



Multiculturality in the Indonesia's Biofuel Innovation Initiative: Critical issues of land use and sustainable environment

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Abstract

The Presidential decree was triggered national-scale energy plant cultivation to all districts. It is based on the assumption that Indonesia's energy security problem need to be addressed for accommodating poverty and environment problems. Until today the main objective of the program has not materialized, social conflicts that emerged mostly triggered by land usage and environment issues. While energy-economic calculation is central in the biofuel program conception, the evidences reveal a wide range of cultural issues taking a significant position in the program adoption at rural communities. In other words, multiculturalism is a critical issue in the biofuel program adoption..

Keywords: biofuel innovation, land use, sustainable environment, multiculturalism, collective learning

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1.0 Introduction

In January 2006, Susilo Bambang Yudhoyono, the first democratically elected president of the Republic of Indonesia, launched a presidential instruction called on “The Provision and Use of Biofuel as Alternative Energy Source”. Eight months beforehand, the government had cut energy subsidy at a significant level that had triggered widespread public protests. Via various public media president Yudhoyono convinced the public that biofuel is a promising solution to the pressing energy security and poverty problems faced by the nation. The presidential instruction turned out to mark the beginning of a national scale energy crops plantations and biofuel research. The entire government ministries, most of governors and district heads, leading companies, NGOs and researchers from major universities responded to the instruction, some of them with high enthusiasm. However, another problem rose not long after the instruction was actualized.

The Forestry Ministry was under pressure to issue permits on the use of non-productive lands for energy crops plantations a cross the state’s territory. The nation-wide biofuel rush also stimulated land use conversion from the conventional food crops plantations to energy crops plantations (Nurlaila, 2007). If not planned carefully, land conversions may lead to unpredictable environmental change either at regional or global level (Schoffier et al, 2010). At the local scale, abrupt land use conversions may cause unprecedented biodiversity losses and soil degradation. And yet, excessive conversion from food plantation to energy plantation may induce food security issue.

2.0 Methodology

In this research was choosed Actor-Network Theory (ANT) that is conducted by following bio energy actors from several entry points consist of culture’s value, farmer, pickers, and artefact. Relations among actors are observed by following the actors. In human actors, actor to be observed is conducted by ‘rolling a snow ball’¹—an actor mention or suggest another actor to be interviewed, while in non-human actor, are conducted by following a culture’s value, following farmer, following pickers, energy institutions, and artefact, etc. In practice, distinction between human and non-human is vanished through ‘center of calculation’² mixed both of them.

2.1 The biofuel in actor’s perceptions

Several factors interacting in specific contexts may influence decision on land-use. Lambin et al. (2003) classifies the factors influencing land-use decision making into proximate and underlying causes. The proximate causes constitute social activities and actions at the local level, while the underlying causes originate from non-local actors such as provincial governments, investors or other global actors.

To the national government, the biofuel program is an energy program and is

¹ Term devised by Bijker (1997).

² Term devised by Bruno Latour (1987). In general, as proposed by Callon & Muniesa (2003), ‘center of calculation’ can be divided into three steps:

administered under the energy ministry, though its realization involves massive agricultural activities. Meanwhile, the traditional practices known to farmers are food agriculture. Most farmers do not have experience in energy producing activities. Land is an essential factor of production so economically every institution such as Enhil, Waterland wants to have control over (Ricahard, 1992). Moreover, energy agriculture needs massive land to supply biofuel demand on local and global market. The main reason Waterland, Netherland's NGO made an agreement with Perhutani KPH Purwodadi is to have land expansion.

Leopold's land ethic said the land has own paradigm. It is not just an instrumental, useful, utilitarian and has efficient value to humans—valuable in its own right. However that has different opinion, “the land itself” deserves human moral consideration (or, moral consider ability). While, political power institution has the right of making laws for regulating and preserving of property, and for employing the force of the community in the execution of such laws, and in the defines of the commonwealth from foreign injury; however, all these are only for the private.

2.2 Multicultural issues

Supporting *Nyamplung* commodity in bio fuel program is not the single entity for the reason that stimulates issues such as pick up of live, social trust, traditional knowledge, land use, etc. John Locke explains that as long as everyone uses only as much land as they can benefit from, there is no scarcity of land in the world; however, it is contrary to the first generation bio fuel program. While energy-economic calculation is central in the government driven bio fuel program conception, the evidences reveal a wide range of cultural issues taking a significant position in the program adoption at rural communities. Different rural communities have different perception on land use and environment, according to their traditional cultures. In other words, multicultural is a critical issue in the bio fuel program adoption. Moreover, the alternative model for bio fuel is based on local knowledge as Indonesia is a heterogeneous country with complex culture values as a result of heterogeneous and specific land use issue. This case illustrates that energy plantation is based on collective learning at the community levels, while the government redefines its role as learning facilitator.

Social change is the transformation of culture and social institutions over time (Karim, 2010); however, it will be more shortly if we do something such as interconnecting with social value, capacity building of local partner and others. All farmers, pick up, bring with them skills and experiences that influence the way they perceive the *Nyamplung* supply, and economic activities particularly. They necessarily bring a “philosophy” to culture value which is the basis of their practice. Furthermore, the traditional paradigm is the cultivating land, *Nyamplung* plantation of land is a public good, so everybody can pick it up. In addition, they have the *gotong royong* (family gathering perception) because they think that nothing made by God for man isto spoil or destroy. Leopold explains that it is a new ethic that gives land a moral value. It is relevant with value of *sedekah bumi* celebration Wahyudi's community, the representation of PT.Energy Green Resources, has established several mutually supporting networks: the cooperative which buys the seeds from villagers for extraction at the workshop in Grobogan. It expanded to the Central of Java area to support the security of *Nyamplung* supply such as Kebumen, Purworejo, and Cilacap. *Nyamplung* supply program has special

function in which the Local non-profit organization is a potential partner to accelerate social change for dissemination of bio fuel spirit because it has knowledge of local community. Bio fuel program is the new and the biggest program because of interconnecting actors. Furthermore, it needs local agent to facilitate social change process. Wahyudi's community, local community which is the facilitator on bio fuel program based on Nyamplung commodity, has culture knowledge how to communicate with Nyamplung pick up. Therefore, they have the function as an agent for social change as a result of social learning process. Eto et al argues that the organizational form, structure, and mission must be very compatible with the social change goals for energy efficiency (2010).

Box 1 Patron-Client

In 2007, PT.Energi Hijau Lestari (Enhil) the local company which contribute to support bio fuel program was established. It located in Tawang Harjo, Ngaringan, Grobogan, and Central of Java. It was the important actor because it could invite Susilo Bambang Yudhoyono to introduce the bio fuel program to the lowest level, the society who interacts directly with small land. This event was a moment to mobilize the land owner directly and indirectly to converse land from conventional agriculture to energy agriculture. It triggered land conversion successfully because it was needed to support Enhil's refinery activities.

However, it is not explained the general terms like unproductive or productive pieces of land. In general terms, land for biofuel is defined as unproductive pieces of land, which are not appropriate for production of economically high-value commodities, critical land, and uncultivated land. It may also means temporarily uncultivated piece of land, geographical distribution of which explanation. Another category is "tegal/ kebun/ ladang/ huma", which has lower economic value than paddy field or plantation. This condition caused by information asymmetry.

In 2010, Waterland Asia Bio Ventures (WABV) is a multi-national company into which around 32 Dutch companies invest their capital. WABV was not part of Enhil-Peduli-farmer groups' linkages. About 5 months after President Yudhoyono came to Ngaringan sub-district, WABV approached the Grobogan's local government and communities, and managed to arrive at a Memorandum of Understanding (MoU) on long term *Jatropha Curcas* development. Three parties joined in the MoU, namely WABV as investor, forestry agency of Purwodadi (the capital of Grobogan) as the owner of land and regulator of land use, farmer communities (pesanggem) grouped into Organization of Forest Village Communities (LMDH) as cultivators.

Pesanggem and Perhutani have patron-client relationship as a result of weakness (Todaro, 1998). Plantations on Perhutani's land usually invoke land conflict, especially when the three year period is over. Though exact data are difficult to obtain, there are indications that land conflict is prevalent. The new potential conflict occurred when they had to plant *Jatropha curcas* due to Perhutani-Waterland agreement.

Manciones (1999) posits that social change is inevitable (Karim, 2010); however, it has different acceleration. Some societies change faster than others, hunting and gathering societies change quite slowly. Kebumen and Cilacap society is faster than Purworejo society, in spite of the same stimulations. Furthermore, material culture changes faster than non-material culture such as ideas and attitudes. The land use issue on bio fuel development has a different perspective when collective responsibility of renewable energy and other ecosystems defines the part of local culture; therefore, it is something common.

Box 2. Integrity of learning Process

In 2005, president declared a program of biofuel to the public as a solution for poverty alleviation through the “Desa Mandiri Energi” (DME – energy self-sufficient village). Wahyudi was one of participants and he took this opportunity to plant the ‘*Jatropha curcas*’ which then became the recommended plant for biofuel supply. However, his efforts in *jatropha* bio fuel experiment and engaging the local community to cultivate the plant ended in failure; he abandoned the project in 2005.

He conducted research to evaluate his failure and he found that sense of belonging to the bio fuel program was weak. It indicated on their ‘patron-client’ like relationship model; in addition, they had to mobilize the large productive land of farmers. The same with Grobogan case, land was a production factor that has high economic values. Therefore, he conducted research by observing local commodity to be the icon of bio fuel product and that was Nyamplung (*Callophyllum inophyllum*). The output of his evaluation was that he had to make a new business design models in order to maintain the sustainability of this program.

To increase the sense of belonging of the community, he conducted research on social aspect, social mapping of his local partner to choose Nyamplung and made closed relationship. He found an ‘absurd’ relationship of traditional knowledge and values, in engaging their cooperation. Local community was Wahyudi’s partner that got Nyamplung from Cilacap, Kebumen and Purworejo whose society lived with different culture. Cilacap and Kebumen societies are more religious than Purworejo society then they need different approach; however, they have the same traditional culture, Javanese values based on their ancestor values. For example, land is a part of their life opinion, the gotong royong (community cleaning and helping), Sedekah Bumi (respecting on land celebration), and the harvest are not only private possessions but also public and all of them have indirect community agreement. Traditional values made a different understanding on land use perspective as sense of belonging to the harvest of Nyamplung, to land for Nyamplung plantation was weak; however, they had the highest spirit for bio fuel program continuity. Land and growing of Nyamplung, were not only economic value but also culture value because they were part of ecosystem and they were part of actors on bio fuel system.

2.3 Behavior of change for sustainability

Nyamplung is not only energy and economic issues but also integrated into sustainable environment issues in a way that is meaningful to the communities' cultures. Sustainability of biofuel program based on *Nyamplung* commodity is suspended on participatory of local community to supply *Nyamplung*. The collective dynamics of technology "soft technology" introduce further complexity to the structure–behavior–performance paradigm. The importance of the phenomenon (structure–behavior–performance) of social learning as a basic feature of the dynamics of sociotechnical development, emerges from this insight (Sørensen, 1995). Biofuel program is not a single entity; much of the experience created is unsustainable because, beneath it, the developmental perspective turned what had always been 'multi-sect oral' into 'uni-sectoral' (Martinez, 2005). Most of them have a problem on supply as agriculture that has more complexity than on factory. On the other hand, it engages multi actors and aspects, for example farmers, land, climate, etc. Socio culture of intellectual property has adopted tremendous significance for biofuel sustainability, in addition to being a motor for social movement. In this study, sustainable development is represented by the ability of the biofuel actors to supply raw material to the biofuel factory. The security of raw material on biofuel commodity needs actor's consensus because it will mobilize some resources. On this case, land is not crucial aspect, but security of supply depends on social agreement, consensus decision-making of *Nyamplung* pickers. Consensus decision-making of *Nyamplung* pickers because it is needed to seek not only the agreement of most participants but also the resolution of social rules on *Nyamplung* pickers community in Kebumen, Purworejo and Cilacap. *Nyamplung* will have economic value when biofuel program is done successfully, so this study includes reflexive awareness of the bioenergy actors to anticipate the conflicts.

The difference between the culture of humans and the behaviors exhibited by others is that humans cannot survive without culture. Everything they see, touch, interact with and think about is cultural. Culture change isn't easy and over the years we have all seen many culture changes failed to deliver the promised benefits, often despite massive investment. However, any change, from introducing new systems to transforming the entire strategic direction, depends on people behaviour in new ways from day to day. Interaction between actors and learning process to support sustainable development is indicated by openness, flow of information, negotiation, and a good decision making (Rip and Kemp, 1997). *Nyamplung* pickers' consensus is social governance to consistent management, cohesive policies on *Nyamplung* pickers' agreement. Reflexive awareness covers openness and transparency processes. Key factors with respect to openness are the production and handling of information, access to negotiation and decision making arenas, and communication structures (Jelsma, 1995).

Building up trust across the society is used as a barometer for how the change process is being received, flagging up issues to be addressed and advising on the best way to communicate the change process. They interact with local community intensively; furthermore it is the way for solving problems in intercultural communication.

6.0 Conclusion

The findings of the study have shown that Indonesia is a heterogeneous country and has specific “meaning” on land use issue of bio fuel program. The meaning is a representation of complexity. The meaning is not image or model of complexity used by a conscious or social system, but simply a new and powerful form coping with complexity under the unavoidable condition of enforced selectivity (Noe, 2003). This definition conforms to two critical models of a common perspective/approach. Firstly, land use is production factor therefore interaction of *pesanggem* and powerful institution such as *Waterland*, *Perhutani*, and *Enhil* is economic factor although they have local value. Since land has an economic perspective, it will make patron-client model so that the interaction is weak. In addition, it is not the potential resource to support bio fuel development program. Secondly, the other perspective, land use is a part of culture, has power to mobilize resources. The evidences reveal a wide range of cultural issue taking a significant position in the program adoption at rural communities. Energy and economic issues are integrated into sustainable environment issues in a way that is meaningful to the communities' cultures. Nyamplung is a part of the farmer's life, furthermore, become embedded and internalized within the farmers, making it an acceptable agriculture crop. The selection of energy plant is based on collective learning at the community levels, moreover, through this ‘nyamplung’ initiative will be hope to provide employment and improve local economy of the poor in village that is environmentally sustainable, and it will answer the question the land use issues on bio fuel development.

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