

Indonesian Forest Management Problems: What Are the Comments and Opinions of the Groups and Organizations Concerned?

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Abstract

In Indonesia, some aspects of the forest management problems have been raised, and the need to look for the solutions toward sustainable forest management is deemed necessary. The objectives of this study are (1) to clarify the forest problems in Indonesia, (2) to collect the comments and opinions of the persons concerned with the forest problems and (3) to propose solutions to forest problems in Indonesia. The research was based on interviews from various respondents: Ministry of Forestry and Estate Crops (MOFEC), the Regional Forestry Office, the Provincial Forestry Service, university lecturers, private concessionaires, the forest product industry, Non-Governmental Organizations (NGOs), and the Forest Product Development Research Center (FPDRC). The interviews and discussions were focused on four topics: the imbalance between wood supply and demand, deforestation issues, forest disturbances, and conflicts between forest concessionaires and forest communities. The interview results showed that an increasing number of forest industries has caused the scarcity of wood, and thus has driven the concessionaires to illegal logging in order to compensate for the low supply of wood. MOFEC policy in forest utilization has tended to support the concessionaire in order to increase the foreign currency. On the other hand, it has caused negative impacts for the forest communities. Most problems of forest utilization in Indonesia are the result of the lack of forest resources data, weakness in forest area control due to the small number of forest security personnels compared to the forest area, efficiency of wood harvesting and processing techniques, and overlapping areas of forest concession and land tenure. Based on the research, the author proposes the following programs; (1) improving the industrial timber estate area in order to increase the wood supply, (2) matching wood supply to capacity of the forest industry when issuing the forest product industry licenses, (3) improving the wood efficiency in the forest industry, (4) increasing the forest security abilities to reduce the number of forest disturbances, (5) strengthening the control of the wood market to prevent the trade of illegal logs, and (6) involving the forest community in the forest management more intensively.

I Introduction

Indonesian forest land-use totals 144 million hectares and is divided into: protection and conservation areas (34 percent of total forest area), conversion to other uses (21 percent), and timber and other forest production (45 percent). FAO estimated that in 1990 there were 46 million hectares of virgin production forest in Indonesia, but forecasted that this would be

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reduced to 11 million hectares by the year 2000 [Hammond 1997: 26]. Policies on forestry are mainly based on national development objectives defined under a 25-year long-term national development plan which was further detailed in a 5-year national development plan (abbreviated as Pelita). Indonesia is now in the period of the ongoing Pelita VI (1995–2000) and the objectives of the forestry sector are: sustainability, conservation, people's participation in forest activities, and poverty alleviation as well as economic and political stability [MOF 1998: 3]. Forest concessionaires' history in Indonesia started in 1967 when the Ministry of Forestry and Estate Crops (MOFEC)¹⁾ released State Regulation no. 1, 1967, and no. 6, 1968, and gave an opportunity to the foreign and domestic investors in the forest concessionaire for a possible grant to private and state companies. The other important regulation in the forestry sector was the log export ban in 1985 which accelerated forest products exports and increased the number of forest product industries, particularly plywood mills [Zhang *et al.* 1997: 53; FAO and MOF 1990: 51; Hasan 1990: 6].

Consequently, the forestry sector in Indonesia is facing several problems because of pressure from the industries for raw materials; e.g. ecological problems caused by overexploitation of wood, social problems between forest concessionaires and local communities around the forest, and forest disturbances. The objectives of this study are (1) to clarify the forest problems in Indonesia, (2) to collect the comments and opinions of the persons concerned with the forest problems and (3) to propose solutions to forest problems in Indonesia.

II Methods

The data collection method was direct interviews with: the person concerned with the forest management (MOFEC, provincial and district level), university lecturers, Forestry Product Development Research Center (FPDRC) researchers, forest concessionaires, forest product industries, and staff members of Non-Governmental Organizations (NGOs). The study focused on the East Kalimantan province (as a case in non-teak forest areas) and East Java province (as a case in teak forest areas). The main reason for choosing these two areas was that both areas entail the biggest production and export volume [MOF 1996: 9]. For example, East Kalimantan province is the biggest producer of wood products in Indonesia and produces a high volume of good quality *Dipterocarp* spp., a valuable commercial wood. The research was done from September to October 1997 and it was divided into: the direct individual interviews with 13 persons, two interviews through group discussions, where the author took the chair, each attended by 14 participants at Regional Forestry Office, East Kalimantan province, and by 4 participants at FPDRC, West Java province. The interview respondents and their positions are presented in Table 1.

1) Called Directorate General of Forestry subordinated to the Ministry of Agriculture in 1967. Some references in this paper still use the term Ministry of Forestry or MOF because the use of MOFEC did not start until 1998.

Table 1 Interview Respondents and Their Job and Positions

Respondents No.	Current Positions		Focus of Interviews
1	Senior lecturer in forest management at GMU*		A; B; C
2	Head of Planning Section of Forest Utilization, MOF		A; B; C
3	Senior lecturer in forest economics at GMU, expert board member of APhi and MPI, private consultant of PT. Barito Pacific (private concessionaire)		A; B; C; D
4	Senior lecturer in forest resources at GMU, expert member of National Forest Inventory Project, board member of LEI		A; B; C; D
5	Senior lecturer in forest economics at GMU, private consultant		A; B; C
6	Division head of forest community development of WALHI		B; D
7	Expert consultant of LATIN		B; D
8	Head of Jombang District Forestry Office, East Java province		C; D
9	Governor of East Kalimantan province		A; B; D
10	Head of Tenggarong District Forestry Office, East Kalimantan province		A; B
11	Head of RFO, East Kalimantan province		A; B
12	Head of Forest Utilization of PFS, East Kalimantan province		A; C; D
13	Staff of PT. Sumalindo Lestari Jaya (private concessionaire)		A; D
Discussion I at RFO, East Kalimantan province	Staff of Inhutani Unit II Staff of ITCI Head of Forest Security of RFO Head of Forest Utilization of RFO Staff of RFO Staff of Inhutani Unit I Staff of PFS	Staff of Inhutani Unit II Staff of ITCI Head of Land Rehabilitation of RFO Staff of PT. Sumalindo Lestari Head of Forest Utilization of PFS Staff of PFS Staff of PFS	A; B; C; D
Discussion II at FPDRC, West Java province	Staff of FPDRC, specialist in forest economics Staff of FPDRC, specialist in forest economics Staff of FPDRC, specialist in wood technology Staff of FPDRC, specialist in forest ecology		A; B; C; D

Notes: The problems are (A) Imbalance between wood supply and demand, (B) Deforestation issues, (C) Forest disturbances and (D) Confliction between forest concessionaires and local communities.

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The abbreviations are:

GMU : Gadjah Mada University

MOF : Ministry of Forestry

RFO : Regional Forestry Office

PFS : Provincial Forestry Service

MPI : Masyarakat Perhutanan Indonesia (Indonesian Forest Society)

LEI : Lembaga Ecolabel Indonesia (Indonesia Ecolabelling Working Group)

WALHI : Wahana Lingkungan Hidup (Indonesia Environmental Forum)

LATIN : Lembaga Alam Tropis Indonesia (Indonesian Tropical Institute)

ITCI : International Timber Corporation Indonesia

Inhutani : State own forest concessionaire

APHI : Asosiasi Pengusaha Hutan Indonesia (Association of Indonesian Forest Concessionaires)

FPDRC : Forest Product Development Research Center

III Background of Interview's Questions

The questions in the interviews were set according to the major problems in Indonesian forests in order to compare with the comments and opinions of the respondents. The problems are (A) the imbalance between wood supply and demand, (B) deforestation issues, (C) forest disturbances, and (D) conflicts between forest concessionaires and local communities. The difference between deforestation issues and forest disturbances, is that deforestation is related to the issues of decreasing forest areas without efforts to replant new trees, while forest disturbances are activities that interfere with the condition of the forest areas. The background of each problem is explained below:

Problem A: Imbalance between Wood Supply and Demand

Wood shortage, a problem particularly for the forest industries, was initiated by the Government of Indonesia's (GOI) log export ban in 1985 which accelerated the number of forest product industries (referred to here as forest industries). This caused an increase in wood demand. Some reports showed that there was an imbalance in wood supply-demand, particularly in forest industries [World Bank 1990: 8–9; Guritno and Murao 1999: 85]. MOF [1998: 13, Tables 11 and 17] also reported from 1991 to 1995, that the growth of wood production (0.457 percent per year) was lower than that of the wood based industrial demand (4 percent per year). For illustration, the wood shortage problem appeared in the North Sumatra province, where 1,150,000 m³ wood/year must now come from other provinces [Anonymous 1991a]. For this reason, the imbalance of wood supply-demand is an important problem that needs to be solved. This problem can potentially cause other forest problems. The following questions were asked of the respondents: "Why did the imbalance of wood supply-demand occur? What was the MOFEC motive in log export banning policy?" and "How can we solve the problem of the scarcity of wood supply?"

Problem B: Deforestation Issues

Generally, deforestation is defined as the reduction of forest area and is commonly used to imply the total loss of vegetative cover. Many experts believe that widespread deforestation can seriously affect climate [Westoby 1989: 28–30]. In Indonesia, the conversion of natural forest to other forms of land uses (excluding timber plantations) involves deforestation in a technical sense, but does not necessarily cause denudation or land degradation [MOF 1991: 21]. According to the World Bank [1990: 20, Executive Summary] and the MOF [1991: 22], averages of deforestation rates in Indonesia increased from 300,000 hectares per year in the early 1970s, to 600,000 hectare per year in 1981, and recently, it is estimated at around 1,315,000 hectares per year (for detail in each classification of forest area, see Table 2).

Several factors that contributed to deforestation are the development of estate crops, transmigration and related infrastructure, shifting cultivation, forest fire, and other reasons (e.g. illegal logging, mining, and urban development)[Guritno and Murao 1998a: 831–833]. The

Table 2 Indonesian Total Forest Area and Non-degraded Forest Area in 1990

Forest Classification	Total Area (million hectares)	Non-degraded Forest	
		Area (million hectares)	%
Production forest	64.4	39.3	61
Conversion forest	30.5	12.6	41
Protection forest	30.3	23.6	78
Conservation forest	18.8	14.7	78
Total	144.0	90.2	63

Source: [Ramli and Ahmad 1993: 24, Table 2-5]

deforestation issues were focused on the importance of tropical forests in preventing soil loss, stopping habitat destruction, promoting biological diversity, and ameliorating global warming [German Bundestag 1990: 533-535; Cubbage *et al.* 1993: 496]. These facts indicated that deforestation is increasing and that preventive actions are needed in order to avoid adverse impacts. Before the interview, the author explained to the respondents the definition of deforestation and gave the deforestation rate data in Indonesia. First, the interviews were started by the question "What are your comments on the deforestation process in Indonesia?" Then, the following questions were on the causes of deforestation, on relation between deforestation and forest utilization, and on alternatives to reduce the deforestation rate in Indonesia.

Problem C: Forest Disturbances

In Indonesia, the cases of forest disturbances included in the MOFEC annual report are divided into four categories: (1) forest area disturbances (consisting of land stealing, illegal occupancy, and overlapping with other utilization), (2) forest land disturbances (illegal cultivation, illegal pasture, natural disaster), (3) standing stock disturbances (illegal cutting, forest fire, forest pathology), and (4) forest product disturbances (forest product robbery and the illegal trade of plants and animals). Unfortunately, the MOFEC data did not include the forest concessionaires' (referred to here as concessionaires) transgressions (e.g. re-logging, illegal cutting, overlapping of concessionaire area) so that the estimation of losses was very low compared to the real losses. For example, as of 1991, more than 4 million hectares in concession areas were damaged. The infringement of forest utilization also increased from 277 to 300 unit concessionaires and they were fined by the government a value which amounted to Rp 29.4 billion (equal to US\$14 million) [Anonymous 1991b]. The interviewer tried to explore the forest disturbance cases with the persons directly involved in the forest security, forest utilization and concessionaires.

Problem D: Conflicts between Concessionaires and Local Communities

In Indonesia, concessionaires can be divided into two groups: state owned concessionaires (owned by GOI) and private concessionaires (owned by individuals). The Indonesian forest product export is dominated by plywood, and wood is supported by private concession areas.

In the economic aspect, the role of concessionaires is important, especially in increasing the government income, but some researchers reported that the concessionaires do not give significant contributions for increasing the local community income [Mubyarto *et al.* 1992: 91; Triwahyudi *et al.* 1993: 52; Munggoro 1997: 1–5]. Traditionally, local communities who live around the forest have had close access to the forest area for agricultural activities and harvesting the non-timber forest products (NTFP). Unfortunately, the concessionaires and communities often have social conflicts, especially in forest utilization, restriction of forest access for the community by concessionaires, and the overlapping of land occupation (land tenure and concession areas) [Guritno and Murao 1998b: 2–3]. The interview was focused on the relationships between them, and impacts of the concessionaires' activity to the community. The main interview respondents for this topic were NGOs, concessionaires, university lecturers, and related persons in the Regional Forestry Office and District Forestry Office.

IV Results

A. Imbalance between Wood Supply and Demand

The majority of respondents stated that Indonesia was facing an imbalanced condition of wood supply-demand. The comments from the question, "What are your opinions of wood resources and wood industrial demand?" were quite similar; they were disappointed with the declining wood supply and were unable to fulfill the industrial demand. However, they pointed out different reasons for this condition. The university lecturer, MOFEC staff and FPDRC stated that the most crucial reason for this problem was MOFEC's inaccurate information of forest resources when the log export banning policy was released. With the increase in forest industry, the annual allowable cutting (AAC) can not cover the total log demand (see Fig. 1). Moreover, the recovery rate in the Indonesian forest industry is low [Guritno and Murao 1998c: 122–124]. Recovery rate is a percentage of wood volume from a comparison of

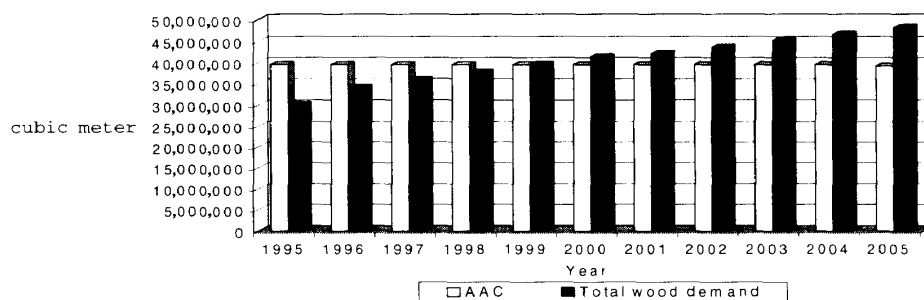


Fig. 1 The Estimation of Wood Demand and Annual Allowable Cutting (AAC) in Indonesia

Source: [Guritno and Murao 1998c: 123, Fig. 1]

Note: AAC is defined as the total wood volume of allowable cutting with consideration to the forest area potency, wood regeneration cycle and wood species in order to assure sustainable wood harvesting [MOF 1989: 25].

Table 3 Current Harvesting and Processing Efficiency in the Asia-Pacific Region

Region	Harvesting Efficiency (%) ^{a)}	Processing Efficiency in Sawmills and Plymills (%) ^{a)}
Advanced Industrialized Economies	78	60
Newly Industrializing Economies	78	50
North Asia	81	50
South East Asia ^{b)}	50	49
South Asia	62	47
Pacific Islands	50	40
All Asia Pacific	66	51

Source: [FAO 1998: 217, Table 11-5]

Notes: ^{a)} All figures represent the proportion of utilizable product produce per unit of raw material input. The harvesting efficiency is an average efficiency of production in the natural forest and plantations.

^{b)} Indonesia is grouped with the South East Asian countries.

finished product and wood material before processing. For example, according to MOF [1996: 156], the recovery rate of saw wood is around 55 percent, veneer (53 percent), and particle board (50 percent). The current harvesting and processing efficiency is shown in Table 3.

In the discussion at Regional Forestry Office, East Kalimantan province, the participants explained: "The easiest indicator to know whether scarcity of wood occurred or not is obtained by checking the illegal cutting cases. (Why?) Because illegal cutting reflects the higher wood demand than supply. If someone needs wood and it can not be supplied from market, they will look to other sources and usually they will buy from illegal market." This opinion can be followed with the question "Who does the illegal cutting? Is it the people who live around the forest, the concessionaire or both of them?" All of the respondents were unanimous in their answers, "Both the concessionaires and the people (including people interested in doing this transgression)," but they agreed that the concessionaire illegally cut in bigger portions than the people did. Unfortunately, the data of illegal cutting done by concessionaires was not available in the MOFEC annual report. Furthermore, the forest concessionaire right was revoked due to the infringement of forest utilization's regulation in their activities. Thus the respondent stated "The forest concessionaires in Indonesia tend toward profit and they ignore forest conservation."

Related to the MOFEC policy to stop log export in 1985, a member of the NFI (National Forest Inventory) project said "The MOFEC did not have accurate information about the forest resources during 1980-1985, because the NFI project only started in 1990 and published its first report in 1995." He added the comment, "But I conformed with the MOF policy to ban the log export, because the added value of plywood is greater than log and the plywood industries offered job opportunity." This comment was partially correct, but Prakosa [1996: 58-59] reported that in order to accelerate the growth of the plywood industry within the country, the government of Indonesia (GOI) fixed the tax on log exports at 20 percent and the tax on plywood exports at 0 percent. In 1983, the average free on board (FOB) price of log was

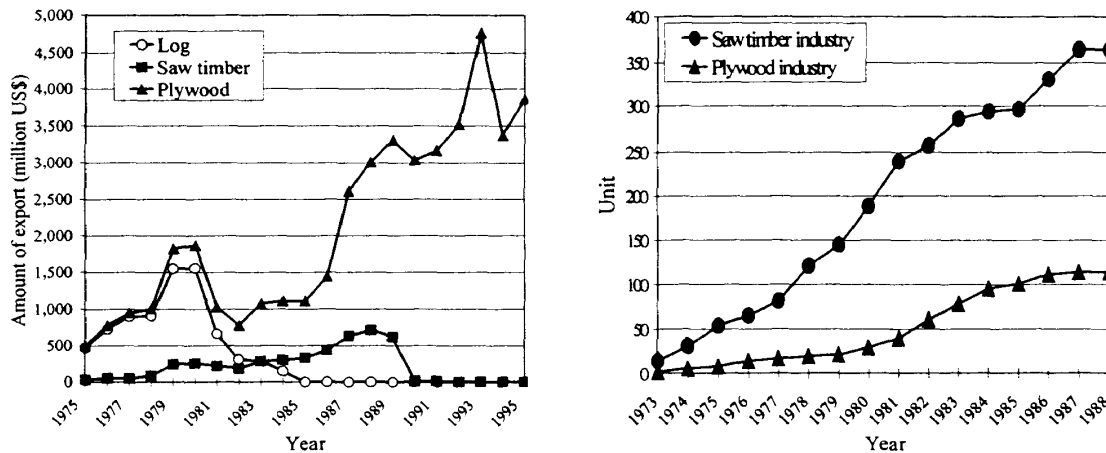


Fig. 2 Increasing Amount of Forest Products Export and Number of Forest Product Industries in Indonesia

Sources: [MOF 1996: 13; Hasan 1990: 6]

US\$ 100/m³, while the FOB price of plywood was US\$ 250/m³. The recovery rate of plywood in Indonesia was 43.5 percent [MOF 1997: 156] or every 1 m³ plywood needs 2.3 m³ log. Log price for the plywood product was US\$ 109/m³, which means that the value added to each log was only US\$ 9/m³. On the other hand, the GOI loses the log export tax US\$ 20/m³. The result from the improper estimate of forest resources is that the development of the forest product industries was greater than the forest's ability to supply wood. Another reason for this case is that the MOFEC did not have good coordination with the Ministry Trade and Industry that releases the license for forest industry in order to match the wood supply and demand to the forest industry. Fig. 2 shows the increasing amount of forest products export and number of forest product industries in Indonesia.

The following questions were focused on the alternatives of unbalance supply-demand of wood: "What would you do if the wood demand is higher than the supply? What alternatives are possible to solve this problem?" The university lecturer proposed the following alternatives: (1) to look for substitute materials for wood, (2) to improve the efficiency of wood utilization particularly in the forest industry, (3) to develop the industrial timber estate (HTI-Hutan Tanaman Industri) and (4) to develop the awareness of conservation in the concessionaires. The forest industry staff said they were changing their slicer and peeler machine to improve the wood efficiency.

Several policies that are related to the problems of the wood scarcity are: (1) the Ministry of Trade and Industry stopped issuing new licenses for forest industries that do not have forest concessionaire licenses issued by MOFEC, (2) MOFEC reduced the AAC by 2 percent in order to reduce the pressure on the forest and (3) MOFEC gave more opportunities for local communities to be involved in the forest utilization by giving them the concession area [MOF 1998: 18].

B. *Deforestation Issues*

The comments on deforestation in Indonesia were varied, but almost all respondents agreed on the improper effects of deforestation. “We understood the deforestation term and effects, but from the MOF land-use plan, we were permitted to change the forest area to other functions. So, the most important action related to the deforestation was how to control the deforestation but not how to stop the deforestation.” Actually, the conversion forest area that can be used for other functions covered 21 percent of the total forest area in the MOFEC land-use plan. To the above comments, another respondent replied “I agree with the previous comments, but we have to consider the forest boundary where the establishment of the forest boundaries had not been finished until now. The GOI has the transmigration program which is said to be the right program even if it causes deforestation, but we may have to reduce the deforestation associated with the program, such as: shifting cultivation, illegal cutting, and forest fire.” Related to the deforestation term, a university lecturer said “The term deforestation gives a strong impression of forest change, but I prefer to use the term ‘degradation of forest’ to specify uncontrolled forest utilization. This term will push the MOFEC to improve forest security and conservation awareness.” He continued, “Indonesia, as a member of ITTO (International Tropical Timber Organization), should also be concerned with the concept of sustainable forest management, so Indonesian forest concessionaires will give better attention to forest management. Some forest concessionaires practiced illegal logging, such as: re-logging [re-logging is an activity to harvest trees in the same logged forest area before the stipulated cutting cycle] and over cutting [over cutting is the activity of harvesting trees to such an extent that the log harvested volume is higher than the log permitted volume] in order to cover their wood demand.” In addition, in 1993, the Indonesian Ecolabelling Board was established as an independent assessor for sustainable forest management and forest products certification.

An interesting question from the discussion at the Regional Forestry Office was “If deforestation effect is negative, which country is guilty of the ecological problem? The countries with large forest areas, the countries with huge carbon dioxide (CO₂) emissions, or countries with the minimal ratio of forest per capita?” The question was answered by another participant “We can not accuse an individual, a company, or a country of being guilty for the ecological problem, because all of us are dependent on each other. The producer (in this case, Indonesia) will provide things because of the market demand and the producer’s needs for foreign currency, which has resulted in deforestation. On the contrary, other countries’ products needed by our country would consequently contribute to increased carbon dioxide emissions. For this reason, we need fair criteria for these cases.” Table 4 illustrates the forest area, CO₂ emissions and the deforestation rate of some countries in Asia and the Pacific.

In Table 4, the rates of forest change (deforestation) in developed countries are lower than developing countries, but remarkably contrast with the CO₂ emissions. In order to assure proper forest utilization, the ITTO released *Guidelines for the Sustainable Management of Natural Tropical Forest* for its members [ITTO 1992: 1–10]. In December 1997, the UNFCCC (The United Nations Framework Convention on Climate Change) released Kyoto protocol

Table 4 The Comparison of Total Forest Area, Changes in Forest Area, and CO₂ Emission in Some Countries in Asia and the Pacific

Country	Forest Area (1,000 ha)		Total Forest		Forest Area Change 1990–1995		CO ₂ Emissions (metric tons)	
	Natural	Plantation	per capita (ha)	% of land area	Total (1,000 ha)	Annual rate (%)	Total (1,000 metric tons)	per capita (metric tons)
Cambodia	9,823	7	1.0	55.7	–164	–1.5	476	0.04
Indonesia	103,666	6,125	0.6	60.6	–1,084	–0.9	184,585	0.95
Malaysia	15,371	100	0.8	47.1	–400	–2.3	70,492	3.74
Myanmar	26,875	276	0.6	41.3	–387	–1.3	4,386	0.11
Philippines	6,563	203	0.1	22.7	–262	–3.2	49,698	0.77
Thailand	11,101	529	0.2	22.8	–329	–2.5	112,477	2.02
Rep. Korea	6,226	1,400	0.2	77.2	–65	–0.2	289,833	6.65
Japan	25,146		0.2	66.8	–13	–0.1	1,093,470	8.79
Australia	40,908		2.3	5.4	17	0.0	267,937	15.24
New Zealand	n.a.	7,884	2.2	29.4	43	0.6	26,179	7.58

Sources: [ITTO 1997: 210–211; Balsiger 1998: 31]

Notes: Forest areas listed for Japan and Australia are totals for both the natural and plantation forests.

Highlight area is the developed countries and no highlight area is developing countries.

n.a. is non available data.

related to the CO₂ emissions. One key element in the Kyoto protocol is to provide legally binding limits for some countries (mostly industrialized countries) on their future emission rates (a five year average between the years 2008 and 2012) of six GHGs (Green House Gases: CO₂, CH₄, NO₂, HFCs, PFCs and SF₆), relative to emissions in 1990 [Makundi *et al.* 1998: 5–8].

C. Forest Disturbances

The main cause of serious forest disturbances in Indonesia is illegal cutting. This is rampant, but the MOFEC official data just covers the individual illegal cutting (individual illegal cutting is an illegal cutting activity that is done by a person who does not have a wood harvesting license) without including the concessionaires' illegal cutting. In the interview, the respondents were requested to explain their opinions from the following questions: "What kind of forest disturbances are in Indonesia? Who is the actor? What is the reason for forest disturbances?" and "What shall we do to solve the forest disturbance problems?" Before the interviews, the author introduced the topics relating to forest disturbances to the respondents based on the MOFEC data (see Table 5).

The respondents' comments on the reason for forest disturbances can be classified into two types: illegal cutting and forest fire. The respondents' estimation of illegal cutting in the discussion at Regional Forestry Office and interview with the university lecturer was around 50 percent of the total wood produced particularly in outer islands. For the teak forest in Java, the head of Jombang District Forestry Office estimated illegal cutting to be around 5 to 10 percent

Table 5 Recapitulation of Forest Disturbances in Indonesia, 1995/1996–1996/1997

No	Kind of Disturbance	Area (hectares)		Losses (Rp)	
		1994/1995	1995/1996	1994/1995	1995/1996
A	Forest area disturbance				
	1. Land stealing	3,905	12,886.55	n.a.	n.a.
	2. Illegal occupancy	54	1,262.00	n.a.	n.a.
	3. Overlapping with other utilization	25	1,573.00	n.a.	n.a.
	Sub total	3,984	15,721.55	n.a.	n.a.
B	Forest land disturbance				
	1. Illegal cultivation	19,352.80	29,029.03	108,170,864	22,900,000
	2. Illegal pasture	420.00	1,948.00	2,858,480	4,490,000
	3. Natural disaster	3,168.70	119.00	571,878,230	81,710,000
	Sub total	22,941.50	31,096.03	682,907,574	109,100,000
C	Standing stock disturbance				
	1. Illegal cutting	250	222.50	22,035,964	76,730,143
	2. Forest fire	161,790	n.a.	n.a.	n.a.
	3. Forest pathology	648	n.a.	n.a.	n.a.
	Sub total	162,688	222.50	22,035,964	76,730,143
D	Forest product disturbance				
	1. Forest product robbery	4	34.00	1,368,328,484	2,463,375,457
	2. Illegal trade and export of flora & fauna	n.a.	n.a.	n.a.	n.a.
	Sub total	4	34.00	1,368,328,484	2,463,375,457
Total		189,617.50	47,074.08	2,073,272,022	2,649,205,600

Sources: [MOF 1996: 93, Table 4–1; 1997: 93, Table 4–1]

Note: n.a. is non available data.

of total wood production. “The illegal cutting problem is not solely caused by weak forest security, but to reduce illegal cutting, how do the actors increase their awareness in forest conservation — not just in commercial and trade aspects?” said one respondent at FPDRC discussion. They added “But, the aspect of conservation awareness may possibly rise if the illegal cutters are fulfilled with their basic demand for food, clothes and housing.” The illegal cutters are divided into two types: the individual or group of people, and the concessionaires. The head of forest security (FS) commented “The increase in illegal cutting practices is accelerated by the lack of wood, and is also caused by fewer numbers of FS personnel, and lack of facilities and infrastructures that now handicap FS in their duty. To prevent the trade of illegal logs, it is most important to control the log market.” The number of FS personnel compared to the forest area is shown in Fig. 3.

“Formally, illegal logs can not be sold to the market, because the log trader has to prove that the log origin comes from legal practices. But, if the buyer does not care whether the log is legal or not, the illegal log prices are lower than normal because there are no taxes and fees. Who can assure that the log market is fair?” asked the university lecturer and participant

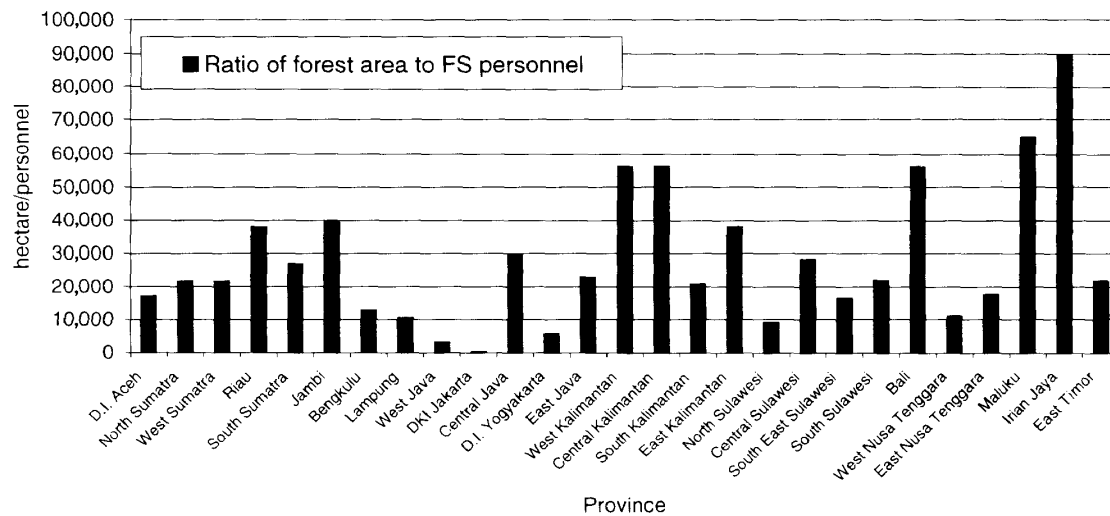


Fig. 3 Ratio of Forest Area to Forest Security Personnel by Province in Indonesia

Source: [MOF 1997: 96, 106]

from FPDRC. For instance, the illegal log price ranges from Rp 200,000 to Rp 250,000 per m³. The normal domestic log price is around Rp 300,000 to 350,000 per m³, while the logging cost (including transportation) was estimated to be Rp 180,000 to Rp 200,000 per m³. The “give and take” between supplier and buyer in illegal log trade is difficult to avoid.

The head of Regional Forestry Office, East Kalimantan province also commented on the illegal log trade. “If we want to reduce illegal cutting, we can start at the market. We supply logs from the private concessionaires to the market with a cheap price that is equivalent to the logging cost. This action is aimed to prevent the illegal cutters to do their activities because the log price is equal to their operation cost. But, who will cover the price difference? If the MOFEC agrees, this idea is workable but too expensive.” From the explanation above, we can conclude that the illegal cutting practice is influenced by two factors: the scarcity of logs will accelerate the illegal cutting, and weaken the control of log trade between supplier and buyer. From the above explanation, some alternatives to solve the forest disturbances are: (1) to improve HTI (Timber Estate Program) areas to increase the supply of wood, and (2) to improve regulations particularly aimed to prevent the trade of illegal logs.

D. *Conflicts between Concessionaires and Local Communities*

In Indonesia, forests are mainly owned and administered by the state (government). As of March 1996, there were 483 units of concessionaires being operated which covered 56.14 million hectares of forest area (almost 87.3 percent of the total production forest area). Consequently, conflicts arose. Dissension such as social conflicts (between traditional forest communities and the concessionaires), ecological problems (caused by improper forest utilization), and pollution (resulting from the forest industry’s inappropriate waste management) etc. In contrast, the forestry sector plays an important role in increasing economic development;

partly through foreign exchange earnings, job and business opportunities. MOF [1998: 1] reported that forest related employment accounted for about 5.4 percent of the total labor force, and concessionaires contributed to an average of 16 percent of the total foreign exchange earnings in the 1980s.

The interviews explored the respondents' opinions of the concessionaires existence with consideration given to both the concessionaires' important role in the national economy, and ill-benefiting impacts. The questions addressed to the respondents were: "Do you agree to the present condition of concessionaires in Indonesia? What are your reasons for your answer to the previous question? What do you expect of the concessionaires for the community? What are the possible alternatives for forest utilization in Indonesia?"

Generally, respondents pointed out negative impacts of concessionaires' forest utilization. "What is the community's advantage from the concessionaire? They just involve labors at the logging and forest industry. Community income does not increase significantly and a great portion of the profit from the forest utilization flows to the concessionaires," said the respondent from WALHI and LATIN (both are NGOs related to the forest and environment in Indonesia). They added "We understand the forestry's role in the national income, but the MOFEC policy in forest management takes the side of the concessionaire and only gives small attention to the communities who live in and around the forest area. Some of our researchers reported that the concessionaires' impacts did not satisfy the community. Moreover, the concessionaires limit access to the forest. Ironically, the communities who depend on the forest are often blamed for the forest degradation." As an illustration, the number of people depending on the forest in some selected countries in Asia-Pacific are shown in Table 6.

For instance, WALHI and five other Indonesia NGOs issued concepts in forest management, namely CBFSM (Community Based Forest System Management) supported by Austria's government. The concessionaire's role in forest utilization was also criticized by the Head of Regional Forestry Office East Kalimantan province, "Concessionaires can be divided into two groups: one group is profit-oriented and its priority is to gain as much profit as possible with

Table 6 Estimation of Forest Dependent People in Selected Countries in Asia-Pacific

Country	Total Population (millions)	People Directly Dependent on Forest Resources (millions)	People Living on Land Classified as Public Forest (millions)
India	935.7	275 (29.4%)	100 (10.7%)
Indonesia	197.6	80-90 (40-46%)	40-65 (20-23%)
Nepal	21.9	18 (82.2%)	8.5 (38.8%)
Philippines	67.6	25-30 (37-44%)	24 (35.5%)
Sri Lanka	18.4	2-4 (11-22%)	n.a. (n.a.)
Thailand	58.8	20-25 (34-43%)	14-16 (24-27%)

Sources: [ITTO 1997: 210; Fischer *et al.* 1997: 7]

Notes: Figures in () are percentages to total population.

n.a. is non available data.

minimal effort in forest conservation, the other group is conservation-oriented; they involve conserving the forest in order to profit in the long term. The MOFEC revoked some of the rights of the concessionaires who neglect conservation." But the MOFEC reaction to revoke the concessionaires' rights is not enough for forest conservation. This point was argued by university lecturers, with the comment: "The MOFEC sanction to revoke the concessionaires' right is inappropriate. Why? The forest area was degraded because of their activity, so they should be punished by being required to replant trees or rehabilitate the degraded forest area where they had activities."

Most respondents suggest the importance of partnership between the concessionaires and the communities who live in and around the forest area, in order to solve the conflict between them. Actually, this idea was practiced by MOFEC through the "community development scheme" (HPH Bina Desa in Indonesian) in outer islands and the "ma-lu" program ("ma" comes from Mantri, the head of local forest security, and "lu" comes from Lurah, the administration head of village) in Java forest areas. But some researchers reported that this program seemed unsuccessful [Mubyarto *et al.* 1992: 62; Triwahyudi *et al.* 1993: 69–72; Prakosa 1996: 136] for several reasons: (1) the program's philosophy tended only to reduce the shifting cultivation activity and lacked efforts to improve the communities' income, (b) in practice, the program only showed demonstrations of settled farming, (c) the program was unable to access the communities' need to use their traditional lands that were located inside concession areas, and (4) there was a conflict of perception between concessionaires (in this case they were backed up by MOFEC) and communities, where concessionaires try to relocate the communities from their concession areas. Furthermore, Mubyarto *et al.* [1992: 90–91] reported that the forest concessionaires had negative effects on the communities, particularly by decreasing the amount of agricultural land and individual income (see Table 7).

The respondent from the Indonesian Environmental Forum reported the presence of social conflict between the concessionaires and community in Jelm Sibak village (East Kalimantan

Table 7 Social Effects of Forest Concessionaires to the Communities in Jambi Province

Type of Village	Effects to the Communities (%)		
	Decrease in Agricultural Land	Decrease in Individual Income	Constant in the Poverty Income ^{d)}
Rubber tree village ^{a)}	41.9	51.7	66.7
Poor village ^{b)}	25.8	3.4	16.7
Development village ^{c)}	25.8	51.7	33.3

Source: [Mubyarto *et al.* 1992: 90–91].

Notes: ^{a)} Rubber tree village is the village dominated by rubber as the main source of income. The average income per-capita is Rp 209,927.00/year (equal to 368 kg rice/year).

^{b)} Poor village is the village with an average income per-capita is Rp 188,554.00/year.

^{c)} Development village is the village with the concessionaire's guidance. An average income per-capita is Rp 204,486.00/year.

^{d)} Poverty level is equal to the rice consumption per-capita from 256 to 341 kg/year

province) particularly concerning the decreasing of agricultural land and the restricted access to the forest. The fallow period of agricultural land varied from less than 5 years (6 percent of total rotational agricultural practices), 5–10 years (35 percent), 11–20 years (18 percent) and more than 20 years (41 percent). The interviews showed the respondents from NGOs, university lecturers, and FPDRC tend to accuse the concessionaires as being the main cause of forest degradation, but the personnel of MOFEC (also Regional Forestry Office and Provincial Forestry Service) accuse the forest people and illegal cutters. Fischer *et al.* [1997: 20] proposed collaborative approaches to forest management by stating that the people living in and near forests act as guards for forest management.

V Discussion

Forest management problems in Indonesia were caused by: economic, social, and ecological factors. The specific goals of Indonesian forest management have been centered on: (a) developing the outer islands to relieve population pressure in Java and Bali; (b) utilizing forests, including plantations, for national development; (c) developing more productive man-made forests and converting degraded unproductive areas so that they produce more wood; (d) generating livelihood opportunities for forest communities and the rural people through the multiple-use management of forests; and (e) conserving natural resources to benefit present and future generations [MOF 1998: 3].

MOFEC had divided forest land-use to support production and conservation simultaneously, but the scarcity of wood for forest industries initiated forest problems. Generally, respondents gave similar reasons for imbalance between wood supply and demand. They blamed MOFEC for not having accurate information of the wood resources from the forest so the presumed capacity of forest products was higher than the true availability of wood. Another reason for the wood problems is that the Ministry of Trade and Industry issued licenses to the forest industries without considering wood supply. Forest industries without concession areas faced problems because their demand for wood was supplied either from the market or from the concessionaires who have an abundant supply of wood. Consequently, illegal logs are easier to sell, because the demand is higher than the supply.

The NGOs accused the concessionaires of being the main actor in illegal cutting activities, because they believe that the forest industries, faced with the log shortage, complete wood orders by purchasing from illegal sources. The individual or group of people that practice the illegal cutting have access to the illegal market (black market) forest industry. The forestry staff's weak control of forest security and the concessionaires' activities also appeared in the interview. Furthermore, illegal cutting has negative effects such as the lost government income from fees and taxes collected from harvested wood, decreased wood supply in the forest, and the degradation of forest areas. Discussions with FPDRC respondents and university lecturers revealed that in some cases, the forestry staff knew of illegal cutting activities but received "greasy money" for the "classic reason": the government officer does not receive

enough salary when compared to his responsibility.

The low efficiency of wood harvesting and processing also needs to be improved. Some forest industries in East Kalimantan are trying to replace their slicer and peeler machine to increase the efficiency to 60 percent. An alternative from MOFEC is to stop issuing new licenses to forest industries in an effort to reduce the forest product by 2 percent annually. It is hoped that this will increase the supply to match the demand for wood.

In the case of deforestation, almost all non-government forestry staff agreed that the deforestation is mainly caused by concessionaires. Usually, the concessionaires whose concession areas are near the protection and conservation forest areas need to be controlled more strictly, because some of them harvest wood from outside their own area. Several different reasons for deforestation given by various respondents are that the forest boundaries are not established properly, forests are over-cut and re-logged before they are ready. In contrast, the forestry staff and concessionaires often blame the shifting cultivator as the source of forest degradation. This opinion was totally refused by NGOs and university lecturers. They believe that the traditional shifting cultivator does not cause the land degradation. They believe the real culprits are the "unreal cultivators" (proxy farmers who are paid by invisible financiers) because they cut and steal wood from the forest. MOFEC has issued the cutting regulation (Indonesian Selective Cutting and Planting System (TPTI), cutting system with artificial regeneration, and cutting system with natural regeneration), but in practice, control and monitoring aspects need to be improved. The extension of sustainable forest management and certification of ecolabel needs to be expanded. The exact proportion of forest area to the population and level of CO₂ emissions in each country is difficult to be determined, but the effort to reduce the deforestation, introducing the sustainable forest management concept, reducing the GHGs emissions are the positive action for both developed and developing countries.

The concessionaires contribute to the national income, but not to the forest community. The NGOs' opinion tends to defend the community by exposing the negative impacts of concessionaires (communities' limited access to the forest, social conflicts, unsatisfied profit distribution etc.). Conflicts between concessionaires and communities (who live in and around the forest area) also rose in the interviews, especially in the case of land tenure and people's accesses to the forest. The NGOs have a strong commitment to this issue and are unsatisfied by the forest regulation because MOFEC sides with the concessionaires and does not give proper attention to the forest people. The close relation between concessionaires and forestry staff potentially caused: weak forestry staff's control of concessionaires, unfair money practice, etc. On the other hand, related MOFEC personnel tend to emphasize the contribution of concessionaires to the local and national income which will be redistributed to the community.

From the interviews, the respondents could be grouped into categories based on their similar opinions: (a) Group 1 consists of respondents from NGOs, Forest Product Development Research Center and university lecturers, that placed the factor of ecological and sustainability of forest resources as the most important factor in forest management; (b) Group 2 consists of respondents from Regional Forestry Office, District Forestry Office, private concessionaires, and

state owned concessionaires, that knew and understood the forest problems but faced complex factors (such as: forest problems also involving connection between actors and forestry personnel, illegal actors backed up by army etc.); (c) Group 3 consists of respondents from Provincial Forestry Office that has no brief opinion in deforestation and concessionaires' activity in forest utilization; (d) Group 4 consists of respondents from MOFEC that gave positive assessment to the concessionaires' roles.

VI Proposed Programs

From the above interviews and discussions, some proposed programs are:

- (1) Improving the industrial timber estate area in order to increase wood supply.
- (2) Matching the wood supply and capacity of forest industries before issuing licenses to the forest industry.
- (3) Improving the efficiency of wood processing techniques in the forest industry.
- (4) Increasing the Forest Security's role (in number of personnel, salary, and facility) in reducing the number of forest disturbances, particularly for illegal cutting and forest fire.
- (5) Strengthen the control of the wood market to prevent the trade of illegal logs.
- (6) The MOFEC suggested involving the forest communities in the forest management more intensively in order to increase the forest communities' income and improve the control of forest utilization.

VII Conclusions

The main forest problem is the over exploitation of the forest resources by concessionaires due to the huge industry demand for wood. This brings other problems, such as: illegal cutting, deforestation, over cutting, re-logging etc. In general, the MOFEC has the right policy in forest utilization based on a long term (25 years) and 5-year national development plan. Unfortunately, some of the MOFEC policies were not based on accurate data, particularly in the assessment of wood resources. This has raised wood supply problems for forest industries and has had other effects, such as an increase in forest disturbances, conflicts between concessionaires and local communities, and so on. The illegal cutting problem in Indonesia is rampant, so unfair practices (such as: greasy money, strong connection and strong position in government) are the big handicaps for sustainable forest management. The timber estate program (HTI) is an important program for increasing the wood stock and also gives job opportunities to the people. The huge occupancy of forest area by the concessionaires needs to be re-managed, because it often initiates problems within the forest community. Several differences in the forest problems between organizations and groups also need to be harmonized in order to create better forest policies.

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