

# Four Transmission Patterns Traditional Ecological Knowledge (Tek) Cerekang People

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## ABSTRACT

The Cerekang people are indigenous peoples holding local wisdom who have a knowledge system about forest and river conservation and the use of natural resources. How this community transmits traditional ecological traditional (TEK) so that they can survive until now is the main question that will be answered in this paper. The theory used to answer this question is the theory of cultural transmission developed by Mesoudi (2008). Data collection was carried out in two ways, namely the library method and the field method. The results show that facing socio-ecological changes, the Cerekang people carry out a transmission strategy that can be formulated in four patterns, namely (1) The process of transmitting ancestral messages takes place vertically and horizontally, from parents to children; (b) the transmission process takes place orally and daily practical experience; (c) the main actors of transmission are parents, traditional stakeholders, and peer groups; and (d) transmission channels mainly through spoken language, imitation, and manner of dress. However, in the current era of information disclosure, to complete the above pattern, it is important to formulate a model of TEK transmission in the form of developing contextual learning materials from an early age.

**Keywords:** TEK, cultural transmission, conservation, contextual learning.

## 1. INTRODUCTION

The Cerekang people are a small community that lives in a village in Manurung Village, East Luwu District, South Sulawesi Province. Based on population data for 2020 found at the Manurung Village office, the number of residents who occupy Cerekang Hamlet is 870 people, with a total of 241 family heads. The Cerekang settlement extends along the Tomoni-Malili axis road, on the Baarat bordering the Ulas village in the east bordering Dasa Atue, Kec. Malili.

The Cerekang people are known because in addition to having a leadership system and customary holders as well as history and origins in a certain geographical area, they also have a customary forest conservation area, including its sites and rituals. There are ten points of the sacred Cerekang area, which when it became a customary forest area, namely Péngsimoni Hill, Padang Ennungngé, Bérué, Mangkulili Hill, Tomba, Ujung Tanaé, Kasosoé, Léngkong, Aggattungeng Ancéqé, and Turungeng Appancangé which in total has 694.08

hectares (Report, 2019). As a form of recognition and protection of the local wisdom of the Cerekang customary law community, the East Luwu Regent has issued a Decree Number 258/2019 (Government, 2019). This Regent's decision confirms the position of the Cerekang people as an indigenous people.

The local wisdom of the Cerekang people is connected with the myth of the creation of the earth and the presence of Batara Guru on the Pingsimaoni hill. However, in the view of the researcher, local wisdom is knowledge because it contains natural resource management, institutions, and value systems (Akhmar, 2020). Local cultural wisdom in this case traditional social and ecological knowledge is related to environmental management ethics. According to Keraf (2006:279-307), local wisdom includes all forms of knowledge, belief, understanding or insight as well as customs or ethics that guide human behavior in community life. Berkes (1993: 3) formulates the notion of local wisdom in two general characteristics: First, local wisdom is a cumulative collection of knowledge

and beliefs, passed down between generations through cultural transmission, about the relationship between living things, including humans and their environment. Second, as traditional ecological knowledge (TEK), local wisdom is an attribute of non-industrial society, ethnicity, with historical continuity in the practice of using natural resources. Furthermore, Akhmar (2020) refers to Houde (2007) in his study of the ecological culture of the Cerekang indigenous people, mapping six dimensions of traditional ecological knowledge, including; (1) factual conditions; (2) customary area management; (3) Beliefs and traditions; (4) Ethics and values; (5) Identity and culture; (6) Cosmology.

It can be said that the Cerekang people's TEK is a fairly long tradition. It is said so because there is archaeological evidence showing that a number of sacred areas of Cerekang have been inhabited since the 15th century (Bulbeck, 2013). This means that the ancestors of the Cerekang people have guarded the sacred area, which has now become the Cerekang customary forest. The strategy of the Cerekang people in transmitting their TEK from one generation to the next until now is an important knowledge to know.

The Cerekang people's TEK transmission is very relevant to cultural preservation efforts. The Cerekang people have been able to survive until now, including maintaining their customary forests because they traditionally transmit TEK to new generations. However, in actual fact the Cerekang people's TEK transmission process faces challenges, especially from the indigenous communities themselves. The closed attitude of traditional elders is indeed effective in maintaining the status of the ten sacred forest loci (Akhmar et al., 2020). However, conservative attitudes are judged by cultural observers and environmental defenders to hinder the TEK transmission process. This can be seen from the limited knowledge of the younger generation about the main values and cultural history of the Cerekang people. In the midst of the pressures of ecological change, economic demands, and global information disclosure, today's young generation is in a dilemma, even feeling the fear that the Cerekang cultural identity will be extinct in the future. Thus, in addition to the traditional transmission model, it is also important to formulate a contextual transmission model, especially to deal with socio-ecological changes.

There are three models of cultural transmission; (1) vertical (upright), the inheritance of cultural values from biological parents to their offspring; (2) horizontal (flat), intergenerational inheritance in one culture; and (3) "oblique" transmission (italics), the inheritance of values from the parent's generation to other generations who do not belong to the family (Cavalli-Sforza & Feldman, 1981; Mesoudi & Whiten, 2008). Mesoudi & Whiten (2008) add to the findings of Boyd & Richerson, conformist transmission, namely the inheritance or

copying of variants of special cultural values, the most popular or successful. The findings regarding the pattern of inheritance are expected to become contextual learning materials for the young generation of Cerekang.

In connection with the description above, there are two main issues that the author wants to study and discuss in this paper, namely: (1) What and how the Cerekang people transmit wisdom and technology, both between generations and within generations. The focus of the study on this issue is the discovery of actual patterns or practices of cultural transmission in the context of the socio-ecological changes faced by the Cerekang indigenous people today. Included in the discussion of this point is the exploration of various views on cultural transmission modeling relevant to the research theme: (2) How the Cerekang people's survivability strategies mediate and adapt to changes in their surroundings. The focus of discussion on this issue is; First, the Cerekang people's efforts to adapt to changes in behavior among the younger generation; Second, efforts to institutionalize TEK through educational channels for early age groups.

## 2. METHOD

### 2.1. Research Material

The main source of research material on the Cultural Transmission Pattern of the Cerekang Indigenous Peoples is oral stories that are told between generations, and are practiced in the form of rituals and daily habits. Oral stories passed down between generations include beliefs (myths), ancestral wills or advice (*pappaseng*), and taboos (*pammali*).

Cerekang belief refers to the myth of Batara Guru, a human god who descended from the sky (*boting langiq*) and side by side with We Nyiliq Timo from the underworld (*buri liyu*) to organize life on earth (Akhmar et al., 2020). The rituals in question include death processions, rejecting reinforcements, building houses, and marriages, while daily habits are shown by behavior such as *mappatabeq* adab (greeting for permission and respect), calling crocodiles who live in rivers as "grandmothers", pointing to certain places with a bent index finger, pointing directions with the thumb, the habit of wearing a sarong and a skullcap, including not answering (silence) to mention something sacred. In addition, the Cerekang have practical knowledge in utilizing or blending medicinal plants, catching fish without killing the fish.

During the research, the authors did not find any written materials in the form of lontaraq (manuscripts) related to the traditional wisdom of the Cerekang people. In fact, the story about Batara Guru in La Galigo's lontaraq can be accessed from other places

such as in the Luwu District and other districts. The relevant written source, not manuscript, available at the research site is the Decree of the East Luwu Regent on the Protection and Management of To-Cerekang Indigenous Peoples Local Wisdom in 2019. This manuscript confirms the local wisdom of the Cerekang people which is connected to the customary forest locus.

Research sources and materials were collected by researchers in three ways. First, field observations, especially in the Cerekang river and around the location of customary forests. Second, interviews with traditional officials, community leaders, village government officials, and indigenous youth groups. Third, focus group discussions (FGD) with representatives of community leaders, village government, education office, school teachers, village priests, NGO activists and other villagers (immigrants).

## **2.2 Data Collection**

In the process of data collection, researchers took notes, recorded audio and video by field staff. The audio and video recordings were then transcribed, and compiled. The next steps in sequence are as follows. (1) Synchronization of data material from various field sources, namely the relevance and suitability of the data with the research focus. (2) Confirmation or "recheck" the results of processing data and information with the main sources, in this case the traditional leaders to ensure their validity, including obtaining the approval of the sources regarding information that may or may not be published. (3) Description of field findings based on Mesoudi's guide questions, namely what, who, when and where, and how cultural values are transmitted vertically and horizontally. (4) Formulation of data processing results based on problems, objectives, and research outputs, namely the pattern of cultural transmission of the Cerakang people which will be developed as local content material in formal and informal learning.

All data collected by the researcher is qualitative in nature according to the characteristics of the approach in ecological cultural transmission research, prioritizing the findings of inherited values and the results of the inheritance of these values rather than statistical data analysis. This is in line with Kluckhohn's (1951) view of cultural value as quoted by Syawaluddin as "a conception, explicit or implicit, typical of a person or characteristic of a group, which is desired which influences the choice of existing modes, means and actions". These cultural values are the basis for the historical-interpretive (*verstehen*) method in the humanities.

The method of extracting and collecting data or field information in this study departs from the point of view of the research subject, namely the Cerekang customary law community. Borrowing the concept of Geertz

(1983:56-57) native point of view understands the actual reality of the subject's way of thinking in research. The researcher starts his research from the point of view of the community as a research subject (*emic*), which is different from the point of view of the research subject (*etic*). Explore thoughts, feelings, views and beliefs of the subject or informant based on daily experience (near experience).

Researchers as "outsiders" (outsiders) can control their knowledge from possible biases in understanding social changes experienced by indigenous peoples (insiders). For example, not all information presented by traditional leaders is stated explicitly (openly), and there is information that is limited (closed) for the benefit of outside parties (publication). This shows that the interests of researchers (outsiders) are not always in line with the understanding of traditional leaders (insiders), so wisdom (prudence) is needed in appreciating informational materials. That is why researchers must reconfirm and clarify the validity of field data with sources before they are formulated and published.

In general, the method used in this research is descriptive-exploration of the wisdom and knowledge of Cerekang to the present generation. The focus of description and exploration is on oral stories and daily habits of people inside and outside the household. If the interviewee considers that it is forbidden to tell myths to others, then it is necessary to deepen the information through 'live-in'. and daily habits of research subjects. This technique requires sensory sensitivity in observing, listening, digging for information and conducting "probing" in the form of clarification of informants and sources.

## **2.3. Data Analysis and Theory Used**

Various field findings will be analyzed from the point of view of leading theories of social change, cultural evolution and cultural transmission, including the following:

- a. Approaches in understanding the process of cultural change, namely the ecological and evolutionary approaches from Varnum & Grossmann (2017), as well as the views of Gangestad et al. (2006:78) regarding the mechanism of psychological adjustment in studying and obtaining cultural variants. In addition, Gangestad et al. (2006:79) and Morin (2016:31) refer to Tooby and Cosmides (1992) introducing the term "evoked culture" as a psychological adaptation strategy.
- b. The concept of cultural evolution from Morin (2016: 23) that a tradition will develop or become extinct depends on the continuity of the cultural transmission pattern of its people. Cultural transmission is the process of acquiring various

competencies that are introduced by society to the current generation. Personality traits that are endemic (typical, unique) to a particular culture can be used to describe prevailing institutions, rituals, or beliefs.

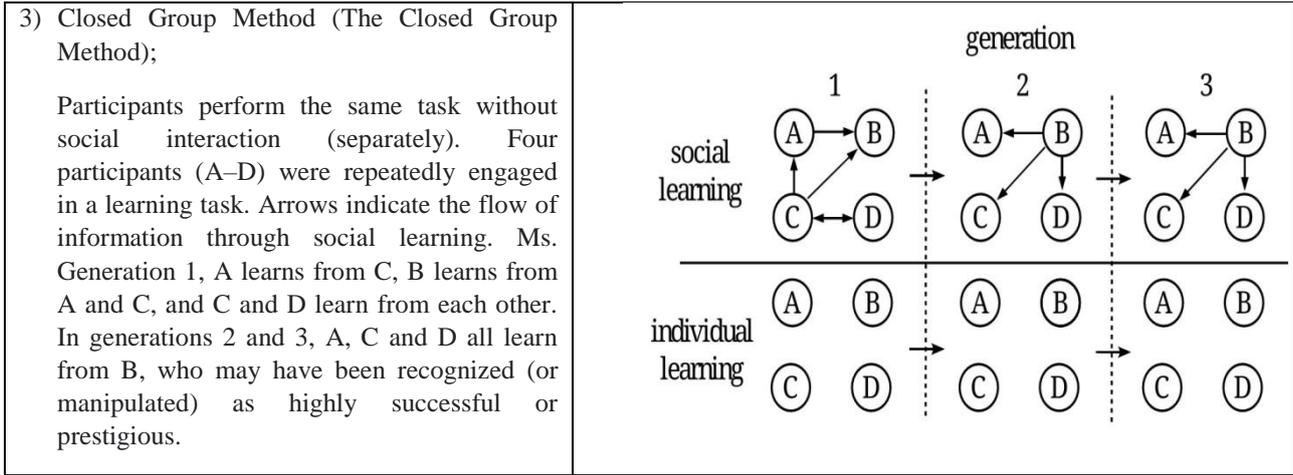
- c. The theory of cultural transmission from Mesoudi & Whiten (2008: 3489) and El Mouden et al. (2014) stated that cultural transmission is the process of transmitting information between individuals through social learning such as imitation, teaching, and language. This process is different from the transmission of information through genetic inheritance, and by individual learning without the influence of others. Mesoudi et al. (2004) states that the evolution of biological organisms can be observed in human culture through (1) cultural traits such as beliefs, attitudes, skills, knowledge, vary between and within individuals and groups; (2) not all cultural traits tend to be equal in the preservation and copying of values because of competition for expression, attention or memory

space, some ideas are more memorable or interesting than others, and some models are more likely to be imitated; and (3) cultural characteristics are inherited or transmitted through social learning;

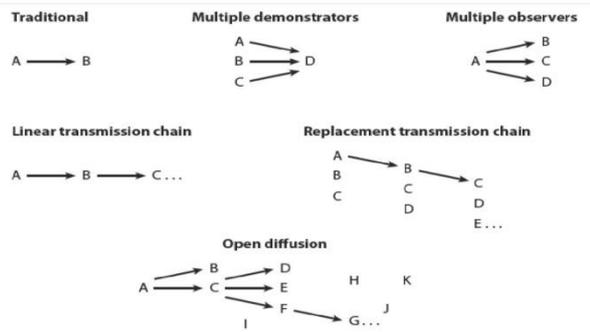
- d. Mesoudi & Whiten (2008) with reference to Laland (2004) formulate the following questions. (1) What is copied, i.e. what types of information are easiest to remember and most frequently sent?; (2) Who was copied, i.e. the identity of the model from whom the information was obtained?; (3) When is the individual copying, for example is copying more likely to be done when the task at hand is easy or difficult, when the environment is constant or changing?; (4) How does the individual copy, for example using imitation, emulation, spoken or written language?. Laland (2004) inserts the terms “contextual imitation” and innovation as a process of social transmission or social learning strategies.

The author summarizes several models of cultural transmission according to Mesoudi and Laland, which are as follows.

<p>1) Linear Model (Linear Transmission Chain Method);</p> <p>Typical transmission chain study design, where information from the main source (original material) is passed through a parallel chain of participants (circles); four chains (A – D), each consisting of four generations (1-4).</p>	<p>The diagram shows 'original material' on the left. Four arrows branch out to four parallel horizontal chains labeled A, B, C, and D. Each chain consists of four circles representing participants, numbered 1 through 4 from left to right. Arrows connect the circles in each chain from left to right, indicating the flow of information through generations.</p>
<p>2) Replacement Model (The Replacement Method);</p> <p>Typical surrogate study design. Four participants (A–D) were involved in the learning task, and in each generation one group member was replaced with a new participant.</p>	<p>The diagram shows four vertical columns representing generations 1, 2, 3, and 4. Each column contains four circles representing participants. In generation 1, the participants are labeled A, B, C, and D. In generation 2, B is replaced by C, C by D, and D by E. In generation 3, C is replaced by D, D by E, and E by F. In generation 4, D is replaced by E, E by F, and F by G. Vertical dashed lines separate the generations, and horizontal arrows show the progression from one generation to the next.</p>



**Figure 1** Three Transmission Chain Models According to Mesoudi (2008)



**Figure 2** Several Models of Social Transmission (Social Learning)

(Source: Hoppitt & Laland, K.N. (2013)

Information:

- Assuming the “demonstrator” (individual A) is the perpetrator of the transmission; The “observer” (individual B) is the recipient of the message.

### 3. RESULTS

#### 3.1 Cerekang Local Wisdom Values

##### 3.1.1 Believing in the Message of the Ancestors

The Cerekang indigenous people have the ability to institutionalize an intergenerational system of ecological beliefs and knowledge. Bullbeck (2013) has proven that the ancestral civilization of the Cerekang people existed before the 15<sup>th</sup> century. Some of the sites studied included Pinsimoni, Berue, Katue, Tampinna hills, where old tombs, ceramics, iron ore, resin charcoal, and glass beads were found. The location of the site is now a sacred forest area.

These sites are linked to the source of the story about the origin of man on earth (Alélino). Cerekang or Cerekeng comes from the Bugis word cérré, which means "to be poured". Like pouring water from the sky

to the earth, rivers, plants, fields, mountains, and animals are created which later become the Cerekang human cultural ecosystem. All of this is believed to be a gift from Batara Guru.

In places (toponyms) in the form of sacred forests, it is a sign of the life of other creatures, "not ordinary humans" (*tenniarupa tau*) (FGD 22 May 2021) so that the Cerekang people as "ordinary humans" (*padannarupa tau*) are obliged to preserve the environment in the behavior of everyday life. In that place, the Enrékeng ritual is carried out (Dianafitry, 2017:15) as a tribute to the ancestors, the place where the origin of food and non-food sources that provide safety and prosperity for the children and grandchildren of the Cerekang people.

##### 3.1.2 Egalitarian Leadership and Equality

Egalitarian from French, egal, egalite or egalitaire, which means the same, there is no difference, has equal rights between humans (Department, 1989: 364). From this egalitarian understanding, it can be said that the culture of an egalitarian society is the attitude of everyone in human groups who share a common area, and have organized themselves for survival and preserving ways to live independently without any differences in degrees and levels. Equalitarian leadership is leadership that gives equal rights to every citizen or citizen to become a leader.

The traditional institutions of the Cerekang people reflect the values of humanity, simplicity (egalitarian), and gender equality. This is reflected in the institutional structure of adat stakeholders that follows the anatomy of the human body, namely the ulu (head), pangulu (shoulder), salangka (waist), and aje (legs). Customary holders are led by a man and a woman, not husband and wife, whose position is called puaq. The male puaq takes care of the human relationship with the Creator (God). Puaq women take care of human customs with nature.

Every Cerekang can become a puaq as long as they receive grace (pammase) and guidance (were) from their ancestors, not based on lineage. The election process was not through deliberation for consensus, but the suitability of signs obtained through dreams or ideas among traditional apparatus. This mechanism is stated in the following advice.

“Narékkko engkai pole, namuakkeda déppi, wedding mancaji poison ri alédé. Makkotopa ro narékkko déppi pole, namuakkeda engka ni, wedding toi mancaji toxic ri alédé” (Information of traditional elders in interview/FGD, 20 June 2021).

Translations:

"If a sign comes to you and you admit you haven't (deny), then it can be poison for you, and vice versa."

The egalitarian leadership of the puaq can be seen in its orientation that prioritizes service and introspection as stated in the leadership principles, namely *appurisseng ri tau maegae* 'serving the community' and *makkalinong ri wang-mpajang* 'seeing one's own face in the mirror' (Akhmar et al., 2020).

The Cerekang people have always been social. If a family is having a wedding celebration, then he/she must distribute food to every resident's house in Dusun Cerekang (interview with Bu Ani on September 23, 2021). Likewise, if there are residents who die, then other residents come to the funeral home to help. As an expression of equality at the time of mourning, male residents wear a sarong and skullcap (Observation on 21-22 September 2021).

### *3.1.3 Conservation and Disaster Mitigation*

The Cerekang people have a cultural ecological knowledge system regarding ten customary forest areas (*pangngaleq adeq*). This knowledge is believed to have originated from Batara Guru's teachings on the balance of nature such as "cultivating crops without destroying nature"; eat the flesh of animals and fish without causing the animals to perish and without making the river water cloudy"; "protecting forests and rivers from damage is the same as maintaining harmonious relations with ancestors". In the words of the Cerekang people, *narékkko mujamai pangngaleq adeqmu, makkasolang ri wanuammu* 'If you cultivate your customary forest, it will cause damage to your country. This expression means that if customary forests are destroyed, the country will be hit by a disaster.

Cerekang people only know about forest conservation (conservation and preservation). They do not know the concept of exploitation. Utilization of

natural resources outside the customary forest area (*pangngaleq*) is only for subsistence needs, consumption, the rest is marketed. In buying and selling, they are not oriented to the accumulation of profits (capital). As a result, the forest and water ecosystems are still maintained, and the Cerekang people are protected from forest fires, landslides and floods. One proof, in April-May 2019, floods hit nine sub-districts in East Luwu. River water overflowed and inundated the surrounding villages. In Malili sub-district, the worst flooding occurred in Ussu village and Puncak Indah village. Meanwhile, Manurung Village was not affected at all (Tribun Timur, 2019).

### *3.2 Patterns of Cultural Transmission*

To the best of the author's knowledge, no research has been found that comprehensively describes and analyzes the inheritance pattern of ecological cultural values and local wisdom of the Cerekang people. Several studies, which also focused on the Cerekang hamlet, Manurung village, East Luwu Regency, only described aspects of cultural heritage, without a systematic theoretical framework. Sarah's research (2019), which documents puaq leadership values; Dianafitry (2017) describes the *Enrekeng ritual*, a ceremony to release one's bowels (*tinjaq*). There are also several theses that study the Cerekang indigenous community (Anriani, 2016); the traditional taboos of the Cerekang people (Novianti, 2018); and the role of the *Wija* indigenous youth of the Cerekang people in forest conservation (Anas, 2019).

Thematically, the research results are relevant to the author's study. The data and field information they provide is very helpful for the author in completing the understanding of the traditional wisdom of To Cerekang. However, their exposure and interpretation focuses on myths in the concept of local wisdom. They lack knowledge of traditional culture and ecological knowledge. The framework of thought and methodology that is not clear makes the research seem to only meet the requirements of a writing project.

Another research in a different location, but relevant to the problems and approach used by the author, is the Pongsibanne study (2019) on the transmission of values in Pesse culture. According to Pongsibanne, the transformation of culture into the education system can be done in two ways, namely revitalization and inheritance of local wisdom values. Pongsibanne refers to the concept of cultural transmission from Cavalli Sforza and Feldman (1981) which includes three processes: (1) vertical (vertical) inheritance, the transmission of cultural traits from parents to children and grandchildren; (2) Inheritance horizontally (horizontal), namely peer learning from during development, from childhood to adulthood; (3) Oblique inheritance, when a person learns values from the adults around him, and from formal and informal/informal

institutions. However, Cavalli-Sforza and Feldman's theoretical framework is less explored as an analytical tool.

The author also departs from the theoretical basis of Cavalli Sforza and Feldman. However, the analytical method used by Cavalli Sforza is very scientific, based on the study of genetics in human biological evolution. According to the author, Cavalli Sforza does not explore cultural (ethnographic) values as characteristic of humanities research that prioritizes historical-hermeneutic analysis. The author tends to use the framework of Mesoudi (2008) and Laland (2004). Mesoudi is a professor in the field of cultural evolution who develops a synthesis method of cultural evolution with various scientific disciplines such as psychology, anthropology and sociology. Mesoudi also referred to Laland, professor of biology, who developed a synthesis of ideas for biological evolution in human behavior.

In the author's understanding, the approach used by Mesoudi and Laland is easier to operate. Both academics have a suitable description and analysis model in studying the process of social and cultural transmission. Mesoudi developed three transmission links with a focus on the question "who, what, when, and how is the process of cultural transmission" (Mesoudi, 2008:3489). While Laland (2004: 5) has a model of social learning strategy (social transmission) with the question guide "when, who, and what strategies."

**3.3 Description of Field Findings**

Based on the results of the description and data exploration using Mesoudi's intergenerational transmission model, the authors detail some interesting findings for discussion, namely as follows.

**Table 1.** Description of Research Findings

No.	Transmission Pattern	Description Finding
1.	Message, which is the most frequently communicated and remembered ecological knowledge.	a. Prohibition and sanctions for To Cerekang entering the sacred forest; b. Abstinance from eating Manurung bananas; c. Prohibition of throwing leftover food in the Cerekang river; d. Prohibition of making noise on the boat on the way to the cemetery area; e. Prohibition of wearing head coverings and footwear when entering the cemetery area.
2	Transmitters, namely agents who carry and receive messages (demonstrators and observers).	a. Parents (father/mother), the main perpetrators of transmission in the household (home), and at work (outside the home); b. Customary apparatus (puaq), the main actors in transmitting traditional wisdom (customary institutions, myths), especially customary decisions related to rituals; c. Leaders of customary institutions, main actors in transmitting traditional and general knowledge, as coaches, as well as liaisons for indigenous peoples with other parties (government, NGOs, etc.); d. Community leaders are village elders who act as resource persons regarding customary institutions and traditional knowledge, as well as serving as liaisons for traditional apparatus with other parties; e. Village government officials, play a role as coaches for indigenous peoples, and coordinate traditional leaders ( <i>tomas</i> ), as well as administratively function, including funding customary institutional activities. f. Indigenous youth, message recipients (observers), peer learning groups, and play a role in implementing customary rules regarding the preservation of customary forests.
3	Time and place, which are important moments of interaction and message transmission involving actors.	a. At the time of delivering the corpse down the river, to the burial area; b. When building and upgrading a new house; c. At the time of the wedding party; d. At the time of fishing in the river; e. At the time of planting and harvesting rice in the fields.
4	Method of Inheritance, namely the practice of receiving through transmission channels (verbal, behavior, rituals, institutions)	a. Ethics (appropriateness) and norms of behavior of young people (children) to parents; b. Ethics and behavioral norms in naming ancestors; c. Ethics and behavioral norms in appointing a sacred place; d. The habit of using sarongs and skullcaps as a collective identity. e. Institutionalization of local wisdom through the establishment of the Indigenous Institution and the Wija To-Cerekang indigenous youth group; d. The network advocates for policies to protect local wisdom and customary forest areas.

Source: Processed from the results of interviews and FGD (2021)

Based on the data presented in scheme 1, it can be stated that three models or variations of TEK transmission are as follows.

- a. The Cerekang people's TEK transmission model is generally still traditional – household-based linear, ie from “grandmother to parents to children”, and so on (models A – B – C). The main messages or themes that are transmitted are myths and local wisdom as original materials.
- b. There are variations in transmission that take place outside the household, for example from traditional leaders to the younger generation with a "multiple observer" pattern, where the head of the Cerekang Traditional Institute (demonstrator) conducts social learning (social transmission) to Wija To-Cerekang youth (observer) ( models A – B + C). The main messages or themes that are transmitted are myths and local wisdom as original materials.
- c. In addition to traditional institutions, village government apparatus (hamlets) and community leaders (teachers) also play an important role in the transmission of myths and local wisdom of the Cerekang people, so that the transmission pattern that takes place is the “multiple demonstrator” model (model A+B – C+D).

### **3.4 Forms of Cultural Transmission**

Based on the results of data analysis using the traditional and linear transmission methods above, the authors formulate the basic pattern of inheritance of traditional ecological knowledge of the Cerekang people as follows.

#### **3.4.1 Traditional and Linear Transmission**

The process of transmitting ancestral messages (paseng) takes place vertically and horizontally from parents to children, inside and outside the household. The vertical transmission of values that takes place in this household is closed, where both parents emphasize the values of obedience (adab/behavior), prohibitions and taboos (pammali) rather than the knowledge (rationality) contained in these values. Transmission outside the household is carried out by parents and adults to children in the form of practice in the workplace such as under the house, in the garden or in the river – a kind of “learning by doing”. The transmission process takes place naturally (trial by error).

The process of horizontal transmission takes place intuitively through everyday practical experiences, which they call Makkita (hearing, seeing and experiencing). Children and teenagers can witness various rituals such as funeral processions, births,

marriages, house building, and other rituals. There is no mechanism for transmitting values or social learning through a "special room" by certain traditional leaders such as in the pesantren education tradition (*makkanre guru*). However, there is an initiative from community leaders to institutionalize learning groups among the younger generation (*wija to-cerekang*) in collaboration with NGOs.

Vital transmission channels are oral tradition, imitation, and the institutionalization of local wisdom values. To Cerekang is no longer good at writing and reading the lontaraq script. They also no longer have a lontaraq (manuscript) manuscript. They rely on face-to-face verbal communication as their ancestors did. Communication with digital devices (android) only discusses everyday issues, not traditional learning media.

An effective transmission channel is through imitation of behaviors such as shaking hands etiquette, receiving guests, sitting (cross-legged), the habit of using sarongs and skullcaps, and gestures such as pointing at certain directions and places. Emulation or attempts to modify local knowledge are difficult to develop because collective awareness limits individual freedom not to act beyond the rules. They are afraid of insects, so they adapt to new values.

#### **3.4.2 Closed Group Transmission**

The main actors (agents) of transmission are conservative groups, namely parents in the nuclear family, as traditional holders and community leaders. Their average age ranges from 50-70 years. The pattern of inheritance and learning tends to be closed, limiting the process of transmitting knowledge to customary rules, prohibitions or taboos. For them, logical interpretation, details of myths are taboo for children and adolescents. As a result, the knowledge of the younger generation is very limited to what they see, hear and experience, and understand local wisdom in a generic way, and it is fragmented. For parents, obedience as a daily learning process is more important than narrating myths.

However, the traditional elders are aware of the threat of value changes afflicting today's young generation such as the influence of formal education, religious sects (Wahabi-Salafi), social media, economic pressures, and urbanization (FGD results dated 22 May 2021). Recognizing this threat, several community leaders who are members of the Cerekang Indigenous Community Institution in collaboration with the village government and NGOs formed the Wija To-Cerekang (WTC) organization. This group effectively functions as a patrol team for monitoring customary forests, while sharing general knowledge. They actively share forest

and beach patrol activities in the form of photos and videos on social media (facebook, youtube). The author did not find complete information about local wisdom posted by the Cerekang people themselves. Apart from feeling “limited” by customary rules, their knowledge is limited to what their parents have told them.

### *3.4.1 Conformist Transmission (Adaptive)*

A relatively new transmission process is the institutionalization of the local wisdom of the Cerekang people into two strategies. First, the establishment of the Cerekang Customary Institution, whose members are traditional community leaders, not including the traditional puaq apparatus. This is done in an effort to overcome the stagnation of the puaq leadership. In 2010, Lante Daeng Pasewang, the last Cerekang male puaq passed away and then followed by I Sehe, the female Cerekang puaq died in 2015. Since the death of these two puaqs, the puaq position has been vacant. Cerekang people no longer have a male or female puaq, because there has been no sign of a successor birth until now. Second, along with the existence of the Adat Institution, Wija To-Cerekang was organized as indigenous youth cadres in 2015. Both institutions have an effective role in facilitating Cerekang traditional learning as well as networking with the government and NGOs. One of the results of the work of these two institutions is the recognition of the local wisdom of the Cerekang people by the East Luwu Regent in 2019.

## **4. DISCUSSION**

In the introductory section, the two main issues that the author wants to study and discuss in this paper are as follows. (1) What and how the Cerekang people transmit traditional ecological wisdom and knowledge between and within generations. The focus of the study on this issue is the discovery of actual patterns or practices of cultural transmission in the context of the socio-ecological changes faced by the Cerekang indigenous people today. Included in the discussion of these findings is the exploration of various views on modeling of cultural transmission that are relevant to the research theme. (2) How does the Cerekang people’s survivability strategy mediate and adapt to changes in its surroundings. The focus of the discussion on this issue is the efforts of the Cerekang people to adapt to changes in behavior among the younger generation; and efforts to institutionalize TEK through formal education channels.

### *4.1 Ecological Culture of the Cerekang People*

The term ecological culture in this paper is not in the context of the study of cultural ecology. The author uses the term ecological culture to represent the concept of traditional ecological wisdom and knowledge. In the context of the Cerekang people, the term refers to the cultural practices of indigenous peoples that make

aspects of conservation, living in harmony with nature (harmony), equality, and ecosystem balance as the main considerations in cultural, social and economic interactions.

The cultural ecosystem of the Cerekang people is myth and conservation of natural resources, which is a unified concept and practice. Myth is the first source of knowledge (original) wisdom and knowledge of traditional ecology. So preserving and protecting the ecology of customary forests is an implementation of Batara Guru's teachings. On the other hand, institutionalizing and passing on ecological cultural values is an obligation for today's To Cerekang generation. Ecological culture that is institutionalized and passed down between generations includes stories (pappaseng), ethical behavior (pammali), rituals and customary institutions. All of them are connected with forest and river ecosystems.

The results of the analysis of the field findings show that the ecological culture or traditional ecological knowledge of the Cerekang people are and will continue to face challenges, especially from external factors. This is a necessity, considering that their cultural ecosystem is integrated with the dynamics of social and economic development around it.

### *4.2 Cerekang Cultural Transmission Patterns*

The results of the analysis of field findings show that the general pattern of transmission of traditional ecological knowledge of the Cerekang people follows the Mesoudi concept (2006), including vertical (upright), horizontal (horizontal), and oblique (slanted) transmissions. The characteristics of these three transmission patterns are intra and intergenerational. Both message, actor (Laland - demonstrator and observer), momentum, means and channel of transmission are in the same cultural locus. However, the author specifically identifies the involvement of other actors, not Cerekang people through social learning channels. This external factor is quite influential in strengthening the traditional conservation knowledge of the Cerekang people.

The basic pattern of cultural transmission of the Cerekang people takes place in a traditional-linear manner and therefore tends to be closed. There are models or forms of conformist transmission, namely the tendency to adapt or imitate the tendencies of others, copy the most popular variants or cultural characteristics of group members who are considered successful. An example of this case is the formation of a community organization and a youth organization Cerekang. These two institutions are not included in the traditional puaq apparatus, but the process of their formation is driven by NGOs with the same goal, namely conservation and recognition of customary land management rights. Mesoudi (2006) refers to Boyd & Richerson (1985),

understanding it in terms of ontogeny, a kind of learning strategy by adapting knowledge from other people and institutions.

From the perspective of social learning strategies as the concept of Laland (2004), the conformity of cultural transmission of the Cerekang people is characterized by multi-stakeholder or "multi-demonstrator" characteristics. Learning takes place not only through imitation, but also emulation and innovation. This process involves several transmission agents (multiple demonstrators) in one population, such as parents and Cerekang traditional leaders, as well as village government officials, related agencies, and NGOs. The cultural values transferred include general information and knowledge, for example how to understand the rights of indigenous peoples, forestry and environmental laws and regulations, forest area mapping techniques, as well as mangrove and coral reef conservation.

Specifically, the social learning of the Wija To-Cerekang indigenous youth, which was initiated by the Adat Institution in partnership with an NGO in the Sikola Kampong program, is not included in the cultural evolution framework proposed by Mesoudi and Laland. It is more appropriate if this is explained by a socialization approach. Referring to Berns (2004: 73-74) as quoted by Barokeng, the socialization process is through apprenticeship (apprenticeship). Apprenticeship is an effort to transmit an activity that requires structured skills by means of guided participation. The stages start from structuring, collaborating, and transferring responsibility for the implementation of activities from actors (parents, demonstrators) to recipients (youth, observers).

### ***4.3 Bias of Cerekang Cultural Transmission***

The assumption of traditional and linear transmission methods that the message material or information content (knowledge) from the sender to the recipient (copy) is not always exactly the same understanding. It's like simulating effective communication techniques through a "chain message" game, it is likely that the message content will be biased from the first person to the next person. The effectiveness of the message is influenced by several factors such as the capacity of the actor, interest (mood), the situation, or the content of the message. Likewise, the transmission of culture and behavior is not always neatly arranged along the chain.

Bartlett's (1932) study in Mesoudi (2006) on the folklore of indigenous Americans shows this. Along the transmission chain there is a shortening of the message material and the omission of many details, what remains is the subject matter (core) of the message. The worst condition, namely distortion, can occur if the message is passed on between generations of different cultures. Bartlett finds that Native American folklore, which

contains many elements of the supernatural, makes no sense, is removed or replaced by events that are more familiar to British Americans. Whereas folklore has a story scheme (schemata), a distinctive structure, easy to remember, should be more accurate when transmitted. Therefore, in a social learning strategy, it is necessary to reconstruct the core message that is still remembered based on the existing knowledge structure or schema.

In the context of the Cerekang people, cultural transmission bias (messages and stories) also occurs, as described below.

- a. The ancestral messages are still being transmitted to the younger generation. However, the content of messages received by the younger generation is general, not complete (detailed), but substantive (original). The message bias expressed by the younger generation is due to the Cerekang people's value transmission system being traditional, based on parents in the household, conservative, and tending to be closed. However, the author realizes that the closed transmission model does not always have a bad impact. The fact shows that it is this conservative (closed) attitude that forms To Cerekang's adherence to customary rules, to traditional conservation;
- b. Customary forest areas are still sacred, protected, and even fought for at the local government policy level. At first glance, there is a contradiction between the act of sanctifying customary forests on the one hand, and advocacy on the other. However, the author also realizes that these two things are actually To Cerekang's ecological culture "politics" strategy, namely harmonizing traditional conservation with advocacy strategies.

The traditional politics of ecology as social intelligence (local genius) of indigenous peoples is discussed by Berkes (2008: 254-258) that the use of local wisdom is political, so it can be understood that the closed tendency of indigenous peoples is "political-ecological" which distinguishes it from "economic-economy". political". Berkes refers to Greenberg and Park (1994) that the concept of political ecology is the historical development of the relationship between society in its political and cultural ecological complexity. This is different from the tendency of political economy, which reduces the relationship to a social construction, ignoring ecological relationships. This opinion is reinforced by Bauer (2008) who divides four categories in understanding political ecology; (1) how to interpret and negotiate biophysical (forest) ecology; (2) the strategy of the contesting parties in the utilization of natural resources; (3) the dialectic between ecology and society; (4) environmental policy practices.

- c. Traditional rituals are still practiced and led by traditional officials at funerals, grave visits, weddings, and house building. Rituals related to customary forests involving all Cerekang people such as the Enrekeng ceremony and rejecting reinforcements are no longer practiced since the death of the last puaq in 2015. The process of transmitting culture from traditional elders to the younger generation takes place temporally, partially and domestically.
- d. The Cerekang people still adhere to customary rules, especially those related to customary forests and rivers. Likewise with the taboo on eating Manurung bananas. All of these are accepted as rules that must be obeyed by the younger generation without ever getting a rational explanation.

#### **4.4 Cerekang Cultural Survival Power**

Social change is a necessity experienced by the Cerekang people. The impact can be seen in property ownership such as televisions, refrigerators, rice cookers, private vehicles, and cell phones. Some of their children are educated, become village government officials, administrators of social organizations, teachers, and employees. In addition, the influence of Islamic teachings also enriched the ritual practices of the Cerekang people. For example, the Dusun Imam or Village Imam is involved in death rituals, and becomes a Koran teacher for Cerekang children.

An interesting finding from this fact is that the Cerekang people still survive as indigenous peoples. They still inherit ancestral messages, adhere to customary rules, and practice traditional forest conservation. Even the Cerekang people can accelerate their ecological culture in local government policies, and obtain written recognition as indigenous peoples. This acknowledgment sets a precedent for other indigenous peoples, especially in East Luwu district to get the same rights.

From the perspective of adaptation management, the cultural survival of the Cerekang people can be explained by the theory of ecological and evolutionary change. Murtiningsih (2020: 53) quotes Van de Vliert (2013) that the ecological approach views cultural changes or cultural variations due to ecological changes. In the context of the Cerekang people, there are pressures on economic development, decentralization, and lifestyle (modernization). However, in this crisis, according to Gangestad et al. (2006:78-79) humans have the ability to adapt psychologically. With this ability, humans learn influential cultural elements such as ideas, tools, dialects, and develop cultural variations in order to survive.

In the evolutionary approach, according to Dawkins (2006:189-201) cultural change is analogous to genetic

evolution in living things. Like genes in living things (genemanship), humans have traits (replicators) that are passed down across generations, so that culture also survives. Biologically it is called a gene, in culture it is called a "meme" which is found in stories, songs, ideas, sayings, styles of dress, how to build a house, including knowledge of concocting medicinal plants. These cultural memes reproduce themselves through a process of imitation (mimesis) or even imitation (Dawkins, 2006:192).

In connection with this opinion, Murtiningsih (2020: 54) refers to Varnum & Grossmann (2017) continuing that the survival of a cultural meme lasts as long as the meme supports or is not counterintuitive (minimally counterintuitive). Memes that support human survival will facilitate the process of cultural transmission. If the opposite happens, it will result in the culture being threatened with extinction or humans "failing to survive".

Thus, survival from the point of view of the Cerekang people can mean a process of acculturation and enculturation that takes place simultaneously (parallel). Acculturation occurs naturally experienced by individuals and groups as a consequence of To Cerekang's openness to influence and interaction with the public. At the same time is enculturation, the process of strengthening the local wisdom values of the Cerekang people through daily social learning. From the author's point of view, the process of acculturation and enculturation is a strategy to maintain the ecological culture of the Cerekang people.

#### **4.5 Follow-up Ideas: Institutional Strategies**

According to the author, the traditional ecological knowledge of the Cerekang people is very relevant to efforts to maintain culture, in this case the development of contextual learning materials from an early age. The target for the development of social (and digital) learning models is the younger generation, especially elementary and middle school students while still respecting the ethics of inheritance and the limitations of learning materials.

Regarding the idea of transmitting culture through formal educational institutions (schools), the traditional elders did not reject it, but did not fully support it either. This idea can be developed as long as it is approved by the traditional elders. The learning materials that can be taught are general knowledge about ecology, especially the function of customary forest conservation, cultivation, and local wisdom that has been determined by the district government.

Based on the field findings and the model of cultural transmission of the Cerekang people, the authors propose important and relevant ideas for cultural preservation efforts through local content in formal and informal education, as follows.

**Table 2.** Local Contents Contextual Education Materials for the Cerekang

No.	Learning Materials	Content	Learning Objectives	Agent
1	Cerekang people's beliefs about the forest and its cultural ecosystem.	<p>Prohibition and sanctions for Cerekang people entering the sacred forest;</p> <p>Abstinence from eating Manurung bananas;</p> <p>Prohibition of throwing leftover food in the Cerekang river;</p> <p>Prohibition of making noise on the boat on the way to the cemetery area;</p> <p>Prohibition of wearing head coverings and footwear when entering the cemetery area.</p>	Understanding (internalizing) the values of tolerance, and acceptance of differences in customs between different cultures;	Leaders of traditional institutions, community leaders; and teacher.
2.	Customary institutions and values of puaq leadership.	<p>Customary institutions and values of puaq leadership. Ethics (appropriateness) and norms of behavior of young people (children) to parents;</p> <p>Ethics and behavioral norms in naming ancestors;</p> <p>Ethics and behavioral norms in appointing a sacred place;</p> <p>The habit of using sarongs and skullcaps as a collective identity.</p>	Actualizing (socialization) customary institutions, norms and ethics of intergenerational and intercultural interactions;	Leaders of traditional institutions, community leaders; teacher, and indigenous youth.
3.	Ecological culture of the Cerekang people.	<p>Knowing the functions of customary forest (pangaleq adeq) and ordinary forest (pangaleq);</p> <p>Local government policies regarding the recognition and protection of the Cerekang customary forest;</p> <p>Identification of plant and animal species (flora and fauna);</p> <p>Natural resource conservation and disaster mitigation.</p>	Enriching knowledge about environmental conservation (forests, rivers), and their functions as the main source of livelihood for indigenous peoples, as well as mitigation functions.	Leaders of traditional institutions, community leaders, teachers, village/regional governments, and NGOs.
4.	Knowledge, expertise and technology for the cultivation of agricultural, plantation and fishery commodities.	<p>Utilization of food crops and health care;</p> <p>Utilization of wood for housing and work equipment (house and boat architecture); natural (organic) farming system;</p> <p>Utilization of nipa palm, mangrove, and coral reefs;</p> <p>fishing techniques and fish farming.</p>	Documenting indigenous knowledge and technology, and motivating the younger generation to replicate or practice it.	Traditional leaders, community leaders, teachers, and NGOs.
5	Cultural defense.	Tangibel and intangible cultural heritage;	Growing collective awareness of the importance of local cultural treasures in	Teachers, humanists, academics, and the

	<p>10 National Cultural Advancement Objects (Law of the Republic of Indonesia Number 5 of 2017 concerning the Advancement of Culture);</p> <p>Cultural order in the era of technology and digital-based education.</p>	<p>the digital era, as well as the opportunities for their use.</p>	<p>Department of culture/ tourism, and NGOs.</p>
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## 5. CONCLUSION

The material for transmitting culture and knowledge of traditional ecology (ecological culture) of the Cerekang people comes from myths, which contain beliefs (*paddisengeng*), advice (*pappaseng*), rules (*pammali*) on conservation and preservation of forest resources. The contents of the transmission material are the values of simplicity, harmony, equality, harmony, and self-awareness. These ecological cultural values are transmitted through oral stories, rituals, daily behavior, and customary institutions. Transmission takes place vertically, from parents to children; horizontally, between adults such as traditional officials and community leaders as well as between generations or peer groups outside the household; obliquely, from all adults as well as traditional institutions and social organizations to the younger generation.

The dominant pattern in the cultural transmission of the Cerekang people is family (household), traditional, linear (straight), and tends to be closed. It is found that the conformist (adaptive) transmission model is relatively open to relevant knowledge, which comes from individuals, groups or other institutions as a social learning process. This transmission pattern is an adaptation strategy (enculturation and socialization) which aims to strengthen or (maintain) the ecological culture of the Cerekang people.

It can be said that the cultural order of the Cerekang people will undoubtedly experience changes as a consequence of their openness to all circles of society. As far as the author knows, the impact of these changes is evident in the physical aspects (economy, infrastructure). The value aspect (culture) is relatively maintained in line with the belief (consistency) of the Cerekang people in the conservation of customary forests. The institutional aspect (*adat*) has also changed, in the sense of adapting as a strategy to complement the role of the *puaq* adat apparatus in dealing with outsiders. However, rituals related to tradition are still performed by existing traditional instruments.

Under these conditions, it is possible to develop a model of transmission of ecological knowledge of the Cerekang people through formal and informal educational institutions. This idea is also part of the strategy of enculturation and socialization of ecological

culture in the context of maintaining the culture of the Cerekang indigenous people.

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