

Communication network actors in Celempungan and Seren Taun attractions in tourism village

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Abstract Ciasmara Village in Bogor Regency offers cultural attractions like Celempungan music and the Seren Taun ritual, which are valuable assets within a Community-Based Tourism (CBT) model. This study analysed the communication network managing these events, emphasising the identification and role of central actors in local tourism governance. Using a descriptive quantitative approach and social network analysis, data were collected from twenty one appointed tourism managers. UCINET VI software was employed to measure degree, closeness, betweenness, and eigenvector centrality. Results show that actor centrality significantly shapes the effectiveness of the CBT network. Otang Celempung emerged as the most central figure, actively facilitating communication and decision-making. Uday, acting as a liaison, connects otherwise separate groups. The findings highlight the need to strengthen the capacity of key actors to foster collaboration, preserve cultural heritage, and promote sustainable rural tourism.

Keywords: cultural attractions; communication networks; community-based tourism; Seren Taun.

INTRODUCTION

Tourism has become one of the main pillars of Indonesia's economy and a major contributor to the country's foreign exchange earnings. This industry significantly impacts economic growth on both micro and macro scales by increasing income and creating employment opportunities. One emerging approach is community-based tourism, where local communities actively participate in the management and development of tourism in their areas (Shafieisabet & Haratifard, 2020; Yunikawati et al., 2021).

Community-based tourism (CBT) is a tourism model that places local community participation at the core of destination development, aiming to create more equitable economic prosperity (Permatasari, 2022). This approach emphasises sustainability in environmental, social, and cultural aspects. Consequently, CBT contributes to the preservation of local culture while mitigating the adverse effects of mass tourism (Asyifa et al., 2023; Permatasari, 2022; Sarudin, n.d.).

CBT has been proven effective in improving the standard of living for local communities, particularly in rural and remote areas with limited access to other economic resources. By engaging in tourism, local communities can derive direct benefits such as increased income, entrepreneurial opportunities, and skill enhancement. At a macro level, this concept aligns with the Sustainable Development Goals (SDGs) as it promotes inclusive economic growth that considers the well-being of all societal layers (Ditta-Apichai et al., 2024; Krishna Prasad Sapkota, 2024; Maldonado-Erazo et al., 2020; Ngo & Creutz, 2022).

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In Bogor Regency, one of the villages that has adopted the CBT concept is Ciasmara Village. Ciasmara Village offers several tourist attractions appealing to both domestic and international visitors, such as waterfalls and camping grounds (Nugraha et al., 2021; Siregar, Amaliasari, et al., 2023; Siregar, Damayanti, et al., 2023). The tourism sector in Ciasmara Village still adheres to the CBT framework, meaning that community participation remains crucial in the development and provision of supporting facilities to attract tourists (Siregar, Amaliasari, et al., 2023).

In destination management, (Buhalis, 2000) introduced the concept of Destination Management Organisation (DMO), which provides a strategic framework for tourism managers to optimize their attractions by considering six key aspects : attractions (tourist appeal), amenities (supporting facilities), available packages (tourism packages), ancillary services (institutional support), activity (tourism-related activities), and accessibility (ease of access).

This study focuses on the attraction aspect, as one of the key tourism potentials in Ciasmara that remains underdeveloped. Ciasmara Tourism Village possesses cultural assets with significant potential for further development, particularly the Celempungan traditional music performance and the Seren Taun ceremonial tradition (Supriatna & Nugraha, 2020). Celempungan is a form of Sundanese musical art that utilises traditional bamboo instruments measuring 50–70 cm in length, relying on the resonance of bamboo nodes to produce sound. Historically, Celempungan was typically played during leisure time, after villagers returned from working in the fields, rice paddies, or gardens. Today, its performance has expanded beyond agricultural settings and is now featured in weddings, circumcision ceremonies, national celebrations, and other significant cultural events (Siregar, 2024).

The diverse tourist attractions in Ciasmara Tourism Village, encompassing both cultural and natural elements, have the potential to attract visitors. This aligns with the assertion by (Kamil, 2017) that enhancing tourism attractions can significantly influence tourists' decision-making processes. However, in Ciasmara, traditional cultural performances such as Celempungan and Seren Taun have not received significant attention for development. Local communities often perceive these cultural elements as secondary attractions rather than key tourism drivers (Grigorescu et al., 2024; Mariam et al., 2024; Roznovietchi et al., 2024; Tevenart & Brunette, 2021). Nevertheless, evidence from previous studies suggests otherwise. For instance, research by (Novanda et al., 2023), highlights how the Kecak Dance in Bali has been successfully positioned as an iconic representation of regional arts and culture. Beyond its cultural significance, the Kecak Dance serves as a major entertainment attraction that consistently draws visitors (Solehudin et al., 2022) Data from Garuda Wisnu Kencana (GWK) indicate that this cultural attraction contributes to an influx of approximately 5,000 visitors. This example demonstrates that cultural tourism can indeed serve as a primary attraction, providing valuable insights for the future development of Ciasmara Tourism Village.

The implementation of community-based tourism (CBT) in Ciasmara has led to a decentralised management structure, where tourism activities are overseen by different community groups based on their respective areas of expertise. Typically, these managers exchange information through face-to-face interactions or other communication media. This process of information exchange forms a communication network, emerging from the necessity to share knowledge and coordinate activities. According to Rogers (Wicaksono, 2018), a communication network consists of interconnected individuals linked through structured communication flows. Such networks are also defined as relational structures that connect individuals, objects, and events within a particular system.

Furthermore, network analysis can be examined through three distinct forms of flow: path, walk, and trail (Eriyanto, 2014). Information exchange among individuals follows different routes, often facilitated by intermediaries. The shorter the communication pathway between individuals, the more efficient the information flow becomes. Communication networks, therefore, can be understood as structured relationships between individuals engaged in information exchange, forming a specific network pattern or model. This pattern is inherently built on mutual trust and must be upheld through established social norms and community regulations.

There is a possibility that the information exchanged in a communication network is not distributed evenly. In the Ciasmara Tourism Village, this is one of the causes of less-than-optimal

development of cultural attractions, especially Celempungan and Seren Taun. Apart from that, the lack of participation from the village government and lack of interest from young people are also causes of less-than-optimal development of Celempungan and Seren Taun cultural attractions. However, in reality, cultural attractions can actually be one of the attractions to attract visitors and improve the regional economy (Flew & Kirkwood, 2021; Kalfas et al., 2024; Kirilenko et al., 2021; Šťastná et al., 2020). This is in line with what Solehudin et al. (2022) said, cultural attractions that are closely related to the tourism sector can not only attract the interest of tourists but can also attract the interest of job seekers. Apart from that, the performance of these cultural attractions can also have an indirect impact on other communities, such as traders of goods and services around the location of the cultural attraction. Previous research shows that maximising cultural attractions is done by including the Kecak Dance performance in the tour package that will be offered to visitors, so that many people are involved in the tour package, such as hotel providers, food sellers, or even knick-knack sellers who are also involved. Of course, this can also happen in the Ciasmara Tourism Village if the village managers and government maximise the potential of its tourist attractions such as Celempungan and Seren Taun.

This research aims to find out who the actors are involved and what form of communication network exists for managing the potential tourist attractions of Celempungan and Seren Taun. The main focus of this research is the actors directly involved in the process of implementing Celempungan and Seren Taun in Ciasmara Village, which includes tourism sector managers, village government, and the Gunung Halimun Salak National Park.

METHODOLOGY

This study employed a descriptive quantitative research method. While communication network research is fundamentally categorised as quantitative research, the methodological approach differs significantly from conventional quantitative studies. The communication network method is designed to describe and analyse social networks, network structures, and relationships between actors (Eriyanto, 2014). In this study, the communication network analysis focuses on a complete network approach, assuming undirected relationships among actors, meaning that all actors hold equivalent roles within the network, without a designated sender or receiver. The survey technique involved a census sampling of all 21 tourism managers in Ciasmara Village.

This study adopts a descriptive approach to examine the patterns of communication networks formed among tourism managers. Data collection techniques included structured interviews using questionnaires and direct observations. The interviews were structured around pre-formulated questions, focusing on who the actors interact with and the nature of their relationships. Observations were conducted at the research site to directly assess real-world interactions, providing empirical insights into the actor relationships within the network.

During the interviews, the researchers conducted in-depth discussions with individuals formally designated in the village government's official decree. Additionally, interviews were extended to key village officials, such as the village head and secretary. Meanwhile, unlisted actors—those not explicitly mentioned in the decree—were identified through a snowball sampling approach, wherein primary informants helped identify additional key stakeholders involved in the management of Celempungan and Seren Taun.

To examine the roles and interrelations among actors within the communication network, this study adopted a whole network analysis (complete network approach), using individual actors as the primary unit of analysis. The data collected were processed using UCINET VI, a software specifically designed for social network analysis. The key measurement utilised is centrality, which indicates the position, influence, and significance of each actor within the communication structure.

Four centrality metrics were applied in this study. Centrality measures are crucial for identifying important actors in networks, with degree, closeness, betweenness, and eigenvector centrality being commonly used (Trach & Lendo-Siwicka, 2021). These measures capture different aspects of node importance, such as direct connections, efficient communication paths, and intermediary roles (Vignery & Laurier, 2020). However, centrality measures often make implicit assumptions about network processes, which may not always align with real-world behaviour (Bockholt & Zweig, 2021). While standard centrality measures are generally robust against deviations in their process models, individual node rankings can vary significantly, affecting result interpretability (Bockholt & Zweig, 2021). Interestingly, a non-linear relationship

between degree and closeness centrality has been identified, suggesting that closeness may be redundant unless this relationship is used to remove degree dependence (Evans & Chen, 2022). These findings highlight the importance of carefully selecting and interpreting centrality measures in network analysis.

These centrality measurements are instrumental in addressing the issue of disorganised communication among tourism managers, particularly about the development of tourist attraction features in Ciasmara Village. By identifying the most central actors, those who serve as connectors between groups, and those who can access and disseminate information efficiently, communication strategies can be designed in a more structured and targeted manner. For instance, actors with high degree and closeness centrality may be leveraged as key information hubs, while those with high betweenness centrality can function as strategic intermediaries across fragmented groups. Consequently, strengthening the communication network will enhance collaboration and facilitate more effective information sharing in the management of local tourist attractions.

RESULTS AND DISCUSSION

Tourism Potential in Ciasmara Village

Ciasmara Village possesses diverse tourism potentials, particularly Celempungan music and the Seren Taun traditional ceremony. The organisation and execution of these cultural events are primarily driven by local community initiatives, especially those of tourism managers in Ciasmara Village. These managers engage in interpersonal communication, forming a structured communication network that facilitates the coordination of tourism-related activities. As Wicaksono (2018) posits, a communication network comprises individuals interconnected through structured patterns of communication flow.

From this perspective, a communication network is fundamentally defined by two core components. The first component is the actor (or node), which refers to individuals or entities who participate in communication within the network. The second component is the relationship (or link), representing the interactions and connections that occur between actors, shaping the overall structure and dynamics of the network.

Actors involved in the communication network

This study focuses on actors who are directly involved in the management of tourist attractions in Ciasmara Village. The identified actors are those formally recognised in the village government's decree on tourism management (Decree of Village Head of Ciasmara No. 556 of 2017), which lists 21 individuals as official tourism managers.

A key aspect of the study involved mapping who these actors communicate with and how information flows within the network. Interestingly, findings reveal that tourism managers do not solely interact with formally designated actors but also engage with external stakeholders beyond those listed in the decree. This is particularly evident in the implementation of Celempungan and Seren Taun, where external support—notably from the village government—plays a crucial role in sustaining and promoting these cultural attractions. The following table 1 section presents a comprehensive list of actors formally recognised in the Ciasmara village head decree as official tourism managers, along with an analysis of external stakeholders contributing to the communication network in the development of Celempungan and Seren Taun.

The actors mentioned in table 1 are tourism managers who engage in mutual communication to facilitate the implementation of Celempungan and Seren Taun. In addition to the individuals officially listed in the village government's decree as tourism managers, these actors also established contact with individuals outside the scope of the decree.

The individuals listed in table 2 are external actors who were either contacted or initiated contact regarding the implementation of the Celempungan and Seren Taun performances in Ciasmara Village. These external actors represent various entities, including the village government—such as the village head—and the management of the Mount Halimun Salak National Park. Engagement with these external actors occurred through direct meetings or mobile communication to discuss the planning and execution of the Celempungan and Seren Taun events. These actors were identified based on their involvement in the established communication network, despite their names not being included in the official village government decree.

Table 1. List of actors included in the Ciasmara Village Head Decree No. 556 of 2017

No	Manager Name	Department in Decision Letter
1.	Abid	Public Relations/Publication
2.	Iir Surningsah	Empowerment/Preservation
3.	Effendi Jarkasih	Treasurer
4.	Odih	Driver and First Aid
5.	Otang (wisata)	Treasurer
6.	Juarsa	Public figure
7.	Aca	Driver and First Aid
8.	Yudi Irawan (Kudil)	Sector Manager
9.	Lia Waroka	Culinary
10.	Handi Hambali	Chief
11.	Herman	Security
12.	Ayung Yuandi	Public figure
13.	Otang (Celempung)	Artists
14.	Hasanudin	Public figure
15.	Affan Nurhakim	Sector Manager
16.	Sadik	Tour Guide
17.	Ma'ruf Hidayat	Empowerment/Preservation
18.	Iyon	Culinary
19.	Wahyudi Irawan (Yudi)	Public figure
20.	Macih	Culinary
21.	Sahib	Public figure

Source: Primary data, processed 2024

Research findings by Siregar (2024), indicate that maximizing village tourism potential necessitates a structured role for the village government in overseeing organizational communication. This governance structure is essential for coordinating with tourism sector managers and fostering collaboration with both community and non-community stakeholders. Within the framework of community-based tourism, the village government plays a critical role as both a regulatory body and a supervisory entity for neighbouring villages. Furthermore, (Siregar, 2024) emphasizes that the village government and tourism managers must share a unified vision and mission for tourism development to ensure a well-coordinated and strategic approach to the advancement of Ciasmara Tourism Village.

Communication network

According to Rogers (Wicaksono, 2018) a communication network consists of individuals connected by a structured flow of communication. It also represents a specific type of relationship that links individuals, objects, and events. An effective communication network plays a crucial role in identifying and understanding the actors involved in the implementation of Celempungan and Seren Taun. Through this identification process, it can be concluded that a communication network comprises a series of relationships between individuals who exchange information, forming a specific pattern or model of communication. This network is built upon trust and must be maintained in accordance with established norms.

Table 2. Names of actors not included in Ciasmara Village Head Decree No. 556 of 2017

No	Actors outside the Tourism Management Decree
1.	Junaedi
2.	Asep (TNGHS)
3.	Unang Hidayat
4.	Odo
5.	Wahyu Hidayat
6.	Ramsan
7.	Uday
8.	Karma
9.	Taryat
10.	Adi
11.	Sutar
12.	Dodi Irawan
13.	Daday Hidayat
14.	Anwar Sopian (Munawar)
15.	Deni
16.	Kamsa
17.	Maji Suhandi
18.	Aminudin

Source: Primary data, processed 2024

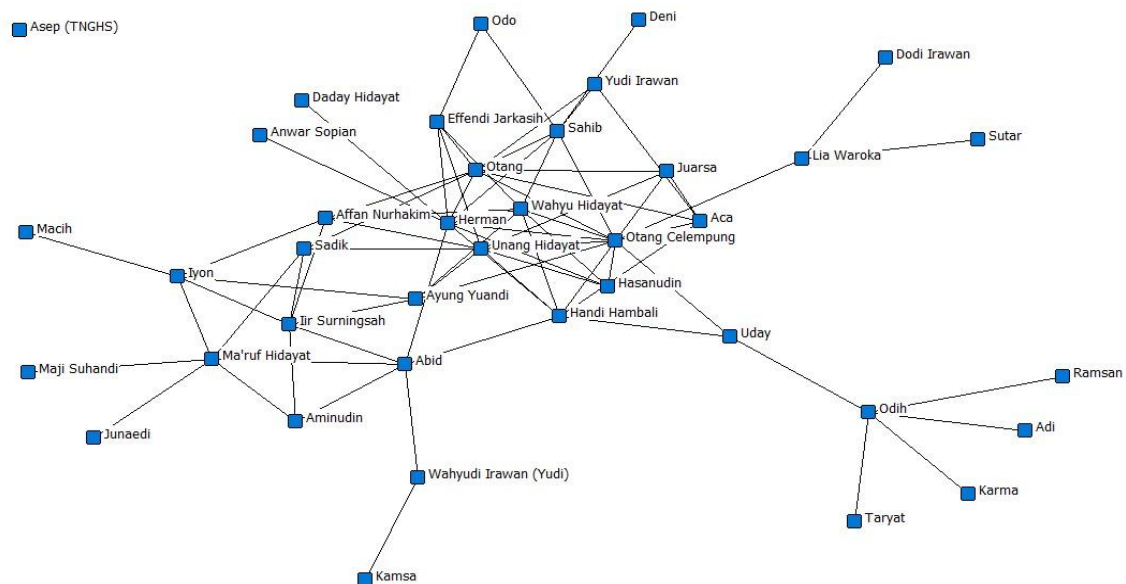


Figure 1. Communication network
Source: Primary data, processed 2024

The actors involved and interconnected form relationships within a communication network (Figure 1). This study found that these relationships are undirected, meaning all actors engage in mutual communication, contacting and being contacted by each other, thereby assuming equal roles. An actor's position and role within a network are determined by interactions with other actors. Notably, an actor may assume different positions and roles depending on the network in which they operate.

Referring to (Waldstrøm, 2001) perspective, there are four primary individual roles within a communication network: bridge, liaison, isolate, and star (opinion leader). Each role carries distinct responsibilities, and it is not uncommon for an individual to simultaneously assume multiple roles. Actors do not perceive these roles as burdensome, as their involvement is often driven by personal motivations. These may include a commitment to preserving traditional arts, enhancing the potential of tourist attractions, or increasing economic opportunities.

Bridge

Each role within the network carries distinct responsibilities, and it is not uncommon for an individual to assume multiple roles. Actors generally do not perceive these roles as burdensome, as their participation is driven by personal motivations such as preserving traditional arts, enhancing the potential of tourist attractions, or generating economic benefits.

As illustrated in figure 1, the bridge role in this communication network is assumed by Otang Celempung, who functions as an intermediary for actors who seek to establish communication but lack direct contact. For instance, in the network structure, Lia must first reach out to Otang Celempung to communicate with Herman. Without Otang Celempung, Lia would be excluded from the communication network involved in managing the Celempungan and Seren Taun cultural attractions in Ciasmara Village.

Similarly, Abid also assumes the role of a bridge, facilitating communication between Wahyudi and Kamsa with other actors in the network. Like Otang Celempung, Abid's absence would hinder Wahyudi and Kamsa from integrating into the communication network for managing the Celempungan and Seren Taun attractions. The overall network comprises multiple distinct groups, interconnected by a single bridging actor. However, the distribution of information across the network remains uneven, which contributes to the suboptimal development of these cultural attractions.

Liaison

The liaison role functions similarly to the bridge; however, a key distinction lies in the fact that liaisons do not belong to any specific group. Instead, they serve exclusively as intermediaries, facilitating communication between separate groups. In the communication network, a liaison determines which individuals can enter the network and controls the flow of information between groups.

In the context of managing the Celempungan and Seren Taun attractions in Ciasmara Village, the liaison role is performed by Uday. As depicted in Figure 1, Uday connects Odih, Kayot, Karma, Adi, and Ramsan to the broader communication network. Despite not being affiliated with any particular group, Uday plays a crucial role in linking the Odih group with other entities, thus contributing to the formation of a comprehensive communication network for the management of Celempungan and Seren Taun.

Isolate

Not all actors within a communication network are interconnected; some individuals remain isolated, meaning they neither contact nor are contacted by any other actors within the network. Based on closeness centrality analysis, the actor with the lowest centrality score in this network is Asep. This can be attributed to the fact that Asep is affiliated with Gunung Halimun Salak National Park, which is not directly involved in the implementation of Celempungan and Seren Taun. However, should TNGHS be incorporated into the management structure and a more extensive communication network be established, Asep could assume the role of a liaison, bridging communication between TNGHS and the actors managing Celempungan and Seren Taun in Ciasmara Village.

Star

Whereas an isolate is characterised by minimal or no connectivity within the network, a star represents the opposite—a highly connected actor with the most extensive network ties. Based on the four centrality measures applied in this study, Otang Celempung is identified as the star within the communication network. Specifically, Otang Celempung attained the highest scores in degree centrality, betweenness centrality, and eigenvector centrality, while also recording the lowest score in closeness centrality, which, in this context, indicates a more advantageous position.

Otang Celempung holds a central role in the Celempungan art tradition in Ciasmara Village, which solidifies his position as a star in the communication network for managing the cultural attractions of Celempungan and Seren Taun. In addition to being a key figure in Celempungan art, he is also a Celempung and Karinding craftsman. Within the Gending Celempung Asmara Saba community, responsibilities are distributed among members in various roles such as

chairman, marketing, and public relations. Otang Celempung oversees marketing, which further enhances his network position, as he is frequently contacted by tourism managers whenever visitors express interest in witnessing Celempungan performances in Ciasmara Village.

Centrality analysis

The data obtained from the study were processed using UCINET IV software and subsequently analysed using centrality indicators. Centrality is a key measure in communication network research, referring to the position and influence of actors within a network. This measure determines how central an actor is in relation to the overall network structure.

In this study, four centrality measures are utilised to capture different dimensions of actor prominence within the network. The degree centrality assesses the number of direct connections an actor maintains, which reflects their frequency of interaction and potential for influence. The closeness centrality indicates how efficiently an actor can reach other members of the network, based on the shortest communication paths. The betweenness centrality highlights the actor's role as a conduit or intermediary, controlling the flow of information between otherwise unconnected actors. Meanwhile, the eigenvector centrality measures the actor's importance not only based on the number of their connections but also on the significance of those to whom they are connected.

This study employs a whole-network analysis (complete network approach), with a unit of analysis focused on individual actors within the communication network. The relationships among actors, particularly with the star actor, significantly influence information dissemination and reputation-building within the network.

Furthermore, communication network analysis is used to determine whether actors in the network interact directly with one another or remain indirectly connected through intermediary actors (Fang et al., 2024; Fischer et al., 2021; Kanda et al., 2022; Prato & Stark, 2023). In some cases, certain actors may not have direct contact with the star actor, but their relationships with other influential actors can still affect decision-making processes within the network.

Degree centrality

Degree centrality measures the number of direct connections an actor has within a communication network, thereby indicating their level of influence and popularity. Since this study employs an undirected network approach, total centrality is determined by the number of relationships an actor maintains, without differentiating between who initiates or receives communication.

Degree centrality is instrumental in identifying key actors within a network, particularly those who serve as opinion leaders or central figures in information exchange. According to Prell (2014) in *Communication Network Analysis*, actors with the highest degree of centrality serve as primary channels for information flow, as their extensive communication ties enable them to acquire and disseminate information efficiently.

Figure 2 illustrates the degree of centrality distribution in the communication network of the Celempungan and Seren Taun cultural attractions. The results highlight that individuals such as Otang Celempung, Wahyu Hidayat, and Unang Hidayat play pivotal roles as central hubs in the network. Their high degree of centrality facilitates efficient coordination and communication management related to cultural events, ensuring the smooth execution and dissemination of key information within the network. By holding strategic positions, these actors accelerate decision-making processes, reinforce collaboration among stakeholders, and enhance the overall effectiveness of tourism management and cultural preservation initiatives in Ciasmara Village.

The centrality test results presented in Table 3 indicate that Otang Celempung holds the highest degree centrality score of 0.316, signifying that he maintains the most extensive network of relationships compared to other actors. This high centrality score underscores Otang Celempung's pivotal role in the communication network, as he serves as a key connector and primary point of contact within the Ciasmara Tourism Village.

Otang Celempung's multiple roles—as a tourism manager, tour guide, and a direct descendant of the Celempung art lineage—further reinforce his influence. Due to his strategic position and cultural authority, he is frequently contacted by various stakeholders, including other tourism managers and tourists, particularly when visitors seek information or wish to

experience cultural events such as Celempungan and Seren Taun. His central role in information dissemination ensures that communication flows efficiently, facilitating coordination among stakeholders and promoting cultural tourism in Ciasmara Village.

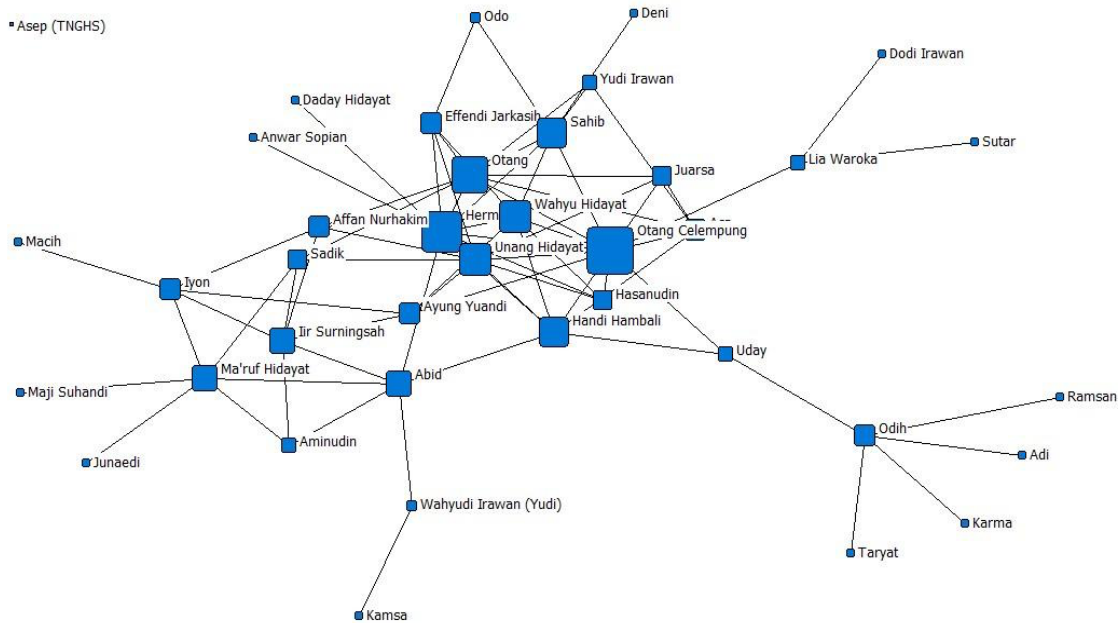


Figure 2. Centrality of communication network levels of Celempungan and Seren Taun Attractions
 Source: Primary data, processed 2024

Table 3. Actors with the highest rank centrality scores

No.	Actor with the Highest Rank Centrality Score	Rank Centrality Value
1.	Otang Celempung	0.316
2.	Herman	0.263
3.	Otang Wisata	0.237
4.	Wahyu Hidayat	0.211
5.	Unang	0.211

Source: Primary data, processed 2024

Closeness centrality

Closeness centrality measures the proximity of an actor to all other actors in a communication network. It is determined by the number of steps required for an actor to reach or be reached by others, where higher closeness centrality indicates greater efficiency in accessing and disseminating information. Actors positioned at the centre of the network tend to have a higher probability of receiving and transmitting information quickly, compared to those on the periphery.

As depicted in Figure 3, key individuals such as Otang Celempung, Wahyu Hidayat, and Unang Hidayat occupy central positions with multiple direct connections, demonstrating a high degree of closeness centrality. This positioning enables them to function as primary conduits in the exchange and distribution of information across the network, significantly enhancing communication efficiency.

Conversely, actors such as Ramsan, Taryat, and Dodi Trawan occupy more peripheral positions, having fewer direct connections. As a result, they may experience delayed access to critical information, limiting their influence within the network. However, the overall structure of the communication network suggests a relatively high level of integration, with several actors serving as key intermediaries. This central positioning plays a crucial role in ensuring swift and effective information dissemination, ultimately supporting the coordination and management of Celempungan and Seren Taun events in Ciasmara Village.

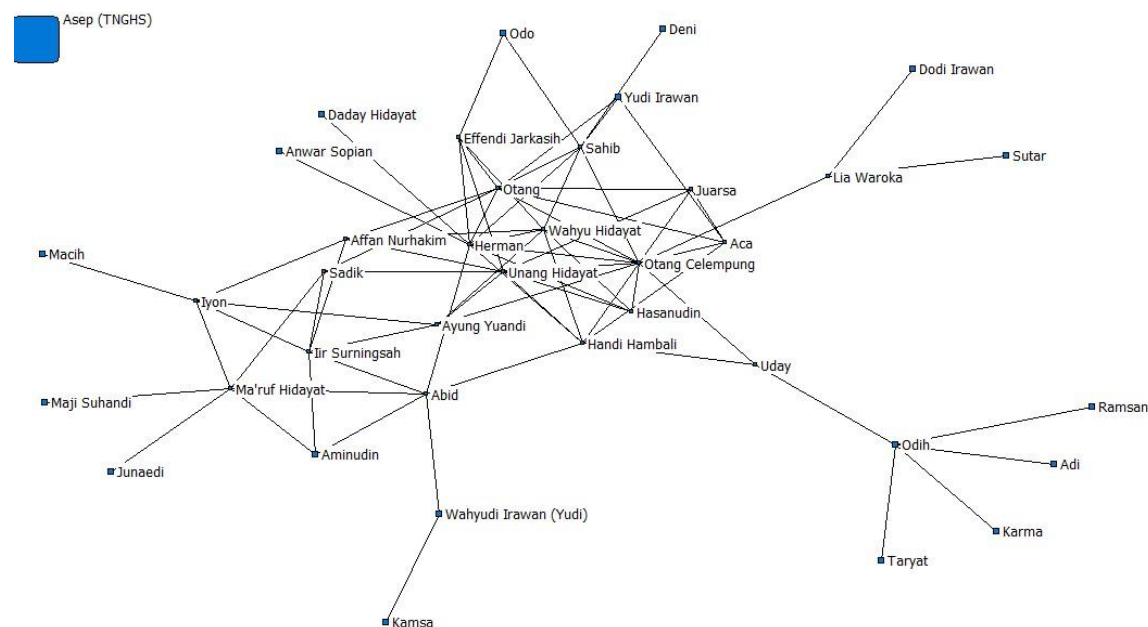


Figure 3. Closeness centrality of communication networks
Source: Primary data, processed 2024

Figure 3 indicates that Asep obtained the highest closeness centrality score, primarily due to his role as an external party from Gunung Halimun Salak National Park (TNGHS). Since Celempungan and Seren Taun are not conducted within TNGHS, his involvement in the network is an extension of his affiliation with Ciasmara Village. This aligns with the findings of (Siregar, 2024), who noted that Asep’s presence in the network is attributed to the fact that several natural tourist attractions in Ciasmara Village fall under the authority of TNGHS.

Asep’s position in the communication network is further reinforced by his proximity to Herman, a key figure in Ciasmara Tourism Village management. Given that some of Ciasmara’s ecotourism destinations are located within the TNGHS area, his role facilitates coordination between tourism managers in Ciasmara Village and TNGHS representatives.

Table 4. Actors with the highest scores for closeness centrality

No.	Actors Get the Smallest Value of Closeness Centrality	Closeness Centrality Value
1.	Otang Celempung	115.000
2.	Herman	120.000
3.	Otang Wisata	122.000
4.	Abid	126.000
5.	Unang	127.000

Source: Primary data, processed 2024

The closeness centrality test results in Table 4 indicate that Otang Celempung has the lowest closeness centrality score, approximately 115,000, while Asep from TNGHS holds the highest score of 1,482,000. This contrast suggests that Otang Celempung is positioned at the core of the communication network, enabling him to establish direct contact with multiple actors involved in the traditional cultural attractions of Ciasmara Village. His central position facilitates efficient information exchange within the network, making communication processes smoother and more accessible.

Betweenness centrality

Betweenness centrality measures an actor’s role as an intermediary in facilitating communication between other actors in the network. This metric is crucial, as it determines how control over information flow is distributed and how different groups are integrated within the network. Actors with high betweenness centrality influence the accessibility of information and can

mediate between separate groups, ensuring the network remains interconnected. Without these key intermediaries, certain groups would remain isolated from the broader communication structure.

The analysis of betweenness centrality in figure 4 reveals that Wahyu Hidayat, Otang Celempung, and Unang Hidayat serve as key intermediaries within the communication network. Their role as primary liaisons is crucial in facilitating the flow of information between different actors, ensuring that essential updates related to events such as Celempungan and Seren Taun are effectively disseminated. These individuals act as information hubs, strengthening coordination and communication efficiency within the Ciasmara Tourism Village’s cultural network.

On the other hand, actors such as Ramsan and Taryat—while not as central—have the potential to expand communication pathways beyond the existing network structure. Their involvement could further enhance connectivity, allowing for a broader and more inclusive exchange of information across different stakeholders.

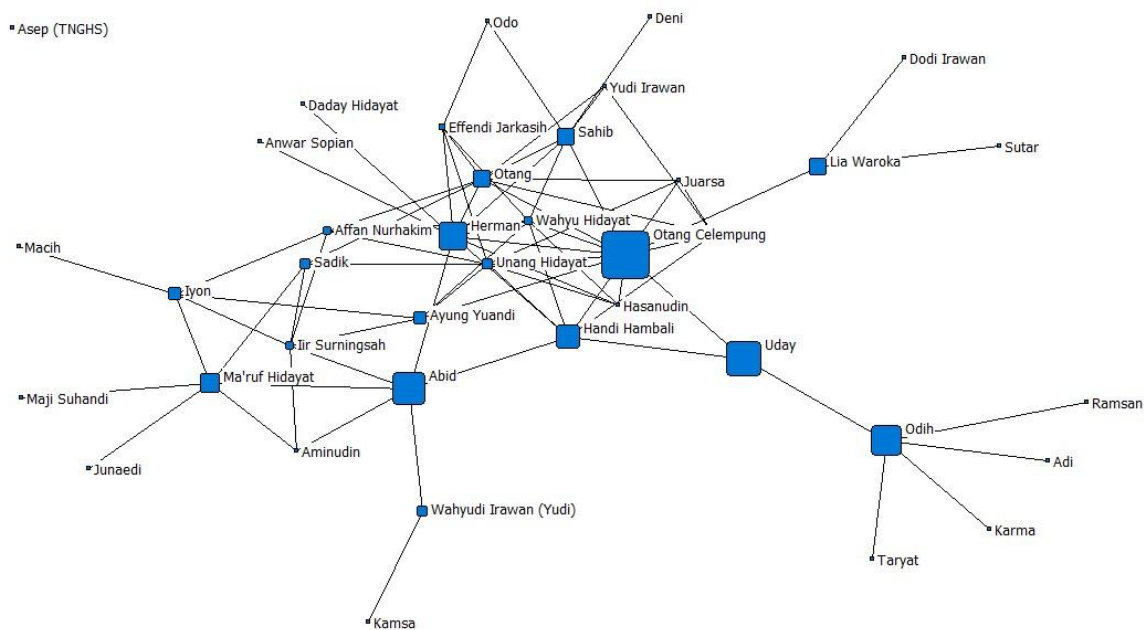


Figure 4. Centrality of communication network intermediary
 Source: Primary data, processed 2024

Table 5. Actors with the highest scores for intermediary centrality

No.	Actors with the Highest Scores on Brokerage Centrality	Value of the Centrality of Betweenness
1.	Otang Celempung	221.385
2.	Uday	160,000
3.	Abid	146.317
4.	Odih	138.000
5.	Herman	125.189

Source: Primary data, processed 2024

The betweenness centrality test indicates that Otang Celempung plays a pivotal role as an intermediary within the communication network. This is evidenced by his betweenness centrality score of approximately 221.385, signifying that multiple actors must pass through him to establish contact with others. Additionally, Otang Celempung is positioned at the centre of the network, granting him a significant degree of control over information flow related to the implementation of Celempungan and Seren Taun. His position also allows him to influence which groups can join the network.

Otang Celepung's prominence within the network stems from his status as one of the elder figures in Celepungan arts in Ciasmara Village. Consequently, he is often the first point of contact for matters related to Celepungan. However, his interactions are largely limited to actors within his immediate circle.

A closer examination of the intermediary network structure reveals a key challenge: for village government representatives such as Maji and Junaedi to communicate with Otang Celepung regarding the organization of Celepungan and Seren Taun, they must first navigate through multiple intermediaries, including Aruk (Saderi Sector Manager) and other network actors. This complex and indirect communication route presents a major barrier to integrating Celepungan and Seren Taun as a formal tourist attraction in Ciasmara Village. Furthermore, due to these structural constraints, the village government is unable to contribute directly to the organization and execution of these cultural events (Siregar, 2024).

Eigenvector centrality

Eigenvector centrality measures an actor's importance within a network by considering not only the number of connections they have but also the significance of the actors they are connected to. Unlike other centrality measures, eigenvector centrality does not merely reflect the quantity of connections but also the quality, meaning that actors connected to highly influential individuals gain a higher eigenvector score.

An actor with a high eigenvector centrality score indicates that they are well-connected to other influential actors, making them a key figure in the network. This metric helps identify not just the most connected actors, but also those who are strategically positioned in an influential social structure within the network.

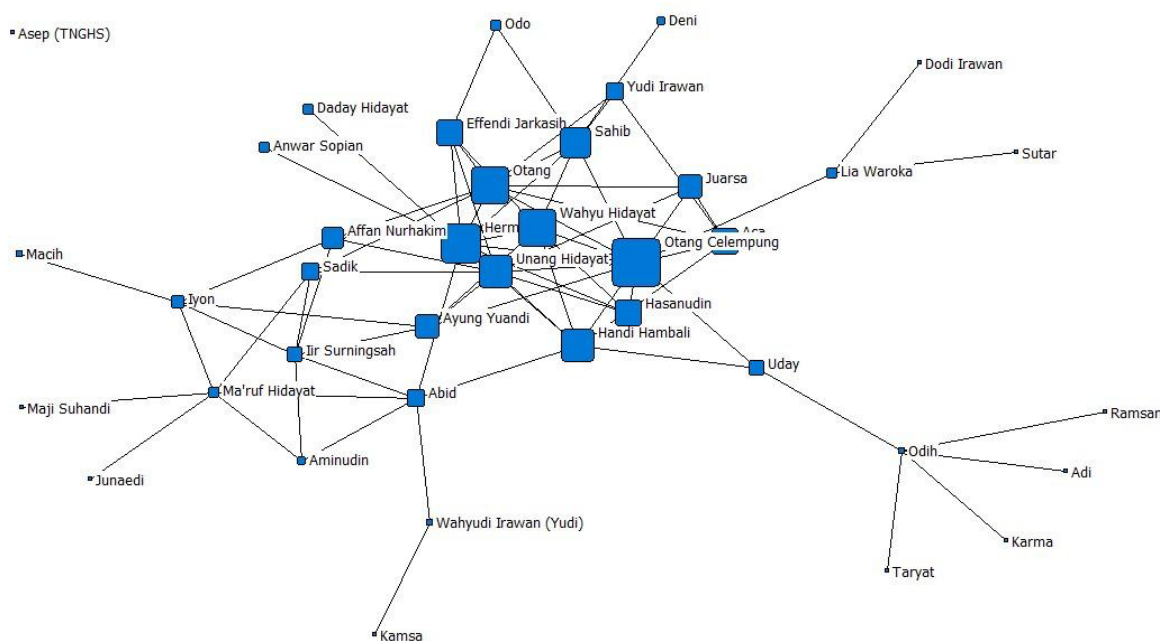


Figure 5. Sentralitas Eigenvector Jaringan Komunikasi
Source: Primary data primer, processed 2024

Table 6. Actors with the highest scores for Eigenvector Centrality

No.	Actor with the Highest Value of Eigenvector Centrality	Eigenvector Centrality Value
1.	Otang Celepung	0.237
2.	Herman	0.223
3.	Otang Celepung	0.216
4.	Handi	0.209
5.	Unang	0.208

Source: Primary data, processed 2024

Based on the eigenvector centrality test (table 6), Otang Celempung obtained the highest eigenvector score among all actors, with a value of 0.237. This result indicates that Otang Celempung holds a central position within the network, making him the most influential and well-connected actor. His high eigenvector score suggests that he is not only directly connected to many actors but also linked to other influential individuals within the network. As a result, Otang Celempung emerges as the most prominent and widely recognised figure, reinforcing his key role in coordinating communication and managing cultural attractions in Ciasmara Village.

The findings of this study reveal that the communication network for managing the Celempungan and Seren Taun attractions in Ciasmara Village is heavily concentrated around a few key actors. While this may facilitate faster information exchange and decision-making in the short term, it contradicts the principles of Community-Based Tourism (CBT), which emphasise collective participation and shared ownership (Okazaki, 2008).

Otang Celempung's dominant position—reflected through consistently high scores across all centrality measures—illustrates a network dependent on one central figure. This indicates the presence of a bottleneck in communication, where information flow and decision-making are filtered through a limited set of actors. As suggested by (Permatasari, 2022) and supported by (Matarrita-Cascante et al., 2010), effective CBT requires broad participation and community agency to ensure sustainability beyond the dominance of a single actor.

Moreover, Uday's role as a liaison connecting isolated groups reveals fragmented communication within the network. This separation hampers coordination and may marginalize certain actors, especially those not formally appointed by the village government. Similar patterns were observed by (Nair & Hamzah, 2015), who emphasise that fragmented communication networks often cause delays and inefficiencies in CBT implementation, particularly when traditional arts are positioned as secondary tourism assets.

To overcome these issues, it is essential to design a capacity-building strategy that expands the communication competencies of less-connected actors (Buetti et al., 2023; Malhotra et al., 2022; Nautiyal & Klinsky, 2022; Rojas-Reyes et al., 2022). This includes training in digital communication tools, interpersonal communication, and community facilitation techniques, which can promote a more resilient and distributed network.

These structural dynamics align with previous research by (Waldstrøm, 2001), who emphasises that liaison and bridge roles in informal networks are essential yet vulnerable if not institutionally supported. In the case of Ciasmara, while Otang Celempung plays a vital role in sustaining the network, his informal position is not sufficiently backed by structural mechanisms or village policy.

Moreover, Okazaki (2008) notes that enhancing social capital through strengthening communication among a wider set of actors is critical to the long-term success of community-based tourism. This suggests that integrating more actors into the core communication network, rather than relying heavily on a few individuals, would promote greater resilience and sustainability in managing cultural tourism attractions (Tsouri & Pegoretti, 2021).

CONCLUSION

Based on the data analysis results, the communication network in managing the Celempungan and Seren Taun tourist attractions in Ciasmara Village is structured as an undirected network, involving reciprocal relationships among actors. Uday serves as a liaison, facilitating connections between different groups despite not being formally affiliated with any specific cluster. This bridging role enables the formation of a broader communication network. Meanwhile, Otang Celempung functions as the central actor, frequently contacted by various stakeholders in the organisation of Celempungan and Seren Taun activities.

Although the village government has officially appointed 21 actors as tourism managers, the communication network also involves 18 external actors, including representatives from the village government and the Gunung Halimun Salak National Park (TNGHS). The centrality analysis, which includes degree centrality, betweenness centrality, closeness centrality, and eigenvector centrality, identifies Otang Celempung as the most central actor in the communication network. The degree centrality analysis reveals that Otang Celempung maintains the highest number of connections, reflecting his multifaceted involvement in tourism activities as a craftsman, tour guide, and tourism sector manager. The closeness centrality test highlights Otang Celempung's optimal proximity to other actors, ensuring efficient information

dissemination within the network. The betweenness centrality analysis underscores his role as a key intermediary in facilitating communication among different actors. Furthermore, the eigenvector centrality test confirms that Otang Celempegan possesses the strongest network ties, reinforcing his position as the core figure in the communication structure for tourism management.

These findings indicate that Otang Celempegan's central role is a critical factor in the successful management of Celempegan and Seren Taun tourism attractions in Ciasmara Village. Strengthening the role of key actors and integrating external stakeholders are essential strategies to enhance the effectiveness of the communication network in tourism governance. To optimise the potential of this network, capacity-building initiatives should be prioritised, particularly for Otang Celempegan, through training in communication skills, product development, and tourism services. Such measures will enable him to guide and mentor other actors within the network. Additionally, the active involvement of the village government is crucial to securing access to resources, funding, and technical support for the sustainable promotion and development of tourism. Furthermore, optimising Uday's role as a liaison has the potential to foster stronger collaboration and cohesion among different groups, ensuring a more integrated and efficient communication system. By implementing these strategic initiatives, the communication network for tourism management in Ciasmara Village can be further strengthened, contributing to the sustainable development of the local tourism sector.

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