



Socio-Ecological Resilience and Social System in Candirejo Village, Magelang: A Case Study on Sustainable Tourism Development

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Abstract

One of the serious problems faced by the Magelang District in developing villages that have been transformed into rural tourism in an effort to alleviate poverty is the socio-ecological crisis that threatens the goal of sustainable development. The dilemma of complex rural ecosystems is due to changes in the socio-ecological dimensions resulting from the interaction of material and energy exchanges between humans and their environment. The exploitation of nature in the name of tourism has become one of the short-term solutions for farming communities. As a result, problems such as natural damage to social conflicts occur in the village. This research aims to analyze the causes of the socio-ecological crisis and explore the Social System in Candirejo Village, Magelang Regency. The Social System seen from the perspective of constructivism will be measured and analyzed using three aspects of cybernetic reflection (Luhmann). The method used is case study qualitative research, and data is collected through in-depth interviews, FGDs, and observations. The results show that socio-ecological improvements also impact agents of change, extend the tourism season, increase community participation, align the visitor experience with Borobudur's reputation, and increase equitable access to tourism revenue opportunities, all of which strengthen the socio-ecological field.

Keywords: CBT, Social System, Sustainable Development, Resilience, Luhman

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1. Introduction

A village is a legal community unit with territorial boundaries. It has the authority to coordinate and manage the interests of local communities that are recognized and respected in the System of the Unitary State of the Republic of Indonesia (UU No. 6/2014). A rural area is an environment where people have a warm and familial relationship, and is an area that depends on agriculture (Djarmiko et al., 2021). As a product of the settlement of agrarian societies, villages are complex ecosystems in which natural, economic and social subsystems are integrated (Kunjuraman, 2020). Humans interact and recycle material, and energy flows with nature through production and lifestyle, a process that operates within the social-ecological dimension. Therefore, it requires people's wisdom to manage their environment. This is in accordance with the philosophy that is one of the life guidelines of the Javanese people "hamemayu hayuning bawana" which shows that humans, in interactions between nature and other humans, should be wise, not destroy, and maintain what nature has provided.

Community-Based Tourism (CBT), implemented into sustainable rural tourism development, has strong potential to benefit and empower village communities, especially through capacity building, partnerships and collaboration (Dolezal & Novelli, 2020). CBT empowers communities by utilizing and preserving cultural and natural assets and as a space for collaboration and partnership. Sunuantari (cited in Febriandhika & Kurniawan, 2019) explains that effective CBT implementation can support local economic development by creating jobs, encouraging equitable participation of local communities, minimizing the impact of tourism on the environment, preserving cultural heritage, and improving welfare. CBT development initiatives will not succeed without local residents' cooperation, support, goodwill and participation. CBT has a strong potential to benefit and empower communities, especially through capacity building, partnership, and collaboration, despite the complexity and ambiguity of the power dynamics created between private, public and community stakeholders (Stone & Stone, 2020).

However, humans' utilization of natural resources has changed to dependence on technological advances embedded in rapid social development. It has become market-oriented, with economic factors becoming the most dominant (Setyaningsih et al., 2015). In addition, commercial tourism development has been used as a way to alleviate poverty in many villages (Manyara & Jones, 2007), especially in developing countries (Ghaderi et al., 2022). Since rural areas are highly dependent on natural inputs and ecosystem processes to fulfil land production functions (Satarat, 2010), a large amount of capital from different institutions at different levels of government is invested in consuming natural resources, which will ultimately hinder self-organization and balanced system

conditions, resulting in a socio-ecological crisis (Setyaningsih et al., 2015);(Yin et al., 2022). Indicators of successful village development are based on applying the concept of tourism to the village instead of addressing the underlying issues of the sustainability crisis for the development of long-term holistic strategies.

Socio-ecological resilience is the capacity of the social-ecological System of a village community to adapt to changes caused by commercial tourism development in an agrarian village. Tourism is often associated with resilience and is considered a tool for economic development and an associated incentive for environmental protection, both of which are important aspects of socio-ecological resilience (Weis et al., 2021). Tourism in rural and village community-based areas is growing rapidly as rural areas have experienced increased population and leisure activities (Ghaderi et al., 2022). Therefore, Candirejo tourist village becomes an interesting case study to understand aspects related to tourism development in rural communities through the lens of social-ecological resilience. This research aims to analyze the community's perception of the CBT concept and socio-ecological resilience from the perspective of the Social System in Candirejo Village, Borobudur District, Magelang Regency, Indonesia. The social System will be measured and analyzed using three aspects of Luhmann's cybernetic reflection: communication, evolution, and internal differentiation capabilities. It will provide a comprehensive understanding of the perceptions of local communities in interpreting the development of tourist villages and the community's evolving socio-ecological resilience. Therefore, the specific objectives of this research are to: 1) explore how Social System create and maintain their own boundaries and identities so as to know the community's opportunities and barriers to tourism benefits; 2) to understand how communication processes shape social reality and create meaning; and 3) to find out how Social System adapt and evolve over time in response to internal and external pressures. Villages that were originally based on traditional agriculture and have complex ecosystems where natural, economic and social subsystems are integrated, are beginning to transform into rural tourisms. There are many studies on tourism and tourist destination communities, but the dynamics between rural community-based tourism and ecological resilience, especially in the Borobudur National Tourism Strategic Area, need to be further analysed, as rural areas in the area face unique vulnerabilities and challenges. Understanding local communities' perceptions of the impacts of tourism on village socio-ecological conditions can inform more effective strategies to promote village community participation and a healthy rural environment. Moreover, the complexity between the application of CBT in rural tourism and socio-ecological resilience is particularly interesting when viewed through Luhmann's Social System lens.

The structure of this article is categorised into the following three sections. The first section provides the background of the socio-ecological evolution and resilience of rural tourism, threats from the evolution of Social System, and communication policies adopted by the government to manage these threats. The second section covers the process and results of the scoping review, while the third section presents recommendations and conclusions.

2. Literature Review

2.1 *Socio-ecological resilience and Luhmann's Social System*

The concept of resilience in ecological systems was first introduced by Canadian ecologist C.S. Holling in the 1960s. Holling defined resilience as ecological systems' capacity and relationships to withstand and absorb changes in "state variables, driving variables, and parameters" (Espeso-Molinero & Pastor-Alfonso, 2020). This definition forms the basis of the idea of ecological equilibrium, which states that ecosystems have a stable state that will return after disturbance. Resilience theory initially focused on ecological systems and their ability to withstand disturbance and maintain their structure and function. It described how ecosystems can be dynamic yet still survive as self-organized systems. However, as the understanding of complex systems evolved, resilience theory was expanded to include social-ecological systems, recognizing the interconnectedness between human and natural systems (van Assche et al., 2022). The theoretical basis for resilience in social-ecological systems emerged in the 1970s, alongside the concept of vulnerability, in the climate and disaster literature. This shift in perspective recognized that resilience is not just an ecological concept but also applies to human systems and their ability to adapt and cope with disturbance and change. Resilience theory has been applied to various fields, including the social sciences. It has become a valuable framework for understanding and addressing the challenges of sustainability, climate change and disaster management. Resilience thinking emphasizes the importance of adaptive capacity, learning, and flexibility in navigating complex and uncertain environments.

The application of resilience thinking in tourism destination research is a new perspective in sustainable tourism (Backman et al., 2019). This approach has gradually gained attention and can contribute to understanding the ability of communities and ecosystems to adapt and recover from disturbances and changes. However, resilience has become a popular term in the development field globally and is sometimes understood differently from its original theoretical framework (Weis et al., 2021). Different understandings of resilience can lead to different policy objectives or definitions of success, such as its application to rural communities (Espeso-Molinero & Pastor-Alfonso, 2020), making it

necessary to define and explore the theoretical underpinnings of resilience. The need to discuss these definitions and theories applies to destinations in the context of sustainability in CBT and resilience development, where resilient destinations have complex variables to deal with, such as risks, vulnerabilities, and opportunities (Schmeltz, 2017). Indeed, understanding the cyclical and fragile nature of tourism systems is important to learn how change can be adapted for strength and growth in destination resilience (Schmeltz, 2017).

Resilience theory was further extended to account for the interdependent nature of social and ecological systems, as human actions were observed to directly impact ecosystem functioning (Folke in (Prihayati & Veriasa, 2021)). Hence, the term socio-ecological resilience emerged, which focuses on the ability of a social and ecological system to continue functioning and adapting in the face of change and disruption. The socio-ecological resilience approach emphasizes the importance of understanding the relationship between humans and the environment and how social and ecological systems influence and interact with each other. The goal is to develop adaptive and sustainable governance systems to maintain environmental sustainability and human well-being. (Folke in (Prihayati & Veriasa, 2021)). Furthermore, Luhmann recognizes the importance of complexity and non-linearity in social and ecological phenomena and emphasizes the need to understand the interactions and feedbacks between the various components of the System. Understanding context and contingency in shaping system dynamics is also necessary, thus incorporating diverse perspectives and knowledge systems into the analysis (Tække & Paulsen, 2010).

Terms such as resilience, sustainability, vulnerability and adaptive capacity have been defined differently in different academic contexts, so their meaning and relationship to each other can be unclear (Weis et al., 2021). This research uses Luhmann's Social System theory perspective, which focuses on the self-referential dynamics (autopoiesis) of Social Systems, and how they maintain their own boundaries and identities through communication processes. The theory emphasizes the importance of understanding the symbolic and communicative aspects of Social System, and how they create meaning and structure social reality (Holmström, 2007). Luhmann's Social System theory assumes that Social systems are referential, and Luhmann's Social System theory assumes that Social System are referential and operate through communication processes and are distinct from other systems such as ecological systems. So, while this research addresses the interaction between social and ecological systems, it focuses on the self-referential dynamics of Social Systems, and how they maintain their own boundaries and identities through communication processes (Tække & Paulsen, 2010).

In the context of this research, socio-ecological resilience has the following definition and relationship: resilience can be defined as the ability of a system to sustain itself through adaptation to a changing environment (Weis et al., 2021). Luhmann considers that Social systems must be able to adapt to a changing environment to survive. Therefore, resilience is important in maintaining the Social System and enabling it to continue functioning in the face of change and uncertainty. Luhmann emphasizes the importance of adaptability and flexibility in the Social System, which are key components of resilience. In Luhmann's view, Social Systems must adapt to changing circumstances and maintain their internal coherence to survive and thrive. Adaptability is a component of resilience, which encompasses the ability of a Social System to respond to environmental changes in a way that allows the System to continue functioning and maintain equilibrium. Adaptability can involve changes in behaviour, practices or policies, as well as the development of new resources or the use of existing resources in more effective ways. Adaptability can also involve learning from past experiences and developing the capacity to deal with future changes. This requires high resilience, which can be achieved through various mechanisms, including redundancy, diversity and feedback. Overall, Luhmann's systems theory provides a useful framework for understanding resilience dynamics in social-ecological systems (Hall et al., 2017).

The autopoietic mechanism of Social System, as described by Luhmann, involves creating and maintaining boundaries and identities. Rural Tourism Social systems create and maintain their own boundaries and identities through communication. These boundaries and identities allow Social Systems to distinguish themselves from their environment and process information in a self-referential manner. Thus, it is necessary to identify narratives of opportunities and obstacles in its environment, including those related to CBT concepts and respond to environmental changes in a way that is consistent with their own internal logic (Buchinger in (Weis et al., 2021)). Therefore, the autopoietic mechanism of Social System provides a framework for analyzing and understanding how Social Systems create and maintain their boundaries and identities through internal communication and self-referential processes, and thereafter, the Social System will create and maintain their own boundaries and identities through differentiation processes (Van Assche et al., 2022). Social Systems adapt and evolve in response to internal and external pressures. These systems are self-organizing and operate through differentiation (van Assche et al., 2022). The differentiation process allows Social Systems to separate themselves from their environment and build their own boundaries, while the development of internal structures allows Social Systems

to maintain themselves and adapt to environmental changes.

2.2 Social resonance and ecological communication

In Luhmann's systems theory, the relationship of Social systems to ecological systems is called "social resonance", which refers to the ability of Social System to maintain themselves and adapt to their environment through information exchange and communication. This concept is also related to the ability of Social System to construct problems that did not exist before and also did not occur in the system environment (Waligo et al., 2013). The process of social resonance in systems theory involves information exchange and communication between the Social System and its environment. The more ecological issues that resonate with the System, the more complex the System becomes. In this case, the Social System builds problems that previously did not exist, which will trigger greater specialization of the System and the production of new problems to solve.

According to Luhmann, Social Systems are self-organizing and operate through a process of resonance, in which they respond to environmental stimuli and adapt to changing circumstances. Resonance occurs when the System's internal logic is in harmony with its external environment, allowing the System to function effectively and maintain its coherence. Over time, Social Systems can evolve and become more complex, developing new functions and adapting to new challenges. By understanding the principles of system resonance, we can gain insight into the operational capacity of Social Systems and their potential to evolve and adapt. This can be useful for designing sustainable solutions that are responsive to the needs of multiple stakeholders and able to address complex social-ecological problems (Clarke, 2019).

System resonance and resilience capabilities are interrelated. System resonance capability allows a system to adapt to its environment through information exchange and communication, while system resilience capability allows a system to maintain itself and keep operating despite disturbances or stresses from the environment. In this sense, more resonant systems tend to be more resilient as they can more easily adapt to environmental changes and maintain themselves. However, too much resonance can also cause the System to become too complex and difficult to operate, which can threaten the survival of the System itself. Therefore, it is necessary to deeply analyze the resonance ability of the System so that it can adapt and evolve over time in response to internal and external pressures. This can be useful for designing sustainable solutions that are responsive to the needs of various stakeholders and able to address complex social-ecological issues. By adopting a sustainable CBT concept that considers tourism's social, ecological, economic and

governance aspects, local communities can derive greater benefits from tourism while preserving their cultural heritage and natural resources for future generations.

2.3 Village Tourism and the development of Community-based Tourism (CBT)

The tourism industry is a rapidly growing industry globally. According to (T. H. Lee & Jan 2019), tourism is a resource-based industry consisting of climate, landscape, socio-cultural heritage, customs, and food, all complemented by integrated customer services such as transportation, hotels, restaurants, and attractions that become an experience for tourists. As a priority industry in Indonesia, the need to develop the tourism industry sustainably by minimizing environmental and socio-cultural impacts while maximizing economic benefits (Dabphet et al., 2012), has become a major goal. The government is shifting its policy towards more sustainable development tourism, focusing on conservation and benefits for local people or communities. CBT is the government's implementation of developing community-based tourism to strengthen institutions designed to increase local participation and promote economic, social and cultural well-being. CBT also promotes a balanced and harmonious approach to adjusting various forms of development with local economic components, namely the quality of cultural and environmental development, as well as the needs, interests and potential of the community. (Brohman in (Maldonado-Eraza et al., 2020)).

CBT has been recognized as a sustainable approach to tourism development that can contribute to the social-ecological resilience of local communities. Indonesia is one of the countries that has implemented CBT as a means to promote sustainable tourism development and improve the resilience of local communities. Collaboration and partnership are key components of community-based tourism (CBT) that can reduce the risk of failure. CBT initiatives aim to support sustainable tourism by engaging local communities and ensuring their ownership and control over the tourism process. CBT development and sustainability are two things that are closely interrelated. Sustainable CBT development must consider social, economic, and environmental aspects. Unsustainable tourism development can cause environmental damage, loss of traditional livelihoods, decline in the quality of life of local communities, and loss of traditional ecological knowledge and culture of local communities. Therefore, there is a need for careful planning and local community participation in tourism development in order to achieve the sustainability of rural complex ecosystems (Zhu et al., 2021).

Rural tourism is the implementation of the CBT concept in Indonesia. The development of this tourist village must pay attention to social, economic, and environmental aspects. In addition, the development of tourist villages must also pay attention to the sustainability of complex rural ecosystems, preserve local communities' traditional ecological knowledge and culture, and repair damaged social and ecological operating mechanisms in the interactive integration of social and ecological aspects. Therefore, the development of tourist villages can help improve the welfare of local people and promote the sustainability of complex rural ecosystems.

2.4 Rural tourism in the area of Borobudur Temple, The World Heritage Site

In Magelang District, the most prominent form of economic commercialization is tourism. Its location on the silk road, which is right in the middle of the crossroads of economic and tourist traffic between Semarang-Magelang-Yogyakarta-Purworejo-Temanggung, has made Magelang District designated as a Strategic Area by the National Spatial Plan. In addition, establishing Borobudur as a super-priority tourist destination has brought a lot of attention to Magelang district, including funding from the government through the Ministry of Tourism, state-owned enterprises and other stakeholders.

Rural tourism in Magelang is a regional development concept that makes the village a tourist destination characterized by having a unique attraction that is empowered and developed as a tourist product, such as natural tourism, cultural tourism, artificial tourism, and others. The tourist village is formed to empower the community to play a role as a direct actor in an effort to increase readiness and awareness in addressing tourism potential or tourist attraction locations in the area of each village. Rural tourism as a whole integrates all elements of tourism in a village, to promote local uniqueness and local wisdom. Rural tourism usually fulfill all elements of tourism that have potential attractions, such as natural tourism, cultural tourism, and man-made tourism. A tourist village serves as a focal point for regional development and community empowerment. Rural tourism not only acts as a catalyst for enhancing the standing and involvement of the community in the tourism sector but also establishes synergies and partnerships with pertinent stakeholders. This collaborative approach contributes to the overall improvement of tourism development in the region. Simultaneously, it plays a pivotal role in cultivating a positive attitude of support from the village community, who serve as hosts. This positive atmosphere is fostered through the realization of sapta personal values, further solidifying the community's commitment to and engagement in the tourism venture.

Sapta Pesona is a concept that must be realized to attract tourists to visit an area or region in Indonesia. It consists of seven elements, namely safety, orderliness, cleanliness, coolness, beauty, friendliness, and providing a memorable experience for tourists. The implementation of Sapta Pesona is not only for tourism purposes but also to improve national discipline and identity, which will enhance the good image of the nation (Dolezal & Novelli, 2020).

Unlike other tourist villages in Magelang Regency, tourist villages in the Borobudur area have different uniqueness, among others: (1) The tourist village in Borobudur area is located very close to Borobudur Temple, which is one of the famous tourist destinations in Indonesia and has become a national super-priority destination. This makes tourist villages in the Borobudur area more accessible to tourists. (2) Rural tourisms in the Borobudur area have a very rich and monumental historical cultural heritage, namely Borobudur Temple. This makes tourist villages in the Borobudur area more attractive to tourists who are interested in history and culture. (3) Diverse tourism potential: Rural tourisms in the Borobudur area have diverse tourism potentials, such as nature tourism, cultural tourism, and culinary tourism. This makes tourist villages in the Borobudur area more attractive to tourists who are looking for a diverse tourist experience. (4) Active community participation (Pangesti & Budiarti, 2020). This makes tourist villages in the Borobudur area more organized and well-managed. With these differences, tourist villages in the Borobudur area have great potential to become attractive tourist destinations and provide economic and social benefits for local communities.

National and local governments have utilized tourism as a major development tool for their residents and the rural tourism model seems to rely on unique features such as distinct culture and the beauty of the rural landscape. Rural tourisms in the Borobudur region have received a large amount of investment from the national government to develop community-based tourism as a strategy to enhance the resilience dimension; however, specific understanding related to social-ecological resilience is still lacking. The community has still modeled tourism especially rural tourism as most of the targeted tourism activities take place in or near the village zone (e.g. village walks, village community festivals, village restaurants) although it has also developed some agricultural tourism activities (e.g. observing farmers' activities, farm tours, or orchard tours).

Borobudur Temple was designated as the World Heritage Site by UNESCO in 1991. This shows that Borobudur Temple has historical, cultural, and architectural values that are important to the world (Arintoko et al., 2020). The establishment of Borobudur Temple as a World Heritage Site also impacts the

development of tourist villages around it. This is because Borobudur Temple is the main attraction for tourists visiting the area. Since the designation, various efforts have been made to preserve and improve the condition of Borobudur Temple. This is done to maintain the historical, cultural, and architectural values of Borobudur Temple. The impact on the surrounding community is very large, as evidenced by the increasing number of tourist visits. This has an impact on increasing the number of tourist visits to the surrounding tourist villages. In addition, it also increases awareness of the importance of cultural preservation. Borobudur Temple as the World Heritage Site also increases awareness of the importance of cultural preservation in the region (PRAKOSO et al., 2021). This has an impact on cultural preservation efforts in the surrounding tourist villages. And the last is to increase investment and increase community participation.

3. Materials and Methods

3.1 Conditions of the study area

Candirejo Village is one of the villages within the scope of the Borobudur Agropolitan Area, a strategic area of National Tourism, located about 3 km from the Borobudur temple. Candirejo Village began developing the concept of rural tourism in 1997, at the initiative of the then village head Slamet Sugiahartanto. And in 2004, Candirejo Rural tourism formed a legal entity that directly manages village tourism activities called Candirejo Rural tourism Cooperative. Until now, Candirejo Village is one of the centers of sustainable rural tourism development in Magelang Regency. Because it has attractive tourism potential, such as local traditions and culture, traditional architecture, and beautiful nature, Candirejo was launched as a rural tourism with the concept of ecotourism by utilizing the original potential of the village by fully involving the role of villagers, so that the benefits of tourism will be directly received and enjoyed by the residents themselves (Satriya & Indrayani, 2023).

Candirejo Village has implemented various sustainable community-based tourism initiatives, such as balkondes and the development of rural tourism potential. There are three reasons behind the development of Candirejo Village as a rural tourism destination, including: (1) The impact of tourism is only concentrated in Borobudur Temple, the surrounding area does not experience an increase in welfare; (2) Candirejo Village has a very potential natural and cultural potential; (3) Community desire to optimize rural tourism opportunities. A single organization manages Candirejo Rural tourism agreed upon as a cooperative, namely the Candirejo Rural tourism Cooperative. This is expected to benefit the Candirejo community economically, especially its cooperative members. Until now, Candirejo has developed into an ecotourism-based tourist village while maintaining traditional values and traditions as its tourist attraction. Due to its many achievements and the success of its rural tourism management, Candirejo is used as an

example for other villages in Indonesia to develop sustainable community-based tourism (Hidayah & Agutinah, 2019; Satriya & Indrayani, 2023).

However, in its development, Candirejo Village faces sustainability challenges in the development of tourist villages, such as socio-ecological crises and social conflicts (Arintoko et al., 2020). The socio-ecological crisis in the development of tourist villages in Candirejo Village, Magelang has caused several impacts, including: (1) Environmental degradation, such as deforestation, soil erosion, and water pollution; (2) Cultural erosion, namely by commodifying local culture and turning it into a tourist attraction that can cause the loss of cultural authenticity; (3) Economic inequality, with the creation of economic inequality between local communities and the tourism industry. The tourism industry can dominate the local economy, which can lead to the marginalization of local communities. (4) Conflicts between different stakeholders, such as local communities, tourism operators, and government agencies; and (5) Depletion of natural resources, such as water, land, and energy, which can lead to resource use conflicts (PRAKOSO et al., 2021). Therefore, managing tourism activities sustainably is important to minimize negative impacts and maximize positive ones. Thus, the selection of Candirejo Village as the research locus is justified, considering that this village is the centre of CBT development in Magelang, which is affected by the socio-ecological crisis.

3.2 Socio-ecological characteristics of the communities of the study area

This research focuses on the Candirejo rural tourism community and examines residents' perceptions of socio-ecological resilience through semi-structured interviews with community members who work in agriculture or tourism, community leaders, or those involved in rural tourism community development efforts or policies. The aim was to explore narratives within the community and not to make blanket comparisons between communities or infer narratives for all tourist villages in the Borobudur region. The demographic characteristics of the Candirejo Village community based on age, education level, and occupation are as follows: The average age of the respondents is relatively productive (30 to 55 years). Their average education is elementary school. On average, they work as farmers and the rest are craftsmen, traders and tourism workers. However, along with the development of the rural tourism, the economic activities of the Candirejo Village community experienced a change in behavior because it began to shift to community economic activities in the tourism sector. Potential agro-tourism activities began to be offered by creating the concept of agricultural tourism that directly interacts with nature in the agricultural area, participating in harvesting

fruit, and learning about how to grow crops (PRAKOSO et al., 2021).

Socially, the community of Candirejo Village, one of the centers of sustainable rural tourism development in Magelang District, is a harmonious community, as evidenced by the maintenance of the gotong royong System in various activities of personal and public interest, such as rebuilding physical damage to land and religious or cultural activities, such as tahlilan, sadranan, kenduren, selapanan, saparan Perti Desa or earth alms. Each hamlet in Candirejo, usually has two or more art groups with different types, so that each hamlet can have Jathilan and Gatholoco art groups together. With the many activities that are together, residents often meet, discuss and help each other, so that a culture of "tutug" emerges in the Candirejo community, tutug can be interpreted as a condition in which the community becomes easily directed and organized. This is the culture that is expected to become the social capital of Candirejo village in developing the CBT concept.

In 2016, Candirejo Village became one of the pilot project locations for the development of the Village Economic Center (Balkondes), so that a building with the concept of a hall and homestay was developed in Candirejo, with the sponsorship of one of the BUMNs, PT Semen Indonesia. The concept makes the focus of this building for gathering areas and overnight stays so that the pavilion building and its rooms dominate this area. In addition to the gathering or dining area for tourists who take tour packages and stay overnight, Balkondes is often used as a place to organize tourist attractions, such as dance or gamelan attractions, also often used by visitors to just relax and take selfies in the Balkondes area. Currently, Candirejo Balkondes functions more as a supporter of tourism activities organized by the Candirejo Rural tourism Cooperative, although some tourists still come to take pictures and taste the dishes provided. The support of the Balkondes, for example, is as an "additional" tourist accommodation if the community homestay is insufficient, acts as a gathering point and dining area for groups of tourists, and as a location for organizing tourist attractions, such as dances and gamelan art (Fatimah, 2018; Hidayah & Agutinah, 2019; Satriya & Indrayani, 2023).

Candirejo Village has a beautiful panoramic view of Mount Merapi and also has the potential to develop a sustainable tourist attraction. However, ecologically, Candirejo Village, which is located in the Borobudur Agropolitan Area, is a National Tourism Strategic Area in Magelang District (Fatimah, 2018). The massive development of tourism potential in Candirejo Village has caused environmental degradation, such as deforestation, soil erosion, and water pollution. In addition, the exploitation of natural resources has also caused social conflict between the local community and tourism developers, as the community feels their rights to land and

natural resources are being violated and has led to the displacement of farmers from their land, as they are forced to sell their land to tourism developers. The exploitation of natural resources has also affected the livelihoods of farmers, as they can no longer rely on agriculture as their main source of income (Fatimah, 2018). The socio-ecological characteristics of Candirejo Village Magelang show the potential for sustainable rural tourism development but also face sustainability challenges that need to be addressed.

3.3 Research methods

The data collected was qualitative in nature through the case study method, and therefore, qualitative data analysis was used. Data collection was conducted in several stages. The first stage formulated key questions related to how Social Systems create and maintain their boundaries and identities and understanding how communication processes shape social reality and create meaning. Data were collected using Focus Group Discussion (FGD) activities and observations as well as semi-structured interviews, which are formal and scheduled interviews that generally follow an interview script and cover a variety of topics (Bernard, 2005), to explore community perceptions of the concept of CBT and socio-ecological resilience from the perspective of Social System in Candirejo Village. This will specifically answer how Social System creates and maintains their boundaries and identities, understand how communication processes shape social reality and create meaning, and know how Social System adapt and evolve.

The FGD was conducted online by inviting 12 main actors of CBT development in Borobudur (Table 1). This FGD is a qualitative data collection technique that involves active community participation through interviews and group discussions (Handono et al., 2023; Yunikawati et al., 2021). This technique is a development of brainstorming techniques and group discussions. With this technique, the FGD will be easier to evoke the participation of tourism development actors in exploring collecting information on existing problems, wants and needs as well as alternative problem-solving related to rural tourism development infrastructure. Furthermore, 17 people were interviewed, including the Head of the Village and the Village Secretary of Candirejo, the Head of the Candirejo Pokdarwis, the Head of Indonesian Tourist Guide Association (HPI) and the Rural tourism Manager, the Head of the Candirejo Cooperative, community leaders, farmer groups, homestay owners and tourism business actors in Candirejo Village. This was done to accommodate more diverse differences among industry categories. Interviews were conducted at the Balkondes, the village hall, or in people's homes and lasted an average of 60 minutes.

Table 1. List of Focus Group Discussion participants

No	Institution	Involvement
1	Head of Bappeda & Litbangda of Magelang Regency	Regional Development Stakeholders
2	Head of R&D of Magelang Regency	Regional Development Stakeholders
3	Univ. Muhammadiyah Cirebon	Lecturers & Practitioners Tourism Destination development experts
4	Head of Disparpora of Magelang Regency	Implementers of tourism development activities
5	Chairperson of Pokdarwis of Karangrejo Tourism Village	Best Practice of Tourism Village Development
6	Dekranasda of Magelang Regency	Creative Economy and MSMEs
7	BOB (Kemenparekraft)	Government Authorities related to the Development of Tourism Priority Areas in Central Java and Yogyakarta
8	LPPM Unimma	Academics-Education Institutions
9	PT CBT Nusantara Management	Tourism Operator
10	Director of Tourism Destination in Magelang	Tourism Operator/NGO
11	Chairperson of the Tourism Village Forum of Magelang Regency & Chairperson of the Association of Tour Guides	NGO
12	PKK Millenials and ForKom BUMDes	NGO

For the interview questions, the researcher used a baseline based on factors that influence how Social System creates and maintains their boundaries and identities, how communication processes shape social reality and create meaning, and how Social Systems adapt and evolve (Hall et al., 2017). The interview protocol contained 15 questions relating to each of the four components of social-ecological resilience: governance, social, ecological and economic as depicted in Table 2 (Weis et al., 2021).

In each study respondent, the criteria for selecting key informants required them to represent five perspectives related to the main industries in the village, namely agriculture, crafts, and tourism: governance (e.g. government officials or community leaders), agriculture (e.g. farmers), traders (e.g. craft vendors), experiential tourism (e.g. tour operators), and accommodation (e.g. homestay owners). In practice, however, formal distinctions between industries are weakened by the norms, culture and economics that individuals often participate in multiple industries or switch industries frequently.

Table 2. Model of “Semi structured” questions derived from Weis Models (Weis et al., 2021)

Questions		Elements
1.	How are decisions made in the community? Who makes decisions for the community? (community involvement)	Governance
2.	Do you feel you have the power to make decisions about village issues? (How much power or influence do you have?)	Governance
3.	How would you describe your village community? What are its geographical boundaries?	Governance
4.	When there is conflict in the community, how is it resolved? Do religious leaders play a role in conflict resolution?	Social
5.	What do people think about tourism or tourists in this tourist village? And what do you think about tourism and tourists here?	Social
6.	If you didn't work in tourism, what would you do? Is it against your religion?	Social
7.	What is the difference between working in agriculture and tourism?	Social
8.	What do you think the community should have to help develop sustainable tourism?	Social
9.	Tell us about the current tourism potential, how is the cultural tourism potential. And what is the funding situation? Is there a reliance on external funding?	Social
10.	Do you know the vision of the rural tourism? Do you see the potential for increased ecological impacts if there is an increase in tourism?	Social
11.	Do you see any negative aspects of this type of rural tourism?	Ecology
12.	Is there a difference between people working in tourism and those not working in tourism?	Ecology
13.	What is the welfare of rural communities like now with tourism?	Economic
14.	How can the CBT concept help communities to benefit from tourism? Can it make the community actively participate in the development of rural tourism and can benefit from tourism?	Economic
15.	What do people think about tourism or tourists in this tourist village? And what do you think about tourism and tourists here?	Economic

3.4 Data Analysis Technique

The data analysis technique in this study uses Miles' interactive model (Miles et al., which consists of

three steps in terms of data condensation, data presentation, and conclusion verification. Starting with the process of interview activities carried out directly, then audio-recorded, which must also go through the approval process. The audio recordings were then transcribed, and field notes were made. The data was coded inductively and manually to allow for the study of informants' responses and bring about an understanding of the data analysis. Inductive coding allowed for exploration and finding larger themes in the data that related to larger questions about resilience and tourism. These are better grounded empirically and are especially satisfying to the researcher who has uncovered an important local factor. They also satisfy other readers, who can see that the researcher is open to what the site has to say rather than determined to force-fit the data into preexisting codes (Miles et al, 2014). The identification of themes was grounded in their prominence in the interviews and their direct relevance to the research questions. Subsequently, selected statements were categorised according to their frequency, ranging from commonly recurring themes narrated by a substantial number of participants to those infrequently mentioned. The data reached saturation point when informants consistently articulated similar sentiments, and further coding failed to yield any novel information, signifying a comprehensive exploration of the subject matter. (Fusch cited in Weis et al., 2021). Inductive coding represents a bottom-up analytical approach characterized by researchers commencing with an absence of predefined codes. As the dataset is systematically analyzed, codes are progressively developed. This methodology aligns with Luhmann's perspective of the Social System, allowing for a nuanced and emergent understanding of the data, free from predetermined categorizations. (Luhmann, 2015). This research doesn't start with preconceived notions of what the codes should be but allows the narrative or theory to emerge from the raw data. This is great for exploratory research or times when you want to come up with new theories, ideas, or concepts of Social Systems.

4. Result

As mentioned earlier, this research aims to analyze the community's perception of the CBT concept and socio-ecological resilience from the perspective of the development communication system in Candirejo Village. The development of a communication system will be measured and analyzed using three aspects of Luhmann's cybernetic reflection: aspects of communication, evolution and internal differentiation capabilities. This will provide a comprehensive understanding of the perceptions of local communities in interpreting the development of tourist villages and the socio-ecological resilience of the community in evolving.

Social Systems adapt and evolve in response to internal and external pressures (Luhmann, 2015). In the context of Candisari village's Social System, these

systems respond to internal and external pressures by changing their internal structures, expanding their boundaries, or developing new subsystems to deal with those pressures. After conducting inductive coding, by developing codes during the process of analyzing the data set, a narrative emerges from the raw data itself. There are seven Social System themes found from the coding results: economy, science, culture, religion, politics, education and law. This process allows the Social System to keep operating and maintain its own identity despite environmental changes or pressures from other Social Systems.

Social Systems establish their own boundaries by selecting relevant environmental elements and ignoring other elements. Social Systems also maintain their own identity through internal communication and information exchange between system elements. Based on the qualitative analysis of key informant interviews and aligned with Luhmann's System of functions, several subsystems within Candirejo village's Social System have been categorized that allow the identification of a narrative of opportunities and constraints for rural tourism (Table 2). The aspects considered as opportunities or obstacles that often appear in the narratives of the science and education subsystems are images and agents of change. At the same time, the economic subsystem is a hustle mindset (the important thing is to be busy), limited access and seasonality. For the legal, cultural and religious subsystems, the narratives of legality, cultural transformation and *kejawen Islam* appear. Finally, from the political subsystem, a narrative of governance emerges (see Appendix 1 table 3).

The Narration Themes

4.1 Reputation

In general, the interviewees have an awareness and are sensitive to tourists' perceptions of Borobudur as a historical relic full of human values and civilization along with the natural beauty around it. Both the formal reputation of Borobudur and the informal word-of-mouth reputation are described as important in developing tourist villages as tourism destinations. "The reputation of Borobudur Temple is still the main attraction in the Candirejo Rural tourism area" (FGD, 2023).

This is believed to have an impact on increasing the number of tourist visits to rural tourism and opens up opportunities for the development of more organized and well-managed rural tourism.

The vision of Candirejo Rural tourism is the realization of Candirejo Village as a model of community-based ecotourism in accordance with rural areas. This shows that the people of Candirejo Village have an awareness of the importance of preserving culture and the environment. In addition, it is hoped that by implementing

this vision, harmony will be realized between the natural beauty of the countryside and the tourist experience.

"Candirejo Rural tourism has a very attractive rural natural beauty and can be a tourist attraction; this has an impact on a more authentic and memorable tourist experience." (IDI, 2023).

Coupled with the rampant opening of rural lands for the development of new artificial tourist attractions, these are believed to help increase the number of tourist visits. However, this can also have an impact on the environment and the sustainability of tourist villages. In addition, low ecotourism literacy in Candirejo Village can be an obstacle to developing a sustainable tourist village. So, increasing ecotourism literacy for the Candirejo Rural tourism community is necessary.

4.2 Agent of Change

The results of interviews and observations show that local leaders in Candirejo Magelang Village have an important role in decision-making related to the development of tourist villages.

"They can advocate for the interests of the community and facilitate communication with tourists to maintain the sustainability of the tourist village" (IDI, 2023).

However, supporting activities such as human resource training are still not sustainable and integrated with the development of rural tourism, which will become an obstacle in the development of sustainable rural tourism. The appointment of PT CBT Nusantara as a companion in improving the quality of human resources has triggered conflicts due to overlapping authorities. Therefore, the development of tourist villages in Candirejo Magelang needs to be done by taking into account the sustainability of the environment and local culture, as well as involving the community in the development of tourist villages. Also, the development of tourist villages needs to be done by involving local leaders and improving the quality of human resources in the development of tourist villages. This can help the community benefit from tourism, such as economic improvement and cultural preservation, as well as maintain environmental sustainability.

4.3 Hustle mindset (crowd)

During the FGDs and subsequent interviews, a focus on pursuing the most accessible maximum income through diverse short-term opportunities rather than working on long-term business projects was described as common among local community members. This is referred to as the "hustle mindset" where the priority is not about work but about how to earn money quickly. While a short-term focus allows one to pursue the most lucrative opportunities on a daily basis, it hinders access to the

benefits of a long-term focus, such as 'building a profession' with a more consistent income. This hustle mindset is also described as a 'passive mindset' and is linked to the legacy of colonial culture as well as the culture of Indonesia's agrarian society.

“Another phenomenon that emerges due to this hustle mindset is that most tourist village activities tend to look for something visually appealing to capture in photos and also the emergence of artificial tourist attractions that adjust to market tastes.” (IDI, 2023).

External investment was described as part of the problem, with villagers expecting help from a steady stream of village development funds. This dynamic also emerged in the interviews at the individual level, as informants described how some community members would not take the initiative to improve tourism opportunities; instead, they would wait for investors to do so and then try to ride the wave of those investors' success.

4.4 Limited access

The results of FGDs and interviews indicate that local communities have limited access to the benefits of tourism development. Limited benefits from tourism potential can occur due to a lack of community participation in the decision-making and management of rural tourism. This shows the importance of community participation in rural tourism development. There is also an unequal distribution of tourism benefits among the local population, as some communities may benefit more than others.

“There are still many communities that do not have access to participate in tourism utilization, which can affect the success of rural tourism development. Because villagers' lives are not prioritized, such as housing eligibility issues, lack of medical and educational resources, public spaces and inconvenient transportation, villagers' life satisfaction decreases.” (FGD, 2023).

These are among the factors that influence community participation in tourism utilization.

From the interviews and FGDs, it was also found that there is a tendency for the government to focus on developing tourism infrastructure and services to improve the visitor experience, regardless of the quality of life of local residents. Improving the visitor experience may be a priority because it is considered to increase revenue from tourism. Tourism is still seen as a tool for economic development and growth, and tourism infrastructure and services are essential to attract and accommodate visitors. Therefore, policymakers and investors may prioritize the development of these aspects of tourism to increase visitor numbers and generate more revenue. However, this may neglect the quality of life of local residents and cause their life satisfaction to decline. This is also due to the lack of understanding or awareness

of the importance of CBT development and the need to prioritize community welfare. In addition, there is also a power imbalance between local communities and external stakeholders, such as investors and policy makers, which may limit the participation of local communities in tourism development decision-making. This can result in tourism development projects that do not reflect the needs and priorities of local communities.

4.5 Seasonality

Fluctuating or cyclical industries and opportunities in Candirejo are industries or economic opportunities that depend on changes in demand or supply over time.

“The tourism industry in this tourist village is subject to seasonal fluctuations, with the peak season occurring from June-July during school holidays and November-December coinciding with the year-end holidays. During these periods, there was a high demand for tourism services, such as accommodation, transportation, and tour guides. However, during the off-season, the demand for these services is very low, which can result in reduced income and employment opportunities for local communities.” (IDI, 2023)

Other examples of fluctuating or cyclical industries and opportunities include agriculture, fishing, and natural resource extraction, which are subject to changes in weather patterns, market demand, and resource availability. These industries can provide significant economic opportunities for local communities but are also vulnerable to external shocks, such as natural disasters, market fluctuations, and resource depletion. It is, therefore important to adopt a flexible and adaptive approach to economic development that considers the cyclical nature of these industries and opportunities. This can include diversifying sources of income, promoting sustainable resource management practices, and investing in education and training programs that enable local communities to adapt to economic changes.

4.6 Legality

In terms of legality, in Candisari Village there are still no specific regulations or incentives for tourism operators to adopt sustainable and environmentally friendly practices. There is also no formal certification or accreditation system for ecotourism or sustainable tourism operators, making it difficult for visitors to identify and select environmentally responsible tourism services. One issue during the interviews was the need for certification and licenses for homestay operators, which refers to establishing a formal system to regulate and accredit homestay accommodation in tourist villages. There was also a lack of respect for customary law, laws that are often based on local customs and practices that may not be recognized or enforced by a country's formal legal System.

“In Candisari, the legal system is based on the common law of the Indonesian government, which may not recognize or incorporate customary law into its legal framework and does not take into account the traditional practices and customs of the local community.” (IDI, 2023). However, it is important to recognize the value of customary law in preserving and promoting local cultural heritage and traditional practices, which can contribute to the sustainability and resilience of local communities and ecosystems. Therefore, policymakers and tourism stakeholders need to work with local communities to incorporate traditional practices and customs into the tourism industry respectfully and sustainably. This can help promote cultural exchange, community-based tourism, and the preservation of local cultural heritage.

4.7 Cultural Transformation

The existence of political aspects in the form of infrastructure arrangements tends to result in gaps in cultural contexts and environmental degradation. For example, the concentration of tourism activities in the "Borobudur highland" area may lead to the displacement of local communities and the loss of traditional practices and customs. In addition, the construction of large-scale infrastructure projects, such as hotels and resorts, can have negative environmental impacts, such as deforestation, land conversion and pollution. Additionally, the decision-making process for infrastructure development is often influenced by political factors, such as economic interests and political power, which may not take into account the cultural and environmental impacts of such projects. This can result in cultural disparities and environmental degradation, especially for marginalized communities who may not have a voice in the decision-making process.

“In Candisari village, there has been a decline in the culture of *musyawarah mufakat*, which is a noble heritage and traditional practice of consensus building and decision-making based on mutual respect and cooperation among community members.” (FGD, 2023)

Various factors, such as changes in social and economic structures, the influence of external actors, and the erosion of traditional values or practices, can influence this decline. In addition, the increasing influence of formal legal systems and governments can lead to a decline in the use of traditional practices, shifting power dynamics, and a decline in the role of local communities in decision-making processes. The influence of modernization, globalization and individualism can also lead to shifting priorities and values among community members.

4.8 Kejawen Islamic Religion

Although the majority of Magelang people embrace Islam, Kejawen beliefs or syncretism are still reflected in the formation of aesthetic symbols. This

shows the influence of kejawen in the art and culture of Magelang society. Thus, the people who are predominantly followers of kejawen Islam can coexist with tolerance with people who are Christians, Catholics, and Hindus.

In the context of Candirejo village, the community has a unique cultural heritage that is closely related to their religious beliefs and practices. “The villagers have traditional practices such as *sadranan*, *kenduren*, *selapanan*, or *saparan* which are cultural practices closely linked to their religious beliefs and used to connect with their ancestors”. (IDI, 2023)

In addition, indigenous peoples' religious beliefs and practices can also influence their relationship with the environment and their approach to natural resource management. For example, rural communities greatly respect the environment and practice sustainable natural resource management practices based on their traditional knowledge and beliefs. This is also inseparable from the influence of Buddhism, which has constructed the community's religious ideas and ritual behaviour.

There is a narrative that religious organizations from Candirejo village are not active, so religious rituals are not natural and imposed. In addition, the promotion of natural and organic religious rituals can also depend on the beliefs and values of the community and the influence of external factors such as globalization and modernization. The increasing influence of modernization and globalization can lead to shifting priorities and values among community members, which can affect the promotion of natural and organic religious rituals.

4.9 Governance

The government's "Tilik Ndeso" program tends to offer short village tourism activities as it focuses on authentic and memorable tourist experiences in a short period of time.

“Some of the village tourism activities offered in the "Tilik Ndeso" program in Borobudur, such as the Kusir Andong Tour Tilik Ndeso, invite tourists to enjoy the beauty of rural nature and local culture, but in a short time.” (FGD, 2023).

Rural tourism development also needs to pay attention to sustainability and community participation in decision-making and involve human resource training and ecotourism literacy for sustainable rural tourism development. The key industries of agriculture, livestock and tourism should be interconnected.

In general, the opening of new lands in rural areas to develop new artificial tourist attractions can help increase the number of tourist visits to tourist villages. However, this can also have an impact on the environment

and the sustainability of tourist villages. The emergence of top-down external interventions can also influence decision-making in the development of rural tourism. This will certainly impact community participation in decision-making and the sustainability of tourist villages. In addition, local communities also have an important role in maintaining cultural sustainability, because the absence of those responsible for preserving traditions, culture, and religion can affect the sustainability of tourist villages. Then, the variety of tourist attraction management units in tourist villages: The overlap and diversity of tourist attraction management units in tourist villages, such as tourist village cooperatives, BUMDes, and the private sector, show the importance of communication, coordination and collaboration between tourist attraction management units to maintain the sustainability of tourist villages.

5. Discussion

Social Systems are determined by their internal communication processes, which create and maintain their boundaries and identities (Luhmann, 2015). This communication process is based on shared codes and symbols that allow individuals in the System to coordinate their actions and understand their environment (D. Lee, 2000). Through communication, individuals in the System create and negotiate meaning, shaping their understanding of the world and their place in it. This process of meaning creation is dynamic and ongoing, as individuals within the System continually interpret and reinterpret their experiences and interactions (Satriya et al., 2022). By understanding the communication processes and codes used by different Social Systems, we can gain insight into their perspectives on social and ecological issues, and identify opportunities for collaboration and conflict resolution (Luhmann, 2015). The exploration of the eight key narratives above has become the baseline data of the communities studied, so it will help the understanding of the opportunities and constraints for communities involved in tourism development now and in the future. This in-depth understanding is important for enhancing CBT resilience in Candisari village. In this section, we discuss the eight narratives in relation to each other, and to social-ecological resilience theory.

The first narrative seen from the "science" function system is Sustainability, The popularity of Borobudur temple is the cornerstone of formal, tourism-specific marketing campaigns, and such campaigns are indeed capable of attracting tourists to a destination (Ripoll González & Gale, 2020). The research findings showed that growing the reputation of tourist villages as tourism destinations is seen as an opportunity to develop tourism and not as a threat. "The popularity of Borobudur Temple is considered to contribute to a sustainable positive reputation through word of mouth, but the overall image of Borobudur Temple will provide positive

perceptions if it is consistent with the experience visitors have" (FGD, 2023).

Sensitivity to the word-of-mouth reputation of villages in the Borobudur area as a tourism destination is consistent with today's modern trends where visitors often use online tools to 'search, organize, share, and annotate their travel stories and experiences' (Slikkerveer et al., 2019). Sustainability plays a significant role in the economic resilience of tourism; tourist perceptions have been noted to impact the economic resilience of tourism destinations, with positive perceptions and both positive and negative perceptions influencing the ups and downs of tourism activity in tourism destinations (Tyrell cited in Weis et al., 2021). Meanwhile, community tourism destinations are potentially more vulnerable than larger destinations due to characteristics such as less economic diversity, more dependence on trade, and more exposure to natural disasters (Schmeltz, 2017), consistent with Candirejo rural tourism characteristics. A special destination that maintains its unique identity in the face of globalization will be able to increase its economic resilience, such as destinations that adhere to certain historical preservation in Hekeng Village, China (Zhu et al., 2021).

Meanwhile, the sustainability narrative also emerges from the "education" function system. The development of rural tourism actors in Candirejo Village needs to be done by paying attention to the sustainability of the local environment and culture, involving the community in developing rural tourism, and improving the quality of human resources. This can help the community benefit from tourism, such as economic improvement and cultural preservation, as well as maintaining environmental sustainability (Lynch, 2020). This study is in line with previous research that highlights the importance of community involvement in tourism development to ensure sustainability (Ikhtiangung & Radyanto, 2020). This study also emphasizes the need to consider the local environment and culture in tourism development, which is in line with the principles of sustainable tourism development (Maldonado-Erazo et al., 2020). The study findings also suggest that the involvement of local leaders in tourism development can increase community participation and benefits from tourism (Maldonado-Erazo et al., 2020). The study's recommendation to improve the quality of human resources in tourism development is also in line with previous research highlighting the importance of human resource development in tourism (Puspita et al., 2023).

The second narrative of the economic functioning system is the Hustle Mindset, which focuses on maximizing short-term income rather than working on long-term business projects. It is described as a passive mindset and is linked to the cultural legacy of colonization and the agrarian culture of Indonesian society. When

portrayed as more waiting, lack of initiative, or reliance on government programs, it hinders the long-term potential for wider community access to tourism benefits. Conversely, when portrayed as the flexibility to move between fluctuating income opportunities, it allows access to the most profitable or attractive opportunities on any given day. This more passive behaviour seems consistent with dependence on grants, while the active maintenance of diverse short-term income sources seems to be an adaptation to the seasonal narrative. Grants aimed at improving recipients' welfare and spurring entrepreneurial activities have been associated with outcomes that contradict their objectives, as was the case with smallholder farmers in Hekeng village and their reduced incentives for their crops (Zhu et al., 2021). Self-reliance can occur due to low levels of grant funding, leading to a lack of dependence on these grants (Clarke, 2019).

This hustle mindset seems to reflect a broader goal of economic diversification, and from the interviews, it is clear that there is friction between stability (long-term focus) and flexibility (short-term hustle mindset). Economic diversity has long been recognized to reduce vulnerability to unpredictable tourism trends, including in CBT villages (Artal-Tur et al., 2019). This study highlights the need to shift the focus from short-term gains to long-term gains, such as building professions with more consistent income. This finding is consistent with previous research that emphasizes the importance of sustainable tourism development that benefits local communities in the long term. (Van Assche et al., 2022).

Still, the third narrative in the economic function system is limited access to tourism benefits. The Candirejo community describes direct access to tourism benefits is through income opportunities, such as being a tour guide, craft trader, warung or homestay owner, and indirect access through a wider range of opportunities, such as agriculture. Their access is also enabled by their ability to earn income from multiple sources, which is seen as a buffer against instability so tourism is seen as a sector that helps diversify income sources. Therefore, economic factors become the most dominant factor in rural tourism development. The concept of rural tourism development is now very market-oriented and highly dependent on economic inputs. Tourism is often seen as a tool for economic development and growth, especially in rural areas where other economic opportunities may be limited. Tourism can generate income and employment opportunities for local communities, which can help reduce poverty and improve living standards. However, when economic orientation becomes the primary consideration in rural tourism development, it comes at the expense of social, ecological, and governance aspects of tourism and the well-being of local communities and ecosystems. (Artal-Tur et al., 2019). It should be emphasized that diverse sources of income may indicate a higher measure of economic resilience of the local tourism

industry, where residents have equitable access to consistent and sustainable tourism-related income (Ghaderi et al., 2022).

The fourth narrative (still within the System of economic functions) is seasonality. This refers to the intermittent pattern of varying income sources, such as how the broader tourism season is defined by the holiday season that lasts only a few months. Seasonality limits access to tourism benefits, and there is a desire to extend the tourism season so that more access to tourism income and opportunities is possible. This seasonality can also be linked to the Hustle mindset narrative and the narrative of limited access to income from multiple sources. The practice of earning income from multiple sources can be a contributing factor to perceptions of social equity. To ensure sustainable tourism development that benefits local communities in the long term, it is necessary to diversify the local economy and create alternative sources of income to reduce the impact of seasonal fluctuations on local people's income and employment opportunities. As the inflow of money is more important than the type of income or the industry in which it is earned, money should be viewed as a tool to improve quality of life, not as a destination or reflection of social status. In line with the community's desire to extend the tourism season, extending the tourism season is known to reduce a destination's vulnerability and increase its resilience measures (Heslinga in (Weis et al., 2021)).

The fifth narrative is legality (from the legal functioning system). No specific regulations or incentives exist for tourism operators to adopt sustainable and environmentally-friendly practices. There is also no formal certification or accreditation system for ecotourism or sustainable tourism operators, making it difficult for visitors to identify and select environmentally responsible tourism services. This can be challenging for local communities and ecosystems, as unsustainable tourism practices can negatively impact the local environment and culture, and can undermine the long-term sustainability of the tourism industry. (Lindström, 2020). Therefore, it is important for policy makers and tourism stakeholders to promote sustainable tourism practices and provide incentives for tourism operators to adopt environmentally friendly practices.

Creating a formal system to regulate and accredit homestay accommodation in tourist villages is also necessary. Homestay is a type of accommodation where visitors stay with local families in their homes, providing opportunities for cultural exchange and community-based tourism experiences. Thus, by creating a certification and licensing system for homestay operators, policymakers and tourism stakeholders can ensure that these accommodations meet certain safety, hygiene, and environmental sustainability standards. This can help promote the quality of homestay accommodation

and provide visitors with a way to identify and select reputable homestay operators. (Janjua in (Lindström, 2020)). Similarly, there are no specific regulations or incentives for cultural events and activities that promote the preservation and promotion of local cultural heritage. The study also highlights the issue of the lack of recognition of customary law, which is often based on local customs and practices that may not be recognized or enforced by a country's formal legal System. The legal system in Candirejo Village is based on the general laws of the Indonesian government, which may not recognize or incorporate customary law into its legal framework and does not take into consideration local traditional practices and customs. However, it is important to recognize the value of customary law in preserving and promoting local cultural heritage and traditional practices, which can contribute to the sustainability and resilience of local communities and ecosystems (Dolezal & Novelli, 2020).

The sixth narrative (of the cultural function system) is Cultural Transformation. The concentration of tourism activities, such as in the "Borobudur Highbland" project, can result in the displacement of local communities and the loss of traditional practices and customs. In addition, large-scale infrastructure development projects, such as hotels and resorts, can have negative environmental impacts, such as deforestation, land use change and pollution. This is because the decision-making process for infrastructure development is often influenced by political factors, such as economic interests and political power, which may not take into account the cultural and environmental impacts of such projects. This can result in cultural disparities and environmental degradation, especially for marginalized communities who may not have a voice in the decision-making process. Therefore, policymakers and tourism stakeholders should consider the cultural and environmental impacts of infrastructure development projects and involve local communities in the decision-making process, promote sustainable tourism development that benefits local communities in the long term, involve local communities in tourism development and consider the cultural and environmental context in tourism development (Sutresna et al., 2019);(Zheng et al., 2021).

Promoting local handicrafts, traditional music and dance performances, and cultural tours that showcase local culture and traditions can help promote cultural heritage in the village. This study also reveals the importance of promoting Candirejo Village's cultural heritage through marketing and branding strategies that highlight its unique cultural identities, such as saparan Perti Desa or sedekah bumi. This can be achieved by developing a dedicated formal tourism marketing campaign that promotes the authenticity of local culture and traditions and attracts visitors who are interested in experiencing the local way of life. This research can serve

as input for policymakers and tourism developers in designing sustainable tourism development strategies that emphasize the need to recognize the value of traditional practices and customs in preserving and promoting local cultural heritage, the importance of involving local communities in decision-making processes and promoting community-based tourism that benefits local communities in the long term. This is consistent with previous research that emphasizes the importance of involving local communities in tourism development and considering the cultural context in tourism development (Xue et al., 2017; Zheng et al., 2021).

The seventh narrative (from the religious function system) is Kejawan Islam. Exploring the uniqueness of cultural heritage that is closely related to the religious beliefs and practices of Candirejo village is very interesting. The local community has traditional practices such as sadranan, kenduren, selapanan, and saparan, which are closely related to their religious beliefs and used to connect with their ancestors. These religious beliefs and practices greatly influence their relationship with the environment and their approach to natural resource management. The community respects the environment and practices sustainable natural resource management based on traditional knowledge and beliefs. Although the majority of Magelang people embrace Islam, the influence of kejawan or syncretism is still reflected in the formation of aesthetic symbols, which indicates the influence of kejawan in the art and culture of the Magelang people. Thus, it is important to emphasize preserving and promoting local cultural heritage in tourism development.

The village has unique traditional practices that can be used as a way of understanding how Candirejo villagers maintain a connection with their ancestors and maintain their cultural identity. These practices reflect the unity between religion and culture in the daily lives of the Candirejo people. They carefully guard this cultural heritage, honor their ancestors, and maintain the sustainability of these practices as an important part of their identity, which also influences the community's life and worldview in its relevance as an increasingly globalized modern society. Maintaining cultural traditions and practices despite the influence of modernization is important as it can help to maintain a community's identity and promote its cultural identity. The cultural-based tourism industry has the potential to help promote the village's cultural heritage and provide economic benefits to the community (López-Guzmán et al., 2011; Su et al., 2019).

The eighth narrative (of the political functioning system) is governance. The launch of the government's "Tilik Ndeso" program tends to offer short village tourism activities that focus on providing tourists with authentic and memorable experiences in a short period of time. Community participation in decision-making, planning,

and implementation of village tourism development programs can lead to sustainable tourism development. Incorporating the opinions of local communities in tourism planning and development is an important element in sustainable tourism (Martins & Futeemma, 2022). Therefore, many researchers introduced community-based tourism to provide local communities a high quality of life, encouraging greater traditional cultural values. This approach empowers local communities, encourages participation in tourism development, and ensures that benefits are distributed fairly (Khalid et al., 2019).

Rural tourism development also requires a sustainable approach. Human resource training and ecotourism literacy are key factors to achieve sustainability in rural tourism (Zhu et al., 2021). In the context of Candisari Village, the agriculture, livestock, and tourism industries should be intertwined. Integration between these sectors can improve the welfare of village communities and create positive economic impacts (Khalid et al., 2019). Opening new tourist attractions in rural areas can increase the number of visitors to the village. However, it can also negatively impact the environment and sustainability of the village. Intervention from outside parties can also influence decision-making in village tourism development, which can impact community participation and village sustainability. The role of local communities in maintaining cultural sustainability is also important, as the absence of those responsible for preserving traditions, culture and religion can affect the sustainability of rural tourism. The overlapping of tourism attraction management units in the village, such as rural tourism cooperatives, BUMDes, and private parties, highlights the importance of communication, coordination, and collaboration between tourism attraction management units to maintain the sustainability of village tourism (Setokoe & Ramukumba, 2020).

6. Conclusion

Undeniably, the findings in this study help in understanding community narratives towards the benefits and opportunities of CBT and socio-cultural dynamics in the context of resilience theory from a development communication system perspective. Community members' perceptions were the focus of this study because internal perceptions are best able to highlight the dynamics of how Social Systems create and maintain their own boundaries and identities, thus revealing the community's opportunities and barriers to tourism benefits. Enhancing the social-ecological resilience component is proven to promote sustainable CBT. In addition, the field findings show that social-ecological enhancements also impact agents of change, extend the tourism season, increase community participation, align visitor experience with Borobudur's reputation, and increase equitable access to tourism revenue

opportunities, all of which strengthen the social-ecological field.

The findings of this study show some positive measures of social-ecological resilience. Concerns about the appropriateness of Borobudur's reputation with the rural tourism will create awareness to support individual tourism efforts, as tourism is understood to have broader effects than just tourism-related activities. Good reputation management and a sense of individual responsibility can lead to higher measures of ecological resilience. Agents of change, reputation, seasonality, and access limitations also intersect, where appropriate image, more access to the island, and a longer tourism season can all contribute to higher measures of economic resilience. Limited access and seasonality also impact an adaptive "hustle mindset", where economic diversification and flexibility of opportunities are prioritized, and social identity is not based on the source of income, so such patterns can promote higher measures of economic and social resilience.

This study can serve as a basis for future research, especially in the context of the application of digital technology that is massively developed in villages. Future research recommendations are to examine the relationship between tourism and community empowerment in rural tourism, the interactions between Social System elements in the presence of digital technology, and assess measures of socio-ecological resilience. Exploring the effectiveness of tourism development policies in rural areas, particularly with regard to known trends such as limited access constraints and grant dependency, would be particularly interesting to continue. Understanding the policies and factors that enable access to tourism benefits will assist communities in developing a more profitable tourism sector. Understanding of measures related to resilience requires more exploration.

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Appendix 1- Table 3. Result of questions from FGD and interviews noted as theme definitions, code, narration theme, and system theme.

Theme definitions	Code	Narration Theme	System theme
Borobudur Temple as the main attraction Harmony between the natural beauty of the countryside and the tourist experience Land clearing in the countryside for the development of new artificial tourist attractions Low ecotourism literacy	Truth / falsity	Reputation	Science
Local leaders play a role in decision-making by advocating for community interests and facilitating communication with tourists Non-integrated HR training PT CBT Nusantara is appointed as a mentor (HR quality improvement) and marketing supporter of Balkondes.	Better / worse	Agent of Change	Education
The pursuit of maximum revenue is most accessible through diverse short-term opportunities. Village tourism activities tend to seek out things that are visually appealing to capture in photographs, the emergence of artificial tourist attractions that cater to the tastes of the market.	Profit / loss	Hustle mindset (crowded)	Economy
Limited benefits from tourism potential The most dominant factor in Social System change is economic factors Many communities do not participate in tourism utilisation Focus on developing infrastructure and public services to enhance the visitor experience, without regard for the quality of life of local residents		Limited Access	
Fluctuating or cyclical industries and opportunities		Seasonal	Economy
Not offering special licences related to eco-friendly tourism services Create certification and licences for homestay operations Not granting special licences for events that preserve and promote cultural heritage such as cultural festivals, handicraft production, and cultural tourism Customary law does not play a role	Legal / illegal	Legality	Law
The existence of political aspects in the form of infrastructure arrangements tends to result in gaps in the cultural context Decline in the culture of consensus deliberation Promoting cultural heritage to attract visitors and provide authentic and meaningful experiences	Norm / taboo	Cultural transformation	Culture
The majority of the indigenous people of Magelang are followers of kejawen Islam. Aspects of Buddhism have constructed the community's religious ritual ideas and behaviours. Religious organisations are not active, so religious rituals are not natural and forced.	Trans-cendence / imma-nence	Kejawen Islamic	Religion
The government's "Tilik Ndeso" project tends to offer short village tourism activities. Opening of new lands in the countryside for the development of new artificial tourist attractions The emergence of external intervention in tourism development with the existence of government policies (top down) No one is responsible for the preservation of traditions, culture, and religion Diversity of tourism attraction management units in rural tourisms (rural tourism cooperatives, Buds, private sector)	Government / oppo-sition	Governance	Politic