Traditional knowledges of local wisdom of Aga Tenganan Pegringsingan Bali about environmental conservation and sanitation

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Abstract. The aim of this research is to study about environmental conservation of Aga Tenganan ethnic group in Desa Pakraman Tenganan Pegringsingan Karangasem Bali. Qualitative descriptive method is carried out in this research. Field observation is done and fifteen respondents including children and adults is selected in this study. Data is collected from questionnaire and interview from respondents. Based on data collected from 15 respondents shows that environmental science education is taught by elderly people (80%) and parents (76%). However, the rubbish and wastes produced by people activities needs more attention. The findings of field study shows that Aga Tenganan are still maintaining their local tradition. It shows with the presence their social practices in meeting places such as bale banjar, bale wantilan and bale subak; awig-awig as a tradition rules; local tradition ceremony Mekare kare related to environment; and forest preservation. High attention of local people in environmental conservation is supported by their environmental science education background.

1. Introduction
Educational needs are not only formally obtained, but can be obtained informally. Because the need for informal and non-formal education services is felt in supporting people's lives in realizing a better life [1]. With education, knowledge and skills will be gained so as to shape public attitudes and concerns especially to the environment in a positive view [2]. Humans are the highest living beings compared to animals and plants. With the mind he has, then humans can perform activities in managing the environment to meet their needs. Presence of environmental knowledge in early year, it will form the character and attitude of human being to be sensitive to environmental awareness.

Indonesia has 34 provinces that each has a diversity of traditions and cultures. Therefore, there will be high number of local tradition in Indonesia. The traditions that are held, are very closely related to the natural environment. Several studies have demonstrated environmental involvement in performing traditional ceremonial activities on indigenous tribes of Kamiren [3]; the Ammatoa of South Sulawesi [4]; and Cikondang Pangalengan [5].

The customs associated with the environment are found in all ethnic groups in Indonesia. The island of Bali is listed as a region rich in culture and still maintained as one of the hallmarks of Balinese society to date. Pakraman Village Tenganan Pegringsingan is one of a number of ancient villages in Bali that reflect the culture and customs of Bali Aga village. This village has an original tradition culture. This tradition is still preserved till now. Each village in Bali has certain rules called awig-awig. This rule is governing the customary village life [6].
Based on preliminary studies, the location of the Tenganan Pegringisngan Karangasem Bali is between two hills. The Bali Aga tribe occupies in a mountainous area. These conditions create a conducive situation that is closed and isolated from the influence of foreigner and foreign cultures. The village is surrounded by dense forest. This tropical protected forest area is part of the Aga Tenganan village. Some studies have been conducted which are related to Indigenous Tribes Aga is about the pattern of housing and settlements [7]; social change [8]; customary marriage [6]; and custom house design [9] in Tenganan Village Bali. However, study about local wisdom of Bali Aga tribe to the environment is limited. Therefore this paper will explain descriptively the results of field observations on environmental education obtained in maintaining environmental wisdom.

2. Method
This descriptive qualitative research method is to describe the systematic, factual and accurate description of environmental knowledge education in local communities on environmental conservation in Tenganan Pegringisngan Adat Village. The sample was chosen by using sampling technique that is purposive sampling. This research was conducted in Desa Pakraman Tenganan Pegringisngan Karangasem Bali. Population in this research is indigenous people who live in Pakraman Village Tenganan Pegringisngan. The sample that will be used from this research is indigenous Pakraman Tenganan Pegringisngan which adheres to custom which still thick with its culture. Subjects in this study are traditional elders, institutions of social institutions and communities with different levels of education. Respondents who were subjected to the study were parents and children, with details for junior high school level children of 7 parents and children of high school education level of 8 people. Of each child who is made a respondent by the researcher then the parents of the child will also be made informant. This is done to see matches of information obtained from children and parents. Instruments used to obtain data are questionnaires, interviews, field observation form and documentation. Questionnaires and interviews were conducted to collect data on environmental knowledge, community background, environmental knowledge education and environmental awareness. Observation results are used to record important events or information in the field or during research. While the documentation is used as a complement and representative evidence when conducting observations in the field.

3. Results and Discussion
The results of this study include 4 aspects: The environmental knowledge provided by the Aga Tenganan Pegringisngan; Education of Environmental Science of the Tribe Aga Tenganan Pegringisngan Community; and Aga Tenganan Pegringisngan Community Awareness Talk Force on Environmental Sanitation.

3.1. Environmental Knowledge Provided by the Aga Tenganan Pegringisngan Community
Questionnaires and interviews are addressed to teachers and communities living in the Aga Tenganan Pegringisngan tribe. This aims to clarify how environmental knowledge obtained by the Tribe Aga Tenganan Pegringisngan. The results (Table 1) of this study are similar to the research conducted by [10] in Kampung Naga Tasikmalaya and [4] in South Sulawesi Kajang Tribe. The environmental knowledge obtained from formal and tribal schools (informal) by children is equal to reach 73.3%. The environmental knowledge gained in the Aga Tenganan Tribe has a good category. Environmental knowledge received by the community both from schools and from the Tribe Aga Tenganan Pegringisngan get a positive response because the community applies environmental knowledge given in daily life (more than 86.6%) (Table 1). Interview results are also said that every subject in the school must be synchronized with the daily environment. Knowledge of keeping the environment in school is obey and respect the environment in Tenganan Village.
Table 1. Environmental Knowledge at School and Village Tenganan

| No | Statement                                                                 | Percentage |
|----|---------------------------------------------------------------------------|------------|
| 1. | Environmental knowledge received by respondents during education about the importance of keeping the environment in school applied in everyday life | 86.6       |
| 2. | Environmental knowledge received by respondents during education about the importance of maintaining the environment in the Aga Tenganan tribe applied in everyday life | 96.6       |
| 3. | Environmental education obtained both at school and in Aga Tenganan tribe has the same relative environmental knowledge | 73.3       |

The environmental knowledge gained in Tenganan Village has an effect on their behavior in protecting the environment. Because the learning outcomes in the classroom should be applied in the field. In the village, *awig-awig* rules are also presented about the obligations of the Aga Tenganan Pegingsingan community in maintaining and respecting the natural environment.

3.2. Education of Environmental Science of the Tribe Aga Tenganan Pegingsingan Community

Based on the results (Table 2), the community obtained environmental conservation science from parents (76.6%) and customary rules (80%). This shows that parents have important role to educate their children. The importance of the family in the educational point of view is the family that became the first and main educational institution. According to Subino Hadisubroto in [11] that the family should be a place to live to share feelings and thoughts.

Table 2. Education of environmental knowledge of Tribal Aga Tenganan people

| No | Statements                                                                 | Percentage |
|----|---------------------------------------------------------------------------|------------|
| 1  | I know how to keep the environment from parents                           | 76.6       |
| 2  | I know how to protect the environment from the chief                       | 43.3       |
| 3  | I know how to keep the environment (learning from my own experience)       | 36.6       |
| 4  | I know how to protect the environment from others                         | 20         |
| 5  | I know how to keep the environment from school                            | 23.3       |
| 6  | My education on the importance of maintaining the environment is obtained from school (elementary, junior high school, high school) | 60         |
| 7  | My education on the importance of protecting the environment comes from gathering with the Tenganan citizens | 76.6       |
| 8  | My education on the importance of protecting the environment comes from traditional elders | 26.6       |
| 9  | Environmental education activities in the Tribe Aga Tenganan Tumbling is done once a week | 6.6        |
| 10 | Environmental education activities in the Tribe Aga Tenganan Pegingsingan is done 2 times a week | 3.3        |
| 11 | Environmental education activities in the Tribe Aga is done once a month   | 36.6       |
| 12 | Educational activities on the environment in Tribe Aga Tenganan is done 2 times a month | 3.3        |
| 13 | Educational activities on the environment in Tribe Aga Tenganan Pegingsingan Conditional Conducted in accordance with the needs of the community | **53.3**    |
| 14 | Community care attitudes toward the environment are influenced by schools  | 26.6       |
| 15 | Community care attitude towards the environment is influenced by parents   | 73.3       |
| 16 | Community care attitude towards the environment is influenced by customary rules | **80**     |
| 17 | Community care attitude towards the environment is influenced by self awareness | 63.3       |
| 18 | Nature teaches people the importance of preserving the environment         | 100        |
| 19 | People have read about the laws and regulations concerning the preservation of the environment | 46.6       |
| 20 | There are special environmental studies for adults in the Aga Tenganan tribe | 76.6       |

Not only in the Aga Tenganan Pegingsingan Tribe, research in Kampung Naga [10] and Kajang Tribe [4] states that parents get the highest percentage in contributing environmental knowledge to children. Lessons learned about preserving or conserving the environment are obtained from *awig-awig*, parents,
and also indigenous elders. In this activity, forest management is done by giving socialization or lecture to the participants of the activity. The socialization here can be given by local community leaders. Socialization is not done by telling chapter after chapter of awig-awig as listed in the awig-awig. It is intended that the participants are interested to listen to the information submitted. In addition, this way of delivery will allow participants more easily accept or absorb information about forest management for community life [12].

3.3. Aga Tenganan Pegring singan Community Awareness Talk Force on Environmental Sanitation

Community attitudes towards environmental conservation and sanitation (Table 3), show contradictory symptoms. Community awareness of the safety of forests is preferred (> 76.6%) compared to concerns about the surrounding waste (<50%). This shows that the provision of environmental knowledge has not reached the stage of environmental sanitation. In addition, there is no direct direction to the community will be processing waste and maintain a healthy environment.

Table 3. Community Tribal Attitudes Tenganan to Environment

| No | Statements                                                                 | Percentage |
|----|-----------------------------------------------------------------------------|------------|
| 1  | People do not always throw garbage everywhere                               | 76.7       |
| 2  | People always sort out organic and inorganic waste                          | 40         |
| 3  | People throw garbage in the river                                           | 43.3       |
| 4  | The garbage that people collect is then buried                              | 10         |
| 5  | People use the courtyard around the house to grow useful plants             | 66.6       |
| 6  | Cutting trees in the forest is not allowed                                  | 83.3       |
| 7  | The community needs to re-plant after cutting down trees                    | 96.6       |
| 8  | Society rebukes people who take actions not to protect the environment      | 96.6       |

Unlike the attitude of the community in managing the forest. The community has been well-informed about forest management. The results of their knowledge about forests can be felt by the Tribe Aga Tenganan Pegring singan people. [13] said that forests are part of the life of indigenous people and are very influential on the sustainability of indigenous peoples. The community has an awareness of the importance of forests. Because forests have a role and function as, protection forests, asylum forests, production forests and forest tourism [14]. The interview result says that the Aga Tenganan Pegring singan community care attitude is shown to the forest that produces abundant resources. Most of the land is moor that serves as a forest. Another source of water is water clima (ground water) on the river. This water source comes out of forest conservation in Tenganan Traditional Village area. These springs are used for rice fields, moorlands (gardens) and settlements. Given the abundant natural resources, the community believes that their attitude to obeys the village awig-awig must be maintained and developed further.

Concern for environmental sanitation (Table 4) is shown that 73.4% of people managed waste into useful goods. However, there are people who throw and burn garbage that can cause environmental damage. In addition, waste is a source of environmental pollutants and can be a source of disease that threatens human health [15].

Table 4. Community Efforts of the Tribe Aga Tenganan on the conservation and sanitation of the Environment

| No | Statements                                                                 | Percentage |
|----|-----------------------------------------------------------------------------|------------|
| 1  | Organic waste in the form of leaves, used vegetables and the former plants are usually thrown in the garden | 23.3       |
| 2  | Organic waste in the form of leaves, vegetables and used plants are usually burned | 66.6       |
| 3  | Organic waste in the form of leaves, vegetables and former plants are usually disposed in the river | 6.6        |
| 4  | Organic rubbish in the form of leaves, vegetables and used plants are usually collected | 10         |
Table 4. Cont.

| No | Statements                                                                                   | Score | Percentage |
|----|-----------------------------------------------------------------------------------------------|-------|------------|
| 5  | Organic waste in the form of leaves, vegetables and former plants are usually left            | 10    |            |
| 6  | Rubbish leaves and excrement animals, usually made compost                                    | 10    |            |
| 7  | Rubbish leaves and animal waste, usually left                                                 | 53.3  |            |
| 8  | Rubbish leaves and animal waste, usually burned                                               | 20    |            |
| 9  | Rubbish leaves and animal waste, usually collected                                            | 33.3  |            |
| 10 | Society utilizes available materials, waste materials or used materials to be used as handcrafts | 73.4  |            |
| 11 | Traditional ceremonies conducted by the community do not disturb / pollute the environment     | 63.4  |            |

Community awareness of the environment is also supported by customary rules that must be followed. Table 5 shows that the existence of adat rules is very beneficial for the life of the Tribe Aga Tenganan (100%) and the community is very supportive with the existence of the rule (90%). Communities need the rule as a guide in forest management and preservation of forests and their survival. The penalties earned for persons who violate customary rules shall be liable to sanctions in accordance with the offenses committed. The sanctions imposed are laid on moral (social) sanctions. Other sanctions in the form of sanctions of fines in the range of thousands of dollars. Social sanction is very feared by the people in Tribe Aga Tenganan Pegringsingan. So that Tenganan Indigenous Villagers are very obedient to the rules imposed.

Table 5. Customary Rules and Punishment Related to Environmental Conservation

| No | Statements                                                                                   | Score | Percentage |
|----|-----------------------------------------------------------------------------------------------|-------|------------|
| 1  | The community does not object to the rules (preserving forests) that have been established by the previous chiefs of adat and ancestors | 27    | 90         |
| 2  | According to society the rules (keeping the environment and maintaining the forest) are beneficial to life | 30    | 100        |

4. Conclusion
The community Tribe Aga Tenganan Pegringsingan have a very good relationship due to routine activities that involve all citizens to contribute to each other. Culture of Tenganan Pegringsingan community has a characteristic that has rituals associated with environmental conservation. Environmental knowledge received by the Tribe Aga Tenganan Pegringsingan both in school and in the village is relatively the same in terms of environmental conservation. Because children apply the knowledge gained in everyday life well.

Environmental knowledge education obtained by the Tribe Aga Tenganan Pegringsingan is influenced by many parties. In the ways of preserving the environment directly the community gained knowledge from parents. Informal education in Tenganan village is done at a time when communities are gathered and given learning to understand all customary rules.

A caring attitude that is formed within the Aga Tenganan Tribe community is influenced by customary rules. This is because they are very respectful of the ancestors. The form of awareness that is owned by the Tribe Aga Tenganan community on environmental conservation is good in terms of keeping the forest except in managing waste is still less.

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