

# DEVELOPMENT OF PRIVATE FORESTS ON JAVA ISLAND: WHAT CAN WE LEARN?

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## ABSTRACT

In this paper I report the results of my observations about the development of small-scale private forests on Java Island. During my travels to various villages on the Island of Java, I observed a lot of small-scale private forests. I also interviewed several forest owners. Clarity of land rights, the high demand for timber leading to attractive prices, adequate road network, changes in demographic structure in rural areas, forestry extension, and other sources of income are the six factors that support the development of small-scale private forests. Difficult situation that is often faced by the farmers is the need for quick cash that had to be met from selling the trees that have not reached optimal growth. Farmers from Kulonprogo District - Yogyakarta overcome the difficulty by forming cooperatives in cooperation with the credit union, while the farmers from District of Blora received microcredit from the government to combat the difficulty. Another impediment to the development of small-scale private forest is the government rule, like the SKAU, which is actually perverse incentive. © 2014 Journal of Rural Indonesia [JoRI] IPB. All rights reserved.

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## Introduction

Java Island is the most populated island in Indonesia. It constitutes about 6% of Indonesia's land but it is inhabited by around 60% of the population. In terms of population pressure, it is not questionable that the island has been experiencing the highest population

pressure. A forest expansion on Java Island is somewhat contradictory to the belief of almost all Indonesian foresters, but very few. They believe that population pressure is one of the most important factors responsible for the destruction of forests in many places.

Almost all stories of Indonesian forestry are failure ones. Now, I want to bring to you a success story of forestry, more specifically small-scale private forest on Java Island. It is important to explore what made it so successful and even more importantly what can we learn from it. The most important thing of all is how to replicate the success in some other places in Indonesia, so that forestry in Indonesia will be recorded as making excellent progresses in the twenty-first century after failing totally in the twentieth century. Unfortunately, the success of small-scale private forests is counter balanced by the failure of largest state-owned forest company, Perum Perhutani, which is supported by so many well-educated human resources and also by substantial financial capital.

In this paper I report globally the success of expansion of small-scale private forests on Java Island including factors that are responsible for the expansion. Factors that contribute importantly to the development of small-scale private forests on Java Island and barriers to the achievement of the highest benefits are discussed. Next, I invite you to see more specific case, that are private forest growers in District of Kulon Progo who organize themselves into the cooperative named “Koperasi Wana Lestari Menoreh (KWLM)” and private forest growers in District of Blora who received microcredit from the government through Public Service Agency of Forestry (PSAF).<sup>1</sup> The main reason of selecting District Blora and District Kulonprogo as cases is because the forest farmers in those two districts have chosen teak as main tree which relatively takes longer time to be ready for harvest. Also, I had a relatively enough time to do interview with the farmers. How does the cooperative or PSAF play a critical role in helping the private forest growers to access financial support that is needed? Finally, in conclusion and suggestion section, I want to draw lessons from the development of forests in Java so that it can be used as a basis for developing forest rights in other islands

where land resources are still available in abundance and is not used productively.

### Expansion of Private Forests

When one travels passing through villages on Java Island, then he or she will see forest plantations in all corners of the villages. Whether you travel by car or by train, you will see very easily timber plantations owned by private growers. Sengon (*Paraserianthes falcataria*) is the most common species planted by the community. Of course, travel by car will provide more flexibility and freedom because you can stop anywhere to do a small interview with the owners of the forest. That is what I have done and this paper reports what I have seen.

There are easily recognizable differences between plantation forests in the provinces of West Java and Banten on the one hand and plantation forests in the provinces of Central Java, East Java, and DI Yogyakarta on the other. Plantations in West Java and Banten are generally mixed with other crops that can be harvested more quickly, like bananas. The distance between the principal crops is somewhat less regular. Meanwhile, plantation forests in three other provinces have a more regular spacing and are generally not mixed with other plants. We need to further investigate the reasons behind those differences. Distance of the plants used are generally very short, so that the population could reach 1600 trees per hectare at the beginning of plantation and will be left over as many as 800 trees at harvest.

Between 1990 and 2008 private forest expansion was very fast. In 1990 the private forests were 1.9 million hectares, rose to 2.7 million hectares within 2000-3, and felt to 2.6 million hectares within 2006-8 (Balai Pemantapan Kawasan Hutan Wilayah XI Jawa-Madura., 2009). Along with the increase in forest area, the standing stock of commercial timber from the private forests has increased within the period of 1990 to 2008 from 55.9 million cubic meters in 1990 to 78.8 million cubic meters within 2000-3, but slightly felt to 74.8 million cubic meters within 2006-8 (see Table 1).

<sup>1</sup> Translation from Badan Layanan Umum Kehutanan

Table 1. The Private Forests and Their Standing Stock of Commercial Timber

Province	Areas (1000 ha )			Standing Stock (1000 m <sup>3</sup> )		
	1990	2000-3	2006-8	1990	2000-3	2006-8
Banten	163	337	322	4.650	9.411	9.011
D.I. Yogyakarta	37	45	54	1.100	1.356	1.597
Jawa Barat	662	976	943	18.843	27.077	26.227
Jawa Tengah	594	768	743	17.959	23.084	22.362
Jawa Timur	445	605	524	13.328	17.856	15.572
Total	1.901	2.731	2.586	55.880	78.784	74.769

Source: Balai Pemantapan Kawasan Hutan Wilayah XI Jawa-Madura (2009)

The private forest expansion occurred in all provinces on the Island of Java but the Province of DKI Jakarta as the Capital City of Indonesia. Besides the size of DKI Jakarta Province is very small, the province has no enough land to grow forest, except very limited urban forests. In terms of area, the highest increase of forest occurred in West Java province and the lowest occurred in the Province of DI Yogyakarta. The difference has something to do with the size of the province, where DI Yogyakarta has a much smaller area than the area of West Java province. But in percentage with an area of forest in 1990 as a basis, the highest increase occurred in the Province of Banten, which reached 98 percent, while the lowest increase occurred in East Java Province by 18 percent.

Raising plantation forests are not only attractive to farmers, but also attractive to PTPN XII, state-owned plantation company. Since 2001, PTPN XII has started planting fast growing species, such as sengon, mindi (*Melia azedarach*), balsa (*Ochroma lagopus*), acacia (*Acacia mangium*), and jabon (*Anthocephalus cadamba*), but sengon is the most widely planted species. In 2012, PTPN XII has sengon forest area of more than 6000 acres containing more than 5.600.000 trees. PTPN XII plans to harvest approximately 2.000.000 sengon trees per year. Revenue from the sengon was quite substantial for PTPN XII (Nugroho *et al.*, 2012).

Less encouraging developments occur in plantation forests managed by Perum Perhutani. Besides the total standing stock continues to decline, forest stands are also increasingly dominated by young ones, so that sustainable forest management is not likely to be realized.

Keyword for the continuity of this trend is the forest stands are not recorded as assets of the company. High sales made by way of eroding the asset is not recorded properly. It is an irony, when people increasingly appreciate their forest stands, because it can be used as collateral, at the same time the state-owned forest company fails to appreciate its forest stands.

Rotation chosen by forest farmers is not the one outlined by Faustmann, but the one what is called the rotation of need. That is, when the forest farmers have an emergency need of quick cash then they will sell a part or all of their forest stands. In other words, the forests act more as a saving. But in general the age of forest stands that are considered ready for harvest is 5 years for sengon and 7 years for jabon. Selling trees under pressure of getting quick cash money is disadvantageous to the farmers. Therefore, assistance in the form of microcredit could prevent the farmers from being exploited unnecessarily.

Timber price per cubic meter is dependent on the distance to the mill and the diameter of the timber. In relation to the distance to the mill, a pricing strategy adopted by the processing plant is different. There are mill that set the net price received by farmers is the same regardless of the distance. Consequently, the mills will buy the timber at a higher price with the increasing distance of transport. But generally, mills will buy the wood from the people at the same price at the mills' gate. The larger diameter of the timber the higher is the price. For sengon timber, the price per cubic meter of wood with a diameter of 20-24 cm is 620 thousand Rupiahs, 25-29 cm is 710 thousand Rupiahs, 30-39 cm is

740 thousand Rupiahs, and 40 cm and more is 800 thousand Rupiahs.<sup>2</sup>

Passion to develop plantation forests have resulted in the increase in land rent in the country side. In District of Lumajang - East Java Province, for example, rent on dry land can reach five to 10 million Rupiahs per hectare per year. Whereas this region has a dry climate so that agriculture in this region frequently experience water shortages. But now, the net revenue from plantation forest has been used as a benchmark in determining the rent of land. Previously, the benchmark used was the sugar cane crop.

The market for round timbers and tree seedlings is highly developed and is also very competitive. On rural roads, we can easily meet with traders of seedlings driving around by a small truck. The price of seedling is 1500 Rupiahs per unit. Also, in rural markets, it is easy to find women who sell tree seedlings. Chain of timber trade flows from the forest growers, to small-scale buyers who are usually local people, to larger scale buyers that are generally done by people from outside the village, and finally comes to the wood processing plant.

### Supporting Factors

Several factors that work together are responsible for the expansion of small-scale private forests on Java Island. The first factor is property rights that have been well defined. What it means is that the rights are exclusive, transferable, and enforceable. Demsetz (1967) describes the theory of property rights thoroughly. Private property rights can avoid or resolve conflicts over the use of scarce resources (Alchian and Demsetz, 1973). Most lands on Java Island are privately owned and the ownerships are well recognized by the people. Compared to other islands in Indonesia, Java Island has the least conflicts over land.

Establishing secure land tenure is widely recognized as a fundamental component of

sustainable forest management. Well defined property rights are believed to be an incentive for long-run private investments on land improvements (Southgate *et al.*, 2000; Antonio and de Oliveira, 2008). In rural Cambodia, Markussen (2008) observes that lands supported by an ownership document have higher productivity and land values than other lands without such a document. Later he suggests that policies for strengthening property rights of land can have important, positive effects on the rural economy.

As Culas (2007) shows that secure property rights play an important role in reducing deforestation in the Latin American countries, on Java Island secure property rights play a key factor in promoting the growth of the private forests. However, we need to be careful in relating secure property rights to long-term investments. A general rule of thumb is that secure property rights is exogenous factor that induces long-term investments including growing forests. In Krui-Lampung Province, however, there is an indication that indigenous people have been growing *Shorea javanica* to establish their claim over the land. In other words, growing long last tree is exogenous and property rights are endogenous. The relationship between reforestation or afforestation and land tenure security could be doubtful as the relationship between deforestation and land tenure security could (Kaimowitz and Angelsen, 1998).

Land tenure outside Java, as a comparison, is generally not yet well defined. Most idle lands are within forest area. As shown in Table 2, more than 50% of land outside Java is state land, even reaching up to 97% in Papua; while the forest area in Java Island is only 24%. Although the government opens opportunity for small-scale private forests to utilize the idle lands, in the form of community plantation forest,<sup>3</sup> but the procedure that must be followed is too

<sup>2</sup> Interview with PTP XII's official and the buyers in Balaraja-West Java and Jember-East Java.

<sup>3</sup> Community plantation forest is the translation of Hutan Tanaman Rakyat (HTR), which is private forest on state land or forest area. The terms of community plantation forest and HTR may be used interchangeably

complicated for most of potential applicants. The procedures need to be simplified in order to meet the need of the powerless farmers. Otherwise, the lands will be controlled by parties who have strong power in terms of capital, knowledge, and political networks. Small-scale farmers, who are usually local people, will gradually be alienated and displaced from their lands. Social riot could be the result.

Forest management under community plantation forest could be as efficient as forest management under private forest found in Java Island. The difference between community plantation forest and private forest is that community plantation forest does not include the right to dispose of an asset through sale or bequest, depreciation, or destruction as it is found in the right of ownership contained in private forests (Minkler, 1989). The two other rights are the right of use of an asset and the right to benefit from an asset. According to Minkler (1989) franchising exists and works efficiently all over the world because it contains those two rights.

Table 2. Forest Areas on Major Islands in Indonesia of 2010

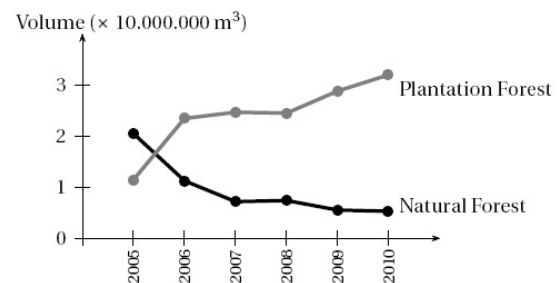
Island	Total land (million ha)	Forest Area	
		Million ha	%
Sumatera	48,08	27,64	57,49
Java	12,56	3,04	24,20
Kalimantan	54,42	40,62	74,65
Sulawesi	18,85	11,59	61,48
Papua	41,61	40,55	97,45

Source: Statistik Kehutanan 2011 by Ministry of Forestry

The second factor is high demand for round timber. As timber production from natural forest has been declining persistently since the mid of 1990's, many timber processing plants have experienced raw materials shortages, some of them have inevitably been closed down. Demand for round timbers, however, has never fallen due to economic development or population growth. Since natural forests are no longer able to produce adequate round timbers, the increase in the demand for round timber have been transmitted to plantation forests. Over time the timber production from

plantation forests dominate the timber production from natural forest (Figure 1). On Java Island, Fujiwara *et al.* (2011) find the similar trend.

Timber market on Java Island is relatively quite competitive. Forest farmers can sell their woods to whoever gives the most favorable prices and payment terms that best meets the needs of the farmers. Wood processing industries on the island of Java are generally small but numerous and scattered in various places. Things like this do not happen outside Java Island which is characterized by large scale industries, particularly pulp and paper industry, which generally have their own forest. As a result, forest farmers often have no choice except to sell the wood at a very unattractive price.



Picture 1. Raw Material Fulfilment of Wood Processing Industries with A Capacity > 6000 Cubic Meter per Year (Ditjen BUK, Ministry of Forestry)

A strong market demand for timber is reflected by the high prevailing price. The price of a teak tree with diameter of 10-13 cm and length of more than 2 m can reach Rp 1.500.000,- and diameter of 13-16 cm and length of more than 2 m ranges between Rp 2.000.000,- to Rp 3.000.000,-. Five to ten years are taken to achieve those sizes.

Let me share my direct experience with the forest farmers in estimating the volume and the price of a teak tree. We have tested a price estimation of a teak tree with 25 cm in diameter in Wonogiri District. I have asked six farmer groups to estimate the volume and the price of the tree. The estimated price ranged from Rp 1.300.000,- to Rp 1.700.000,-, while the

estimated volume ranged from 0.5 cubic meter to 0.8 cubic meter. Then we cut the tree down, measured it, and cut the pole into three qualities of timber. The real volume was 0.56 cubic meter and the fair market price was Rp 1.900.000,-. This experience shows that the forest farmers need to be trained in estimating volume of their tree to get fair prices.

Actually, the second factor is quite the opposite to the view of most foresters who believe that a higher demand for timber and a higher pressure of population will lead to forest degradation or deforestation (see Sierra, 2001; Shimamoto *et al.*, 2004). However, as we can see on Java Island, a higher demand for timber leads to the expansion of forest. So it is not appropriate to ask what the effect of a higher demand for timber on deforestation or forest degradation. The right question should be under what condition an increase in demand for timber will result in forest expansion and under what condition the result will be the opposite.

The third factor is infrastructure. Java Island has the best economic infrastructure in Indonesia. Road as well as electricity networks reach every village on the island. Hence, transportation and power for industries are satisfied adequately. In addition, rail road is also available in particular districts. All major cities with seaport and airport are connected with rail road. Available road infrastructure allows easy gathering of forest products from any point and then to be transported to any point on the Island of Java. Logs can be transported any time regardless of the season, whereas transportation outside Java is strongly determined by weather. Transportation by land is usually hampered by rain because of road quality, while transportation by water is made impossible by drought. By and large, transportation cost in Java Island is much lower than transportation cost outside Java.

The fourth factor is demographic change in the villages. This factor is still hypothetical since it is based on my glimpse observation. However, Karuniasa (2012) confirms my observation. There is a tendency for young generation to move to cities for white or blue collar jobs. Agriculture and the like are no longer interesting

for youngsters. What happens next is that village is experiencing a shortage in young workers. The man power left over in the village is usually old generation who is not adequate to run intensive farming. Under these circumstances, an extensive farming that is able to provide good income would be the best choice. Apparently, plantation forest meets best what is required.

I cannot say much about demographic structure outside Java. If we look at the development of industries and cities outside Java that is not as fast as the development on Java Island, then we may hypothesize that migration of young workers from rural areas to urban areas outside Java is less intensive. However, availability of lands outside Java is much more abundant than availability of lands on Java Island, so that the available workers are not enough to run intensive agriculture. Hence, at least some parts of land need to be managed less intensively and forest should be one of the choices.

Forestry extension, as the fifth factor, plays an important role for the development of forest plantations in Bora District, and possibly also in other districts in Java Island. The farmers admitted that they started planting teak trees more intensively after obtaining counseling about teak. Initially, the farmers obtain seeds and land preparation assistance. Currently, the farmers are willing to buy their own seeds and plant them independently. The high price of teak has become such a strong incentive for farmers to plant teak trees as savings. Main role of the forestry extension official is as a motivator. All forest farmer groups that I have met, in Ciamis District, Kulon Progo District, Bora District, and Wonogiri District, have motivator whether or not he or she is a forestry extension official.

To be honest, I do not know much about forestry extension outside Java. However, we can make a good guess based on the availability of school teachers that is usually very low in remote areas. Availability of forestry extension official is not going to be better than availability of school teachers. Let's say that officials of forestry extension are fairly available, but their mobility will be constrained by the availability of

transportation which is very low. So, roughly we can say that forestry extension outside Java plays very minor role, not to say it is not available at all.

The role of a motivator in the development of community forests is very important. The motivator may or may not be forestry extension official. In the case of Blora District, the motivators are forestry extension officials; but, in the case of Kulon Progo District the motivator is not forestry extension officials. The motivator plays a role as liaison officer among members of farmer group and between the farmer group and other parties, such as buyers, government official, and others.

Farmers' willingness to plant teak trees on their land is also dependent on other source of income, either from other parcels of land or of off-farm employment. This is the sixth factor. If a parcel of land is the only livelihood for farmers, the land will not be planted with teak trees. Thus, the availability of other sources of income is critical for the development of small-scale private forests in Blora District. Of course, the sources of income vary from individual to individual rather than from place to place.

Table 3 shows the summaries of the supporting factors both for Java Island and outside Java. The first three factors, which are property rights of land, market demand, and infrastructure, distinguish Java from outside Java

clearly so that the development of private forests on the two regions is also different. Those three factors and other sources of income are definitely necessary conditions for the development of private forests, while the other two factors are not necessary but important.

Secure land tenure does not guarantee the development of small-scale plantation forests. Strong market so as to form a favorable price is absolutely necessary. There is a tendency for the wood processing industry to move to the Island of Java. This of course weakens the round timber market outside of Java. With regard to the wood processing industry outside Java that has experienced a shortage of raw materials, there is question that is not easy to answer: (1) why does not the industry develop raw materials near its place outside Java instead of moving the industry to Java Island? and (2) why does not the industry adopt the more efficient wood processing technology so that the industry can process small timber? The most plausible hypothetical answer is that the infrastructure outside Java is inadequate and licensing system is very complicated so that it is very costly to deal with. But, the relation between the timber market and industry migration to the island of Java forms a vicious circle. Does the presence of wood processing industries make market for log stronger or does the development of small-scale plantation forest that produce a lot of logs invite the industry to come?

Table 3. Comparison of Supporting Factors between Java Island and Outside Java

Factor	Java Island	Outside Java
Property rights of land	Well-defined, mostly private lands	Poorly-defined, mostly state lands
Market demand	Very high, wood processing industries grow continually	Very low, many wood processing industries have been closed-down.
Infrastructure	Very good and relatively well distributed	Very limited and mostly in poor condition
Demographic structure	Lack of manpower for intensive agricultural jobs.	Uncertain, but demographic structure should not be problem for plantation forest expansion.
Forestry extension	Available	Uncertain
Other sources of income	Variable	Variable

## Inhibiting Factors

Besides supporting factors, there are several inhibiting factors that are often encountered by forest farmers. The two most important limiting factors are lack of capital and unnecessary regulations that complicate the timber transport and timber trade. These two inhibiting factors apply equally country to all places in Indonesia. Two factors are discussed further below.

Since forest needs years to reach harvest stage, farmers often have a problem with meeting sudden cash need. For this reason many farmers practice “need harvest” instead of harvesting their forest at optimal age. Those farmers sell compulsorily their trees to get cash money quickly. Besides weak bargaining power in determining the price, the forest stand itself does not yet reach the optimal growth rate for harvest. Certainly, if there is financial support, through microcredit with low interest rate for example, then the farmers may benefit more from their forest. However, without such a financial support, the farmers have grown forests for decades so long as the prices of timber are attractive. In other words, financial support is important but not essential for the evolvement of small-scale private forest.

Transporting wood requires a document called SKAU (certificate of timber origin) issued by the village head. Formally, SKAU is no cost, but in reality it never happens. Transporting timber harvested from own land without SKAU is a criminal act. As far as I know, there have been two forest farmers who have been sentenced to prison as a result of these SKAU. A farmer in Banyumas received jail terms of two years<sup>4</sup> and a farmer in Banyuwangi was sentenced to prison for seven months.<sup>5</sup> Both farmers are transporting their own timber harvested from their own land. Another similar incident happened to a farmer in East Kalimantan whose timber was seized by law enforcer because the farmer failed to show the

SKAU. Since the incident, the farmer was no longer willing to grow forest anymore.<sup>6</sup>

The reason for the government regarding SKAU is to ensure that timber being transported is not a stolen timber from state forest land. So the real problem is the inability of government to guard state forests that certainly takes effort and money. But why the disability shall be borne by the people who are not guilty? So, SKAU is a rule that is not fair and it is a disincentive. According to the government official, the SKAU is also intended to protect the owner of timber from being accused as a law violator. This argument is absurd, of course. Why such a requirement is not needed when people are transporting non-forest products? Such a requirement opens a room for law enforcers to abuse their power unnecessarily. Without such a requirement then there is no reason for law enforcers to ask for SKAU document accompanying timber transportation as it applies to agricultural products in general.

## Two Cases

### Kulonprogo Case

There are two important institutions that are very helpful for forest farmers in Kulonprogo District of Yogyakarta, namely cooperatives and credit unions. Both institutions are managed by people who care about and have strong dedication to improving the welfare of the people who rely upon their own resources. The results that can be seen today is that through a better organization of existing resources in the village then the economic activities and welfare of the people of the village can be improved. Those two organizations, especially the credit union, act as self help groups.

Based on the growth of its assets, the credit union was instrumental in the creation of assets. What happened to the credit union in the District Kulonprogo seems consistent with results obtained by Swain and Varghese (2009). Kulonprogo credit union currently has assets of

<sup>4</sup> The story was told by a forestry official from Provincial Forestry Agency of DI Yogyakarta

<sup>5</sup> The story was told by a member of Banyuwangi Community

<sup>6</sup> The story was told by eye witness who was involved in the incident



1.5 billion rupiahs. Although the existing assets have been able to meet the needs of the forest farmers, the asset is expected to continue increasing in the future to meet the economic activities that also increase. Because the benefits have been proven real, many people are interested in becoming member of the credit union. With a membership that is individual, each family member can become credit union member.

The farmers in the district forest Kulonprogo - Yogyakarta form a cooperative.<sup>7</sup> Requirement to be accepted as a member of the cooperative is that the applicant must have a private forest. The land ownership can be shown by ownership certificate, Letter C, Letter of management rights issued by local community leader, or Notice of tax due (SPPT). Establishment of cooperatives was facilitated by non-governmental organizations, namely IYABIMA and Telapak, in 2008.

Each member of the cooperatives is required to pay fee consisting of membership fee of 50.000 rupiahs and mandatory fee of 5000 rupiahs a month. Both fees are not refundable so long the individual is still the cooperative member. Refund will be done when the membership ends. Besides those two kinds of fees, each member may contribute voluntary savings which amount is determined in the meeting of the members. Membership in the cooperatives are not individuals, as membership in the credit union, but rather based on the household. That is, the households have only one membership card.

Recently, the cooperative has 358 members managing 253.89 hectares of private forests that are divided into 14 blocks of private forest management units. The most popular species grown are sengon, sono keling (*Dalbergia latifolia*), jati (*Tectona grandis*), and mahoni (*Sweetenia mahagoni*).

<sup>7</sup> Koperasi "Wana Lestari Menoreh" telah mendapatkan pengesahan dari Menteri Negara Koperasi Dan Usaha Kecil Menengah RI, melalui Bapak Bupati Kulon Progo: H Toyo Santoso Dipo dengan Nomor : 29/BH/XV.3/2009 pada tanggal 3 April 2009.

There are several functions that are run by cooperatives. First, cooperatives provide guidance and technical advice to members about forest management. Second, the cooperative acts as a purchaser of timber from the members. The log prices paid by the cooperatives are higher than the prices given by the middlemen. Fortunately, the cooperative is able to sell the logs for higher price. In addition, the cooperative could lead the cooperative members to meet the requirements of forest sustainability certification. Third, the cooperative provides recommendations for members who want to borrow money from the credit union with trees as collateral. So, by joining cooperatives the farmers become less vulnerable to any market shock (Fujiwara *et al.*, 2011).

### Blora Case

Microcredit can help the farmers to utilize their spare time to be more productive. Spare time owned by farmers is very uncertain, both when it happens and how much it quantity is. Thus, a binding contract with another party to take advantage of the spare time without causing problems is not possible. Therefore, use of spare time independently is the most likely choice. But the farmers need working capital in order to take advantage of the free time available. In such a context, the financial loan from PSAF is very useful for improving the welfare of farmers. For example, with the help of 10 million rupiahs, farmers can buy a cow that within a period of one year can be sold for 13 million rupiahs. So, microcredit is not a cause for the farmers to grow forests, but it helps the farmers to utilize their spare time more productively.

One big issue concerning the PSAF is that it has only one office located in Jakarta. The interaction between the forest farmers as customers and the PSAF is strongly constrained. So, it is the need of the PSAF and the forest farmers to create an intermediary institution that can narrow the distance between the PSAF and its customers. The existing cooperative is still in the early stage. It is expected to play as the intermediary institution but the new law limits the scope of business that can be done by a

cooperative because a cooperative is allowed to have only one type of business. A cooperative with various types of business is no longer allowed as it was before.

Microcredit that is given to the forest farmers is often called by delayed-harvest credit because the credit is intended to make harvest delayed. Delayed-harvest credit can meet the needs of farmers when farmers need relatively large amount of money that should be available immediately. With the delayed-harvest credit, farmers do not have to rush to sell their trees to get quick cash, so that the trees may be let grow to achieve a more optimal harvest time. However, the scope of the needs is not clearly defined. Is the desire to purchase a motorcycle is also included as one of the needs that could be considered? Is the desire to buy a cow as a farmer's investment portfolio can be categorized as the need?

The main points that need to be raised are that there is an agency that is willing to lend its money to the farmers and the fact that the trees may be used as collateral to back up the loan. Although credit to plantation companies from financial institution has been practiced for very long time, but that is not the case in forestry. Banks or financial institutions in general hesitate to lend their money to forest business. Hence, the presence of PSAF is absolutely useful and helpful for the forest farmers. Acceptance of the trees as collateral will make plantation forests more attractive as an alternative portfolio of investment. Plantation forest is no longer junk asset that is difficult to capitalize when the owner urgently needs quick cash.

### Conclusion and Suggestion

Small-scale private forests of 2,7 million hectares in size has said loudly that small farmers are able to develop forest very effectively and efficiently. More amazingly, those farmers have been growing forests almost without any government's help. Meanwhile, large scale companies, which have received a great support from the government, have been able to develop

4,3 million hectares of plantation forest since the mid 1980s.

In order for us to be able to replicate the success of forest expansion on Java Island in other islands that have more idle lands, all supporting factors that are available on Java Island must be provided in places where small-scale plantation forests are expected to flourish. Although outside Java lot of idle land, but most of the land is controlled by the state as forest area. Procedures for awarding the management rights over forest land to small-scale farmers were considered too complicated so it needs to be simplified. This is demonstrated by the very slow development of smallholder plantations in forest areas. As a result, many areas of land are managed without permission, so in terms of the tenure those lands are insecure.

In short, although the development of private plantation forests outside Java is still facing many barriers that might not be solved in the near future, but we have to keep on trying to eliminate all obstacles gradually. The factors that urgently need to be addressed are security of land tenure, demand for logs, infrastructure especially road network, and complicated licensing procedures.

### References

- Alchian, A. A. and Demsetz, H. 1973. The property right paradigm. *The Journal of Economic History*, 33(1): pp. 16–27.
- Balai Pemantapan Kawasan Hutan Wilayah XI Jawa-Madura. 2009. *Potensi Kayu dan Karbon Hutan Rakyat di Pulau Jawa Tahun 1990-2008*. Yogyakarta.
- Culas, R. J. 2007. Deforestation and the environmental Kuznets curve: An institutional perspective. *Ecological Economics*, 61: pp. 429-437.
- de Oliveira, J.A.P. 2008. Property rights, land conflicts and deforestation in the Eastern Amazon. *Forest Policy and Economics*, 10(5):pp. 303 – 315.

- Demsetz, H. 1967. Toward a theory of property rights. *The American Economic Review*, 57(2):pp. 347–359. Papers and Proceedings of the Seventy-ninth Annual Meeting of the American Economic Association.
- Fujiwara, T., Awang, S.A., Widayanti, W.T., Septiana, R.M., Bariatul, H., Rahmat, M., Suyanto, A., and Sato, N. 2011. Overcoming vulnerability of privately owned small-scale forest through collective management unit establishment: A case study of Gunung Kidul District, Yogyakarta in Indonesia. *International Journal of Social Forestry (IJSF)*, 4(2): pp. 113-138.
- Kaimowitz, D. and Angelsen, A. 1998. *Economic Models of Tropical Deforestation: A Review*. Center for International Forestry Research, Bogor, Indonesia.
- Karuniasa, M. 2012. *Model Restorasi Lingkungan untuk Fungsi Ekosistem Daerah Aliran Sungai*. Disertasi, Universitas Indonesia, Jakarta.
- Markussen, T. 2008. Property rights, productivity, and common property resources: Insights from rural Cambodia. *World Development*, 36(11):pp. 2277 – 2296.
- Minkler, A. P. 1989. Property rights, efficiency and labor-managed firms. *Annals of Public and Cooperative Economics*, 60(3):pp. 341–358.
- Nugroho, B., Soedomo, S., Hendrayanto, Simangunsong, B.C. 2012. *Pengkajian Pendirian Pabrik Pengolahan Kayu Plywood*. Laporan Akhir Kerjasama antara PT Perkebunan Nusantara XII (PTPN XII) dengan Fakultas Kehutanan IPB Bogor.
- Shimamoto, M., Ubukata, F., and Seki, Y. 2004. Forest sustainability and the free trade of forest products: cases from Southeast Asia. *Ecological Economics*, 50:pp. 23–34.
- Sierra, R. 2001. The role of domestic timber markets in tropical deforestation and forest degradation in Ecuador: Implications for conservation planning and policy. *Ecological Economics*, 36(2):pp. 327 – 340.
- Southgate, D., Salazar-Canelos, P., Camacho-Saa, C., and Stewart, R. 2000. Markets, institutions, and forestry: The consequences of timber trade liberalization in Ecuador. *World Development*, 28(11):pp. 2005 – 2012.
- Swain, R.B. and Varghese, A. 2009. Does self-help group participation lead to asset creation? *World Development*, 37(10):pp. 1674 – 1682.
- Thomas, S., Dargusch, P., Harrison, S., and Herbohn, J. 2010. Why are there so few afforestation and reforestation clean development mechanism projects? *Land Use Policy*, 27(3):pp. 880 – 887.