# Potency and Contribution of Non Timber Forest Products in Tabukan Barito Kuala

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## ABSTRACT

Non timber forest product (NTFP) has the potential to improve the welfare of forest communities. This research was conducted to investigate the potency and contribution of NTFP in Tabukan District Batola Regency South Kalimantan Province. To obtain the working map, landsat satellite image from 8 LDCM was overlayed with topography map, spatial map, administration map of Barito Kuala Regency with scale 1:100.000. General survey was conducted in the field and the key person in Forestry Agency in the Regency and District were interwiewed.

It was found that those are 3 villages having NTFPs namely: Tamba Jaya, Rantau Bamban, and Muara Pulau with NTFPs of rattan, honey and grey sedge. To obtain the potency and contribution of those NTFPs, participatory Rural Appraisal was conducted. The study found that the highest potency of NTFP is rattan (Calamus trachycoleus Becc). It was also revealed that the contribution of NTFP to the income of the society was 69.53% and the rest 30.47% were gained from other trading such as paddy and asalabor in palm oil estate.

**Keywords**: Potency, contribution, non timber forest product

## **INTRODUCTION**

Non Timber Forest Product (NTFP) includes all biologic materials other then wood which is resulted from natural forest and can be used for the human being. Included in this group are food, fruits, medicinal plants, oil, resin, sap, latex, tannin, dye, houseplats plants, wildlife, other row materials, and no exception rattan, bamboo, and fiber.

The potency of NTFP is uncertainty known, because the activities of forest utilization by the third parties (private and State-owned enterprises) have been more devoted to the logs for export and world trading. However, NTFP still has important roles in trading activities and employment. The roles and contribution of NTFP are increasingly needed to be assessed for the economy of the community.

The roles and potency of NTFPs increasingly need to be assessed for the economy of society, where the economy has been adapted by the commercialization of village life. When the economic development of the village stalemate, finally people still rely on traditional sector, such as shifting cultivation, hunting, utilization and collecting NTFPs for household or subsistent and trade (Rezekiah, 2006).

The communities living in and around the forest depend most on the forest resources, especially NTFP. For centuries they utilize and manage the forest resources applying local culture to fulfill their needs such as coarbohydrate, protein, vitamine and minerals. Besides, they fulfill with paddy, animal hunting, forest fruits, as well as labor cash money.

Research about the potency of NTFP in Tabukan needs to be done because the society significantly depend on forest resources, whilst the available of forest resources became reduced due to the increasing of population and decreasing of available lands resulted from the policy to change the land use.

The objective of the research was to calculate the magnitude of the potency and contribution of NTFPs in Tabukan; whereas the benefits of this research were as important information in the form of data base to the local government. The information includes types of NTFPs, potency, processing, market outlook, the possibility of exertion as well as its contribution to the society in Tabukan. Besides, the information obtained can provide inspiration in order to policy-making in the future in related to/with regard to the processing of NTFPs, especially in Barito Kuala Region.

## **METHODS**

The research was conducted in Tabukan District Barito Kuala Regency South Kalimantan Province Indonesia.

#### Materials

Materials include Landsat satellite form 8 LDCM. Land Cover Map (BPKH Banjarbaru, 2010). Digitized Topography Map of Barito Kuala, Spatial (RTRW/Region Lay-out Plan?) Map of Barito Kuala, Administration Map of Barito Kuala, Administration Map of Tabukan, and Administration Map of the village samples.

#### Tools

Tools used include equipment associated with field survey as a means of regulating the directions and measuring the objects of the research, such as a compass, a tool positioning a pointthat is Global Positioning System (GPS), a set of questinnaries or a list of questions for interviews with key informants and respondent samples.

#### Implementation

## **Preparation Step**

At this stage, the preparation was done primarily to preparen the materials and equipments used in this study. Interpretation of satellite image Alos Avmir was conducted and in order to get data of land covers/plant covers, it was overlaid with Topography map scale 1:100.000, Region Spatial Map, Administration Map of Barito Kuala, and Administration Map each village. The result of initial interpretation is used to make Working Map and in simplifying assessment of research object in participatory way (Participatory Rural Appraisal). Map of Work contains the vegetation covers, the area function, administrative boundaries, contour lines and other topography elements (roads, rivers, settlements), and plan of inventory lines, if possible (Akhdiyat et.al. 2007).

## **Data Collection Step**

#### **Inventarization of NTFPs**

- Performed sorting map, villeages in the district that have potential use of NTFPs together with relevant agencies especially staff/forestry and industrial agency.
- Visiting the villages sampled to get detail informations about many kinds of NTFPs from the people, as initial guidance.

- Doing Participatory Rural Appraisal (PRA) with the community, for example, in participatory way, mapping of NTFPs potency and make the schedules of its utilization in related areas
- Performed verifivation and documentation by means of field survey in order to confirm the informations obtained from a participatory assessment process and individual interviews (questionnaire)

The collecting of data relating to the form and manner of how the community take advantages of NTFPs was done with the help of questionnaires/checklists and direct interviews with key informants. Besides, it was also undertaken the of the documentation of NTFP objects.

The data collection techniques wwa to conduct a preliminary survey in villages sampled. Furthermore, to make record or inventory number of villages and potential respondents in villages sampled that have relevance to the utilization on NTFPs, then to determine (purposive sample) the villages that would be the examples of research.

## Analyses of NTFP Location

The locations where people acquired/got/ fund of picking NTFPs was analyzed holistically with the basic material in the form of maps created by PRA with the community and the results of field observations was described in the form of sketch map.

## Analyses of the potency of NTFPs

Potency of NTFPs was basically known based on respondent information through PRA studies; however, in certain types of NTFPs, checkinf/field survey was conducted through making sample plots for such tree used for talimbaran, rattan, resin, etc.

The calculations was performed with descriptive statistical analyses which include potency for the everage per hectare or overall potency and its range at a significance level of 95%.

## Analyses of Utilization and Roles of NTFPs

Utilization of NTFPs by the people was analyzed descriptively. This descriptive analyses aimed to describe an object of research based on the facts available (reality), which accompanied by a rational and scientific interpretation. Whilst the presentation was given in the form of table and figures which then made the description and interpretation that are not-statistics.

## **RESULT AND DISCUSSION**

## Utilization of NTFPs by the society

## Rattan

Rattan collection by the community in general has been done for generatios eather subsistence or for trading. The respondents in general have experience in collecting rattan for more than 10 years. The species of rattan found in Tabukan was that kind of Irit Rattan; which the local name is *"Paikat"* or *"pang-ikat"* with the botanical name is *Calamus trachycoleus* Becc.

Irit Rattan grows endemically along the river bank of Barito River in South Kalimantan and Kahayan River in Center of Kalimantan; and has long been cultivated by in Tamba Jaya,

Rantau Bamban dan Muara Pulau. This rattan grows well in swamps, both inundate or uninundate at the sea level of 0 m - 15 m (Januminro, 2000).

The local community in general sells the rattan to the other party who process the rattan ("pengepul') in Banjarmasin. Ususally this kind of rattan is not in the form of finished materials, but semi-finished goods, which was cleaned and dried by the community.

Rattan intensively reared can be harvested after about age 2 or 3 years, with the production of wet rattan is 15 ton ha<sup>-1</sup>; whilst the dry rattan is 6 ton ha<sup>-1</sup> which is ready to sell. The price of rattan in the villages sampled are Rp. 2.000.000 each ton (Rp 2.000 kg<sup>-1</sup>), while the dry rattan is about Rp. 6.500.000 each ton (Rp 6.500 kg<sup>-1</sup>). These prises have not included the wages of cleaning, drying, packing, and shipping of that was Rp. 50.000 per quintal.

# Honey

Harvesting honey was done traditionally. The orders of operations that are to choose anew moon (dark moon), setting up of groups of 2 - 5 people, preparing drive/pile (stairs), and preparing materials. If they are set up, then there was devision of job, and the work was run at the night.

The bee hives were plucked and were put in the buckets and then were brought down by a rope. The next step was to cut or separate the bee hive containing honey and bee pupae. The bee hive then was squeezed in a piece of cloth; and the honey was dripped in a bucket, was filtered and put in a bottle or jerry can.

The honey is to be consumed or mostly sold to raise money. The price was about Rp 120.000 - Rp 130.000 liter<sup>-1</sup>. Saling was made to meddleman by the way of cash payment. Collecting honey was mostly influenced by work time and the risk of working of taking the honey.

# Purun

Purun (rush used for basket weaving) is a leave that has not been intensively developed and economically able to provide income and increase revenue. In South Kalimantan, purun was weaved to make craft of hats, mats, bags, and baskets, as has been done in Harusan Village Hulu Sungai Utara Region (Fatriani, 2010).

The roles of purun in the society, in general it has been used for the family and sold in the market. Usually purun was sold in the kind of mats and row materials with the price of Rp 3.000 each bunch.

Several ways to collect are usually done by cutting the rushes that have been ready to harvest, then cleaning with dust to remove the silicate content in purun skin. Furthermore, purun was rinsed with water, was leaked in standing position, and was dried in the sun. This drying process was vry simple; usually it is put in the open field or on the edge of the road. Dry purun was indentified by the color that is yellowish green or brownish yellow. In order to get better gloss color and faster drying time, according to respondent, it was previously rubbed with rice hush ash. After drying, the rod rushes was tied and flattened with pounder.

# Physical Potency of Locations of NTFPs

Physical potency of the utilization of NTFPs is the potency where the location of NTFP was found/collected which was situated in each administration area of villages sampled. Data collecting of potency of location, as stated in research methods, was conducted with PRA techniques together with village officials and community mapping the location NTFPs in their regions.

The results of data analyses showed that sample villanges of which is the object of research in Tabukan, each have a location or collection of NTFPs in their areas. It is also found that not all the villags has NTFP purun; but all of sample villages have locations of honey collection and rattan. Purun was found in only Muara Pulau Village which is situated on the back of community house. In detail, the potency of the locations of NTFPs collention could be seen in Table 1.

No	NTFP Village	Estimated Area of Non-Timber Forest Product Coverage				
		Rattan	Honey	Purun		
1	Tamba Jaya	48 ha	302,5 liter	None		
2	Rantau Bamban	152,5 ha	291,05 liter	None		
3	Muara Pulau	86 ha	275,88 liter	2100 bunch		

Tabel 1. Information of Potency of Non-Timber Forest Product in Tabukan District

Rattan as a primary commodity of the three villages does have a relatively large potensial. This situation was supported by the location of the three villages which are situated in littoral of Barito River and suitable for rattan habitats. This result of rattan potency was found with PRA calculation together with the rattan farmers of the three villages. On average, each of rattan farmers has an area between 1 - 4 h. Typically, their rattan garden was inherited from their parents and then the manage.





Figure 2. NTFP Purun

Figure 1. Map of Distribution of NTFPs in Tabukan District Barito Kuala Region South Kalimantan Province

Calculation of potency of honey is based on the number of honey they can collect in one harvest time. The season of forest honey harvest usually occurs when the forest trees are flowering. When compared with the amount of collected honeyin Tabukan and with those in Batang Alai and Hantakan Barabai, the honey produced in Tabukan was relatively small. That happened because the number of trees that produced fowers in the three villages in Tabukan relatively small. In Barabai, many types of trees produced flowers because of its location in the highlands, while Tabukan located in coastal area has not too many kinds of trees.

The study found also that in Tamba Jaya and Rantau Bamban there are not lands designated for purun to prepare for craft materials. In general, the purun grows naturally in groups and usually not extensive. Purun was not found in the two villages due to land use change to oil palm plantation. Purun in Muara Pulau grows at the rear of houses.

Potency of purun was calculated based on number of bunches obtained by the people, that is 2100 bunches, where 1 bunch contain of 3 bushes. Each clump has an area of approximately  $1.5 \text{ m}^2$ ; so that, the potential purun in Muara Pulau was about 9450 m<sup>2</sup>.

Distribution of NTFPs in the three villages with their products could be seen in the Figure 1 to Figure 4.





Figure 3. NTFP Rattan

Figure 4. NTFP Honey

## Income, Contribution, and Analyses of NTFPs trade

Income earned from rattan is assessed based on the number of NTFP harvested for each collecting. Rattan can be harvested after 3 - 4 years old. Harvesting is usually done once a year. Yield per hectare was 15 ton wet rattan, if it is through the process of washing and drying then only 6 tons / ha. The farmer sell the wet rattan to the rattan gatherers who do washing and drying processes as weel as packing to sell them to the wholesaler in Banjarmasin. Average area of rattan yard owned by the farmer was 1.41 h in Tamba Jaya; 3.05 h in Rantau Bamban; and 2.15 h in Muara Pulau. The selling price of wet rattan was Rp 1,800 – Rp 2,000 / kg while the price of dry cane was Rp 6,500 / kg. This value is the net income earnednfrom rattan. The average cost incurred in rattan harvesting activites was Rp 270 \_ Rp 300 / kg. The research also found that the average income earned from rattan for each harvest was Rp Rp.24.750.000/respondent in Tamba Jata; Rp.73.557.692/respondent in Ratau Bamban; and Rp.54.825.000/respondent in Muara Pulau.

The contribution of rattan collection to the income of the society entirety was 69.64 %; whilst the spread of cane contributionof Tamba Jaya was about 39.52 %; in Rantau Bamban was85.36 %; and in Muara Pulau 84.03 %. High rattan contribution to the income of the people was supported by the huge potency of the cane. Alhthough the collection rattan from the community was sale in the form of raw materials, it gave quite large contribution. It is expected that rattan was processed into finished goods that have high economic value then could increase revenue for the community and creating jobs.

NTFP-Honey is the forest product obtained by harvesting honey from the forest. According to the repondetns, honey collection can be done for 7 days with the results ranged from 6 - 12 liters each harvest or on an average of 7.04 liter. The average incurred in collection activities of forest honey is Rp 145.000/ day. Processing of forest honey to honey for consumtion or for sale did not require additional processing. The price of honey in local market ranged from Rp 75.000- Rp.100.000 per liter. Average income from NTFP Honey was Rp.627.322. To the total revenue, contribution of honey collection in the whole three villages was only about 0,41%. The contribution of honey was very small due to the small yield of natural honey which is harvested not available I the whole year and the quality was low due to the traditional techniques. The contribution of honey can be increased through the application of modern cultivation which possibly done because there are still feed for the bees. Based on research Rosidah (2011) showed contribution of honey equal to 83%.

Purun mat crafting as source of income was only found in Muara Pulau. There were only 5 craftsman that still doing craft hereditary activities. At this time, interest in the processing purun into handycrafts, especially the mat has decreseed. That is because the people especially the woman prefer to work as laborers in the oil palm plantation. By working as a laborer, they get money faster when compared with processing purun. The research revealed that the price of finished purun mat sole to the collectors coming once a week was Rp 3.800 / piece. Low productivity of purun craftsman cause the income from the crafts activities was very low. In one day, they could just make purun mat as much as 4 - 6 pieces. The contribution of purun craft to the total income of the people was only 0.02 %.

Of the three sectors of NTFPs in Tabukan, it can be said that the cane gave the largest contribution to the society income. The following Table 2 provide recapitulation of average income and contribution earned from NTFPs in Tabukan.

¥7.11	Number of Respondent - (man)	Source of Income (Rp)		Total	Contibution (%)	
Village		NTFP	Other NTFP	( <i>Rp</i> )	NTFP	Other NTFP
Tamba Jaya	15	25.090.000	37.540.000	62.630.000	38,40	61,60
Rantau Bamban	39	73.847.949	12.323.077	86.171.026	85,70	14,30
Muara Pulau	40	55.117.380	10.126.250	65.243.630	84,48	15,52
Average					69,53	30,47

 Table 2. Recapitution of Average Income and Contribution of NTFPsin Tabukan Barito

 Kuala

Overall, NTFPs gave contribution to the people income was 69.53 % and the rest 30.47 % was obtained from the sectors other than NTFPs those were laborers of oilpalm plantation and rice farmers. Comparing to contribution of NTFPs in Hulu Sungai Tengah Region which

has 7 source of NTFPs contribution amounted to 57.92 %, NTFPs of Tabukan District was considered higher. Therefore, it is recommended that NTFPs sector, especially NTFP-rattan could be developed as one of the foreign exchange sources of Barito Kuala Region in particular and South Kalimantan province in general.

#### CONCLUSION

- 1. Potency of NTFP-Rattan in Tabukan District was 286.5 ha; NTFP-Honey was 869.43 liter; and NTFP-Purun was 2100 bunch.
- 2. The contribution of NTFPs to the society income was 69.53% and the rest as much as 30.47% earned from other work such as farmer and laborer of oilpalm plantation.

## RECOMMENDATIONS

Developing of cultivations of NTFP-Rattan, NTFP-Honey, and NTFP-Purun are necessary due to achieve higher economic products, and consequently increase the income of society in Barito Kuala.

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