

Production and Marketing of Local Sawn Timber in Nabire District, Middle Papua Province, IndonesiaYunus Nomba^[1], Wahyudi^{[2]*} and Endra Gunawan^[2]^[1]Forestry Postgraduate Student at Graduate school, University of Papua, Manokwari West Papua, Indonesia (98314)^[2]Department of Forest products Faculty of Forestry University of Papua, Manokwari West Papua, Indonesia (98314)

Abstract. Local sawn timber is a term used to describe the timber produced using chainsaw and circular saw as the main tool and distributed locally for private and public or community utilization purposes. This research highlights the production process, distribution/marketing, and sizes of the local sawn timber produced at Nabire district, the Middle Papua Province. Legal permits to harvest trees from the forest and distribute the local sawn timber are also discussed. The Middle Papua province is a new province officially governed in 2022, where public and private facilities built heavily depend on the local sawn timber for the main material construction here. The results indicate that during 2022, the HTP permits are 97 in total distributed at 6 sub-districts in Nabire district. These cover 194 ha forest areas and allow to harvest timber with volume of 1,940 m³ for single year, and this HTP permit is applied only for the indigenous people or community of Papua. The MTP permits are 23 distributed at 6 sub-districts and marketed for total volume of 7,094 m³, consisting of Merbau, Meranti, Rimba campuran (*mixed species*) and kayu indah (*fancy wood*) timber species groups. The HTP is taking place at the forest site and the MHP is undertaken at the outside forest areas or saw mill site. Merbau is the most harvested timber from the forest under the HTP permit, but Rimba campuran and Meranti are the most abundant timber species distributed and marketed under the MTP permits.

Nabire district had various timber sizes for raw material of the local sawn timber, which is mostly in the form of timber square with 4-meter length with the wide vary from 15-30 cm and the thickness from 10-25 cm. These sizes are different with those produced in Manokwari and Teluk Bintuni districts. However, the local sawn timber in general had similarity in sizes and timber species. In conclusion, the local sawn timber production and distribution in Nabire district at the Middle Papua province are delivered using two different permits, the HTP for harvesting and the MTP for distributions. The raw material of the local sawn timber in this place are from the forest in the form of the timber square beam with vary in their wides and thicks.

Keywords: Local sawn timber, production, demand, Nabire, Middle Papua province

Introduction

Today, Indonesian New Guinea is divided into 6 provinces, consisting of Papua and Papua Barat provinces as the parent province, Papua Tengah, Papua Selatan, Papua Pegunungan and Papua Barat Daya are the four new provinces. Both new provinces and the parents province are heavily relying to timber for building material construction. Timber are still the main option building material both private and public facilities including official government offices (Aronggear et al., 2021). The new provinces have to establish and build a massive infrastructure to accelerate their official services to their people or community.

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Similarly, the private sectors are also encouraging to actively involve in establishing economic activities, various services and housing demands.

Wood is construction material being used from various generation for housing and building due to natural availability, durability and simplicity (Wahyudi et al., 2017). Sawn timber is primary wood products that could be used for various utilization including building material and other wooden products (Wahyudi, 2013). The sawn timber could be used for building material for various infrastructure include to build local community houses, resettlements, government offices, schools, traditional markets, commercial and service shops, health facilities, and others. These infrastructures require a massive supply of sawn timber, which could be supplied from the local swan timber production and supply (Merindakang et al., 2022).

Local sawn timber is different to the sawn timber. The local sawn timber is timber produced and distributed with the main purposes of fulfill local demands of the sawn timber for local development both for private and public demand, and prohibited to be supplied to the secondary wood processing industry or outside Papua province (Kementrian Kehutanan, 2006). Government of Papua had local regulation in producing and marketing the local sawn timber permit, known as Ijin Pemungutan Hasil Hutan Kayu or harvesting timber permit (HTP) and Ijin Penjualan Kayu Olahan or distribution or marketing the local sawn timber permit (MSP) (Permenhut P.55/Menhut-II/2006, 2006; PermenLHK Nomor P.64, 2017).

The sawn timber is generally produced using band saw to obtain maximum lumber recovery and quality of sawn timber produced (Wahyudi et al., 2017). On the other hands, local sawn timber is produced using chain saw as the main tool for cutting down trees in the forest and a generated-diesel circular saw is operated to rip the logs or squares to produce a various sizes of the local sawn timber for different utilization (Wahyudi, 2013).

Permit to collect the trees or logs from the forest and convert the logs into the local sawn timber is a specific permit from the provincial authorities to harvest a limited volume of logs (m^3) and area (ha). This permit has been stated on the previous paragraph and abbreviated for HTP. A single permit is limited for an area of 2 ha, with the maximum volume of the logs of 50 m^3 , and this HTP permit is only valid for one year, not renewable and only for indigenous people or owner of the customary forest (Merindakang et al., 2022).

Another permit for the local sawn timber is permit for marketing and distributing the local sawn timber from the timber shops to the final customer or intermediate customer, mentioned on the previous paragraph and abbreviated as MSP. This permit is valid for 3 years with varying volume capacity from 5000- 10 000 m^3 . Both indigenous and non-indigenous communities are allowable to apply from the official government of Papua Province (Pergub Papua No. 65 2019).

The Middle Papua Province has been officially governed to offer their services starting from 2022 with Nabire district as the capital city. This province is also connected to another new province in the Indonesian New Guinea known as the Papua Pegunungan province. In Papua pegunungan province, the supply for local sawn timber is limited because of the limitation of forest trees or vegetation types, where mountainous forest has different wood species to the low land forest wood species(Wahyudi et al., 2014). Productions and distribution of local sawn timber, permits legality for harvesting and marketing, and timber species diversity are limited at Nabire district in the Middle Papua province, which is supposed to be supplied and traded into the Papua Pegunungan Province. Therefore, this this research was designed to describe the production process of local sawn timber, to determine the distribution chart of local sawn timber mobility from the forest to the customer, to classify the originality of the local timber processed and traded, and to analyses the distribution of the legal permit of local timber productions.

Methods

Research Site and Data Collection

This research is conducted in Nabire district, the capital city of the Middle Papua Province and finished for three months from May-July 2024. In Total 15 sub-districts were visited on the field. Research site and distribution of sub-districts across Nabire district are illustrated in Figure 1.

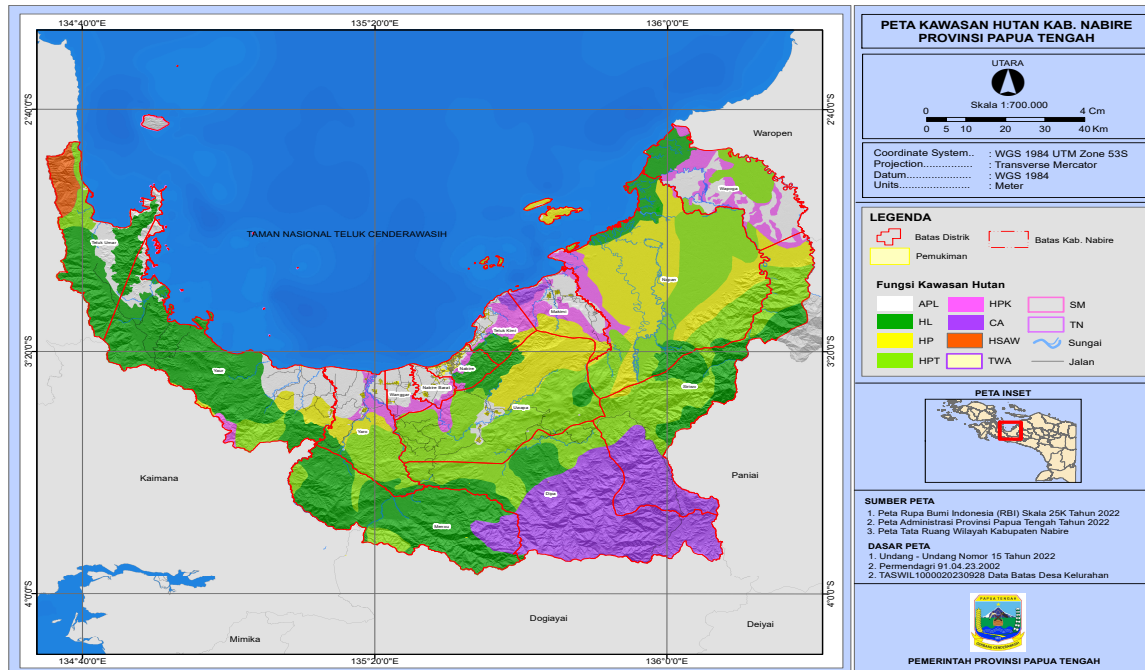


Figure 1. Research site and distribution of the sub-districts at Nabire districts

Data were collected from the field using field survey and interview based on the prepared questionnaires. In total 15 sub-districts across Nabire District in the middle Papua province have been visited and surveyed.

Research Variables

Research variables consist of production of local sawn timber, numbers of permit for both MSP and HTP, dimension or sizes of the local sawn timber, grouping timber species and a flow chart of the local sawn timber distribution and marketing, and dimensions of the sawn timber at the HTP.

Data Analysis

Collected data were analyzed with Microsoft excel, and presented in Table, Figures and histogram.

Results and Discussion

Local Sawn Timber Production

Conversion of timber harvested from the forest and converted into local sawn timber in Nabire districts the Middle Papua province can be described into flow chart illustrated in Figure 2.

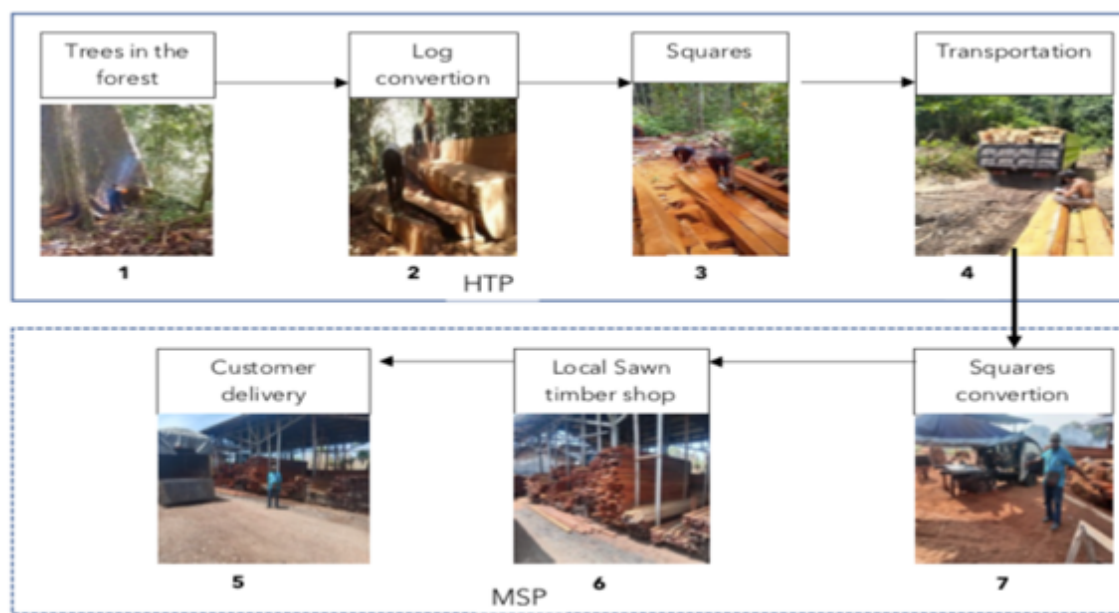


Figure 2. Timber from forest to local sawn timber flow chart

Figure 2 describe that timber production for local Sawn timber in Nabire district at the Middle Papua province can be grouped of activities, belonging to harvesting timber permit (HTP) indicated with non-broken line box and marketing sawn timber permit (MSP) marked with dotted line box.

Activities of the HTP (Figure 1.1-4) begin with the selection of the trees prior for cutting and chain saw is the main tool for felling the trees. This first step is marked as trees in the forest. Log conversion is started from dividing logs into 4 m long parallel to the grain of wood, face opening, ripping again and again using chain saw to produce squares. The squares are loaded into trucks and transported into saw mill to be converted into local sawn timber. Volume for total number of the square, and wood species are recorded in tally sheet for document identity and taxation purposes (Triestini et al., 2020).

The squares are converted into various local sawn timber sizes using mobile circular saw generated with diesel generator and taking place at the MSP, as illustrated by Figure 1.7. The local sawn timber produced are well arranged and stacked under shed rooms and then delivered into the customer. Production of the local sawn timber in Nabire district is different with the local sawn timber in Manokwari region, where the sawn timber are processed in the forest site next to the cutting tree sites (Kuswandi et al., 2019; Merindakang et al., 2022).

In general, the customers are classified into two type, ended-users and intermediate users.

The ended users utilize the local sawn timber as the final wood products for building material of housing, schools, public facilities and so on. On the other hands, the intermediate users use the local sawn timber for raw material to produce other wood products or secondary processing wood products. The local sawn timber produced and distributed in Nabire districts are originally from the logs or trees collected from the tropical rain forest of the surrounding area of Nabire, converted into the squares and finally distributed according to the demand sizes of the local community and customers. This tropical rain forest is classified as Forest allocated for other land use, and Production Forest without any permits, as indicated with white and yellow on Figure 1.

Harvesting Timber Permit (HTP) and Marketing Timber Permit (MTP)

Harvesting timber permit (HTP) is permit or license to harvest and produce the local timber for local demand, not for selling to outside the Indonesian New Guinea island specifically given to the indigenous community with the limitation of 2 hectare with or equal to a maximum volume of 25 m³ of the local sawn timber. This HTP permit is valid for a single year and not for renewable. This permit is officially released by the provincial authority of single submission of integrated services center for permits. The HTP is permit to produce local sawn timber from the timber harvested from the customary forest of the local indigenous community. On the other hands, permit for selling and distributing the local sawn timber to the customer is called Marketing Timber Permit (MTP). Different to the HTP which is only for the indigenous community, the MTP are offered to both Indigenous and non-indigenous community in Nabire districts or other districts at The Middle Papua Province.

Resume for the HTP and the MTP for thirteen sub-districts at Nabire district for year 2022 are summarized and tabulated in Table 1.

Table 1. Resume for the HTP and the MTP located at thirteen sub-districts in Nabire district for year 2022

No	Sub-districts	Numbers of the HTP holders	Total area (ha)	Volume of logs (m ³)	Number of the MTP holders	Volume (m ³)
1	Nabire	-	-	-	10	3,759
2	Napan	-	-	-	-	-
3	Yaur	26	52	580	-	-
4	Uwapa	18	36	360	2	606
5	Wanggar	4	8	80	3	926
6	Siriwo	-	-	-	-	-
7	Makimi	16	32	320	-	-
8	Teluk Umar	-	-	-	-	-
9	Teluk kimi	-	-	-	1	330
10	Yaro	28	56	500	1	100
11	Wapoga	-	-	-	-	-
12	Nabire Barat	5	10	100	6	1,373
13	Kepulauan Moora	-	-	-	-	-
14	Dipa	-	-	-	-	-
15	Menou	-	-	-	-	-
	Total	97	194	1,940	23	7,094

Table 1 in 2022 illustrates that there were 97 numbers of the HTP permits released by the government authority of the Papua province with total area of 194 ha, and distributed at the six sub-districts or 40% of the total for five teen subs-districts. A single permit of the HTP is valid for one year and allowable for 2 hectare of harvesting area in one year. This permit is un renewable and applied only for single year.

Number of the MTP in 2022 in Nabire district at the Middle Province of Papua is 23, and distributed at 40% of the sub-districts (6 of 15 sub-districts) in this province. Total volume of the local sawn timber produced and distributed in Nabire district are 7,094 m³. This volume is higher than the raw material intake of 1,940 m³. With the assumption of 50% lumber recovery rate, it is expected to collect maximum of 970 m³ of local sawn timber. The rests of the local sawn timber are still unclear their originality and species types. Permits for harvesting and

marketing timber in Papua and West Papua Province, both are the parent province, are different with respect to the forest areas and timber volume for a single permit. In West Papua province, permit for the local sawn timber production and distribution (HTP) is covered under single permit (Merindakang et al., 2022), covering 5 ha of forest area and 25 m³ of the local sawn timber limit and valid for one year and cannot be extended (Pergub Papua Barat No. 51, 2018; Pergub Papua Barat No.5, 2014).

Grouping

The local sawn timber in Nabire districts at the Middle Papua Province are harvested and collected from the tropical rain forest, well known as Papuasias tropical rain forest, illustrated in Figure 1. Summary for grouping the local sawn timber in Nabire districts is tabulated in Table 2.

Table 2. Grouping of the local timber species in Nabire district the Middle Papua Province

No	Grouping for Timber species	Volume of the raw material intake and distribution for local sawn timber permits (m3)	
		HTP	DTP
1	Merbau	875	500
2	Meranti	470	2,920
3	Rimba Campuran	570	3,667
4	Kayu Indah	25	7

It is indicated that Merbau is the most harvested species based on the volume of timber (875 m³), followed by Rimba campuran, and Meranti. These for groups apply for Merbau valid solely for Merbau (*Instia* spp), Meranti of 31 timber species, Rimba campuran of 55 timber species, and kayu indah for 35 timber species. Merbau timber species have two species, *Instia bijuga* and *Instia palembanica*, respectively, and supposed their natural distribution mainly in Indonesian new Guinea Island.

The local sawn timber is grouped into four groups, namely Merbau, Meranti, Rimba campuran (*mixed timber*) and kayu indah (*fancy wood*). This grouping or classification is based on the regulation developed by the ministry of forestry (Djarwanto et al., 2017), with the main purposes for taxation of provision natural resources from forest and reforestation fund applied to the commercial permit for harvesting timber species.

Sizes

Sizes or dimension of the local sawn timber produced and marketed in Nabire districts are vary, with respect to their width and thickness but their lengths are standard for 4 meter in length. Summary of the sizes of the local sawn timber produced and marketed in Nabire district Middle Papua province are tabulated in Table 2.

Table 2. Summary of the sizes of the local sawn timber produced and marketed in Nabire district Middle Papua province

No	Sizes (cm) (Length x Width x Thickness)	Grouping species of the local sawn timber				Uses
		Merbau	Meranti	Rimba campuran	Kayu indah	
HTP						
1	400 x 20 x 15	√	√	√	-	Raw material for the
2	400 x 15 x 15	√	√	√	-	
3	400 x 25 x 10	√	√	√	-	

4	400 x 20 x 20	√	√	√	-	local sawn timber
5	400 x 20 x 10	√	√	√	-	
6	400 x 25 x 20	√	√	√	-	
7	400 x 30 x 10	-	√	√	-	
8	400 x 30 x 20	-	√	√	-	
9	400 x 25 x 15	-	√	√	-	
10	400 x 25 x 25	-	√	√	-	
11	400 x 30 x 15	-	√	√	-	
DTP						
1	400 x 10 x 10	√	√	-	-	Building
2	400 x 10 x 5	√	√	√	-	
3	400 x 7 x 5	√	√	√	-	
4	400 x 20 x 2	√	√	√	√	Meuble
5	400 x 30 x 3	√	√	-	√	Meuble
6	400 x 12 x 6	√	√	-	√	Meuble
7	400 x 3 x 2	√	√	√	-	Building
8	300 x 30 x 3	√	√	-	√	Meuble
9	400 x 5 x 5	√	√	√	-	Building
10	400 x 10 x 2	√	√	√	-	
11	400 x 30 x 2	√	√	-	√	Meuble

Timber harvested from the forest under the HTP permit had eleven sizes (Table 2), all sizes had four-meter length with vary in their width and thicknesses. Their widths range from 15 – 30 cm and their thicknesses from 10-25 cm. Trees in the forest are cut off using chain saw manually, bucked into four-meter length and ripped into squares or bulk sizes for raw material of the local sawn timber. The conversion of logs into squares are taking place at the forest, next to the cutting side. The raw materials are then mobilized and collected at the central point to be loaded with human work into the truck and transported to produce the local sawn timber.

The local sawn timber produced had eleven sizes with vary in their length, width, and thicknesses (Table 2). Their differences for thicknesses and width are much clear than those are recorded from the square sizes. The thinnest of the local sawn timber is 2 cm and 10 cm is the thickest. The width, the narrowest size is 3 cm and the widest is 30 cm. these local sawn timbers are used for building material and furniture products.

Various sizes both for timber collected from the forest or the squares for the raw material and the local sawn timber produced and distributed in Nabire at the Middle Papua Province are different to those are produced and distributed in the Papua Barat Province at Manokwari districts (Merindakang et al., 2022), and Teluk Bintuni districts (Marwa & Werimon, 2018).

Conclusion

It is concluded that in 2022, the HTP permits are 97 in total distributed at 6 sub-districts in Nabire district covering 194 ha and harvested timber with volume of 1,940 m³ for single year. This HTP permit is applied for indigenous people or community of Papua only. The MTP permits are 23 distributed at 6 sub-districts and distributed 7,094 m³ in total consisting of Merbau species, Meranti, Rimba campuran (*mixed species*) and kayu indah (*fancy wood*). The HTP is taking place at the forest site and the MHP is undertaken at the saw mill site or outside forest areas. Merbau is the most harvested timber from the forest under the HTP permit, but Rimba campuran and meranti are the most abundance timber species distributed and marketed under the MTP permits.

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