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The impact of conservation partnership on increasing community welfare at the Gunung Masigit Kareumbi Hunting Park (GMKHP)

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ABSTRACT

In conservation areas throughout Indonesia, there are at least 1.8 million hectares of open land in the form of damaged or degraded ecosystems following encroachment on conservation areas by local communities. Addressing this, the government of Indonesia has introduced a conservation partnership policy issued in 2018, namely the Director General of KSDAE Regulation No. P.6/KSDAE/SET/Kum.1/6/2018 concerning Technical Guidelines for Conservation Partnerships in Nature Reserves and Nature Conservation Areas. The objective of this study was to identify and analyze the impact of conservation partnerships on improving the welfare of the community in the Gunung Masigit Kareumbi Hunting Park (GMKHP). The research was conducted within the GMKHP area, with the samples taken from the community of Forest Farmer Groups (KTH) in the villages of Pelita Asih, Jaya Mekar, Sunda Mekar, Cikadu, Sukajaya, and Kaduwulung. The approach used in this study is qualitative. Data were collected by questionnaire survey, interviews, observations, and documentation in the field. Based on the results of the study, it is known that the production of pine resin tapping carried out by KTH members is as much as 29,033 kg/month or an average of 323 kg/person per month. This activity has an impact on increasing the income of KTH members by 170%, i.e. from their initial average income of Rp. 853,778 per month to become Rp. 2,307,278/month for each member. Additionally, there are also contributing funds to the neighborhood and social welfare coordinated by cooperatives, such as assistance for the poor and orphans, village treasury income, BUMDes (Village Enterprise) capital, wages for reading Qoran teachers, mosque maintenance, etc.

ABSTRAK

Di kawasan konservasi di seluruh Indonesia, setidaknya terdapat 1,8 juta hektar lahan terbuka berupa ekosistem yang rusak atau terdegradasi akibat perambahan kawasan konservasi oleh masyarakat setempat. Menyikapi hal tersebut, pemerintah Indonesia telah mengeluarkan kebijakan kemitraan konservasi yang dikeluarkan pada tahun 2018, yaitu Peraturan Dirjen KSDAE No. P.6/KSDAE/SET/Kum.1/6/2018 tentang Pedoman Teknis Kemitraan Konservasi di Cagar Alam dan Kawasan Konservasi Alam. Penelitian ini bertujuan untuk mengidentifikasi dan menganalisis dampak kemitraan konservasi terhadap peningkatan kesejahteraan masyarakat di kawasan Taman Buru Gunung Masigit Kareumbi (GMKHP). Penelitian dilakukan di dalam kawasan GMKHP, dengan sampel masyarakat Kelompok Tani Hutan (KTH) di Desa Pelita Asih, Jaya Mekar, Sunda Mekar, Cikadu, Sukajaya, dan Kaduwulung. Pendekatan yang digunakan dalam penelitian ini adalah kualitatif. Pengumpulan data dilakukan dengan survei kuesioner, wawancara, observasi, dan dokumentasi di lapangan. Berdasarkan hasil penelitian diketahui bahwa produksi penyadapan getah pinus yang dilakukan oleh anggota KTH sebanyak 29.033 kg/bulan atau rata-rata 323 kg/orang per bulan. Kegiatan ini berdampak pada peningkatan pendapatan anggota KTH sebesar 170%, yaitu dari pendapatan rata-rata awal mereka sebesar Rp. 853.778 per bulan menjadi Rp. 2.307.278/bulan untuk setiap anggota. Selain itu, juga ada kontribusi dana untuk kesejahteraan lingkungan sekitar dan sosial yang dikoordinasikan oleh koperasi, seperti bantuan untuk fakir miskin dan anak yatim, pendapatan kas desa, modal BUMDes (Badan Usaha Milik Desa), upah guru membaca Al-Qur'an, pemeliharaan masjid, dll.

Keywords: *conservation partnership, granting access, hunting park, income, pine tree resin*

INTRODUCTION

Historically, there has been a very high dependence of most Indonesians on the surrounding forests. Thus, the management of forest areas cannot be separated from their livelihoods (Pramesti et al., 2020). Economic development is crucial to improving the livelihood of the local communities around the park area (Panderi et al., 2022), so that the surrounding communities can support the preservation of conservation areas.

Gunung Masigit Kareumbi Hunting Park (GMKHP) was gazetted as a hunting park by the Decree of Ministry of Agriculture No. 29/Kpts/Um/5/1976 on May 15, 1976. Then, it was designated as a hunting park through the Decree of the Minister of Forestry No. 298/Kpts-II/98 on 27 February 1998 covering an area of 12,420.70 hectares. It is located in three regencies, namely Bandung Regency, Sumedang Regency, and

Garut Regency. Most of the area is in Sumedang and Garut. The area is a conservation forest that is designated for tourism forest, but it can also be used for hunting activities while still paying attention to the local community's welfare.

Government Regulation (PP) No. 108/2015 concerning Amendments to PP No. 28/2011 concerning Management of Nature Reserve Areas (KSA) and Nature Conservation Areas (KPA) mandates that the government, provincial governments, and district/city governments must empower communities around KSA and KPA to improve their welfare. The empowerment of the community is carried out, among others, through the provision of access to traditional uses in traditional KPA zones/blocks and capacity building. Furthermore, referring to the provisions of Ministry of Environment and Forestry Regulation No. P.43/Menlhk/Setjen/Kum.1/6/2017 concerning Community Empowerment Around KSA and KPA, it is explained that the granting of access to traditional uses includes collection of non-timber forest products (NTFPs), limited traditional cultivation, traditional hunting is limited to unprotected species, and limited use of aquatic resources to unprotected species.

Access to these traditional uses is given to communities/villages around the conservation area (buffer zone) whose historically their livelihoods are highly dependent on the traditional resource zones/blocks of conservation areas. More detailed arrangements regarding the management of conservation partnerships in KSA and KPA areas are regulated in the Regulation of the Director General of Natural Resources and Ecosystem Conservation (KSDAE) number: P.6/KSDAE/SET/Kum.1/6/2018. However, it is necessary to know the knowledge and understanding of the community about the conservation area before the partnership is implemented so that the relationship and communication between the conservation area manager and the community can be managed properly (Priatna et al. (2022). Regulation of the Director General of KSDAE Number: P.2/KSDAE/SET/Kum.1/2/2019 concerning Amendments to the Regulation of the Director General of KSDAE No. P.6/KSDAE/SET/Kum.1/6/2018 concerning Technical Guidelines for Conservation Partnerships in Nature Reserve Areas and Nature Conservation Areas. According to Rochaedi et al. (2021), the conservation partnership programme is a new policy from the Indonesia's Ministry of Environment and Forestry which aims to reduce conflicts due to forest land use in conservation areas in the country.

Since the introduction of granting access to traditional zones/blocks policy in 2015 to 2020, there have been ± 230,977.87 hectares of conservation areas that granted to the community. The granting access was done through a cooperation agreement scheme between management units at the site level and community groups. There are at least 10,857 the community involved in this scheme.

Since 2018 there have been 11 Forest Farmer Groups (KTH) from 8 villages domiciled around GMKHP. It spread over 2 (two) regencies and 5 (five) sub-districts, namely in Sumedang Regency (South Sumedang, Situraja, Cisitu, and Cibugel Sub-districts) and Garut (Selaawi Sub-district). The KTH have been given access to collect pine resin from within the GMKHP area, as a community empowerment programme carried out by the management of GMKHP (Zulvianita, 2019). Of course, the granting of access for pine tree sap collection above will have an impact on the welfare of the people involved.

The objective of this study to determine and analyze how far the impact of conservation partnerships is on increasing pine resin production in the GMKHP area. The study also assesses whether farmers who are members of KTH and have cooperation agreement on pine resin collection have experienced an increase in income.

METHODS

The research was carried out at the Gunung Masigit Kareumbi Hunting Park (GMKHP), East and West Kareumbi Resort Work Area, Bandung Region III Conservation Section, Regional II Soreang Conservation Division, Natural Resources Conservation Agency of West Java (BBKSDA Jawa Barat, 2013). The research assessed the Forest Farmer Groups (KTH) which already has a conservation partnership with the BBKSDA Jawa Barat (2017) covering Sunda Mekar Village (Cisitu Sub-district), Jaya Mekar Village (Cibugel Sub-district), Cikadu and Kaduwulung Villages (Situraja Sub-district) in Bandung Regency, as well as Sukajaya Village (South Sumedang Sub-district) in Sumedang Regency, and Pelita Asih Village (Selaawi Sub-district) in Garut Regency (**Figure 1**). The study was conducted from February to May 2021.

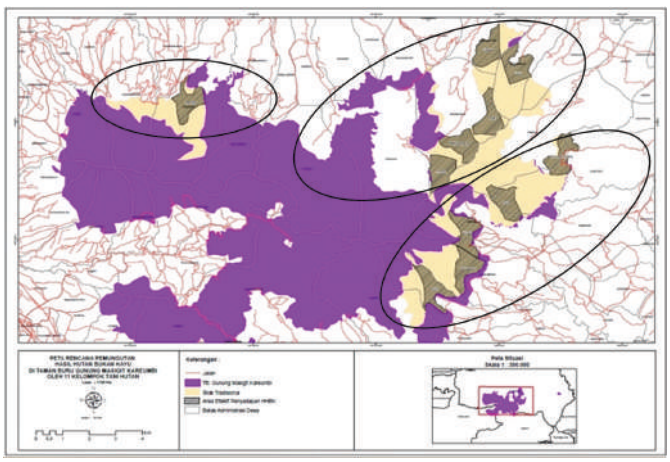

Figure 1. Distribution of research sites in the villages within GMKHP in Bandung, Sumedang, and Garut Regencies, West Java.

Data Collection

The sampling technique used was cluster sampling and purposive sampling. Cluster sampling is used when the elements of the population are geographically dispersed, making it difficult to construct a sampling frame (Kuncoro, 2013). The respondent's determination technique uses purposive sampling (purposed sample). This technique is a deliberate sampling in accordance with the required sample requirements, for example related to properties, characteristics, criteria, and so on. Respondents in the study were Forest Farmer Groups (KTH) members who already had agreement on harvesting pine resin NTFPs. The number of respondents for each cluster is thirty people so that the total number of respondents from KTH members is ninety people. To strengthen the results, interviews were conducted. An interview is a conversation with a specific purpose carried out by two parties, namely the interviewer who asks the question and the interviewee who provides the answer to the question (Moleong, 2010).

In this study, researchers used semi-structured interviews. This type of interview requires the interviewer to make a framework and outline the formulated points that do not need to be questioned sequentially (Moleong, 2010). Researchers used semi-structured interviews (in-depth interviews) using an interview guide that was principally then questions were developed along or while asking after the informant answered. This technique will give an interactive interview took place between the researcher and the informant. Interviews were conducted while being recorded so that the data obtained could be reconfirmed. In the interview technique, the researcher comes and deals directly with the respondent, or the subject being studied. Respondents interviewed in this study were directly involved in the implementation of conservation partnerships, including Section Heads, Resort Heads, Village Heads, Group Chairpersons of Cooperatives and KTH Members representing each research cluster.

Data Analysis

According to Sugiyono (2010), data analysis procedure techniques is a process of finding data, systematically compiling data obtained from interviews, field notes, and documentation, by organizing data into categories, breaking down into units, conducting synthesis, compiling into a pattern choosing which ones are important and which will be studied, and making conclusions so that they are easily understood by themselves and others. The data analysis used in this research is inductive data analysis. Inductive data analysis is drawing conclusions that depart from specific facts, to then draw general conclusions.

The steps of data analysis in this study are data collection such as searching, recording, and collecting everything objectively and as it is in accordance with the results of observations and interviews in the field, namely recording data and various forms of data that exist in the field and data reduction. Sugiyono (2010) explains that reducing data means summarizing, choosing the main data, focusing on the important data, looking for themes and patterns and removing unnecessary things. Data display according to Amailes & Huberman (in Sugiyono, 2010) is the most frequently used to present data in qualitative research is by text and narrative and conclusion and verification Sugiyono (2010).

Data Validity Check

A data is valid if it has four criteria as stated by Moleong (2010), namely credibility, transferability, dependability, and confirmability. In this qualitative research, the researchers use triangulation to check the validity of the data/test the credibility of the data. After the researchers got the data, whether it was interview data, documentation data, or observation data, they triangulated sources. Threangulate data is work by comparing data obtained through interviews with informants. We compare interview data between informants with one another and compare the interview data with the documentation that has been collected.

RESULTS AND DISCUSSION

The granting of access to NTFP collection for pine resin provided by the West Java's Natural Resources Conservation Agency (BBKSDA Jawa Barat) to the Forest Farmer Groups (KTH). The lisence is in the form of a conservation partnership cooperation. It is a formal legal access that provides legal certainty of the right to collect pine resin (NTFPs) for local communities within the traditional block of the GMKHP area. Especially, it will provide certainty of area they work on. The development of conservation partnerships between the Technical Implementation Units of the Ministry of Environment and Forestry and the community is carried out through a bottom-up, persuasive and collaborative approach (Rochaedi et al., 2021)

Impact on Pine Tree Sap Productions

The conservation partnership in the area has emerging pine sap production activities by the Forest Farmer Groups (KTH) members who collect pine resin. The members of the KTH under the legal umbrella of cooperation get certainty in cultivating the land that has been determined by each KTH chairman. The granting of access to KTH will certainly have an impact on pine resin production. Prior to the conservation partnership, pine resin tapping was never taken. Even if it was taken by the community, it was taken secretly from the hunting

park management because they realized that the activity of tapping pine resin was illegal.

In Figure 2, there are 8 percent of respondents from the KTH members carried out pine resin collection activities prior to the conservation partnership, while 92 percent of respondents from the KTH members stated that they had not tapped prior to the conservation partnership. Judging from the history of its management, the activities of collecting pine resin in GMKHP have gone through a long journey. The area previously managed by the West Java Forestry Service, Perum Perhutani and now by the West Java's BBKSDA Agency.

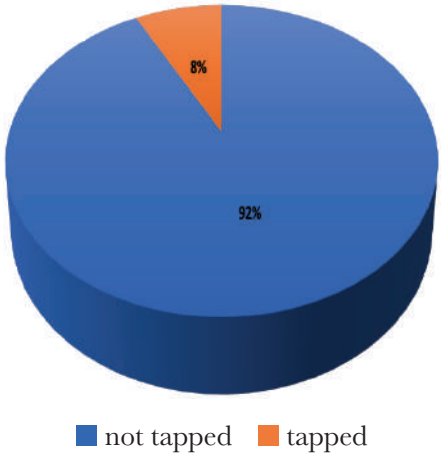

Figure 2. Percentage of community members who have tapped (orange) and have not tapped pine (blue) resin prior to the existence of the conservation partnership programme (Source: Primary data analyzed in 2021).

The collection of pine resin carried out by the KTH used the quarre method. Soetomo (in Huda, 2011) and Lempang (2018), stated that there are three tapping systems used in tapping pine resin: 1. The quarre system; 2. Drill system; 3. American system (ritser system). This quarre system originates from France and is the simplest method of tapping among other systems (Wibowo, 2006). According to Perangin-angin (2014), so far the quarre method or known as the *koakan* method is the most used for pine resin tapping (**Figure 3**). The advantages of this method are that it is easy and inexpensive to implement.

Tapping the sap begins with cleaning the bark of the tree trunk that will be tapped, followed by a "quarre" activity with a tool called a "koak/kadukul". The bark of the pine tree is scraped off gradually until the sap drips, the size of the scraps is quite diverse, the average size is ± 10 cm wide, 20-30 cm high and about 1-6 cm deep. The sap that comes out is channeled through the gutters. The installation of the gutters is attached to the bottom edge of the koakan and nailed on both sides. The gutter measures 10 cm x 5 cm with a curved shape made of zinc to help drain the sap into small coconut shells to accommodate the pine resin. Koakan renewal is done every 3 days once the length of the koakan is 3 cm. Pine sap collection under normal conditions is carried out twice a month. Coconut shells/shells containing pine resin are put in a plastic bucket container to be collected at the Gum Shelter in each KTH.

Pine sap production is influenced by several factors, including tree type, tree diameter, age of the stand, number of coaxes and place of growth. According to Hutabalian et al. (2015), the larger the diameter, the greater the production of latex produced. On the contrary, the smaller the diameter, the less production of latex is produced (Mampi et al., 2018). The altitude where the pine tree grows will affect the production of sap. The higher the place of growth, the sap will clot, and the flow of sap will be hampered (Prasetya, 2017) . It was due to low air temperature and the intensity of sunlight, so that sap production decreases (Rochidayat and Sukawi in Setyowiharto, 2008).

Figure 3. (a) quarre (*koakan*) method, (b) pine resin, and (c) shelter for resin collections.

Table 1. Total pine resin production collected by the each Forest Farmer Groups (KTH) (Source: Primary data analyzed in 2021).

No.	Name of KTH	N of Respondents	Size of Area (ha)	N of Trees	N of Days	Production (kg)
1	Nanggewer	10	20	9.200	28	3.480
2	Cibubut	10	15	3.880	28	3.161
3	Gordi	10	24	5.700	28	4.660
4	Datar Tepus	10	18	7.940	28	3.500
5	Simpay Wargi	10	14	7.450	28	3.170
6	Ciukir	10	13	3.510	28	2.000
7	Cikekes	10	15	4.650	28	3.170
8	Pojok	10	16	8.410	28	3.292
9	Sawargi	10	19	5.700	28	2.600
	Total	**90**	**154**	**56.440**		**29.033**

Sofyan (1999 in Listyandari, 2009), the production of pine sap is not only affected by the altitude, but also by the age of the tree. The older a pine tree, the higher the sap production. The old stands of *Pinus merkusii* tend to produce more sap than the young ones. Doan (2007) stated that the rainfall will affect the humidity around the tapping wound. High rainfall will cause the humidity around the tapping wound to be high and this can cause the sap to clot quickly. The results of the production of pine resin taps carried out by KTH members presented in Table 1.

In Table 1, it can be seen that, the total production of tapped pine resin by KTH member respondents was 29,033 Kg. On average, 323 Kg/person in one month (two harvests) with 56,440 pine trees or an average of 627 trees/person. People residing in an area of 154 hectares. Judging from the results above, there has been an increase in the production of tapped pine resin by members. Prior to the conservation partnership, they were only able to produce 1,230 kg of latex tapping per month.

Impact on Increase in Income

Conservation partnerships also mean providing additional employment and income opportunities for local communities who are members of the KTH (Sugianto et al., 2017; Susilo & Nairobi, 2019). Most of the people's main occupations before joining the conservation partnership programme were farmers/ cultivators, odd laborers, small tradesmen, and unemployed.

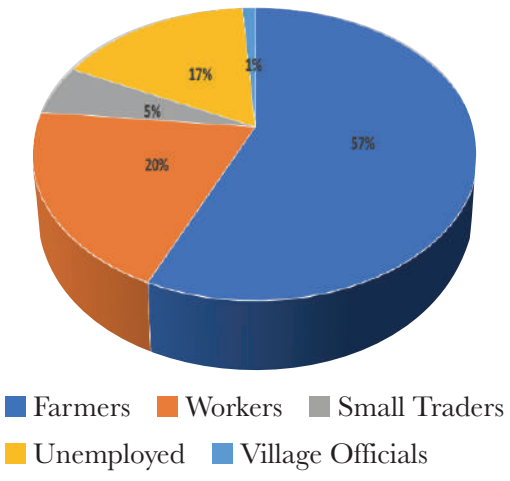

Figure 4. Percentage of Forest Farmer Groups (KTH) members main occupation: farmers (blue), workers (orange), small traders (grey), unemployed (yellow), and village officials (light blue) (Source: Primary data analyzed in 2021).

Figure 4 explains that most of main occupation of KTH members, apart from tapping pine sap, is as farmers/cultivators as much as 57 percent. There are farmers who work on their own land or land owned by others with a profit-sharing system. Apart from that, there are also KTH members who are working on the ex-Cultivation Right (HGU) area of PT. Ratu Gilang Kencana with a cultivated area of 1 to 2 hectares/person. Odd labors (workers) as much as 20 percent, unemployed 17 percent and village officials and traders occupy the least positions, namely 1 and 5 percent of the total respondents from KTH members who get conservation partnerships. Village officials who become KTH members are motivated by the desire to increase family income, apart from the distance from their residence to the pine resin tapping area, which is relatively close and can be reached by 2-wheeled vehicles, the same applies to KTH members who double as traders.

Based on Figure 5, the income earned by respondents from KTH members before the conservation partnership was very varied. The income of KTH members is mostly in the interval of Rp. 100,000-1 million/month, which is 70 percent, in this segment filled by the unemployed, casual laborers and farm workers. Then 25.6 percent are in the income interval of Rp. 1 million-1.5 million/month, which is the income of KTH members who work as farmers who have arable land. They usually harvest rice every four months with an income of Rp. 5-6 million or Rp.1.250.000-1.500.000,- per month. Meanwhile, the income between IDR 1,501-2 million per month is only 4.4 percent who are KTH members with professions as farmers as well as traders and some even become local village officials. On average, the income of KTH members before the conservation partnership was Rp. 853,778,- for one month or Rp. 10,245,333,- per year.

Based on data, per capita population expenditure in Sumedang Regency per month is Rp. 1,385,833, or Rp. 16,630,000,- per year (BPS Kabupaten Sumedang, 2020). Based on these data, if the average KTH member has 4 family members, then the average per capita expenditure per year is IDR 66,520,000. This means that most of the income of KTH members is not enough to meet household needs for one year.

The granting of access to the collection of pine resin will have an impact on the income received. However, this depends on each member of the KTH because the

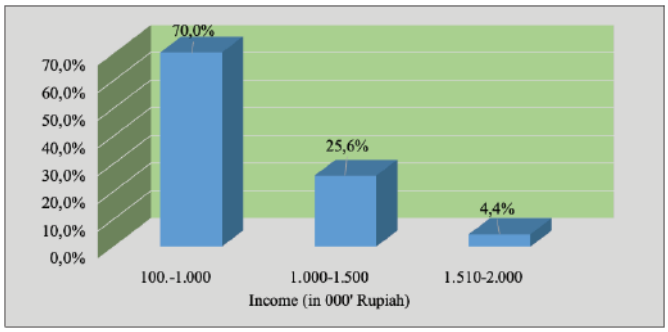

Figure 5. Interval of total monthly income of Forest Farmer Groups (KTH) members.

level of pine resin production depends on the area of the tapping area, tree density (number of trees per hectare), the number of koakans per tree as well as the work skills and willingness to tap from the KTH members themselves.

The production of pine sap produced by KTH members, harvested every two weeks, is collected in the TPG in each KTH (Pokja, 2018). After the pine resin of KTH members is collected, it is then sold to the Pinus Merkusii Cooperative at a price of Rp. 4,500.00,-. The average pine resin produced by KTH members from tapping pine trees in GMKHP is 323 kg/627 trees. while the price received by the tapper farmers from the collectors of the Pinus Merkusii Cooperative is 4,500/kg, so that the average revenue is Rp. 1,453,500,-/month (**Table 2**). The level of acceptance of KTH members is strongly influenced by the price and amount of pine resin produced.

The income of the community members of KTH after the conservation partnership consists of two main components, namely income outside of tapping pine resin (occupational laborers, sharecroppers, farmers, traders, village officials) and income from tapping pine resin. Judging from the amount, the average additional income of the community's income increased by 170 percent from the initial income of Rp. 853,778, - per month to Rp. 2,307,278, - an increase of Rp. 1,453,500,- as shown in Figure 6.

Table 2. Income of Forest Farmer Groups (KTH) Members per month from tapping pine resin (Sources: primary data analyzed in 2021).

No.	Explanation	Total
1	Production	323
2	Price (Rp.)	4.500
3	Income (Rp.)	1.453.500

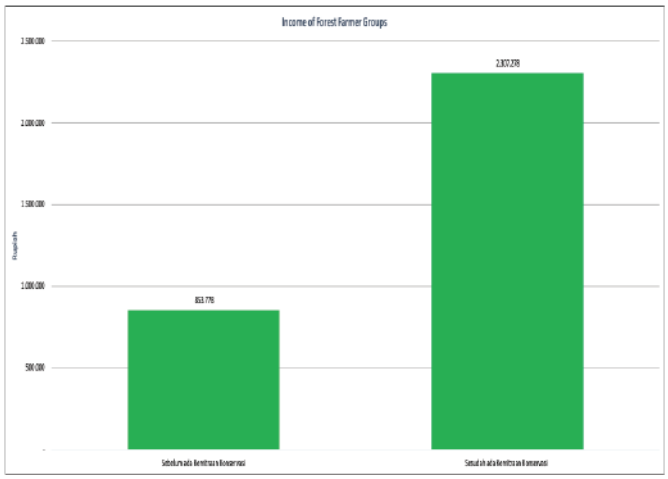

Figure 6. The average of income of Forest Farmer Groups (KTH) before and after joining conservation partnership programme (Source: primary data analized in 2021).

Table 3. Contribution of cooperatives to the neighborhood and social welfare (Source: Koperasi Pinus Merkusii, 2021).

No.	Nama Desa	November 2020			Desember 2020		
		Desa	Bumdes	Mui	Desa	Bumdes	Mui
1	Cikadu	598.600	598.600	1.496.500	415.900	415.900	1.039.750
2	Kaduwulung	572.100	572.100	1.430.250	135.900	135.900	339.750
3	Sundamekar	53.800	53.800	134.500	-	-	-
4	Bangbayang	457.800	457.800	1.144.500	131.300	131.300	328.250
5	Pelita Asih	993.300	993.300	2.483.250	1.070.500	1.070.500	2.676.250
6	Jaya Mekar	1.742.100	1.742.100	4.355.250	1.594.000	1.594.000	3.985.000
7	Tamansari	1.186.000	1.186.000	2.965.000	289.500	289.500	723.750
8	Sukajaya	419.100	419.100	1.047.750	151.600	151.600	379.000
9	Citengah	371.500	371.500	928.750	111.200	111.200	278.000
	TOTAL	**6.394.300**	**6.394.300**	**15.985.750**	**3.788.700**	**3.788.700**	**9.471.700**

The KTH pine resin production is still relatively low. Research on the production of pine sap using the quarre method has been conducted by Suswaji, et al. (2017. p. 131) in his research, the average production of pine resin in Tangkulowi Village, Kulawi District, Sigi Regency was 597.19 Kg/358 trees. The low yield of pine sap mentioned above is due to the existing mechanism in KTH not requiring its members to achieve certain production targets. The production of pine resin is left entirely to each member so that the production results will be different for each member.

The income received by KTH members from the sale of pine resin each month is net income which is not deducted by production costs. The production costs are taken from the mandatory and voluntary savings of the KTH members who are members of the Pinus Merkusii Cooperative which is also a collector of the members' pine resin tapping.

The Pinus Merkusii Cooperative was established in February 2018 as a forum for KTH members who utilize NTFPs in the Gunung Masigit Kareumbi Buru Park area. The purpose of establishing this cooperative is to

create uniformity, both in selling its products, treating the location of the leads, equipment, and other things. The existence of this cooperative whose members are all members of KTH, KTH members besides being able to sell pine resin to the cooperative can also benefit from Operating Income Savings (SHU), Ied holiday allowances (THR), health benefits, death insurance and the cooperative member savings. The contribution of cooperatives to neighborhood and social welfare is in the form of assistance for the poor and orphans, village treasury income, BUMDes (Village Enterprise) capital, wages for the teachers of reading Qoran, mosque maintenance as shown in Table 3. A study conducted by Rochaedi et al. (2021) in the villages surrounding Gunung Halimun Salak National Park shows that the conservation partnership programme has the potential to be used as a vehicle for the resolution of tenurial conflicts in conservation areas.

CONCLUSION

The conservation partnership for the collection of pine resin has provided welfare benefits to the community, including creating jobs, reducing unemployment, and increasing family income. Conservation partnerships also have a positive impact on neighborhood and social welfare. With such a partnership, some of the profits from the sale of pine resin set aside through the cooperative, are distributed to the neighborhood in the form of savings from business, Ied holiday allowances (THR), health benefits, death insurance, member savings in the cooperative, assistance for the poor and orphans, village treasury, as well as BUMDes capital. Additionally, the funds set aside are also used for wages of reading Qoran teachers, social assistance, and mosque maintenance.

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