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TURGO SOCIETY'S ENVIRONMENT WISDOM IN MANAGING NATURAL RESOURCES AND THE ENVIRONMENT

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Abstract

Turgo is the closest village to Mount Merapi and a disaster-prone area. This research aims to study the social, economic, and cultural characteristics of Turgo society and understand the rules and values prevailing in the usage of natural resources and the environment. The research was conducted in Turgo, Purwobinangun, Pakem, Sleman, DIY (Yogyakarta Special Province). The research was conducted qualitatively and quantitatively, data retrieval was done by in-depth interviews and identifying the diversity of cultivated plants and husbandry animals. Respondents included village officials, community leaders and the society that were determined by random sampling as many as 20 families. Data were analysed descriptively, and the analysis of the biological environment quality used Soerjani's criteria in Fandeli, et al. (2006). The results of the analysis of the biological environment quality show that the diversity of flora and beneficial flora in Turgo are excellent. Farming is done on the basis of the local environment wisdom by combining woody plants, crops and livestock with traditional agro-forestry system (Thaman in Sarjono, 2003). Turgo society lives in harmony, applies the subsistence agriculture, upholds traditions, spiritual and cultural life, conserves biodiversity and preserves the environment, so that these keep the balance among ecological, socio-economic and cultural spiritual aspects that is the characteristics of eco-village by Arifin, et al. (2009).

Keywords: environment wisdom, conservation, subsistence, cultural.

INTRODUCTION

Turgo is the highest village (900 m above sea level), near Mount Merapi (7 miles) and is one of 16 villages in Purwobinangun, Pakem, Sleman. In 1994 this village was hit by hot clouds (Merapi eruption) and destroyed everything in its path. It recorded that 62 people died, 22 suffered burns and 6 people missing, but the destruction of the village now is disappeared (Hendarto, 2009). After the incident, Turgo devide into 2, that is Sudimoro relocating approximately 6 miles to the south Turgo and Turgo. Turgo has cool air and cold. Such a condition makes Turgo as a natural tourist village in Sleman. Some of the tourism potential of that is pine forest, bamboo garden, orchid garden, and a place of pilgrimage is the tomb of Syeh Jumadil Kubro.

The majority of Turgo society lives as farmers planting varieties of plants, such as

crops, fruit crops, vegetable crops, especially chili, cash crops (coconut, clove, coffee), herbs and medicines, woody plants, and various ornamental plants. While the animals are grown chickens, muscovy ducks, cows, especially dairy cows. The diversity of plants and husbandry animals are cultivated by farmers, the environmental and culture wisdom in the usage of natural resources and the environment can sustain their daily needs, conserve natural resources and the environment, in order to result a balance among ecological, socio-economic, and spiritual culture. Therefore, this research aims to study the social, economic and cultural characteristics of Turgo society and understand the rules and values prevailing in the usage of natural resources and the environment.

RESEARCH METHOD

The research was conducted from April to December 2011. The research was conducted quantitatively and qualitatively, the quantitative used to assess biodiversity both plants and animals and the qualitative to study the social, economic and cultural characteristics of Turgo society and understand the rules and values prevailing in the usage of natural resources and the environment. Respondents included village officials, community leaders and the society that were determined by random sampling as many as 20 families. Data retrieval was done by questionnaire, in-depth interviews and identifying the diversity of cultivated plants and husbandry animals. Data were analysed descriptively and the analysis of the biological environment quality used Soerjani's criteria in Fandeli, et al. (2006).

RESULT AND DISCUSSION

1. The Socioeconomic Status of Turgo Society

Based on the survey results, it revealed that the majority of the population has major livelihood as farmers (85%) and civil servants / employees / teachers (15%) with a land area of owned ≤ 500 m2 (20%), 501-1000 m2 (25%), 1,001 -2500 m2 (30%), and ≥ 2,500 m2 (25%). The elementary school education is 40%, secondary 30% and 30% of high school. Based on age, the majority of the population included in the early adult category i.e. between 18-40 years (65%) and middle adulthood, i.e. 41-60 years (35%). The majority ranged between 1-2.5 million (45%), ≤ 1 million (30%) and between 2.5 to 5 million (25%), while the flora diversity, 100% of respondents seek > 30 species of flora or > 15 beneficial flora species that are included in the excellent category.

Based on the data above, occupation, age, education, land area and income do not affect the flora diversity afforded by Turgo society. It happens because their system of farming is agro-forestry systems, where in the yard there are many different types of plants such as woody plants (buildings and other purposes), for food crops and vegetables, pharmaceuticals. In addition, people also raise livestock (cows, goats, chickens, muscovy ducks) and various types of fish (Osphonemus gouramy, Oreochromis niloticus, Tiapia niloticus). Therefore, based on the constituent components, the land management in Turgo can be categorized as agro-forestry systems, particularly agrosilvopastura, namely combining woody components (forestry) and agriculture (seasonal) and farm animals on the same land management unit (Sarjono, 2003). Furthermore, based on years of development, it can be said to be a traditional agro-forestry/classic. According to Thaman (1988) in Sarjono et al, 2003), a traditional agro-forestry or a classic is every agricultural system where trees either from the planting or maintenance of stands of plant that has been available as part of integrated, socio-economic and ecological systems of entire (agro-ecosystem). This condition can be found in Turgo with the following characteristics: a. composed of many types of plants, and almost entirely seen as important and many of the local types, b. complex stand structure, because the irregular cropping pattern,

either horizontally or vertically (random), c. oriented of the land usage is subsistence to semi-commercial, d. socio-cultural linkages has a very close connection with the local socio-cultural because it has been practiced for generations by the people/landowners.

2. The Econoic life of Turgo Society

The ecoomic activities was related to the function of the fulfillment includes two terms, namely the subsistence in food, clothing and shelter as well as the fulfillment of the needs related to the comforts of life such as the satisfaction or pleasure. The economic factors have an important role to influence the behavior of society in cultivating plant and animal in their land as a form of environmental wisdom.

The biodiversity management is capable of supporting economic orientation, at the subsistence level especially chili plants and dairy cattle. Agro-forestry in subsistence scale cultivated by landowners is as an effort to meet the needs their life. The subsistence circumstances are essential to describe people who are more concerned to the low risk of subsistence failure than to high earning cash. Based on the production system, the land management in Turgo can be told as family-based agro-forestry because all of the activities and the oriented-results could fulfill the family needs such as for their daily needs and incidental needs in bulk. It was stated by Sarjono (2003) about family-based agro-forestry (Household- based agro-forestry) or agro-forestry yard (homestead agro-forestry) in West Java known as the talun garden.

For the Turgo society, the land could provide their needs of life if it is managed optimally. The Turgo society has a principle that the land could fulfill all their daily, monthly and annually needs. The daily needs could be fulfilled either for themselves or being sold by picking vegetables, selling milk from cattle, or looking for wood in the fields. The monthly needs could be fulfilled from the farm by selling cultivated crops in their land such as chili (excellent plant in Turgo) and sweet potatoes, fruits when the season arrives or selling cultivated chicken and fish in their land. The annual needs could be fulfilled from farming land such as a cow or a goat so that each year they can sell cattle. In Turgo there are also people who seek land for breeding crops such as Anthocephalus cadamba, Swietenia mahagony and Bambusa in order to fulfill all their needs. The ornamental plants well known in Turgo is parijoto, which is used as Sleman batik motif now. However, people often faced the chili price fluctuations problem which is strongly influenced by the market stock, that the obtained price is usually lower in the harvest time.

3. The Social Lfe of Turgo society

The social activities were related to the fulfillment of the function of social solidarity or social integration (Purba, 2002). Humans as social beings could not live alone, human relationships each other in the community, where society is people who live together and produce cultures. One of the cultures is the local custom followed by all communities (Soemardjan, 1993). The social factors could encourage the society environmental wisdom to face the life in the neighborhood. The patterns of behavior in everyday life are very visible in the Turgo society's together lifestyle through mutual aid or voluntary work in cleaning the environment up, maintaining security patrol in villages in rotation, cleaning the cemetery, gathering together (Jagongan) at the time of childbirth, or died neighbors for seven consecutive days, feast in the month ruwah (nyadran).

Based on the fact of the life in Turgo, the basis of life is harmony (mutual cooperation/"gotong royong"), harmony (harmonic), an attitude of respect and tolerance (tepa selira). It is in accordance with the opinion of Geertz in Suseno (2003) who explained that there are two important rules determine the pattern of association in the Java society. The first rule told that in every situation, humans should behave in such a way so as not to give rise to a

conflict of or referred to as the principle of harmony including harmonious, mutual cooperation ("gotong royong") and deliberation. The second rule requires that human in speech and put themselves always shows respect others in accordance with their degree and position or referred to as the principle of respect.

Besides farming, the other activities undertaken by Turgo society are mothers' social gathering, dairy cow milk group, disaster relief volunteers (if Merapi has demonstrated its activity) namely Volunteer Kawastu (Region Turgo) and Volunteer PASAG (Sabuk Gunung Community / Paguyuban Sabuk Gunung) Merapi. In addition, they also do the management of communication, they have already their own frequency in Turgo, that is Turgo Asri, which is managed independently by their community and they gathering held the maintenance costs. It is for public who want to know the progress and status of Mount Merapi's activities (under normal conditions or increasing).

4. The Culture Life of Turgo Society

The Cultural activities were related to the functions of education and self-actualization by establishing culture as a frame of reference for people in developing relationships with the environment actively (Purba, 2002). The ritual activities in Turgo are done earlier in the month of Suro (1 Suro) in which people perform a traditional ceremonial procession such as cultural offerings of crops and food crops and being paraded with route from the springs to the springs and ended around the tomb (Petilasan) Syeh Jumadil Kubro. In addition, in the month of Sapar (Java) it would be held a ritual activity to mark the four corners of the village, which is commonly known as patjupat to invoke the safety of Turgo from any direction.

The traditional arts there are jathilan (lumping horse) played any time upon on request. It uses visual arts braid horse accompanied by gamelan music and folk songs. Each staging consists of several rounds and each round demonstrates the story of the Civil War. Besides jathilan, there is also a traditional art namely "Laras Madyo" and "Sloko" in Turgo. The Laras Madyo features Islamic songs are packaged in the form of Java such as "Dandang Gulo, Gambuh, Kinanthi' and so forth accompanied by a musical instrument tambourine, while the Sloko is a traditional art similar to Laras Madyo used by the Christian, so the lyric and the song sung the nuance of Christian.

In a religious ritual or custom, they widely used biodiversity, for example, Muslims use adult cows and goats for the feast of Sacrifice (Eid Al-adha), while Christians need evergreen plants celebrate Christmas and palm leaves to commemorate Palm Sunday, so people will always preserve the plants and these animals. This situation is in accordance with what is expressed by Rim-Rukeh et al. (2013) that environmental and ethical wisdom are expressed through religious belief, which is meaningful or useful in the management of natural resources, either protection of ecosystems or habitats or animals and plants.

5. The Ecological Activities of Turgo Society

The Ecological Activities was related to the function of protection, among others to maintain a variety of plants in order to create a comfortable environment where he lives, although these plants are not economically profitable in a short period of time or to enjoy the results require considerable time, such as plants would be used as building materials i.e. Tectona grandis, Swietenia mahagoni, Albisia, and Cocos nucifera. In Turgo, there are many plants that have grown for many ecological functions because these plants have a strong root in order to reduce the danger of landslides. The diversity of plants in their home gardens makes the ecological functions to be real, and enables the creation of multi-strata canopy. The tall trees occupy the upper canopy, while the food crops and vegetables occupy the lower strata. The roots of the tree will serve as a water binder, and reduce the rate of infiltration. In addition, the tree canopy can reduce the damage of the land and crops due to the rain erosion. The dense canopy and layered canopy strata can reduce the lacing of the rain water particles in order to improve soil and water conservation in their yards. The death of the leaves of the trees gives the

supply of nutrients to the soil to enrich the soil organic matter. Repairing the state of the soil organic matter can increase the activity of micro-and macro-organisms in the root zone, most of them have function as decomposers.

Turgo society has principle that by having the land and willing to work to manage its land for cultivation of plants and animals, they will be able to fulfill their needs. In addition to these ideas, the plant has also an important role in life as described by Kusminingrum (2008) that plants are the lungs of the earth, the photosynthetic activity of plants can reduce the levels of carbon dioxide (CO2) in the atmosphere. It means that it can reduce air pollution and prevent the effects of greenhouse, so that the plant can maintain the stability of the global climate that is to maintain temperature and humidity. The plant is a producer of organic matter and oxygen needed by other organisms besides the plants may form topsoil (humus), keep out water and prevent erosion. The existence of high diversity will be able to strengthen the ecosystem.

The ecological activities of Turgo society are also reflected in the way of farming. Turgo as the slopes of Merapi, grow crops using the "nyabuk gunung" system and bench terrace. The terrace serves to reduce the length of slopes and retain the water, thereby reducing the rate and amount of surface water flow, and allowing the absorption of water by soil in order to reduce erosion (Arsyad, 1989). While the nyabuk gunung is soil conservation actions i.e. planting by cutting the slope following the contour (contour cropping), parallel to the contour or height line so that from a distance appears like a belt wrapped around the mountain. With this cultivation technique, the speeds of water flow of the land surface (run-off) can be reduced, the rate of erosion can also be reduced, and increase the infiltration rate, thus increasing the dosage of water being such that the decline of the earth and the surface layer of soil from the top to the bottom of the slope (Suprihati et al., 2013).

Making the bench terrace followed with of land management produce a flat plane with wide limited depending on the slope of a slope. The cultivation of the land using a hoe is the main tool of farmers. A hoe has a special meaning for Turgo society and also for farmers in the countryside. According to farmers in Turgo, a hoe has four main components, namely a length wooden handle (doran), doran binder with metal hoes (bawak), a booster that could not be separated from the metal hoe doran (tanding) and the last is the tip of a sharp metal hoe (landep). In order to have function properly, all four components of the hoe have to band together. If one of the components is off, it will lose its function. It is because of its nature, the hoe can be called as the acronym of "papat sing ora kena ucul" (the four things that should not be separated).

The philosophy of hoe, according to Dhamma Bestari (2009), the first is Landep (sharp), landep means the right mind and the mind is based on a true understanding, have the ability to think properly before you act. This philosophy is not only for the farmers, but also for all people, either merchants, businessmen, and civil servants or private. The second is bawak (ngobahake awak) or move the body. After thinking properly, we have to work harder in order to obtain maximum results, do not be lazy and appreciate the time. The third is doran (ora maido karo Pangeran) or not to forget the Lord, which have meanings as whatever you do or should do, it should be in line your confidence. Doran means confidence. By having a strong belief, we will have passion in working, and the results will be sure to achieve. Working without any faith and passion the results will not be maximized, as expected. The fourth is a "tanding", that is the part that controls the balance so that the hoe can be used comfortably. Despite of the small size, if "tanding" has a problem, people will not feel comfortable to work using it. The meaning of this "tanding" is a balance between social, economic and spiritual life, or can be interpreted as God's creatures, humans never equate God with anything. Therefore, in farming, it also reflects the relationship between man and God, man and nature, man and his neighbor and themselves

that represent the cultural values prevailing in the Java society (Koentjaraningrat, 2009).

The rules and values also occur in prohibition felling large trees that they have to ask a permit to the village office, prohibition take grass in particular place, wearing a light green, the obligation to plant at least two trees at the time of marriage, and farm with terrace system. Based on the social, economic, cultural, ecological and farming practices, it appears that there is the presence of togetherness among the people in Turgo, subsistence life, great biodiversity, sustainability efforts, and compliance with local rules, so that there are lots of benefits from the socio-economic aspects, sustainable and not damaging from the aspect of ecology, and respect for the humanitarian valuesfrom the aspects of culture. Therefore, there are a balance among ecological (climate, water, soil, flora and fauna biodiversity), socio-economic and spiritual culture aspects (values, norms and religion) that is characteristic of eco-village according Arifin et al. (2009).

6. The Biodiversity In Turgo

Based on the results of the study, it showed that the diversity of plant species in Turgo is found more than 254 species of plants. Viewed from the diversity of flora, according Soerjani in Fandeli (2006), the diversity of flora in Turgo can be classified in excellent condition with the scale of 5 where there are more than 30 species of flora. Likewise, the beneficial flora (used as wood, ornamental plants, medicinal plants and fruit plants) can be classified in excellent condition with the scale of 5 where there are more than 15 species of flora.

The results showed that the diversity of animal species in Turgo is found as many as 22 kinds of animals. Based on the diversity of fauna, according Soerjani in Fandeli (2006), the diversity of fauna in Turgo can be classified in excellent condition with the scale of 5 where there are more than 15 species of fauna. Similarly, for the beneficial fauna, such as cattle, dairy cows, chickens, enthok, geese, rabbits, goats, dogs, cats and bees, can be classified in excellent condition with the scale of 5 where there are more than 10 beneficial fauna.

Based on the facts of the lives of people in Turgo, the environmental wisdom that has been practiced has many functions, among others: 1) play a role in the conservation and preservation of natural resources, 2) plays a role in the development of culture and science with the development of cultural traditions events, 3) play a role in the social life of the community and the various ceremonies in the community, 4) play a role in the development of human resources to match the progress of science and technology, 5) play a role in giving instructions, prohibitions, restrictions, ethics, morality in social life, and 6) play a role in the success of development programs the local government in maintaining natural resources and the environment.

CONCLUSION AND SUGGESTION

Conclusions :

The characteristics of social, economic and cultural of Turgo society among others:

The social life is more emphasis on harmony (mutual cooperation), harmony (harmonic), an attitude of respect and tolerance (tepo selira). As a disaster-prone area is also active as a volunteer Kawastu and PASAG of Merapi.

The economic life derived from agricultural products with agro-forestry systems, especially agro-silvopastura

The cultural life includes ceremonial of traditions, religion and life cycle associated with birth, marriage and death. The activities arts is include jathilan, Laras Madyo and Sloko .

The Ecological activities, especially in the farming were carried out by the "nyabuk Gunung" and bench terraces system.

At Turgo, there is a balance among ecological, socio-economic and culture spiritual aspects. The values and norms are embodied in the instructions, ethics, prohibitions, obligations and

working as a farmer with a hoe philosophy.
The diversity of flora, beneficial flora and fauna in Turgo is excellent.
Suggestions :
1. To teach values and norms in the family since the early and continuously.
2. To increase the society economy, it is important to emphasize the management of post-harvest chili and milk of dairy cows that became the mainstay of the Turgo society.

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