

Sustainable Management of Teak Plantation Forest by Local Farmers in Sulawesi, Indonesia

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Abstract: From the implementation point of view, the sustainable management of the teak forest was implemented based on the principle management of teak forests by applying the ecolabel system. This approach is an alternative to the management of teak plantation forest by the local community as the main beneficiary. However, the shortcoming of the internal institutional group decreases the productivity of collective labour members and efforts to build cooperation with others. Comprehensive understanding is needed for the continuity of the institution as a system having a contingency against the strategic dynamical environment of politics and economics. In addition, the basic theory comprising of system (S), contingency (CO), politics (P) and economics (E) known as SCOPE has been well incorporated and discussed into the system. The benefit of SCOPE is to share all contributions from multi parties in the form of resource, organization and norms (RON).

Key words: Institutional sustainability • Community • Teak forests • Ecolabelling

INTRODUCTION

Teak (*Tecnona grandis*) is one of the world's major timbers known for stunning color, fine grain and has a strong resistance. Teak plant grows naturally in the tropical regions of Asia such as India, Myanmar, Laos, Thailand and came to the island of Java in Indonesia about 400 to 600 years ago [1]. Teak forest is the source of livelihood for the surrounding communities in Indonesia and is increasingly facing multi dimensional challenges in the last 15 years in the context of sustainable forest management [2].

Indonesia has been known as one of the main teak producers in the world. However, lately the quantity and quality of Indonesian teak has decreased due to the improper growth and destructive harvesting of saplings that has accelerated land degradation [3]. According to data from the Directorate General of Department of Forestry, Indonesia has considerable potential for community forests area of about 1,568,415.63 ha in 2004. There is about 966,722.27 ha (61.66%) of them including community forest organizations. Of the total area of forest in Indonesia, about 50% exist in Java and at least 70% of wood consumption in Java was met from the public forests [4].

In Southeast Sulawesi, although there is no precise data, but based on field observations, it has been indicated that the interest of the community and the people of the forest area is increasing. The consumption of timber and wood largely came from the plantation forests. Since the last two decades, the government has not issued any permits in the exploitation of teak forest. Therefore, the demand for teak furniture is increasing and lead to the illegal logging of teak in Sulawesi. It has been revealed that the population increase will be followed by a global pressure that required proper harvesting of the teak forests [5].

Public forests are generally managed by individuals or families with subsistence patterns. If there is an established groups of farmers in the management of teak forest, then it is usually facilitated by the program or project needs. Forest harvesting by the farmer groups in the Boja village Cilacap District, Kertayasa Village and Village Ciamis District Sukorejo Wonosobo district was actually due to the demand by the community's project activities [6]. Over time many groups of forest farmers are diminishing and sometimes only the group name exists but without any members. On the other hand, the parties concerned and interested to support or cooperate finally managed to form up an institutional community in the management of community forests. This situation has sparked the existence of private forest owners which requires more hard work, but they look relatively more favorable for forest farmers' bargaining position for a lower price of teak.

Application of the ecolabel certification system by the end of 2004 has achieved significant progress with farmers organized forests in several institutions, including inter-group communication agencies and economic institutions such as the Cooperative Forest of Jaya Lestari (KHJL). In the social forestry program, KHJL is able to implement the system of international ecolabelling such as the Forest Steward Council (FSC). However, this institution is becoming less functional and marginalized from the forest management activities and replaced by new groups which poses a potential conflict and threatens the sustainability of community level institutions at the local level. In the future, this situation will be more critical and crucial when the state forest will be managed by the people plantations (HTR). Deteriorating labor relations, KHJL network or with other external institutions ultimately threaten the sustainability of forest management institutional identity of the people (HJR).

In this context, the idea of sustainable teak forest management can be a theoretical reference for institutional sustainability [7]. There are two ideas for the policy of the forest management which are "*the forest first and the forest second*." The concept and assumption used in the first concept is that the forest will be the main factor (natural capital). The policy, institutional and preservation of the forest are the internal forest environment to be analyzed. Hereby, the utilization and preservation of the forest require many types of work regulations (usually in the form of guidelines and technical instructions) due to differences of forest ecosystems types and activities that should be carried out by forest managers.

Although the management of the forest is owned by the farmers, but the fact is the utilization is strongly related to the government policy that is dominated by idea of "the forest first". For example, to harvest the forest, farmers must have a permit (IPKTM) and complete the necessary documents before sustainable harvesting being carried out in the licensed areas. Certainly it will be different if farmers harvest the farm or plantations that is nothing to do with various government regulations.

To overcome these problems, the farmers organize themselves in various local institutions. This effort is not so easy as it deals with new situations. For example, a community-based forest management should be adaptable individuals and stakeholder groups, direct marketing is a system in the local market contracts with exporters, the extortion from corrupt officials in timber trade being lost due management pattern of transparent and clean, the demand adjustments resource capacity of farmers and others. All the state has the potential to threaten the sustainability of local institutions.

Forests for People: Based on the Act No. 5 of 1967 on Basic Provisions of Forestry, forest based ownership are classified into state and private forests. State forest is defined as forest growing on land that is not encumbered property. On the other hand, the private forest is owned and grown on land encumbered property and commonly called community forests. According to Law No. 41 Year 1999 on Forestry (Law 5 in 1967) Article 5 paragraph (1b) is replaced with the term forest land for forest rights in the clarification section called community forests. Meanwhile, according to the Decree of the Minister of Forestry No.49/Kpts-II/1997 about funding and community forest enterprises, these forests are owned by the people with a minimum of 0.25 ha with canopy closure and timber plants or other types of more than 50% and or plants in the first

year as a minimum of 500 plants/ha [8]. The ownership of non-industrial private forest (NIPF) is the key role in maintaining the balance and integration of a multi-purpose uses and functions of forests for the policy, promotion and significance of rural areas [9].

In the process of its development, community forests in Indonesia are divided into three patterns, namely (i) the pattern of self, which is built by the community forest group or individual with the ability of capital and labor from groups or individuals themselves. Through this pattern community is encouraged to be willing and able to under take the manufacture of forests independently with technical guidance forestry, (ii) the forests were built through subsidies or aids for partial or all of the costs of construction. Subsidies or assistance provided by the government (through the Presidential Greening, Solid Works and other grants) or from other parties concerned with the development of community forests, and (iii) partnership where the community forest is built on cooperation with public and private companies funding incentives in the form of loans to people with a low interest rate (Forestry Business Credit). The basic consideration is the company's cooperation for raw materials and working capital. This partnership by giving full support through planning to split the business prudently, according to the agreement between the company and the community. Meanwhile, forest planting can be divided into three types, namely (a) the community forest which is pure and consists of one type of staple crops planted and cultivated monoculturally, (b) community forest which is mixed, the forests are composed of various types of timber trees that were planted in a mixture and (c) community forest with the concept of agroforestry or intercropping, ie forests that have a form of business combination such as farm forestry with agriculture, plantations, farms and others are integrated in a single location [10].

Management of Teak Plantations in South Konawe: The Teak Forest in South Konawe (Konsel) is owned by the people held by an individual or family with an independent general development patterns. But lately, especially after the Program for Forest and Land Rehabilitation Movement (GERHAN) and initiation ecolabel certification, the development pattern shifted to a mixture of patterns and governmental subsidies. Some people still develop self-reliance, but on the other hand allows the public support of seeds assistance or technical assistance (technical assistance) from the local

government, donor agencies and the sharing. The effect of interactions with various stakeholders as well as the dynamics that occur among communities eventually led to the monoculture cropping patterns by the community in the study area.

The implementation of teak forest management by the community is done based on the principles of sustainable forest management using the ecolabel system. Approach patterns of community-based forest management (PHLBM) is an alternative to achieve a more inclusive management by placing the local community as one of the main actors and beneficiaries. In 2011, *Tim Konphalindo* explained that the Community-Based Forest Management (PHLBM) is a system of forest resource management with a synergistic collaboration patterns among forest villagers with stakeholders in order to achieve sustainability of the functions and benefits of forest resources are optimally flexible, participatory and accommodating [11]. The community-based forest management has several main principles as follows: (i) Local communities have certainty or authority to manage the forest, (ii) Local communities have the certainty to be able to participate in every stage of forest management activities, (iii) Local communities have the certainty to gain the greatest benefit from forest management activities and (iv) Local communities have the assurance of free market exploitation and external pressures. Based on these principles, it is the community-based Forest Conservation and Management Group (PHLBM) that pushes the local community as the main actor. In this context, local communities are more self-sufficient and to be a "master" and the main beneficiary to managing their forest resources. In order to ensure and implement forest sustainability, three general principles that should be applied in the sustainability of forest management which includes (i) the preservation of the environment, shows that the ecosystem capable of supporting life in a healthy organism, in addition to at the same time able to maintain productivity, adaptability and capability to self-renew must be emphasized [11]. In addition to shifting cultivation, dam construction and operation of teak plantations, forest cover change in *Kabaung* was also affected by illegal logging [12]. This requires forest management that respects the basis of natural processes. Social sustainability, reflecting the relationship between development and social norms is also deemed necessary. The economic sustainability, demanding that the benefit to a (some) groups did not exceed the cost of capital required and the equivalent can be inherited from one generation to the next.

Institutional Sustainability: The concept of an institution resides in patterned behaviors that are relatively permanent formed by a number of individuals to achieve the important things in life. The supporting factors are norms/rules that should be obeyed for all members and organization/structure who supporting these norms. In the context of development, institutions are the game rules of an organization to encourage, sustain and maintain the change as planned. Hereby, the institutional construction contains social engineering by the concerned parties. This is different compared with the social learning processes that rely on natural change [13]. In the same context, it has been suggested that the development of local institutions and horizontal/vertical participation are needed to increase the social capital to overcome social and economic issues, to manage potential conflicts and to sustain the development of multifunctional forestry [14]. In an institution, there are three main aspects that need attention, in particular the rule of the game as the main component [15]. This is followed by the structure or without structure (institutions). The rule of the game is supported by a structure and instead serves to drive the people involved in the structure. Finally, the structure must be institutionalized, where the precondition is the rule of the game must be strongly correlated to the fundamental needs of the community.

The forest management in Indonesia is currently developing the *forest first* mindset where the person who manages the forest can be controlled [16]. The success of this management and preservation of the forest would be more dependant on the capability of the government in producing the appropriate work regulations and the capability of forest managers to understand and implement it. Similarly, development related to the concept of sustainable development and management of forests is determined by economic institutional and relevant to other markets for sustainable forest management [17]. The above framework encourages efforts to make government as a powerful agent of development, with complete equipment, human resources (human capital) are educated and trained and ready to perform tasks that all work rules can be implemented. In developing countries, using this framework, even forest protection activities carried out by the government that serves as the military. In this case, the state called a "grand regulators" in which the use and conservation of forests is carried out through the organization of the internal mechanism in the body of government organizations by issuing regulations that

many. While the mechanism of the market, prices and incentives are considered as exogenous factors.

Problems using the framework as the basic for the implementation of forestry development policy is the lack of information on the government to support the accuracy of the work rules and regulations. In addition, governments must implement strict policies in order to control forest concession holders (HPH) to comply with the rules as described above. Forest management activities, in particular the protection of forests, being highly dependent on the ability to control the government and in fact the government's ability to carry out very limited supervision. This is shown by the lack of forest enforcement by the relevant authorities on the logging concessions. It must be noted that forest protection policy instrument strictly depends on the principle of proper monitoring of timber theft and supported by an effective legal system.

On the other hand, the *forest second* framework considers that elements of social, economic and political factors must be implemented to achieve a sustainable management of forest conservation. The government (forestry agency) as a public institution should serve to set the allocation of forest resources to be used efficiently and fairly. Thus, human resources and capital should be seriously considered as an important subject matter while the forest (natural capital) as an object because the focus of the government is to control people's behavior and not as the concession's executor. The factors which are considered as exogenous in the idea of the forest first are social, economic and politic. These must be taken into account in every policy formulation.

The problem faced is that all four forms of capital (human capital, physical capital, financial capital and social capital) as a necessary condition in forest management is not owned by a particular institution, such as loggers, but owned by different parties. In this case, the state-owned forests and infrastructure, facilities and infrastructure concession owned by concession holders, in addition to financial capital is owned by concessionaires also owned by other parties such as banks that provide loans, while human resources are owned by the workers who at any time can be entered and /or out of the company. The analysis shows that the policy of forest management requires institutional forms that can solve the problems of relations between various parties (collaboration) in the implementation of forest management. It has not been considered in forest management by many countries.

Institutional Sustainability Within the Framework of Scope:

The problems above provide a strong argument that institutional concession should have sufficient conditions to be met. The function of the institution to ensure ownership of the four types of capital used and set limits on the jurisdiction of their respective communities to forest use, providing information on the risks faced in the implementation of forest dependents and distribute the risk, establish forest actors which are most likely to be at risk and implement risk control management. This is in line with the proposal that government support is needed in the management of forests, fisheries and nature conservation [18]. The use of the *forest second* idea in managing the teak forest in South Konawe would face a conflict of interest from various parties, especially the government is still strong in using the *forest first idea*. This situation would rise a threat for the sustainability of local institutions, particularly in structuring the relationship between the various parties. The process of multi-stakeholder collaborative synergy or addition must be reduced as it also allows the parties to conflict.

The dominance of the government in the forest management is mostly realized through the formal regulation with top down characteristic and it must be followed by involved parties. A radical change in the formal rules may lead to changes that are not sustainable [19]. These changes could pose a threat to institutional sustainability in the following possibilities; the first Formal rule making institutional changes (rules and structure) of the parties to work together experienced shocks occur dysfunctional. Such situations may result in losses on one side or all sides; the second is formal policy changes can lead to the inability of the parties to compromise partner. This is attributed to the lack of or inability mediating institution in the process of facilitation, but also the level of the limitations of the freedom of employers to bargain and still retain the loyalty of their constituents; the third is formal regulatory changes could cause a pihakpun no disputing the ability to win with his own. It may occur due to resource constraints or inequality held view in responding to the changes that cause excessive selfishness on one or both parties; the fourth is shocks on a formal rule change may encourage free-riders among the parties involved. Atmosphere of uncertainty has the potential to lead to the parties involved to take advantage unilaterally. Such a situation occurs because some participants lacked strong ideology, but rather encouraged excessive desire to gain more profit by. In connection with the early stages was duly

constructed ideology and commitment in the partnership; the fifth in a situation may radically change the formal rules reveal the evolutionary influence. The situation may appear slowly in the institutional system partnership. But the impact is still huge and could ultimately undermine the partnership that has been developed and become more difficult to overcome. Related to that the sensitivity of the participants through a reflection on the changes need to be done intensively.

Another point to be concerned is that although the formal rules are changed, the informal restrictions are still unchanged. This leads to a tension between the informal restrictions and the new formal rules because of inconsistency between each others. The growing of informal restrictions are slower than the extension of the previous formal rules. Although a big change may happen in the formal rules, but at the same time there will be many robust informal restrictions that can solve the basic issues among the participants. It can be social, politic or economic. Hence, there is an urgent need of restructuring in the restrictions for a two-way direction to get a new balance that is much less revolutionary [19]. To understand the institutional sustainability, it should be reviewed as a whole, i.e as a system that has a contingency against the political-economic dynamics of the surrounding strategic. In relation to this, the theory of the system (S), contingency (CO), Politics (P) and Economics (E) or known as SCOPE must be considered. Sustainability is not just a matter of formal organization but also for the institution to well and clearly define such network of regional markets for agricultural products. SCOPE framework can be used to define sustainability in all institutions.

An institution is primarily a system. The essence of systems theory is that many natural and social phenomena can be considered as a system, which is defined as a set of units or elements that interact with each other to transform inputs into outputs. An important rule of systems theory is sorting system according to the hierarchy. The whole system except the most simple system composed of smaller and smaller systems are composed also of the smaller systems and so on. One implication is the environment of a system is also a system in its own right. External systems that affect the flow of input to the agency, affecting acceptance of output and can drive changes in internal activities. In order to get a deeper and thorough internal system processes which is related to external systems, the systems theory approach needs to be supplemented with

a contingency theory [20]. In the contingency theory, the main premise is that the optimal structure and management style of the organization depends on exogenous conditions of uncertainty. Thus the contingency theory, as well as systems analysis, emphasizing environmental concerns. Any collection of people or behavior patterns associated with external forces are complex, which may threaten or encourage the survival and expansion. The basic proposition that can emerge from such analysis is that there are no universal organizational principles which are true for all situations. The success of the organization depends on their compatibility with the environment, to maintain compliance and the organization must have a structure, strategy, culture and other appropriate. Because of the combined contingency vary depending on the circumstances, it is suitable for one organization may not work for another organization. The point is that the organization must be able to adapt to the environment or finding a suitable environment to operate. In analyzing the long-term sustainability of the institution in this paper, the key dimension of the external environment is the political and economic dynamics that surrounded him. This thinking focuses on the exchange of resources and provides a way to recognize the structure and tasks of the institution. By helping to identify the circumstances in which different types of resources that can be produced and traded, such practices is actually supporting the contingency theory.

Although there is a difference between political ideology and economics, but both have a match in philosophy. Notably, both have the same assumption that political behavior is dominated by economic considerations and vice versa, the production and consumption of goods and services are determined by regulations made by the government. Important implication is that resources can be discussed under the influence of political economy and economic resources into political power. Analysis of the SCOPE framework in this case suggests that institutional sustainability is able to cover most of the cost consumed or even be self-financing and to provide and supply a continuous flow of benefits to the members or participants of the network in order to survive over time as a unit to demonstrate their existence. This reasoning is relevant and consistent with the systems theory. With the language of systems theory, political and economic systems can influence each other. In the economic policy, economic institutions (such as the market or the company) and political institutions (such as

the legislature or bureaucracy) be considered in parallel to fulfill social functions. The main functions are to aggregate the preferences or options, or individual preferences into social preferences and reduce transaction costs or the interaction between the elements in the society. Political economy is rich with theoretical tools to evaluate and interpret how efficiently the agency carries out these functions.

CONCLUSION

The teak forest management operations in South Konawe is based on the principles of sustainable forest management by applying ecolabelling certification system. Analysis of the SCOPE framework suggests that institutional sustainability is able to cover most of the cost or even be a self-financing to provide or supply continuous flow of benefits to the members or participants of the network and to survive over time as a unit to demonstrate their existence.

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