

Benefit Sharing Allocation on Community Collaborative Forest Management (PHBM) In Java, Indonesia

Ratih Madya Septiana^{1*)}

¹⁾Faculty of Forestry, Universitas Gadjah Mada, Yogyakarta, Indonesia

^{*)}Coressponding author: ratihmadya.s@ugm.ac.id

ABSTRACT

Most of the state forest in Java has been managed by state forest company (Perhutani) since 1964. In 2001, Perhutani initiated Community Collaborative Forest Management (PHBM). PHBM is a management system of forest resources carried out jointly by Perum Perhutani and villagers, or Perhutani and rural community in cooperation with interested parties (stakeholders) with the spirit of sharing. The objectives of this study are to clarify the allocation method of benefit sharing and discuss the impact of benefit-sharing allocation to forest farmers. Case studies were carried out in Surajaya Village (existence good teak stand) in the Forest Management Unit (KPH) Pemalang, Central Java. The research was carried out using a literature review, in-depth interviews with key informants, Focus Group Discussion (FGD) and household survey. Benefit-sharing allocation is done in two levels; 1) Perhutani and LMDH (Forest Village Community Institution) consisted of local villagers, and 2) benefit-sharing allocation in internal LMDH. Besides, the allocation method within LMDH is distinguished between 1) presence and 2) absence of forest farmer at the compartment.

Keywords: *Benefit sharing, PHBM, Perhutani, LMDH, Java.*

INTRODUCTION

The position of Java Island is very unique in Indonesia because the Java area is only 6.7% of the total area of Indonesia, but most of the Indonesian population (57%) lives on this island. Total state forest area in Java, 2.9 million hectares or about 23% of total land area in Java. Forest areas have been affected by community activities because forests are important components of agrarian environments and household livelihoods (Peluso, 2012). The community around forest area chosen agrarian environment community because of poverty

situation (Lee *et al.*, 2018) The poverty of community around the forest is caused by several factors such as narrow land ownership, little opportunity to obtain a formal education, lack of ability and skills of communities, institutions that have not run optimally, and the impacts of climate change that affect land management and so on (Awang *et al.*, 2004; Pelluso, 1992; Gellert, 2008). Several program shave been conducted by Perhutani to improve the welfare of local forest communities and improve the quality of forest resources but the programs were failed One reason these programs were failed is on how far Perhutani understands about the process of social dynamics and local politics in the village and national levels (Awang *et al.*, 2004, Bratamiharja *et al.*, 2005). Participation of local people and communities essential to achieve Sustainable forest management (Inoue 2000; Purnomo *et al.*, 2005; Sunderlin *et al.*, 2005).

In 2001, Perhutani held the composition of a new national program called Community Collaborative Forest Management (PHBM). According to a decision of the executive board of Perhutani (136/KPTS/DIR/2001 jo Decree No. 268/Kpts/Dir/2007 jo decree No.682/Kpts/Dir/2009), PHBM is defined system of forest resource management which is carried out with collaboration between Perhutani and forest village community and/or Perhutani and a forest village community in cooperation with stakeholders in sharing spirit to achieve the optimal, proportionate, and sustainable use of forest resources. Various stakeholders such as Perhutani, village office and/or rural community join PHBM with the spirit of sharing.

The previous study on PHBM, Case in Forest Management Unit (FMU) Madiunby Yokota *et al.* (2009), explained the method of benefit-sharing allocation between Perhutani and Local Community, however not explain the progress of benefit sharing and allocation method within the local community. Effect of Benefit Sharing of Timber (Bratamiharja *et al.*

2005): 1) Directly benefits local community welfare, 2) Stimulant for the local industry and economy, 3) Partnership status to the local community.

The objectives of this study are to analyze the allocation method of benefit sharing and the impact of benefit-sharing allocation to forest farmers.

RESEARCH METHODS

Research method carried out using survey. Data collected by secondary data, deep interviews on the key informants, Focus Group Discussion (FGD) and Household interview. Field research was conducted in 2004 and 2016. Secondary data consist : documents available village monograph, Certificate of LMDH Establishment, Certificate of PHBM agreement between LMDH and Perhutani, Community Forestry Planning, Regulation by Perhutani and Basic rules within LMDH. In-depth interview was conducted to key informants comprised of the village head, villager representative Organization (BPD), Village community development institution (LPMD), board members of LMDH, Board members of PHBM Communication Forum, Forest Farmers, Religion leaders and Staff of KPH Pemalang. Households interview in 2004 and 2016 to the same person. A sample selected by random, to compare socioeconomic of community. The total of respondents is 40 persons.

Case studies were carried out in Surajaya village, one of 45 villages in KPH Pemalang, because Surajaya village has existence of good teak stands and has been empowerment by Levelling the Playing Field (LPF) Team (Universitas Gadjah Mada and CIFOR). The total forest area of KPH Pemalang is 24,423.5 Ha and there is 1400.2 Ha in Surajaya village.

RESULT AND DISCUSSION

1. Forest Management in State Forest Area

Local people felt the negative impacts of forest plundering, they are aware of the need to manage the forest sustainably so that forest conditions can be maintained over time. For the above reasons, in 2003 PHBM was introduced by Perhutani at Surajaya village. For cooperation with Perhutani, the villager has an institution called LMDH. LMDH is mandated by the villagers to establish and maintain cooperation and collaboration with Perhutani. This institution has a legal official document signed by a public notary. LMDH leads forest management activities (land preparation, nursery, cultivation, maintenance, forest security, and harvesting) and forest farmers are executing directly in the field of forest management. Forest farmer is part of LMDH. The relationship between forest farmers and Perhutani became partners who have the same position. Concerning PHBM implementation, the stakeholders include villagers, LMDH, village government, related institutions, and Perhutani has agreed that protecting and sustaining the forest resources for the sustainable function and benefit is become share responsibility of stakeholders. To achieve sustainable forest management, it will collaborate with the stakeholders until it raises the collective action in forest management. Fujiwara et al. (2012) explained the Relationship between Forest farmer, LMDH and Perhutani.

2. Benefit Sharing Allocation

In 2004, the forest land area in Surajaya village is dominated by teak (1137.8 Ha or 81 %). From 2007 Perhutani open opportunities for LMDH and other stakeholders to invest in forest management by schema Benefit Sharing according to PHBM. So in 2016, Teak area became 851.5 Ha (60%) and the other tree became 489 Ha. Composition of Teak area by

age in 2011 very varied, and it shows that Teak will give big income for Perhutani and Community.

Table 1. Composition of Teak stands by Age

Age of Teak stands (years)	Area (Ha)	Percentage (%)
1 – 10	209	25
10 – 20	165.5	19
20 – 30	34.1	4
30 – 40	115.3	14
40 – 50	327.6	38
TOTAL	851.5	100

Source: Perhutani KPH Pemalang (2011)

Table 2. Composition of Other trees

Species	Area (Ha)	Percentage (%)
<i>Paraserianthesfalcataria</i>	270.8	55
<i>Meliaazedarach</i>	51.2	10
<i>Anthocephalussp</i>	63.5	13
<i>Swieteniamahagony</i>	13.4	3
<i>Acaciasp</i>	91.8	19
Total	490.7	100

Source: Perhutani KPH Pemalang (2016)

Since 2004, cooperation between Perhutani and LMDH increase. The land distribution system in the state forest area decided by Perhutani collaborative with LMDH allocated for agricultural mixcropping per household is 0.2 ha. A priority of forest farmers is landless people. Land distribution system conducted by LMDH and KTH as a part of LMDH. Perhutani with LMDH developed participatory forest management planning in Forest area in Surajaya village, include chosen tree species, time of planting, maintenance, collaborative security, thinning, harvesting and manage forest farmers. They developed monitoring and evaluation models, include control of benefit sharing. Forest farmers can get an opportunity for agriculture activities more long time, and can get more income from agriculture product and benefit-sharing from timber production.

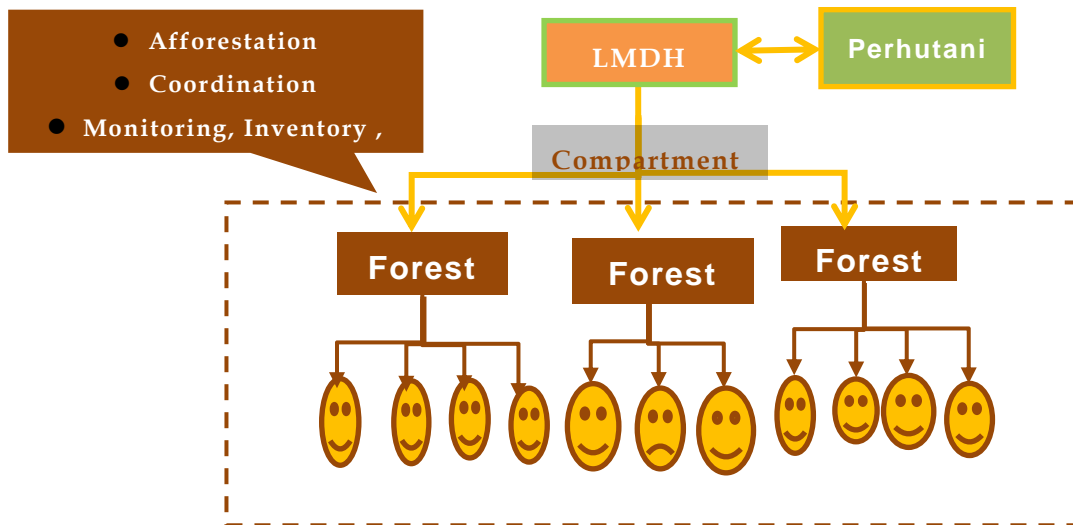


Figure 1. Relationship between Forest farmer, LMDH and Perhutani

The participation of local people and communities essential to achieve sustainable forest management (Inoue. 2000; Purnomo *et al.*,2005; Sunderlin *et al.*, 2005). Benefit-sharing, especially from timber is very important to increase participation of the community on forest management. Benefit-sharing allocation is done at two-level; 1) level 1; there are 2 types, general and special or new form partnership. Type 1 is general between Perhutani and LMDH. Lee *et al.*, (2018) explain that profit-sharing making profit-sharing an important policy for the SFC and Community. Since 2003 allocation of benefit-sharing decided by Perhutani, not involved community. Benefit-sharing allocation can be creating capacity at the village level for transparent collective action because this system is a social investment with high returns. This capacity is a prerequisite for fair partnerships and sustainable forest plantations.

Benefit-sharing between LMDH and Perhutani or LMDH, Perhutani and Investor

According to a decision of the executive board of Perhutani (001/KPTs/DIR/2001 jo No. 436/KPTs/DIR/2011),benefit sharing is sharing timber forest products based on the value

of Production factors and the proportion contributed by each party. Productions factors are all elements of production inputs, consist of land, labor, technology, and capital that can support the production process.

In the general type, benefit-sharing allocation decided by Perhutani. Perhutani will get 75 % and LMDH will get 25% from Thinning and harvesting, especially when first thinning, 100% fuelwood for LMDH. This type shared only Teaktimber. It has a long cycle until 50 years old. Calculation of benefit sharing in this type, take into long cooperation and correction factor. The correction factors consist percentage of illegal logging in the village forest area, the percentage of illegal logging in the compartment, and the percentage of a plantation. Then in 2007, Perhutani provides opportunities to LMDH and other stakeholders to participate in forest management as an investor. This opportunity is exploited, so the policy of benefit-sharing change in 2007 became a special type of benefit sharing.

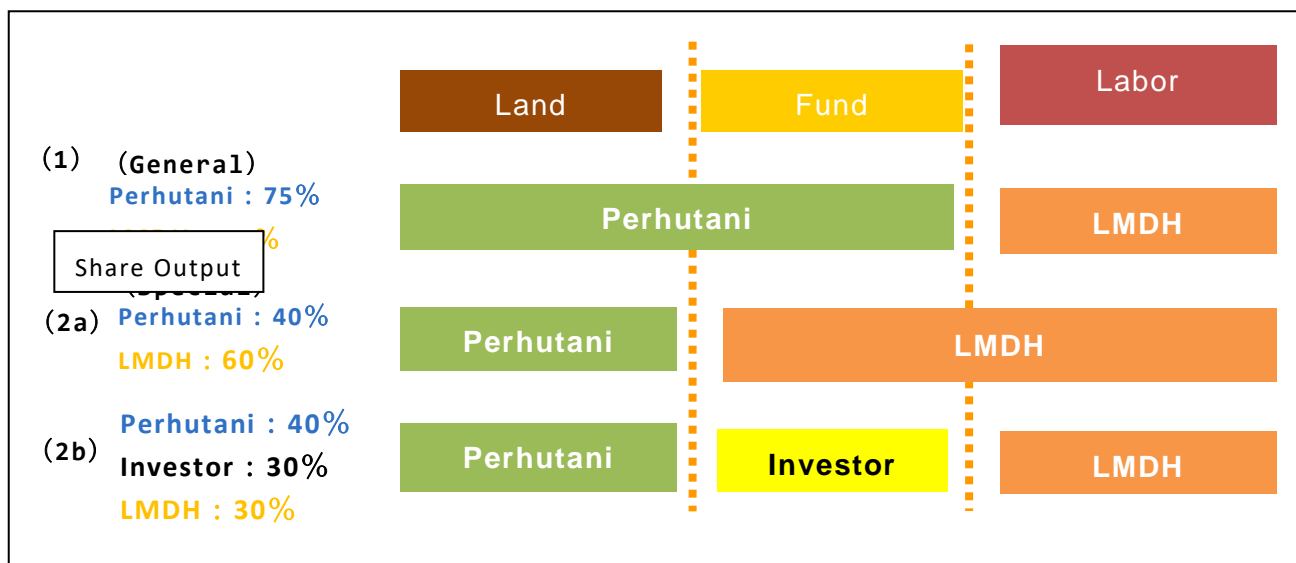


Figure 2. Scheme of Input and Output on PHBM in Surajaya Village

In the special type or new form, benefit-sharing decided based on negotiation and agreement among parties. In this type, the first negotiation facilitate by LPF Team. This facilitates required setting new rules, defining the right and duties of partnerships, and negotiation on how benefits are shared. This type special for FGS (Fast Growing Species) likes *Paraserianthesfalcataria*, *Meliaazedarac*, *Anthocephaluscadamba*, *Swieteniamahagony*, and *Acacia sp.* This species was chosen because it has a short cycle, from 8 until 10 years. Kind of tree select as agreement by all participants.

In the special type, we found changes, if two parties LMDH as an investor, share inputs for LMDH is 60%. Share inputs include a fund of seedlings, planting, maintenance, security, inventory, and thinning. While three parties with other stakeholders, share output for LMDH is 30%, special on labor. Both activities, *i.enursery*, planting, maintenance, inventory and thinning by LMDH andPerhutani as technical guidance. The output of special type on harvesting, share according to inputs of each participant after reducing by harvesting costs. In special type, there are 2 timesof thinning, 3 years old and 5 years old (depend on the circle of tree and agreement of parties). In the first thinning, all of the products, 100% give to LMDH, but the second thinning, LMDH will get 60% and Perhutani will get 40% ofthe total of timber product.

Table 3. Type of Benefit Sharing in level 1

Items	Type of Benefit-sharing		
	General (2003 -)	Special (2007 -)	
Species	Teak	Other trees	
Parties	Perhutani : LMDH	Perhutani : LMDH as investor	Perhutani : LMDH : Investor
Decision	Based on Perhutani	Based on Negotiation and agreement	
Thinning I (3 years)	Not produce	0 : 100	0 : 100 : 0
Thinning II (5 years)	75 : 25	40 : 60	40 : 60 : 0
Thinning III, IV, etc (per 5 years until 10 years before harvesting)	75: 25	Thinning is finish until 5 years	
Harvesting	50 years	8 years	
	75 : 25	40 : 60	40 30: 30

Benefit Sharing allocation within LMDH (Village Level)

LMDH Wanajaya has been received benefit sharing from timber production since 2004. The method of allocating benefits is specified by basic law of LMDH. Total amount have been

received is 211.2 million IDR. LMDH Wanajayahas established two types of allocation method, based on the presence or absence of forest farmers. Absence is a model allocated if there aren't farmers in the compartments were harvested, and presence if there are farmers in compartment were harvested. In many LMDH, forest farmer position is not clear in the benefit sharing system, because there are no LMDH's decisions that define on how the benefit sharing can be distributed to members of forest farmer group, but in Surajaya village, LMDH allocated benefit sharing to forest farmers. Composition of benefit sharing distribution and total benefit sharing in Surajaya Village shown in table:

Table4. Allocation method of benefit sharing within LMDH

Distribution	Allocation (%)	
	Presence	Absence
LMDH Operational cost	10%	10%
An honorarium of board members	20%	20%
Village development	10%	30%
PHBM Communication Forum	2.5%	10%
Social fund	7.5%	5%
Organization fund	5%	25%
Forest farmers	45%	0%

Source: Basic law of LMDH Wanajaya

Table 5. Benefit-sharing from timber production in KPH Pematang

Year	Benefit-sharing		
	Surajaya village		KPH Pematang
	Rp	Percentage (%)	Rp
2004	11,873,877	10	121,527,249
2005	31,510,793	6	501,130,872
2006	36,551,442	4	975,281,100
2007	34,801,579	4	931,999,211
2008	40,271,104	5	874,884,310
2009	60,970,720	7	847,962,581
Total	215,979,515	5	4,252,785,323

Source: Statistics of KPH Pematang

3. Impact of Benefit-sharing

LMDH Operational Cost

Planning is very important for an organization, and the fund is very important to execute those plans (Awang, 2006). LMDH Wanajayato allocate benefit-sharing for the operational cost of the organization by 10 % of the total received. LMDH Operational cost distributesto Institutional building (Secretariat LMDH); forest security includes collaborative security with Perhutani; Administration of LMDH like paper, etc.; uniform for board members; development of center information like an annual report, leaflet and announcement board; Meeting; implementation of forest management, etc.

Impact of LMDH operational cost are increasing human resource capacity; increasing community awareness to forest sustainability; increasing participation in forest resources management; cooperation among stakeholders in forest management; increasing the success of planting; increased security; community's understanding about organization and Forest management; improve networking with related stakeholders; Surajaya villager increased participation on forest management, and illegal logging was decreased.

An honorarium of board members

Honorarium LMDH is a second allocation because this allocation can launch the organization's performance. Although LMDH is social institutions, honorarium can serve as an incentive for board members and people who have run the activity of LMDH. An honorarium of board members by 20% of the total received.

Village development

Infrastructures are very important for people's activities, especially in rural areas. Surajaya village can be categorized as an advanced village, except 2 sub-village, Kemamang and Siali-ali. Especially Kemamang sub-village which has difficult accessibility because its position is in the middle of forest and road to there is the stone road. The road to

access central to the village isn't good condition. With quite difficult accessibility most of the children at Kemamang sub-village do not continue their education to a higher level because transportation cost is more expensive rather than educational cost. Some infrastructures like transportation (road), education, religion, and government office aren't good conditions too. LMDH allocated benefit sharing for village development because many villagers can get the impact of development. In the absence model, allocation for village development by 30% but in the presence model, its allocation became 10%, because of the presence models, some allocation direct given to forest farmer as income. Until now, village development distributed to the construction of a road leading from the highway to the gateway of Kemamang sub-village, an Islamic school, and the renovation of the mosque and village government office.

PHBM Communication Forum (CF PHBM) at the village level.

PHBM Communication Forum is a forum communication of individual and institution related PHBM to improve the implementation of PHBM. This forum representing the interest of the community especially forest user groups, LMDH, Perhutani, and local government. Functions of CF PHBM are coordinate with LMDH in PHBM activities and evaluating the implementation of PHBM. LMDH allocated 10% for operational and activities of CF PHBM at absence type, and 2.5% at presence type.

Social Fund

The social fund distributed to a scholarship for elementary students, assistant for sick people and poverty people, etc. LMDH allocated for Social fund by 7.5% of total benefit sharing in presence models and 5% in absence models. The impact of this allocation is a guarantee of funding social services (health, education, etc.), and increased sense of togetherness and caring among communities.

Organization fund

LMDH allocate organization Fund as saving and capital of the organization. Organization fund distributed for nursery, livestock business (goats) and investment in forest management. Allocation for organization fund on absence model by 25%, but on presence model by 5 %. In absence model more than presence models because LMDH wants to increase the impact of benefit sharing to many people, especially those who are involved in the business. LMDH chose nursery and livestock because this activity related to forest management like a circle. Goats dung can give manure on the nursery and make fertilize the soil, and after seedling growth can give feeds to goats. LMDH buy manure from livestock farmer to use as a mix with topsoil. Nursery business starts in July/August when a long holiday for a student.

Forest Farmers

Forest farmer's income can be divided into two categories that are family income which is from outside of the forest, and income from inside of a forest. This categorization goal is to know the level of dependability of community to the forest, to fulfill their family need. The total income of respondents in 2004 amounted to Rp 186,316,500,- with an average income Rp 4,657,913,- per household. While in 2016, total income of respondent Rp 345,825,000,- with an average income Rp 8,645,625,-. The difference in income between 2004 and 2016 amounting to Rp 159,508,480,-, with an average income Rp 3,987,712,- per household. The agriculture sector, especially in forest area, is the main source of income for landless people. The contribution of the agriculture sector in private land to household income is 20.68% and contribution from state forest area is 34.64% to household income, include mix cropping and planted forest. In 2004, contribution of PHBM is Rp 40,981,500 and in 2016 amounted Rp 119.803.000,-, so total income from PHBM increased Rp 78,821,500,- or

192.3%. This increase is caused by the state forest area of empty land increase after harvesting.

In 2004, most of the forest farmers (53%) get income from state forest less than Rp 1.000.000,- and 45% get income between Rp 1.000.000 – Rp 5.000.000,-, but in 2016, most of the forest farmers (50%) get income from PHBM between Rp 1.000.000,- until Rp 5.000.000,-. This might be in 2016, the opportunity of agriculture activity more than 2004, according to the composition of forest resources in Surajaya village.

Low land ownership is a problem for most of the village forest society (Rohadi *et al.*, 2010; Pelluso, 1992) that also happens with Surajaya villager. The average of land ownership in 2004 is 0.29 ha, which is consist of 0.11 ha rice field, 0.12 ha dry field, 0.06 ha yard. In 2016, an average of land ownership is 0.13 ha per household, consist of 0.05 ha rice filed, 0.08 ha dry field, and 0.005 ha yard. The average land ownership was reduced by 0.16 ha because there is buying and selling land process. With 0.13 ha land per household, people could not cover their needs, especially landless people and didn't have land for agriculture activity. Land of state forest management of each forest farmer in 2004 is 0.125 ha/household or 43.10% of land ownership, but in 2016 increase became 0.271 ha/household. This condition is significant with the composition of forest resources. After PHBM, forest farmers can access to land until harvesting. Agriculture activities in state forests can increase the income of the people, especially landless people. Besides, forest farmers also will get benefit-sharing from timber production during thinning and harvesting. LMDH allocated forest farmers by 45% as an income, from benefits sharing.

According to household income and land ownership, figure 6 shows that landless people (less than 1000 m²) get the biggest income (37%) from PHBM, include benefit-sharing from

timber products and mixcropping products. That means PHBM can give impact to increase the welfare of the community, especially forest farmers.

CONCLUSION

The outcome of benefit-sharing allocation: better livelihood of people surrounding the forest, improved (fair) partnership between SFC and the communities, decreased illegal logging and improving in forest conditions, mutual recognition of both vision and mission between SFC and local community, local community control benefit-sharing system (institutional strengthening) and collaborative actions of multi-stakeholders will be functioned properly it can be accommodated in the CCFM system agreements

REFERENCES

- Awang.S.A.2004.*Dekonstruksi Sosial Forestry: Reposisi Masyarakat dan Keadilan Lingkungan*. BIGRAF publishing and Program Pustaka. Yogyakarta, Indonesia.
- Awang, S.A. 2006. *Analisis Kebijakan Deliberatif (studi Kasus pemanfaatan Sumberdaya Alam)*. Jurnal Widyapraja No.3 Vol 32, 249 – 259.
- Bratamihardja M, Sunito S, Kartasubrata J. 2005. Forest Management in Java 1957-1999: Towards Collaborative Management. ICRAF Southeast Asia Working Paper, Bogor, Indonesia.
- Fujiwara T, Septiana RM, Awang SA, Widayanti WT, Himmah B, Hyakumura K, Sato N.2012. Changes in Local Social Economy and Forest Management through the Introduction of Collaborative Forest Management (PHBM) and the challenges it poses on Equitable Partnership: A case study of KPH Pemasang, Central Java, Indonesia. International Journal TROPICS Vol 20, January 2012. Japan Society of Tropical Ecology. Japan

- Gellert, P.K. 2008. What's new with the old? Scalar dialectics and the reorganization of Indonesia's timber industry. In: J. Nevins and N.L Pelluso, eds. Taking Southeast Asia to market: commodities, nature and people in the neoliberal age. New York: Cornell University Picss.
- Inoue M. 2000. Participator y forest management. In:Guhardja E, Fatawi M, Sutisna M, Mori T, Ohta S (eds) *Rainforest ecosystems of East Kalimantan: ElNiño, drought, fire, and human impacts*. Springer,Tokyo. 299-307.
- Lee, J.H., Kubo, Y., Fujiwara, T., Septiana, R. M., Riyanto, S., & Iwasa, Y. (2018). Profit Sharing as a Management Strategy for a State-owned Teak Plantation at High Risk for Illegal Logging. *Ecological Economics*, 149.
<https://doi.org/10.1016/j.ecolecon.2018.03.005>
- Lee, Joung Hun, Kubo, Y., Fujiwara, T., Septiana, R. M., Riyanto, S., & Iwasa, Y. (2018). Profit Sharing as a Management Strategy for a State-owned Teak Plantation at High Risk for Illegal Logging. *Ecological Economics*, 149(March), 140–148.
<https://doi.org/10.1016/j.ecolecon.2018.03.005>
- Peluso, N. L. (2012). *Emergent forest and private land regimes in Java*.
<https://doi.org/10.1080/03066150.2011.608285>
- LMDH Wanajaya, Surajaya Village. 2004. *Anggaran Dasar dan Anggaran Rumah Tangga LMDH*.Pemalang, Indonesia
- Perhutani. 2001. *Pedoman Berbagi Hasil Hutan Kayu*.Keputusan Direktur Utama Perum Perhutani No. 001/KPTs/DIR/2001 jo No. 436/KPTs/DIR/2011. Jakarta, Indonesia.
- 2001. *Pedoman Pengelolaan Sumberdaya Hutan Bersama Masyarakat (PHBM)*. Keputusan Dewan Pengawas Perum Perhutani No. 136/KPTs/DIR/2001 Jo No. 268/KPTs/DIR/2007 jo No. 682/KPTs/DIR/2009. Jakarta, Indonesia.
- Pelluso N.L. 2012. Emergent forest and private land regimes in Java. *Journal of Peasant studies*, 38:4, 811-836.
- 1992. Tradition of forest control in Java: Implications for forestry and sustainability. *Natural resources Journal* 32:883-918.

-----1992. Rich Forest Poor People, resources control and resistance in Java. Berkeley: University of California Press.

PKHR.2006. *Laporan Akhir Field Review Pelaksanaan Program PengelolaanHutanBersamaMasyarakat (PHBM)*. PKHR. Yogyakarta, Indonesia.

Purnomo H, Mendoza GA, Prabhu R, Yasmi Y. 2005. Developing multi-stakeholder forest managementscenarios: a multi-agent system simulation approachapplied in Indonesia. *Forest Policy and Economics* 7:475-491

Rohadi D, Kallio N, Krisnawati H, Manalu P. 2010. Economic incentives and household perceptions on smallholder timber plantations: lessons from case studies in Indonesia. Paper presented at a conference on agricultural research for development, Montpellier.

Sunderlin WD, Angelsen A, Belcher B, Burgers P, Nasi R, Santoso L, Wunder S. 2005. Livelihoods, forests, and conservation in developing countries: An overview. *World Development* 33: 1383-1402

Yokota Y, Harada K, Oktalina SN, Rohman, Putro WT. 2009. Participatory approach in teak forest management in Indonesia: a case study in Madiun, East Java. JIRCAS Working Report No. 60:87-93.