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The complexity and consequences of the policy implementation dealing with sustainable ideas

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ABSTRACT

This article portrays a case study in Yogyakarta, Indonesia which looks into the dynamic relationship between communities and the effectiveness of the implementation of community-based forest management (CBFM) policies and its programme, and particularly on how local institutions deal with the shifting dynamics of these policies. As there is currently an absence of research in this area, this research therefore focuses on how the local community implements policy, builds relationships with other stakeholders, and strengthens local community institutions.

CBFM has been implemented in Yogyakarta since 1995 and during that time, the central government has been changing the policy for five times. At this point, this article argues that CBFM should rely on local institutions and deal with the shifting dynamics of policies. The terms of institutions can be considered to include formal institutions, such as Constitution, government laws, charters, decrees and statutes, and informal institutions, such as code of conducts, customs, local knowledge and social expectations. Furthermore, in selected communities, it is clear that the local communities can apply their informal institutions as an important component and value of traditional systems and significantly involved in forest management sustainability and establish the formal institutions simultaneously.

KEYWORDS

Community-based forest management; formal institutions; informal institutions; sustainable forest management; Yogyakarta-Indonesia

Introduction

In finding sustainable ideas for an open, participatory, and more democratic policy response, the concept of Community-based forest management (CBFM) emerged in response to the failure of the previous model of forest management that was mainly state-led and oriented towards industry. CBFM is an idea that has spread quickly and it has been adapted by many countries (Adhikari, 1990; Armitage & Hyma, 1997; Schmink, 2008). CBFM calls for a change from state-based, centralized control and privatization oriented to people-based or community-based (Mendoza & Prabhu, 2005).

In Indonesia, forest resources management was implemented to produce profits for the Indonesian government during the new order regime, Suharto era. However, this policy produced problems such as deforestation, poor community, and unsustainable forest. In addition, Kaskoyo, Mohammed, and Inoue (2017) stressed out that the reason why the

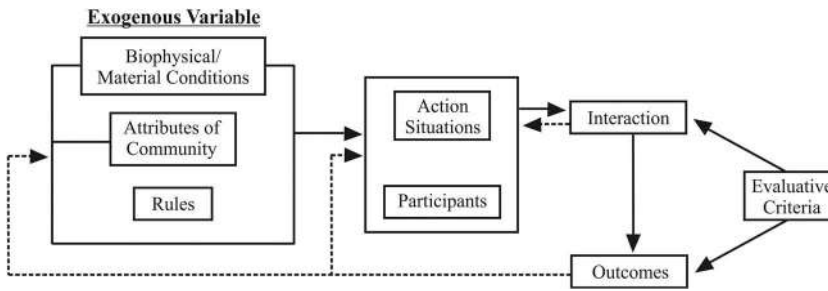


Figure 1. A framework for institutional analysis.

Source: Ostrom (2005).

Indonesian forest policies had failed, in the past was because the locals living in and around forest were not involved in the government forest management program. Thus, Ravenel and Granoff (2004) argues that although many of the forest policy problems occur at the central level, effective policy intervention must be grounded from a theoretical understanding of the drivers at the local level. Purnomo et al. (2014) supported this argument saying that the seen long-term problem, such as forest management issues, could be better approached through the enforcement of a fairer partnership and this said partnership that all parties consider fair is an indicator of balanced power. Looking into the same lens, the response to the failure of forest management of the Indonesian government was the establishment of a program called CBFM that gave an opportunity to local communities to use and utilize the state forest areas.

The basic idea of CBFM is a synergy between local people and their environment (Agrawal, 2001; Purnomo & Mendoza, 2011). If the local people can participate and get access to the forest recourses near to them, and they use their local knowledge in a sustainable way, the forest resources will be sustainable, and the local people will gain economically and socially.

By the middle 1990s, the Minister of Forest of Indonesia (MF) committed into creating a new forest management regime that is based on empowering the community. According to the degree no. 622/1995, a local community can use and manage the state forest for 25 years. The first decree that was enacted by the MF is the decree no. 622/KPTS/1995. This regulation gave a chance to communities to gain access to the state forest. However, the MF already ratified several regulations on the CBFM project. From 1995 to 2009, the MF revised the decree on the CBFM five times.

One of the selected locations for implementing this policy is Yogyakarta Special Province. According to Provincial Decree no. 188.4/3710/2003, the scale of state forest is 18,044,967 ha, around 5.6% of the Yogyakarta area. In addition, the provincial government reserved 4.186,4 ha in Gunung Kidul Regency (GKR) and 203 ha to be used for CBFM project. Those reserved forest area also was reflected in the verdict by Ministerial Decree no. 252/2002. GKR has been selected because its area is 46% of Yogyakarta province. As a result, to implement this Decree and to accommodate the aspiration of local community, the Gunung Kidul Regent published the Regent Decree no 213/2002.

The Regent gave the temporary license to 35 (thirty five) local community groups to implement CBFM project in their area.

Purnomo et al. (2003) argues that CBFM is a clear indication that Indonesia is in the process of making forest policy and management more democratic, and is opening a clear leeway for collaborative modeling in the forest management process. In addition, this program wants to invite many stakeholders to participate. Participation, in this context, is divided into two arguments, which are the efficiency argument and empowerment argument (Ostrom, 2009; Tanguilig & Tanguilig, 2009). The efficiency arguments suggest that the participation is a tool for reaching and achieving better project results. On the other hand, the empowerment argument looks at participation as a process that enhances the capacity of individuals to improve their social life and this argument wants to support social change to the advantage of the marginalized society. Therefore, this CBFM should be implemented by a synergy between efficiency and empowerment.

In another lens, the new institutionalism approach influenced discourses on local community participation (Ostrom, 2009). This approach argues that the institutions lead to formalized mutual expectations of co-operative behavior and allow the exercise of sanctions for non-co-operation so it can minimize the cost of individual transactions and reach better mutual goals. Informal institutions that can be represented by social institutions or norms are considered an appropriate solution to the problems of trust and malfeasance, for instance, in CBFM implementation, the norms can minimize cheating and free riding so it solves the problem in a not too costly way. Formal institutions, mostly understood as organization, structure and law, can transform an individual activity and orientation into a collective activity in a form which is visible, analyzable and amenable. In this case, when the farmers participate in this project they have own interests and it can raise a conflict among them so the committee publish rules of law to deal with that situation.

Moreover, the key argument of this article is that the relationship of stakeholders is not autonomous and independent; especially the engagement on public policy, but it is created by their local culture, knowledge and their position. Consequently, it is important to explain and understand those local cultures and contexts relating to strengthening the local institutions. This article focuses on strengthening local institutions in the context of dealing with the shifting policy on CBFM.

Literature review

Institutional approaches on resources management

Understanding institutions

According to Ostrom (1999, p. 51), institutions have wide definitions and numerous concepts that are based on behavioral rules, norms and approaches. In other words, “institutions are the prescriptions that humans use to organize all forms of repetitive and structured interactions, including those within families, neighborhoods, markets, firms, sport leagues, churches, private associations, and governments at all scales (Elinor Ostrom, 2005, p. 3). The terms of institutions can be considered to include formal institutions, such as Constitution, government laws, charter, decree and statutes, and informal institutions, such as code of conducts,

customs, local knowledge and social expectations (North, 1991; Quinn, Huby, Kiwasila, & Lovett, 2007; Smajgl & Larson, 2007).

North (1990, p. 3) argues that institutions are the rules of the game in society or, more formally, are humanly devised constraints that shape human interaction. In consequence, institutions structure incentives in human exchange, whether political, social or economic. Moreover, North (1990) argues that conceptually, the rules must be clearly distinguished from the players and the purpose of the rules is to define the way the game is played but the objective of the team within that set of rules is to win the game. A key difference between organization and institutions is as follows: organization is a group of people who want to achieve the same goals bound by common purposes, and institutions are mainly the rules of the game or code of conduct that define social practices and interactions among the stakeholders (North, 1990).

On the other hand, there are some problems with North's exposition. Hodgson (2006) says that North is insufficiently clear about the distinction, (a) between institutions and organization, and (b) between "formal rule" and "informal constraint". The first problem arises if the organization is defined as an actor or player. North simply ignored that the instances when "the group of people that want to achieve the same goals bound by common purposes" may not be the case. North is less interested in the internal mechanism by which the organizations coerce or persuade members to act together to some degree (Hodgson, 2006). In other words, an organization involves structures or networks, and these cannot function without rules of communication, membership and sovereignty so in that case, organization must be regarded as a type of institution (Hodgson, 2006).

The second ambiguity of North's argument is the distinction between formal "rules" and "informal" constraint. Some identify formal with legal and look at informal rules as non-legal; in turn, if "formal" means "legal", then it is not clear whether "informal" should mean illegal (Hodgson, 2006). Furthermore, it is possible to identify the formal as being that which is designed, and the informal as spontaneous institutions, along the lines of Carls' distinction between pragmatic and organic organization (Hodgson, 2006). Another scholar says that the institutions are also a body of norms, rules and practices that form behavior and expectations of the stakeholders (Heywood, 2011, p. 332). Therefore, it is suggested that the terms formal and informal with regard to institution and rules should either be abandoned or employed with intense care.

Institutions on resources management

For the terms of institutionalism on resources management, scientists argue that local institutions can effectively establish, manage and control sustainable resources (Behera & Engel, 2006; Bischoff, 2007; Fudemma, De Castro, Silva-Forsberg, & Ostrom, 2002; Smajgl & Larson, 2007). This reasoning has been continued by Ostrom's point of view that an institutional method can respond to the tragedy of commons where the group of users can create a rule about how much, what method and when the users can produce and utilize the resources in a sustainable way (Ostrom, 2008). It means that stakeholders can be successful in using and managing their resources if they can meet their institutions with its contexts (Ostrom, 2008). Different contexts and cultures can create different institutions because the same rule cannot be executed in different social contexts (Agrawal, 2001). Therefore, the development of effective local institutions should rely on the local contexts

and cultures. A specific institution with a defined context is the best way to deal with resources and environmental issues.

Due to the diversity of regulations on social behavior that can be observed at multi-scales, institutions should be constructed. In attempting to manage a variety of common-pool resources, Ostrom modified a set of principles and developed the Institutional Analysis and Development (IAD) framework (Ostrom, 2005). In other words, the IAD framework is developed to systematize diagnostic, analytical, and prescriptive capabilities (Ostrom, 2005). It also supports the accumulation of knowledge from empirical studies and in the assessment of past efforts at reforms (Ostrom, 2005).

Based on Figure 1, exogenous variable means independent variable that affects a model without being affected by it, and whose qualitative characteristics and method of generation are not specified by the model builder (Murcko, 2014). An exogenous variable is used for setting arbitrary external conditions, and not in achieving a more realistic model behavior (Murcko, 2014). For instance, the level of government expenditure is exogenous to the theory of income determination.

The term action arena refers to the social space where the individuals interact, exchange goods and services, solve problems, dominate one another, or fight-among the many things that individuals do in action arenas (Ostrom, 2005). A main part of theoretical work stops at this level and takes the variables specifying the condition and the motivational and cognitive structure of an actor as given. Analysis proceeds toward the prediction of the likely behavior of individuals in such a structure.

An institutional analyst can take two additional stages after making an effort to understand the initial structure of an action arena. One stage digs deeper and inquiries into the factors that affect the structure of an action arena (Ostrom, 2005). From this vantage point, the action arena is viewed as a set of variables dependent upon other factors. The second stage explicitly examines how shared understandings of rules, states of the world, and nature of the community affect the values of the variables characterizing action arenas Ostrom (2005). Then one can move outward from action arenas to consider methods for explaining complex structures that link sequential and simultaneous action arenas to one another.

Ostrom argues that the problem could also be at a policy or collective-choice tier where decision-makers repeatedly have to make policy decisions within the constraints of a set of collective-choice rules (Ostrom, 2005). In this case, the policy decisions then affect the structure of arenas where individuals are making operational decisions and thus impacting directly on a physical world (Ostrom, 2005). In other words, the problem could just as well be at a constitutional tier where decisions are made about who is eligible to participate in policy-making and about the rules that will be used to assume policy-making (Ostrom, 2005).

Moreover, there are several reasons why the local institutions are required to manage resources sustainably. Firstly, government policies are failing because of scarcity of resources, such as funds and human resources for supporting their targets (FAO, 2007). Secondly, a local self-organization is more able and adapted to work out the common resources' dilemma and promote sustainable natural resources (Agrawal, 2001; Anand, 2007; Ostrom, Burger, Field, Norgaard, & Policansky, 1999). Thirdly, most of the policies are based on textbooks, and they are not down to earth or dealing with the social contexts so the best one to answer is one that understands the local contexts (Fairhead & Leach, 1996).

Fourthly, participation is the paramount issue that has been advanced as a solution to re-distributing and re-allocating resources (McAllister, Smajgl, & Asafu-Adjaye, 2007; Nygren, 2005; Theingburanatham, 2015). For instance, when governments have taken out loans for programs that subsequently fail they are then trapped in debt. On the other hand, many communities which follow their local wisdom and knowledge can maintain the forest resources sustainably (Fairhead & Leach, 1996).

Improving the local institutions that support decentralization and participate in natural resource management is an appropriate way to re-allocate resources, but it cannot guarantee resources' sustainability. However, there are several ways for developing community performance; the local institutions cannot establish it alone (Barrett, Lee, & McPeak, 2005; Nygren, 2005). First of all, is through a legal mechanism that can establish rules and law enforcement. Secondly, a capacity building that helps the local community to build an equal relationship with other stakeholders is needed, such as the local government and buyers. Thirdly, is the need for institutional transparency; transparency that supports the information-equality system among stakeholders in the community. Lastly, flexibility and adapting cooperative partnerships are important for community performance development.

Research method

This study adopts qualitative research approach because of its appropriateness to this research focus as well as its ability to help in contextualizing issues than other approaches (Denzin & Lincoln, 2000; Silverman, 2010). Methods can be understood as the set of procedures and techniques applied for the conduct of research and collection of evidence. Methodology, on the other hand, is the underlying meta-principles and philosophy behind the methods (Corbin & Strauss, 2008). For example, a review of documents, participative and non-participative observation and in-depth interview are all some key examples (Silverman, 2010). In addition, the information about community monitoring processes was gathered and integrated through the literature review, observations, and in-depth interviews.

The community groups section was purposive and the comparison model was made on the observation (Sekher, 2001). In this research two community groups were selected. These communities were selected because they had already participated in and implemented the CBFM project. Secondly, those communities could represent the dynamics of communities in the implementation of CBFM in Indonesia, especially in Yogyakarta special province. Thirdly, the environment of those communities has specific conditions. For example, the land is so hilly, the risk of erosion is so high, and in dry monsoon the communities suffer lack of water (Agency, 2009). Last but not the least, the land boundary between state-owned and privately-owned is clear and there is less conflict (Sepsiaji & Fuadi, 2004).

The two community groups are called Sedyo Makmur (promise to reach the prosperity) in Semanu district and Karya Hutan (the guard of the forest) in Semin district. Both of the communities are located in Gunung Kidul Regency, Yogyakarta Special Province: 110° 37' 11" and E07° 52' 50"S (Agency, 2009).

The reasons for choosing those sites are the size of the areas and the number of the group members. Karya Hutan has 185 members and gets a license to use 50 Ha State-

Table 1. Comparison of selected areas of study.

	Group A Sedyo Makmur Community	Group B Karya Hutan Community
Demographic features		
Size of the community	2 villages (750 households)	1 village (285 households)
Total member of a group	254	185
CBFM's Managed areas	115 ha	40 ha
Background of members	Relatively diverse	Relatively homogeneous
Economical composition	Mostly small farmers and landless owned	Mostly farmers and landless owned
Established institution		
Established a co-operative organisation	Yes	Yes
Established rules of the game or institution arrangements	Yes	Yes, but not implemented properly
Monitoring	Already developed the monitoring team	On-going to develop monitoring team

Owned forests. Sedyo Makmur has 254 members and can use 154 Ha State-Owned forests. Secondly, those communities have different levels of knowledge and ways of establishing the local institution (Agency, 2009; Sepsiaji & Fuadi, 2004). For example, Sedyo Makmur was established before the CBFM, on the other hand, Karya Hutan was established during the CBFM project. In other words, each community has a local farmers' group who were involved in the implementation of CBFM on the state owned forest and each has differences.

Lastly, in terms of economic background, the respondents are mostly farmers who do not have enough land; most of them having less than 0.20 ha of land (Interview-Farmer, 2012). The people's dependency on the limited land resources is quite high. Therefore, they give consent about how to find more land where it is utilized to provide their life by involvement with CBFM. In other words, each community member enrolls in the CBFM program because the program allows the community as a group to use the state forest in sustainable ways. Thus, it can be considered that these selected local farmers groups in this research can represent different community groups. To provide a clearer comparison and contrast of the general profiles of the Karya Hutan and Sedyo Makmur, a concise detailed table is provided in Table 1.

Results

Measuring of the advantages and weaknesses of the local institutions

Regarding informal institutions, there are several key activities on these selected sites. Clear definition of institutions is an appropriate way to solve the problem on Forest resources. This can be done by understanding and implementing in informal institutions codes of conduct, customs, social expectations, and local knowledge (Platteau & Peccoud, 2011). However, the term of local knowledge or local wisdom sometimes is changeable. Developed and less developed countries have their own knowledge suitable with the contexts and their norms and are aware of natural resources sustainability (Ballard, Fernandez-Gimenez, & Sturtevant, 2008; Mulyoutami, Rismawan, & Joshi, 2009). Wahono, Widyanta, and Kusumajati (2001) argues that in terms of the relationship between humans and its environment, local knowledge should be seen as a holistic

knowledge of community and coming for their specific culture dealing with their needs and environmental sustainability. In addition, Berkes (2007) argues that local knowledge is important, not only for its own sake, but also for its potential to develop and design more effective management for various ecological systems and obstacles. In addition, documentation and method of local knowledge became part of environmental policy since the Earth Summit in 1992. Furthermore, those terms remain focused on by scholars and policy-makers to deal with environmental issues. This knowledge can emerge into two types; these are values and attitudes, beliefs and skills (Berkes, 2007). Another benefit of local knowledge is that the local knowledge develops a holistic approach to convert day to day activities (Berkes, 2007).

Moreover, understanding the local knowledge of selected sites in Gunung Kidul Regency can be a good way to portray the local institutions' resilience to implementing CBFM program. Mendoza, Hartanto, Prabhu, and Villanueva (2002) argues that most of the indicators that were developed for sustainable forestry are those that are holistic in nature as it encapsulate forest management issues in the economic, biological, environmental, and physical areas. Thus, forest farmers realize that forest sustainability is important. It can provide not only for their economic needs, such as income but also for their social needs, such as friendship and recreation. The majority of farmers from selected sites do not have enough income to support their daily life. Lack of land ownership is the main problem. For instance, most of them just have 0.1 ha or less land and some of them do not own any land. That is why they are involved in CBFM program. Forest farmers are conscious that forest is a source of timber, livestock, fruits, honey and water during the drying season so they manage and use the forest wisely.

In terms of social capital, in the selected sites, the farmers or forest users involved in a collective initiative share their resources and then take risks in what is a resource constrained environment. *Arisan* is the most common form of social capital manifestation. Variations of *Arisan* or pooling and gathering of money or resources can exist in many activities. This activity operates by members of the group collecting money every month in their group meeting and then they do a raffle so those who are lucky can get the money. Usually, it can be that the savings may be used to finance a wedding or a funeral of a member of the group. *Arisan* can be one form of bonding social capital and also it has a role as a social safety net.

In addition, one of the communities' local wisdom is motivation and ability to learn. They have motivation to preserve or *handarbeni* forest resources (Purwadi, 2008). Initially their motivation to join in this program is one of an economic concern. Because they want to get at 0.25 ha state-forest minimum, they are involved in this program. A household consists of five people; if they just own less than 0.1 ha of land, it is not enough to provide for their daily needs. It looks like gaining benefit is the motivation of forest farmers. However, the economic factor is not the main factor, as proved by how the farmers proposed and joined in this CBFM project. It takes a long time to join the program, to receive a temporary license and to collect the long-term license. Even with no license, the farmers still protect and manage the forest in a sustainable way. Their motivation and forbearance are evidences that they are tough. They joined in CBFM program in the year 1995 when the program just gave them intercroops product. As a result, the trees in the selected sites have grown and are in good condition.

Forest farmers have massive and successful experiences of developing private forest or *hutan rakyat*-forest for the people. The amount of private forest areas is around 24,531 or nearly 64 sixty-four percent of forest area in Gunung Kidul (Awang, 2001). Most of them are managed in a sustainable way and some of them get a certification of eco-labelling. In other words, the local community has enough experience and ability to get 'trust' from the state to maintain and have access to the state forests.

This leads to some advantages of informal institutions. First, the informal institutions rely on social backgrounds and social values of the community. Because informal institutions are formed from a historical context, it makes informal institutions durable and long-lasting. Second, informal institutions are in the grassroots level so it can solve any conflict among the community members easier and faster. Third, informal institutions require small or no overhead costs to negotiate, adjudicate and enforce. Regarding informal institutions, Fukuyama argues that if the members of a group follow a set of informal rules, it can save costs substantially (Fukuyama, 1995). However, informal institutions have weaknesses also. First, it cannot deal with complex and systemic problems in the society. Second, a reward and punishment system of the community cannot be implemented straightaway. For example, if the farmer who has the license passed away, who should take the land over? Norms or social institutions cannot answer this problem so it should be answered by established formal institutions.

On the other hand, formalized institutional arrangements can be considered as a solution to the weakness of informal institutions. It is also a more forceful and desirable approach, giving for example, clearly identifiable members and boundaries, establishing a system of reward and punishment, and solving collective and public conflict (E. Ostrom, 1999). Ostrom (1999) argues that formalization is an evolutionary process that is linked to a general progression from traditional form to modern form (Cleaver, 1999). Ostrom's argument seems to forward the possibility of crafting institutions and to simplify the local institutions. Moreover, this approach has been criticized for being over-simplistic and for avoiding the historical and social contexts and dependency of shaping institutions (Cleaver, 1999). Therefore, in relation to strengthening the local community, it must be accepted that local institutions are a combination between formal and informal institutions and that both can maintain negotiations between all users, can create a strong principle of conflict resolution and decision, and can protect the forest resources in a sustainable way *through the practical adaptation and local values*.

Local communities already established formal institutions that can be seen in their formal organization and formal structure. Both of the selected areas have committees, which are divided by several tasks between Chairman, Secretary, Treasurer, and Section officers. They perform in accordance with the group's articles of association and bylaws. These are evidences that formal institutions already exist in the local community. Based on the observation and in-depth interviews, the groups were established gradually. At the beginning, it was just an informal group that accommodated farmers who used state-forest areas mainly for intercropping activities. Those groups were mobilized and used by Forest officers to protect and guard forest security. The farmers or forest users met only incidentally, as events required.

Even after establishing formal institutions, farmers' groups still have drawbacks. Some identified weaknesses of local institutions or small organizations are the lack of finance and technology and that they do not have enough staying power (Fukuyama, 1995).

In addition, another drawback of formal local institutions is in the decision-making process. Both communities attempted to make decisions through participative method but sometimes it does not work. The failure is linked to patronage belief and because the elite or leader is in the strongest position. Sometimes, the elite consists of some informal leaders and formal leaders. Reflecting to the history of groups, this situation happened because the groups were established by several people who have close relationship with government officers or forest officers. It is clear that the elites are the farmers who have a link with and an access to authority. In the case of the patronage system, this system was built by community integration and also designed by the Government. Because of the local communities' insufficient social capital, the local people would follow the rich or powerful people, and at the same time, the government failed in developing the state formation process. The patronage system makes the decision-making process, less participative. Therefore, the forest farmers hardly participated in the decision-making process, and they could not obtain service delivery, investment, and allocation of funds properly.

In these selected groups, they also have issues of capacity-building. For example, they were not aware how to operate their organization properly. They just placed their organization as a second priority and the first priority is their forest. As a result, they could not negotiate with other stakeholders, especially when dealing with government regulation because they do not have enough data and organized documents.

Empowering informal institutions and establishing formal institutions

Based on the previous explanation, it can be clarified that the implementation of CBFM in Gunung Kidul raises some problems. The problems arise from two levels of institutions, which are the state and the local level. Firstly, in the state level, central government creates a policy that is subject to numerous changes – this tends to marginalize the local community. Forest farmers also had to deal with a number of policies, both of central and local government. Secondly, at the community level, problems occurred relating to the weaknesses of local institutions. It can arise from both informal and formal institutions. Even though, they have some potential resources, forest farmers have no adequate knowledge and are in a weaker bargaining position compared with other stakeholders. In these contexts, CBFM implementation looks stagnant and not very well implemented. It can lead to the failure of CBFM and ultimately to unsustainable use and degradation of forest. Therefore, there are two levels of activities to solve that problem. The first level is dealing with the government policy and the second level is strengthening local institutions, both formal and informal institutions.

The shifting of CBFM policy and the friction between central and local government create many problems. It can happen because there is no political will in central and provincial governments. The central government thinks that local government, which is Gunung Kidul District, does not have enough resources to implement this program. In addition, the economic aspect is another factor. Provincial Government does not want to lose their asset or income (revenue) source. The extent of forest area in Gunung Kidul is 77.5% of Yogyakarta Forest. If the Province gives the forest area to the Regency they think they will be unable to find another source of domestic income. On the other hand,

Gunung Kidul Regency does not want to propose the sharing or transferring of authority. It is an example of a dilemma in CBFM in Indonesia.

At the community level, there are several issues that should be solved in dealing with the shifting policy and with the strengthening of local institutions. For that reason, the next section will explain and elaborate on how to improve local institutions by strengthening informal and formal institutions, based on the selected sites' situation. It maximizes the informal institutions potency and then establishes formal institutions.

It is clear that informal institutions require small or little over-head cost to negotiate, adjudicate and enforce (Fukuyama, 1995; Gibson, McKean, & Ostrom, 2000). With regard to informal institutions, scientists argue that if the members of a group follow a set of informal rules, it can save costs substantially (Fukuyama, 1995; Gibson et al., 2000; Elinor Ostrom, 1990).

In terms of informal institutions, particularly, in how to plant and grow a crop, forest famers are aware that forest sustainability is important. They choose the inter-crops plants that can grow and also have endurance on its environment. They use organic fertilizer from their waste or castle because it is cheap and because it also supports its environment. When they want to grow a crop, farmers do not do it at the same time, they do it in rotation. It is not only to help each other but also so it can preserve the forest resources. The local knowledge is precious and it has depth and value and is holistic. Above is an example of local knowledge on the sites that should be learned and also shared. Local communities understand which situation, plants and rules are the best for both environment and their life. The next point that has to be considered is how to make local knowledge more systematic, and easier to adopt by other communities. This is the first activity to strengthen the local knowledge. Indonesian University and scholars should rethink about how to study, learn, and develop knowledge. It could be an appropriate way for Indonesian scholars to learn, understand, reflect, modify, and share their own knowledge and then compare or collaborate with "Western knowledge".

Since the CBFM's goals are to empower the local community, to preserve forest resources, and support the improvement of the local community, there is a concept that argues that if the local community is prosperous, forest resources and its environment will be sustainable. In other words, the forest will be in jeopardy if the local community is poor. This approach is the perceived solution when the anthropocentric approach and state-based approach fail to distribute forest resources. In local words-Javanese words, called *memayu hayuning bawono*-ensuring safety, happiness, and welfare in the world, it means a holistic approach that puts local knowledge and local community as a main concern on CBFM implementation. The second activity that should be encouraged is how to support local participation and local wisdom by eliminating structural obstacles and systemic procedures. One solution is Capacity-building.

Capacity-building can be done in the individual level and in the communal level (Bebbington, Dharmawan, Fahmi, & Guggenheim, 2006). At the individual level, forest farmers need to understand how to participate in the decision making process, articulate their interests, and negotiate with other stakeholders. If individual capacity increases, the communal capacity will improve. In this case, local community capacity-building can be initiated by the Government, NGOs and University researchers. Collaboration between local community and external civil society organizations, such as NGOs, University and

researchers can increase local community capacity through programs, such as trainings, and providing information and advocacy. In addition, capacity-building should be implemented by a bottom-up approach (Kerkhof, 2001). The benefit of capacity-building that relies on a bottom-up approach and a linking between science and local knowledge such as this method is that it can help the forest farmers to learn easily and faster; this method can reduce the failure of the implementation of the new technique; and then it can secure the knowledge so it becomes long-term knowledge and life-long understanding.

One of the crucial problems in local institutions is participation in the decision-making processes. Because of the lack of social capital and the failure of state-formation, local participation is in danger. For example, in a selected group, one or two people may dominate in the group decision-making process. It makes the policy less transparent and accountable. It is really suggested that a patronage system should be avoided so that the groups can be more transparent and it will reduce the failure to implement the group's decisions and the policy can accommodate the members' needs. Two activities could be taken to reduce the patronage system and improve farmers' participation. First, it should increase the representative of landless, women, and marginalized members. It could be difficult if the first step comes from group initiative. Therefore, the second activity is support from the external stakeholders, such as NGOs and University. It makes sure that the participation process could change the decision making process and it does not threaten the group stability.

In response to the lack of networking and conflict among groups, a collaborative action should be performed to ensure all stakeholders share responsibility. In Gunung Kidul's case, forest farmers are less powerful than traders and each group of forest farmers is less organized to negotiate with Government and other stakeholders. In other words, conflict between stakeholders or distant users is quite common and difficult to solve (Purnomo, 2010).

Conclusion

There are complexities that the forest management has to deal with. Some of these are emphasized and validated from the results of the research. It was revealed that most of the farmers who join in CBFM could not have their own land. In addition, the local communities have already established their local groups and then these groups function to deal with the CBFM policy. Due to lack of land, the farmer participates in the CBFM policy. During the project, the farmers are aware that they have to manage the forest resources in a sustainable way. They understand that their environment relies on the forest quality so they attempt to manage it by following the laws of the government and the suggestions made by NGO's and Universities.

In terms of strong and effective institutions, based on the findings, the institutions emerge from local community initiatives and these are established by the local farmers' own need and are ran better than the local institutions that are initiated by external actors. In relation to strengthening local institutions, this article has suggestions on how to encourage the local community to optimize their informal institutions and develop formal institutions properly. The initiation of the above solutions can be supported in regard to CBFM implementation properly. CBFM would be run in a sustainable way if this program relied on local contexts and it has robust institutions. A solution seen is to develop an

initiative on forest policy that is participatory, transparent, and accommodative. A policy that relies on the community needs and forest sustainability can be proposed from several points. Firstly, central government should enact a robust (and stable) policy that allows local government to grant licenses straightaway. It is also clear that the Central Government authorizes the local community or forest farmers to use and cut the timber by license for utilizing the timber. In this site, central government (especially Minister of Forestry) should perform a Decree that gives rights to local government to declare the 4,000 allocated state forest areas to be a CBFM area.

Secondly, Gunung Kidul Regency should propose to Central and Provincial Governments that they (the regency) want to manage and administer the allocated state-forest area for CBFM implementation. In addition, Gunung Kidul Regency should continue to establish Regency Decree on CBFM that accommodates local community need and local contexts. This decree should be clear in regulating the sharing of benefits between central, local government, and farmers in relation to timber production. Because the argument on the share of timber production is the main issue in the local community, it can be solved through the creation of the Regency Decree.

Thirdly, establishing a cooperative (or a collective action institution) is very challenging for farmer groups. According to the Ministerial Decree, every group should be in a cooperative if they want to get the timber utilization license. In addition, independence, professionalism, and commitment should be possessed by the local community itself. Independence can be shown if the farmers do not rely on the traders' needs; professionalism means that the farmers can manage the group and the forest in a proper way; and commitment can be seen on how the farmers develop their institutions and maintain forest sustainability.

To achieve these goals, support from the stakeholders, especially the State, NGOs and University researchers is needed. In regard to the conflict arising among other group, several actions can be done. First, making a forum or dialogue, that can accommodate and share each party's interests and the forum ideally puts each stakeholder in the same vision, having the same position and wanting to share responsibility. Second, encourage groups' independency. The existence of the association or consortium of CBFM is proven to improve forest farmers' and groups' bargaining position. By this association, the groups' independency can be developed. Groups can learn how to articulate their interests, communicate their needs and negotiate their wants. In addition, a collaborative management is needed. Since the government do not perform effectively to ensure the ecological and productive integrity of forests resources so it is necessary to support collaborative management initiatives that put the local forest farmers/users groups as the main actor in forest management.

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