

When Farmers Face The Biodiesel Project

(A lesson from Gunungkidul, Yogyakarta)

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Abstract— This paper departs from the discourse of the development of *Jatropha* as a biofuel source. The discourse was hyped to become one of the national strategies to solve energy crisis, environmental degradation, and poverty. *Jatropha* had been planted in vast provinces and districts, one of which was in Gunungkidul. The farmers were mobilized by the government and companies to plant *Jatropha* by inserting the plant on their land despite the limited land there. This paper will describe the key question, how did the farmers face the *Jatropha* project? The discussion is focused on the social relation constructed by farmers when facing the project. The data were collected by ethnographic method.

Keywords— *biodiesel, farmer, Gunungkidul, Jatropha*.

I. INTRODUCTION

In 2005, farmers in Gunungkidul experienced *Jatropha* hype. Farmers cultivated *Jatropha* at limestone hillside, around garden, and roadside. They were attracted to cultivate *Jatropha* because they receive information that *Jatropha* seed is saleable. The information blowed widely and became a rumor among the Gunungkidul farmers. *Jatropha* hype in Gunungkidul does not occur without reason. The risings of oil price always ignite to social and political effects, followed by the emergence of national policy. In October 2005, Indonesian government issued a declaration of national movement on poverty tackling and fuel crisis through *Jatropha* plantation. This declaration is part of the National Strategy on Poverty Tackling. In the following year, Government issued a Presidential Instruction, Number 1/2006 on January 25, 2006, Titled: Provision and Use of Biofuel as Alternative Energy resource, as an instruction for ministry and local level of government, governors, and district heads to accelerate the implementation of the development of biofuel production. Subsequently in 2007, the government of Indonesia through the Ministry of Home Affairs launched a program of the Village Independent Energy (DME). This program is intended to enable villages in fulfilling their own need of energy through alternative energy sources to decrease the dependency on fossil energy.

Besides, it is also intended to provide job opportunity and overcome poverty in underdeveloped villages.

Jatropha is declared to be the best solution of alternative energy if compared to other sources of biofuels such as palm oil, maize, or sugar cane. *Jatropha* is not edible, can be grown on less fertile land so it will not compete with food production. In addition, the *Jatropha* cultivating promises employment opportunities for rural people living in the arid and barren areas. Even though the criteria for cultivating *Jatropha* is marginal or waste land that is not suitable for food crop, a debate to determine where are the marginal or waste lands still occurred because there is quiet different understanding on the criteria of marginal or waste land. The criteria much depends on the perspective to determine land categories, whether using agro-ecological, economic, or social perspective.

Generally, the category of land used for growing *Jatropha* is economically assessed land that is not cultivated for agricultural purpose and also unproductive. This land is categorized as idle, marginal, dry, and degraded lands. Land with such criteria is recommended as suitable land for *Jatropha* plantations. Whereas, this land is part of lands culturally managed for specific ecosystem [1]. *Jatropha* hype sparks lots of criticism based on thought of more negative effects of *Jatropha* plantation than its positive effects [2]. The debates over the problem of biofuel production is ecology and sustainability, the competition between fuel production and food production, and the impact on food security for growing population [3]. Biodiesel production might threaten food supply. Competition occurs not only in the use of food for biofuel feedstock but also in the land for cultivating. The increased use of food as biofuel source is an important factor that lead to food prices rising [4]. This paper does not engage in a debate of *Jatropha* paradox, which is beneficial in one hand but oppositely disadvantage in another side. It is focused on exploring the social transformation when farmers faced the introduction of *Jatropha*-based biofuel production. This study is expected to provide insight about the reason of why *Jatropha* in Gunungkidul is not growing but also is not abandoned by farmers, or in other words it can be said that *Jatropha* plantation is hibernated. Although *Jatropha* is now untreated, but the hope that some day

Jatropha will give benefit as promoted still life in the farmers' mind. Therefore, farmers are ready to re-cultivate Jatropha if any incentive funds were provided.

II. RESULTS AND DISCUSSION

A. Recalling Jatropha Hype in Gunungkidul

Jatropha is not a new plant for farmers in Gunungkidul. They have found Jatropha in places that are difficult for other plants to grow, and even it can be squeezed within rocks on the hill. Farmers know Jatropha as an easy grown-plant. A branch cut placed on the ground can easily grow and will not dry. Besides wildly grown in the hills, jatropha is also planted in a field or yard purposed as fences by farmers. The fence does not only serve as barrier for places, but also prevent pests and any plant diseases for plants in the area.

When farmers heard that Jatropha seed is saleable and emphasized to be mass-produced, they got interested in planting Jatropha. Their knowledge in Jatropha characteristic made them feel optimistic to its plantation. They perceived that basically Jatropha is an easy-grown plant, thus it will flourish and produce lots of seeds if planted in an appropriate area with a sufficient care treatment.

Jatropha planted in 2005 did not grow well as being expected. A lot of planted seeds and seedlings are died and farmers do not take any replacing actions accordingly. Farmers were only planting without knowing the treatment process. The treatment was limited to trimming the stems in a hope that new branch will flourish more flowers and seeds. Farmers do not care on the number of grown or died plants. Some of the plants sustained and were growing well producing seeds. However, farmers said that they never do harvesting and further, sell the harvested seeds.

Farmers' enthusiasm decreased gradually unlike when they did cultivate. They are wondered why wild jatropha which can grow well without any special agriculture treatments cannot grow well when they were planted with treatment. The growing Jatropha were also not handled properly. The seeds are abandoned to fall and dry without an effort to collect it. It happened because of labor limitation to do harvesting. Jatropha produces seeds in the time when agriculture labor intensity is in high level. Farmers put higher priority on other food crop cultivation rather than that for Jatropha. Besides, Jatropha seeds harvesting could not be simultaneously conducted. Within one tree, farmers should choose the mature seeds to harvest and those which are not ready yet (the young seeds).

B. Cultural Meaning Gap between Wild Crop and Food Crop

In order to create understanding in the social transformation process of Jatropha development program, it is important to explore to what extent Jatropha is suitable with agricultural system, social, and cultural

condition. To produce biofuel, Jatropha has to be planted by farmers. However, farmers' decision to plant or not has been guided by their social-cultural dimension. Farmers' decision is determined by the role of cultural experience in giving meaning to the crop. Jatropha and other crops are material substances, but culture infuses the crops with social and symbolic meaning. Culture is defined as a set of control mechanism for governing behavior [5].

Generally, agricultural land in the southern part of Gunungkidul is dry land without any irrigation systems. The condition makes land management must be adapted to rain falling. Land preparation for rice planting will be conducted in September-October. It is started with spreading organic fertilizer and plowing. When it is approaching to rainy season, rice seeds are spread followed by maize and cassava. The cultivation model, known as *tumpanghari* (intercropping), is proposed to optimize the land productivity, so at one season can produce more than one harvest. If rains fall as predicted, the rice seeds will grow. However, if the prediction is missed, the seeds will dry and not growing. After the seed grow, next treatment is weeding fertilizing, and pest preventing

The unpredictable rainfall needs careful attention from farmers in preparing planting time. Farmers need to prepare land cultivation intensively while it is approaching to rain falling. The scheduled preparations will give effect on the quality of the harvested crops. Therefore, the number of agriculture activities and intensity of labor usage during the coming of rainy season is high. Thus, farmers put higher priority to cultivate land rather than to do other activities. The harvesting season will take place in March. First, farmers harvest rice and maize afterwards. If the rainfall level is appropriate, after harvesting, the land will be planted with peanuts or soybeans. Cassava is harvested in September, at the end of the planting season.

Gunungkidul farmers perceived that cassava is their major harvested crops rather than rice, maize, and peanut. The harvested rice will be stored as foodstock, while maize and peanut will be sold to meet daily consumption needs. The most expected harvest is cassava. Cassava will not be sold directly in its raw material but it will be brought back and processed to *gaplek* (dried cassava). The dried cassava will be sold gradually to meet daily consumption needs. The *gaplek* is valuable in the dry season while land is not productive. Farmers feel uncomfortable when they do not produce dried cassava. Moreover, if a farmer sees their neighbors produce dried cassava while he does not. The dilemma occurred when facing bad harvest due to the long time of dry season. During the poor crop conditions, farmers feel reluctant to process it into dried cassava and decide to sell it immediately to supplier in the low price. There is a reluctance to take it home and process it into dried cassava because farmers are used to harvesting in large quantities. They said *wegah nyawang* (didn't want to see)

to express their reluctance to see the poor quantity of harvested cassava.

For farmers in Gunungkidul, the main crop as income resources is seasonal crop, that is, rice and *palawija*. Therefore, the work day pattern follows the condition of the the season. There is no agriculture activity during dry season. As an alternative, they do activities in the non-agricultural sector as a seasonal labor in nearby city. The dry season is the most difficult time for them. Agricultural lands produce nothing, Farmer said that they will feel satisfied and happy when the plant is growing well and green. If not, they will work harder to find solution. The quality of planted plant is assessed by its physical appearance, such as buds, stems, and leaves conditions. They will find personal dignity and satisfaction when the plants produce well as expected. Economic calculation of the harvest is a surface side of farmer's satisfaction

Physical characteristic of *Jatropha* is different from the character of seasonal crops that are commonly grown. *Jatropha* is an annual crop. During the rainy season, the tree grows well with green leaves, flowers, and seeds. In the dry season, on the contrary, leaves are falling and only main branch left. When *Jatropha* is promoted as cultivated crop, its physical characteristic does not match with farmers' visual experience of good crop with lots of green leaves. Moreover, farmers know *Jatropha* as wild plants which only functioned as fences. Thus, the introduction of *Jatropha* faces cultural meaning gap of knowledge about common characteristic of crops commodity.

As it has been introduced, farmers plant *jatropha* at the slopes of limestone in order not to occupy the land for food agriculture and to optimize land usage that will positively contribute to farmers' income. Lands in the slopes of limestone are not well occupied for intensive agriculture rather than being used as community forest planted with annual tree teak, acacia, and *senon*. The annual tree needs less agriculture maintains. Once planted, trees will continually grow on its own. After reaching a certain diameter, it will be sold. Teak wood has the highest price, but farmers prefer to plant most for acacia. If it is purposed for home building in Gunungkidul, acacia wood is more resistant to insect attacks than teak wood. Another reason is that acacia has leaves that remain green in the dry season. Those leaves are sources for livestock's food although they have low nutrient.

Farmers have social behavioral pattern related to type of land, type of plant, and its agriculture treatments. When *Jatropha* planted on the slopes of the limestone hills, farmers treat these plants based on their cultural experience. Lands in the slope of limestone hills are not intensively cultivated and planted for annual tree only with low labor input. Therefore, *jatropha* has been treated like teak, acacia, and *senon*. Once planted, just left it, and it will grow in its own and produce seeds. The

assumption toward the land determines what can do there.

Tracing back the story of *jatropha* hype in Gunungkidul has recalled farmers' memory and hope of *Jatropha* as being introduced in 2005. Farmers told how excited they were to plant thousands of seeds in limestone hills. They inform that although *Jatropha* is no longer considered, but the plant is still there. While it looks untreated, farmers are optimistic that the plant will re-flourish during rainy season. Farmers explain that no treatments were applied in the plantation.

III. CONCLUSION

Government's efforts to improve community welfare through agriculture development have been intensively conducted. Government establishes farmer groups at village and hamlet levels to be agriculture development agents. The implemented programs have its designed-incentive for the doers. Therefore, farmers perceived that each program always has its designed-cash flow. Thus, some of them think cleverly to fulfill their owned vested interest.

Currently farmers are in a "hate but missed" situation. Farmers feel hate because the crop does not give any contributions. However, they also do not cut off the crop because they are missed that someday it will give economic contribution as has been promoted. *Jatropha* is becoming a "hibernates crop". The crop is abandoned and not treated, but it will be suddenly treated only when government or any companies give farmers some incentives. What they have been done in *Jatropha* development program is their strategy to deal with government's development program. Farmers perceived that each development program has its own-designed incentive. Community will be cleverer to find an access on the incentive, even to fulfill their personal vested interest. This logical mechanism explains farmers' behavior to not leaving *jatropha* even no contribution resulted. If *jatropha* development program is re-rise in the coming future, they will quickly take benefit of the opportunity.

REFERENCES

- [1] J. Franco, L. Levidow, D. Fig, L. Goldfarb, M. Hönicke, and M. L. Mendonça, "Assumptions in the European Union Biofuels Policy: Frictions with Experiences in Germany, Brazil and Mozambique," *J. Peasant Stud.*, vol. 37, no. 4, pp. 661–698, 2010.
- [2] P. Ariza-Montobbio, S. Lele, G. Kallis, and J. Martinez-Alier, "The Political Ecology of *Jatropha* Plantations for Biodiesel in Tamil Nadu, India," *J. Peasant Stud.*, vol. 37, no. 4, pp. 875–897, 2010.
- [3] B. White and A. Dasgupta, "Agrofuels Capitalism: A View from Political Economy," *J. Peasant Stud.*, vol. 37, no. 4, pp. 593–607, 2010.
- [4] FAO, "The State of Food and Agriculture," FAO, Rome, 2008.
- [5] C. Geertz, *The Interpretation of Cultures: Selected Essays*. USA: Basic Books Inc., 1973.