

COMMUNICATING CLIMATE CHANGE THROUGH LOCAL TRADITIONS OF BAYAN VILLAGE, NORTH LOMBOK REGENCY

Dian Lestari Miharja¹, Baiq Vira Safitri², Diah Indiyati³, Novita Maulida⁴, Eka Putri Paramita⁵,
Aditya Aj⁶, Bq Aulia Anita Ningrum⁷

^{1,2,3,4,5,6,7}Department of Communication, University of Mataram (dln_300770@yahoo.com)

Abstract

Disasters are events that are difficult for science to predict. There are many types of disasters that occur, especially in the Bayan area, North Lombok Regency. One of the disasters that occurs is a disaster due to climate change. Many parties are paying attention to this situation, giving rise to various forms of training and technical guidance related to disaster mitigation. Various forms of mitigation knowledge are accepted by the community. One of them is community knowledge and adaptation to disasters based on local knowledge which can be said to be part of the disaster communication process. If linked to local knowledge in disaster studies, this communication is characterized by symbolic language reflected in dances, games, rituals, etc. This communication symbol has been formulated from generation to generation based on prevailing traditions. So it is in this context that traditional traditions as local knowledge emerges as an alternative source of knowledge. It is possible for this knowledge to have an integrative nature and influence each other with global knowledge. Starting from this point, researchers feel it is important to know in depth how to communicate awareness of disaster mitigation related to climate change through local traditional traditions. This research uses a qualitative descriptive method through in-depth interviews and FGD strategies, and then the validity of the data is analyzed through data triangulation. So the results show that there are several efforts to communicate climate change to the indigenous people of Bayan village, namely: Preserving Traditions Related to Nature, Establishing Traditional Schools to Build Knowledge Related to Traditional Traditions, and Building Awareness Through *Awig-Awig*. There are inhibiting and supporting factors in efforts to preserve the environment through traditional rituals. Inhibiting factors are the limited distance between residents' houses and communicators, supporting factors are culture, family background, and norms.

Keywords: *Communication, Climate change, Indigenous traditions*

INTRODUCTION

Community knowledge and adaptation to disasters based on local knowledge can be said to be part of the ritual communication process. James W. Carey (2008) emphasizes that as a form and model of ritual communication (social communication), the communication process that occurs in ritual communication is not centered on the transfer of information. On the other hand, it prioritizes the sharing dimension regarding common culture. Ritual communication places greater emphasis on efforts to build togetherness and maintain community structure. If connected with local knowledge in disaster studies, ritual communication is characterized by using symbolic (typical) language regarding the local community's past experiences with the disaster. Symbolic language is reflected in dances, games, rituals, etc. These communication symbols cannot be chosen by the cultural community themselves, but have been formulated from generation to generation based on prevailing traditions

Different views about a disaster often give rise to communication patterns to give rise to a variety of different responses. There are those who interpret the Mount Eruption event as doom or punishment from the Almighty, there are those who respond as a form of activity by spirits on the mountain, there are also those who see it as an ordinary natural event that cannot be prevented, it is predicted. In situations like this, research related to disaster mitigation should be "beyond theory" which means that researchers not only examine natural ecosystems and focus on the response and recovery of the environment and society after disasters, but also develop local intervention practices that have existed since ancestral times in order to reduce the risk of disaster.

So it is in this context that traditional traditions as local knowledge emerge as an alternative source of knowledge. It is possible for this knowledge to have an integrative nature and influence each

other with global knowledge. Starting from this point, researchers feel it is important to know in depth how to build awareness of disaster mitigation through local traditions.

Based on the problem, what is examined in more depth in this research is how to communicate disasters through traditional ritual traditions and to find out in depth the obstacles and supporters in implementing the traditional ritual activities of Bayan village.

The aim of this research is to depict and describe the communication process that occurs in traditional ritual activities, as an effort to inform about the occurrence of a disaster. As well as to find out the obstacles and advantages of implementing the traditional ritual activities of the Bayan village.

LITERATURE REVIEW

Local Wisdom in Disaster Mitigation

Dissemination of disaster information has been widely implemented as a form of disaster mitigation. Information can be conveyed via WhatsApp and applications that can be accessed by anyone and anywhere. However, the problem is when this information is to be conveyed to indigenous communities in the interior of traditional villages because not all communities have supporting technology to be able to access information related to disasters.

Well-planned disaster management is very important in mitigation steps (Purnama, Sang Gede. 2017). Mitigation is the initial stage in disaster management to minimize the impact of a disaster, it is very important to pay attention to the conditions and culture in the disaster area. This is intended so that policymakers can appropriately develop strategies for communication stages to communities in disaster areas.

In general, what is often done is to pay attention to local wisdom. The existence of local wisdom should be the basis for policymakers (Febriana, Sugiyanto, D., & Abubakar, Y. (2018). This is because wisdom contains a description of the opinions of the community concerned regarding matters relating to environmental structure, environmental functions, natural reactions to human actions, and the relationships that should be created between humans (society) and their natural environment.

The local wisdom referred to in this research is a form of community habit or adaptation in dealing with earthquake natural disasters. As well as local wisdom in physical and non-physical forms, in the form of typical buildings in an area and non-physical such as myths, folklore, fairy tales, customary law, *awig-awig* and others (Irviani, E. Y. A. & R, 2017) In essence, local wisdom what is meant is to emphasize the customs and peculiarities of these indigenous communities.

METHODS

The method used is a qualitative method with the strategy of in-depth interview techniques and group discussion activities (FGD) involving several traditional leaders, village heads, traditional communities, as well as several people who are interested in traditional preservation.

The Bayan traditional village, North Lombok Regency, was the research location determined purposively with the consideration that in the Bayan Traditional Village there are several traditional rituals that are often used as references for preserving the environment. This research describes the study of communication in traditions related to climate change and explains in depth the inhibiting and supporting factors in traditional ritual traditions in the Adat Bayan village, North Lombok Regency. Data analysis using the Miles and Huberman model, namely data reduction, data presentation, and drawing conclusions (Sugiyono, 2016). The validity of the data uses source triangulation to reveal and analyze the problems used as the subject of this research.

RESULTS AND DISCUSSION

The research area that is the location for obtaining data regarding the behavior of indigenous peoples towards climate change is the Bayan area, North Lombok Regency, NTB Province. North Lombok Regency, which is one of the new regency in NTB province, has several sub-regency, one of which is the Bayan area and in the Bayan area there are several villages known as Bayan traditional villages. Bayan traditional village is one of the villages that still adheres to the beliefs and beliefs of its ancestors. In this traditional village there are several traditional building complexes whose authenticity

is still maintained and which still utilize natural resources in efforts to preserve them. Traditional buildings that appear can be seen in the form of ancient mosques,

For the people of Lombok Island in general, Bayan is known as an Old Village in terms of its culture. The name Bayan is synonymous with the figure of a traditional village, with old customs and cultural norms that still color the life patterns of its people. Apart from the ancient mosque building, Bayan Traditional Village also has unique traditional buildings, namely *Berugak*, *Geleng* and *Bale Mengina*. *Berugak* is a stage platform used by the community to receive guests and socialize with neighbors. *Geleng* is a building used as a food barn in the village using four main wooden pillars as supports. Then there is the *bale menina* which is used as a residence for the traditional Bayan community.

The Bayan indigenous community administratively inhabits or inhabits several villages. In fact, the Bayan traditional community inhabits and inhabits most of northern Lombok which was previously under Bayan Sovereignty. Until now, the community that is still actively implementing customs in Bayan Regency is the Bayan traditional farming community which covers one sub-regency, namely Bayan Regency, consisting of Senaru Village, Sukadana Village, Anyar Village, Karang Bajo Village, Bayan Village, and Loloan Village.

The organizational system or social order of the Bayan Indigenous community is based on the understanding or belief of *wetu telu*. The Bayan Traditional Community consists of traditional communities led by traditional stakeholders and institutions. Indigenous peoples must submit and obey the customary rules implemented by stakeholders and other customs. Climate change is an issue that is a paradox in society's life today. In its development, this issue involves many parties ranging from the community, stakeholders, and the government. Various mitigation efforts as a form of preventing the impacts of climate change have been carried out, one of the efforts that is often carried out is providing education regarding the dangers of the impacts of climate change (Gusmeri.Ir. M.T, 2019). However, all the activities carried out cannot reduce the impact of climate change. There are still many people who carry out illegal logging activities, use household materials that cannot be recycled, etc.

The impact of climate change can be seen in extreme changes in weather, resulting in disasters such as droughts, floods, and crop failures (Utami Dyah Nursita, 2019). However, what is interesting is that extreme weather changes are not felt in several areas with natural resources that are still beautiful, such as forests that are still intact and green rice fields. As in several areas in Bayan, North Lombok Regency. Especially areas that are geographically within customary forest areas. This area is inhabited by a group of people known as indigenous peoples. In more depth, related to efforts to communicate climate change through traditional traditions, these include the following;

A. Communication Between Bayan Indigenous Peoples

In communicating, each person has their own way and beliefs, where these beliefs come from the conscience which regulates feelings (happy, sad, and even hurt). With this belief, it is then passed on to the brain as the control center for thinking and then processed into a form of knowledge that will influence attitudes and shape behavior.(Solihat Manap, Melly Maulin P, Olin Solihin, 2014).Therefore, communication has a very important role in social life. Especially in the indigenous community of Bayan village. Communication activities aim to form a common meaning and avoid misunderstandings between people. Some of the communication activities carried out by the Bayan village indigenous community include:

The need for social interaction,

The general form of a social process is social interaction and other forms of a social process are a special form of interaction. Social interaction as one of the main requirements for the presence of social activities can be carried out if two criteria are met, namely social contact and communication.(Alyusi, S. D, 2016).

Where social contact is a direct social relationship between one individual and another individual that is direct. Meanwhile, communication is a process of conveying messages from one person to another. Social interaction itself is a dynamic relationship, where the relationship is related to interpersonal relationships between one person and another, as well as individual relationships with groups.(Xiao Angelina, 2018). Social interactions that occur in today's society have certainly developed more rapidly along with the progress of the times which is also supported by technological

developments. In fact, more and more people are interacting using mobile technology such as chatting via various social media applications. Therefore, users of chat application technology continues to increase every year.

However, this fact was refuted when researchers visited the Bayan traditional village. The indigenous people of Bayan village tend to prefer the in-direct interaction method, known as face-to-face. According to the people of Bayan village, by interacting directly, they can see the true face of the person they are talking to. So that indirectly they can look each other in the eye, and develop a feeling of confidence in being able to interact without lies. Apart from that, according to several people we met, they also explained that with direct interaction, they can briefly understand a person's character by paying attention to the way they speak (verbally) and their body movements when speaking (non-verbally).

Communication to support and express identity

Effective communication will be carried out by the communicator being able to adjust the identity of the communicant, and vice versa. So the communication orientation is more directed at the communication partner, not at one's own identity. Apart from having knowledge regarding the identity of the conversation partner, the communicating parties also have a sense of sympathy and empathy to understand each other. A good understanding of oneself will be able to determine the success of mobilizing all the communication potential contained within a person (Samsinar, Dr, Rusnali Aisyah Nur. A, 2017).

This understanding can be clearly seen in the traditional community of Bayan village, where each member of the community is very familiar with their identity within the traditional community. Traditional stakeholders are leaders of traditional communities who are traditional members. Everyone recognizes their strengths and weaknesses so that they can consciously recognize their abilities in society. This awareness is very important because it is the key to fostering understanding between indigenous peoples and reducing feelings of suspicion, recklessness, and awkwardness in everyday life. The ability to build communication and get to know other people well will tend to foster feelings of respect and acceptance by other people.

Communication influences the environment to have the same mindset

Reaching agreement on a meaning is one of the goals of communication. In society in general, to create understanding, the role of an opinion leader (leader) is needed who is able to direct public opinion toward an issue/problem/understanding. A person who is said to be a leader will always gain the trust of his people (Yoga Salman.S,2018). Like the opinion leader in the Bayan traditional village. These opinion leaders are known as traditional leaders. A traditional leader has the ability not only to provide information but also to persuade indigenous people to be willing and able to carry out various kinds of traditional ritual traditions.

The existence of these traditional stakeholders is very important in forming a uniform mindset among indigenous communities because traditional stakeholders are not only elected by the community but are also elected from generation to generation through lineage. In terms of social status, a traditional holder has a high social status in society, because he has indirectly inherited several inheritances from his ancestors such as rice fields, property, land, etc. Apart from that, traditional holders are also quite influential individuals in society, as can be seen from the way they dress which is different from society in general. A traditional leader will be very easy to mark because they wear a head covering (*sapuk*) on their head and always wear cloth with a distinctive motif that only traditional leaders have.

B. Behavior of the Bayan Indigenous Community in Overcoming Climate Change

Communication behavior can be translated as a communication action, which includes verbal actions and non-verbal actions. Human behavior in life is influenced by various factors, both internal and external. Among them, behavior is influenced by attitudes and the environment as a response to a condition. One of them is climate change which is felt to have a significant impact on society, especially indigenous communities. so that indigenous peoples take several attitudes in responding to climate change conditions, and this can be seen in their behavior as follows:

Preserving Traditions Related to Nature

In preserving traditions related to nature, there are several traditions mentioned by the Bayan traditional village community, some of which are:

Here are some traditional rituals that are related to nature:

NGASUH GUNUNG, NGASUH HUTAN, NGASUH GUBUQ

Nurturing or nurturing is a ritual for caring for or looking after what is being cared for or cared, for examples *ngasuh gunung* (caring for/caring for the mountain), *ngasuh forest* (looking after/caring for the forest), *ngasuh gubuq* (looking after/caring for the *gubuq*). Basically, these rituals have the same procedures as saying prayers so that undesirable things or disasters will not happen. As time goes by, this nurturing ritual is rarely carried out and there is no time scale for its implementation. Rarely done does not mean never in this era, but the intensity of implementation is no longer as frequent as before. Usually, these rituals are carried out after an event occurs.

NURTURING THE GUNUNG: "*Ngasuh Gunung* is a ritual process carried out by *melokaq torear*, usually the guard at the entrance to Mount Rinjani. *melokaq sajang*, *melokaq senaru*. For example, when someone dies in the mountains, it is their duty to care for them. Because according to the Bayan indigenous people, this mountain is a sacred stake in the earth. "So, incidents that cause people to die or commit immoral acts there and where environmental damage occurs, are prohibited by customary law (Sumadim)." It is actually known that when parents wanted to climb a mountain, they had to go through a ritual process. The nurturing ritual is also carried out when a natural disaster occurs, be it landslides and so on, so the *melokaq* will carry out a ritual which contains prayers to God. The location of this ritual is usually carried out at each entrance to the mountain.

Forming a Traditional School to Build Knowledge Related to Traditional Traditions

One effort to prevent climate change is to preserve the environment. This effort was recognized by the indigenous people of Bayan village and responded in various forms, one of the efforts made was by establishing a traditional school. The school headed by the indigenous people of Bayan village has quite a lot of students. Students who want to be involved in this school are required to understand in depth the various traditional ritual ceremonies in the Bayan traditional village.

By understanding various traditional ritual ceremonies, it is hoped that all students who are members of traditional schools will be able to adapt to the environment and adjust their way of behaving. So this will indirectly reduce the impact of climate change. Adaptation in question is adapting to traditional forest conservation methods, such as following applicable customary rules and various traditional rituals related to preserving forests. Not only forests, traditional school students are also invited to adapt to water. They were invited to protect and preserve springs as a source of life. thus, all nature will be in balance.

Not only do they teach to adapt to nature directly, but traditional schools were also established with the aim of educating the younger generation so that they are willing and able to defend themselves in situations of climate change. Therefore, students at traditional schools are taught about the use of non-timber forest products, using rain-fed water, building makeshift land, etc. All of these activities help students at traditional schools to survive in nature without using materials that will cause carbon emissions, such as air conditioners for cooling., refrigerators for preserving food, cutting wood to make buildings, etc.

Building Awareness Through Awig Awig

Faced with various impacts of climate change, the Bayan traditional village community has long had various strategies to prevent it. One of the strategies is the existence of *awig-awig* (rules), both written and unwritten, which are clearly owned by the Bayan traditional village community. These *awig-awig* have several purposes, including, firstly, to provide protection. With the existence of *awig-awig*, the community believes that not a single indigenous person will dare to violate it. So it can provide protection for natural wealth in the form of forests and water.

Second, namely to enforce the law regarding violations. With the clear existence of *awig-awig* in traditional village communities, it is stated that anyone who commits violations, such as cutting wood in the forest carelessly, will be subject to sanctions up to a fine. The largest fine is to replace a large piece of wood with 1 cow and 244 *kepeng bolong* (money). This number is quite large for indigenous communities. Therefore they are very obedient in practicing the applicable *awig-awig*. If this agreement

is violated, the community members who violate will be ostracized and will not be able to participate in any traditional activities.

Third, this awig-awig aims to make adjustments. For this purpose, *awig-awig* functions to follow various action plans that have been programmed in advance by the government. From the government's perspective, regulations are implemented in the form of replanting forests that have been cut down. However, indigenous peoples preserve forests without having to cut them down and continue to replant trees to renew trees that have entered old age. With the aim of strengthening the binding power of tree roots to the soil. So with a strong tree, it is said that it will produce abundant spring water.

C. Communicating Climate Change Through Traditional Traditions

The diversity of communication media today is a challenge to communicate all types of information, one of this information related to climate change. So it requires choosing the right medium and qualified communication techniques. The medium referred to here is the existence of an appropriate message delivery tool in the process of communicating climate change. In this research, the means of conveying the message are communicators (message deliverers) consisting of the indigenous people of Bayan village. Indigenous communities can be categorized as communities of people who live simply by utilizing nature as a means of support.

In communicating climate change to the indigenous community of Bayan village, it is known that there is a communication pattern that is depicted, namely a circular communication pattern, as illustrated below:

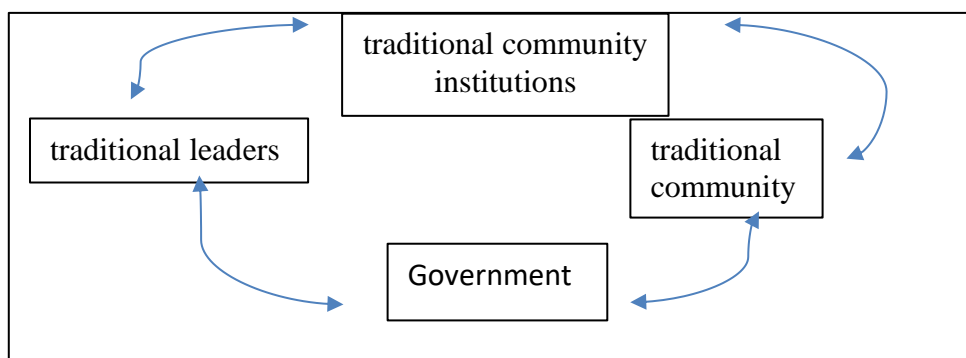


Figure 1. Diagram of Bayan Traditional Village communication patterns

Based on the picture of communication patterns above, it is known that the existence of traditional community institutions in the Bayan traditional village makes communication behavior different from other areas. There are times when traditional leaders will communicate directly with the community or with fellow traditional leaders, not only with fellow communities and traditional leaders but also communicate with God and nature, in various ways that they believe in. Their way of communicating is very complex because in the process they do not use technology as a communication medium instead, they use verbal and non-verbal language which is delivered directly face to face. Verbal communication in the form of words conveyed by traditional institutions to the community is generally carried out by expressing feelings, ideas, thoughts, and even emotions. Meanwhile, non-verbal communication is conveyed in the form of facial expressions, eye contact, use of objects such as traditional clothing, tone of voice, etc.

Verbal and nonverbal communication carried out by the Bayan village traditional community is reflected in traditional rituals. Traditional rituals can be said to be a form or symbolic form in interpreting the implementation of local customs and customs. Bayan Village has various types of traditional rituals with their respective aims and objectives. There are traditional rituals that are closely related to gratitude towards God and nature or in traditional community beliefs there is a relationship between humans and God, humans and nature, and humans and humans. Every traditional ritual is basically intended to protect nature so that it can still provide benefits to the humans who inhabit that nature.

Indigenous communities cannot be separated from the relationship between humans and nature. Indigenous communities in Indonesia have a role in climate mitigation action and disaster prediction. Indigenous communities have the view that humans are part of nature and must look after and care for each other. Indigenous communities have local knowledge in assessing future disasters. It can be said that indigenous communities have traditional communication by using or relying on traditional language (symbolic language) in interpreting certain symbols.

It can be seen that the Bayan indigenous people's protection of nature cannot be separated from the role of traditional rituals and traditional community beliefs in processing the existing nature. Existing customary forests are still maintained and *awig-awig* (Rules of Manners) are made so that people do not abuse them for their personal needs. The existence of forests with shady trees forms natural springs found in Traditional Forests. It is the water from this spring that flows and provides sufficient life in terms of water to the people of Bayan. People depend on spring water for all needs, whether for drinking, bathing, household use, irrigating rice fields, and so on. Therefore, protecting nature, forests and water springs is an obligation for the Bayan indigenous people so that community life remains balanced and adequate.

This belief that is applied in the daily life of the indigenous people of Bayan village has been carried out from generation to generation and is a must to be preserved. So indigenous village communities have indirectly contributed a lot to environmental conservation activities to prevent excessive impacts due to climate change.

D. Inhibiting and Supporting Factors in Efforts to Communicate Change Climate.

Inhibiting factors are things that can influence someone in implementing something, such as influences caused by oneself or from the surrounding environment. The inhibiting factors for indigenous communities in communicating climate change include:

-Distance between residents' houses

As known from research that has been carried out, the distance between one traditional house and another is quite far. This makes it difficult for people to communicate immediately. The large number of people who do not have communication support technology such as telephones is also part of what influences this distance. According to respondents met in the field, it was explained that when a traditional meeting is to be held, indigenous people will be visited one by one by traditional officials to ensure that they can attend the event that will be held.

- Limited communicator

The importance of the communicator (message deliverer) in the communication process is a must. In communicating, if a communicator wants to be noticed by his audience/public he must have two important factors within himself. The first factor is trust in the communicator and the second factor is attraction. These two factors are important for a communicator to have in order to form an impression in relation to the topic being discussed.

Supporting factors are things that influence everything related to activities to communicate climate change. This can advance, increase, and even develop the situation for the better. The supporting factors include:

- Culture

In simple terms, culture in indigenous communities is shown by the use of the same language between indigenous communities. The use of the same language can allegedly increase kinship between indigenous communities. Language is a verbal symbol whose existence is mutually agreed upon and it is the identity of a community. So language in indigenous communities becomes an important supporting factor. This can be seen when there is a traditional event or traditional meeting, all traditional leaders simultaneously use the traditional language that only their community understands, namely the traditional language "bayan".

- Family background

The formation of culture does not merely exist because of the awareness of society itself. But it is more about the exchanges that occur between members of society which occur from generation to generation. This exchange generally occurs because there is a similarity in meaning and knowing the historical causes (background). These two things happen most often in a family. Each family member has their own function and role that will build the family.

Roles are built through discussion, dialogue, and negotiation activities between family members. Activities carried out by communicating between one family member and another can improve relationships between family members. In communicating, a lot of information in the form of ideas, notions, and opinions is shared with the aim of realizing shared hopes.

- **Norma**

Norms in their relationship with society are very closely related to applicable rules. The existence of norms in society is very important to explain behavior in society. This means that if there is a community that violates it, they can be subject to sanctions because they do not meet the standards of behavior known in the cultural ideas of that community. If values introduce how to behave appropriately, then norms specifically outline control over behavior. A norm is a rule that regulates punishment or reward in various forms according to variations in people's social positions in human relations. Some forms of norms include ways, habits, codes of conduct, and customs

CONCLUSIONS AND RECOMMENDATIONS

Based on the research and discussions that have been carried out, several conclusions were obtained in this research, including: There are several efforts to communicate climate change to the Bayan village indigenous community, namely: Preserving Traditions Related to Nature, Establishing Traditional Schools to Build Knowledge Related to Traditional Traditions and - Building Awareness Through *Awig-Awig*. There are inhibiting and supporting factors in efforts to preserve the environment through traditional rituals. Inhibiting factors namely: Distance between residents' houses and Limited communicator, supporting factors namely Culture, family background, and norms.

There are two recommendations, first, to indigenous communities, so that they can continue to maintain existing traditional traditions as an effort to preserve the environment from climate change and also maintain traditional culture in a sustainable manner by continuing to carry out cultural rituals and introducing traditional traditions to the younger generation as successors. Second, to policymakers who are concerned with climate change, in formulating policies related to training and empowering the community, they should pay in-depth attention to various local traditions related to nature conservation, so that the activities carried out can be on target and on target.

BIBLIOGRAPHY

- Alyusi, S. D. (2016). *Media Sosial : Interaksi, Identitas dan Modal Sosial*. Jakarta: Kencana.
- Febriana, Sugiyanto, D., & Abubakar, Y. (2018). Kesiapsiagaan Masyarakat Desa Siaga Bencana Dalam Menghadapi Gempa Bumi Di Kecamatan Meuraxa Kota Banda Aceh. *Ilmu Kebencanaan (JIKA) Pascasarjana Univeritas Syiah Kuala*, 2(3), 41–49 .
- Gusmeri, Ir. M.T, 2019. Strategi Mitigasi Bencana Tsunami dan Banjir ROB Yang Diperparah Oleh Kenaikan Muka Air Laut Akibat Perubahan Iklim di Kota Banda Aceh, Pemerintah Kota Banda Aceh.
- Irviani, E. Y. A. & R. (2017). *PENGANTAR SISTEM INFORMASI* (E. Risanto (ed.)). ANDI, Anggota IKAPI.
- Samsinar, Dr, Rusnali Aisyah Nur. A. 2017. *Komunikasi Antar Manusia*, Edisi 1. Sekolah Tinggi Agama Islam (STAIN) Watampone).
- Solihat Manap, Melly Maulin P, Olin Solihin. 2014. *Interpersonal Skill, Tips Membangun Komunikasi dan Relasi*. Rekayasa Sains, Bandung.
- Utami Dyah Nursita, 2019. Kajian Dampak Perubahan Iklim Terhadap Degradasi Tanah. *Jurnal Alami* (ISSN: 254-8635). Vol 3.No.2.
- Purnama, sang gede. (2017). *Diktat Manajemen Bencana*. Fakultas Kedokteran Universitas Udayana, Bali.
- Xiao Angelina, 2018. Konsep Interaksi Sosial Dalam Komunikasi, Teknologi, Masyarakat. *Jurnal Komunikasi, Media dan Informatika*. Vol.7.No.2.
- Yoga Salman. S. 2018. Perubahan Sosial Masyarakat Indonesia dan Perkembangan Teknologi Komunikasi. *Jurnal AL-Bayan*. Vol.24.No.1. Januari-Juni, 29-46).