STRATEGY FOR USING NON-TIMBER FOREST PRODUCTS (NTFPs) IN ATINGGOLA GORONTALO UTARA

Nanang Pango, Marini Susanti Hamidun, Irwan Bempah
Postgraduate Program, Universitas Negeri Gorontalo

ABSTRACT

This research aims to analyze the use of NTFPs and make a strategy for advancing the use of NTFPs among the community in Atinggola Gorontalo Utara. This is quantitative and descriptive qualitative research. Data are collected through questionnaires and in-depth interviews carried out with NTFP farmers affiliated with the Forest Farmers Group (KTH). The analysis method applied in this research is SWOT (Strengths, Weaknesses, Opportunities, and Threats). NTFPs used by the community in Atinggola are palm sugar, honey, durians, and rattan. We figure out the highest use of palm sugar (60%), subsequently followed by honey (17.5%), durians (15%), and rattan (7.5%). Producing honey, durian, and rattan-based products is considered a side job, and accordingly, several farmers demonstrate reluctance in using the NTFPs, especially rattan. The reluctance is triggered by the physical activities and suitable age required to look for rattan. The two causes also affect the quantity of rattan collected from forests. Based on the SWOT matrix-based calculation, the best strategy for using NTFPs in Atinggola is the WO (Weaknesses-Opportunities) strategy at a score of 3.07. Some of the applicable WO strategies are making trade legality of NTFPs, developing NTFP processing tools, conducting capacity building for the human resources concerned, elevating NTFP-based product quality and quantity, amplifying marketing information, and establishing partnerships between farmers and entrepreneurs.

Keywords: *Non-timber Forest Product, Use of Non-timber Forest Product, Strategy for Using Forest Product*

INTRODUCTION

Non-timber Forest Products (NTFPs) are one of the forest resources with comparative advantages and are closely related to the community who live around forests. As such, the Republic of Indonesia Government has issued regulations concerning the use of non-timber forest products. The regulations are Ministry of Environment and Forestry of the Republic of Indonesia Regulation Number P.19/Menhut-II/2009 concerning Strategies for the National Development of Non-timber Forest Products and Ministry of Environment and Forestry of the Republic of Indonesia Regulation Number P.21/Menhut/II/2009 concerning Criteria and Indicators for Determining the Types of Preeminent Non-timber Forest Products. The strategies for the national development of preeminent NTFPs will meet success if well implemented in each region. Therefore, we call for data concerning the regionally preeminent NTFPs from each province and district.

Building on data from the Department of Environment and Forestry Gorontalo Province (2020), predominated NTFPs in Gorontalo are palm sugar, candlenuts, and rattan. Most

of the Gorontalo community are farmers, who cultivate the extant lands, either in the forest areas or outside the areas. One of the regions in Gorontalo Province with relatively abundant forest resources and with a community who is still using NTFPs is Gorontalo Utara, notably in Atinggola.

Among the NTFPs used by the community in Atinggola are palm sugar, resin, durians, agarwood, honey, and rattan. The NTFP management is very modest and greatly anchors on forests. Additionally, the NTFPs are still locally marketed and restricted in number because of certain factors, e.g., farmers' lack of market information and low human resources who are in charge of NTFP management.

The preeminent commodity in Atinggola is palm sugar, which can be used as a food and beverage sweetener. Palm sugar is produced by processing palm sap. This will decrease the water content in the sap and thereby solidifying it. Almost all parts of a sugar palm tree are useful. Its physical parts (roots, trunks, leaves, and palm fibers) and products (sap, starch/flour, and fruits) are imperative. To date, demands on palm sugar-based products are fulfilled by tapping the sap of wild sugar palms. As a consequence, the sugar palm tree population declines quickly as there are no or few replantation activities. Besides, forest exploitation and natural forest area conversion for other purposes accelerate the population decline.

Besides palm sugar, they also use another NTFP, i.e., honey. Honey constitutes a natural ingredient well-known for its sweet taste and produced by bees from which collect nectars or the liquid from parts of living plants. The nectars are collected, transformed, or bound by bees using a certain compound and are stored in their hexagonal nests (Al Fady, 2015). And yet, this honey product is available in a limited amount, which hinges on the market demand.

The community living in Atinggola has founded a forest farmers group under the supervision of the Department of Environment and Forestry, namely the Forest Management Unit (KPH) Region IV Gorontalo Utara. This unit is responsible for forest management in its working area and for being a farmers' counselor who boosts their self-independence in NTFP management. The Forest Management Unit has operated for two years. There are ten groups listed in the data, notably in Atinggola. However, to this day, production is still considered minimum because farmers only rely on forests as well as traditional tools and materials.

This research aims to analyze the use of NTFPs and make a strategy for advancing the use of NTFPs among the community in Atinggola Gorontalo Utara.

METHOD

This is quantitative and descriptive qualitative research. Data are collected through questionnaires and in-depth interviews with 40 NTFP farmers affiliated with the Forest Farmers Group (KTH). The farmers or respondents are collected from six villages. The analysis method in this research is SWOT (Strengths, Weaknesses, Opportunities, and Threats), applied after examining

external and internal factors in NTFP use activities.

RESULTS

A. Use of Non-timber Forest Products (NTFPs) in Atinggola

NTFPs managed and used by farmers in Atinggola are palm sugar (brown sugar) (60%), honey (17.5%), durians (15%), and rattan (7.5%) (Figure 1). The highest production is achieved by the commodity of sugar palms, whose sap is processed into palm sugar, the subdistrict's distinguished product. The high production amount corresponds to the high number of sugar palm trees, which are 22,574, managed by the Forest Farmers Group in Atinggola.

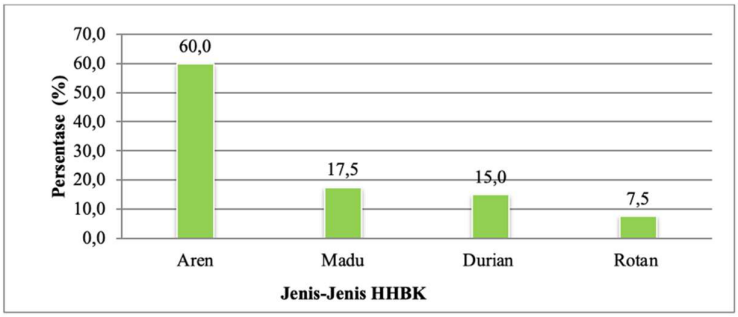

Figure 1. NTFP Percentage in Atinggola

B. Strategy for Using Non-timber Forest Products in Atinggola

1. Result of Internal Factor Evaluation (IFE)

The internal factor evaluation is predicated on respondent responses as regards the rate and weight of internal factors predefined. The result of the internal factor evaluation is exhibited in Table 1.

Table 1. Result of the Internal Factor Evaluation

No.	Strategy's Internal Factors	Weight	Rate	Score
	Strengths			
1	Abundant NTFPs	0.12	3	0.36
2	High demand on NTFPs for consumption	0.11	3	0.33
3	No-preservative products	0.07	3	0.21
4	Durable products	0.07	2	0.14
5	Availability of accessible means of transportation	0.07	2	0.14
Total Score				**1.18**
	Weaknesses			
1	Without-permanent-trademark NTFPs-based products	0.10	3	0.30
2	Inadequate technology, breeding the use of traditional equipment	0.12	3	0.36
3	No good palm sugar business management	0.10	3	0.30
4	Minimum product promoting activities	0.10	3	0.30
5	Local-scale product marketing	0.08	3	0.24
6	Different ranges of the price at the farmer level	0.06	3	0.18
Total Score		**1.00**		**1.52**

Source: Primary data, 2020

2. Result of External Factor Evaluation (EFE)

The external factor evaluation is predicated on respondent responses as regards the rate and weight of external factors predefined. The result of the external factor evaluation is exhibited in Table 2.

Table 2. Result of the External Factor Evaluation

No.	Strategy's External Factors	Weight	Rate	Score
Opportunities				
1	The opportunity for increased income due to NTFPs	0.09	3	0.27
2	Consumers' opportunity for choosing product size based on their needs	0.06	2	0.12
3	Easy access to NTFPs on account of cross-district and province roads	0.08	3	0.24
4	Increased market demands	0.10	3	0.30
5	NTFP marketing through village-owned enterprises/cooperation	0.08	2	0.16
6	Stakeholder/institution engagement	0.10	3	0.30
Total Score				**1.39**
Threats				
1	Low capacity of human resources managing NTFPs	0.10	3	0.30
2	Decreasing resource potentials because of improper plant cultivation	0.11	3	0.33
3	Lessened NTFP prices during a simultaneous harvesting season	0.07	2	0.14
4	Insufficient assistance	0.09	2	0.18
5	NTFP marketing dominated by middlemen	0.12	3	0.31
Total Score		**1.00**		**1.31**

Source: Primary data, 2020

3. SWOT Matrix

The SWOT matrix formulated to determine the strategy for developing the use of NTFPs in Atinggola is indicated in Table 3.

Table 3. SWOT Matrix

IFE / EFE	Strength (S)	Weakness (W)
Opportunity (O)	**SO Strategy** SO = 1.18 + 1.39 SO = 2.57	**WO Strategy** WO = 1.68 + 1.39 WO = 3.07
Threat (T)	**ST Strategy** ST = 1.18 + 1.31 ST = 2.49	**Strategi WT** WT = 1.68 +1.31 WT = 2.99

Source: Primary data, 2020

From the SWOT matrix-based calculation, the highest score, i.e., 3.07, is achieved by the WO strategy. The highest-scored strategy is thus the best strategy for developing the use of NTFPs in Atinggola. The

quadrant model of the SWOT matrix-based analysis is manifested in Figure 2.

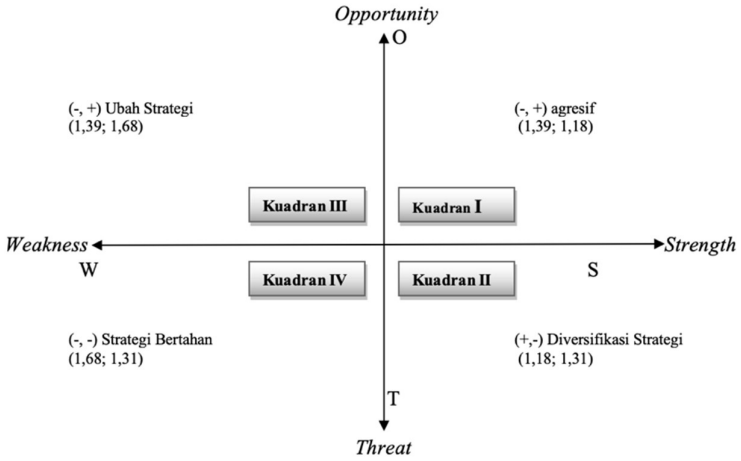

Figure 2. Quadrant Model of the SWOT Matrix-based Analysis

As denoted in Figure 2, the recommended strategy for developing the use of NTFPs in Atinggola is located in Quadrant III or in the 'change the strategy' position. In this position, the strategy for developing the use of NTFPs is implemented by maximizing the opportunities and minimizing the weaknesses. The result of the SWOT matrix-based analysis is pointed out in Table 4.

Table 4. Result of the SWOT Matrix-based Analysis

Internal Factors / **External Factors**	**Strengths (S)**	**Weaknesses (W)**
	- Abundant NTFPs - High demand on NTFPs for consumption - No-preservative products - Durable products - Accessibility	- Without-permanent-trademark NTFPs-based products - Inadequate technology, inducing the use of traditional equipment - No good palm sugar business management - Minimum product promoting activities - Local-scale product marketing - Different ranges of the price at the farmer level
Opportunities (O) - The opportunity for increased income due to NTFPs - Consumers' opportunity for choosing product size	**SO Strategy** - Maintain the quality of the products, particularly of honey and palm sugar - Make a product innovation through the government's roles	**WO Strategy** - Make a trademark by registering products to the National Agency of Drug and Food Control (BPOM) - Develop palm sugar processing tools

- Easy access to NTFPs on account of cross-district and province roads - Increased market demands - NTFP marketing through village-owned enterprises/cooperation - Stakeholder/institution engagement	- Promote the products through online media - Arrange one-stop product marketing through village-owned enterprises/cooperation - Corroborate the partnership with institutions concerned	- Conduct human resource capacity building - Enhance NTFP production quality and quantity - Reinforce marketing information - Build a partnership between the farmers and entrepreneurs
Threats (T) - Low capacity of human resources managing NTFPs - Decreasing resource potentials because of improper plant cultivation - Lessened NTFP prices during a simultaneous harvesting season - Insufficient assistance - NTFP marketing dominated by middlemen	**ST Strategy** - Advance and escalate the quality of the local community as the human resources - Optimize the use of lands by planting seeds on the farmers' lands - Be selective in picking up farmer products - Improve group assistance - Increase regional facilities and infrastructures	**WT Strategy** - Make an annual NTFP potency and distribution inventory - Activate … as one of the avenues to constrain forest product collection - Promote creativity in using NTFPs

Source: Primary data, 2020

DISCUSSION

A. Analyzing the Use of Non-timber Food Products (NTFPs) in Atinggola Gorontalo Utara

1. Palm Sugar

Sugar palms (*Arenga pinnata*) yield one of the NTFP products mostly used by farmers in Atinggola. Palm sugar is produced by processing the sap of sugar palms. Farmers in Atinggola uses approximately 22,574 trees. The sap is tapped from male sugar palms and traditionally processed by the village community into different products, *inter alia*, crystal palm sugar and brown sugar. The material used to make palm sugar is sap. The processing processes are made up of tapping, filtering, cooking, crystalizing, sieving, drying, and packaging.

Based on the result of my direct interview with farmers groups, palm sugar production in Atinggola is more potential than other product production. The use of palm sugar by farmers is 60%. A sugar palm can produce 8-10 liters of sap, whereas the weekly palm sugar production in a one-time harvest is 20-25 kg at IDR60,000/kg. Accordingly, the monthly palm sugar production is 25 tons. Farmers earn different incomes from palm sugar production, affecting their economic elevation.

The amount of palm sugar production rests on the amount of sap tapped/harvested. The amount of sap tapped depends on the weather and will increase during the rainy season.

2. Honey

Honey processing in Atinggola is still conventional. Honey is harvested by 2-3 farmers in the afternoon or at night. A honey producer is considered a side job by the farmers, impacting their monthly income, which as such, depends on the amount of honey they pick up in the forest. One-time harvest yields 6-7 bottles of honey, sold at IDR150,000/bottle. Honey cannot be regularly harvested every month. Rather, the harvesting hinges on the honey availability in the forest. The community in Atinggola uses honey by 15%.

3. Rattan

The use level of rattan by the community in Atinggola is 5%. The community seeks out rattan in groups. Some community members ascribe looking for rattan is their main job. In general, rattan farmers are also corn farmers. Several farmers are unable to pick rattan by virtue of physical condition and age, influencing the quality of rattan collected from the forest. It is aligned with Hidayat et al. (2005), that in Bungo Jambi, the predominating factors which affect the quantity of rattan are health conditions and seasons/weather.

Types of rattan used by farmers in Atinggola are Sulawesi rattan (*Daemonorops robustus Warb*), tahiti rattan (*Calamus inops*), and rattan (*Calamus spp.*). Rattan poised to be harvested presents exclusive characters, i.e., yellow stem, falling leaves, black or blackish yellow thorns, and no-midrib stems. In general, harvesting rattan is difficult for rattan usually grows climbing on large trees and are intertwined with other branches or trees.

Rattan is harvested four times a year, and the average rattan produced in a one-time harvest is 20 kgs at a market price of IDR1,300/kg. In other words, rattan farmers earn IDR26,000,000 at each harvesting. According to the result of my interview with one of the respondents, their annual income is IDR104,000,000 on average.

The minimum use of rattan, brought about by the no use of rattan as a handicraft material among the community, brings on relatively small incomes. Rattan is sold to rattan collectors, causing fluctuated incomes earned by farmers in every harvesting. Gautama (2008) argues that rattan collectors do not process with the rattan sold to them and prefer selling it raw (wet).

4. Durian

Durians are one of the NTFPs which financially contribute to the community in Atinggola. Of 40 respondents, six are durian farmers. The use of durians in Atinggola is 15%.

Based on the result of my interview with the NTFP farmers, durians can be harvested twice a year. The number of durians

cultivated by the farmers is different, in the range of 4-70 trees, which yield 100-150 fruits/tree. Durians are sold at various prices, from IDR5,000-IDR50,000/fruit. On the other hand, some farmers have to sell durians they harvest to durian sellers/collectors nearby at a relatively lower price on the grounds of urgent financial needs and quicker marketing processes.

The productive age span of durians is 50 years. Durians come with great potential owing to their high price. Nevertheless, the farmers find challenges in cultivating the plants and confronting uncertain harvesting times.

B. Strategy for Using Non-timber Forest Products (NTFPs) in Atinggola Gorontalo Utara

1. Make a Trademark for the NTFPs

Making a trademark for the NTFPs, specifically palm sugar and honey, is executed by registering them to the National Agency of Drug and Food Control (BPOM) and registering their PIRT to the Health Office. Additionally, farmers must register for the product halal declaration to the Indonesian Ulema Council (MUI).

2. Develop NTFP Processing Tools

Processing tools with adequate technology can be developed by establishing a collaboration with parties concerned to derive assistance of NTFP product processing tools.

3. Conduct Human Resource Capacity Building

Assistance and counseling targeted for farmers should be held by the local government to enhance the farmers' quality. The NTFP farmers should be afforded assistance, allowing them to manage their NTFPs optimally. More knowledgeable farmers will produce more quality products, escalating the price of palm sugar and honey products and the community economy in general.

4. Enhance NTFP Production Quality and Quantity

Enhancing product quality engenders an increase in farmer income. Good quality must be retained and improved. Good products are the key to confront a business competition. NTFP quality and quantity can be enhanced by conferring capital assistance on farmers in need and technical training, covering how to harvest crops, process the product, and make more appealing product packaging.

5. Reinforce Marketing Information

Good marketing information tells the market condition, and well-informed farmers will be able to make a strategy based on the information. The marketing information delivery can be improved by providing supporting facilities and information and transportation, increasing promoting activities at both provincial and national levels, and performing counseling activities where farmers

will be informed of the forest product market condition.

6. **Build a Partnership between the Farmers and Entrepreneurs**

A partnership between farmers and entrepreneurs is critical for product processing and marketing. Pandelaki (2012) posits that a partnership, especially concerning the market, is crucial and a prioritized strategy for developing the use of NTFPs. A partnership between farmers and entrepreneurs has a great effect on the development of NTFP (palm sugar, honey, durians, and rattan) product marketing. The farmers do not have to market their products but focus on promoting the quality of products sold to entrepreneurs. Meanwhile, entrepreneurs can likewise give positive ideas germane to product processing or marketing to farmers, whose products will be more quality and innovative, and thereby accruing more profits to the farmers and other marketing actors concerned.

CONCLUSION

Four NTFPs used by the community in Atinggola are palm sugar, honey, durians, and rattan. The most NTPF used is palm sugar (60%), followed by honey (17.5%), durians (15%), and rattan (7.5%). Building on the SWOT matrix-based calculation, the strategy for using NTFPs best applied in Atinggola is the WO (Weaknesses-Opportunities) strategy at a score of 3.07. The WO strategies implemented are making a trademark for the NTFPs, developing NTFP processing tools, conducting human resource capacity building, enhancing NTFP quality and quantity, reinforcing marketing information, and building a partnership between farmers and entrepreneurs.

REFERENCES

Anonym, 2010. Rencana Penelitian Integratif (RPI) Tahun 200-2014. Pengelolaan Hasil Hutan Bukan Kayu Non-FEM (Food, Energy, Medicine).

Anonym. 2009. Permenhut RI P.21/Menhut II/2009.

Bank Indonesia. 2009. Pola Pembiayaan Usaha kecil Syariah Gula Aren (Gula Cetak dan Gula Semut. Jakarta: Direktorat Kredit, BPR, dan UMKM.

Choiria Ida, Imam Hanafi, and Mochamad Rozikin, 2015. Pemberdayaan Masyarakat Desa Hutan melalui Lembaga Masyarakat Desa Hutan (LMDH) sebagai Upaya Meningkatkan Pendapatan Masyarakat (Studi pada LMDH Salam Jati Luhur KPH Nganjuk). Jurnal Administrasi Publik (JAP), Vol. 3, No. 12.

Eni, Suhesti *et al*. 2017. Potensi dan Peluang Pengembangan Hasil Hutan Bukan Kayu di KPHP Model Minas Tahura Provinsi Riau. Jurnal Kehutanan. Vol 12. No. 2. Faculty of Forestry. Universitas Lancang Kuning.

Evitalia, N. A. 2015. Strategi Pengembangan Agroindustri Gula Semut Aren. P-ISSN: 1693-5853 E-ISSN: 2407-2524.

Garjita I Putu, Indah Susilowati, and Tri Retnaningsih Soeprobowati, 2014. Strategi Pemberdayaan Masyarakat Kelompok Tani Hutan Ngudi Makmur di Sekitar Kawasan Taman Nasional Gunung Merapi.

Hasana S. Z., Dr. Ir. Yudi Gardina, M. S., Ir. Hervelly, M. P. 2017. Pengaruh Perbandingan Gula Merah Cair dan Nira terhadap Karakteristik Gula Semut (*Palm Sugar*). Article. Universitas Pasundan Bandung.

Indrasari, Desi *et al*. 2017. Pengembangan Potensi Hasil Hutan Bukan Kayu oleh Kelompok Sadar Hutan Lestari Wana Agung di Register 22 Way Waya Kabupaten Lampung Tengah. Jurnal Sylva Lestari. Vol. 5 January (81-91). Department of Forestry Faculty of Agriculture Universitas Lampung. Bandar Lampung.

Januminro. 2000. Rotan Indonesia, Potensi, Budi Daya, Pemungutan, Pengolahan, Standar Mutu, dan Prospek Pengusahaan. Yogyakarta: Kanisius.

Kalima, T. and T. Setyawati. 2003. Analisa Potensi Jenis Rotan Kurang Dikenal di Hutan Berau, Kalimantan Timur.

Langenheim J. H. 2003. Plant Getahs: Chemistry, Evolution, Ecology and Ethnobotany. Timber Press, Portland, Oregon.

Lasut, 2012. Modul Pengolahan Gula Aren. Modul. Collaboration between Faculty of Agriculture Universitas Samratulangi and Texas University A&M. December 2012.

Lempang. 2012. Pohon Aren dan Manfaat Produksinya. Info Teknis EBONI Vol. 9 No. 1, October 2012: 37-54.

Mandang, Irene. 2018. Strategi Pengembangan Hasil Hutan Bukan Kayu di Kawasan Hutan Lindung Gunung Soputan KPHP Unit V Provinsi Sulawesi Utara. Journal. Vol. 14. No. 3. September 2018:1-16. Unsrat.

Minh, N. P. 2014. Technical factors influencing to durian (*Durio zibethinus Murr*) wine fermentation. IJMRD. 1(5):66-70.

Ministry of Environment and Forestry Number P.6 2010 concerning Norms, Standards, Procedures, and Criteria.

Molyneux, P. 2004. The Use of Stable Free Radical Diphenylpicrylhydrazyl (DPPH) for Estimating Antioxidant Activity. Songklanakarin J. Sci. Technol.

Moko, H. 2008. Menggalakkan hasil hutan bukan kayu sebagai produk unggulan. Informasi Teknis Balai Besar Penelitian Bioteknologi dan Pemuliaan Tanaman Hutan, 6(2), 1–5.

Muh. Tang, Adam Malik, and Abdul Hapid. 2019. Pemanfaatan Hasil Hutan Bukan Kayu (HHBK) Bambu oleh Masyarakat Terasing (Suku Lauje) di Desa Anggasan Kecamatan Dondo Kabupaten Tolitoli. Department of Forestry Faculty of Forestry Universitas Tadulako.

Muhdi. 2008. Prospek, Pemasaran Hasil Hutan Bukan Kayu Rotan.

Pandelaki, L. 2012. Strategi Pengembangan Budidaya Rumput Laut di Pulau Nain Kabupaten Minahasa Utara. Jurnal Perikanan dan Kelautan Tropis Vol. VIII-2, August 2012:52-57. Faculty of Fisheries and Marine Science Universitas Sam Ratulangi. Manado.

Prihatman, K. 2000. Durian (*Bombaceae sp*.). Ministry of Research Technology and Higher Education. Jakarta.

Pramono, E. 2002. The Traditional Use of Traditional Knowledge and Medicinal Plants in Indonesia. Multi-stakeholder Dialogue on Trade, Intellectual Property, and Biological Resources in Asia, BRAC Centre for Development Management, Rajendrapur, Bangladesh.

Prayitno, T.A. Peningkatan Nilai Tambah Hasil Hutan Bukan Kayu melalui Pendekatan Teknologi.

Prihartini, I. and Tedjo. 2004. Pemanfaatan ekstraktor dlam upaya peningkatan produksi dan kualitas pangan madu di kelompok peternak madu KPH Tumpang. Jurnal Edukasi. Vol. (2):49-57.

Rachman B. 2009. Karakteristik Petani dan Pemasaran Gula Aren di Banten. Forum Penelitian Agro Ekonomi.Volume 27 No. 1 pp.53-60, July 2009.

Rangkuti, F. 2009. Teknik Membedah Kasus Bisnis, Reorientasi Konsep Prencanaan Strategis untuk Menghadapi Abad 21. Jakarta: PT Gramedia Pustaka Tama.

Researcher Team Faculty of Forestry. 2015. Potensi Hasil Hutan Bukan Kayu di Areal IUPHHK-Ha PT Utama Damai Indah Timber. Universitas Mulawarman, Samarinda.

Reski, N. A, Yusran Yusran, and Makkarennu, 2017. Rancangan Pemberdayaan Masyarakat pada Pengelolaan Hutan Kemasyarakatan (HKM) Desa Pacekke, Kecamatan Soppeng Riaja, Kabupaten Barru, Sulawesi Selatan. Jurnal Hutan dan Masyarakat. Vol. 9(1):37-43. ISSN:1907-5316.

Ruslan, S. M., Baharuddin, and Ira, T. 2018. Potensi dan Pemanfaatan Tanaman Aren (*Arenga Pinnata*) dengan Pola Agroforestri di Desa Palakka, Kecamatan Barru, Kabupaten Barru. Jurnal Perennial. 14(01):24-27.

Safitri, Nurfadila. 2019. Pemberdayaan Masyarakat dalam Pengelolaan Aren di Desa Dulamayo Selatan Kecamatan Telaga Kabupaten Gorontalo (Studi Kasus pada Masyarakat Sekitar Hutan Lindung di Desa Dulamayo Selatan). UNG. Gorontalo.

Salaka, F. J., Nugroho, B., and Nurrochmat, D. R. (2012). Strategi kebijakan pemasaran hasil hutan bukan kayu di Kabupaten Seram Bagian Barat, Provinsi Maluku. Jurnal Analisis Kebijakan Kehutanan, 9(1), 50–65.

Sidu, D. 2010. Model Pemberdayaan Masyarakat Sekitar Kawasan Hutan Lindung Jompi Kabupaten Muna, Provinsi Sulawesi Tenggara. ISSN: 1907-5626.

Statistics Indonesia. 2018. Kecaman Atinggola dalam Angka 2018. Gorontalo Utara. Gorontalo.

Statistics Indonesia. 2019. Kecaman Atinggola dalam Angka 2019. Gorontalo Utara. Gorontalo.

Statistics Indonesia. 2020. Kecaman Atinggola dalam Angka 2020. Gorontalo Utara. Gorontalo.

Sudarmalik, Y., Rochmayanto, and Purnomo. 2006. Peranan Beberapa HHBK di Riau dan Sumatera Barat. Proceeding. NTFP Seminar. Riau.

Torres-Rojo, J. M., Moreno-Sánchez, R., Martín, and Mendoza-Briseño, A. 2016. Sustainable Forest Management in Mexico. Curr Forestry Rep. 2:93–105.

Wahana Lingkungan Hidup Indonesia (WALHI). 2004. DEPPERINDAG Memiskinkan Petani Rotan: Pelarangan Ekspor Rotan Mentah Hanya Akan Rugikan Petani.

Wijayanto Hari, Agus Suryono, and Tjahjanulin Domai. 2014. Perencanaan Pemberdayaan Masyarakat Sekitar Hutan melalui Aneka Usaha Kehutanan (Studi di Dinas Kehutanan Kabupaten Malang). Jurnal Hutan Tropis. Vol. 2 No. 1. Faculty of Administrative Science Universitas Brawijaya. Malang.

Wibowo, Gatot Dwi Hendro. 2013. Analisis Kebijakan Pengelolaan Hasil Hutan Bukan Kayu (HHBK) di NTB dan NTT. Jurnal Hukum dan Pembangunan Tahun ke-43 No. 2 April-Juni 2013. Retrieved 2 March 2018 at 4.57 p.m.

Zuliana, C., Endrika Widyastuti, Wahono Hadi Susanto. 2016. Pembuatan Gula Semut Kelapa (Kajian pH Gula Kelapa dan Konsentrasi Natrium Bikarbonat). Jurnal Pangan dan Agroindustri Vol. 4 No 1 pp.109-119, January.