

# COMMUNICATION PATTERNS IN FOREST PROTECTION IN TESSO NILO NATIONAL PARK, INDONESIA

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**Abstract.** Tesso Nilo National Park (TNNP) is a state-protected tropical rainforest national park. This study aims to determine the communication patterns used by national park managers with the community regarding forest protection in the Tesso Nilo National Park area. The method used in this study was a qualitative case study approach. Primary data collection was through in-depth interviews with national park officials and the community. The results showed that the TNNP Office implemented linear and circular communication patterns to communicate with the surrounding forest area community. The two-way circular communication was more effective because it created a feedback process between the TNNP Office and the community. In practice, primary channels were used through outreach activities and dialogue with the community. A more inclusive and dialogical communication approach can increase community participation in forest protection. Regarding media, secondary channels considered adequate were social media, especially Instagram, compared to conventional media such as print and electronic media.

**Keywords:** *conservation, environmental communication, forest protection, national parks, Tesso Nilo*

## Introduction

Indonesia has 54 national parks spread across several islands, three located in Riau Province. One of these national parks is Tesso Nilo National Park (TNNP), located in Riau Province. The area covered initially was 38,576 hectares in 2004, then expanded in 2009 to 83,068 hectares. The TNNP area, previously a limited production forest area with a road network, made it easy for individuals or groups to enter the TNNP area. This is one of the reasons why it is difficult to maintain security in the TNNP area, which is a natural habitat for protected animals such as the Sumatran tiger (*Panthera tigris sumatrae*) and the Sumatran elephant (*Elephas maximus sumatranus*). A crucial issue over the TNNP is forest encroachment for residential and plantation development. Land-use change primarily concerns forest clearing for oil palm and industrial plantations. While this has significantly contributed to economic growth in the region, it has also resulted in severe environmental degradation and socio-economic losses. This includes forest and land fires, the haze of which has spread to neighboring countries, such as Singapore and Malaysia (Helmi et al., 2021). Burning occurs during land clearing after logging (Badri et al., 2018).

Given the critical role of national parks, forest conservation is a crucial topic for forest protection. Why is this so? Forests are areas containing biological natural resources. Forests are inseparable from the lives of surrounding communities, especially local communities whose survival depends on the availability of forest resources (Irawan et al., 2022). Conservation is carried out for the purpose of maintaining the balance of biological ecosystems in order to bring about human well-being and quality

of life (Osin et al., 2024). The TNNP area is one of Riau's remaining secondary forest areas, representing a transitional ecosystem between highlands and lowlands with high biodiversity potential. These conditions make the area vulnerable to external disturbances such as theft of forest products, overexploitation of forest products, forest encroachment, and hunting protected wildlife (Edorita and Zulwisman, 2021; Firmansyah and Kusumo, 2020). The low economic status of the community and limited knowledge about forest resource management are the causes of frequent forest encroachment. This has triggered conflicts between the TNNP Office and the communities surrounding the national park area. Therefore, communication is necessary to build good relationships so that both parties understand each other (Pratama and Nurjanah, 2014). The TNNP Office, as the government authority managing the TNNP, plays a crucial role in establishing communication with the communities surrounding the national park. To anticipate this, the TNNP Office plays a crucial role in raising awareness and understanding among the community through social communication or outreach to protect and preserve the forest.

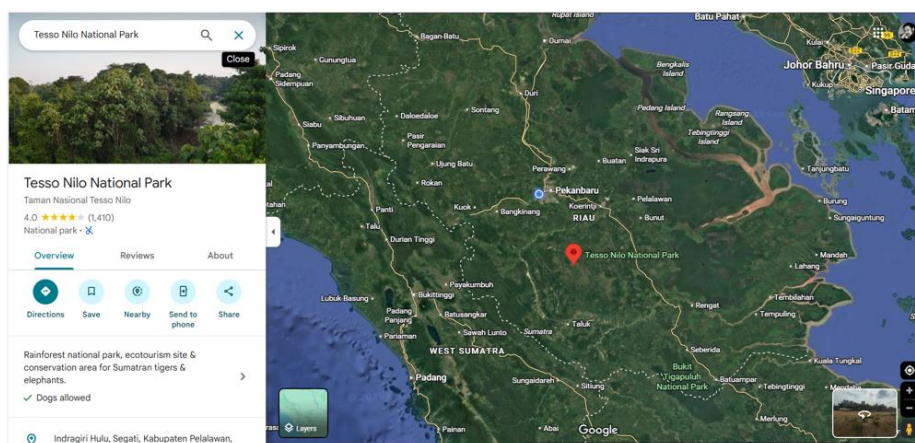
The communication model developed by the TNNP Office to protect and preserve forests requires the participation of stakeholders, particularly the communities surrounding the national park. This requires a communication model that conveys a message from the communicator to the recipient, conveying information and even changing attitudes, opinions, or behaviors directly and indirectly through the media (Herutomo and Istiyanto, 2021). This article uses an environmental communication theory approach, namely a pragmatic and constitutive channel, to provide public understanding of the environment. The government is a key communicator in environmental communication (Pezzullo and Cox, 2017). Environmental communication is the deliberate exchange of information through knowledge and environmental policies (Flor and Cangara, 2018). Environmental communication is crucial for educating stakeholders about environmental issues and increasing environmental awareness (Sikhosana, 2024). This is because how humans live and utilize resources can damage the environment, resulting in pollution, climate change, and various other problems (Vlăduțescu and Stănescu, 2023). People and communities have a duty to act as stewards of the planet by protecting natural resources, maintaining the delicate balance of ecosystems, and ensuring the welfare of all living things (Ibrahim et al., 2024).

Environmental communication and environmental policy are interconnected because environmental communication does not merely provide linear or bottom-up information about environmental issues but involves the dialogic sharing of environmental information with all stakeholders in a particular environment (Wahyudin, 2017). Furthermore, environmental communication conveys public demands regarding environmental management, including forest environmental issues. One community institution that serves as a communication tool is a communication forum for joint forest management with the community. This forum ensures the continued and sustainable maintenance of forests' ecological and economic functions for forest village communities (Herutomo and Istiyanto, 2021). In this forum, they share information about forest issues, economic solutions, and the importance of maintaining forest sustainability (Damanik, 2019). Continuous communication will create habits that ultimately form communication patterns (Effendy, 2011). Communication patterns can be defined as relationships between two or more people in sending and receiving messages appropriately so that the intended message can be understood. A simple

description of the communication process that shows the relationship between one communication component and another (Djamarah, 2004).

In general, there are two communication patterns: linear and circular. A linear pattern is a one-way communication process from the communicator to the recipient (Tubbs and Moss, 2008). In a circular pattern, feedback occurs, a flow from the recipient to the recipient. Therefore, sometimes the feedback flows from the recipient to the recipient, which is the communication response to the message received from the recipient (Assegaf et al., 2022). Based on the channel, there are primary communication channels, which are verbal and non-verbal. Secondary communication channels use media (Tubbs and Moss, 2008). Communication patterns can be used in environmental communication to investigate the communication process in forest conservation activities. Law Number 5 of 1990 concerning the Conservation of Biological Natural Resources and their Ecosystems, which was revised into Law of the Republic of Indonesia Number 32 of 2024 concerning Amendments to Law Number 5 of 1990 concerning the Conservation of Biological Natural Resources and their Ecosystems, is the primary foundation in efforts to conserve biological natural resources and ecosystems in Indonesia. The important points of the regulation on conservation are ensuring the maintenance of ecological processes, maintaining the diversity of genetic sources, and controlling the use of biological natural resources to ensure their sustainability. In this study, the discussion focuses on forest protection.

Several previous studies have been conducted in Tesso Nilo National Park, for example on the impact of local community agricultural practices on livelihood resilience and forest degradation around TNNP (Kusumaningtyas et al., 2009), forest encroachment on TNNP conservation (Diantoro, 2012), TNNP environmental management through community-based ecotourism (Andita and Kahfi, 2019), wildlife rescue and protection policies after forest and land fires (Edorita and Zulwisman, 2021), community participation in natural resource management in TNNP protected areas (Saputra et al., 2023), and several other studies. However, we have not yet found a research approach to communication patterns in forest conservation cases, so this article is novel. This research aims to determine the communication patterns TNNP Office managers use with the community regarding forest conservation in the Tesso Nilo National Park area (*Figure 1*).



*Figure 1. Location map of Tesso Nilo National Park.*

## Materials and Methods

This study used a qualitative method with a case study approach to understand the issues and problems of the research subjects (Creswell, 2013). The issues and problems in this study are communication patterns in forest protection in Tesso Nilo National Park. The research informants were officials from the TNNP Office and the community around the TNNP location in Pelalawan Regency, Riau Province, Indonesia. Data collection was through interviews and observations at the research location. The results of the interviews and the collected data were processed and analyzed using an interactive model with three steps: data condensation, data presentation, and concluding/verification (Miles et al., 2014).

## Results and Discussion

Local communities play a crucial role in protecting forests within national park areas. Strategic communication between national park managers and the public is necessary to strengthen the local communities' role. Based on our research findings, national park managers regularly provide information about environmental conservation activities to the public. This one-way communication is conducted through the official social media accounts of the TNNP Office. Through these channels, the TNNP Office can reach the broader public with educational messages and invitations to participate in forest protection activities. Another form of one-way communication implemented by the TNNP Office is installing outdoor media containing information on prohibitions, invitations, and legal regulations related to forest protection. Print and digital media used to convey conservation messages in a one-way manner reflect a linear communication model to raise public awareness of the importance of forest protection. The TNNP Office also conducts two-way communication with the public to strengthen its communication program, for example, through community outreach activities on the importance of protecting forests as the heart of ecology. Outreach activities usually coincide with forest patrols. The TNNP Public Relations Office explained that they have been implementing various forms of two-way communication with the community as part of a participatory approach to national park management. This communication includes regular deliberations and discussion forums with the community, traditional leaders, and local groups. They also hold face-to-face meetings to plan and evaluate conservation programs, such as land restoration and the use of non-timber forest products.

*"We open up dialogue in every outreach and development activity so that community aspirations can be heard and considered in decision-making. Through this two-way communication, we strive to build strong collaboration and foster a sense of community ownership of the Tesso Nilo forest area."*

(Interview with TNNP Public Relations Head, May 7, 2025).

Continuous communication activities can build good synergy between the TNNP Office and the communities surrounding the national park. They then become familiar with each other, making coordination in forest protection easier. Furthermore, local communities are also disturbed by forest encroachment by newcomers. Forest encroachment is usually carried out to establish illegal oil palm plantations.

Interestingly, dialogue between national park managers and the community takes place not only in formal settings but also in informal settings.

*"We've had dialogues, especially when we meet at coffee shops or when we gather with the community, forest issues are always discussed. This is especially true now that many newcomers from outside the region are taking land within the area. We often ask the TNNP Office about this."*

(Interview with a resident, May 10, 2025)

These interviews demonstrate that the TNNP Office consistently implements two-way communication with the community as part of its national park forest management strategy. This two-way communication is formal but also informal and personal, demonstrating the openness and closeness between the TNNP Office and the local community. This two-way communication includes outreach activities on the importance of community involvement in forest protection and security activities, such as patrols within the national park. These patrols involve various parties, including the military, the police, village officials, and the local community, as a collaborative effort to safeguard the forest area. Data systems such as the "Smart Patrol" application are also part of this transparent and participatory approach. The TNNP Office also regularly holds deliberations, discussion forums, and face-to-face meetings with traditional leaders, local community groups, and organizations. In these forums, the community is given a space to express their aspirations and participate in planning and evaluating conservation programs, such as land restoration and using non-timber forest products.

Our confirmation with the community indicates they have access to direct dialogue with the TNNP Office, both during official meetings and informally, such as at coffee shops or community social activities. They use these opportunities to express concerns, particularly regarding the rampant forest encroachment by outsiders, and to emphasize their concern for the sustainability of the forest in their area. Thus, two-way communication between the TNNP Office and the community is active and open, creating a collaborative space that strengthens community participation in protecting and preserving the forest area. To support direct outreach, the Tesso Nilo National Park Office also optimizes the use of social media.

*"We use a combination of direct communication such as outreach, appeals during patrols, outreach, group discussions, and digital communication media such as call center services, social media, and educational videos. Direct communication remains the mainstay because it is more effective in building trust."*

(Interview with TNNP Public Relations Head, May 7, 2025).

Communities in the research locations also acknowledged their frequent participation in counseling activities, which typically take place at the village office. The messages conveyed by the TNNP Office typically relate to the importance of preserving forests, the dangers of illegal logging, and how communities can actively protect forests through reforestation and environmental monitoring. Although communication has been relatively well-established, the TNNP Office faces challenges. One major challenge is the differing perspectives between conservation interests and the community's economic needs. Many communities have traditionally depended on forest products for their livelihoods, so when given conservation messages, they are often perceived as hindering

their livelihoods. Furthermore, varying levels of understanding and persistent distrust of the government also pose challenges. Therefore, the TNNP Office prioritizes a participatory approach and listens to community voices. In principle, the TNNP Office not only conveys information but also listens to it. This strategy can foster public understanding. Furthermore, the community believes that the information the TNNP Office delivers is relatively easy to understand. They noted that using simple language relevant to people's daily lives makes conservation messages more effective in fostering collective awareness. They also recognize that forest destruction directly impacts the environment and their lives, thus deeming these messages important and meaningful.

Thus, although the TNNP Office's conservation communication model is generally accepted and understood by the community, challenges remain due to differing interests and socioeconomic conditions. Therefore, a more empathetic, inclusive, and solution-oriented communication approach is crucial to bridge this gap and encourage active community participation in forest conservation. Regarding communication with third parties, such as the mass media, the TNNP Office disseminates information through various channels. For example, they once collaborated with Green Radio to disseminate conservation messages. However, due to budget cuts, the collaboration was discontinued. The TNNP Office relies more on social media platforms like Instagram and TikTok as its primary secondary communication channels. Instagram is the most active and effective platform, even attracting public attention beyond the region. The public also acknowledges that they receive information about forest protection more often from social media than conventional media like newspapers or television. This demonstrates that social media has become a strategic tool for reaching a broad audience and efficiently conveying conservation messages.

*"We have social media platforms like Instagram, TikTok, and others. However, we have gone viral more on Instagram, to the point where some outsiders travel to Tesso Nilo National Park to see the iconic elephant, even though they also have elephants in the safari park."*

(Interview with the TNNP Office Official, May 7, 2025).

Conservation is an action to safeguard biodiversity, ecosystems, and environmental functions from damage due to overexploitation. In practice, conservation can be achieved by protecting forest areas, including those within national parks. These research findings construct the Tesso Nilo National Park forest protection communication patterns. Based on direction, linear and circular communication patterns were identified. Meanwhile, primary and secondary channels were identified based on the channels. A linear communication pattern describes a one-way message delivery process, from communicator to recipient, without involving direct feedback (Effendy, 2011). Linear communication patterns are typically informative and often use mass or outdoor media as channels. Our findings indicate that the TNNP Office employs a linear communication pattern to convey environmental conservation and forest protection messages. This communication is conducted through various media, both digital and print, to reach communities living around the national park area. Through digital channels, such as social media and the official website, the Tesso Nilo National Park Office disseminates various educational content about conservation programs, tree planting, and calls for participation in forest preservation. This new media is adequate because it can reach a wider audience quickly and cost-effectively (Cangara, 2011). The

communication is informative and aimed at raising public awareness of the importance of their participation in conservation.

Furthermore, one-way communication is implemented through outdoor media such as billboards and warning boards at strategic locations. These media convey prohibitions against activities that damage forests, such as burning and encroachment, and explain the applicable legal sanctions. This reflects a form of instrumental communication that emphasizes conveying normative messages from authorities to the public (McQuail, 2010). Another communication pattern used is the circular communication pattern, a two-way communication model characterized by a feedback process between the communicator and the recipient. In this pattern, messages do not flow in one direction but dynamically, continuously, and sustainably. Feedback is key to successful communication, as both parties influence and adapt to each other in sending and receiving messages (Berlo, 1960). This circular communication pattern is highly relevant because it can foster active community participation. Based on research findings, the TNNP Office implements a circular communication pattern as a primary strategy in managing conservation forest areas. This communication takes place in two directions between the TNNP Office and the local community, with both parties providing input, conveying aspirations, and participating in decision-making related to environmental conservation.

The TNNP Office is committed to creating open communication through direct community involvement in conservation programs. Community participation begins with planning, implementing, and evaluating conservation activities such as land rehabilitation and forest patrols. This involvement reflects the basic principle of circular communication, namely providing space for communicants (communities surrounding the national park) to provide feedback to the communicator (TNNP Office) in decision-making (Effendy, 2011). Furthermore, the TNNP Office's approach is not only formal through deliberations and discussion forums but also informal and personal. Informal communication, such as everyday social interactions, effectively builds emotional closeness between area managers and the community. This approach effectively builds trust and strengthens the community's sense of ownership of the forest area. In practice, the TNNP Office also implements transparency and collaboration, for example, through joint patrols involving the community, village officials, and state security agencies. The Smart Patrol monitoring system demonstrates data transparency and active community participation in protecting the area. This reflects empowerment-oriented communication, and dialogue is fundamental to determining participation (Jacobson, 2003). Participatory communication emphasizes the importance of involving local communities, with the community as its starting point (Servaes and Servaes, 2021).

Thus, the two-way communication implemented by the TNNP Office demonstrates strong circular communication characteristics. This communication pattern can create a constructive reciprocal relationship between the management institution and the community, fostering synergy in conservation implementation and strengthening the community's role as a strategic partner in sustainable forest management. From a primary communication channel perspective, the TNNP Office conducts outreach activities to build community awareness and participation in the importance of forest conservation. However, in implementing this communication, the TNNP Office faces several challenges. Although the community claims to understand the messages conveyed, economic needs often hinder their acceptance of conservation messages. The differing perspectives between conservation efforts and the community's economic

needs pose a significant challenge for effectively delivering information and preventing conflict. Competition for natural resource utilization often leads to conflict, economic loss, and environmental damage (Devrian et al., 2023). On the other hand, the community indicates that the TNNP Office's information delivery method is relatively easy to understand. Using simple language relevant to everyday life makes conservation messages more effective in raising collective awareness. In forest conservation, the message must be well-structured, using language that is easy for the recipient to understand, complete, concise, clear, and correct so as not to give rise to multiple interpretations by the recipient of the message (Winarni et al., 2023).

Although the community generally accepts the conservation communication model implemented by the TNNP Office, challenges remain due to differing interests and socioeconomic conditions. Therefore, a more empathetic, inclusive, and solution-oriented communication approach is crucial to bridge this gap and encourage active community participation in forest conservation. Good communication practices in forest conservation prevent conflict, enabling individuals to clearly express their opinions, needs, and expectations (Znow and Hamna, 2024). The primary cause of the decline in plant diversity in the TNNP area is human activities that damage the ecosystem, such as illegal land clearing for oil palm plantations, illegal logging, and deliberate forest fires. These activities threaten the sustainability of endemic plants and disrupt the overall environmental balance. Therefore, integrated efforts through conservation approaches, firm policies, education, and active community involvement are needed to maintain forest sustainability. For example, based on experience (Winarni et al., 2023), effective communication patterns to be implemented in national park areas are interpersonal communication patterns and two-step flow communication, namely, with the help of community leaders or religious leaders still trusted by the community. The TNNP Office also uses secondary channels. Secondary communication relies on a secondary medium to convey messages from the communicator to the recipient. In this process, verbal or nonverbal symbols are processed and distributed through tools such as newspapers, radio, television, social media, or other print media. This pattern is used primarily when the number of recipients is large or their locations are widely dispersed (Cangara, 2011; Effendy, 2011) (Figure 2).

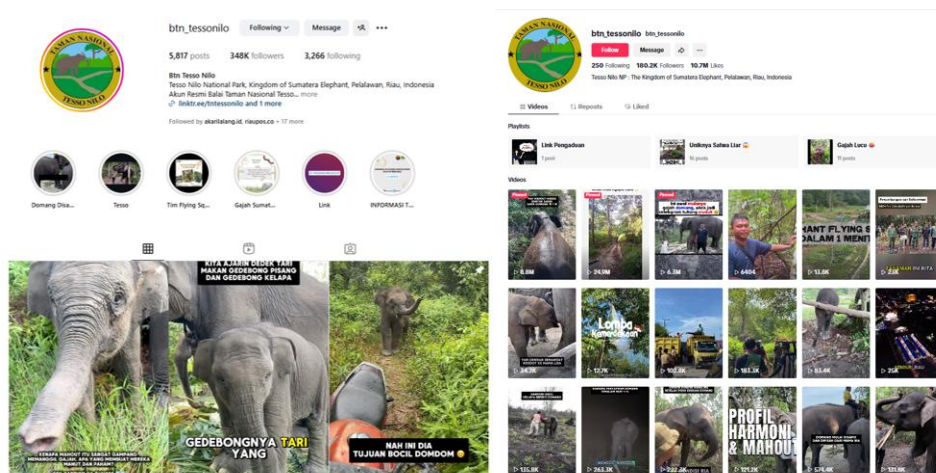


Figure 2. Official social media of the TNNP office.

The TNNP office utilizes secondary communication channels to reach the wider community and convey conservation messages. Currently, secondary communication focuses more on using social media such as Instagram and TikTok as the primary communication channels. Among the platforms used, Instagram is the most actively utilized due to its ability to convey information visually and quickly to the public, even reaching audiences outside the Tesso Nilo area. The content shared includes information on biodiversity, patrol activities, and environmental education based on infographics, short videos, and informative captions. This approach aligns with Rogers (2003) view that, in the context of social change, mass media can accelerate the dissemination of messages to the public. The public's recognition also confirms the success of social media in reaching a broad audience, as they more frequently obtain conservation information through digital channels than conventional media such as television or newspapers. Despite the dominance of digital media, the TNNP Office continues to utilize traditional communication media as a complement. Using billboards, banners, and information boards in strategic locations continues to target community groups not yet fully connected to digital platforms (Badri, 2020). The combination of social media and conventional media reflects a secondary communication strategy that is both adaptive to changing times and inclusive of community needs. This is crucial in the context of conservation, where information delivery must not only reach a broad audience but also be targeted and able to mobilize voluntary community participation.

The secondary communication channels used by the Tesso Nilo National Park Office demonstrate a dynamic and strategic effort to disseminate forest conservation messages. Social media is a primary and effective means of reaching the public quickly and widely, while conventional media is still used to ensure equitable access to information. This approach reflects adaptation to developments in communication technology and demonstrates the TNNP Office's commitment to building public awareness through media tailored to its audience.

## **Conclusion**

Forest protection in national parks is a crucial effort to maintain the sustainability of these conservation areas as ecological hubs. The TNNP Office uses a circular communication model with primary communication channels to communicate with communities surrounding the park. This two-way, circular communication is more effective because the TNNP Office can receive direct feedback from the community and engage in persuasive communication to garner support for forest protection. Persuasive communication is crucial because community support can help address environmental damage such as illegal logging, forest encroachment for plantations, and land burning, which can lead to forest and land fires. The TNNP Office uses a linear communication model through secondary channels such as outdoor and social media to support effective communication. The information conveyed generally includes invitations, prohibitions, and legal sanctions related to forest destruction activities. Although one-way and without direct interaction, this approach is considered effective in reaching the wider community and raising initial awareness of the importance of forest conservation. In conclusion, both communication models are used in an integrated manner to build awareness, increase participation, and create a synergistic relationship between area managers and the community in maintaining forest sustainability. This adaptive,

participatory, and technology-based communication approach is an important foundation in efforts to preserve the national park ecosystem sustainably.

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### **Conflict of interest**

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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