Jurnal Natur Indonesia
23(1), April 2025: 16-21

p-ISSN 1410-9379
e-ISSN 2503-0345

Utilization and Contribution of Non-Timber Forest Products to the Community Economy in Sentajo Protected Forest

Pemanfaatan dan Kontribusi Hasil Hutan Bukan Kayu terhadap Perekonomian Masyarakat di Hutan Lindung Sentajo

Nur Suhada[*1], Sonia Somadona[1], Akbar Alldhu Dilas[1]
[1]Department of Forestry, Faculty of Agriculture, Universitas Riau, Pekanbaru 28293 Indonesia
*Correspondent Author: nursuhada@lecturer.unri.ac.id

ABSTRACT

The potential of Non-Timber Forest Products (NTFPs), in general has not been optimally utilized. The processing of NTFPs for the people of Koto Sentajo Village is still not the primary source of income for the community but is part of fulfilling daily living needs. This study aims to determine the types of NTFP utilization and their contribution to the economy of the community in Koto Sentajo Village. This study uses a qualitative descriptive approach, and primary data were collected through observation and in-depth interviews using purposive sampling techniques. Data were analyzed quantitatively. The results of this study found that the types of NTFPs utilized by the people of Koto Sentajo Village are fruits and medicinal plants; the types of fruits are keranji (*Dialium indum*), tampui (*Baccaurea macrocarpa*), geruntang (*Phoebe grandis*), cempedak (*Artocarpus fretessii*), forest durian (*Durio zibethinus*), kulim (*Scrodocarpus borneensis*), petai (*Parkia speciosa*), and barangan (*Castanopsis argentea*). In contrast, the types of medicinal plants most widely utilized are sepico (*Eurycoma longifolia* Jack) and rosam (*Dicranopteris linearis*). The contribution of NTFPs to the people's economy in Koto Sentajo Village is 5.6% of the total income of the community, or around IDR 1,519,851/person/year, to the average total income of IDR 26,983,265/person/year.

Keywords: Utilization of non-timber forest products, Contribution economy, Protected forests

ABSTRAK

Potensi Hasil Hutan Bukan Kayu secara umum belum banyak dimanfaatkan secara optimal. Pengolahan HHBK bagi masyarakat Desa Koto Sentajo saat ini masih belum menjadi sumber pendapatan utama bagi masyarakat, namun menjadi bagian dari pemenuhan kebutuhan hidup sehari-hari. Penelitian ini bertujuan untuk mengetahui jenis pemanfaatan HHBK dan kontribusinya terhadap perekonomian masyarakat di Desa Koto Sentajo. Penelitian ini menggunakan pendekatan deskriptif kualitatif, data primer dikumpulkan melalui observasi dan wawancara mendalam dengan teknik purposive sampling. Data dianalisis secara kuantitatif. Hasil penelitian ini menemukan bahwa jenis HHBK yang dimanfaatkan oleh masyarakat Desa Koto Sentajo adalah buah-buahan dan tanaman obat, adapun jenis buah-buahan seperti keranji (Dialium indum), tampui (Baccaurea macrocarpa), geruntang *(Phoebe grandis)*, cempedak *(Artocarpus fretessii)*, durian hutan *(Durio zibethinus)*, kulim *(Scrodocarpus borneensis)*, petai *(Parkia speciosa)*, dan barangan *(Castanopsis argentea)*, sedangkan jenis tanaman obat yang paling banyak dimanfaatkan adalah sepico *(Eurycoma longifolia jack)* dan rosam *(Dicranopteris linearis)*. Kontribusi HHBK terhadap perekonomian masyarakat di Desa Koto Sentajo sebesar 5,6% dari total pendapatan masyarakat atau sekitar Rp. 1.519.851/org/tahun terhadap total pendapatan rata-rata sebesar Rp. 26.983.265/org/tahun.

Kata Kunci: Pemanfaatan hasil hutan bukan kayu, Kontribusi ekonomi, Hutan lindung

Received: 20 January 2025
Accepted: 4 March 2025

INTRODUCTION

Non-Timber Forest Products (NTFPs) play an important socio-economic and environmental role. NTFPs include non-timber products such as fruits, medicinal plants, resins, and animal products that communities have relied upon for centuries. Recent studies emphasize the potential of NTFPs to enhance community income and reduce deforestation by promoting sustainable extraction practices (Suhada et al., 2019; Insusanty et al., 2017). Despite their importance, NTFPs remain underutilized in many regions, partly due to limited market integration and inadequate value-addition processes (Erpino et al., 2019). NTFPs contribute significantly to poverty alleviation and food security, especially in rural areas (Derebe et al., 2023). However, challenges such as lack of awareness, insufficient processing facilities, and weak policy support hinder their optimal utilization. This context underscores the need for targeted studies to explore the economic and conservation potential of NTFPs in underrepresented areas such as the Sentajo Protected Forest.

One of the primary issues surrounding NTFPs in the Sentajo Protected Forest is their underutilization. Despite their abundance, these resources contribute minimally to local economies, with most activities focusing on subsistence consumption rather than commercial exploitation. The community of Koto Sentajo relies heavily on agriculture, and while NTFPs are occasionally harvested, they are seldom processed or marketed effectively. This limited utilization restricts their potential as a sustainable income source, leaving communities vulnerable to economic instability and resource degradation. Studies show that integrating knowledge and networks using technology and business-oriented approaches can significantly increase the economic viability of NTFPs (Weiss et al., 2020). Policies incentivizing conservation and providing infrastructure for small-scale industries could further bridge the gap between subsistence use and commercial development.

Sulistyawati et al. (2012) highlighted the role of agroforestry practices in improving the yield and quality of NTFPs such as bamboo and rattan. These solutions underscore the importance of empowering local communities through capacity-building programs and ensuring equitable access to resources. The adoption of sustainable harvesting techniques and the establishment of processing facilities are also crucial. Studies by Wanderi et al. (2019) point to the benefits of small-scale enterprises that transform raw NTFPs into value-added products. Despite these advancements, a significant research gap remains in understanding how these solutions can be adapted to contexts like the Sentajo Protected Forest. Existing literature often generalizes findings without accounting for local socio-economic and ecological conditions.

This study aims to address these gaps by focusing on the utilization and economic contribution of NTFPs in the Sentajo Protected Forest, particularly in Koto Sentajo. The novelty of this research lies in its integrative approach, combining field-based observations with participatory methods to provide a comprehensive analysis. By identifying the barriers to optimal NTFP use and proposing actionable strategies, the study contributes to both academic knowledge and practical solutions. The scope includes an in-depth assessment of NTFP types, usage patterns, and their role in local livelihoods, offering insights into sustainable management practices tailored to the region's unique context.

MATERIALS AND METHOD

Time and place of research

This research was conducted in Koto Sentajo Village, Sentajo Raya District, Kuantan Singingi Regency, and this research was conducted in August - September 2024. The research map is shown in Figure 1.

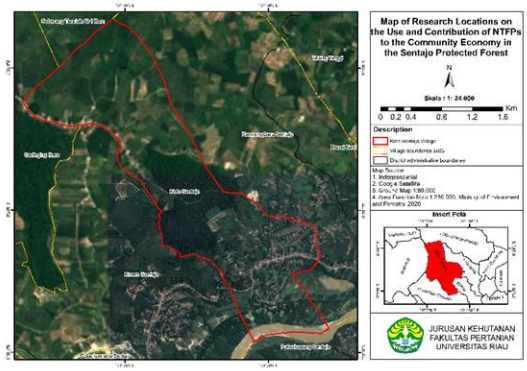

Figure 1. Research location

Method of collecting data

This study used a qualitative descriptive approach, and primary data were collected through observation and in-depth interviews using purposive sampling techniques. This study used a mixed-method approach, combining quantitative and qualitative methodologies to comprehensively understand NTFP utilization and its economic implications. This study adopted a descriptive survey design to capture the socio-economic characteristics of the community, the types of NTFPs utilized, and their contribution to household income. Structured interviews, field observations, and secondary data review were used to triangulate the findings and ensure data validity. The sample size was determined using the Slovin formula to obtain statistical representation (Nalendra et al., 2021). With a population of 482 households, a margin of error of 15% was applied, resulting in a sample size of 41 households. This approach balances the need for robust data and practical feasibility.

Data analysis

Data analysis was conducted after interviews and observations were conducted, while the data analysis used was quantitative to obtain the contribution of NTFPs to the community's economy. The formula for calculating the economic value of NTFPs using the market price approach with the formula is as follows:

$$\mathbf{Ev = v \times i \times p \times n}$$

Information:

Ev : Economic value of NTFPs
V : Average volume of NTFPs per harvest
i : Harvesting frequency per year
p : Average market price per unit
n : Number of harvesters NTFPs

The formula for calculating the contribution of HHBK to the community economy according to Affandi & Patana in Zega et al. (2013) can be calculated as follows:

$$\text{Contribution} = \frac{\text{Income from NTFPs}}{\text{Total Income}} \times 100\%$$

Information:

Income from NTFPs = Total economic value of all types of NTFPs products
Total income = Total income from and outside NTFPs.

RESULT AND DISCUSSION

General situation of the research location

Koto Sentajo Village is in Riau Province, Kuantan Singingi Regency, Sentajo Raya District. Geographically and geoeconomically, this village is located in the central route of Sumatra Island and the southern part of Riau Province. Topographically, Koto Sentajo Village has a variety of areas, including lowland areas, undulating hills, and high hills, with most of its location being undulating hills with an altitude of between 30 and 150 meters above sea level. According to recorded data, Koto Sentajo Village has a population of around 1,634 people with 482 heads of families (KK). The residents of this village come from various ethnic groups, including the Malay Tribe, Petopang, Paliang, and Caniago. The people of Koto Sentajo Village have good relations with existing ethnic groups. In terms of managing regional potential, Koto Sentajo Village has various potentials, such as rubber farming, rice fields, vegetable plantations, and livestock.

Respondent characteristics

According to Gusti et al. (2021), age can influence a person's decision, and age can also be a factor in the success of farming activities. The age characteristics of 41 respondents in Koto Sentajo village are presented in (Table 1). Table 1 shows that the age group of respondents who utilize NTFPs most dominantly in Koto Sentajo village is the 31-40-year age group with 12 respondents. Respondents aged 31-40 (29.29%) are more dominant because in collecting NTFPs, people need to walk far, and the load they carry is quite heavy, so the age of 31-40 is included in the productive working age. Mandang et al. (2020) stated that age class affects a person's ability to carry out activities or skills in land management. This shows that when people are of productive age, they will have a better ability to utilize NTFPs.

Education is a process that increases a person's knowledge. The last level of formal education undertaken, such as elementary school, junior high school, high school, and college, reflects the level that the individual has taken. Education significantly influences a person's thinking and mindset (Gusti et al., 2021). The respondents'

level of education in this study can be presented in (Table 2).

Table 1. Age of respondents

Age (years)	Number (people)	Percentage (%)
17-30	6	14,63
31-40	12	29,29
41-50	7	17,07
51-60	7	17,07
61-70	6	14,63
>70	3	7,31
Total	41	100,00

Table 2. Respondent's education level

Education level	Number (people)	Percentage (%)
No School	1	2,43
Elementary School	12	29,29
Junior High School	10	24,39
Senior High School	15	36,58
Bachelor's Degree	3	7,31
Total	41	100,00

Table 2 shows that the dominant level of education of respondents in the village is generally high school level, with as many as 15 (36.58%) respondents. This shows that in Koto Sentajo village, the level of education is classified as moderate, so the people of Koto Sentajo village have not been able to optimize the use of HHBK. Insusanty et al. (2017) stated that a moderate level of education will influence the perspective and habits in managing and utilizing forest products.

Work is a demand of life to meet all household needs because humans need food, clothing, and other things to live. The following is the composition of each respondent's main and side jobs, which can be seen in (Table 3).

Table 3. Type of work

Main job type	Side job	Number (people)	Percentage (%)
Farmers	-	26	63,41
PNS	Farmers	3	7,31
Entrepreneur	Farmers	7	17,07
Private	Farmers	5	12,21
Total		41	100,00

Based on Table 3, it can be seen that the respondents who work as farmers are 26 (63.41%). This is because working as a farmer is a hereditary job, and working as a farmer gives you much free time to utilize HHBK compared to other jobs. The work of farmers is also relied on as the primary source of income for the people of Koto Sentajo village, so that work as farmers is more dominant. In accordance with what Dahar & Fatmawati (2016) said, generally, people who work as farmers from generation to generation make agriculture a way of life, so they are used to it and find it difficult to switch from agriculture.

The number of family members will contribute to agricultural activities. The number of family members involved in NTFP utilization activities is presented in (Table 4).

Table 4. Number of family members

Number of Family Members	Number (people)	Percentage (%)
1-3	27	65,87
4-6	12	29,26
>7	2	4,87
Total	41	100,00

Table 4 shows that the number of family members involved in agricultural activities generally has the most dominant number of members, ranging from 1 - 3 people (65.87%). The Koto Sentajo village community typically utilizes NTFPs in groups of 3 to 4 people, so the results are more significant. The number of family members involved in agricultural activities will affect the level of income and expenditure of farmers (Zega et al., 2013).

Types of NTFP Utilization

NTFPs are natural resources still abundant in Indonesia and are widely used as a livelihood, especially by local communities living around the forest. NTFPs are widely used by the community to meet their daily needs.

The types of NTFPs utilized by the community in Koto Sentajo Village can be seen in (Table 5).

Table 5. Types of NTFP Utilization

No	Local name	Scientific name	Number (people)	Part utilized
1	Keranji	*Dialium indum*	14	Fruit
2	Tampui	*Baccaurea macrocarpa*	30	Fruit
3	Geruntang	*phoebe*	32	Fruit
4	Cempedak hutan	*Artocarpus fretessii*	35	Fruit
5	Durian hutan	*Durio zibethinus*	6	Fruit
6	Kulim	*Scrodocarpus borneensis*	7	Fruit
7	Petai	*Parkia speciosa*	19	Fruit
8	Berangan	*Castanopsis argentea*	11	Fruit

Table 5 shows that the types and utilization of NTFPs by the community in Koto Sentajo village are in the form of fruits. Fruits utilized by the community include Keranji, Tampui, Geruntang, Cempedak Hutan, Durian Hutan, Kulim, Petai, and Barangan. Cempedak Hutan is the fruit most utilized by the community, as many as 35 people; this is because cempedak fruit is easy to find and can be processed first into food that can add flavour so that people can sell it to improve the economy, while durian Hutan fruit is the least utilized by the community as many as six people this is because people have to walk further into the forest to pick the fruit. Utilization of NTFPs has an effect on forest protection in a sustainable form (Mahonya et al., 2019)

Utilization of medicinal plants

Medicinal plants are one part of NTFPs. Traditional community healing practices are closely related to local culture. The diversity of types of traditional medicinal plants has developed through a socialization process carried out from generation to generation and is believed to be confirmed by the community (Rusminah, 2015). The types of medicinal plants utilized by the community in Koto Sentajo Village can be seen in (Table 6).

Table 6. Medicinal plants

No	Local name	Scientific name	Number (people)	Part Utilized
1	Sepico	*Eurycoma longifolia jack*	33	Root
2	Rosam	*Dicranopteris linearis*	20	Leaf
3	Ribu-ribu hitam	*Dyospyros buxifolia*	15	Leaf
4	Ribu-ribu putih	*Anisophyllea distica*	10	Leaf
5	Akar Kalimponal	*Bauhinia acuminata*	8	Root
6	Kunyik rimbo	*Curcuma* sp.	12	Fruit
7	Kaladi rimbo	*Alocasia* sp.	7	Fruit
8	Kanduduak batino	*Clidemea hirta Don*	18	Leaf
9	Kanduduak jantan	*Melastomata malabathricum*	8	Leaf
10	Salinkonai	*Locipodium cernuum*	13	Leaf
11	Jariangau rimbo	*Alpinia* sp.	5	Stem
12	Kalimuntiang	*Rhodomytrus tomentosa*	9	Fruit
13	Sirih rimbo	*Clidenia* sp.	13	Leaf
14	Sirih akar	*Clidenia* sp.	6	Leaf
15	Daun sikiliar	*Euphorbia hirta* L	7	Leaf
16	Kunyik bolai rimbo	*Curcuma* sp.	9	Fruit
17	Kunyik putiah	*Curcuma* sp.	11	Fruit
18	Akar sitobal	*(not qualification)*	4	Root
19	Lingkue rimbo	*Alpinia* sp.	14	Fruit
20	Ilalang	*Imperata cylindrica*	5	Root
21	Akar sijangek	*Spatholobus perugineus*	3	Root
22	Inai hutan	*Pyeomela* sp.	8	Leaf

Based on Table 6, it is known that the most dominant medicinal plants utilized by the community are sepico as many as 33 people; this is because, according to the local community, sepico is a medicinal plant that has many benefits, such as being able to increase stamina and cure several diseases, while the least utilized is sijangek root as many as three people this is because the medicinal plant is difficult to find. Various parts of plants, such as roots, stems, leaves, and fruits, can be used as medicine. In addition to the cost, the community also uses these medicinal plants if medicines from hospitals or pharmacies cannot cure the disease, so people use traditional medicines to cure the disease. This is in line with the opinion of Hidayat et al. (2012), who states that people tend to choose traditional medicine using medicinal plants when sick because it is considered easier, faster, and more affordable, and it is believed to cure various diseases.

Types and seasons of utilization

Based on the results of data collection through interviews with respondents, several types of NTFPs utilized by the people of Koto Sentajo Village for sale and personal consumption are Keranji, Tampui, Garuntang, Cempedak Hutan, Durian Hutan, Kulim, Petai, and Barangan. The types of NTFPs and their utilization seasons in Koto Sentajo Village are presented in (Table 7).

Table 7. Type and season of use

Type of NTFPs	Jan	Feb	Mar	Apr	Mei	Jul	Jun	Agt	Sep	Okt	Nov	Des
Keranji			■	■								
Tampui		■	■									
Geruntang			■	■								
Cempedak	■	■										
Durian hutan											■	■
Kulim	■	■										
Petai								■	■			
Barangan			■	■								

Based on Table 7, it is known that the people of Koto Sentajo Village utilize NTFPs in certain seasons. NTFPs are also not utilized every month because the fruit season of each tree is different. Different types of plants have different flowering times and intensities influenced by the type of plant and the environment, such as rainfall, humidity, temperature, day length, and sunlight (Sulistyawati et al. 2012).

Variety of utilization of HHBK

The community in Koto Sentajo Village utilizes NTFPs for various purposes, including for personal use or not for sale (subsistence), for sale (commercial), and individual needs and at the same time for purchase (subsistence and commercial), the utilization is to gain profit from the sale of NTFPs. The variety of Utilization of NTFPs by the community in Koto Sentajo Village is presented in (Figure 2).

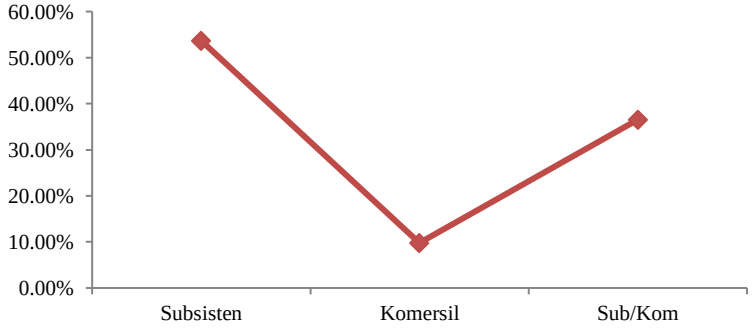

Figure 2. Variety of utilization

Based on Figure 2, it is known that the variety of utilization of NTFPs in Koto Sentajo Village, which has the highest percentage is in subsistence utilization or for personal needs as much as 53.65%, while for subsistence and commercial, it is 36.58%, while the least is commercial or for sale as much as 9.77%. Many people use NTFPs for personal consumption, not for sale, and people only sell the HHBK. If it is excessive and sufficient for personal consumption, then the community sells it to make a profit.

Contribution of NTFPs and community economy

The economic value calculated from the utilization of NTFPs by the Koto Sentajo Village community is the utilization of NTFPs traded by the community. NTFPs utilized by the Koto Sentajo Village community are generally types of fruits traded, including Keranji, Tampui, Geruntang, Cempedak Hutan, Durian Hutan, Kulim, Petai, and Barangan.

Table 8. Economic value

No	Type of NTFPS	v (Unit) kg	I (years)	p (IDR) /Kg	n (people)	Ev (IDR/years)	Average people/years
1	Keranji	3,5	1,21	90.000	14	5.336.100	381,150.
2	Tampui	10,3	1,50	15.000	30	6.952.500	231,750
3	Geruntang	7,63	1,28	20.000	32	6.250.496	195.328
4	Cempedakhutan	23,3	1,24	20.000	35	20.224.400	577.840
5	Durian Hutan	10	1,17	25.000	6	1.755.000	292.500
6	Kulim	2	1,14	10.000	7	159.600	22.800
7	Petai	12,84	1,21	70.000	19	20.663.412	1.087.548
8	Barangan	6,5	1,36	10.000	11	972.400.	88.400
	Total					62.313.908	1.519.851

The economic value generated from each type of plant varies and depends on the type of plant planted (Wanderi et al., 2019). Table 8 shows that the economic value generated from using NTFPs in Koto Sentajo Village is IDR 62,313,908/year or 1,519,851/person/year. This is less supportive of the community's economy, so the community has a livelihood other than that of NTFPs to meet their living needs. Respondents' work outside of NTFPs is expected to earn more income so that farmers can meet their living needs. Non NTFPs income obtained by the community in Koto Sentajo Village can be seen in (Table 9).

Table 9. Non-NTFs Income

Income Type	Income (IDR/years)	Income average (IDR/years)
Farmers no NTFPs	516.000.000.00	19.846.153.00
Government employees	108.000.000.00	36.000.000.00
Entrepreneur	252.000.000.00	36.000.000.00
Private	168.000.000.00	33.600.000.00
Total	1.044.000.000.00	25.463.414.00

Based on Table 9, it is known that the total income of the community is 1,044,000,000.00/year or IDR 25,463,414.00/family/year. Non-HHBK income is obtained from non-HHBK agricultural products, civil servants, entrepreneurs, and the private sector. The largest average income is from entrepreneurs and civil servants, IDR 36,000,000/year. At the same time, the smallest income is obtained from non-HHBK farmers, such as rubber and rice, which is IDR 19,846,153/year. In line with Burhanuddin (2021), farmer income sources outside of HHBK are from agriculture/plantations, livestock, and other sectors.

The contribution of NTFPs to the community economy is divided into two: income obtained from NTFPs and income from non-NTFP sources. The amount of NTFP contribution to respondents' income illustrates the level of dependence and utilization of respondents on NTFPs (Chairan & Aidar, 2018). The results of calculating the contribution of NTFPs to the community economy in Koto Sentajo Village are presented in Table 10.

Table 10. Contribution of NTFPs

Type of Income	Income (IDR/years)	Income average (IDR/person/year)	Percentage (%)
NTFPs	62.313.908	1.519.851	5,6
Non NTFPs	1.044.000.000.	25.463.414.	94,50
Total	1.106.313.908	26.983.265	100.

Based on Table 10, it is known that the contribution of non-NTFP income is much greater than that of NTFP income. The average NTFPs income in a year is IDR 1,519,851/person/year, around 5.6% of the total average income of IDR 26,983,265/person/year. In contrast, the average annual non-NTFPs income is IDR 25,463,414/person/year or around 94.40%. Based on the comparison between the two sources of income, it can be concluded that the contribution of income from the utilization of NTFPs is still very low. Based on the results of interviews with respondents, this is because the community only utilizes NTFPs once or twice during the fruit season in a year, so the value generated from the utilization of NTFPs is very small. This indicates that the community dependence and utilization of NTFPs in Koto Sentajo Village is still low. In accordance with the opinion of Chairin & Aidar (2018), the more significant the contribution of NTFPs to the respondent's income, the higher the level of the respondent's dependence on the NTFPs.

CONCLUSION

The conclusion of this study includes the types of NTFPs used by the people of Koto Sentajo Village, which are fruits and medicinal plants. In contrast, the community utilizes fruits such as keranji, tampui, geruntang, cempedak, forest durian, kulim, petai, and barangan for personal needs or to make a profit. The use of NTFPs of

medicinal plants that the people of Koto Sentajo Village most widely utilized are sepico and rosam, which have many benefits, such as increasing stamina and curing various diseases. NTFPs contribute to the economy of Koto Sentajo Village by 5.6% or around IDR 1,519,851/person/year against an average total income of IDR 26,983,265/person/year.

REFERENCES

Burhanuddin, B.S., 2021. *Kontribusi Hasil Hutan Bukan Kayu (HHBK) di Hutan Kemasyarakatan (HKm) terhadap pendapatan masyarakat desa kapita Kecamatan Bangkala Kabupaten Jeneponto.* Makassar. Universitas Muhammadiyah Makassar.

Chairan, C., Aidar, N., 2018. Kontribusi hasil hutan bukan kayu terhadap pendapatan masyarakat (Studi Kasus Desa Panton Pawoh). *Jurnal Ilmiah Mahasiswa,* 3(3): 131-132.

Dahar, D., Fatmawati, F., 2016. Analisis sosial ekonomi masyarakat petani Kecamatan Randangan Kabupaten Pohuwato. *Jurnal Ilmiah Ilmu Ekonomi,* 5(9): 55-67.

Derebe, B., Alemu, A., Asfaw, Z., 2023. Contribution of nontimber forest products earn to livelihood in rural households and the type of use: a systematic review. *International Journal of Forestry Research*, 2023(1), p.9643290.

Erpino, E., Sribudiani, E., Yoza, D., 2019. Pemahaman masyarakat Desa Koto Sentajo Terhadap keberadaan hutan lindung Sentajo Raya Kabupaten Kuantan Singingi Provinsi Riau. *Jurnal Ilmu-Ilmu Kehutanan,* 3(2): 1-2.

Gusti, G., Gayari, G., Prasetyo, P., 2021. Pengaruh umur, tingkat pendidikan dan lama bertani terhadap pengetahuan petani mengenai manfaat dan cara penggunaan kartu tani di Kecamatan Parakan. *Jurnal Litbang,* 19(2): 209-221.

Hidayat, K., 2016. Analisis pengaruh nilai pelanggan terhadap kepuasan pelanggan dan dampaknya pada loyalitas pelanggan (Survei pada pengguna sepeda motor Honda Vario all variant di service center Honda AHASS Sukma Motor Jalan Sigura-gura Barat Kota Malang). *Jurnal Administrasi Bisnis*, 39(1): 81-89.

Insusanty, E., Tri, A.R., Akbar, A.M., 2017. Nilai ekonomi buah-buahan sebagai hasil hutan bukan kayu di Desa Kampung Tengah Kecamatan Mempura Kabupaten Siak. *Jurnal Ilmiah Ekonomi dan Bisnis*, 14(1): 97-98.

Mahonya, S., Shackleton, C.M., Schreckenberg, K., 2019. Non-timber forest product use and market chains along a deforestation gradient in southwest Malawi. *Frontiers in Forests and Global Change*, *2*, 71.

Mandang, M., Mex, F.L.S, Olly, E.H.L., 2020. Karakteristik petani berlahan sempit di Desa Tolok Kecamatan Tompaso. *Agri-Sosio Ekonomi*, 16(1):105-114.

Nalendra, A.R.A., Rosalinah, Y., Priadi, A., Subroti, I., Rahayuningsih, R., Lestari, R., Kusamandari, S., Yuliasari, R., Astuti, D., Latumahina, J., Purnomo, M.W., Zede, V.A., 2021. *Statistika seri dasar dengan SPSS.* CV Media Sains Indonesia. Bandung.

Rusminah, R., 2015. Studi etnobotani tumbuhan obat pada masyarakat suku Mandar di Desa Sarude Sarjo Kabupaten Mamuju Utara Sulawesi Barat. *Jurnal Biocebeles*, 9(1): 225-234

Suhada, N., Kartodihardjo, H., Darusman, D., 2019. The effectiveness of policy implementation of Sultan Syarif Hasyim Forest Park in Riau Province. *Media Konservasi Journal,* 24(1): 77-84.

Sulistyawati, E., Mashita, N., Setiawan, N.N., Choesin, D.N., Suryana, P., 2012. Flowering and fruiting phenology of tree species in mount papandayan nature reserve, West Java, Indonesia. *Tropical Life Sciences Research*, *23*(2):81.

Wanderi, W. Qurniati, R., Kaskoyo, H., 2019. Kontribusi tanaman agroforestri terhadap pendapatan dan kesejahteraan petani. *Jurnal Sylva Lestari*. 7(1):118-127.

Weiss, G., Emery, M.R., Corradini, G., Živojinović, I., 2020. New values of non-wood forest products. *Forests*, 11(2):165.

Zega, S.B., Purwoko, A., Martial, T., 2013. Analisis pengelolaan HKm dan kontibusinya terhadap perekonomian masyarakat. *Jurnal Bidang Kehutanan,* 2(2): 152-162