Desa Wisata Candirejo: A Green and Sustainable Tourism Business Model Based on Digital Innovation in Borobudur Area

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Abstract. The Tourism business development sector is currently shifting the paradigm from mass tourism toward sustainable tourism whilst more environmentally inclusive and friendly. For example the growing alternative approach is community-based tourism (CBT), which put the local communities as the primary actors in tourism management. The purpose of this paper is to examine the sustainable tourism business model developed by The Candirejo Tourism Village in the Borobudur Area, Magelang, Central Java, focusing on integrating digital innovation in promotion, accessibility, and destination management. This study using a qualitative descriptive approach through the library research method by analyzing relevant secondary data. The results indicate that the implementation of the CBT concept through village cooperative institutions in Candirejo Tourism Village has been successfully created economic freedom for the community, opened new business opportunities, and preserved local arts and culture in a participatory manner. Moreover, the adoption of digital technologies such as social media and online marketing platforms is proven to improve the destination's competitiveness and visibility. However, the process of digitalization at the village level still faces structural challenges, namely limited technological infrastructure and irregular digital literacy among the community. This paper indicates that the success of digital transformation in CBT-based tourism villages strongly requires collaborative governance and continuous human resource capacity building to support the principles of smart sustainable tourism in Indonesia.

Keywords: *Community-Based Tourism (CBT), Sustainable Tourism, Tourism Village, Digital Innovation, Green Tourism, Candirejo Village*

1 Introduction

1.1 A Subsection Sample

The global tourism industry is undergoing a structural reorientation away from mass tourism, whose unmanaged growth has been linked to environmental strain, cultural commodification, and unequal economic benefit, toward models that are more environmentally responsible, inclusive, and community centered [1]. Within this broader shift, green tourism has gained particular relevance as the environmentally-

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focused dimension of the sustainable tourism agenda: whereas sustainable tourism is commonly defined by the United Nations World Tourism Organization and United Nations Environment Program [2] as tourism that balances environmental, economic, and socio cultural aspects of development, green tourism is more specifically concerned with minimizing environmental impact, conserving biodiversity, and reducing the ecological footprint of tourism activity [3].

The institutional mechanism through which many green and sustainable tourism initiatives are realized at the village level, positioning residents as the principal planners, managers, and beneficiaries of tourism activity rather than passive hosts provided by Community based tourism (CBT) [4], [5]. Candirejo Tourism Village, located in the Borobudur Area of Magelang Regency, Central Java, applied this model: since organizing a village cooperative in 2003, the community has collaborated the environmental stewardship, participatory cultural preservation, and more recently digital innovation into a single, locally owned tourism business model [6], [7].

This paper focusing on how Candirejo Village has constructed a green and sustainable tourism business model by integrating community-based institutions, environmental stewardship, and digital innovation in promotion, accessibility, and destination management. The paper moreover considers the structural conditions infrastructure, digital literacy, and governance that shape the depth and durability of this integration.

2 Literature Review

2.1 Green Tourism within the Sustainable Tourism Paradigm

Sustainable tourism is generally treated as the comprehensive concept encompassing environmental, economic, and sociocultural dimensions of tourism development, formalized by UNWTO and UNEP [2] as tourism that meets the needs of travelers while minimizing negative impacts on the environment, culture, and local communities, and delivering long term economic benefits. Green tourism is described as a narrower subset of this paradigm, concentrating specifically on environmental practices such as conservation, waste management, and reduced ecological impact, without necessarily addressing the full range of economic or cultural considerations [3]. Practically, destinations such as Candirejo demonstrate that green (environmental) practices and broader sustainable-tourism goals are frequently pursued together rather than as separate agendas, particularly where environmental stewardship is itself community led [7].

2.2 Community Based Tourism (CBT)

CBT is rooted in Murphy's (1985) systems view of tourism, which frames destinations as an interdependent set of social, cultural, environmental, and economic relationships best understood and managed at the community level. Goodwin and Santilli [5] describe CBT as tourism owned or managed by communities for broad local benefit, a description consistent with community-based sustainable tourism (CBST) as noted in the broader sustainable tourism literature, wherein local ecological knowledge is integrated into everyday tourism management (Sustainable tourism, Wikipedia

summary, n.d.). However, cautions that CBT can remain symbolic unless local institutions hold genuine authority over planning, resources, and revenue a benchmark against which Candirejo's cooperative-based governance can usefully be assessed [8].

2.3 Relationship Between the Three Concepts

According to Swiss Tourism for Sustainable Development in Vietnam the relationship of three concepts is very closed [3]. Green tourism is a subset of sustainable tourism, focusing solely on environmental aspects without necessarily addressing economic or cultural issues.

Ecotourism also falls under sustainable tourism but is limited to nature-related activities and conservation, excluding broader urban or cultural aspects.

Sustainable tourism is the overarching concept, encompassing green tourism and ecotourism while extending to areas like social equity, long-term economic development, and regeneration.

2.4 Digital Innovation and Smart Sustainable Tourism

Digital innovation encompassing websites, social media, digital storytelling, and online marketing platforms has become integral to how rural and Village based destinations achieve visibility and competitiveness in an increasingly digitally mediated travel market [9]. When layered onto a green, Community based tourism model, digital tools are discussed under the emerging concept of smart sustainable tourism, in which technology functions as an enabler of community empowerment and environmental stewardship rather than a substitute for them. Building a functioning village-level digital ecosystem, however, depends on digital literacy, adequate infrastructure, multi actor collaboration, and open governance [9] components that are not yet evenly distributed across Indonesian tourism villages. Sustainable tourism is defined as tourism that can meet the current needs of tourists and tourist destinations while protecting and managing resources in the future so that economic, social, cultural, and aesthetic needs can be met [10].

3 Methods

This study applies a qualitative descriptive approach using the library research (studi pustaka) method. Data were drawn exclusively from secondary sources peer reviewed journal articles, institutional case documentation, and prior empirical studies specifically concerning Candirejo Tourism Village [6], [7], [11], [12], [13], [14] together with comparative literature on green tourism, CBT theory, and digital transformation in Indonesian tourism villages. Thematic content analysis was used to organize findings around three pillars: green / environmental practice, community based institutional management, and digital innovation, alongside the structural challenges and governance implications that connect them.

4 Discussion

4.1 The Green Pillar: Environmental Stewardship in Candirejo

Candirejo's environmental identity predates its formal designation as a tourism village. Community led yard cleaning and greening programs beginning in the 1980s, together with subsequent community based spatial arrangement initiatives, produced measurable improvements in village environmental quality that later became a foundation of its ecotourism identity, formalized since 2003 [7]. This community led environmental management encompassing shared green spaces, riverside conservation along the Progo River, and maintenance of agricultural landscapes used in agrarian tourism activities reflects the green tourism emphasis on minimizing ecological impact and conserving natural resources [3], while remaining embedded in, rather than separate from, community life.

4.2 The CBT Pillar: Economic Independence and Cultural Preservation

Candirejo's tourism cooperative, established in 2003, manages homestays, guided tours, andong (horse-cart) rides, and the sale of handicrafts and culinary products, channeling profits back into community infrastructure [6]. Ahsani [12] documents that this cooperative based model has diversified household livelihoods, improved housing conditions, and stimulated new micro enterprise activity, indicating a meaningful degree of economic independence consistent with the abstract's findings. Participatorily Cultural preservation achievements are: the craft exhibitions, gamelan demonstrations, and agricultural activities are performed by the locals themselves rather than performed by outsource stakeholders, rooting heritage transmission turning into daily activity live [6], [11]. Customized exercise approach, such as training of financial management for homestay owners, has raised the capacity of the residences to manage this kind of sustainability model [14].

4.3 The Digital Pillars: Promotion, Accessibility, and Destination Management

The innovation of digital has been tiered onto Candirejo's green, the foundation of Community. The official website of (candirejo.com) offers an e-magazine or digital flipbook of local chronicles using a storynomic method, an active Instagram presence and on site QR code information points enhanced the visitors direct digital access to contextual information [13]. “Candirejo placed as a “Superior Quadrant” by A digital-readiness assessment of Indonesian tourism villages, strong internal digital capability combined with the high market attractiveness, and recommended more expansion into virtual tours, online reservation, and structured technology partnerships” (Rohmiyati et al., 2026). These findings validate the observation of the abstract that digital promotion has improved the Candirejo’s visibility and competitiveness.

4.4 Structural Challenges: Infrastructure and Digital Literacy

However, the digitalization at the village level still constraint. Broader research on Indonesian tourism villages found unequal internet infrastructure, limited digital

literacy among villagers, and fragmented, volunteer dependent digital initiatives lacking systematic institutional backing as the same problems [15]. Because of many village level digital promotion is carried out by individuals or small groups rather than fixing in comprehensive governance structures, digital gains can remain fragile, providing the abstract's finding that limited infrastructure and uneven digital literacy continue to be the issue of the depth of Candirejo's digital transformation.

4.5 Integrated Model

Figure 1 depicts Candirejo's tourism business model as the emerge of three pillars: Green (environmental), CBT (community), and Digital (innovation), situated within a governance level that shows the structural chllenges identified above.

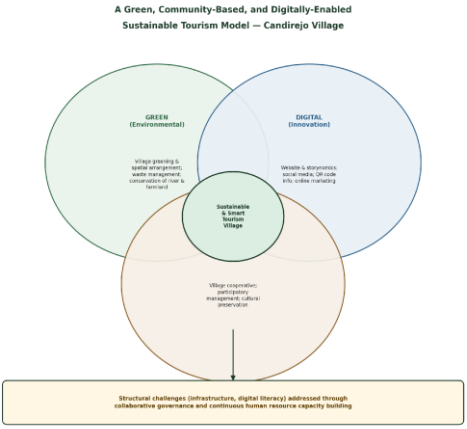


Fig 1. Integrated model of the business of Candirejo's green, community-based, and digitally-enabled sustainable tourism, showing the convergence of environmental stewardship, CBT institutions, and digital innovation, collaborative governance and capacity building supported.

4.6 Integrated Model

Table 1 summarizes the three pillars of Candirejo's green and sustainable tourism model, together with their manifestations, outcomes, and supporting literature.

Table 1. Green Tourism Practices and Sustainability Pillars in Candirejo Tourism Village

Pillar	Manifestation in Candirejo	Outcome	Supporting Source
Green (Environmental)	Community-led greening & spatial arrangement since the 1980s; river & farmland conservation	Improved village environmental quality; ecological foundation for ecotourism	Fatimah (2018)
CBT (Community)	Village cooperative managing homestays, tours,	Economic independence; new business	Fatimah & Kanki (2008, 2009); Ahsani

	crafts; participatory cultural performance	opportunities; cultural preservation	(2018); SPEKTA (2023)
Digital (Innovation)	Storynomics website & flipbook; Instagram; QR-code destination information	Increased visibility and destination competitiveness	Ayu et al. (2025); Rohmiyati et al. (2026)
Governance/ Capacity	Multi-stakeholder collaboration; digital & financial literacy training	Addresses infrastructure & literacy gaps; foundation for smart sustainable tourism	Bramwell & Lane (2000); Community-Based Smart Tourism Village (2025)

5 Implications: Toward Smart Sustainable Tourism

The findings suggest that Candirejo's green and sustainable tourism model is strongest where its three pillars reinforce one another environmental stewardship provides the resource base for tourism, CBT institutions ensure equitable benefit and cultural continuity, and digital innovation extends the destination's reach but weakest where structural gaps in infrastructure and digital literacy limit how fully digital innovation can be integrated. Two implications follow: Collaborative governance. Coordinated involvement of the village cooperative, local government, academic institutions, and technology partners is needed to move digital initiatives beyond fragmented, volunteer driven efforts toward an institutionalized strategy (Community-Based Smart Tourism Village, 2025; Bramwell & Lane, 2000) [15], [16]. Continuous capacity building. Digital and financial literacy training, of the kind already piloted for homestay operators (SPEKTA, 2023) [14], should be extended across the resident population so that digital tools support, rather than bypass, existing green and Community based practices.

6 Conclusion

Candirejo Tourism Village illustrates how a green, community based, and digitally enabled tourism business model can be constructed at the village level. Community led environmental stewardship dating to the 1980s provided the ecological foundation for the village's tourism identity, a cooperative based CBT institution has since generated economic independence, new business opportunities, and participatory cultural preservation and more recently, digital innovation in promotion and destination information has strengthened the destination's visibility and competitiveness. Structural infrastructure and digital literacy nonetheless continue to limit the depth of digital integration is still constraint. Understanding the full potential of smart sustainable tourism in Candirejo requires collaborative, multi stakeholder governance paired with simultaneous human resource capacity building ensuring that digital innovation reinforces, betterhas than displaces, the green and community-based foundations are already in place.

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