meet expectations (Bahri et al., 2025; Bong et al., 2019; Kiswanto et al., 2025; Sugiarto, 2023a, 2023b; Sugiarto et al., 2024b; Susanto et al., 2025; Tarjo et al., 2024). As such, comprehensive identification and mapping of risk sources is essential for effective mitigation.

Tugu Utara Tourism Village, located in Bogor Regency, West Java, is widely recognized for its natural attractions, cultural heritage, and community-led tourism initiatives. It has achieved multiple distinctions, including: National Champion of Best Robusta Coffee (Cibulao Coffee) in 2022; finalist in the 2021–2022 Anugerah Desa Wisata Indonesia (ADWI) Awards, Advanced Village category; finalist in the 2022 West Java Dewi Jawa Award (Digital Tourism Village category); and first prize in the 2022 Bogor Regency Tourism Village Competition, Advanced Village category. These accolades underscore the village's ability to synergize environmental stewardship, MSME empowerment, and community engagement in sustainable tourism development.

Nevertheless, several operational risk incidents have been reported that compromise tourist comfort, such as illegal levies, excessive entrance fees, and untrained staff delivering inconsistent service quality. These issues have, in some cases, rendered certain attractions unusable and diminished the overall visitor experience. The root causes include limited managerial capacity, inadequate understanding of operational risk management, absence of risk mapping and mitigation frameworks, and insufficient awareness of how to design memorable tourism experiences that drive repeat visitation and positive word-of-mouth. Given these challenges, this study aims to analyze and propose strategies for mitigating operational risks in Tugu Utara Tourism Village. By focusing on the village's unique governance structure and community-based operations, this research contributes to the growing discourse on operational risk management in rural tourism contexts.

## **LITERATURE REVIEW**

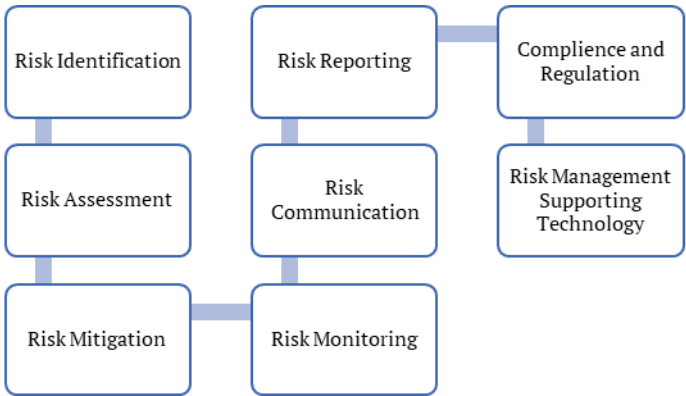
### ***Tourism Risk***

In the tourism sector, risks primarily stem from natural hazards, wildlife encounters, and human actions—whether intentional, negligent, or accidental. These risks can be mitigated, transferred, avoided, or accepted through robust governance, well-structured systems and procedures, competent human resources, adequate insurance coverage, and the implementation of safety and security programs. Without proper management, risks may escalate into crises and, ultimately, disasters, undermining both visitor safety and destination sustainability (Bong et al., 2019). Conceptually, risk refers to the likelihood of adverse consequences resulting from uncertain events or conditions (Santi Palupi & Sugiarto, 2014). Its perception, assessment, and prioritization vary depending on context, objectives, and the perspectives of decision-makers (Bong et al., 2019). Within this framework, risk management is understood as a systematic process of identifying, evaluating, and mitigating potential threats that could hinder an organization's ability to achieve its objectives (Ningsih et al., 2024; Sarjana et al., 2020), forming an essential element of governance and strategic management across diverse organizational settings (Can & Bin Abdul Latiff, 2024; Fischer & Weißmüller, 2024; Gleißner & Berger, 2024).

The risk management process generally comprises eight interrelated stages. Risk identification involves systematically detecting potential internal and external risks that could affect operations, projects, or strategic objectives (Ansyari, 2024; Saradha Balaji et al., 2024; Shrivastava et al., 2023; Ullah et al., 2024). Risk assessment follows, evaluating the probability and potential impact of each identified risk, often using severity–likelihood matrices or other prioritization tools (Acebes et al., 2024). Risk mitigation entails developing strategies to manage risks through avoidance, reduction, transfer, or acceptance, complemented by contingency planning (Tsabitah et al., 2025). Risk monitoring is a continuous process of tracking risk dynamics and adjusting mitigation actions as necessary (Bhuller & Trevithick-Sutton, 2024; Koilakonda, 2023), while risk

communication ensures that stakeholders—including employees, partners, regulators, and local communities—are informed about risk exposures and corresponding responses (Bhuller & Trevithick-Sutton, 2024; Koilakonda, 2023). Risk reporting facilitates transparency and supports informed decision-making by systematically documenting risk management activities (Chaneliere et al., 2024). Compliance and regulation require alignment with industry-specific laws, standards, and guidelines to maintain operational legitimacy and public trust (Kalogiannidis et al., 2024). Finally, technology and tools, such as digital platforms and advanced analytics, enhance the efficiency and precision of risk identification, assessment, and monitoring (Kalogiannidis et al., 2024; Luthfiansyah et al., 2024).

While this multi-stage framework has been extensively validated in corporate and public-sector contexts, its application within tourism—particularly in rural and community-based destinations—remains underexplored. In such settings, governance structures are often informal, resources are constrained, and operations rely heavily on community participation. Consequently, a context-specific adaptation of the risk management cycle is necessary to address the distinct vulnerabilities of tourism villages, including inconsistent service delivery, insufficient infrastructure, and limited capacity for proactive risk mitigation. These characteristics underscore the importance of refining existing models to better support resilience in small-scale, community-driven tourism operations. The standard framework illustrated in Figure 1 outlines the sequential stages of risk management within the tourism sector, serving as a conceptual basis for adapting operational risk governance to the unique dynamics of tourism villages.



**Figure 1. Stages of Risk Management in the Tourism Sector**

Source: Research data, 2025

### **Operational Risk**

In the context of sustainable tourism development, including tourism villages, risk management must address multiple dimensions, one of which is operational risk (Sugiarto, 2023a). Operational risk refers to threats arising from failures or inadequacies in internal processes, human resources, technological systems, physical infrastructure, and supporting amenities. Unlike external risks that are largely beyond managerial control, operational risks originate from factors that are, in principle, manageable within tourism business operations. They are particularly critical in community-based destinations, where service quality, infrastructure maintenance, and human capital directly influence visitor satisfaction and the long-term viability of the destination (Bahri et al., 2025).

Operational risk can be classified into four primary categories. Internal process risk relates to breakdowns or inefficiencies in service delivery, procedural implementation, and coordination mechanisms. Human resource risk stems from insufficient capacity, skills, or professionalism among tourism staff, affecting the quality of visitor interactions. System risk refers to vulnerabilities associated with technological platforms used for operational management, such as booking systems, visitor data handling, or communication tools. While technology can enhance efficiency, it also introduces risks of system failure, misuse, or cyber threats. Infrastructure and facility risk involves the absence, inadequacy, or deterioration of essential physical assets—such as transportation access, sanitation facilities, accommodations, and power supply—needed to sustain tourism activities.

While other categories of risk, such as market, external, regulatory, reputational, business, and financial risks, also affect tourism operations (Sugiarto, 2023a), operational risk is particularly relevant to tourism villages due to their reliance on consistent service delivery and visitor experience management. Failures in

these areas can trigger negative tourist perceptions, reduce revenues, and damage the destination's reputation (Bahri et al., 2025). Moreover, the unique governance structures of tourism villages—often characterized by informal decision-making, volunteer involvement, and limited financial resources—require a tailored risk management framework. This entails systematically tracing and documenting risk sources, both actual and potential, through participatory inventories and proactive identification processes. In contrast to sectors such as banking, where credit risk is a dominant concern, tourism villages face a far greater vulnerability to operational and reputational risks. This is due to the high sensitivity of visitors to perceived service quality, where even minor operational failures can result in disproportionate declines in satisfaction, repeat visitation, and positive word-of-mouth.

## **METHODS**

### ***Research Design***

This study employed a qualitative case study design to investigate strategies for mitigating operational risks in tourism villages, with a specific focus on Tugu Utara Tourism Village. The case study approach is well-suited for examining complex socio-cultural dynamics in their real-life context, allowing for a holistic exploration of interactions between tourism village managers, community members, and other stakeholders (Yin, 2018). By integrating multiple perspectives, this approach facilitates an in-depth understanding of the contextual factors that shape operational risk management practices in rural tourism settings.

### ***Research Site***

The research was conducted in Tugu Utara Tourism Village, located in Bogor Regency, West Java, Indonesia. The village offers a diverse portfolio of attractions encompassing natural landscapes, cultural heritage, and man-made tourism assets. Tugu Utara has achieved notable recognition, including: National Champion for Best Robusta Coffee ("Kopi Cibulao, Tugu Utara") in 2022; finalist in the 2021–2022 Anugerah Desa Wisata Indonesia (ADWI) Awards under the Advanced Tourism Village category; finalist in the 2022 West Java Dewi Jawa Award (Digital Tourism Village category); and first place in the 2022 Bogor Regency Tourism Village Competition for the Advanced Tourism Village category. These achievements reflect the village's capacity to implement sustainable tourism practices through synergistic collaboration among tourism stakeholders, local businesses (MSMEs), and community members, thereby contributing to both environmental preservation and local economic growth.

### ***Data Collection Methods***

A combination of qualitative and supporting quantitative methods was used. Primary qualitative data were collected through focus group discussions (FGDs), which are structured discussions designed to elicit participants' perceptions, experiences, and suggestions on specific issues (Moleong, 2004). Participants were purposively selected to represent key stakeholder groups, including tourism village managers, members of local tourism associations, and officials from the Bogor Regency Department of Culture and Tourism. The discussions focused on identifying operational risks, assessing their impact, and exploring mitigation strategies relevant to the tourism village context.

Supporting quantitative data were collected through a structured questionnaire administered to selected stakeholders and tourists. This provided complementary insights and helped triangulate qualitative findings. Secondary data were obtained from official statistical reports, government documents, academic publications, and other credible sources, including the Central Statistics Agency (Badan Pusat Statistik), the Ministry of Tourism and Creative Economy, and the Bogor Regency Department of Culture and Tourism (Sugiarto et al., 2023).

### ***Data Analysis***

Qualitative data from FGDs were analyzed using thematic analysis, a method for identifying, analyzing, and interpreting patterns (themes) within the data (Sugarda, 2020). The process involved multiple stages: 1) familiarization with the data through repeated reading of transcripts; 2) generation of initial codes representing recurring concepts or issues; 3) clustering of related codes into broader themes; 4) review and refinement of themes to ensure internal coherence; and 5) interpretation of themes concerning the research objectives and existing literature. The use of thematic analysis was particularly suited to this study as it allowed for a nuanced understanding of stakeholders' perspectives on operational risk management, capturing both explicit concerns and underlying contextual factors.

RESULTS AND DISCUSSION

The FGDs revealed that operational risks in Tugu Utara Tourism Village can be classified into four interrelated categories: internal risks, human resource risks, system risks, and infrastructure and supporting facilities risks. This classification mirrors previous studies highlighting that risks in community-based tourism stem from intertwined governance, human capital, technological, and infrastructural challenges (Bahri et al., 2025; Sugiarto, 2023a; Kiswanto et al., 2025).

Internal Risk

Internal risks in tourism villages are primarily governance-related challenges that disrupt effective decision-making, operational coordination, and strategic alignment among stakeholders. In Tugu Utara Tourism Village, these risks manifest through ineffective communication, leadership instability, lack of transparency, asset deterioration, and insufficient coordination mechanisms. Such governance gaps undermine trust between management and the local community, a foundational element for the success of community-based tourism (Polukhina et al., 2021). The erosion of trust not only hampers collaborative capacity but also diminishes the village’s ability to mobilize resources and respond effectively to emerging challenges.

Table 1. Key Internal Risks Identified

Risk Item	Potential impact	FGD Insights
Ineffective communication among managers	Reduced coordination; conflicting decisions	“Sometimes managers do not share updates, leading to misunderstandings.”
Conflicts among management	Destabilized governance	Disputes over revenue sharing are reported.
Lack of transparency	Decline in stakeholder trust	Perception of misused funds.
Asset damage	Service disruptions	Damaged signage and visitor facilities were reported.
Lack of village government support	Reduced capacity for improvements	Limited budget allocations.

Source: Research data, 2025

The ineffective communication reported by FGD participants results in operational inefficiencies, duplicated efforts, and inconsistent service delivery. This aligns with earlier findings by Bahri et al. (2025), which highlight communication breakdowns as a critical factor contributing to management paralysis in rural tourism contexts. Similarly, conflicts among management—often stemming from unclear revenue-sharing agreements—can fracture governance structures and divert attention away from service quality improvements. A lack of transparency further exacerbates mistrust, particularly when stakeholders suspect financial mismanagement or perceive inequities in decision-making processes. Such perceptions can deter community members from participating actively in tourism initiatives, ultimately weakening the human capital base that community-based tourism depends upon (Susanto et al., 2025). Asset damage, whether from neglect or inadequate maintenance budgets, directly impacts the visitor experience and may signal a lack of professionalism to tourists. Finally, the lack of support from village government—manifested in insufficient budget allocations or policy alignment—restricts the capacity for infrastructural upgrades and service innovations.

If these internal weaknesses remain unresolved, the village’s crisis response capacity will be significantly impaired, making it more vulnerable to both operational disruptions and reputational damage (Sugiarto et al., 2024a). Addressing these risks requires a multi-pronged governance reform strategy, including: 1) Establishing formal communication protocols to ensure timely, transparent, and consistent information sharing among management teams and stakeholders; 2) Clarifying governance roles and responsibilities through formalized job descriptions and standard operating procedures (SOPs); 3) Institutionalizing transparency measures, such as regular financial reporting, community briefings, and open-access records of tourism revenues and expenditures; 4) Implementing preventive asset management plans that allocate dedicated budgets for the upkeep and enhancement of tourism infrastructure; and 5) Strengthening institutional ties with local government to secure long-term policy support, funding opportunities, and alignment with regional tourism strategies. From a resilience perspective, strengthening governance is not only a defensive measure but also an enabler of innovation and competitive advantage. Tourism villages with robust governance structures are better positioned to diversify their offerings, attract investment, and adapt to changing market and environmental conditions (Mihalic, 2024). In the case of Tugu Utara, reinforcing internal governance mechanisms will directly enhance its operational readiness and overall sustainability.

**Human Resource Risk**

Human resource risks in tourism villages are closely tied to the competencies, professionalism, and commitment of individuals who deliver tourism services. In the case of Tugu Utara Tourism Village, FGDs revealed persistent challenges, including low service quality, inadequate tour guide competence, lack of discipline, and poor communication skills. These findings are consistent with (Kiswanto et al., 2025), who demonstrated that insufficient staff training is among the leading causes of visitor dissatisfaction and reduced loyalty in rural tourism settings.

**Table 2. Key Human Resource Risks Identified**

Risk Item	Potential impact	FGD Insights
Unsatisfactory service	Negative visitor reviews; reduced repeat visitation	Complaints about inconsistent hospitality and a lack of personal attention.
Low discipline	Reduced operational reliability; staff shortages during peak hours	Tardiness and absenteeism were observed, especially during the high tourist influx.
Weak communication skills	Misinterpretation of tourist needs; cultural misunderstandings	There are language barriers with international visitors and difficulty handling complaints.
Inadequate tour/event guides	Poor visitor engagement; diminished educational value of tours	Limited storytelling, weak interpretation of cultural/natural heritage.

Source: Research data, 2025

The unsatisfactory service cited by participants often stems from insufficient hospitality training, a lack of customer care standards, and inconsistent adherence to service protocols. Such shortcomings have been linked in prior studies to a deterioration of destination image and reduced word-of-mouth promotion (Bahri et al., 2025). Low discipline—manifested in tardiness, absenteeism, and lack of preparedness—reduces the operational reliability of the village, particularly during peak visitation periods when demand for service quality is highest. Weak communication skills are another critical barrier, as they hinder effective interaction with both domestic and international tourists. This not only affects the immediate service experience but also limits the ability to manage complaints constructively, potentially escalating minor service issues into reputational risks (Susanto et al., 2025). Finally, inadequate tour and event guiding skills reduce the experiential value of visits, particularly in heritage-rich rural destinations where interpretation and storytelling are central to creating memorable tourism experiences (Polukhina et al., 2021).

Addressing these risks demands a multi-tiered capacity development strategy. First, structured hospitality training programs should be institutionalized, incorporating customer service principles, cultural sensitivity, and practical role-play exercises. Second, continuous performance monitoring systems can help ensure adherence to service standards, with feedback loops for corrective action. Third, language and intercultural communication workshops would enhance engagement with international visitors, expanding the market reach of the destination. Fourth, professional guiding certification programs, supported by regional tourism authorities or NGOs, could enhance interpretation skills and deepen the storytelling capacity of local guides. Beyond risk mitigation, investing in human capital serves as a strategic lever for competitive differentiation. Rural tourism destinations that can consistently deliver high-quality, culturally authentic, and personalized services are better positioned to command higher visitor loyalty, attract repeat visitation, and generate positive word-of-mouth. For Tugu Utara, enhancing human resource quality is not merely a corrective measure—it is an essential pillar for long-term sustainability and market competitiveness in an increasingly experience-driven tourism economy (Mihalic, 2024).

**System Risk**

System risks in tourism villages emerge from deficiencies in operational systems, data management, and administrative procedures that underpin daily operations. In Tugu Utara Tourism Village, the FGDs revealed four primary manifestations of these risks: poor visitor data management, inadequate financial tracking, overcapacity during peak periods, and the imposition of illegal charges. These issues collectively point to the absence of standardized operational procedures (SOPs) and integrated digital solutions—factors that are essential for efficient, transparent, and accountable tourism management (Sugiarto, 2023a; Tarjo et al., 2024).

**Table 3. Key System Risks Identified**

Risk Item	Potential impact	FGD Insights
Visitor data mismanagement	Inaccurate reporting; ineffective marketing	Lack of a centralized booking system and inconsistent visitor logs.
Poor financial management	Budget misallocation; reduced capacity for reinvestment	Manual bookkeeping is prone to human error and fraud risk.
Overcapacity	Visitor dissatisfaction; environmental strain	Overcrowding during holiday weekends; insufficient crowd control measures.
Illegal charges	Reputational risk; legal consequences	Reports of unregulated parking and service fees.

Source: Research data, 2025

Visitor data mismanagement undermines the ability to analyze market trends, target promotional campaigns effectively, and plan for seasonal fluctuations in demand. Without accurate data, strategic decisions—such as resource allocation, staffing, and infrastructure planning—are often based on estimates rather than empirical evidence, resulting in inefficiencies and missed revenue opportunities (Bahri et al., 2025). Poor financial management, often a result of manual bookkeeping and a lack of transparent accounting systems, increases the risk of budget misallocation and erodes stakeholder trust. In rural tourism contexts, such weaknesses can directly hinder the reinvestment of earnings into infrastructure upgrades or staff training, perpetuating operational vulnerabilities (Susanto et al., 2025). Overcapacity during peak visitation periods not only diminishes the quality of the tourist experience but also exacerbates environmental pressures on local ecosystems. Overcrowding can lead to deterioration of natural sites, increased waste generation, and community–tourist conflicts—issues that have been widely documented in sustainable tourism research (Mihalic, 2024). The practice of illegal charges, such as unregulated parking or service fees, poses both reputational and legal risks. These charges often create negative visitor perceptions and are likely to result in poor online reviews, deterring future visitation. Furthermore, such practices reflect weak regulatory oversight and inadequate enforcement of operational guidelines.

Addressing system risks requires a structured, technology-driven approach. The implementation of integrated digital platforms for booking, payments, and visitor tracking would streamline operations, ensure accurate data collection, and improve financial transparency. These systems would also facilitate real-time monitoring of visitor flows, enabling proactive crowd management and capacity control. In addition, financial management training for village administrators, coupled with the adoption of basic accounting software, could mitigate errors and strengthen fiscal governance. Ultimately, the mitigation of system risks is not merely a technical adjustment but a strategic imperative for long-term sustainability. By institutionalizing SOPs, embracing digital solutions, and reinforcing accountability mechanisms, Tugu Utara can transform operational efficiency into a source of competitive advantage, ensuring that service delivery remains reliable, transparent, and visitor-centric.

### ***Infrastructure and Supporting Facilities Risk***

Infrastructure and supporting facilities represent the physical foundation upon which tourism experiences are built. In community-based destinations such as Tugu Utara Tourism Village, the quality, availability, and reliability of these assets directly shape visitor perceptions, influence satisfaction, and determine the likelihood of repeat visits. FGDs identified several recurring infrastructural risks: power outages, inadequate toilet facilities, substandard accommodation, and limited accessibility. These limitations are not only service-related inconveniences but also strategic vulnerabilities that compromise safety, comfort, and the long-term competitiveness of the destination. This aligns with global evidence demonstrating that infrastructure quality is strongly correlated with visitor loyalty and destination resilience (Tarjo et al., 2024; Mihalic, 2024).

**Table 6. Key Infrastructure Risks Identified**

Risk Item	Potential impact	FGD Insights
Power outages	Disrupted tourist activities; reduced service reliability	Night-time events and homestay operations are frequently interrupted.
Inadequate toilet facilities	Visitor discomfort; hygiene and sanitation concerns	Poor maintenance and insufficient capacity during peak periods.
Poor accommodation quality	Reduced overnight stays; limited revenue capture	Amenities fail to meet visitor expectations, especially for longer stays.
Limited accessibility	Lower visitor numbers; constrained market reach	Road closures during rainy seasons impede travel to the village.

Source: Research data, 2025

Power outages are particularly disruptive in destinations offering nighttime attractions or homestay experiences, as they diminish the perceived reliability of services and create safety concerns for visitors. In rural contexts, unreliable electricity supply has been shown to negatively influence not only visitor satisfaction

but also local business operations dependent on consistent energy access (Polukhina et al., 2021). Inadequate toilet facilities—in terms of both quantity and maintenance—were repeatedly mentioned by participants as a source of visitor dissatisfaction. Poor sanitation not only impacts the comfort and hygiene of guests but also poses public health risks, potentially leading to negative reviews and a decline in destination reputation (Bahri et al., 2025). Substandard accommodation quality limits the village's ability to attract higher-spending tourists who prefer overnight stays, thereby constraining opportunities for revenue diversification. Basic amenities that fall below visitor expectations, particularly for domestic and international tourists accustomed to higher standards, can result in shortened stays and reduced local economic impact (Susanto et al., 2025). Limited accessibility, especially during the rainy season, restricts the flow of visitors and poses logistical challenges for event planning, emergency services, and supply chains. In the broader literature, accessibility is recognized as a key determinant of rural tourism viability, influencing both demand patterns and investment attractiveness (Tarjo et al., 2024).

Addressing these infrastructural risks requires coordinated investment strategies that involve both community stakeholders and local government. Public–private partnerships (PPPs) can mobilize the financial and technical resources needed for infrastructure upgrades while ensuring that development priorities align with local needs and sustainability principles. Specific measures include: 1) Upgrading electricity infrastructure through renewable energy solutions such as solar power to reduce dependency on unstable grid supply; 2) Expanding and improving sanitation facilities, coupled with regular maintenance schedules and hygiene monitoring systems; 3) Raising accommodation standards via capacity-building programs for homestay operators and access to microfinance for property improvements; and 4) Improving road infrastructure and drainage systems to enhance year-round accessibility, potentially in coordination with regional transportation authorities. By embedding infrastructure resilience into the tourism development agenda, Tugu Utara can not only mitigate operational disruptions but also strengthen its position as a safe, comfortable, and accessible rural tourism destination. The integration of infrastructure planning into broader operational risk management frameworks will be essential for ensuring long-term sustainability and community empowerment.

## **Discussion**

The findings from Tugu Utara Tourism Village highlight that operational risks in community-based tourism are multifaceted, interlinked, and systemic rather than isolated incidents. The four primary categories—internal risk, human resource risk, system risk, and infrastructure and supporting facilities risk—represent distinct yet overlapping domains of vulnerability that collectively determine the resilience and sustainability of the destination. From a governance perspective, internal risks undermine the institutional cohesion necessary for effective decision-making, stakeholder engagement, and strategic alignment. Weak communication channels, leadership instability, and low transparency reduce trust among stakeholders, echoing findings by Polukhina et al. (2021) that governance breakdowns in rural tourism contexts often cascade into wider operational failures. Governance quality is not merely an administrative concern; it is a foundational enabler of coordinated crisis response, adaptive capacity, and collective action in tourism development.

Human resource risks emerged as a second critical dimension, with deficiencies in service quality, discipline, communication skills, and guiding competence directly affecting the visitor experience. These results align with Kiswanto et al. (2025) and Bahri et al. (2025), who demonstrate that staff competence in rural tourism is a significant predictor of both satisfaction and loyalty. In Tugu Utara, the lack of structured training programs and performance monitoring not only contributes to inconsistent service delivery but also constrains the village's ability to compete in a market increasingly driven by experiential quality and personalized service. System risks—manifested through poor data management, weak financial systems, overcapacity, and illegal charges—reflect operational inefficiencies and the absence of standardized operational procedures (Sugiarto, 2023a). Similar challenges have been documented in small-scale tourism enterprises, where limited administrative capacity impedes evidence-based decision-making (Tarjo et al., 2024). In Tugu Utara, the inability to capture and utilize visitor data constrains marketing strategies and load management, while inadequate financial systems undermine transparency and reinvestment capacity. Moreover, overcapacity during peak periods amplifies environmental pressures and degrades the visitor experience, supporting Mihalic's (2024) assertion that unmanaged growth is antithetical to sustainable tourism.

Finally, infrastructure and supporting facilities risks directly affect the physical environment in which tourism services are delivered. Power outages, inadequate sanitation, substandard accommodations, and poor accessibility not only impair visitor satisfaction but also limit the destination's capacity to attract and retain higher-value segments. These findings parallel global studies that link infrastructure quality to visitor loyalty,



environmental sustainability, and local economic spillovers (Tarjo et al., 2024; Susanto et al., 2025). For rural destinations, infrastructure is not merely a passive enabler but an active determinant of competitiveness. A critical insight from this study is the interdependence of these risk categories. Governance weaknesses (internal risks) can delay or derail infrastructure development, exacerbate human resource deficiencies, and hinder the adoption of efficient systems. Similarly, inadequate infrastructure magnifies the impact of human resource and system risks, as staff are forced to deliver services in suboptimal conditions. This interconnectedness supports the systems-thinking approach advocated in tourism resilience literature (Mihalic, 2024), which posits that interventions must address the network of risks rather than isolated components.

#### *Theoretical Implications*

The results extend the operational risk discourse in tourism by contextualizing it within a community-based, rural setting. While prior studies have examined operational risks in large-scale tourism enterprises (Bong et al., 2019; Sugiarto, 2023a), this study provides a grounded typology for rural tourism villages that integrates governance, human capital, operational systems, and infrastructure into a unified risk framework. This contributes to the refinement of rural tourism risk models by emphasizing socio-organizational factors alongside physical and technological elements.

#### *Practical Implications*

For practitioners, the findings underscore the necessity of integrated risk management frameworks tailored to the unique operational realities of tourism villages. In the case of Tugu Utara, interventions should prioritize: 1) Governance reform—institutionalizing transparency, communication protocols, and stakeholder engagement mechanisms; 2) Capacity building—designing continuous training programs that enhance hospitality skills, interpretation quality, and service discipline; 3) Digital transformation—implementing integrated visitor management, booking, and payment systems to improve operational efficiency and transparency; 3) Infrastructure resilience—upgrading core facilities through public–private partnerships and embedding maintenance planning into annual budgets. By adopting a holistic approach, tourism villages can shift from reactive crisis management to proactive resilience building, thereby safeguarding both visitor satisfaction and community livelihoods.

#### *Towards an Integrated Operational Risk Model for Tourism Villages*

Synthesizing these findings suggests that effective operational risk mitigation in rural tourism must operate on four interconnected pillars: governance integrity, human capital development, operational system efficiency, and infrastructure resilience. These pillars are mutually reinforcing: improvements in one domain enhance the performance of others, while neglect in any domain can trigger cascading failures across the system. This study's proposed model (Figure X) conceptualizes these interdependencies and offers a strategic blueprint for tourism village managers seeking to embed risk management into their broader development agenda.

## **CONCLUSION**

This study has demonstrated that mitigating operational risks in tourism villages requires the active and collaborative engagement of key stakeholders—particularly tourism village managers, local government representatives, and community members—who possess the capacity to systematically identify, map, and address both existing and potential risks. The findings from Tugu Utara Tourism Village confirm that operational risks can be categorized into four interrelated pillars: internal risks, human resource risks, system-related risks, and infrastructure and supporting facilities risks. These categories encapsulate governance challenges, capacity and skills gaps, procedural inefficiencies, and physical limitations that, if left unaddressed, can erode service quality, diminish visitor satisfaction, and threaten destination sustainability. The current state of operational risk management in Tugu Utara reflects an early-stage implementation, characterized by ongoing planning, initial capacity-building efforts, and the gradual introduction of standard operating procedures. While these measures have begun to improve service delivery and visitor experiences, they remain fragmented and require integration into a comprehensive, data-driven risk management framework. From a strategic perspective, embedding operational risk management within the broader governance, human capital, system, and infrastructure development agendas will not only reduce vulnerabilities but also create the conditions for long-term competitiveness. By doing so, tourism villages can transform risk management from a reactive necessity into a proactive driver of visitor loyalty, community empowerment, and sustainable rural tourism development.

## **Recommendations**

To enhance the resilience and competitiveness of Tugu Utara Tourism Village, several strategic recommendations are proposed. First, strengthening governance is critical to reducing internal risks by establishing a formal governance framework with clearly defined roles, decision-making protocols, and accountability mechanisms. This should be supported by regular coordination meetings involving all stakeholders, as well as transparent financial and operational reporting systems accessible to the community, fostering trust and collaborative capacity. Second, enhancing human resource capacity and professionalism is essential, which can be achieved through continuous training programs focused on hospitality standards, storytelling, crisis response, and foreign language proficiency. Performance monitoring and incentive systems should be introduced to improve discipline, motivation, and service quality, complemented by partnerships with educational institutions and professional associations for skill development and internships. Third, modernizing operational systems will improve efficiency and transparency by adopting integrated digital platforms for booking, payment, and data management, standardizing operating procedures, and introducing visitor capacity monitoring systems to prevent overcrowding. Fourth, investment in infrastructure and supporting facilities must be prioritized, particularly the upgrading of sanitation, accommodation quality, and accessibility, alongside resilience measures to mitigate environmental hazards and routine maintenance schedules for all tourism assets. Finally, operational risk management should be institutionalized as a core element of sustainable tourism strategy by integrating risk mapping into annual planning and budgeting cycles, conducting regular risk audits with community participation, and aligning risk mitigation with marketing and branding initiatives to position the village as a safe, well-managed, and high-quality destination. Implemented cohesively, these measures will enable Tugu Utara to shift from reactive problem-solving to proactive risk governance, thereby strengthening visitor loyalty, community empowerment, and long-term sustainability.

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