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Poured from the Sky: The Story of Traditional Ecological Knowledge in Cérékang Forest Conservation

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AFILIATIONS

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ABSTRACT

The Cérékang people are often used as an example of how Indigenous Peoples successfully carry out traditional conservation of customary forests. This article aims to investigate the conditions that sustain the forest conservation in Cérékang by using Berkes's (2008) concept of traditional ecological knowledge (TEK) and Houde's (2007) six dimensions of TEK as the framework. Data collections were obtained through literature review, direct observation, in-depth interview, and focus group discussion with key informants. The results of the study are as follows: First, the mythical construction around the area of forest is connected to their cosmology and stories of origin associated with the *La Galigo* epic, and the Cérékang people have developed protective attitudes towards forests consistent with the term "sacred ecology". Second, such an attitude is endured by the ethics that respect the intimate relationship between humans, nature, and spiritual realms, which is subsequently manifested through prohibitions to enter the sacred forest except for ritual. This implies that the Cérékang people rely on symbolic knowledge, not technical knowledge, to protect the forest. The protected forest does not only provide cultural ecosystem services, but also regulating services that indirectly benefit the Cérékang People such as flood prevention. Yet, the uncertain legal status of the sacred forest and the activities of a mining company around the area pose threats for continued conservation efforts. Consequently, to exercise direct control over the sacred forest area, new community organizations are integrated with customary institutions formed with support from NGOs, local government, and universities. This can be seen as their adaptation strategy to survive and to conserve the forest amid ongoing challenges.

KEYWORDS

Forest conservation; traditional ecological knowledge (TEK); sacred ecology; adaptation strategy; indigenous community.

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1 INTRODUCTION

The Cérékang people are often used as an example of how Indigenous Peoples successfully carry out traditional conservation of customary forests (Rusdianto, 2014). The result of such efforts can clearly be seen in research conducted by Massa, et al. (2017) who measures the qualities of nipah palm and mangrove forests along the banks of the Cérékang river and swamps around Aggattungeng Anceqé to the sea coast of the Gulf of Bone Bay that maintain better ecological conditions than the nipah palm and mangrove forests in the surrounding area. The area around the Cérékang River and Aggattungeng Anceqé are just two among ten customary forest areas of the Cérékang people that spreads over 3,021 hectares in Malili district, East Luwu Regency, South Sulawesi, Indonesia (Perkumpulan Wallacea, 2018). Although the Cérékang people have protected their customary forests for generations, the conditions that enable such historical efforts to sustain remain understudied. This is the aim of this article.

In most cases Indigenous Peoples preserving forests is directly related to myths, stories about events that go beyond the human realm. Further, myth is part of a larger system on what Davis (2019) calls an *ethnosphere*, understood as the 'sum total of all the thoughts, dreams, ideals, myths, intuitions, and inspirations.' Such ethnospheric awareness can be seen in the Cérékang people who believe in the story of two characters in the *La Galigo* epic; Batara Guru who descended from the sky (the upper world) and Wé Nyiliq Timo who ascended from the river (the underworld). The two were brought together by Patotoqé (God Who Determines Fate) to create offspring and maintain order on earth (middle world). This is the very foundation of Cérékang's culture (Akhmar, et.al., 2021). Until now, they still believe that they are descendants of Guru, who inherited the ethics of equilibrium governing nature such as planting without destroying nature, catching fish without making animals suffer and without creating turbidity in the river water turbid (Iriani, 2019). Protecting forests and rivers from damage is thus the same as maintaining a harmonious relationship with the ancestors.

Compliance with customary rules has proven to be effective in protecting forests and other sacred places from investment policies. This attitude can be seen in the leadership within the customary institutions of Cérékang which is considered as one of the important conditions that sustain the traditional conservation of their customary forest (Massa et al., 2017: 6). In addition to being obedient to customary rules, traditional factors, and religious beliefs also play an important role in protecting forests. The Nuha community in East Luwu Regency has succeeded in carrying out a community-based conservation (CBC) project, which is possible partly because of the traditions and longstanding collective life in the community (Sirimorok & Rusdianto, 2020). Gómez-Baggethun & Reyes-García (2013) studies on the Tsimane Tribe in Bolivia, has also shown another factor, namely ritual, that can contribute to strengthen social cohesion to conserve the environment.

Mythical construction, compliance to customary rule, and ritual are among other cultural-based factors that enable forest conservation to be sustained. However, Davis (2019) argues that culture is always changing and there are external forces that can accelerate the change beyond the capacity of people to adapt. Therefore, aside from investigating the conditions that sustain the forest conservation based on traditional ecological knowledge (TEK), this research is also aimed at examining the Cérékang's adaptation strategy to deal with changes that might or might not be beyond their capacity to adapt.

2. METHODS

In this article, we use Berkes's (2008: 7) definition of TEK as a 'cumulative body of knowledge, practice, and belief about the relationship between human, other living beings, and their environment, that is adaptive, transmitted from one generation to other generations, and manifested in the form of stories, songs, cultural values, beliefs, rituals, customary laws, local languages, and sustainable use of natural resources (Berkes, 1993: 1-9).

The framework used to elaborate the role of TEK for forest conservation is the six dimensions of TEK developed by Houde (2007) (see Figure 1). This model is considered relevant for this article as it elaborates the extent to which these six dimensions are arranged for managing natural resources. Explanations of Houde's (2007) six dimensions of TEK are as follows:

- (1) Factual observation: daily observation, classification, and social dynamics of the landscapes and social environments. In other words, it is about understanding and describing the dynamics of the ecosystem.

- (2) Management system: the strategy deployed by indigenous peoples in ensuring the sustainable use of natural resources, such as adaptation strategy, management of customary forest areas, methods of conservation, and methods of utilizing natural resources.
- (3) Past and current uses: the history of environmental management knowledge and how it is used in the current situation. This also includes the location of cultural and historical sites in which TEK is practiced. The stage of use highlights the time dimension of past traditional knowledge and its context. An important question in this element is how knowledge, wisdom, and sustainable practice in managing natural resources is transmitted in daily life.
- (4) Ethics and values: the relationship between belief systems, facts, and practice. This element is an expression of values about the right attitude, which are often identified as values of respect.
- (5) Identity and cultures: traditional ecological knowledge as vectors of cultural identity. This is about how the understanding about stories, values, and social relationships that exist in a place (toponyms) contribute to the survival, reproduction, and evolution of cultural identity.
- (6) Cosmology: the world view as the foundation of the previous five elements. This dimension relates to assumptions and beliefs about how things work together and the principles that govern them.

This framework of TEK is deployed as a baseline to analyze the condition under which the Cérékang people's traditional ecological knowledge of forest conservation does and does not work (Berkes, 2004: 624).

2.1 The conceptual approach

Data collection in this study was gathered through four methods: literature review, direct observation, in-depth interviews, and FGD (Focus Group Discussions). Data collection was carried out from April 2020 to November 2021.

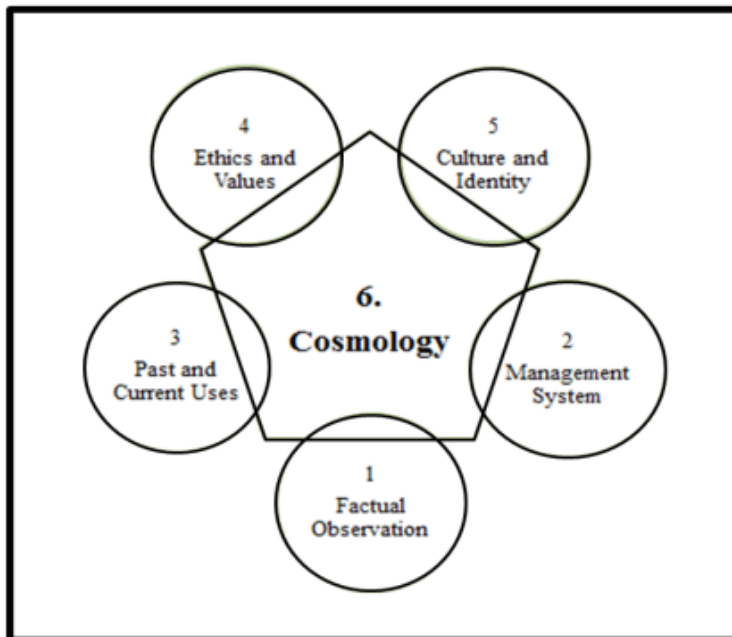


Figure 1. Description of Houde's (2007) six dimensions of TEK.

First, we start by reading gray literature (report) produced by Perkumpulan Wallacea (2019) in April 2020. This report provides information about the profile of the Cérékang Indigenous community, namely the toponymy, the structure of customary institutions, the biodiversity of plants and animals in the area, the condition of land

cover, and ⁵ location of sacred forest area (despite lack of its historicity). Another key document is the Decree of the East Luwu Regent No. 258/2019 on the recognition of traditional knowledge and local wisdom of the Cérékang people. This document provides information on the recognition of the Cérékang people's local wisdom that is practiced within the sacred forest. In addition, we conducted literature reviews from journals and books to find out the history and myth of the Cérékang people.

Second, we carried out fieldwork over two visits to directly observe the dynamics and interactions within and between the community, individuals, and customary institutions, visiting the border of sacred forests, observing activities around ⁴ the Cérékang River, and rituals practiced by the Cérékang people. Aside from direct observation, in-depth interview and FGDs with purposively selected key informants were also conducted. In total, there were more than 25 informants interviewed, including customary holders, head of the village as a representative of the government, head of kampong, community leaders, religious leader, young people, activists, teachers, students, farmers, and traders. The questions we asked were all related to Houde's (2007) six dimensions of TEK that transformed into simplified forms of question such as: How do you understand the origin of Cérékang people? How do you see the sacred forest? What rules do you know about it? What are the functions of ten customary forests for the Cérékang people? How do you manage the sacred and non-sacred forest? How do you view customary institutions and customary leadership? How do you see the government's policy about the recognition of Cérékang's local wisdom? While these were the questions, we asked to all types of people we interviewed, there were also specific questions about customary institutions that we asked to customary councils, such as the ethics and values attached to the customary institutions.

Information from observations and interviews was subsequently clarified and developed in the FGDs. This was also done in order to look at the shared or contrasted views on a collective level. Therefore, we asked similar questions during the FGDs, and asked people we had interviewed and had not interviewed to participate. The first FGD was carried out on 22 Mei 2020, involving 11 people from the representatives of government, village, customary councils, NGO, and youth organizations. The discussion was focused around the stakeholder views regarding customary rules concerning resource management, social norms, ritual, and tradition. In order to examine more deeply the ongoing tension on the conservation of Cérékang customary forest, we conducted another FGD on 30 September 2020 with 10 people from the representatives of government on a district and village level, head of village, NGO, youth organization, and customary councils.

The recordings from in-depth interviews and FGDs were then transcribed and compiled based on the description of the model developed by Houde (2007), namely six dimensions of TEK among Indigenous Peoples. The compiled data was analyzed through content and narrative analysis by comparing the entanglement between variable (factual condition, management system, past and current uses, ethics and values, and cosmology) and examining the extent to which each variable provides the condition and justification for Cérékang people to conserve their forest.

3. RESULTS

3.1 The actual condition of the Cérékang

The first dimension of TEK is the actual condition of ¹ social, customary forest and river environments in which the Cérékang people live. Cérékang is one of four counties in Manurung village, Malili sub-district, East Luwu district. The name of this county is seemingly taken from the Cérékang river, which flows from the hilly forest area of Pengsimaoni at the upstream and terminates in the Gulf of Bone. The name of the

hamlet and the Cérékang river corresponds to the history of the Cérékang people who used to live along the river, especially around Bérué and Katué. They refer to themselves as To-Cérékang, which in Bugis language means “human” or “a group of people” originating from the Cérékang River, or can be loosely translated as “the people of Cérékang.”

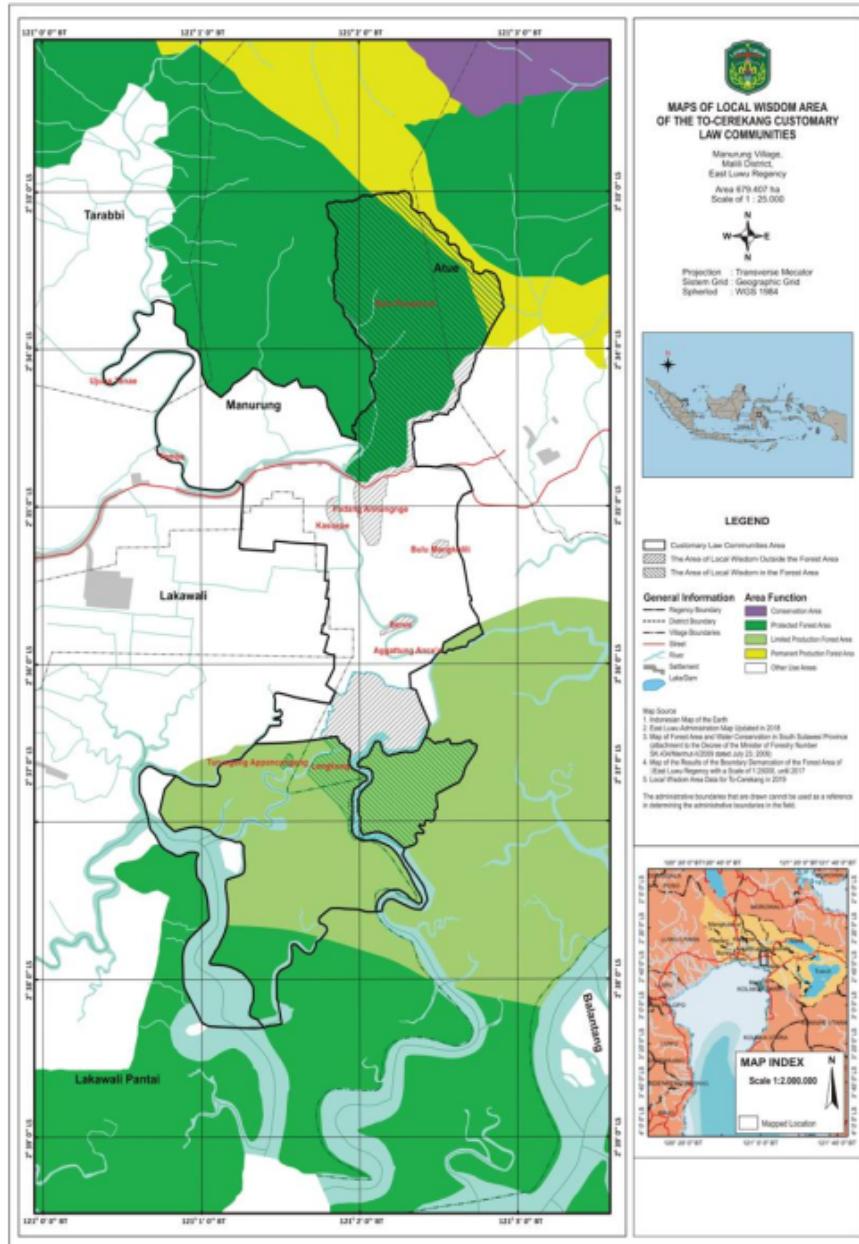


Figure 2. Map of the To- Cérékang Customary Law Commu 16 and the location of Cérékang in Indonesia. Image Source: Appendix of the Surat Keputusan Bupati Luwu Timor Nomor 286/X/Tahun 2019.

1 Prior to 1930, the Cérékang settlement was further downstream. Bulbeck (2013) who entered the Pengsimaoni “sacred forest” area in 1995, notes that there is evidence of human habitation from the 17th to the 19th centuries in Poloe. In the past, as told by a community leader, their means of transportation were boats and rivers, so the house faced the river. Today, the settlements of the Cérékang people are concentrated in the lowlands along the Malili main road and the Cérékang River, with resident’s homes situated along the left and right sides of the road and facing it. Most of their houses are wooden houses raised on piles. There are only six concrete houses in the area, which

Akhmar et al. (2022)

are usually inhabited by mixed families or immigrants. Most of the Cérékang houses use tin roofs. Only a few residents still use the nipah roof, or a combination of zinc roofing and nipah leaves. The trend of using zinc roof is a direct result on the decline of nipah craftsmen. In addition, access to the location of raw materials is getting further away due to expanding fishpond activity.¹

According to demographic data taken from Pemerintah Desa Manurung (2019), the total population of To-Cérékang is 4,175 people with 1,019 households. The majority of them work as fishermen (60 %), followed by farmers (around 35%). Some of the young educated Cérékang have become civil servants, teachers, employees, and administrators of social organizations. There are a number of elders who are firmly attached to traditional values and customary rules, and are very well-respected by residents. The community leaders explained the ten sacred areas, including ancestral messages (moral code) that contain the values of living in society and interacting with nature. However, they seem to be careful when asked about beliefs, stories about the gods who once occupied Cérékang, and objects (sites) found in the customary area.

The Cérékang customary land is a forest area of 6,698.47 hectares under the administration of the Manurung village government. The Cérékang customary forest area is spread over ten locations, and has been designated as an area of local wisdom by the East Luwu Regency covering 679,407 hectares. However, a report from Perkumpulan Wallacea (2018) indicates a slightly different version. According to this report, the Cérékang sacred forest consists of an area of 544.11 hectares spread over ten locations, namely Pongsimaoni Hill (375.7 hectares), Tomba (4 hectares), Ujung Tanae (1.12 hectares), Padang Ennungé (11 hectares), Bulu Mangkulili (1.75 hectares), Kasosóé (1.4 hectares), Bérué (6.05 hectares), Léngkong (142 hectares), Turungengeng apancangengngé (0.45 hectares), and Agattungeng Ancéqé (0.55 hectares). It can be said that the customary forest is still a pristine natural forest, as it has been preserved from one generation to another for a long time. However, this condition is not without threats. First, there has been a growing concern among the Cérékang people of several attempts of land clearing and illegal logging committed by outsiders, referring to people from outside of the Cérékang Indigenous community. Another potential threat is also on the rise from a mining company which has been granted a mining concession in an area located next to Pongsimaoni Hill, one of the sacred forest areas (Aliansi Masyarakat Adat Nusantara, 2013).

The Cérékang forest ecosystem consists of lowland forests in hilly areas, riverine forests, freshwater swamp forests, mangrove and nipah swamps. However, the legal status of each forest is varied. The lowland forests in hilly areas are located around Pongsimaoni Hill (Figure 3), which is part of the customary forest and is also a state protected forest area (HL: *Hutan Lindung*). This status is also true for the mangrove swamps and the riverine forests, which are divided into HL and limited production forest (HPT: *Hutan Produksi Terbatas*); and several parts of Atue are located in permanent production forest area (HP: *Hutan Produksi*). The customary forest is home to many species. There are 37 types of plants (flora) and 14 types of animals (fauna) recorded in the area, both wild and protected. The area is also a habitat for the growth of 24 mangrove species, whose conditions are much better than mangroves in other villages (Massa et. al., 2017). In addition, sago (*metroxylon sago*), ipomea sp, pandan (*pandanus sp*), waru (*hibiscus tiliaceus*), starur (*calophyllum inophyllum*), and hutong (*baringtonia asiatica*) are found in the lowland forests around the Cérékang River.

The Cérékang river is one of the longest rivers in East Luwu Regency. Apart from being a sacred place, the river is also a source of water and life. The Cérékang River is

¹ Interview with a village craftsman (2 October 2020)

called sacred because it is associated with the belief in the ancestors of the Cérékang people. Around the river, there are also several types of fish consumed by the community, such as carp, snakehead fish, tilapia fish, shrimp, and crabs. As informed by Gunawan (2005: 2), the Cérékang river might be the only remaining safe place for the protected estuarine crocodile (*Crocodylus porosus*) habitat in South Sulawesi. In addition, the river plays an important role for the livelihoods of the Cérékang people. It is a source of irrigation for rice fields that are concentrated around Tomba and Ujung Tanae (both are sacred non-forest areas), as well as the home of crab fish, one of the most vital sources of living for the community. Several types of mangrove plants that grow on the banks of the river are also used by residents as medicine. These include the *jaruju* leaves to cure stomach-ache, *api-api* leaves to cure diarrhea, mangrove fruits to cure acne, and mangrove roots can be used to stop bleeding. In this sense, rivers and forests are inseparable entities for the Cérékang people.

8.2 Customary governance of sacred and non-sacred area

The second dimension of TEK refers to strategies and management to ensure the sustainable use of natural resources (Houde, 2007). In this regard, the Cérékang people divide the forest into two as their mode of managing the forest; the sacred forest (*pangngale adeq*) covering an area of 694.08 hectares and non-sacred forest (*pangngale*) covering an area of 3,021 hectares.

Pangngale adeq is considered sacred, since the area is embedded with the origin story of the Cérékang people, and thus, is used for rituals. In relation to this, there are seven prohibitions related to the sacred forest:

- 1) Outsiders are prohibited to enter the sacred forest without a permission from customary leaders
- 2) The Cérékang people are prohibited to enter the sacred forest, except for rituals and attending burial ceremonies
- 3) Outsiders can attend the ritual and burial ceremony with a permission from customary leaders
- 4) People are prohibited to use headcovers and footwear while entering the forest
- 5) People are prohibited from destroying plants and damaging the leaves in the forest
- 6) People are prohibited to point a finger onto the sacred forest.

Moreover, the Cérékang people have customary and social mechanisms to deal with those who break the rule related to the sacred forest. The degree of sanction is determined by how serious the damage is to the sacred forest. Entering the sacred forest without permission, for example, is considered as a moderate breach, whereas chopping the wood from sacred forest is deemed as a major breach. The imposition of sanctions according to customary mechanisms is carried out by *puaq* or customary leaders. Since the death of *puaq*, the trial is presided over by customary councils. However, such a mechanism only applies to the Cérékang people. If the offenders are outsiders, the Cérékang people will report the case to the police. The sanctions applied to the Cérékang people are as follows:

- 1) Moral sanction: the wrongdoers will be excluded from the Cérékang Indigenous community
- 2) Administrative sanction: the offenders will receive a warning letter from the village government and will be asked to write a statement letter to not to break the rules
- 3) Social sanction: the wrongdoers will no longer be able to attend customary rituals or, if the breach is major, they will be outcast from the village
- 4) Physical sanction: the offenders will be punished by nature, either they will be sick, or in the worst case, eaten by the crocodile.

In 1998, for instance, the wrongdoers, who were allegedly chopping wood from the sacred forest, were killed by a white crocodile. The Cérékang people believe that a white crocodile is the incarnation of Sawerigading (the first third ruler of Luwu Kingdom) who still lives around the sacred forest, and yet is invisible to the naked eye.²

To ensure that the prohibitions related to sacred forest are not violated, the Cérékang customary council initiated a youth organization called Wija To-Cérékang (WTC). WTC is a formal organization with a legal entity. They have a home base, a flag, an organization logo, and even uniforms. Although WTC is administratively separated from Cérékang customary institutions, they are functionally an extension of customary influence. The role of this organization is to protect the sacred forest and conservation area through community education. Aside from mapping and collecting data about the forest, like they did in cooperation with Perkumpulan Wallacea in 2018, WTC also cooperated with the village government to install forest boundary signs from the Regional Village Government Budget (2018-2019). Most of the members have received training on strengthening the capacity of indigenous forest advocacy from the HuMa foundation and Perkumpulan Wallacea since 2018. On a monthly basis, they conduct a patrol around the border of the customary forests. On May 23, 2021, for instance, around 30 members of WTC walked around the border of the customary forest for 12 hours. Patrol activities were carried out due to information they received that the alleged PT Prima Usaha Lestari, a company engaged in the mining of natural products, claimed the Cérékang customary forest areas as their property.³



Figure 3. Pengsimaoni Hill, with a warning sign to not enter the forest

While customary forests are preserved and have rules prohibiting entry, ordinary forests (*pangngaleq*) can be owned, utilized, and cultivated according to several customary principles. First is the principle of individual ownership, whereby the owner of the land is determined by the first cultivator. They have the rights to cultivate and legalize the status of the land to the government. Second is the principle of kinship or collective management, whereby the owner of the land can involve other family members to cultivate a stretch of land as the shared source of food and economy. Third, the land is untradeable. This means, those who own the land on the basis of the first-

² Interview with a Cérékang's villager (20 August 2020)

³ Interview with members of WTC (21 August 2021)

cultivator are unable to sell the land to other people. Fourth, the cultivated land is managed in a subsistent manner to meet basic needs, and the surplus can be sold without accumulating capital.⁴



Figure 4. Beroe, One of the Sacred Forests in Cérékang

As some of the sacred and non-forests are divided by the Cérékang River (Figure 4), some part of the river is also considered sacred. As a result, the Cérékang people have several prohibitions related to the river, namely prohibition to throw the leftover food, oil, and feces to the river, using soap in the river, and killing the crocodiles. As around a third of the Cérékang people are farmers, rice fields and gardens are also a main source of livelihood. Local wisdoms have taught them how to grow crops without making the river water turn turbid. However, in rice fields or gardens, like elsewhere in the region, the Cérékang people have introduced machinery to plow the land, as well as using chemical fertilizers and pesticide that began through government subsidy programs. In paddy field rice farming, they use crop rotation that is adjusted to the climate and the distribution of annual rainfall. Rice seeds that are widely planted are the types of varieties such as Beramo, Cisantana, Ciliwung, Ir64, and Ir66. Cocoa, pepper, and vanilla are the types of plants that most Cérékang farmers cultivate in their plantation groves (see Table 1). Management of this sector is also carried out according to common government support programs promoting the use of fertilizers and pesticides.

3.3 History of the sacred forest in Cérékang and its cultural transmission

The third dimension of TEK is factual knowledge about the past and current natural resource management which is transmitted through oral history (Peters, 2003; Houde, 2007). In other words, this dimension seeks to look at how stories of TEK are transmitted from one generation to generation, which subsequently provides a sense of belonging within the community (Callaway, 2004; Houde, 2007).

The history of the sacred forest in Cérékang is inextricably linked to the story of the origin of the Cérékang people. The word, *cérékang* or *cérékeng* comes from the Bugis word *cérréq*, which means “to be poured”. The definition of *cérréq* refers to the myth of the first human on earth, La Tongé Langi with the title Batara Guru who descended from the sky to earth. The way in which Batara Guru descended from the sky to the earth is analogous to a process of pouring water from the sky, which subsequently provided life on earth in the forms of rivers, plants, fields, animals, mountains, and forest.⁵ In this sense, the presence of Batara Guru was the signal of life on earth (*alé lino*). Batara Guru

⁴ Processed from interviews and FGDs (September 30, 2020 and May 22, 2021)

⁵ Interview with a customary council (12 August 2020)

descended from the sky and arrived on Pongsimaoni Hill to meet Wé Nyiliq Timo who ascended from the river. The encounter of these two mythical figures creates a new order on earth, and provides the basis for the Cérékang people to protect the forests and the river. They also believe that there are signs of *tennia rupa tau* or “not ordinary humans” in the sacred forest and river. In this regard, the role of Cérékang people as *padanna rupa tau* or “ordinary human” is to protect them.⁶

An archaeological finding of the Cérékang customary forest areas reveals that these areas used to be the sites of origin of the Luwuq Kingdom during the 14th-15th century. According to Bulbeck (2013) there are six forest areas that are considered sacred by the Cérékang people. In contrast, the Cérékang people believe that the sacred forest area consists of ten locations: Pongsimaoni Hill, Padang Ennungngé, Bérué, Mangkulili Hill, Tomba, Ujung Tanaé, Kasosoé, Léngkong, Aggattungeng Ancéqé, and Turungeng Appancangengé. Each of these sacred forest areas gain sacred status from the myth that is linked to the *La Galigo* epic.

Table 1. Scheme 1: Sacred Areas and Their Functions

No.	Area and History of Location	Function of Area
1	Bukit Pongsimaoni was the place where Batara Guru descended from the sky. It is also believed to be the location of Batara Guru's palace in the Ancient Luwuq Kingdom.	Bukit Pongsimaoni is a lowland forest in a hilly area that is believed to be the “beginning of land”. It serves as a place for the ritual of maggawe (asking for prosperity and safety), as well as the location to take holy water for the ritual of the Luwuq Kingdom until now.
2	The Ennungngé field is believed to be the place of the rising sun (tompoq tikka) in the story of La Galigo, where Batara Guru met his bride, We Nyiliq Timo. Tompoq tikka was also one among three ancient kingdoms in the La Galigo era. The kingdom ruled the eastern part of the island, while Luwu in the center and Wewang Nriwu ruled the west.	Padang Ennungngé is the first place to cultivate subsistence crops of rice and sago. The land consists of sago swamps, and a place for the performance of rituals related to agriculture.
3	Beroe (Lengkong Malaulu) used to be a village near the old tomb of La Massagani titled To Barani (the brave), a military leader during Sawérigading's reign and La Pananrangé, the adviser of Sawérigading. Sawérigading is a central figure in the La Galigo epic. He was the third generation of rulers during Batara Guru's dynasty on earth.	Beroe is a mangrove forest area located along the Cérékang River that serves as a ritual place to ask for courage. Beroe is a location of old settlements.
4	Bulu Mangkulili (Mangkutta) was the place where Sawérigading cut down the sacred Wélenréngngé tree as material to build his ships for his voyage to find his future wife. The location of the tree is believed to be the positana (navel of the earth). Wélenréngngé is one of the well-known episodes in La Galigo (Enre, 1999).	Bulu Mangkulili is a forested ridge area.

⁶ Interview with the head of kampung (11 August 2020)

No.	Area and History of Local Wisdom	Function of Area
5	Tomba is the place where the rice goddess Sangiang Seri (granddaughter of Batara Guru) turned into a rice plant. The story of Sangiang Seri is a foundational myth of how gods provided food for people on earth.	Although Tomba used to be rainfed rice fields, now the area is full of forests. It is located in the west bank of the Cérékang River and serves as a site for rituals related to agriculture.
6	Ujung Tanaé is associated with the existence of the ancestors of the Cérékang people.	Ujung Tanae is a hilly area that serves as a water retainer to prevent floods from upstream of the Cérékang river.
7	Kasosoe is the ancestral residence of the Cérékang people.	Kasosoe is an old cemetery site that is used as a place for customary rituals related to honing science and intelligence. The area is divided into three different sections according to Cérékang descent and social status, namely (1) puaq graves; (2) the tomb of the wija puaq (the family and descendants of the puaq); (3) the graves of ordinary people. Specifically, the tombs of the puaqs only use wooden tombstones as the gravestone. The gravestone is left to rot until it returns to the ground, since the Cérékang people believe that as Batara Guru's children and grandchildren are still living on earth, everyone who dies will reunite with them (mallajang).
8	Lengkong is the ancestral burial place of the Cérékang people.	Lengkong is an area of mangrove forest and serves as ritual area related to the coast.
9	Aggattungeng Ancéqé used to be the ancestral residence of the Cérékang people.	Aggattungeng Ancéqé is an area consisting of mangrove and nipah forests that serve as a place for rituals related to the coast.
10	Turungeng Appancang-engengé is the ancestral residence of the Cérékang people.	Turungeng Appancang-engengé is an area consisting of mangrove forests and nipah serves as a place for rituals related to the coast.

It can clearly be seen that the ten sacred forest areas of the Cérékang people are related to the myth of Batara Guru and We Nyiliq Timo. According to the beliefs of the Cérékang people, Batara Guru and his descendants of five generations still live around the sacred area. The ancestors of the Cérékang people still live as normal humans, yet they are invisible to the naked eye. The myth, story, and prohibitions related to sacred forest, are reproduced through cultural transmission, understood as 'the process by which information is passed from individual to individual via social learning mechanisms such as imitation, teaching or language' (Mesoudi & Whiten 2008: 3490). The process of transmission initially takes place at home through oral communication. Generally, the parents tell the children about the prohibitions and illustrate the story of the ancestors, especially the story that is connected to the sacred forest. Furthermore, the transmission occurs outside of the home through socialization and rituals. As we observed during rituals in Cérékang, most parents would bring their children to see how the ritual takes place in the sacred forest. Here, the children join adults not using any footwear while entering the sacred forest in order to experience it first-hand. When they come of age, they are no longer coddled by their parents. Instead, they are required to be active by finding out the ethics related to the sacred forest themselves. As one respected elder told us, "A well is not seeking for a water dipper. It is the responsibility

of the water dipper to find a well.” In order for young people to learn a deeper meaning and ethics about the sacred forest, they have to dig it from the main sources; *puaq*, customary councils, and community leaders.

3.4 Ethics and indigenous institutions

The fourth dimension of TEK is ethics containing values of how things should happen and is manifested in attitudes or behavior towards nature (Houde, 2007). The Cérékang’s ethics about the forest are embedded in their worldview in perceiving the sacred forest to be their ancestors. The ethics are expressed through messages that flourish in the collective memory of the Cérékang people:

“Ajaq mujamai pangngaleq pangngaderemmu nasabaq makkasolangngi ri wanuae” (informant: Amrun youth Cérékang, September 22, 2021).

Translation: *“You do not cultivate customary forests because it will bring damage to your village.”*

Such a message is strictly related to the three values that the Cérékang people hold in order to prevent them from calamities, including natural disasters that might be caused by deforestation. First, is by maintaining harmonious relationships with nature. Second, is by cultivating harmonious relationships between humans. Third, is by deepening relationships with gods (*Dewata*).⁷ Interestingly, the relationship with nature is put first. This might suggest that maintaining the balance of nature is the first priority. Thus, the role of Cérékang people and the customary institution is to maintain and respect the relationship with these three as well as the ancestors. These values, which are entangled with sacred forest conservation, are institutionalized in customary institutions governed by the *puaq* and customary councils. *Puaq* are the highest positions in the customary structure and are occupied by a man and a woman. The male *puaq* represents the human relationship with gods and he serves as a mediator to *Dewata* (gods) and ancestors by conducting rituals in the sacred forests. Meanwhile, the female *puaq* represents relationships with fellow human beings (Iriani, 2019). In carrying out their duties, the *puaq* are assisted by eight councils that consist of four positions, which is called *langkai*, or persons who deal with social affairs (including those who violate the prohibitions about sacred forest). The *langkai* consists of *ulu*, *pangulu*, *salangka* and *ajé*. Each position of this customary structure is also filled by a man and a woman. *Ulu* (head) serves to represent the voice and bring messages of the *puaq* as spiritual leader. The function of *pangulu* (handle) functions to handle the interests of indigenous peoples concerning land clearing and the implementation of traditional rituals. *Salangka* (shoulder) serves to assist the work of the *pangulu* in social affairs. Meanwhile, the function of *ajé* (leg) is to handle general affairs (Jamil, 2014; Iriani, 2019; Gunawan, 2005). The Cérékang’s customary structure resembles the figure of a human. *Puaq* is considered as the spirit, and the *langkai* as the body.

Although *puaq* are rarely seen in public, the Cérékang people respect and strongly adhere to the *puaq*. In relation to the preservation of the sacred forest, the role of the *puaq* is to remind Cérékang people about the prohibitions by giving messages from the ancestors (*papasseng*) as well as offering advice to those who come to the *puaq* house. However, after the male *puaq* passed away in 2010, the position has not yet been filled. Likewise, the female *puaq* position has also been vacant after she passed away in the following five years. This is due to a complicated process of appointing the *puaq* (Iriani, 2019: 227). According to the customary rule, *puaq* can be appointed with two mechanisms: 1). *Were*, a clue usually received by dream that comes to eight customary councils. In order to proceed, the dream from each of the council should be confirmed

⁷ Interview with community leader (11 August 2020)

to one another; 2). *Mana* or through descendants, yet it should be returned to the first mechanism.⁸

As the *puaq* position remains unoccupied, the customary roles of the *puaq* are taken by customary councils (*ulu*, *pangulu*, and *salangka*). Yet, as for now, there are only three customary councils, the *male ulu*, the *male pangulu*, and the *female ulu*. All of them are responsible to lead the rituals, to offer advice, give *papasseng*, and to make sure that the ethics and prohibitions in the sacred forest are obeyed. Before conducting a monthly patrol around the area of sacred forest, for instance, WTC will be given advice and *papasseng* from the customary councils. The advice that the customary councils give, however, is not limited only to Cérékang people, but also to outsiders who visit the village, especially to remind them about the sacred forest. This is partly driven by the second values that Cérékang people hold, which is to cultivate relationships between humans. By reminding humans, they can also maintain harmonious relationships with both nature and *Dewata*. Thus, the three values are inseparable to one another, as can be seen from a message below:

Jagai assiwolong-mpolongemmu ri padammu rupatau nennia aringerangko ri puangmu.

(Maintain your relationship between human, while always remembering your Gods/Creator/*Dewata*)

These ethics and values are internalized by the Cérékang people, as is manifested from their attitudes towards the sacred forest and river. For generations, the Cérékang people have protected the customary forest area. This attitude is even reflected in the way in which the Cérékang people deal with the area outside of the customary land that might have indirect impacts to the sacred forest and river. For instance, the Cérékang people invariably advise people from Tarabbi Village, a neighboring village located in the headwaters of the Cérékang River, to stop their activities that might endanger the river such as overexploiting the forest around their area, using the river to wash clothes with soap, using poison to catch fish, and throwing household waste to the river. This is largely because the Cérékang River has turned murky and degrades the ecosystem in the river. Yet, the Cérékang community leaders admit that they face difficulties in controlling the cleanliness of the river due to the confluence of its streams that flow from other villages around Cérékang such as Ussu and Atué.

3.5 Cultural identity

The fifth dimension of TEK is aimed at the extent to which TEK serves as an axis of culture (Houde, 2007). In this regard, the sacred forest is the vector of Cérékang cultural identity. They believe that Batara Guru inherited the sacred forest, including the river, to the Cérékang people. As mentioned before, they are also convinced that Batara Guru and the five generations are still living in the sacred forest, instead of returning to heaven as told in the La Galigo epic. As such, Cérékang people bear responsibility as the heirs and guardians of the heritage from Batara Guru's dynasty. If this responsibility is retained, they will be prevented from divine sanctions that are manifested through calamities or disasters.

One of the ways to show responsibility is by conducting rituals in the sacred forest. One of which is *mappasolong/mappasorong buaja* ritual, an annual ritual ceremony that takes place in Pengsimaoni Hill. Aside from respect and to give offerings to the sacred forest or ancestors, the ritual is also aimed at strengthening the sense of community and also offers an opportunity to transmit the ethics about the sacred forest to younger generations. Another essential ritual for Cérékang people is the burial ritual.

⁸ Interview with the head of kampong (12 June 2020)

The ritual, which is conducted in the Kasosoé burial area, begins by walking along the bank of Cérékang as if they are tracing back the footprints of the ancestors until they reach their “settlement”.

The ritual reflects the conception of life after death in Cérékang, with which Cérékang people will reunite with their ancestors after the burial. There are several rules that one must obey while following both of these rituals. First, before entering the forest, one has to clean his/her soul. For example, women should not be in her period to follow the ritual. Second, one should obey all prohibitions related to the sacred forest. Third, people who follow the rituals are not allowed to point a finger and express a reaction by commenting about something related to rituals. Fourth, everyone who escorts the body in the burial ritual as well as those who go through *mappasorong buaja* ritual are required to comply with several procedures, such as wearing a sarong rolled up to the chest, removing footwear and head covering, and using a boat (*pincara*) to the burial site. As one of the customary councils told us, “Removing footwear is an expression of oneness with the earth and the under-world, while removing the head covering is an expression of oneness with the heavens or the upper-world.” Thus, the ritual serves as a way to unite with nature and ancestors.⁹

Another important part of cultural identity of the Cérékang people is the roof house that uses nipah leaves instead of tin roofs. Although there is seemingly a decline in the number of houses using nipah leaves recently due to the lack of materials caused by the expansion of fishponds, Cérékang people understand that using zinc might be dangerous to the environment, as it can reflect the sun back to the sky. The Cérékang only have traditional clothes which they call *sapuraga*. This traditional attire is in white color, without ornaments and is used only in ritual, which is paired with a sarong. This is a representation of the principle of simplicity of the Cérékang people as ordinary people.¹⁰

3.6 Cosmology

The sixth dimension of TEK is cosmology, a worldview that becomes the foundation of other dimensions of TEK (Houde, 2007). The five dimensions of the Cérékang people's TEK are connected to each other, of which the cosmological dimension is at the center (see Figure 5). The cosmological concept of the Cérékang people can be seen in the construction of myth of Batara Guru who descended from the upper world and We Nyiliq Timo's who ascended from the underworld. The encounter between the two in the middle-world did not only signify the beginning of life, but their presence also brought peace in the world. This has become the foundation of the Cérékang people's cosmology which is composed of three dimensions, the upper world or heaven (*boting langi*), the middle world or earth (*ale lino*), and the underworld or the land under water (*buri liyu*). The upper and lower worlds are inhabited by gods and goddesses, while the middle world or earth is inhabited by humans.

In the view of the Cérékang cosmology, Pongsimaoni Hill is associated with the upper world, while the Cérékang river is associated with the underworld.¹¹ Pongsimaoni Hill is placed as the center of the world because it signifies the beginning of life. The cosmology of unity is composed from the top to bottom. The upper world and the underworld must be in harmony, while the middle world should be in control to create a balanced order both at the macro-cosmos and micro-cosmos levels.

The construction of this mythical world is manifested in the Cérékang's structure of

⁹ Interview with one of the members of customary council (26 September 2020)

¹⁰ Interview with a customary council (10 August 2020)

¹¹ Interview the head of kampung (May 22, 2021)

customary institutions. The structure is adapted from the anatomy of the human body from the head, hands and feet, and is translated into the functions of organizational devices, namely the head (*ulu*), neck (*pangulu*), shoulders (*salangka*), and feet (*aje*) (cf. Figure 2). The main function of customary institutions is to preserve the ancestral heritage of the Cérékang people, and to prevent destruction on earth. All functions attached to the position of customary holders are optimized through rituals to maintain the balance of human relations with nature and its creators.

The cosmology of the Cérékang people also connected with their concept of *sulapaq eppa* (square) (Mattulada, 1985: 9). The use of even number in the customary institutional system of the Cérékang people is a manifestation of *sulapaq eppa*'s philosophy. Apart from being described in terms of the positions and duties of the customary holders, this figure also appears spatially and geographically. First, the number of people in the customary structure is ten, which corresponds to the Cérékang's ten sacred forest areas. Second, the Cérékang prioritize dwelling on wooden stilt houses. Third, geographically, the Cérékang river is one of four rivers in the Malili sub-district. Cérékang is one of four counties in Manurung village. This even number pattern has a symbolic meaning. In Bugis language, even numbers mean *genneq*, (no less, no more), as is expressed in a Buginese proverb *céddéq genneq mato, maéga cappu mato* which means "less is enough, more is sufficient".

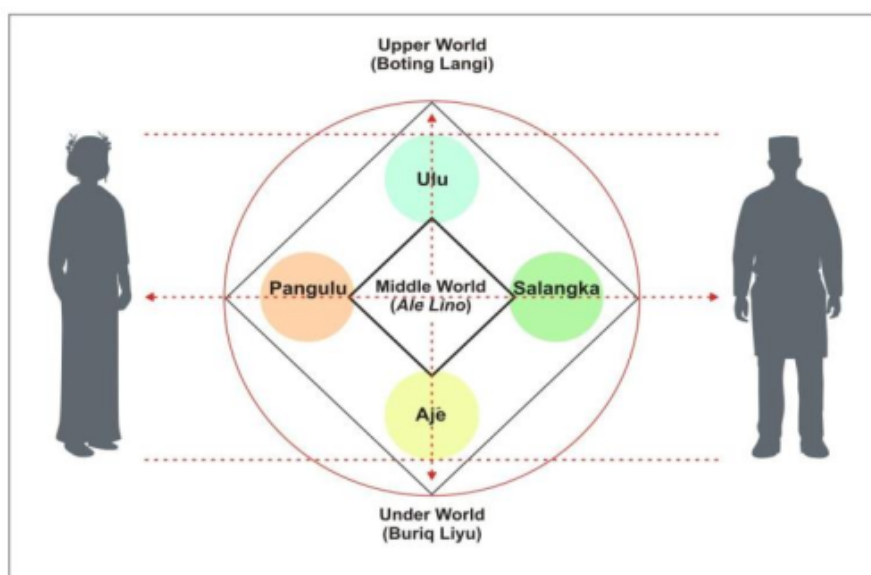


Figure 5. Scheme 2: Illustration of the Compatibility of the World View with the Indigenous Institutions of the Cérékang

Finally, the representation of the Cérékang's world view shares a very close proximity to the Bugis worldview found in the architectural construction of traditional Bugis houses. A house (*bola*) is said to be *genneq* (*sukku*, complete/perfect) if it has a rectangular shape (*sulapaq*), which means it has four perfections. The meaning of *sulapaq eppa wola suji* in the construction of Bugis stilt houses is a sacred space that functions as a place for birth, marriage, and death rituals (Robinson, 2005: 301).

4. DISCUSSION

In the results, we identified six dimensions of Cérékang's TEK, yet the extent to which these TEK contribute to forest conservation needs to be examined further. First, the mythical construction of the story of Batara Guru and We Nyiliq Timo serves as the Cérékang people cosmological basis, which views the sacred forest (*pangngale adeq*) as spiritual resources distinct to ordinary forests (*pangngale*) regarded as natural

resources. In other words, the concept of utilizing customary forests seems alien to the Cérékang people. According to ecosystem services theory (Kareiva, et.al., 2011), sacred forests provide cultural services that are related to culture and religion. Such a view bears a close similarity with the Kajang people in Bulukumba, South Sulawesi, that consider customary forest areas as a sacred entity (*borong karamaq*) and prohibiting utilization (Hijang & Gising, 2007: 92-94). The two indigenous communities provide an example of how the sacred status of the forest sustains conservation and preservation, which can be described as a 'sacred ecology' (Berkes, 2008). Both Cérékang and Kajang people, however, show a rather different story with other Indigenous communities in Indonesia such as the Timorese tribe in South Central Timor Regency, East Nusa Tenggara Province whose conservation ethics have changed, enabling them to utilize customary forests for daily needs, as long as they do not violate customary rules and Government Regulations regarding forest management. (Sumanto et al., 2014). Indigenous Peoples in Riau Province are also allowed to make use of customary forest products based on the decision of the Supreme Court of the Republic of Indonesia Number 35/PUU-X/2012 (Gusliana & Hanifah, 2016).

Second, unlike the East Borneo's Dayak Tunjung indigenous communities who have traditional technical knowledge of shifting cultivation systems in utilizing the forest sustainably (Siahaya, et.al., 2016), Cérékang people rely on symbolic knowledge to conserve the forest. That is to say, conservation is carried out through prohibitions and rituals. However, this is not to suggest that there is no material benefit Cérékang people can gain from the sacred forest. The preservation of sacred forest has indirectly influenced the ecosystem of the river, with which the majority of fishermen enjoy in fish yields. This, however, is managed under the principle of "less is enough, more is sufficient." Moreover, the sacred forests also provide an ecosystem service in terms of regulating (Kareiva, et.al., 2011), with which the intact ecosystems of the sacred forest prevents flooding and erosion for the Cérékang people. This value was reinforced when floods struck nine sub-districts in East Luwu Regency in April-May 2019, while the Cérékang people were surprisingly protected from the flood conditions despite the fact the nine sub-districts neighbor the Cérékang people (Tribun Timur, 2019). In addition, the ethics of forest conservation also influence the daily life of Cérékang people as can be seen from the choice of using nipah leaves for the roof of their house, although the number is now in decline.

Third, the preservation of customary forests is not without its challenges. Some Cérékang people are seeking to replace the conservation ethic. As stated from the survey conducted by Gunawan (2005), there is a desire among the Cérékang people to have rights to utilize customary forests exclusively. The results of the survey showed that 47% of respondents want Cérékang forest to be utilized, 29% opted to let the forest remain as it is, and 24% agree to use it with certain restrictions (Gunawan, 2005: 9). However, the decisive influence of customary leaders (*puaq* and *langkai*) on their communities can ward off all attempts from within the community to exploit forest products located in sacred areas. Although the position of *puaq* has yet to be filled since 2015, this has not hindered the implementation of rituals in the sacred area because the role of leading the ritual is taken over by the *langkai*. This also shows that the implementation of rituals among the Cérékang people is flexible, whereby customary holders can lead the ritual if the *puaq* are absent or passed away.

Fourth, the preservation of the sacred forest does not lie solely in the hands of customary institutions. Realizing their limitations, customary institutions adapt a new strategy by cooperating with NGOs and communities of young people under the guidance of the same ethics which adheres to local knowledge and *papasseng* from the ancestral moral code. Creating maps and fixing the boundaries of customary forest

areas as well as monthly patrol activities involving young generations of the Cérékang community and supported by NGOs is an effort that can be accepted by all groups in the community as long as it is compatible with customary rules, values and belief of the Cérékang people. *Langkai* as a customary council plays a role in protecting customary forests through rituals, strengthening cultural and customary rules. Meanwhile, the role of Cérékang community organizations is to monitor the sacred forest area by involving community elements and youth. They realize that there are potential threats from within and outside of the community which might threaten the existence of the sacred forest. Hardesty (1986: 243) calls such steps an adaptation strategy; an effort to survive amid change.

The institutions that negotiate and control customary rules, rituals, and social relations are not in an ideal condition as stated by Iriani (2019). This can clearly be seen from the attitudes of the Cérékang customary leaders in approving the establishment of the LAC (Cérékang Customary Organization) and WTC (Organization of Cérékang's Youth) in 2015. Both organizations are connected to the *puaq* institutional structure, which has direct coordination with the *langkai*. The establishment of this organization, in turn, forms new awareness among community leaders and youth in Cérékang who see the need to strengthen the protection of customary forests by adopting an advocacy approach model, as many NGOs do. This is partly due to the limitation of the customary institution to carry out their supervisory function. At the same time, the activities of mining and plantation companies in the East Luwu Regency have also put pressure on the Cérékang people. The issuance of the East Luwu Regent's decree in 2019 recognizes the existence of local wisdom of the Cérékang Indigenous community (whose area of practice is located in 10 areas of the sacred forest) has provided an opportunity to receive grants for community empowerment. Nevertheless, it is still inadequate as it only recognizes local wisdom, not the status of the customary forest. The decree can also be replaced if the regent changes because it does not require parliamentary legislation to change the decree. Thus, the status of the customary forest remains uncertain.

The case of Cérékang offers a dilemmatic position for the state to grant more legitimate recognition in terms of PERDA (District Regulation) that should pass a legislation process before approval. Regarding the existence of the Cérékang people as heirs and guardians of the heritage of the Batara Guru Dynasty, there is a rivalry between Indigenous communities in the East Luwu Regency who also claim to be the heirs of Batara Guru. The phrase about Cérékang as "the hidden center of power", and Ussu as "the real center of power" (Hakim & Mahmud, 2006: 68), which is described by several experts, also contains a potential source of conflict. Therefore, if the District Regulation is issued, it should be accommodating all Indigenous communities within the district. This, in turn, does not only fuel the ongoing conflict between Indigenous communities in East Luwu Regency, but also requires the district government to consider what makes a community an Indigenous community.

5. CONCLUSION

The sustained effort to preserve the Cérékang's sacred forest is made possible by the six dimensions of TEK (actual conditions, customary governance of sacred and non-sacred area, history and cultural transmission, ethics and customary institutions, cultural identity, and cosmology), which are all reflected in the practices of the Cérékang people from generation to generation. As a result of the mythical construction around the area of the forest, the Cérékang people have developed protective attitudes towards forests that are considered sacred. Such attitudes also endure through the ethics that respect the intimate relationship between human,

nature, and gods, which is subsequently manifested through prohibitions to enter the sacred forest except for ritual, as well as by developing moral, social, physical, and even administrative sanctions to those who disobey the rules concerning the sacred forest.

Although the position of customary leaders (*puaq*) has been vacant for several years, the role of ensuring the protection of the sacred forest is taken over by the customary councils who used to be the *puaq*'s assistants. In order to strengthen the effort to conserve the forest, the customary institution cooperates with the local government, universities, and NGOs in protecting the Cérékang customary forest. They even formed a community organization, namely WTC (*Wija To Cérékang*) and LAC (*Lembaga Adat Cérékang*), which are integrated with the customary institutions. While the customary institutions play an important role in making sure that the prohibitions are obeyed by conducting rituals to respect the sacred forest as their ancestors, WTC and LAC exercise direct control over the forest by patrolling around the area on a monthly basis. The latter is conducted due to the possibility of illegal logging and exploitation from a mining company that is located near the area of sacred forest. This can be seen as an adaptation strategy to face challenges that might threaten the existence of the sacred forest. In addition, the protected sacred forests have also indirectly influenced the ecosystem of the river, with which Cérékang people have materially benefited by having enough fish to catch and preventing the increasing incidence of regional floods.

The case study we presented here offers an example of how traditional ecological knowledge contributes to sustaining the conservation of the forest. Yet, as distinct from other indigenous groups in Indonesia whose conservation of forests rely on technical traditional knowledge, Cérékang people depend on symbolic knowledge to protect their forest. Finally, Houde's (2007) framework of six dimensions of TEK that we use here is not without its limitations. We realized that this framework puts less attention on the power relations between those involved in forest conservation, especially in relation with formal state institutions. Following studies on CPR (Common Pool Resources) in social forestry programs (e.g., Herrawan, et.al., 2022), state interventions can indeed stimulate the making of a commons, whereas the program is highly likely to fail if it is not combined with collectives working from the community involved. In the case of Cérékang's TEK we can then ask another question for further research: can the conservation of forests based on traditional ecological knowledge be sustained without state intervention?

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