International Journal of Agriculture Innovations and Research
Volume 6, Issue 1, ISSN (Online) 2319-1473
Manuscript Processing Details (dd/mm/yyyy) :
Received : 17/07/2017 | Accepted on : 24/07/2017 | Published : 10/08/2017

The Reasons of Subak Consisting Agricultural Resources

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Abstract **– Chemical based agriculture with the application of inorganic fertilizers as well as the use of pesticide was known as modern agriculture (green revolution), it has led to the occurrence of ecological pressure on rice fields. Concerning the negative impact of the green revolutions, Gunungsari Subak has been practicing various efforts to enhance the sustainability of agricultural resources. In the process of enhancing the sustainability, some question was remain left that requires further studies more comprehensively. The purpose of this study is to know the reasons and motives that encourage Gunungsari Subak to preserve agricultural resources? This research was performed in Subak Gunung Sari, Jatiluwih villages, Tabanan, Bali. Data for this research was collected from field and documentary study. This data was analyzed qualitatively in three steps: data reduction, data performance and drawing conclusions. This research found that farmers in Subak Gunung Sari maintains sustainability because of the reasons, such as (1) superstructure ideology where agriculture is viewed as descended religiously, (2) Social structure in which farmer intended to increase their income, (3) infra Structure material, i.e. Decreasing the quality of rice fields, water resources, the amount of resources available for organic fertilizer.**

Keywords **– Subak, Sustainable, Resources, Agriculture.**

I. Introduction

Chemical based agriculture with the application of inorganic fertilizers as well as the use of pesticide known as modern agriculture (green revolution), has resulted in ecological pressure on rice fields. Such ecological pressures include degradation of soil quality such as low soil pH, N-total soil, P-available soil, C-Organic soil, Soil Electricity Efficiency, Air Dry Water Contents, and Water Capacity of Field, as well as a very shallow layer of soil less than 15 cm from the surface of the soil and beneath it has occurred compaction. In addition, the rice field ecosystem is also not in balance as the scarcity of macro fauna (Yuliana, 2011).

In connection with this, one of the subak in Tabanan regency, Bali Province that is Gunungsari Subak as a traditional irrigation institution in Bali strives for the sustainability of agricultural resources and the environment can be sustainable and well maintained. In the process of preservation, there are still many questions, for that need a more in-depth study. Based on the above description it would be necessary to conduct research to answer the problem of what reasons and motives that encourage Gunungsari Subak to preserve agricultural resources?.

II. Research Methods

The emphasis of this research is not on the measurement but on the thick descriptive analysis, therefore the approach used in this research is qualitative research. This research was conducted in Subak Gunungsari, Jatiluwih Village, Tabanan Regency, Bali Province. Gunungsari Subak was chosen as a research location, because of the uniqueness that has occurred conservation of agricultural resources. The type of data collected in this study is qualitative data and supported by quantitative data as supporting data. The data collected in this study comes from field data and document studies. Data analysis was done by qualitative analysis, through three process stages, namely: data reduction, data presentation and conclusion drawing.

III. Results and Discussion

There are several reasons why the members of Subak Gunungsari, Jatiluwih Village, Penebel Sub-district, Tabanan Regency, Bali Province, conserve their agricultural resources such as ideological superstructure, social structure, and material infrastructure, which will be discussed below.

3.1. Ideological Superstructure

Ideology is a set of dominant beliefs, laws, statutes, principles, practices, and traditions governing a particular society. In different editors, ideology is understood as a system of beliefs and value systems as well as its representation in various media and social actions (Piliang, 2003: 18). Further, Piliang (2003: 167) states that ideology in the Roland Barthers concept is "the system of notion, ideas, or beliefs that become conventions and established in a society, which articulates itself in the system of representation or system of signification".

Furthermore ideology is a system of values or beliefs which received as fact or truth by a particular group. Meanwhile, the ideology in Althusser's sense (in Takwin, 1984: xvi) is an unconscious belief. Ideology can be found in the practice of everyday life. This is in line with the idea of Althusser (2004: 62), which ideology sneaks on every human activity, including activities undertaken by farmers in carrying out their farm. Therefore, an ideology can hide behind activities so that people sometimes do not realize it.

The farmers' understanding of the ideology they have embraced in wetland farming that produces rice is not only a source of food, but also related to institutional and spiritual. The community grows and maintains rice because it relies on trust as a derivative of the religion

system (Hamilton in Triguna, 2006: 627). Food for agrarian society is a single food source and has double – meaning from the spirit aspect, so food in this case rise, as a single food source and has double – meaning from the spirit aspect, so rice as food source will remain. Rice and rice fields have the spirit of life from year to year in planting rice, and even more than that rice field and rice is as motherland or goddess of prosperity (Triguna, 2006: 627).

In accordance with Hamilton's opinion above, farmers, especially members of Subak Gunungsari, Jatiluwih village, Tabanan District, Bali province have been carrying out religious rituals for generations, the farmer consciously increasingly directs his mindset that God is behind all that. This gives awareness that nature has the rule (*rta)* in sekala (natural) way, as the highest law derivative which is *niskala,* which is the law of the Creator. Actualization of all that, in subak, farmers always maintain the sustainability of agricultural resources in various ways, one way is to apply organic farming. Farmers consider that farming, especially agriculture-based wetland agriculture based on organic farming, which they do in subak is a belief as a derivative of the religion system, so that rice and rice fields as a source of food will survive from year to year. Farmers are more aware with the omnipotence of the Creator, because thanks to his grace also the sustainability of agricultural resources can be realized, and by farmers in Gunungsari subak actualized by more often worship him in Pura Subak, this can be seen in figure 1 below.

Fig. 1. Worship Place of Gunungsari Subak farmers in Pura Subak, as actualization of derivation of religion system (photo documentation Euis Dewi Yuliana, May 2013).

Various ways can be taken to convey thankfulness and gratitude to God almighty, for all his mercy and grace given to nature and man as its inhabitants. There are groups of people who have high spiritual ability, so in expressing their thankfulness and gratitude without using the means, it is quite a sincere submission. There are also community groups who express their thankfulness and gratitude through the means of offering/ *upakara (banten)*, and this path is also chosen by members of the farmers in Gunungsari Subak in expressing their thankfulness and gratitude to God in his form as the Goddess of Fertility.

The *upakara*/ offerings means of sacrament are sincerely presented from the embodiment of devotion to God Almighty, consisting of all the contents of the universe around the dwelling. The meaning contained in it is for the preservation of various means of supporting offering (*upakara*) which usually consists of various kinds of plants and animals. By using a variety of plants and animals in the ceremony, is one way to keep the plants and animals remain, because its existence is still needed both economically and socially. This is a strong enough motivation so that people can still maintain plants and animals, because plants and animals are elements that cannot be separated from natural and human ecosystems. Not only to use it but also to preserve it, this is where the greatness of the ancestors who already know very well about the ecosystem and how to maintain the balance of the ecosystem.

In principle peasant society engaged in the field of production, consciously or unconsciously has been guided by the value of *karma*, maintain plants and produce food as a form of the path of devotion (*bakti marga*) and work path (*karma marga*) to the Creator. This guideline, among others, comes from *Bhagawadgita* (Puja in Triguna, 2006: 631), about the sacred obligation (*yadnya*), the source of food originating from the earth, Earth is symbolized as a dairy cow that can meet all the necessities of life that must be maintained, and should not be killed. Verily, since the very beginning, the Creator (*Prajapatih*) has created man through his *yadnya*. With this you will multiply and let this earth (*bhur*) be your dairy cow's (*khamaduk*). This *Sloka* confirms that the Creator degraded this earth as a dairy cow, so man is obliged to preserve as a sacred obligation embodied in the law of work.

The ceremony as part of the sacred duty in all agricultural activities, as a means of building harmony in relationship. In *Maitri Upanisad* (Sugiarto in Triguna, 2006: 632), the harmony of working relationships is expressed as follows.

"... It is believed that the abundance of food is caused by the sacred sacrifice (*yadnya*), by lighting the holy fire, its juices can reach the sun. Together with the descent of the rain from the sky, come also down the seeds of life, like a hymn (*udgita*). Thus, through which the living beings arise and their descendants thrive.... "

Harmony of live *sloka* refers to the limitations of natural resources, giving priority to learning life mutually support, so that more democratic and decentralized. Furthermore Robertson (in Triguna, 2006: 632) expresses a similar opinion, in a healthy, humanistic, and ecological lifestyle strategy. The key to the future is not on endless continuous necessities, leading to massive exploitation of agricultural activity. The success of agriculture and food sufficiency has the criteria of dependency.

The ideology adopted by the farmers in Gunungsari Subak is in line with the human ecological perspective. According to Marten and Salman (1986: 94) that, agricultural ecosystems are interconnected with social systems at various levels. The implementation of organic farming carried out by farmers in order to preserve the resources of agriculture, will have implications for the social system in which ideology is covered.

3.2. Social Structure

Farmers collapsed, poverty accumulated and poverty increasingly wrapped around farmers in Indonesia. The deterioration of farmers is exacerbated by their lack of information (knowledge). There are those who take advantage of the situation by further aggravating the condition of farmers, such as the transfer of land from agricultural land to industrial land or housing and others, by "luring" high prices in the process of transferring land functions. Yet by earning money from the sale of land, farmers may be said to lose everything, farmland is their heart and blood. Farmers are caught in cultural shocks, not out of ignorance but by the sheets of money they did not expect and see before (Oetama, 2006: xlvi).

Again, peasants collapsed, slumped by the inability to compete in the global era because their products are not competitive in global markets. Detrimental by their impartial policies of interest, worsened by the small opportunities to increase the knowledge and skills caused by limited funds and opportunities. Destroyed due to the condition of their knowledge that is being used by those with merely commercial motives, farmers stumble to improve their fate. The fate, the downturn is also experienced by the members of Gunungsari Subak farmers, poverty, low welfare, and unbalanced production costs with production costs, so most farmers " rob Peter to pay Paul " in living their lives.

In relation to the above mentioned Mr. Krisna (age 46 years), farmers in Gunungsari Subak stated as follows.

"....Life as farmers is so difficult, in everyday life always "rob Peter to pay Paul ", as our farmers have very limited income, and unable to meet the needs of life until the next planting season. For the cost of everyday life we always lack, our income is not enough, so we always owe. Life as a farmer are hard and heavy, has become harder ... "(Interview, May 2013).

From the phrase mentioned above, it can be seen the general description of the life of farmers in Indonesia, especially in Subak Gunungsari, the concern has always been their life companion in everyday life. Farmers want to improve their fortunes, turn their fortune into luck, and gain a higher profit from their farming so that poverty is reduced and prosperity increases.

The pressures that farmers receive both materially and psychologically create self-distrust from the farming community. Poverty, non-establishment, and knowledge became the oppressed and marginalized group. As a group of oppressed and marginalized, peasant communities experience psychological structural pressure built by dominant groups. Its existence as a marginalized community, the farming community has an attempt to deconstruct, reject the position positioned on it. Various efforts have been made, in an effort to deconstruct the peasant community as a marginalized group (subaltern).

3.3. Material of Infrastructure

There are several reasons why farmers in Gunungsari Subak conserve their agricultural resources, according to Mr. Krishna (age 46 years) Gunungsari subak has a land area recorded at Local Government is 37 hectares, but the actual breadth in the field is 45 hectares, with 152 members grouped in 35 members of the group. When viewed from the material infrastructure there are several reasons, among others: (1) the existence of degradation of rice field quality in Gunungsari Subak, (2) the existence of several springs in Gunungsari Subak as irrigation water that has not been contaminated with dangerous chemicals, (3) An abundance of raw materials for the manufacture of organic fertilizers.

3.3.1. Land Quality Degradation

The success of the agricultural system is supported by many things, one of which is land which is one component of natural resources, which serves as a medium for plant growth. Land, or in the sense of the soil called the land, has a very important role in supporting the life and livelihood of human beings. As a non-renewable natural resource, the occurrence of damage to the soil takes a long time to fix it to its original level, let alone reach a better level. The emergence of environmental degradation, especially land, seems to be more due to neglect and / or human failure in maintaining land productivity.

In line with the dogma of the green revolution, the low level of productivity of land, overcome by the provision of artificial chemical fertilizers. This also happened in Gunungsari Subak, green revolution technology applied almost in all *subak* existing in Bali is not exception in Gunungsari Subak. In the implementation both at the level of policy makers (government) and at the farm level, there is a perception that the increase in crop productivity is linearly following the amount of chemical fertilizer added. The existence of an obsession to obtain high yields, fertilization doses tend to be increased regardless of the carrying capacity of the land. In addition, another consequence of the widespread technology of the green revolution is the creation of farmers' dependence on artificial chemical inputs, especially fertilizers and pesticides.

Not only the problem of land degradation is become a problem, but the wider impacts also occur on the environment (ecology), health, and also food faced with the choice of food sufficiency and security. The next question is whether the green revolution can overcome hunger and poverty, honestly the answer is no, because it is largely determined by many things including political, economic, and cultural policies.

Referring to the problems faced by various things that resulted from the application of green revolution technology in Gunungsari Subak, especially the use of inorganic fertilizers and chemical pesticides, causing ecological degradation, especially the degradation of soil quality. This is similar to what was conveyed by one of the informants namely Mr. Miora, age 65 years as follows.

"...We must pay attention to the life of this land, meaning that this land is not only used for our benefit, but in principle also need attention. If the land wants us to continue to use it continuously, but without any improvement effort from us, then over time the land will die, cannot produce again, just like humans if not treated will accelerate his death...." (Interview, June 2013).

The opinion of Mr. Miora who symbolically states degradation of land quality will occur if not accompanied by intensive care. If that is ignored then the old story of

the fertile soil, the "wooden stick will grow into the plant" is only a mere memory. Mr. Miora's opinion was reinforced by a statement from Mr. Pan Gede (age 49 years), stated as follows.

"... I feel the ground is getting thinner now, because the deeper the harder I am, not as it used to be a little loose. This means that the thickness of the soil is getting thinner, and there has been compaction. I think if I let this continue without any improvement effort, then the land inherited by the parents, just waiting for the fate ..." (Interview, June 2013).

The opinion of Mr. Pan Gede is an expression of concern that represents the farmers in Gunungsari Subak, even the possibility of the entire farmers in Bali. Without any improvement efforts on rice soil undoubtedly hope to conserve agricultural resources is only a memory. The implementation of organic ecological agriculture by re-applying organic farming in Gunungsari Subak, is one solution taken by members of Gunungsari Subak to preserve agricultural resources to continue.

3.3.2. Water Resources in Gunungsari Subak

The utilization of water originating from spring water as irrigation water in Gunungsari Subak is an advantage because irrigation water originating from springs, relatively not (slightly) contaminated with dangerous materials, especially to support the implementation of organic agriculture sustainability of agricultural resources in *subak* can be Achieved.

The main irrigation water source in Gunungsari Subak is from the existing spring in the Jatiluwih village area because the Gunungsari Subak is located in Jatiluwih village. The area of this village is under the foot of Mount Batukaru, Sangyang and Poohen Mountain, besides having beautiful nature, this area also has a source of water and waterfalls are quite a lot and spiritual place since time immemorial. This village also has a terraced rice fields (*terasering*) are very natural, some of which is the Gunungsari subak area. Thus it can be stated that Gunungsari Subak is one subak that has its own water source, so it plays an important role in determining the existing agricultural system in downstream subak.

Gunung Sari Subak located in Jatiluwih Village is passed by two rivers namely Yeh Ho river and Yeh Baat river, but these two rivers do not irrigate the Gunungsari subak. Gunungsari Subak get irrigation water flow coming from spring sourced from Jatiluwih village like Ulun Siwi springs and Candi Kuning springs, also got irrigation water from some springs in the area like Toya Lis springs (Figure 2).

At the farmer level, it is not all the rice fields in Gunungsari Subak get irrigation water directly from the spring, but the water coming out of the springs around the area is streamed through the river or ditch built by subak members. The small ditch by farmers is considered as a river, so farmers tend to call it as river water.

Fig. 2. One of the springs (Toya Lis) as the irrigation water source in the Gunungsari Subak that is in Subak (photo dolumentasi Euis Dewi Yuliana, June 2013).

1.2.1. Abundance of Raw Materials

The abundance of raw materials for the manufacture of organic fertilizer in Gunungsari Subak and the surrounding area, resulting from the ownership of cattle by farmers. Cows that are kept by farmers will produce waste both in the form of dirt and urine which is the raw material for making organic fertilizer (figure 3).

Fig. 3. Cow disposal in the form of Dirt and Urine raw material organic fertilizer (documentation photo Euis Dewi Yuliana, June 2013).

The abundance of raw materials for the manufacture of organic fertilizers related to cattle ownership, and other livestock such as pigs, chickens and layers, owned by Gunungsari Subak and surrounding areas is a potential possessed by Subak in conserving agricultural resources by implementing organic agriculture.

Ownership of cows in Gunungsari Subak and surrounding areas cannot be separated from the availability of existing feed for cattle. There is almost no vacant land that is not cultivated cattle feed in the form of grass, either in the farm or in farms owned by farmers (figure 4).

The availability of land supporting factors (although it has experienced quality degradation but is generally still fertile), the availability of irrigation water, as well as favorable climates, cause forage of livestock feed to flourish in Gunungsari Subak, by utilizing offshore fields (*telajakan*) and moor.

Fig. 4. Cow feed in the form of elephant grass as cattle feed, growing subactively in Gunungsari Subak (documentation photo Euis Dewi Yuliana, June 2013).

In relation to the above, Wayan Miasa (one of the farmers in Gunungsari Subak) stated as follows.

"… To date for cattle feed has no problem, here (Gunungsari Subak) cow feed is very abundant, especially naper grass. Most farmers grow naper grass in the cultivation and mooring, just about every empty soil that can be planted with grass must be planted, here the naper grass grows fast and fertile,…" (Interview, June 2013).

The availability of adequate livestock feed encourages farmers to try to keep cattle, in addition to the need to plow the fields, as an investment tool, as well as the waste is an excellent raw material for organic fertilizer. Moving from the abundance of raw materials in Gunungsari Subak, is one of the reasons also that encourage farmers to implement the preservation of agricultural resources.

IV. Conclusion

There are several reasons that cause farmers who are members of Gunungsari Subak preserving their agricultural resources.

1. The existence of ideological superstructure (wetland agriculture in subak, is a trust as a derivative of the religion system).
2. The existence of social structure (the existence of farmers as a marginalized community, causing farmers want to improve the fate, get a higher profit from his farm so that welfare increases).
3. The existence of material infrastructure (the degradation of rice field quality, the existences of several springs and abundance of raw materials for the manufacture of organic fertilizers).

References

[1] Althusser, Louis. 1984. Ideology, Structural Marxism, Psycho--analysis, Culture Studies. Yogyakarta: Jalasutra.

[2] Marten, Gerald G. And Daniel M. Salman. 1986. The Human Ecology Perspektif, dalam Gerald G. Marten (ed) T*raditional Agriculture in Southeast asia, A Human Ecology Perspective*.

[3] Oetama, Jakob. 2006. Revitalization of Agriculture and Dialogue of Civilization. In Sutanto Jusuf and Tim (editor). Book Publisher Compass. Jakarta.

[4] Piliang, Y. A. 2003. Hypersemiotics Tafseer Cultural Studies on Death Meaning. Bandung: Jalasutra.

[5] Sutrisno, Mudji. 2005. "Transformation". In Mudji Sutrisno and Hendar Putranto (editors). Cultural theory. Yogyakarta: Karnisius.

[6] Takwin, Good. 1984. Reading Althusser from Several Sides: an Introduction to Althusser's Idea Essays. In the Book of Ideology of Structural Marxism, Psychoanalysis, Culture Studies. London: Verso.

[7] Triguna, I.B.G. Yudha. 2006. "The Prospect of Agricultural Culture in the Life of Hygiene". In Sutanto, Jusuf and Tim (editors). Revitalization of Agriculture and Dialogue of Civilization. Book Publisher Compass. Jakarta.

[8] Yuliana, Euis Dewi. 2011. Implications of Modern Agricultural to Organic Transformation to Improving the Quality of the Environment. Accredited Journal of the Directorate General of Higher Education Ministry of National Education Number: 64a / DIKTI / Kep. / 2010, Journal of Environment of Bumi Lestari ISSN 1411-9668, Volume 11, Number 2, August 2011. Center for Environmental Research UNUD.