



Water Resource Conservation Based on Local Wisdom of Madurese Ethnic Migrants in Kalibaru Afdeling, Banyuwangi, Indonesia

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ABSTRACT

Conservation of water resources is crucial in the Afdeling area because the water is needed to supply for the plant. The behavior of ethnic Madurese migrants in Kalibaru Afdeling becomes interesting to investigate because it differs from the Banyuwangi indigenous ethnic, Osing. The purpose of this research was to know the habits of the Madurese tribe in the conservation of water resources in the plantation area. This study used a qualitative method with a branched contractile approach, with some informants from three elements such as, residents, community leaders, and village coordinators. The result of this research shows that Sumber Pereng's inhabitants have some ways to maintain water resources by keeping bamboo and cleaning the area every Rabu Wekasan, while Sumber Limak and Sumber Gueh's inhabitants constantly change the plants around the water resource, but they do nothing to maintain and conserve it. Water resource conservation is better in Sumber Pereng than in Sumber Limak and Sumber Gueh.

Keywords: Conservation of Water, Bamboo, Rabu Wekasan

1. Introduction

Kalibaru Afdeling in Banyuwangi, East Java, Indonesia has been a plantation area since Netherland's colonial era. In the 1800s, many people from Madura Island were forced to leave their hometown to work as laborers in some plantations around Java Island. VOC's (Vereenig de Oostindische Compagnie) regulation which applied lifetime contracts forced laborers to stay in the Afdeling area for

generations. This phenomena is the early era of why many Madurese ethnic migrants stay and live in East Java, especially in Kalibaru (BUMN, 2015).

As the Afdeling area, water is a vital factor in people's daily activity needs. On the other hand, the land-use changes due to the growing human population threaten the existence of water resources. This activity can force people to close the water absorption area which is an essential

factor in saving water at resource water used to supply people's daily needs. Increased housing needs threaten water supply and biodiversity for plantation production or the vital needs the community. The agriculture sector needs approximately 70% of water (Pimentel et al., 2004). Every decade there is always a need to build new buildings around plantations. The location of isolated populations in the middle of plantations, close to water sources can also threaten the existence of water sources. The water volume will be affected by quantity change, time, and variability of rain

intensity. The evaluation of water supply in the future needs to be considered as a consequence of the closure of land and the usage pattern of the area, which has already been proven to affect the balance of water in a very long term (Tavernia et al., 2016). Nowadays, Banyuwangi Regency lost 32 of its water reservoir and 50% the rate of water flow began to fall at the beginning of 2008. The phenomenon has some factors, such as the changing of usage of the forest, decreasing number of forest protections, and illegal logging which causes barren lands (Tempo.Co, 2008).

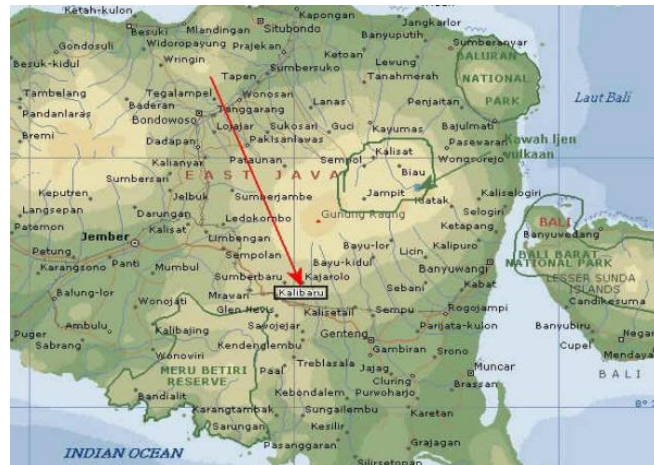


Figure 1. Kalibaru Map in Banyuwangi Regency, East Java, Indonesia

This fact is different from what happens to the water resource of Madurese ethnic migrants in Kalibaru Afdeling, which is well maintained. People keep their tradition as their local wisdom legacy by doing massive social activities. They also encourage maintaining the system through living environment education in school and general education in society. It is similar to what Osing ethnic do; they protect trees and plants around the resource water area (Sumarmi, 2015). Thus, implementating their local wisdom developed through education activity,

training, practice, and cultural attraction. The conservation experiences in various contexts in the Philippines have shown that effective natural resource management programs are never detached from the local communities' values, needs, and participation (Manlosa et al., 2013).

This resource water conservation phenomenon in the Madurese tribe becomes interesting because they do not have living environment insight, do not have special rituals, and are not scared of myth. It is based on their own beliefs and traditions for generations to keep and

maintain their water resource. This is different from Osing people's tradition who believe that there is another power that protects water resources, so they worship that power by giving kinds of offerings, by doing kinds of rituals due to people's beliefs of some magical or mystical power (Fatchan et al., 2016). Several things significantly influence attitudes and behaviors of water, including the level of awareness, conservation, and water usage, including the level of education, economic status, domicile status, income, ethnicity climate, and season. On the other hand, some categories like, sex, age, water bill, and domicile location show that there is no significant effect of water usage (Garcia-Cuerva et al., 2016).

The current situation shows that water resources availability in Afdeling Kalibaru is still intact since it is discovered in the Netherland's colonialism era in Indonesia . These water resources are adequately able to fulfill daily needs which are about 1,500 people. Moreover , it is pledged for maintaining producible plant which is about 969 hectares of the coffee plant . In addition, Afdeling Kalibaru produces coffee with pretty high productivity. The people's activities related to the maintenance of water resources become an interesting study because it can add insight and knowledge to complement water resources information in other places that have characteristics and behavior different from Afdeling Kalibaru.

2. Materials and Methods

The observation was located in Afdeling Kalibaru, Banyuwangi Regency, East Java, Indonesia. It aims to identify how people do kinds of water conservations based on their knowledge and local wisdom. It used qualitative method. first step was general observation and interview. The second step was data analysis (Sugiyono, 2011). The respondents were 17 people who usually used the water, 5 public figures such as traditional leader, religious leader, women leader, youth leader, trade union leader and 1 village's authority as the representative government.

The data were collected through participant observation and in-depth interviews. Observations were carried out in the field where researchers observed people's behavior in using water from morning to evening every Saturday and Sunday. Researchers conducted interviews with each person who came to the source of water, about the arrival schedule, frequency of water collection, water utilization and how to conserve water sources. Information data from the community were cross-checked with leaders and village coordinators through in-depth interviews. The assessment of validity was done by standardization technique 'member check'.

The data analysis was done using an interactive model in the form of data collection, data reduction, data display, data verification, and conclusion.

The three types of analysis activity and the activity of data collection itself form an interactive, cyclical process. The researcher steadily moved among these

four nodes during data collection and shuttled among reduction, display, and conclusion drawing/verification for the remainder of the study.

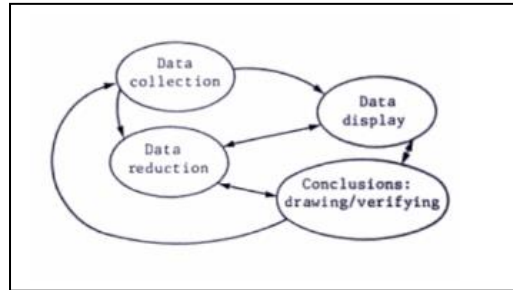


Figure 2. Interactive Model (Miles & Huberman, 1994)

3. Results and Discussion

3.1. Water existence

Based on the observation results, the collected data prove that there are three spots of water sources in Kalibaru Afdeling. Initially, the water sources arises from outside afdeling which is located higher than afdeling. Then, two other water sources appear just below the primary water source. Thus, there are three places, one place is outside the of afdeling zone and two other places are in the 23rd and 24th afdeling blocks. One spot is out Afdeling's zone called Sumber Pereng and the other two spots which are in the Afdeling's zone are called Sumber Limak and Sumber Gueh.

Sumber Pereng is located quite far above Afdeling's area with heterogeneous and dense populations of vegetation. It is about more or less than 3 m x 6 m x 2 m, surrounded by very dense bamboo trees *Bambusa sp.* On the other hand, Sumber Limak is located in the 23rd block Afdeling with the width of 2 m x 5 m x 1 m separated into two buckets. One for showers used by men, and the other for women which is a very heavy and

unstoppable shower. Jambon trees surround Sumber Limak. The last is Sumber Gueh that is located quite near Sumber Limak which is in the 24th block. This spot has never been used since 2001. It has width 2 m x 3 m x 0,5 m which has been covered by bushes. It is also surrounded by cassava trees.

3.2. Water maintenance

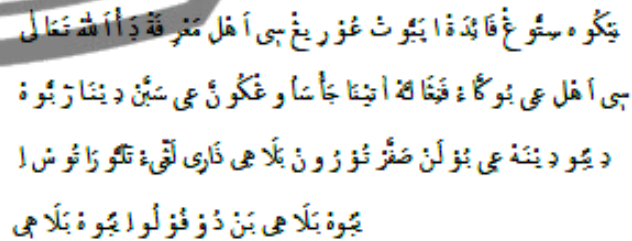
The people's activity in maintaining the water sources is different in each spot. In the Javanese calendar, Sumber Pereng's people clean the spot every Wednesday in Sapar month. The date is chosen due to people's beliefs that, God gives 360.000 disasters and 20.000 dangers which is inspired by "Rebu Wekasan" culture (Fatchan et al., 2016). The activity includes cleaning the environment of water resources from weeds and litters.

According to local people, pedestrians throw rubbish when passing the road near the water source. The position of the Pereng water source is indeed close to the alternative road and covered with lush shrubs so that the rubbish is not so visible. The types of

rubbish include cigarette butts, plastic wrappers (candy, cakes, biscuits), plastic bottles, paper or leaf wrappers (cakes, rice) and other small rubbish. The people believe that the rubbish disturb the growth of plants around water sources. These plants must not be taken, cut, burned, and must be allowed to grow lush. They also

believe that the place is inhabited by water guard ghosts.

The holy book of Rabu Wekasan tradition is "Tarjuman". Kalibaru's people get this book descendantly or by learning religion at "pondhuk" (Islamic boarding school), the holy book stated that:



تَكُونُ سِتْرًا قَائِدًا ابْنُوتِ غُورِيغِ هِي اَهْلُ مَنَرَةَ دَا اَللّٰهُ تَعَالٰى
هِي اَهْلُ عِي بُوگَاءِ قَيْنَا لَهْ اَيْنَا جَانَا وَغُكُونُ عِي سَبِيْنِ دِنْتَارِ مَجُوَهْ
دِي مَجُوَهْ دِنْتَهْ عِي بُوْلِنُ صَفْرُتُوْرُوْنِ بَلَا هِي دَارِي لَقِيَهْ تَكُوْرَا تُوْرَا
مَجُوَهْ بَلَا هِي بِنُ دُوْرُوْلُوْرَا مَجُوَهْ بَلَا هِي

Translate: This is one of the benefits which the expert says ma'rifat whose sight has been opened by God, that in every last Wednesdays in Safar month will be released 300.000 and 20.000 disasters from the sky (Latif et al., 2014).

Rabu Wekasan tradition is done in the morning until the afternoon because based on the Tarjuman holy book, the people believe that God's protection comes from morning to evening. This time duration also refers to the habits that previous generations had done. According to Giddens (2010) something routine in a social life will be the basis for the next generation, a phenomenon called the essence of the repetition of social life. Based on this repetition, the structured characteristics of social activities will be continuously created again for the same resources in the community.

The role of public figures is also powerfull for the people who live in Kalibaru afdeling, especially people around "Sumber Pereng" water Sources. The implementation of Rabu Wekasan is coordinated by the village authorities to send invitations to people to come and

bring the cleaning equipment. They are very obedient to the village authorities because they have the power of legitimacy from the district government but do not have a coordination or command relationship with afdeling management. They are also able to mobilize all levels of hierarchy people, as well as young people and women, including village leaders to carry out the Rabu Wekasan ritual. This is a DSL (domination-structure-legitimacy) scheme because of the dominance scheme has a strong role in Rabu Wekasan. The dominance structure refers to the asymmetrical relationship at the level of the social structure, where power that has a transformative capacity is involved in social relations at the level of social practice (Priyono, 2003). The dominance in Rabu Wekasan is the committee and village government because they are the ones who compile licensing plans, events,

and other rules so that they are in control of the Rabu Wekasan event to the following year.

The people's activities is cleaning the environment of the Sumber Pereng water source from various types of waste that hinder the growth of surrounding plants. This activity seems simple, but it is carried out once a year so that there is a lot of waste around the water source and has slipped among the bushes. Moreover, the location of the hidden water source, sometimes there is a blockage that causes water to not flow smoothly. All of these obstacles are corrected during Rabu

Wekasan activities. During this period, people were not allowed to fetch water at the Sumber Pereng Water Source. Water flowing at that time was believed to contain many harmful diseases. According to public recognition, no one has dared to violate these rules until now. The leaders always frighten with mystical stories that cause people to not dare to violate the provisions that have been believed for generations. There is no administrative punishment for those who cannot attend because it is based entirely on self-awareness and moral force.

Table 3. The Activities of Water Sources Maintenance

Informant	Information	Meaning
People	Maintenance of water sources in <i>Sumber Pereng</i> is conducted by cleaning up water sources every <i>Rabu Wekasan</i> . Everyone is asked to bring equipment, such as a hoe, a large knife, a sickle, and a wastebasket. Meanwhile, in <i>Sumber Limak</i> and <i>Sumber Gueh</i> , there is no such activity like that.	By clearing up the location of water sources in <i>Sumber Pereng</i> on <i>Rabu Wekasan</i> , the water is hopefully remained abundant. Meanwhile, kind of activity does not happen in <i>Sumber Limak</i> and <i>Sumber Gueh</i> because they have never been implemented for generations.
Public figures	Cleaning up water sources is done only in <i>Sumber Pereng</i> on every last Wednesdays (<i>Pungkasan</i>), termed <i>Rabu Wekasan</i> . <i>Sumber Limak</i> and <i>Sumber Gueh</i> do not do similar activities since it needs procedures permission from the Afdeling's management.	The awareness of people in caring for the rituals of water sources in <i>Sumber Pereng</i> because it is influenced by Osing Banyuwangi culture. Meanwhile, <i>Sumber Limak</i> and <i>Sumber Gueh</i> consider that ritual is actually against the rules of Islam and spoil the spirits which guard the water sources.

Village's authorities During the water sources cleaning up, the Village's authorities are on duty in providing an invitation to all residents around the site until the activity begins. The news is informed two weeks before the event. Only *Sumber Pereng's* people who truly aware of taking care of it, while people at the *Sumber Limak* and *Sumber Gueh* are not since they believe it does not effect on the existence of water sources.

The phenomenon that occurs in people around water sources in *Sumber Pereng*, *Sumber Limak*, and *Sumber Gueh* is different because of cultural differences that influence freedom of expression. The *Sumber Pereng* people are located outside the plantation zone, so they are not strictly tied to the afdeling management. Thus, the cultural influence of the *Osing* tribe as the main tribe in *Banyuwangi* Regency provides enough space for the *Sumber Pereng* people, including the influence of the *Rabu Wekasan* myth.

The culture of *Banyuwangi Osing* ethnic is performing *Rabu Wekasan* rituals with offerings and dances. However, the difference in *Madura's* community is just to do voluntary work to clean up the location of water sources on the same day without offerings and dances. The reason is that the community of the *Madura* tribe is not familiar with offerings and dances in cultural rituals (Latif, dkk, 2014). They are predominantly *Muslim* who do not perform cultural rituals. Moreover, the *Sumber Pereng* community environment is also influenced by beliefs in the teachings

of the *Truman* scriptures that are mostly delivered by religious leaders. Thus, the implementation of *Rabu Wekasan* activities is more directed to the main issue, namely the decrease in the threat of disease through various natural media, such as water.

Almost similar to *Sumber Pereng*, the people in *Sumber Limak* and *Sumber Gueh* who live in the afdeling, they are mostly *Madurese* who have never known ritual offerings and dances. They consider that the activity to clean up the environment in the water sources during *Rabu Wekasan* is only a myth so that no one in *Sumber Limak* and *Sumber Gueh* perform the *Rabu Wekasan* ritual. In *Madura* culture that prevails in these two regions, it is assumed that mystical beliefs interfere with the activities of human life that need to be avoided. On the other hand, every activity around plantation must obtain permission from the afdeling management so that the activities initiated by the community are restricted. This is closely related to the regulations in *Afdeling's* estate which are governed by

legal written management provisions. Afdeling former Dutch colonial was very strict control of community activities, to protect the interests of Afdeling.

Strangely, even though they do not believe in myths and do not clean or protect plants near water sources, they still respect Rabu Wekasan. Secretly, they still have a feeling of fear of the phenomenon of water in a water source that mutates into Air Dundung which contains many diseases so they do not dare to take a shower or take water from morning to evening. If they violate, they will suffer complex diseases which are difficult to be recovered with medical drugs. Based on this belief, Rabu Wekasan becomes a special day for the Kalibaru afdeling community.

3.3. Public Perception of the Sustainable Water Resources

Perception is an interpretation of sensory information in order to provide a picture and understanding of a situation. The community perception in Kalibaru Afdeling regarding the conservation of water sources is also different. The difference lies in bamboo plant perception. According to Sumber Pereng people, bamboo is a plant that can absorb and store water for a long time so that at the point around it, water abundant and flowing is at all times. As long as the bamboo plants are not cut in Sumber Pereng, the source of the water will continue to exist. Bamboo is trusted as water reservoir tree too, because the is hollow in the center so it holds a lot of water to flow into the roots and continued to the ground. Thus, the Sumber Pereng

community protects the environment of the bamboo population because it is believed to be very effective as groundwater reservoir.

One of some other characteristics of bamboo favored is that the fibers are layered and robust, that if it is broken it will bend little by little instead of instantly cut like woods (Yang et al. 2015). Besides, bamboo tree is very familiar with Afdeling environment and used for vegetables (bamboo shoots), wrap (leaf), fodder (young shoots), broom stick, pole of houses, partition of walls, the roof of the house buffer, and fuel.

This perception is different from the people in Sumber Limak and Sumber Gueh, who argue that any plant can act as a groundwater retainer. It is natural if the plants surrounding the water sources keep changing adjusting the command of the afdeling management. They did not consider bamboo as an important crop like in Sumber Pereng, so that it can be replaced by other plants. In Sumber Limak, chocolate is replaced with Jabon, while in Sumber Gueh, chocolate is replaced with cassava. It seems that perceptions in the society are very dependent on the constructive social environment. Conditions that occur can direct the pattern of behavior of a community into a different situation with other neighboring communities.

According to the village authority, any water source is an inventory of village wealth that has been recorded and managed as citizens' water sources. All rules made are the result of an agreement with the community. Thus, the consensus that has been mutually agreed upon will

be maintained well and be a commitment among residents around the water source.

Another interesting thing to note from the behavior of the community in conserving water resources is that there are no offerings addressed to the guard water sources spirits. There is no myth that commonly arise in holy places as many in other parts of Indonesia, no guard like caretakers of the mountain, the caretaker of the shrine, and so forth. Moreover, since there is no adequate scientific support of a bamboo plant in Sumber Pereng community, their perception of the function of the bamboo plant can be biased but not false either.

4. Conclusions

Based on the results of the observation, it is found that the conservation of water sources in Kalibaru Afdeling is done out of its zone, which is in Sumber Pereng, where they do Rabu Wekasan; an activity that has been done descendant every Wednesdays in the end of month Sapar in Javanese calendar. This is not done in two other water sources, namely Sumber Limak and Sumber Gueh. Besides, the Sumber Pereng people have conserved the land of water sources surrounded by bamboo trees which is believed as the effective water saving. Two other water sources conserve the water sources by jambon and cassava trees. (this has been explained in section 3.1 and table 4.)

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