Identifying Potentials and Challenges Through Tourism Mapping: The Case of Turgo Merapi Tourist Village

Deni Dwi Ananti [1*], Sony Heru Priyanto [2], Genta Sahuri [3], Sugiarto [4]

[1,2,4] Sekolah Tinggi Pariwisata Ambarrukmo, Yogyakarta, Indonesia

[3] Universitas President, Bekasi, Indonesia

[1] denidwiananti@stipram.ac.id; [2] sonnyherupriyanto@stipram.ac.id; [3] gentasahuri@president.ac.id;

[4] profsugiarto@stipram.ac.id

* Correspondence: denidwiananti@stipram.ac.id

Abstract

Purpose This study aims to explore the application of virtual organization (VO) concepts as a strategic solution to the organizational challenges of community-based tourism, with a particular focus on Turgo Merapi Tourist Village in Indonesia. The research seeks to map organizational needs and potentials while assessing how VO can enhance adaptability, integration, and sustainability in rural tourism management. Methodology A participatory ethnomethodological approach was employed, combining in-depth interviews, participant observation, and group discussions with key stakeholders, including organizational leaders, unit managers, and community members. Data were collected from two pilot trials of VO implementation: the first focused on identifying organizational needs, and the second involved practical application using a web-based platform.

Findings The results indicate that Turgo Merapi faces challenges related to fragmented stakeholder involvement, limited digital literacy, and generational gaps in human resource capacity. However, the adoption of VO principles enabled more integrated coordination across homestay, culinary, and tourism units, while also improving administrative efficiency, transparency, and promotional outreach. Although some participants struggled with technology adoption, the VO framework was perceived as beneficial for recordkeeping, collaborative decision-making, and long-term sustainability. Practical Implications The study provides actionable insights for policymakers, community leaders, and tourism entrepreneurs on how VO can be tailored to rural tourism contexts. Integrating digital platforms into organizational structures can improve efficiency, transparency, and collaboration, provided that capacity-building programs address digital literacy and generational gaps. Originality/Value This research contributes to the limited literature linking virtual organizations to tourism organizational dynamics. By focusing on Turgo Merapi Tourist Village, the study demonstrates how VO can serve as a practical and context-sensitive model to strengthen resilience and sustainability in community-based tourism.

***Keywords**: Virtual Organization; Tourism Organization; Turgo Merapi; Community-Based Tourism; Organizational Dynamics; Digital Transformation;*

INTRODUCTION

Tourism plays a crucial role in regional and rural development, acting as a catalyst for economic diversification, cultural preservation, and community empowerment. However, the effectiveness of tourism development largely depends on the extent to which local potentials are systematically identified and managed through comprehensive planning approaches (Rodrigues et al., 2023; Streimikiene et al., 2021). In this context, *tourism mapping* has emerged as a vital tool for identifying spatial and non-spatial assets, revealing the relationships among natural, cultural, and socio-economic resources that shape a destination's competitiveness and sustainability. Mapping not only assists policymakers in spatial planning but also enables communities to visualize their own resources and actively participate in tourism planning and decision-making processes (Brandt et al., 2022; Giaoutzi & Papadopoulou, 2021).

In the context of rural destinations, tourism mapping is particularly important due to the fragmented and multi-sectoral nature of tourism activities. Rural tourism often integrates agriculture, nature, and cultural heritage within localized economies that rely heavily on community participation (Saad, 2022). Yet, many rural destinations still lack the managerial capacity and planning tools required to systematically map and coordinate their tourism resources (Liu & Li, 2025; Ramaano, 2023). This limitation results in overlapping initiatives, underutilized potentials, and the absence of coherent development strategies that align local aspirations with sustainable tourism goals (Burton et al., 2025). Consequently, there is a growing need for methodologies that combine participatory and

spatially grounded approaches to reveal both opportunities and constraints within tourism systems (Tourais & Videira, 2021).

Indonesia's tourism development agenda emphasizes community-based approaches, especially through the *Desa Wisata* (tourist village) program that seeks to empower rural communities to manage and benefit from their local resources(Pramono & Juliana, 2025). Nevertheless, many of these villages struggle with limited human resources, weak governance, and fragmented coordination among tourism actors (Harsanto & Wahyuningrat, 2024). Turgo Merapi Tourist Village, located on the slopes of Mount Merapi, represents one such example where rich natural and cultural assets coexist with organizational and managerial challenges. Despite its potential for nature-based, religious, and agrotourism development, the absence of integrated planning and systematic mapping has constrained its ability to develop cohesive tourism products and competitive positioning in the regional tourism market.

Against this background, this study aims to identify the tourism potentials and organizational challenges of Turgo Merapi Tourist Village through a tourism mapping framework. By integrating community-based insights and spatial analysis, the research seeks to construct a comprehensive understanding of the village's assets and constraints, thus contributing to the broader discourse on destination planning and sustainable rural tourism management. The study also offers a contextualized reflection on how participatory mapping can serve as both a diagnostic and developmental tool, enabling rural destinations to align local resources, institutional structures, and strategic objectives toward long-term sustainability.

LITERATURE REVIEW

Tourism Mapping as a Planning Instrument

Tourism mapping has become an essential methodological tool for understanding the spatial and functional dynamics of destinations. It allows researchers and planners to identify tourism assets, service networks, and environmental sensitivities, while also revealing gaps in infrastructure and accessibility (Boers & Cottrell, 2007; Jovicic, 2016). Through mapping, tourism systems can be visualized not merely as collections of attractions but as interconnected networks that require integrated management (Hall, 2008).

In recent years, participatory and GIS-based mapping approaches have expanded the traditional use of tourism mapping, emphasizing the inclusion of local knowledge in spatial analysis (Farsari et al., 2019). This shift aligns with the principles of sustainable tourism development, which stress the importance of incorporating community perspectives in resource identification, prioritization, and destination planning (Lane & Kastenholz, 2015). As a result, tourism mapping is increasingly viewed as both a technical and social process that enhances transparency, coordination, and stakeholder engagement.

Community Participation and Local Empowerment

The integration of community participation into tourism planning is widely recognized as a cornerstone of sustainable destination management (Timothy, 1999; Tosun, 2000). Local communities not only possess valuable indigenous knowledge about the environment and culture but also play an active role in ensuring the authenticity and resilience of tourism practices (Aref, 2011). In rural contexts, the effectiveness of tourism initiatives often hinges on the extent to which communities are engaged in identifying, mapping, and managing their own tourism resources (Okazaki, 2008).

Participatory mapping, in particular, has emerged as an effective approach to foster local empowerment. It provides a platform for residents to articulate their perspectives, define spatial priorities, and negotiate the use of shared resources (Corbett et al., 2006). This approach not only strengthens governance structures at the community level but also ensures that tourism development reflects local aspirations rather than externally imposed agendas (Cole, 2006). In Indonesia's Desa Wisata framework, participatory mapping offers opportunities to balance top-down policies with bottom-up planning, thereby enhancing the sustainability and ownership of tourism initiatives.

Destination Management and Sustainable Development

Destination management involves the coordinated efforts of multiple stakeholders government bodies, private enterprises, and community organizations to enhance a destination's competitiveness while ensuring sustainability (Pike & Page, 2014). Effective destination management systems (DMS) require accurate and up-to-date data on resources, visitor flows, and market trends, which can be supported through systematic mapping efforts (Buhalis, 2000). Mapping enables destination managers to visualize linkages between attractions, accommodation, and infrastructure, facilitating evidence-based decision-making (Vogklis, 2025).

In rural tourism, the role of destination management organizations (DMOs) is often informal or community-based, leading to challenges in coordination, capacity building, and market positioning (Briedenhann & Wickens, 2004; Saxena et al., 2007). Therefore, integrating mapping into destination management offers dual benefits: first, as a diagnostic tool to identify potentials and constraints; and second, as a planning mechanism to guide investment, promotion, and product development strategies. Through this integration, rural destinations can transition from fragmented, activity-based tourism toward holistic, destination-oriented management.

Conceptual Framework

Based on the reviewed literature, this study conceptualizes tourism mapping as an integrative process linking three key dimensions:

1. Identification of Tourism Potentials, including natural, cultural, and community-based resources.
2. Recognition of Organizational and Managerial Challenges, encompassing human resources, governance, and coordination gaps.
3. Destination Planning and Management, which synthesizes spatial and participatory findings into actionable strategies.

This framework positions mapping not only as a descriptive exercise but as a transformative tool for community-based destination planning. It allows local stakeholders to visualize their assets, assess constraints, and collaboratively design pathways toward sustainable tourism development.

RESEARCH METHODS

This study employs an ethnomethodological approach integrated with participatory tourism mapping to explore how members of community-based tourism organizations in Turgo Merapi understand, interpret, and manage their tourism potentials and challenges. Ethnomethodology, as introduced by Garfinkel (2023), emphasizes the everyday methods individuals use to construct meaning from their social interactions and organizational roles. This approach is considered particularly relevant in tourism mapping, where community actors must collectively identify and interpret spatial, social, and environmental aspects of their destination through shared local knowledge. By examining these lived experiences, ethnomethodology enables the researcher to capture how tourism stakeholders construct meaning, negotiate priorities, and develop collaborative strategies in managing tourism development.

In practice, this study adopts a participatory ethnomethodology, combining techniques such as in-depth interviews, participant observation, and participatory mapping workshops. This participatory design allows local stakeholders not only to discuss but also to visually represent their perceptions of tourism assets, accessibility, and management issues. The research involved key informants including the Chairperson, Secretary, Treasurer, local guides, homestay owners, and community tourism group leaders from Turgo Merapi Village selected purposively based on their active engagement in tourism management and planning. Informants were invited to reflect on spatial and managerial aspects of tourism, including human resources, marketing, infrastructure, environmental conservation, and community participation.

The participatory mapping sessions were designed to identify and classify the village's tourism potentials, such as natural landscapes, cultural attractions, and supporting facilities, while also locating constraints such as environmental risks, accessibility issues, and limited capacity building. The combination of mapping, interviews, and observations allowed the researcher to analyze how local actors collaboratively interpret and respond to tourism challenges within their socio-spatial context. Data analysis was conducted through thematic and spatial interpretation, situating community narratives within the broader context of sustainable tourism development. The findings were interpreted to understand how local knowledge, collaboration, and perception of space influence tourism planning and destination management. This approach ensured that the resulting tourism map not only represented physical attributes but also reflected the community's lived experiences and strategic priorities for future tourism development.

RESULTS

This section delineates the findings from a comprehensive tourism resource assessment of Turgo Merapi Tourist Village. The analysis is structured to elucidate the core determinants of the village's tourism development trajectory, specifically: (1) the cartography of primary tourism assets, (2) the identification of salient organizational and environmental constraints, and (3) a synthesis of the interplay between these potentials and challenges in forging the village's developmental pathway.

Mapping of Primary Tourism Assets

Figure 1. View of Merapi from the tomb of Sheikh Jumadil Kubro
Source: Author documentation (2024)

Turgo Merapi possesses a diverse array of natural, cultural, and agrotourism resources. Natural and cultural attractions include the sacred site of Syekh Jumadil Kubro on Turgo Hill, attracting spiritual tourists, as well as unique phenomena such as Lava Pijar and endemic bird species suitable for wildlife and bird-watching tours. These attractions provide aesthetic, recreational, and niche tourism value, encompassing religious tourism, ecotourism, and wellness-focused experiences.

Figure 2. Tourism Potential Mapping
Source: Author documentation (2024)

Agrotourism activities further diversify the tourism portfolio, including goat farming, milk processing, coffee and tea cultivation, and orchid farming. Homestay operations incorporate orchid planting as a marker of local identity and aesthetic enhancement. Collectively, these resources offer opportunities for authentic interactions between tourists and residents, contributing to the uniqueness of Turgo as a destination. However, current management practices remain largely fragmented, with each attraction operated individually, limiting the potential for integrated tourism packages and reducing competitiveness relative to other destinations.

Organizational and Environmental Constraints

Despite the abundance of tourism resources, Turgo Merapi faces several organizational and environmental limitations. The village's human resource capacity is limited, with approximately 20 active members distributed across divisions such as homestay management, culinary services, and destination coordination. Leadership roles include a chairperson, secretary, and treasurer; however, the absence of structured generational management and formalized HR systems constrains the adoption of modern technologies and efficient operational practices.

Organizational governance is informal and lacks legal recognition. Decision-making processes and ownership arrangements are based on mutual agreements rather than formalized frameworks, creating vulnerabilities in long-term sustainability and hindering engagement with external partners. These structural weaknesses affect coordination, planning, and the capacity to fully leverage the village's tourism assets.

Interplay Between Potentials and Challenges

The interaction between tourism resources and organizational limitations reveals critical gaps in Turgo Merapi's development trajectory. Although the village possesses assets suitable for niche markets, limited human resource skills, informal governance structures, and unclear ownership arrangements reduce the community's ability to capitalize on these assets effectively. Integrating the geological, ecological, and well-being dimensions of tourism experiences is constrained by insufficient training, limited institutional support, and a lack of structured knowledge transfer.

Fig 3. Guests enjoying Turgo's tea at the homestay **Fig 4.** Turgo guide guides the climb of Turgo Merapi hill

Source: Author documentation (2024)   Source: Author documentation (2024)

Despite these challenges, local actors demonstrate adaptive practices, blending cultural authenticity with entrepreneurial strategies. Homestays incorporate traditional herbal remedies and aesthetic enhancements, while local guides enrich visitor experiences through storytelling that links natural, cultural, and historical elements. Such adaptations reflect the community's capacity for innovation and resourcefulness in overcoming organizational and operational constraints.

Discussion

The findings from Turgo Merapi Tourist Village illustrate a complex relationship between the village's tourism potentials and the constraints imposed by organizational and human resource limitations. The village possesses diverse natural, cultural, and agrotourism assets, including sacred sites, night-time natural phenomena, bird-watching opportunities, and agricultural activities such as goat farming, coffee and tea cultivation, and orchid farming. These resources offer considerable

opportunities for tourism development and the creation of differentiated experiences. However, the effectiveness of utilizing these assets is limited by several organizational challenges. The governance structure remains informal and lacks legal recognition, resulting in decision-making based on mutual agreements rather than codified frameworks. This creates vulnerability to internal conflicts and reduces the village's ability to implement long-term strategic planning or attract external investment.

Human resource capacity also constrains tourism development. The active membership of around twenty individuals, distributed across homestay, culinary, and tourism divisions, is insufficient for fully leveraging the village's assets. Limited familiarity with digital tools and technology among the managers hampers operational efficiency and the potential for integrated marketing or coordinated service delivery. These gaps in knowledge and skills echo prior research emphasizing the critical role of competency-based human resource development in enhancing service quality, organizational coordination, and destination competitiveness (Ardahaey & Nabilou, 2012; Chaichi, 2012; Zeng et al., 2011).

Despite these challenges, the community demonstrates adaptability through entrepreneurial initiatives, such as integrating local cultural practices into tourism services and developing agrotourism offerings. Homestay operators, for example, cultivate orchids as a form of local identity and aesthetic value, while guides offer bird-watching and wildlife tours that capitalize on endemic species. Such initiatives highlight the potential for local actors to mobilize available resources creatively, even in the absence of formal structures. Nevertheless, the lack of integrated planning and program alignment limits the village's competitiveness relative to other destinations. Coordination across attractions, training programs, and marketing strategies remains fragmented, underscoring the need for structured governance, capacity building, and systematic planning.

Overall, the results indicate that Turgo Merapi's tourism development trajectory is shaped by the interplay between rich natural and cultural potentials and constraints arising from organizational and human resource limitations. Maximizing these resources requires formalization of governance structures, investment in human resource development, and the creation of cohesive tourism packages. Strengthening these aspects can enhance the village's capacity to provide high-quality visitor experiences, improve operational efficiency, and support sustainable development within the rural tourism context.

CONCLUSION

This study examined the tourism potentials and organizational dynamics of Turgo Merapi Tourist Village. The findings indicate that the village possesses diverse natural, cultural, and agrotourism resources, including sacred sites, night-time natural phenomena, endemic bird species, and agricultural activities such as goat farming, coffee and tea cultivation, and orchid farming. These assets offer significant opportunities for tourism development and differentiated visitor experiences.

However, organizational constraints, including informal governance structures, limited human resource capacity, and fragmented program coordination, hinder the village's ability to fully leverage these potentials. The absence of formalized decision-making processes and limited digital literacy among key actors reduce operational efficiency, marketing reach, and long-term sustainability. Despite these challenges, local actors demonstrate adaptability and entrepreneurial creativity by integrating cultural practices and ecological assets into tourism services, highlighting the potential for resource mobilization even in the absence of formal structures.

Future research could explore the longitudinal effects of capacity-building interventions, formal governance implementation, and integrated tourism package development on the village's performance. Comparative studies with other rural tourism destinations could further examine how organizational structures, stakeholder collaboration, and resource utilization influence sustainable tourism growth. Such research would provide valuable insights for policymakers, practitioners, and community-based tourism initiatives seeking to optimize rural tourism potential.

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