Socio-Economic and Ecological Assessment of Forest Products Harvesting In Central Aceh and Bener Meriah District Nanggroe Aceh Darussalam – Indonesia''

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INTRODUCTION

Indonesia is a tropical country with a tropical rain forest which is very high in biodiversity. Non-Timber Forest Products serve as one of the forest resources that has comparative superiority and involved the community within the forest. Indonesia is one of the countries in the world facing high rate of deforestation estimated to be 80 000 ha which is equivalent to a rate of 25.88% in 2005. This is as result from forest land being cleared for agricultural and other land use purposes. The aim of this study is to asses the socio-economic, ecological and the real state of forest products harvesting sustainability in the area .

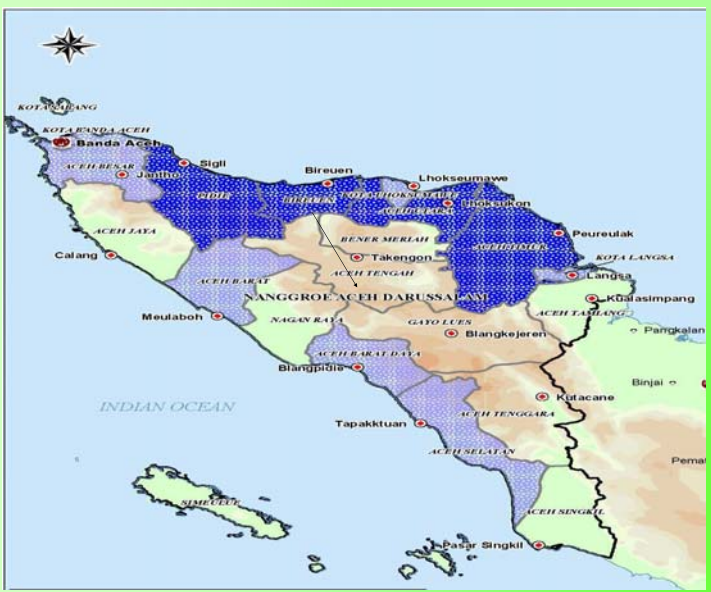


Figure 1: Location of sample plots

MATERIAL AND METHODOLOGY

The study was carried out in two districts ,Central Aceh and Bener Meriah district located in 40 10'' - 40 58" N; 960 18'' - 960 22" E and 40 33' 50" - 40 54' 50" N; 980 40' 75'' - 970 17' 50" E respectively.

Data were collected through a survey mainly on the local communities (harvesters, collectors and distributors) and the logging company by using semi-structured questionnaire.

Total 25 questoinnaires were randomly administered on households located in 10 villages belonging to the two districts Central Aceh and Bener Meriah.

Survey was also carried on Pine species *(Pinus merkusii*) plantation which is mainly produced in Bener Meriah district.

This results were used to determine the contrbution to profit of the logging company and the contributionof the non-timber forest products to the livelihood of the community dwellers

Table 1: Average surplus of forest enterprises (in Rupiahs per m3)

Cost elements	Daily cost/Rp	Daily productivity (m^3)	Cost/m^3 (Rp)
Felling	1,840,000	200 m^3	9,200
Bucking/delimbing	1,840,000	-	9,200
Skidding	3,310,000	60m^3	55,166.67
Loading	3,120,000	167.5m^3	18,626.87
Transportation	11,000000	60m^3	183,333.3
Tax	-	-	3
Sum	-	-	2,140
			277,666.87

Table 2: Average surplus of forest enterprises (in Rupiahs per m3)

Components	cost/m^3
Sales revenue(Pinus merkusii)	475,000
Costs of production(Pinus merkusii)	277,666.87
Contribution to profit	**197,333.13**

RESULTS AND DISCUSSION

The result in table 2 shows that PT.Tusam Hutani Lestari the forest concession company in this region make contribution to profit from the logging activities and also contributed to the welfare of the local people in terms of job opportunity, agroforestry programs and in some other areas.

The result also shows that, Non-Timber forest product is an additional activity that contributes about 25% to the income of the local people in this area and also to every day life. It was also found that, the proportion of NTFPs harvesters is low and species is mainly sold to collectors in Central Aceh and Bireun. Species vulnerability and availability correlate positively. Road conditions and market locations also affect the market of NTFPs.

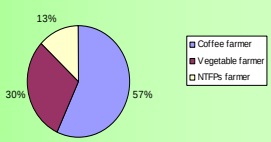
Table 3: Price and distance of NTFPs

Products	Price (Rp/kg)	Distance (km)
Rattan lilin (*Calamus javensis)*	1500	11
Aren (*Arenga pinnata*)	10.000	3.5
Bamboo (*Bambusa* sp)	-	4.2
Gaharu (*Aquilaria* sp)	1.378.000	35
Jernang (*Daemonorops draco)*	542.000	23
Resin (*Pinus merkusii*)	1400	5

Table 4: Evaluation of degree of tolerance to harvest of the six selected species

Factors	*Aquilaria sp*	*Arenga pinnata*	*Bambusa sp*	*Calamus javensis*	*Daemonoropsdraco*	*Pinus merkusii*
Part harvested	*3*	*2*	*3*	*3*	*1*	*2*
Species biology	*3*	*3*	*1*	*2*	*2*	*2*
Harvest techniques	*3*	*2*	*1*	*3*	*2*	*1*
Total	*9*	*7*	*5*	*8*	*5*	*5*

Percentage of farmer's main professional activities



CONCLUSION

•NTFP production Local perception (72%): domestication and commercialization by the local community assisted by NGO.

•State to improve long run production and road networks.

•The future potential species : *Daemonorops spp, Arenga pinnata, Pinus merkusii , Aquilaria spp, need to be managed.*

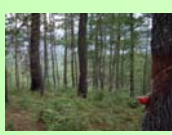
•More attention on environmental aspects in forests harvesting operations

•Improvement of illegal logging monitoring.

The interview exercises

Rotan sega (*Calamus spp*)

Aren (*Arenga pinnata*



Tusam *(Pinus merkus*

Aren (*Arenga pinnata*)

Tusam *(Pinus merkusii)* Bamboo (*Bambusa sp)*

Alen *(Aquilaria sp)*

REFERENCES

•Bener Meriah in Figure, 2004. Statistics of Bener Meriah Regency Collaboration with Regional Development Planning Board of Bener Meriah Regency

•Departemen Kehutanan RI. 1993. Pedoman dan Petunjuk Teknis Tebang Pilih Tanam Indonesia (TPTI) Pada Hutan Alam Daratan. Departemen

•Kehutanan, Direktorat Jenderal Pengusahaan Hutan, Jakarta, Indonesia. 133p.

•*Forestry The Ministry of Forestry and Estate Crops Land Rehabilitation and Social.*The State of bamboo and rattans in Indonesia

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