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INTEGRATING LOCAL WISDOM OF SASAK TRIBE IN ECOLOGY LEARNING TO DEVELOP SCIENTIFIC ATTITUDE

Hunaepi⁽¹⁾ Laras Firdaus⁽²⁾

^{1 & 2} Faculty of Mathematics and Natural Science Education
Teacher Training Institute and Education Mataram

hunaepi@ikipmataram.ac.id, larasfirdaus@ikipmataram.ac.id

Abstract: Local wisdom is the knowledge gained through a series of activities by a group of people in a particular region or place, and then passed on from generation to generation verbally. Local wisdom itself, not only includes knowledge, but also the values of life. Therefore, education through learning not only focuses on popular knowledge (modern knowledge), but also integrates the values of local wisdom in learning, in the hope that students in addition to having knowledge also have insights about local wisdom itself, and has a scientific attitude which can be applied in life. This research is a qualitative descriptive research. The data in this research were collected using interview technique and literature study. The purpose of this study is; (1) to maintain the sustainability of local wisdom itself as a collection of knowledge of the sasak tribe, Lombok NTB, (2) facilitate students to learn local wisdom comprehensively through integration in learning, (3) to train students' scientific attitude through the integration of local wisdom in learning. The local wisdom of the sasak tribe, the island of Lombok, West Nusa Tenggara obtained in this study is then integrated into the ecology course, due to the proximity between ecology and local wisdom, both in terms of knowledge acquisition process using scientific rules (inquiry rules) collaborative work processes. The local wisdom of the sasak tribe, Lombok Island, West Nusa Tenggara which is integrated into the ecology subject includes the form of building, proverb or motto of life, awiq-awiq (regulation, governance), and betemoe (bespang) and besiru.

Key word: Local Wisdom Sasak Tribe, Ecology, Scientific Attitude

A. Introduction

The term local wisdom is also called indigenous knowledge, or traditional knowledge. Speaking about local wisdom or local knowledge, Ahlee et.al (2014), states that local wisdom is a body of knowledge gained from a series of activities, such as observing, analyzing, interpreting, and reaching conclusions. Furthermore, this definition is related to the local (area, place/local), then the local wisdom is nothing but a collection of knowledge as a

result of thoughts and actions done by people in a place (area) or location.

The definition of local wisdom that given by Ahlee et.al (2014) shows the position of local wisdom equivalent to popular knowledge (modern knowledge), that is knowledge acquired through scientific process (scientific), or better known as knowledge obtained by inquiry method. Tinnaluck (2004), however, states that there are some differences between local wisdom and popular knowledge, ie in terms of delivery, local wisdom is orally delivered, without formal institutions, while

popular knowledge is empirically conveyed, and requires formal institutions. While Keraf (2002) in Muslimin (2014), states that local wisdom includes all forms of knowledge, belief, understanding or insight and customs that guide human behavior in life.

Sasak tribe is a tribe that inhabit the island of Lombok located in West Nusa Tenggara. The Sasak tribe still preserves the traditions or values of local wisdom, both in the form of rules, forms (home architecture), the proverbs. For example, the sasak tribe in Bayan (inhabit the foot of rinjani mountain) in maintaining the availability and sustainability of springs and forests there are customary institutions to maintain the preservation of forests and water resources. Customary institutions consisting of Indigenous Peoples who served as indigenous leaders of the gundem (customary meeting), then there is the Adat Customary, and the Adat Pemekel that is in charge of giving opinions, suggestions, suggestions to Indigenous Peoples regarding the problems within the customary forest. As one of the "Act" products in this customary forest management, indigenous people of Bayan have made the Awiq-Awiq Indigenous Forest Mandala. Concerning the security of indigenous forests, there is Lang-Lang Jagad who is in charge of forestry police. There is also Inan Air, the one who leads the water as a spring. The rules in customary forest management are normative, but sanctions for violations are the most serious. Awiq-awiq is a strong adat in preserving and preserving existing springs, and awiq-awiq (custom rules) must be obeyed by all indigenous peoples or other communities.

In addition Sasak people have cultural roots that are closely related to the pattern of life in harmony with ecosystem values. Local culture is the wisdom in choosing the form of home architecture, traditional home care, how to keep the forest, springs, the

environment is sacred, beliefs on natural signs, cropping patterns, fishing time fishing, consumption patterns, and interaction between social interaction Fellow, in relation to cropping pattern, time of harvest, harvest time, fishing time of fisherman, and other activities related to day, date, and time can be found in rowot sasak (Sasak calendar). The noble values (local wisdom) held *tenguh* be guidance of the implementation of everyday life. Local culture becomes a manifestation of the idea and behavior of indigenous peoples sasak which fiber will the values of local wisdom. Local genius of sasak community has the advantage to adapt with the environment, so that nature no longer be their enemy but made as a companion to live in harmony. The ability of the sasak community to read the natural signs contained in rowot sasak become the power of local people in maintaining authenticity.

B. Integrating Of Local Wisdom In Learning

Based on the above description, although institutionally, local wisdom with popular knowledge differs, but in general that local wisdom has similarities in terms of acquisition, ie using scientific rules, so that local wisdom does not focus not only on acquiring knowledge but also building social relations. The logical consequence of this is the need to integrate local wisdom itself as a collection of knowledge in learning. The process of integrating local wisdom in learning is open, in the sense that local wisdom as a collection of knowledge that includes rules and values of life can be integrated with any course, but in this case, the integration of local wisdom in ecological subjects. This is based on the proximity between ecology and local wisdom, both in terms of knowledge acquisition processes that use scientific rules (inquiry rules), as well as in collaborative work processes.

Furthermore, Muslimin (2014), stated that local wisdom of a region has the potential to be developed into teaching materials that can provide meaningful understanding to the students. The existence of an ecological learning resource that is integrated with local wisdom will make learners closer to the surrounding environment in daily life. Integrating local wisdom into an ecological learning resource can facilitate students to understand directly the content of ecological materials linked to environmental and daily life conditions. Thus the values of local wisdom to be one of the sources of value in developing ecological learning that aims to increase student awareness in environmental conservation.

C. Method

This research is a qualitative descriptive study, dan data collected with literatute studies and interview. Literature study was conducted to study local wisdom and local culture of Sasak tribe that can be integrated with ecological course, while interview was done to know the truth directly from result of literature study which have been done besides to collect empirical data exist in society.

The purpose of this study is to; (1) to maintain the sustainability of local wisdom itself as a collection of knowledge of the sasak tribe, Lombok West Nusa Tenggara, (2) facilitated students to learn local wisdom comprehensively through integration in learning, (3) to train students' scientific attitude through the integrating of local wisdom in learning.

D. Discussion

Today the role of local wisdom as one of the steps to filter global udaya becomes a concern. Culture is part of local wisdom. Local wisdom is a view of life, science, custom traditions owned by local communities. Local wisdom is local ideas

that are wise, full of wisdom, good value that is embedded and followed by members of the community (Sartini, 2006). In addition, local wisdom is defined as a system that regulates the social, economic, political, cultural, economic and environmental life of people living in local communities (Wagiran, 2011). The results of the study of local wisdom that can be integrated in ecological teaching materials are described as follows;

A. The shape of the Limbungan village building is integrated in the material the pattern of population dispersal

The pattern of population infiltration, influenced by the conditions of the resources that allow the organism to live its life. The spreading pattern of collecting indicates that the resource conditions are not spread evenly, or else the statement, that the spreading pattern of collecting is an unequal resource indicator in a habitat. A regularly distributed pattern of dispersion occurs as a result of interactions between multiple individuals in a population. Some herbs synthesize chemicals to inhibit germination and other plant growth that can compete with resources, whereas random distribution patterns show the position of each member unpredictable, away from other members of the population. This pattern of dispersion may also be expressed as the inverse of the spreading pattern of spreading, or by other statements of random dispersal patterns occurring because resources in each area allow for all members of the population to live.

East Lombok, Limbungan village, this can be seen from the form of house building. The settlements in Limbungan village consist of bale (sasak = house in Indonesian), panteq (granary), and berugag (sasak language = gazebo in Indonesian), and each house facing each other. Bale is a place of community activity, while the barn

is a store of food supplies, and this also shows the attitude of sparing and anticipating Limbungan villagers against the weather or conditions that are not possible, and berugak is a facility used as a gathering and receiving place.

Sasak traditional house in Limbungan village shows the pattern of uniform distribution with the ingredients in making the whole building from the natural surroundings, such as the use of the roof of the reeds called re while the coconut leaves are called bobok, tiag wooden house, the walls of bamboo, and the floor of the ground . This condition indicates that the limbungan villagers still maintain local traditions and

wisdom. The custom sasak house in Lombok generally has similarities although there are some differences such as traditional sasak house in Sade Lombok Tengah where the floor of the house from the soil and cow dung as the top of the coating. Lombok people before establishing a residence or building, looking for days, dates and months that are considered good. The calculation of the month used as a guide is the upper month (Hijriyah). Incorporating good days and months is meant as an unlucky antidote (Kusuma, 2011).

Figure 1. A. House in Perigi village Kampung Limbungan Suela district, which is the location of 150 custom homes Suku Bangsa Sasak (Source: <http://www.radarlombok.co.id/rumah-adat-limbungan-kian-mempesona.html>), B. Rice Paddy Coffee Architecture (Source: Wacana Nusantara), C. The unique Berugak Sasak tribe as a place of deliberation (Sources: google image.com)

All buildings/houses of Limbungan villagers facing east, and short, while the position of the house like the arrangement of stairs. Parents (elders) always have the highest house position, and children, and other families are under it. Philosophically, the position of the house shows that the parent should provide an example, role model to the children and their families, and is a form of self-defense to protect each other, while the position of the house facing eastward, describes the high morale to seek The gift of the most ESA god. While building a short house, requires entry by way of looking down. This shows a humble attitude, and If the host wants to receive his guest in the bale (the house), then the guest should bow, this shows an ethic of homage to the host's homage. The form of integration between the distribution pattern material with local wisdom form the architecture of the village house Limbungan has the values of attitudes that can be formed is mutual respect, responsibility, and humble attitude towards others.

Figure 2. Pattern of population distribution of Limbungan community, East Lombok regency. Figure 2a shows the pattern of population distribution, and Figure 2b shows the relation between villagers of Limbungan (*Source*: Sabrina et.al., 2010).

B. Motto Tioq Tata Tunaq Governance and Awiq-awiq Integrated into material Environmental Conservation and Diversity of Organisms

Nature and all its resources is a gift of God that must be maintained and utilized. Population growth can not be avoided is one factor that can destabilize the environment and organisms, such as pollution (air, water, and soil), and the disruption of the organism, both on land and in water, which is then also the impact of the instability will return to human life. To preserve the environment (nature) and the diversity of organisms required the existence of action business.

Local wisdom in the form of the slogan as a way of life the people of Lombok north is *tioq order tunaq* slogan a reflection of personality and community work in North Lombok (KLU), while the meaning of slogan is "*tioq*" means growing that means that the people of Lombok north received the grace of god Omnipotent as the basic capital to be thankful.

Tata (rules), in this context means to manage the life and all resources that are conferred by God with responsibility to god and future generations and oriented to build common prosperity, the order also contains the meaning of a system built to build

harmony between human beings with others, human With nature and man with god, while *tunaq* means to brighten, nurture, maximize maximally, not wasting all the potential and resources in anugrahkan both inherent in individual and cultural resources, social, and natural resources.

Awiq-awiq is a rule that regulates the behavior of tribal societies of sasak, both in its interaction with nature, as well as fellow human beings. Ideally a rule, it is not only charged (role), but also has punishment, as well as in awiq-awiq. In the simplicity of the worldview contained wisdom towards the sustainability of the environment. The classification of a forest area as a handler is a mechanism for protecting and preserving the function of the forest as a water catchment area (protected water catchment) that is included as a protected area. While Gawah is a forest area that became one of the livelihoods that are utilized and taken sufficiently in accordance with the needs of the community and away from the intention of exploitation for sale to market and commoditization.

The mandala handler is one of the customary forest cover which means protected indigenously by awiq-awiq. This mandala traditional forest is located at the foot of rinjani mountain precisely in Bayan

Village, Bayan Sub District, North Lombok Regency, West Nusa Tenggara. The word Mandala according to some local customary figures, derived from two syllables Ma and Bendala, Ma means Giving and Bendala means a place to store something (a kind of coffin) if combined into Mandala which means Giving from God in the form of a place to store water debit large enough for life The surrounding community.

The Mandala traditional forest is believed to be a sacred place for the people of Bayan, because in one part there is the Bakeq Mosque or the mosque of the jinns. In addition, the existing water source in Mandala is believed to have a direct connection with the water that is in Lake Segara Anak, Mount Rinjani. Mount Rinjani is a jatung of community life on the island of Lombok, because as is known, 90% of Water spots on the island of Lombok is located in the forests of Mount Rinjani area. So the water from Mount Rinjani is a source of life on the island of Lombok. With an area that is not too large that is 1359 m², but customary forest mandala has many springs. The source of the existing spring in this customary forest, by the indigenous people of Bayan is still sacred, because it is one of the springs of nine springs believed to be the source of life for the tribe of sasak people.

The existence of Mandala Forest is rich with the noble values of culture. One of them is the concept of "Reversal" that is when a person wants to enter the forest in vain. Prohibition of entering the forest Mendala in vain, which if violated will get a disaster or disturbance in the future. And if the Mandala forest is damaged and its timber is cut down, then the destroyer is required to pay the customary fine to be fulfilled. That is why the Mandala Forest survives from time to time and provides water and other benefits that make it a valuable and meaningful gift to the life of the Bayan community.

The tribal sasak community has a unique way of keeping the availability and sustainability of springs and forests. If many other areas exert enormous amounts of security force from various units, ranging from pohut, police, even soldiers, it is different with this area. In Mandala's traditional forest area, there are customary institutions to preserve forest and water resources. Customary institutions consisting of Indigenous Peoples who served as indigenous leaders of the gundem (customary meeting), then there is the Adat Customary, and the Adat Pemekel that is in charge of giving opinions, suggestions, suggestions to Indigenous Peoples regarding the problems within the customary forest. As one of the "Act" products in this customary forest management, indigenous people of Bayan have made the awiq-awiq Indigenous Forest Mandala. Concerning the security of indigenous forests, there is Lang-Lang Jagad who is in charge of forestry police. There is also Inan Air, the one who leads the water as a spring. The rules in customary forest management are normative, but sanctions for violations are the most serious. Awiq-awiq is a strong adat in preserving and preserving existing springs, and awiq-awiq (custom rules) must be obeyed by all indigenous peoples or other communities.

There are five awiq-awiq contents created, among others:

1. Prohibited picking, picking, harvesting, catching wildlife and burning dead trees/timber contained within customary forest areas.
2. It is prohibited to shepherd livestock around the edge and inside customary forest areas that can cause damage to forest flora and fauna.
3. Do not pollute/sprinkle sources of springs within customary forest areas.
4. It is prohibited to poison the Watershed using fottas, decis, smuggle and others,

around and outside customary forest areas, which can lead to the destruction of biotics living in rivers.

5. For each user/user of water both individuals and groups are required to pay dues/sawinih to customary forest managers and springs.

To uphold and carry out awiq-awiq made with the concept of adat (customary law) and local wisdom, for those who violate all or one of the awiq-awiq, it is imposed sanctions that must be obeyed by anyone who violates. If the rule is violated then customary law will act in a way that stakeholders and indigenous peoples gather based on reports from witnesses. Then, the perpetrator was summoned for questioning. If a person is found guilty, indigenous peoples will impose appropriate sanctions. If there is someone who poison the forest with various chemicals the punishment is bribe and fine money as many as 1000 pieces. The term menyowok ritual ceremony by cutting livestock both buffalo and goat in accordance with the light weight of the violation and is equipped with a dish of ete-ete namely rice, coconut, spices and cooked with animal meat cut with offerings, betel nut, and whiting, The violator smeared with the blood of the slaughtered animal mixed with grated coconut and applied on the forehead (*sembeq* = sasak language).

The punishment for the person who planted the forest with the clove and the coconut of his punishment was the bribe and the lumberjack he had planted. If a person breeds in the forest then the livestock is removed from the forest. For those who pollute the handler of his penalty clean the forest from objects that pollute the environment. For those who do the digging of minerals punishable by punching and fine money as much as 10000 pieces and stop the excavation. If the sanction is not obeyed to the offender is,

ostracized or alienated and not recognized as an indigenous community.

Harmony between indigenous peoples and forests keeps forests and springs sustainable. Thanks to the maintenance of indigenous forest mandala, through the springs in the forest community can irrigate 112 ha of rice fields and become a source of clean water in the bayan and 3 other villages. The beautiful forest that is at the foot of this rinjani mountain makes the customary forest mandala be the destination of local and international tourists. Not only the charm of the forest and the freshness of its springs make this place must be visited by tourists, this forest is also used as a forest of educational tourism by presenting the traditions of the bayan community that has been preserved until now. The public's gratitude for the sustainability of forests and the abundance of water available in the mandala forests, each year is held by the Mata Air or Roah Pengembulan, attended by all water user farmers and voluntarily bringing each of them a chicken and even kerbaupun sometimes taken to be recited In the springs and as a dish to be enjoyed together until the ceremony was closed by the kiayi with prayers as gratitude to the god.

The concept of forest conservation and springs in the traditional forest of mandala based on the local wisdom of the sasak bayan community makes the forest and the water well preserved until today. The sustainability is maintained as long as the traditions of the community are maintained. Indigenous wisdom of indigenous peoples in parrots in protecting forests and springs, making the Springs of Mandala, sapai is still well preserved. Mandala Forest Management is a tangible relationship between the tribe of sasak bayan and its environment, which respects and maintains its existence so as to provide great benefits to the community.

C. Betemoe (visiting) and Besiru are integrated into the Interaction material in the ecosystem

Ecology is defined as a science that examines the interactions between living things and their environment. This ecological definition explains that, between living creatures and their environment can not be separated even in any way. The intended environment is called by factors that include biotic and abiotic factors (living and non living factor).

Humans as one of the living creatures, and human beings are social beings, so that interaction becomes a part of life. Such interactions can occur between human beings, other living beings, as well as with nature. In connection with these interactions, in the sasak known some local wisdom such as betemoe and besiru. Both of these local wisdom contain the same core values, namely mutual interaction (mutualism).

Betemoe (visiting) is the local wisdom of the sasak tribe that describes the interaction among the citizens to strengthen the bonds, the ropes of brotherhood, the ropes of kinship. When a guest comes to a neighbor's house, friends, or family, the host offers a "meal" and a short time served by the cook (places, betel vines), and cigarettes with a (friendly) taco. Then followed a serving of drinking water and sedaq (small snack foods with snacks, seeds or fruit). Tradition like this is done by Sasak people with overlapping attitude, that is done fair and not made-up, neat and orderly according to custom.

While besiru is the local wisdom in the form of interaction among fellow citizens to help each other. The concept of cooperation, mutual help is a fundamental concept to solve the problem. Examples of the concept

of local wisdom besiru such as helping each other in terms of agriculture, ranging from piracy to harvest. The concept of this tradition adheres the same weight of the same weight bears the same portable. Tradition besiru is one form of social behavior of tribal societies associated with the issue of solidarity among others. Tradition besiru is the work of gotong royong work in agricultural areas (rice fields) tanpa no wages or rewards. Besiru is also referred to as betulung, betenak, or betejak.

The values of local wisdom that can be picked from the tradition besiru sasak community is; 1) gotong royong, the meaning of mutual cooperation is working together to achieve or get the results that are planned based on a sense of sincerity and togetherness; 2) maintain social relationships, social relationships are a reciprocal relationship in society based on awareness to help each other in various areas of life. Positive impacts of besiru in daily life of preserving the silaturrahi ropes between communities; And 3) to prevent radicalism, Zulkarnian (2016), declared that local wisdom is indispensable for growth in building mutual care in the community. Strengthening the role of local wisdom in this society has a positive impact as a form of prevention of radicalism in society.

E. Conclusion

1. Local wisdom of the tribe identified, among others, proverbs/motto of life, form (architecture of buildings), rules (awiq-awiq).
2. Local wisdom can be integrated in learning.

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