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Preliminary study of ethnobotany based on local wisdom in Mount Ungaran Central Java

N R Utami^{1*}, M Rahayuningsih¹, M Abdullah¹ and T A Ahmad²

¹Biology Department of Mathematics and Natural Science, Universitas Negeri Semarang

²History Education Department of Social Science Faculty, Universitas Negeri Semarang

* Corresponding author: nru_tgd@yahoo.com

Abstract. Mount Ungaran has abundant of biodiversity potential including flora. This is because Mount Ungaran still has a natural forest and one of the remaining natural forests especially in Central Java. The objective of the research was to preliminary study of ethnobotany through local wisdom of local people in managing biological resources and their environment, in the context of biodiversity conservation. The study was conducted in April-August 2018 in seven villages, such as Ngesrepbalong, Banyuwindu, Kalisidi, Gondang, and Sumber Rahayu, Sriwulan, and Gogik. Preliminary data collection of ethnobotany and local wisdom study included nine components and 35 person interview informants. The results are analyzed quantitatively and qualitative description. The results from analysis of three cultural components showed no specific phrases or teachings used by society in relation to society. Such Aspects of knowledge and local wisdom of society was low, because there is no knowledge of the relationship between the establishment of the village with flora or about the legend associated with certain plants in Mount Ungaran. The social system of the community around Mount Ungaran which describes the availability of specific institutions and related to conservation and certain rules on the preservation of flora, on average, the score in the social system is not good enough. The implementation of Flora conservation in Mount Ungaran there are still some problems encountered such as public indifference to Mount Ungaran

1. Introduction

Mount Ungaran Central Java located between Kendal and Ungaran Regency with total areas around 5.500 hectares. The habitat type in Mount Ungaran consider by remaining natural forest, tea-coffee-quinine plantation, padi field, and the river of Ungaran. This condition support Mount Ungaran has a potential biodiversity such flora, fauna, microorganism, and also fungi [1]. Mount Ungaran also established as AZE (Alliance for Zero Extinction) area and IBA (Important Bird Area). Several species of flora and fauna that have been found included in the protected category by Indonesian law and the IUCN red data list [2]. Illegal logging, flora and fauna hunting and trading, fragmentation habitat and forest clearing for farming, coffee, quinine or tea plantation, also for ecourism site that occurred at Mount Ungaran, its a serious threat to the existence of biodiversity and local knowledge. Land conversion continues in Mount Ungaran at the expense of forests, include the forest functions, which can degrade the quality of its biodiversity. However, around the forests of Mount Ungaran there are villages that do control efforts in order to remain sustainable forest through indigenous knowledge. some village examples indicate that local cultural knowledge and practices have an important contribution to



forest conservation efforts. Conservation of biodiversity in Mount Ungaran especially forest areas is not only the responsibility of the government, but the role and involvement of universities and communities is also very important. Traditional communities have high dependency on a variety of biodiversity such flora and fauna as a source of food, medicine and traditional ceremonial purposes. The knowledge was known as a local wisdom. Local wisdom is a basic knowledge gained from living in balance with the nature. It is related to culture in the community which is accumulated and passed on from generation to the generation. This wisdom can be both abstract and concrete, but the important characteristics come from experiences or evidences gained from they life [4]. Also, development of the community culture has been combined into the concept of participation and civil rights to [5]

Based on the some of problem, by looking at the threat factors in Mount Ungaran and without the participation and support of the local community, it is impossible for the preservation of remaining natural forests in Mount Ungaran can be controlled. It is necessary to study local community perception of ethnobotany-based conservation in Mount Ungaran as one of the efforts to conserve biodiversity.

2. Method

The research on local community perception was conducted in 7 (seven) villages around of Mount Ungaran, covering: (1) Kalisidi, (2) Ngesreपालong, (3) Gogik, (4) Banyuwindu, (5) Gondang, (6) Sumber Rahayu , (7) Sriwulan during March - July 2017. Efforts to see ethnobotany in preservation of Mount Ungaran using field exploration and interview questionnaire. An analysis of the socio-cultural context of the community using the Participatory Rural Appraisal (PAR) method. A total of 35 informants from 7 (seven) villages were chosen purposively to respond to the questionnaire based on cultural elements. On the preliminary studied we choose three aspect of cultural elements: (1) language, (2) knowledge systems, (3) social organizations.

3. Result and Discussion

The Result of the research based on several aspects components, namely (1) Language and community expression in Mount Ungaran related to flora, (2) Local knowledge and wisdom of people in Mount Ungaran related to flora, and (3) Social system of community in Mount Ungaran related to flora.

3.1. Language and expression of the community in Mount Ungaran associated with flora

Language aspects and public expressions are the first components of culture which are indicators of cultural linkages between communities around Mount Ungaran and the preservation of flora. This aspect captures the specific terms used by the community associated with Mount Ungaran. Besides that, there is also a saying in the form of advice taken from Mount Ungaran as a form of cultural wisdom. Of the seven villages that were made observations, the community stated that the language aspects associated with Mount Ungaran and its flora could be categorized as not good. There are no specific expressions or utterances used by the community relating to society. Ethnobotany is the study that support and which plays an important role in understanding the vigorous relationship between human beings and plants [6]. Some terms related to Mount Ungaran are just naming for annual ceremonies such as "Iriban" and "Susuk Wangan".

The analysis showed, it appears that in the villages of Kalisidi and Gondang the informants were not at all aware of any special terms relating to Mount Ungaran (Figure 1) . In contrast to other villages, there are uses of terms such as ban Iriban 'or Susuk wangan'. In addition, there is also a term which is later enshrined as the name of the village, namely Sumber Rahayu which means the source of life. This is because in this village there are springs which provide benefits to the community. However, the special term used to indicate the flora of Mount Ungaran was not found.

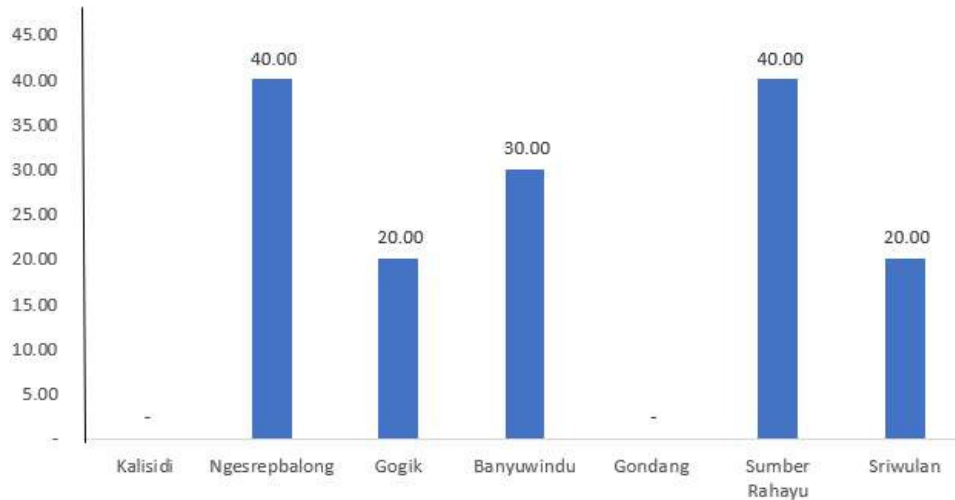


Figure 1. Knowledge of the community around Mount Ungaran to the existence of the expression relating to Mount Ungaran and flora

3.2. Knowledge and local wisdom of the community in Mount Ungaran associated with flora

Knowledge aspect is one form of culture which is an ethnobiology indicator and its relation to Mount Ungaran conservation. In this aspect, the components studied relate to the history of village establishment, the relationship between the village and Mount Ungaran, the relationship between flora and village history, knowledge of the legend of Mount Ungaran, knowledge of the legend of Mount Ungaran, as well as knowledge of aspects of Gunungkid Ungaran and its flora. Based on the questionnaire analysis, the average score of the knowledge and local wisdom aspects of the community is 35.51. This can be categorized as not good. Overall, the assessment of the aspects studied is as follows (Table 1)

Table 1. Aspects in the element of knowledge

No	Aspect	Score	Criteria
1	Standing history and development of the Village	60.00	enough
2	Relation between village history with Mount Ungaran	25.71	worse
3	Relation between village history and flora in Mount Ungaran	2.86	not good
4	History or legend Mount Ungaran	20.00	not good
5	Flora legend on Mount Ungaran	5.71	not good
6	Flora from Mount Ungaran that have benefits for the community		
	History of village standing and development	57.14	enough
7	Protected flora in Mount Ungaran	62.86	good
Total score		35.51	

The table showed that the lowest aspect is the relationship between the history of the village and the flora of Mount Ungaran and the legend about flora on Mount Ungaran. The low level of this aspect may be due to the lack of knowledge about the relationship between the establishment of the village and the flora or about the legend associated with certain plants on Mount Ungaran. This is something that needs

to be improved because it turns out that based on the FGD conducted by presenting community figures from Mount Ungaran on July 20, 2018 there is one legend related to the flora of Mount Ungaran. The legend is the story of “Mbah Bromo” who is considered a magic figure. One time “Mbah Bromo” was eating roasted chicken stabbed by a piece of bamboo. After eating the bamboo blades used to bake chicken are then plugged in. After that the area turned into a bamboo forest. Local wisdom can be an important component for carrying out efforts to conserve plant resources. Local people will be able to create environmental wisdom by using their own local wisdom [7].

The highest aspect is the knowledge of plants from Mount Ungaran which has benefits for the community. This is due to the fact that some complaints have been used for various purposes. In the village of Kalisidi, villagers, especially mothers, took the roots of ferns from Mount Ungaran which were used as planting media and traded. They have not cultivated the plants themselves, so they are still searching on Mount Ungaran, the only part of the ferns that can be taken is only the roots and not taken continuously. Meanwhile, in the village of Ngesrepbalong the plants used include ferns, Kode, sintrong, Puzzle, sengan, bixa, reeds, pine, coffee, tea, avocados and natural coloring plants. In the village of Gogik, the nutmeg plants are used to extract oil. There is also logging of rattan used for chairs. In Sumber Rahayu Village, most residents only take and use leaves for livestock feed and dried trees for firewood but if cutting down trees is not brave because there are strict restrictions from Perhutani office and village. In Sriwulan Village, the plants used are like sap to be used as sugar. They also using some plant for traditional medicine. The medicinal plants in treatment and prevention of diseases is attracting for scientist in te worldwide [8]. There has been international recognition that traditional and local ecological knowledge can be useful sources of information [9].

3.3. *The Social system of the community in Mount Ungaran associated with flora*

The social system of society relates to the existence of rules and communities associated with Mount Ungaran and fauna. On average, the score in the social system is quite good with a score of 48.16.

Table 2. Aspect-Aspect within the elements of the Social system

No	Aspect	Score	Criteria
1	Social institutions / special institutions associated with Mount Ungaran	0	Not good
2	The rules governing the management of resources on Mount Ungaran	80	good
3	Rules governing the management of fauna	68,57	good
4	Community / community groups associated with Mount Ungaran	48,57	enough
5	ommunity / community groups related to fauna / animal Mount Ungaran	0	Not good
Toral score		48.16	

The highest score is the existence of rules governing the management of resources in Mount Ungaran of 80. However, the lowest aspect is the existence of communities and special institutions associated with Mount Ungaran. Examples of community involvement are seen in the villages of Kalisidi and Ngesrepbalong. In Kalisidi village has a community group called LMDH (Lembaga Desa Desa Hutan) and Aguadigugatan. LMDH consists of residents of Kalisidi villages aimed at preserving the forest, while Aguadigugatan still has 6 residents of Kalisidi village which aims to protect Ungaran Mountain and utilize vacant land in Ungaran Mountain to be planted with various fruit trees. Meanwhile, in the village of Ngesrepbalong there is Mas Simon who guard the forest by opening a kind of natural school called omah sawah and contains about learning about the preservation of the environment and the arts. In Sriwulan village, there is also a LMDH with 6 members. LMDH is in charge of preserving the forest, along with its beneficiaries. Some villages have shown good ratings, but there are still bad judgments

such as in the Ngesrepsalong village. Even though this village has environmental activists, its existence is not well known by the community. This could be because there is still a lack of socialization related to programs that are activated by the community to the community. The people live in balance with nature, not as masters of nature. Also, people respect and value each other according to the principle that each person has value as a human being [10].

4. Conclusion

Integrated between local community perception, local wisdom and ethnobotany will be support biodiversity conservation in Mount Ungaran. Local Wisdom is still alive in the Mount Ungaran although modernizations society has reached this region. Long-established local wisdom and maintained in the community is expected to be an effective to biodiversity conservation strategy.

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