
**ADAPTATION STRATEGY AND OF TOPO DA'A REMOTE
INDIGENOUS COMMUNITIES SURVIVABILITY TO CLIMATE
CHANGE IN THEIR SETTLEMENT ENVIRONMENT
(CASE STUDY: LEKATU DA'A TOPO SETTLEMENT IN CENTRAL
SULAWESI PROVINCE)**

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ABSTRACT

KEYWORDS

Adaptation,
Survivability, Remote
Indigeneous Community
(KAT), Topo Da'a,
Kaili, Lekatu

Topo Da'a is one of sub-ethnic of Kaili tribe in Central Sulawesi, Indonesia. This Isolated Traditional Community or Komunitas Adat Terpencil (KAT) originally is nomadic people who live in Kamalisi mountain forest area. Generally, this society live in mountain area either in highland area, mountain slope, or lowland area. Topo Da'a Lekatu settlement is the only settlement of Topo Da'a that located in Palu city administrative region. This settlement is in lowland area that near from central area of Palu city. Aim of this study is to know how adaptation strategy and community survival ability against climate change environment around their living area from inside the mountain forest area with low temperature then live in lowland area the near the center of the city with high temperature. Qualitative method with phenomenological approach applied in this research. Data collection is purposive sampling with snowball sampling technique. Data analysis is inductive with three steps of selection or reduction, which are phenomenological reduction, eidetic reduction, and transcendental reduction. The research results found that the main factors of survival were economic factors and customs. Apart from that, the settlement location is close to schools and markets. Meanwhile, the adaptation strategy is to adjust to different climates, by creating relaxing or gathering space outside their house and sometimes they sleep in the farm that located on the mountain.

INTRODUCTION

Kaili Da'a tribe is one of Remote Indigenous Communities (KAT) that exist in Central Sulawesi. This tribe is sub-ethnic of Kaili tribe other than Kaili tara, Kaili Unde, Kaili Ledo, Kaili Rai, and other tribes. Kaili tribe is the most majority tribe in Central Sulawesi. Kaili Da'a tribe originally live nomadic inside mountain forest area and built their house above the tree that called as "Lante" and then they stop nomad or unnomaden outside of mountain forest area and built their settlement alongside of Kamalisi Mountain slope. This existing change of settlement location, form, and pattern needs adaptation process to encounter this change. The change is from low temperature of mountain forest condition and changes into high temperature of lowland area that near to the city center. Their settlement living form is change from house that built above the tree into landed house. The settlement form changes from surrounding Bantaya into linear pattern with street-oriented. Therefore, the Topo Da'a society adapt to keep

their excitement and survive in their new settlement, either act as individual or as community for surviving in new their settlement living and increase their living welfare.

Adaptation is a modification or adjustment process (Barnett, 2001 in Supriyadi, et.al, 2019). Adaptation define as an ability for adapting into specific condition for individual to survive (Fisher, 1984). Generally, this adaptation is consider as passive adjustment category because this individual is only focus on their self for a better living without changing the external condition or their environment (Happy, L.D., 2011). Odum (1971) and Rambo (1983) define adaptation as an effort or strategy of living things to adapt for external or environmental condition changes. (Dharmakusuma, 2008). Adaptation and change is two important things in human life. This process act by all of us to stay alive and survive in dynamic environment. Adaptation is a responsive behavior form of the human against environmental change that cause by the natural factor. Ecologists explain adaptation as the human way as a respond to environmental and society change (Wicaksono et al., 2020). Adaptation occur when human accept a disturbance stimulus beyond human capability for adaptation (copying).

Adaptation theory explain as stimulus response and perform adjustment by changing the receiving stimulus (Amar et al., 2024) (Masiming & Herniwati, 2022). Human will adjust this response against the external stimulus. This stimulus can be change in accordance to human need. Human response against external stimulus are difference each others. Adaptation level in specific society will determine on how they response against their environment. Ability in maintaining optimal condition that explain in Bell schema called as "homeostatic condition" (Sarwono, 1995 in Masiming, Z., 2021). According to Bennet (1976), adaptation has three perspective aspects which are adaptive behavior, adaptive action strategy, and adaptation strategy (Hafizianor & Rudi, 2021). Adaptation strategy define as human behavior when preparing the own resource against various environment problems with proper solution for their society, culture, economic, and ecology in their living area (Marzali, 2003 in Supriyadi, I.H., et.al., 2019).

Adaptation strategy is individual skill to solve various problems in their live with various solutions. This strategy could be in form of managing all of their own asset either in individual or community (Suharto, 2002 in Wicaksono, B., et.al., 2020). Ingty, (2017) observes about traditional community that live in Sikkim Himalaya mountain in India. The research is about adaptation strategy by the community that triggered by climate change and in form of traditional ecology knowledge of that community through traditional institution role. Another adaptation strategy form is settlement that located in Musi River bank in Palembang, South Sumatra province. The form is how to solve the flood problem in Musi River bank area especially in rainy season. The solution is creating various staging house model, either in from building dimension, structure, building element factor, and distance between each house (Wicaksono, B., et.al., 2020). Adaptation process may influence by individual ability in responding a different climate change that occur in their origin area. Topo Da'a Lekatu is the only Topo Da'a society settlement that located in Palu city.

The settlement location is in lowland area and the distance is about 8.2 km from the center of Palu city. This settlement origin rises by long history settlement process. They moved from one location to another several times, up and down the mountains. The government even moved them through the transmigration program twice. But in the end he settled in Lekatu. As a result of this movement, there were changes not only in the existing residential location but also in the form and pattern of the settlement. Aim of this research is to know the adaptation strategy and survival ability that raise in this community against difference climate condition

than their original settlement. This research will observe adaptation strategy from low temperature of mountain forest condition to the high temperature of lowland area. Phenomenology approach will explain adaptation strategy and survivability of Topo Da'a Lekatu society against different climate condition in Lekatu and mountain forest climate.

RESEARCH METHOD

This research applied phenomenology approach with qualitative inductive method. Phenomenology is an approach that focus on implicit meaning of specific phenomena. This approach observe and understanding the meaning of an experience based on informant experience (Denzin & Lincoln, 2009). Data collection methods are observation and in-depth interview to several informants. Main instrument of this research is the researcher itself. (Moleong, 2017). Observation unit in this research is cultural society live, economy, tradition, and social interaction to their settlement space. Analysis unit is society activity in utilizing their settlement environment space. Informant selection applied purposive sampling method with snowball sampling technique. Information from this research is not only limited to description of several informants, but also from physical aspect, event, and informant behavior when they understand the event and phenomena. Informants of this research is traditional society figure, society figure, and Topo Da;a Lekatu community. Data analysis method is inductive analysis with three steps process. The steps are phenomenological reduction, eidetic reduction, and transcendental reduction. Information units that collected from the field is specify into several category to acquire the theme. Then continued by dialogue between each theme to developed the local concept.

RESULTS AND DISCUSSION

History and Settlement Presence of Topo Da'a in Lekatu

Topo Da'a settlement in Lekatu is one of settlement location of Topo Da'a in Central Sulawesi. There are three area of Topo Da'a settlement that located in regency/city which are, in Palu City, Sigi Regency, and Donggala Regency. The most Topo Da'a settlement

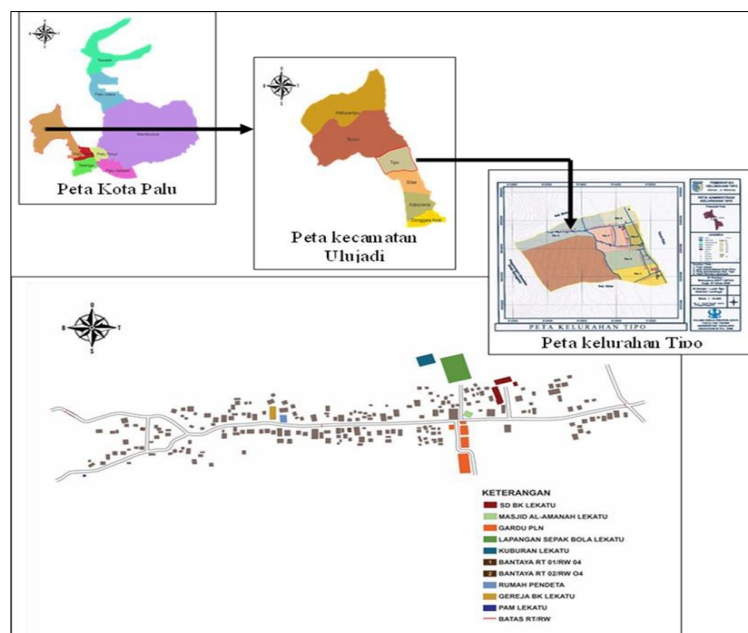


Figure 1. Existing map of Topo Da'a settlement in Lekatu

distribution is in Sigi Regency. There is only one location in Palu City that located in RW 04, Kelurahan Tipo, Kecamatan Ulujadi, Lekatu. The location is near by the center of Palu city or about 8.2 km. (see figure 1)

Kelurahan Tipo or the village is in area of Ulujadi district. This district is one of 45 districts of Palu City. Geographically, Tipo village is located in west area of Palu City. The area of Tipo Village is 570 Ha and height is 10-250 m above sea level. According to the administration, there are 6 RW or Pillar of Residents and 13 RT or Pillar of Neighbors. Lekatu is located in RW 04 that consist of 2 RT, RT 01 and RT 02. Lekatu is located in Northwest of Palu City with physical border:

- East : Tipo Village and Trans Palu-Donggala Street
- South: Mountain area
- North: Mountain area
- West: River and Salena village

Lekatu area is about 32.24 ha and the population is 613 people with 222 householders. Lekatu area is near from Palu city but there is no public transportation across this area. Most of Lekatu people are walking when they go and arrive from Palu city. However, some of Lekatu people has vehicle specifically motorcycle.

Description of the social, economic and cultural factors of Topo Da'a Lekatu

Social, economy, and culture of Lekatu definitely influence their daily activity. These three aspects is related to the society behavior patter that influence their daily life. These factors influence a form of spatial pattern that become their activity environment (Purwantiasning & Kurniawan, 2017).

Social economic condition for Topo Da'a society may observe from the aspects of demography, education, religion and believe, and their livelihood. Education development is low, almost 50% of the population is only graduated at primary school and the others has graduated from elementary and senior high school. This development is influence by low economic and level of awareness the parents for educational aspect. However, some of parents has successful put their children in university level. According to religion and believe aspect, most of Lekatu people are Christian (87.3%), and the rest is Islam. Even these people has believe/religion but Lekatu people still practice animism activity. This activity can be observe in their traditional ceremony that practice consistently such as Nokeso, Nobau, No Balia. This society also believe with gods that control the forest, mountain, farm field, and other living area.

Topo Da'a livelihood during in mountain forest settlement is farmer of rice field. After they live in Lekatu, they are not plant rice field anymore but they only cultivate secondary crops and long term plantation. The reason is soil fertilizer that becomes decrease gradually, longer plantation period, and the plantation result is not significant. Moreover, they must practice traditional ritual during the rice field process to the harvest period. There is no traditional leader anymore that usually perform for ritual. Topo Da'a people begin to find alternative in informal sector opportunity because planting secondary crops activity are not practice everyday and their educational level is low.

From cultural aspect, as traditional society, Topo Da'a has their own tradition that manage their life. This tradition control the interaction between people as a society in managing the nature as living resource or interaction to their spirit ancestor. Lekatu society certainly abide

to their tradition and traditional rule. They consistent practice their tradition that become a guideline in managing their life. For example is *daur hidup* ceremony or rites of passage such as Novati or Nokeso. This is a ritual for girl who come to puberty period.

Settlement Style Change

Lekatu settlement is known as a hamlet/village of Lekatu before Tipu turns into administrative area or Tipu subdistrict or village. Topo Da'a people decided to live and build a settlement in Lekatu at the end of 1976 after they live in transmigration area for only 9 months in Palolo village, Donggala regency. Known as KAT or Isolated Traditional Community, Topo Da'a people previously is nomadic and live in mountain forest area. Then, they decided to live in lowland area, near by the city center of Palu. Now, they survive until nowadays in Lekatu. In fact, there is a difference climate, form, and settlement pattern between existing location then their previous living environment.

A change in settlement location from mountain forest area into lowland location cause to settlement behavior of this society. Their primary livelihood resource in mountain forest area is planting a rice field. Their primary livelihood resource in lowland area that near to city center is in informal sector. This condition cause by farmyard condition that gradually decrease and low educational level. Moreover, the government forbid slash-and-burn agriculture as they practice before when they live in mountain forest area. They begin to find alternative job in informal sector, either as a laborer/stone collector, pedicap rider, laundry helper, stone laborer, cleaning service, security, and etc. They still practice farming by planting secondary crops and long term plantation even their farmyard cannot fulfilled their daily need.

This change not only occur in their livelihood but also appear in settlement form and patten. Topo Da'a people built their house at the top of the high tree (Lante) or built a high house from the ground (Sou Langi) when they live in mountain forest area. Their house form become landed house after they live in Lekatu. Most of this landed house is a donation from Palu City Social Agency, either as a permanent or semi-permanent house. They built a hut (Sou) in form of staging house with 1-2 m height from ground area at the first time when they begin live in Lekatu.

Topo Da'a has strong relationship bonding. Therefore, they build their house in group based on family relationship group. Parent's house, children, siblings, and others family was built close each other. Settlement pattern when they live in mountain forest area and at the first time they live in Lekatu are categorize based on family relationship group around "Bantaya". However, after the government provide a support in form of house, there is a environmental and street construction planning. These houses orientation was built based on the main street and not consider to surrounding "Bantaya" anymore even their settlement characteristic is consistently in a group based on family relationship from one ancestors.

Adaptation Strategy and Survival of Topo Da'a Settlement in Lekatu

Survival is an ability of human being to defend their identity. This abilities are surviving their-self and encounter various obstacles or stress from their environment productively and appropriately (Satrio & Sukmawati, 2021; Yastri et al., 2022). Identity or this character in this research is settlement characteristic of Topo Da'a Lekatu as one of Isolated Traditional Community. Topo Da'a community has practice nomadic habit in mountain forest area and

they become live *unnomad* around the city center. They consistently and obey in traditional practice especially *daur hidup* traditional ritual.

According to the settlement context, resiliency is a description of survival phenomenon of a living area and ability of community to survive in specific settlement location. In fact, the condition is not accepted with their origin area or they experience a stress that raise from city development. Topo Da'a Lekatu settlement can exist and survive up to 46 years, they are not nomadic anymore. In fact, their existing settlement location or climate is different with their origin settlement. They move from low temperature location and move into high temperature area.

The main factor that influence survivability of this society is economy and traditional factor. The number of family member increase gradually and their living demand is increase, thus they must find alternative for income source. The result from the farmyard is insufficient and their education level is low and put this society to find another alternative income in informal sector. This condition cause Topo Da'a society change their main livelihood source from farmer into the worker in informal sector. Their settlement is near from the city center and provide various alternative job, like manpower laborer or stone collector, stone laborer, laundry helper, cleaning service, parking service, market seller, and etc.

Their job that they practice to nowadays is a manpower laborer and stone collector. This activity is begin in 2012 because many trucks from the city bought stone in Lekatu and Salena. Many people interests in this job because the payment is more than selling a farming production and they receive the payment directly. Wages as transport workers and stone collectors are 220 thousand per truck. With details of 100 thousand/ for the cost of transporting the stones to the truck and 120 thousand for the stone collector. The activity of transporting stones to trucks is not carried out alone but in groups of 7 – 10 people. So the wage is 100 thousand divided by the number of people involved. In a day they can join the truck 5-7 times. Stone collectors themselves consist of 2-3 people in one group. (see figure 2)

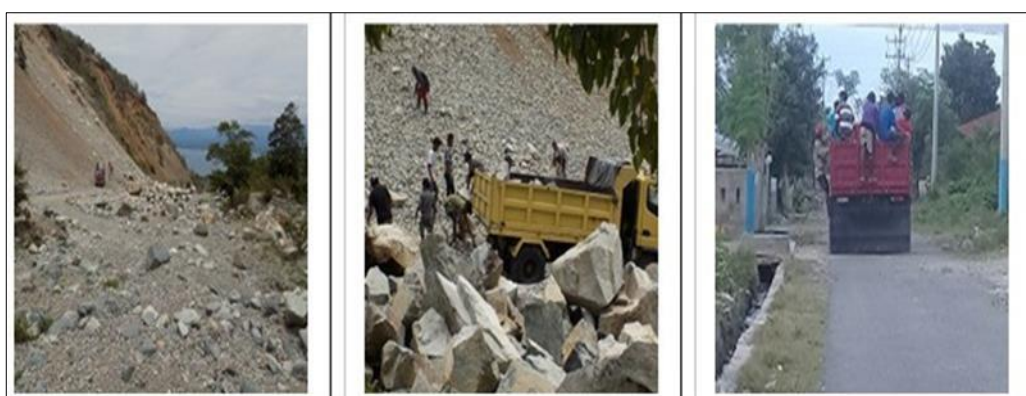


Figure 2. Activity of Manpower Laborer and Stone Collector Source: Author Documentation, 2023

Instead of economic factor, reason for their survival is because of traditional factor. This society is definitely obey and follow their traditional custom practice. Their traditional custom can not separated from Topo Da'a live because their tradition is part of the culture that control their behavior and life for interaction in society. Traditional rule and ritual are consistently practice in their life. Frequent and compulsory tradition practice by Topo Da'a is *daur hidup*

ritual (rites of passage). Topo Da'a Lekatu perform this ceremony as a routine traditional event that perform annually as traditional party.

There are many traditional ritual that exist in Topo Da'a Lekatu. However the compulsory and frequent ritual that practice by this society is women traditional ritual or called as "Mombine" tradition. This ritual is like a Nokeso or Novati ritual ceremony. This ceremony perform for girl who enter puberty period. This ceremony held collectively because the cost is high by several householders. Several girls who just enter puberty period are gathered and begin for ceremony. During this ceremony, they held some ceremonial too. The reason why Topo Da'a is working for living is not only survival reason but also for traditional ceremony party cost. They are "willing" for saving their income for traditional ceremony event rather than repairing or build their house.

They also have ability to survive in Lekatu because school access is near from their settlement In fact, even they are not prioritizing an education for their children in their live. School access is far when Topo Da'a live in mountain and the children become lazy to school. In addition, survival factor that become a reason for Topo Da'a in Lekatu is their settlement location is close to the market. Usually they bring the farmyard result and sells to the market. If not in harvesting period, they will buy another farmyard result from other people and resell it.

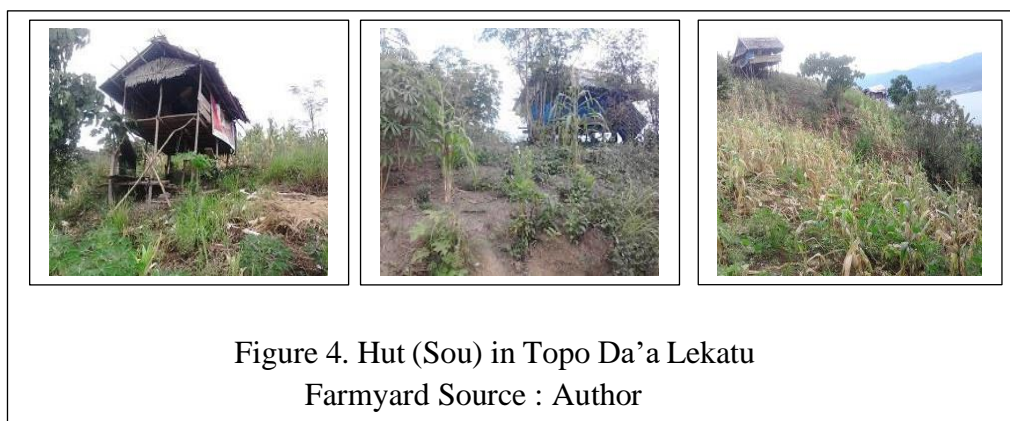
Adaptation process is influence by individual ability in responding the environmental change that difference with their original settlement. Adaptation process is not easy for Topo Da'a Lekatu society. The reason is rise by a phenomena on how re- settlement process with long-term period that make this society must adapted to differences and change either in behavior aspect or settlement culture. Moreover, they should keep their excitement and survive until nowadays and *unnomaden* just like their previous habit.

This adaption process is definitely not easy, they are between in happy and forced condition. They adapted with difference condition change because their economic demand and culture/tradition. They also consistent with traditional religious leader teaching to obey on government rule. Difference climate condition between their original location and current location "force" Topo Da'a to adapt. They create relaxing/gathering area outside their house, especially for day time. This space became interactive function area between family and relatives. Topo Da'a community has gathering habit in morning, day time, and even in the night. This activity will raise when they are not working or farming at that time or when daily temperature is high. This habit practice since they live in mountain because their relationship bonding is strong. Most of Topo Da'a time spent out side of their house. Their house is only become for a shelter from rain, taking a rest at the night, and saving their personal stuff. (see figure 3)



Figure 3. Interaction spaces that include relaxing area especially for day time Source: Author Documentation, 2023

Stone collecting activity in Lekatu and Salena cause this settlement area becomes crowded with trucks that transport the stone. Some people of this society feels disturb by trucks noisy sound that come and go. In order to avoid this noisy, some people intentionally stay at their farm hut just for a rest. They built a hut (Sou) for their rest area after they return from the farmyard. Moreover, they stay for several days and leaving their hut for praying reason especially when they clearing, planting, or harvesting activity from their farmyard. They farmyard location is quite far, about 2-3 km from Lekatu settlement. (see figure 4)



CONCLUSION

They can survive for about 46 years without moving to another location again just like their previous nomadic habit during in the mountain area. In fact, Lekatu climate is different from climate in mountain forest area. Topo Da'a settlement in Lekatu still exists because of economic and traditional factors, in addition to access to the school and market that are near from the settlement. Their adaptation process is creating outdoor communal space areas in their houses and trying to "accept" the noisy sound that comes from trucks transporting stone. Research on behavior and Topo Da'a culture is definitely interesting. Further research should observe how tradition/culture of Topo Da'a can survive from technology influence and city development.

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First publication right:

Devotion - Journal of Research and Community Service



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