

# ENVIRONMENTAL COMMUNICATION BASED ON LOCAL WISDOM IN FOREST CONSERVATION: A STUDY ON SENTAJO FORBIDDEN FOREST, INDONESIA

YASIR YASIR<sup>1\*</sup>, YOHANNES FIRZAL<sup>2</sup>, CHELSY YESICHA<sup>3</sup>,  
ANDRI SULISTYANI<sup>4</sup>

<sup>1</sup>*Department of Communication Science, Universitas Riau, Pekanbaru, Riau, Indonesia; 0000-0002-2952-0822*

<sup>2</sup>*Department of Architecture, Universitas Riau, Pekanbaru, Riau, Indonesia; 0000-0001-5990-861X*

<sup>3</sup>*Department of Communication Science, Universitas Riau, Pekanbaru, Riau, Indonesia; 0000-0001-6471-2734*

<sup>4</sup>*Department of Tourism Business, Universitas Riau, Pekanbaru, Riau, Indonesia*

*\*Corresponding author e-mail: yasir@lecturer.unri.ac.id*

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## ABSTRACT

This study aims to explore environmental communication based on local wisdom in conserving forests in the Kenegerian Sentajo, Riau Province, Indonesia. This study uses a qualitative approach with an interactive model. Researchers interact and are directly involved in many community activities. The results indicate that environmental communication in forest conservation is based on the local wisdom of the community by using the term *Rimbo Larangan*. The main communicators and actors are the customary holders, the *datuk penghulu* and the *ninik-mamak* (elders) as the highest institutional holders of Kenegerian Sentajo customs. This institution is more powerful than formal government institutions. These traditional stakeholders play an important role in spreading the message to maintain the existence of forbidden forest (*Rimbo Larangan*). In addition, the community's desire to maintain customary values has given rise to attitudes and behaviors of people who are aware and care about forest sustainability. This is supported by Islamic values which have encouraged public awareness to have morals or responsibility towards the environment. Some beliefs, storytelling, and myths also reinforce this rule which makes people afraid to break it. The research findings can be used by the community in improving practices of communicating, managing, making rules and redesigning forest for conservation areas that are managed based on indigenous peoples.

**Keywords:** environmental communication; local wisdom; customary forest; conservation; forest management

## INTRODUCTION

Recently, human relations with the environment have faced problems, such as: forest fires, pollution, drought, loss of biodiversity, and climate change (Fontanella *et al.*, 2019). Even the issue of climate change, degradation of natural resources, and environmental friendliness have become important topics over the past years and these environmental

problems are largely rooted in human behavior (Meijers *et al.*, 2019; 2022). The human treatment of the environment will affect the order of human life and the environment itself. Meeting human needs is a threat to nature. The existence of forests, for example, is very important for the survival of living things. Many studies show that the social function of forests is increasing. The existence of forests provides environmental awareness, lifestyle changes, and greater concern for health. At the same time, with the increasing importance of the social functions of forests, there is an increasing expectation from the community in terms of participation, especially active participation in matters related to nature management, forests and including ecotourism (Korcz *et al.*, 2022).

Therefore, many protected areas were established to preserve global biodiversity and ensure ecosystem sustainability to maintain ecological balance (Bires & Raj, 2019). The most massive environmental damage is the ongoing deforestation and land conversion into plantation areas. This is where the importance of sustainable development as a way to meet the needs of the current generation without causing suffering to the needs and standards of living of future generations (Dubravská *et al.*, 2020). The current world environmental scenario embraces the conservation of resources adjacent to the socio-economic effects of humans. Climate change has an impact on changes in the environment and forest ecosystems that require mitigation or adaptation forest management practices to maintain forest ecosystems (Appiagyeyi *et al.*, 2022).

Environmental damage to forests, water, land and air to meet socio-economic needs must be reduced through individual and collective awareness to maintain a sustainable environment. This awareness can be found in ethics that are found to be based on religion as well as secular ones (Zagonari, 2021). Even knowledge about traditional shamanism, which is related to health, can also be a communication channel in influencing awareness of environmental conservation (Prestes & Laroque, 2018). In developed countries, environmental norms, regulations and standards are included in the environmental system legislation and backed by serious legal guarantees. These norms clearly define the objects and natural resources that must be protected, the permissible level of impact, the sanctions for violating the norms and regulations, and the methods of environmental monitoring (Buribayev *et al.*, 2021). Such a regulatory framework becomes an important tool of public administration in the field of environmental protection. However, this is difficult to implement in developing countries. In addition, these traditional communities have many norms and rules based on their local wisdom to protect the preservation of the nature around them.

Several studies show that customary forest management practices have been effectively practiced by local communities in the management and conservation of forest resources (Chukwuone *et al.*, 2020). Community Based Forest Management also requires complex governance arrangements between communities and collaborating partners (Kamelamela *et al.*, 2022). However, these practices are increasingly being eroded so that they have a negative impact on the welfare of the community and their forests. Even the government of a country and local governments that protect forests by labeling them as forbidden forests do not necessarily guarantee the sustainability of the existing ecosystem. This is in stark contrast to forests that are managed under customary systems, or that are protected by indigenous peoples (Erpino *et al.*, 2019). It is generally assumed that nature conservation is in line with sustainable development. Therefore, nature conservation activities tend to require careful monitoring. Many conservation management interventions aim to address the dual need to support nature conservation and human well-being, particularly in low and middle-income countries (Eales *et al.*, 2021). Forest conservation will be successful because it is based on the cultural customs of the community and the strengthening of regulations from the

government. This community-based conservation regeneration cannot be separated from the communication role of local traditional leaders in the mandate to protect the forest.

Environmental communication is needed in making people aware of environmental concerns in the form of well-planned government policies based on the community (Yasir *et al.*, 2020). In this case, environmental education is classified into three dominant theoretical perspectives: behavioral change, social change, and personal change. First, the behavior change perspective focuses on developing scientific thinking to promote environmentally responsible behavior. Second, social change focuses on developing critical thinking to change values and social structures in terms of environmental justice and sustainability. Third, this view emphasizes individual change. However, the development of ecological awareness and human-nature relations, and it is more interesting to integrate these three approaches. The integration of the humanities approach, including philosophy, aesthetics, religion, and local wisdom, is more suitable for traditional societies (Chaichana *et al.*, 2019). The role of the community, customs and local wisdom becomes important in overcoming environmental problems. Environmental damage is basically a human problem that is closely related to the system of values, customs, ethics and religion as the controller of human existence. Humans are environmental managers. Therefore, local wisdom become a source of knowledge to be used as a reference for human communication behavior and actions

The concept of local wisdom is the basis for explain environmental communications and customary forest management or conservation practices. Local wisdom is defined as knowledge collected by local or indigenous people over several generations living in a particular environment and updated by each generation to guide their interaction with their environment (Chukwuone *et al.*, 2020). Several studies emphasized the role of local wisdom-based communication in conserving forests for environmental sustainability (Bakti *et al.*, 2017; Gunathilaka, 2020). Communication topics of the environment, pollution and climate change involves many people to change the attitudes and behavior of these people (Gislason *et al.*, 2021). Management of forest resources through community customary institutions is one way to maintain forest sustainability by the local community (Rizqi *et al.*, 2018). However, with the advancement of technology and civilization rapidly, these traditional institutions are also threatened and cannot survive to assist in the management of maintaining the existence of the forest. Indigenous peoples today inherit local wisdom in managing forest resources from their ancestors. However, the loss of local wisdom values due to high economic needs has led to an ecological crisis that creates a situation of imbalance ecosystem (Tamalene *et al.*, 2014). In addition, environmental communication in Customary Institutions has many differences in its application depending on the context and culture of the community. The cultural values of the community can even revitalize the culture itself following the context of the process of forming its meaning (Hadiprashada & Budiman, 2019). These values are narrated, expressed, and exchanged with each other in community groups. In this case, storytelling is one of the means of communication that has proven its effectiveness in influencing the audience (Sundin *et al.*, 2018).

Community-based environmental communication generally strongly maintains the tradition of mutual assistance and deliberation with in a dialogical communication in deciding environmental problems (Yasir, 2020). This local community-based environmental conservation activities are an important key for environmental sustainability and community interaction (Vlibeigi *et al.*, 2020). Community participation was the main characteristic in making environmental communication decisions based on their local wisdom. In this case, environmental communication can be an effective pragmatic and constitutive media in convincing the community environment management (Cox, 2010).

Communities in Kuantan Singingi Regency, Riau Province have wisdom in maintaining the environment, such as forests, rivers, lakes and hillsides. In this case, local wisdom based on community customs in maintaining the forest is known as the forbidden forest. One of the customary-based forbidden forest areas in Kuantan Singingi Regency was namely Rimbo Larangan Sentajo. It was located in Kenegerian Sentajo, a central part of Sentajo Raya District. Indigenous wisdoms were not transferred formally from their predecessor to their heir, but in daily traditions. This local wisdom in managing the forest is full of values that serve as guidelines in behaves and interacts to the environment.

The interaction between humans and the environment based on local wisdom plays an important role in forest management in Indonesia. Forest management by three tribes in Indonesia, namely the Sasak tribe, the Bali Aga tribe and the Minangkabau tribe based on local wisdom is able to preserve customary forests and create a balance environment (Mutia *et al.*, 2019). Studies on the practice of local wisdom in forest conservation are also shown by the Tobelo tribal community in Halmahera which is manifested in the concept of a philosophy of life, knowledge of the physical environment, and community forest conservation (Tamalene *et al.*, 2014).

In this case, the situation began to change when there was a shifting form in governmental management, which was changed from customary-based to an administrative unit within a larger and politically bound government, from the Dutch East Indies era to the formation of the Republic of Indonesia (Kato, 1997). However, forest conservation efforts became a form of customary stakeholders' concerns over the damage of forest resources. Thus, in order to maintain the existence of customary forests, they asked the government to designate Rimbo Larangan as a forbidden forest area. The control and permit for managing the Kenegerian Sentajo's forest resources was a good synergy between the kinship system and leadership of indigenous peoples and the local government. This was inseparable combination of strong interaction or communications model among the community, the government and the forest environment. There are several interesting phenomena to study, including environmental communication as the main perspective in managing forest resources, the role of local communities in maintaining their customs, and traditions that are closely related to the preservation of forbidden forests. In this case, narrative messages in the context of the use of local wisdom values through religious and cultural symbols can be a strategy in the nature conservation movement. The use of narrative with is an important component in persuasive communication (Primayanti & Puspita, 2022). In this case, the researchers focuses on investigating how environmental communication is based on local wisdom and how communication in the use of prohibited land is to preserve Rimbo Larangan. Thus, this research is expected to make a methodological contribution in community-based forest conservation and add to the literature on environmental communication studies.

## **MATERIALS AND METHODS**

### **Data and Methods**

This study uses a qualitative research method with a case study approach. Qualitative methods with case studies allow researchers to conduct in-depth exploration of complex phenomena in certain contexts (Alpi & Evans, 2019; Rashid *et al.*, 2019). This qualitative method uses an interactive model that uses several elements that influence each other, including objectives, conceptual framework, methods, research questions and validity (Maxwell, 2014). The purpose of this qualitative research is to improve our understanding of attitudes to solve environmental problems (Sanchez-Sabate *et al.*, 2019). By doing this

research, we hope to gain a better understanding of the nature of individual and group awareness, willingness and real change in people's habits of protecting nature.

The process of data collection in this research was carried out from 2020 to 2021. This study intensively examines the background of environmental interactions based on the following social units: individuals, groups, institutions or communities. The research was conducted by in-depth interviews with nine informants. The informants represented traditional leaders (*datuk*), the village head, four *ninik mamak* (elder) who represented for four tribes and also from the society. Informant from Pitopang tribes were Mr. Narun, Mr. Ajisman from Melayu, Mr. Arliusman from Piliang, and Mr. Agussalim from Caniago tribes. There were two local community leaders, they are Heprianto and Mardiyusman. There was also Mr. Warsi as a head of the Protection Forest Management Unit (KPHL). These informants were selected purposively with certain considerations according to the research objectives. As data compliment, researchers also used observations and documentation of community activities in conserving their forbidden forests.

Qualitative research with case studies requires more from the author who acts as an instrument in the investigation process (Rashid *et al.*, 2019). The researchers became the main instrument in this research because the meaning of the data is highly dependent on the ability to understand symbols, events, and people's behavior. Furthermore, data were processed, analyzed, and presented in a descriptive method according to the order of qualitative research. In addition to using interactive analysis, this study also used checking the validity of the data through focusing on observations, extending the research, and checking with fellow researchers (Moleong, 2010).

### Study Area

This research was conducted in Sentajo Raya District, Kuantan Singingi Regency, Riau Province, Indonesia. The location of this research can be seen in Figure 1, precisely which is colored red. Kenegerian Sentajo was the previous name of a traditional customary community bound in Kuantan Singingi Regency that also occupied almost all area of Sentajo Raya. The capital of Sentajo Raya District is located in Koto Sentajo village. Sentajo Raya District was previously a part of Kuantan Tengah and Benai District, which were stipulated based on Regional Regulation No. 24 of 2012. This study was conducted in September 2020 to August 2022. Sentajo as part of the Kuantan Singingi Regency, Riau Province, borders West Sumatra Province. The culture and customs of this area are influenced by the culture of the Minangkabau tribe. These areas have similarities in the use of everyday language, customary systems, and tribal names used, including the tradition of protecting the forest by creating forbidden forest.

The name of Kuantan Singingi is the formulation of two rivers areas, namely *Batang Kuantan* (Kuantan River) and *Batang Singingi* (Singingi River). These rivers flow are covering three regencies, including Kuantan Singingi, Indragiri Hulu and Indragiri Hilir. Batang Kuantan has a calm huge river flows and at previously, it became the main transportation accessibility for local people. Then, this activities were influencing their local tradition, in form of *Parahu Baganduang* at Lubuk Jambi (Singingi river) and *Pacu Jalur* at Batang Kuantan. *Pacu Jalur* or canoe race on the Batang Kuantan River is one of the most popular local cultures (see Fig. 2). This event is annually held in several race tracks called as *rayon*. Each village has one or two canoes (*Jalur*) which represent the pride of the village canoe. This canoe can accommodate between 40 to 60 rowers. Therefore, the availability of large and long logs with a length of 40 meters and a diameter of 90 to 120 cm is very important for the availability of the canoe. Indigenous peoples have an understanding that if the wood runs out then the *Jalur* cannot be made, then the tradition will be lost. It is not

surprising that the community has a forbidden forest and common property land (*tanah ulayat*) tradition in several places, one of which is in Kenagarian Sentajo.

**Fig. 1: The Location of Kenegerian Sentajo, Kuantan Singingi In Indonesia**



In general, community arrangements around the Sentajo forbidden forest still used the customary system, so the existence of customary holders was highly respected. The customary structure included: penghulu (traditional rulers); Menti (customary advisor); hulubalang (customary security) and ninik mamak (elders). Ninik mamak have an important role in preserving the forest. These traditional leaders play an important role in maintaining community traditions, including preventing the destruction of forest resources. As a way to maintain the existence of customary forests, ninik mamak asked the government to designate this forbidden forest as a protected forest.

Forbidden forest (Rimbo Larangan) Sentajo was a forest area regulated according to a customary system. This area was located at coordinates 000° 28' 15" to 000° 29' 15" South Latitude and 101° 33' 30" to 101° 36' 00" East Longitude. Rimbo Larangan Sentajo was determined based on the Decree of the Minister of Forestry No. 254/Kpts-11/1994. This forest covers an area of 416.25 ha which was divided into 2 separate blocks, namely block A, which was covering an area of 86.88 ha and block B that covered area of 329.38 ha (see Fig. 3). This was a tropical rain forest with high biodiversity. Its location was bordered by three villages, namely, Koto Sentajo Village, Muaro Sentajo Village and Kampung Baru Sentajo Village in bound of Kenegerian Sentajo customary system. Formerly, Kenegerian Sentajo was founded by Datuk Simambang Rajo Nan Putiah and occupied by 4 (four) tribes as the origin residents, namely the Piliang, Caniago, Patopang, and Melayu (Rizqi *et al.*, 2018).

Ninik mamak have role in communicating local wisdom to their descendants to protect tradition and preserve this forest. This community has the wisdom to organize space and land by making the following divisions: the highlands with forests are used as water catchment areas, the middle areas are used as plantation or residential areas, and the lower areas are used as rice fields or cultivation. In order to preserve the forest and traditions, including the Pacu

Jalur tradition, the traditional stakeholders make some rules to maintain the traditions of their ancestors. Rimbo Larangan Sentajo area includes three villages, namely Koto Sentajo Village, Muaro Sentajo Village and Kampung Baru Sentajo Village. Koto Sentajo as the oldest village is the center of traditional activities, which is also a gathering place for tribes and descendants in their traditional houses of cultural heritage.

As a society that still holds firmly to the tradition, the villagers of Kenegerian Sentajo were still depending on the existence of the forest, especially as the source of water springs. Forests were not only functionated as a water catchment area, even some people were still rely on talago (lake) as their source of drinking water, especially during dry season. This spring was also used for irrigating of their fish ponds and rice fields.

**Fig. 2:** Pacu Jalur Festival in Taluk Kuantan 2022



Source: Data 2022

**Fig. 3:** The gate of Rimbo Larangan Sentajo



Sentajo Forest has many types of flora, including *bintangur (calophyllum inophyllum)*, *gerunggang (cratoxylon arborescens bl)*, *kempas (koompassia malaccensis)*, *keranji (dialium indum)*, *keruing (dipterocarpus kunstleri)* *medang (cinnamomum sp)*, *Marsawa (Anisoptera sp)*, *Pulai (Alstonia scholaris)*, *marpoyan (rhodamnia cinerea)*, *tembesu (chytrophyllum sp)*, *terentang (campnosperma auriculatum)*, *sendok-sendok (edospermum malaccensis)*, *nangka utan (Artocarpus integra)* and *nibung (oncosperma tigillarum)* *Meranti, Kulim, ribu-ribu trees*. The potentials of non-timber forest were forest honey, rattan (*callamus sp*), bamboo (*saccharum sp*), many fruits as *kumpulan boning (nephelium sp)*, *kabau (adhinantera sp)*, *barangan (castaopsis sumatrana)*, *tampui (baccaurea macrocarpa)*, *kedondong hutan (spondias pinnata)*, *arang paro (nephelium sp)*, *cempedak hutan (artocarpus rigidus)*, *pudung tunjuak (nephelium sp)*. In addition, there are many types of animals in this forest including crows (*Corvus corax*), hornbills (*Buceros sp*), turtles (*Geopelia striata sp*), stone magpie (*Copsychus sp*), and monkeys (*Macaca fascicularis*). For the enrichment of forest plant diversity, there are several rehabilitation projects such as replanting some plants such as marsawa, kulim, and gaharu. This activity is carried out not only to increase plant diversity, but to increase the economic potential of the local community. Even recently, the community has an awareness to develop the villages of Koto Sentajo and Rimbo Larangan as tourist destinations that rely on cultural traditions and forest preservation.

## RESULTS

### **Environmental Communication Based on Local Wisdom**

People of Sentajo have loyalty to customs in interacting with fellow humans, God, and nature. Community values based on local wisdom are based on people's beliefs about good things to do and bad things to avoid. The use of knowledge and wisdom related to the community context allows communication to be carried out properly because it is place-based, relevant, and community culture (Gislason *et al.*, 2021). The ecological values of the community were based on belief in customary values and Islamic religious values. This local wisdom combined these two values becomes the main social capital in carrying out community life (Bakti *et al.*, 2017).

This value was reinforced and confirmed by the decisions of Datuk Penghulu and Ninik mamak as customary elders who have been carrying out a tradition from generation to generation till now. The values of caring for the environment in preserving the forest have decreased from generation to generation, so that it can be seen in the conservation of the Sentajo Kenegerian forbidden forest, which is still preserved. Forest resources were still maintained both in terms of flora and fauna. Environmental communication in preserving forest in Sentajo Country applied deeply rooted values based on custom. The value of this local wisdom becomes the understanding of the community that was passed down by the predecessors of the founders of Kenegerian Sentajo. One of the datuk, Safii (60 years), stated:

“This forest is the residence of our predecessors, the founders of the village. If a guest came, he had to show his face and if he left, he had to show his back. This forest must be protected, we must not be careless. We must maintain ethics and maintain decency towards nature, as well as when entering the forest” (Interview, 20/6/2021).

Not only humans, symbols that exist in the environment can also be informative messages for the community (Hadiprashada & Budiman, 2019). The cultural values of the community are also basically formed from the meaning of the community towards their environmental symbols so as to produce local wisdom that is communicated by the community and the generations after it. The Datuk and Ninik mamak as customary holders have an important role in the social structure of the Kenegerian Sentajo. They play an important role in maintaining ancestral cultural traditions and transmit the values of caring for customary forests. Forest preservation and customs are an integral part that cannot be separated by the local community. The community was expected to realize that the ecological crisis could be solve through local wisdom (Nasir Tamalene *et al.*, 2014). In this case, there are several existing regulations that have been traditional to maintain the balance of the relationship between forests, customs and communities.

There are several rules that govern people's behavior that have been passed down from generation to generation. Anyone who wants to enter a customary forest must first hold a meeting with the customary head, the head of the barompek and inform them of the purpose of entering the forest area. Anyone who enters the forest area must first obtain permission from the penghulu. Because the forest is considered sacred, this permit is related to the belief that there are missing people in the forest. This community trust empowers traditional leaders to regulate community members and who will enter the forest.

Some of these prohibitions and taboos are still widely trusted by the public when they want to enter or be in the Rimbo Prohibition area. Violations will bring losses because the forest has inhabitants and guards, such as stories about the existence of spirits and *datuak dubalang rimbo* (the name for tigers). Storytelling has become an effective communication method for



understanding the environment, organizing experiences or ideas, and communicating with community members to create shared understanding (Sundin et al., 2018). Community beliefs from community stories are useful for regulating people's behavior. Manners in behaving in the forest and acting when entering the forest will protect the forest from all forms of destruction. The rules, prohibitions, and taboos are taught, told, and disseminated to protect the forest which is carried out directly by the local community. So, this local wisdom plays a role in preserving Rimbo Larangan.

In protecting the forest, the traditional leaders or elders of Kenegerian Koto Sentajo made meaningful messages, proverbs, and prohibitions. These proverbs and quotes are important signs for preserve their forests. This form of communication is rules, manners or expressions of prohibition that aim to protect Rimbo Larangan. The circulation of many prohibitions and myths that are believed to be hereditary is the reason why this customary forest is called Rimbo Larangan.

**Table 1: Environmental communication messages based on local wisdom**

No	Local wisdom-based messages	Meanings
1	<i>Bulek kato ka mufakat, bulek ayiar ka pambuluah. Sa donciang bak bos, saciok bak ayam</i>	Invitation to one accord and together in protecting the forest
2	<i>Batobe indak mahabin, batobang indak mamunan</i>	Invitation to take forest products as needed and not to sell forest products
3	<i>Kato sudah, hukum putui</i>	Calls to comply with decisions made by customary institutions and not to violate it
4	<i>Customary yang sabonar customary, rumpuik layuar tanah lampang, babayar hutang ka Nagori</i>	Invitation to comply with the rules that have been made by customary institutions to protect forests. If there is a violation will be given customary sanctions
5	<i>Datuk penghulu customary mengumumkan di Mesjid untuk mengajak masyarakat tetap menjaga kawasan Rimbo Larangan</i>	Everyone must be involved in monitoring and reporting if there are activities that damage customary forests

Source: Data analysis, 2022

Environmental communication to protect Rimbo Prohibition is always conveyed by the traditional leader (Datuk Penghulu) when there is a traditional meeting. Messages that are appeals, prohibitions, invitations, and regulations are continued by Ninik mamak which are based on friendship. This activity is usually carried out on major Islamic holidays, such as the second or third day of Eid al-Fitr and Eid al-Adha. If there is an urgent matter to be negotiated, the meeting can be held at any time with a location in one of the traditional houses that have been determined. Then Ninik mamak forwarded messages to community members and fellow community members sharing based on proverbs, expressions, myths, beliefs, superstitions, and also based on religious messages.

### **Communication through Protection Forest Land Use Regulations**

Environmental messages based on local wisdom are believed and obeyed by the community because their existence have been passed down from generation to generation.

However, there are new decisions and policies made through deliberative communications to protect forests. These new customary-based regulations are made through communication by groups of customary leaders in regular or impromptu meetings. The purpose of this meeting is to make regulations on the use of customary forest lands. This new customary law regulates matters relating to the use of forest and land products, such as for household purposes, village buildings and for plantation activities. These regulations were made through group communication of traditional leaders in routine or impromptu meetings. The customary in discussing the environment and the resulting policies contribute to conserving forests and the environment through the wise and sustainable use of forest resources (Mutia *et al.*, 2019). Once agreed, these new rules and prohibitions must be obeyed by all members of the community. Some of the decisions of traditional leaders are affirmative and some are new, such as: prohibition of cutting down trees; prohibition of burning forest areas, prohibition of selling forest products, prohibition of hunting protected animals, prohibition of conversion of forest functions, prohibition of poisoning (manubo) fish in Rimbo, prohibition of mining gold without a permit.

Therefore, even though forest products are prohibited from being taken, in certain cases forest products can be used. Communication in the form of this regulation can be seen in granting permits to villagers who want to build houses or stalls on the edge of protected forests. These permits are also granted or used for oil palm and rubber plantations, or to extract wood to make Jalur (traditional canoes often used in competitions or festivals) pathways and build houses for the poor. Logging permits or regulations are granted only on a small scale, as only the amount of wood harvested is required. In an effort to preserve the Sentajo Protection Forest, residents around the Sentajo Protected Forest are allowed to use the forest by setting up stalls selling all homecare products around the highway on the edge of the forest while protecting the forest. So that only local people can take advantage of it. This method is also useful as a live monitor, if someone tries to steal a tree in the forest, the shop owner must immediately report it to the tribal chief.

In addition, this regulatory communication based on local wisdom binds the behavior of community members. So that people in tribal ties are allowed to use the land to make rubber and oil palm plantations for the common good. This land may be planted with oil palm and rubber in the forbidden forest of Kenegerian Sentajo if it has received permission from the datuk for the common good. Each tribe will get the same rights in land management according to the agreement that was made previously. These customary-based traditional forest management practices are accumulated and passed down from generation to generation, and are used by various cultural and ethnic groups to manage the resources they rely on (Chukwuone *et al.*, 2020). Forest management practices and community-based communication reflect the knowledge and wisdom of local indigenous peoples. So, this practice is part of their life strategy.

Timber trees in the Sentajo forbidden forest can be used for making Jalur, building traditional houses, helping the economy of poor widows, repairing mosques and prayer rooms, repairing traditional halls, bridges, and roads. The trees taker must have a written letter known by the head of certain village in Kenegerian Sentajo, then ask for permission letter from the four datuk penghulu. Then, the trees taker have to send these letter to the KPHL (Protected Forest Management Unit). KPHL officer would consult with the Riau provincial forestry office. Usually, there was any supervision done along the logging process. Trees logging for Jalur could only been done once in 4-5 years. The Sentajo people have local wisdom (ethno-botanical knowledge), because they use several forest plants both for daily life and for health and healing diseases. There is a close relationship between the practice of

traditional medicine with the preservation of the environment, because both are complementary and interdependent (Prestes & Laroque, 2018).

In addition, there were any sanctions for violators. Punishment were given for those who violated the customary rules, as explained by Datuk Penghulu Nan Bungsu that the customary law in Kenegerian Sentajo is very strong. First, Siriah Sacarano, which is a punishment carried out by looking for betel, gambier, lime, and areca nut. This punishment would be carried out by the penghulu. This punishment was also called ompek gonok and limo ganjial. This penalty was imposed if the level of violation committed by the villager were still considered light/minor. For example, one of the villagers takes wood from the forest for firewood without permission from the head of the village, then the community will be subject to a siriah sacarano sanction. Second, Parompek Kaki, which was a punishment imposed on wood thieves who take wood that has exceeded the capacity limit set by the penghulu. This punishment must provide goats, cows and buffalo ready to be slaughtered to be handed over to the Godang house. For example, someone from the Piliang tribe took a wood, then he will be taken to the Piliang tribal chief (penghulu). Furthermore, the penghulu of Piliang tribe will find out who the Piliang tuo kampung is. Then, tuo kampung will hand it over to the Piliang tribal household (tangganai). Because the Tangganai is the customary holder who will be held accountable before the datuk penghulu of Piliang tribe. The guilt of a grandson of the Piliang tribe's nephew for violating the rules means that the tangganai did not able to monitor the behavior of his nephew's grandson.

These people's beliefs were still deeply rooted in the community and become a kind of local wisdom that develops in helping forest sustainability. This belief made people has been afraid to violate existing prohibitions. This belief made also people have to maintain ancestral traditions to protect the forest, namely: (a) prohibited from entering and acting carelessly in the forest, (b) prohibited from cutting trees indiscriminately without permission, (c) prohibited from gardening and farming in the forest, (d) prohibited from catching fish using tubo (poison), (e) prohibited from taking unripe or immature fruit, (f) and prohibited from burning rimbo (Interview, Adjisman, Penghulu Melayu Tribe, 21/10/2020).

The utilization of this customary forest could be carried out as in accordance with the basic needs of the local villagers through an appropriate and sustainable processing. In principle, the need must be filed by being able to protect the environment, use it in a friendly manner, and increase the level of the economy and the welfare of the local community. In essence, this sustainability includes three dimensions, namely: economic, environmental, and social (Dubravská *et al.*, 2020). Utilization of plants from the forest for health or herbal medicine, such as: pasak bumi for medicine, kulim leaves to increase stamina, ribu-ribu, and gaharu for herbal drinks. In addition, there were also some storytelling, phrases, quotes or taboos based on myths and beliefs. There were many beliefs that are confirmed by the customs and habits of the community such as the belief in the mystery of protected forests, including “if you are arrogant, you can get lost”, “a long grave in a protected forest”, “the root of the tree in the protected forest was a snake”, “here was also a large coiled dragon”, “a mysterius sound of calempong as a a sign that someone has died”, “the legend of guntuang buriang, in which the person who had violated the rules for entering the forest would be haunted by guntuang buriang”. Beliefs related to these matters are still very strong in the community and become local wisdom in conserving forests. Beliefs and stories like this breed fear of breaking the law to destroy the forest. These beliefs, myths, and stories become important norms and values in forest conservation.

## DISCUSSION

The findings of this study strengthen the role of environmental communication which emphasizes the importance of the role of customary institutions and government institutions in contributing to the conservation and sustainability of the Kenegerian Sentajo protected forest. Knowledge based on local wisdom from generation to generation becomes a worthy innovation to continue to be developed. Communication and knowledge sharing are essential in the adoption and sustainability of any innovation (Njenga *et al.*, 2021). Tradition, customary law and the existence of customary leaders play an important role as a communication symbol for the compliance of community members in preserving the forest. The community through traditional leaders have made an agreement to conserve the forest. The main communicators or actors are the customary holders, the *datuk penghulu* and the *ninik-mamak* (elders) as the highest institutional holders of Kenegerian Sentajo customs. In addition, social interaction is a process that begins with communication between actors, where the presence of actors does not only form social relations, but the actors are also mutually responsible for each other and their environment (Vlibeigi *et al.*, 2020).

This study of protected forests in the Sentajo State of Kuantan Singingi shows evidence that Indonesia is a country with many tribes that has many traditions, including the tradition of environmental education. Tradition here means that the community has local wisdom in environmental conservation which may be difficult to explain academically or scientifically, but the tradition of protecting the environment is embraced by the local community and plays a role in environmental conservation. This finding strengthens research on local wisdom in several regions in Indonesia which confirms that local community wisdom has an important contribution to effectively preserving the environment (Effendi, 2019; Mutia *et al.*, 2019). This local wisdom-based conservation practice is important to protect this sacred forest. Forest conservation is part of local wisdom that is continuously taught by the community to the next generation. This local wisdom becomes an invaluable ancestral heritage in forest conservation. Local wisdom in managing forest resources can persist despite external influences. Local wisdom is timeless because the community maintains the life philosophy of "Living Brothers" which means that humans and nature need to coexist (Tamalene *et al.*, 2014).

In this case, since environmental issues are collective issues, not only is personal trust important, but collective trust may even be a necessary precondition for triggering pro-environmental behavior (Meijers *et al.*, 2022). As members, the community must have obedience and awareness to obey the decisions that have been made by the customary leader, especially in protecting the environment and forests. In making decisions, the indigenous people of Sentajo have communicated with traditional leaders (*datuk*), community leaders, government and other relevant stakeholders. Communication has an important role in the exchange of information, from one generation to the next. It is impossible for the community to conserve the forest around them without involving communication or interaction between the components involved (Yanti *et al.*, 2018).

Communication with collaboration among stakeholders has an important and strategic role in the management of traditions and the use of natural resources. Local knowledge of forests and community involvement in forest management can produce a variety of social and environmental benefits, such as poverty alleviation and reduction of deforestation and fires. In the management of natural resources and including forests, there are four important things to consider: change, complexity, uncertainty and conflict. These four things will create opportunities and problems, especially for decision makers and community members, as is the case in forest management. The important thing that is always associated with these four

things is the communication factor (Yanti et al., 2018). Communications and meetings are often held by local leaders to amend or strengthen customary law. This activity aims to make regulations and agreements with stakeholders regarding the use of customary forest lands. The government supports through forestry policies on forest use that have not had a significant impact on improvement of the landscape, but these measures have provided economic benefits to communities (Tajuddin *et al.*, 2018).

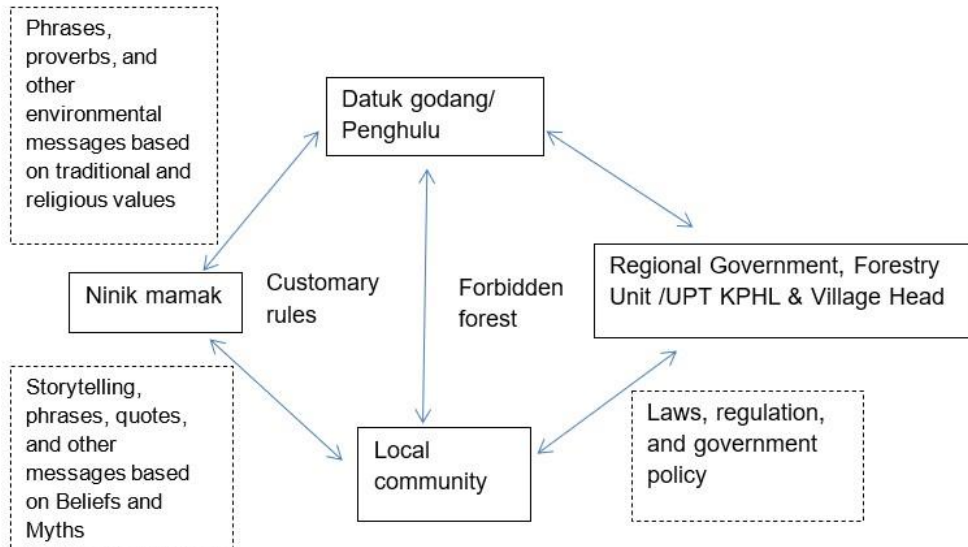
This model of environmental communication based on local wisdom involves many things, from traditions, cultural values, Islamic values, myths, proverbs, expressions, prohibitions, sanctions, fairy tales. These can all be means of effective communication and are very important because they are based on the habits and beliefs of the people. Through storytelling communication, messages can be more easily understood and analyzed thereby contributing to environmental management and conservation (Sundin *et al.*, 2018). Even the use of narrative methods is an important part of environmental communication and is effective in persuading people (Primayanti & Puspita, 2022). In addition, communication related to environmental messages and climate change in the form of metaphors as persuasion efforts produces a more positive and stronger attitude (Meijers *et al.*, 2019). This metaphor can change the way people think about the concept of protected forest and can even influence behavior or policy making.

The efforts of indigenous peoples in preserving the environment based on local or religious wisdom were very important in motivating people to prepare and reduce the impact due to climate change and environmental issues (Khazaie *et al.*, 2020). The community's environmental awareness based on values and local wisdom was the basis for sustainable development. Environmental protection should make people aware of the characteristics of nature surround and its potential, as well as the importance of conservation for their own survival purposes (Kitic *et al.*, 2015). Local wisdom in managing forest areas by the community was reflected in the distribution of forest managements by local community. The forest area was divided according to its function, such as areas for agricultural activities and forbidden forest areas. Local peoples really understood the importance of forests and rivers as a place to earn a living, conservation areas, clean water providers and its other functions. The application of environmental communication based on local wisdom was strengthened by binding rules through the customary law of the local community. In other words, conservation of protected forest areas should integrate conservation with improving the livelihoods of local communities (Bires & Raj, 2019). This kind of communication model can increase the mentality of sense of responsibility and sustainable forest ownership among local communities. The environmental communication model based on local wisdom can be briefly described as shown in Figure 4 below:

Environmental communication in the preservation of Rimbo Larangan is not only the responsibility of traditional leaders, local communities, but also the responsibility of local and central governments. Communication messages are effective because they are culture-based such as proverbs, myths, stories, expressions, and regulations made based on religious beliefs and ancestral beliefs. Meanwhile, communication was also followed by the dissemination of messages through rules, billboards, banners and circulars by the local government. However, the dissemination of communication messages requires the awareness and active role of all stakeholders, especially local villagers in preserving the forest. Local villagers relate and gain first-hand knowledge about the environment, including the existence and use of forests. Figure 4 shows that cooperation between local communities, customary institutions and local governments through the UPT KPHL (Protection Forest Management Unit) has an important and strategic role in managing traditions and utilizing

natural resources. This environmental communication activity can be synergized with tourism communication which makes the forest one of the ecotourism-based destinations.

**Fig. 4: Environmental Communication Model for Forest Conservation Based on Local Wisdom**



Sources: Data analysis, 2022

Environmental communication besides being based on local wisdom can also be expressed by being widely disseminated through the development of community-based tourism (CBT) (Hakim *et al.*, 2017; Yasir *et al.*, 2021). Community-based tourism can be an alternative because it facilitates the community, preserves the environment, can empower communities, promote self-esteem, and develop a more just society (Giampiccoli & Glassom, 2020). The participation of local communities in tourism development can even improve the quality of life of local residents and increase the sustainability of environmental conservation programs. The increase in tourists will be in line with the ecological characteristics and the community's ability to manage their natural environment. Nature tourism that relies on natural beauty can maintain sustainability, spread environmental messages and become an attraction for visiting (Putri & Ansari, 2021). Koto Sentajo has a lot of potential to be developed as a tourist village. It is very important to develop an environmental development model based on sustainable tourism based on the active role of indigenous and other stakeholders (Respati *et al.*, 2017). Rural green tourism was identified as an opportunity to expand the attractiveness of specialty tourism (Gutkevych, 2020). This potential must be optimized to be utilized by prioritizing local elements and community institutions.

The combination of tourism communication and environmental communication spreads messages containing the importance of protecting the environment but on the other hand spreading tourism that can improve people's welfare. Communication and knowledge sharing are very important in the adoption and sustainability of any development innovation in society (Njenga *et al.*, 2021). Revitalization in customary values is important as mandated by Law Number 5 of 2017 concerning the Advancement of Culture. Efforts to maintain and revive customary in protecting forests can be interpreted as an effort to revive traditional

culture that has begun to erode (Hadiprashada & Budiman, 2019). The implementation of local community-based policies is needed to encourage residents to continue to communicate in preserving the environment (Vlibeigi *et al.*, 2020). Strengthening customary institutions and tourism management institutions can increase capacity in environmental management. In other words, the maintenance and preservation of the customary forest environment can not only unite various environmental conservation actors, but can also improve the community's economy. Therefore, this customary protected forest must be revitalized and get the attention of stakeholders, especially the local government, in order to maintain community traditions and also preserve the Kenegerian Sentajo forest environment.

## CONCLUSION

Environmental communication based on local wisdom and customary law of the Sentajo community is proven to be able to preserve forests and the environment through the wise and sustainable use of forest resources. The conservation of this protected forest involves many components of the community, especially the customary holders, namely the datuk penghulu and ninik-mamak as the holder of the Kenegerian Sentajo traditional institution. There are three main elements that make local wisdom in keeping this tradition sustainable. First, traditional values or norms that are closely related to the attitudes and behavior of local communities in growing awareness and concern for forest preservation. Second, the values of Islam and the myths it adheres to have encouraged individual and collective awareness of the existence of morality and responsibility for the environment, both towards fellow humans and to other living creatures as God's creatures. Third, social structures and customary institutions that not only function as subjects of protected forest conservation, but also serve as communication channels and media to monitor community attitudes and behavior towards forests and the surrounding environment.

The model of community-based forest management must be preserved as the last line of defense in protecting the forest. The existence of forests and community traditions must be maximized as the main capital or asset in developing a tourist village for the welfare of the local community and preserving the forest. Local governments and other stakeholders must be able to communicate more intensively and collaborate wisely to build Sentajo into a tourist destination that is in line with sustainable development. Forest conservation activities must ensure that the conserved environment is more beneficial to the community, creates conditions for sustainable development and its communication is based on local wisdom and community culture. Future research should focus on an integrated approach between stakeholders in conserving forests and developing forests as tourism destinations that educate environmental concerns.

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## CONFLICTS OF INTEREST

The authors declare no conflict of interest

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