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Partnership pattern for tapping pine SAP in groups community forest area in Cenrana District, Maros Regency

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Abstract. This research aims to formulate a strategy for developing the pine resin for forest farmer groups community forest (KTH HKM). The location of this research is in Cenrana Baru Village, Cenrana Distric, Maros Regency. The number of respondents was 30 people, consist of 15 tapping farmers, one person from a non-government organization, 2 persons from community leaders and head of farmer group community. Data analysis is conducted descriptively and by using Analytical hierarchy Process (AHP). The results show that the partnership between wiretapping and wire transfer is a pattern of agribusiness between the wire company and the village head without involving KTH HKM. The partnership pattern that needs to be developed in reprocessing at the HKM area is a sub-contract pattern by KTH against sad-workers and pine gum entrepreneurs. The formulation of the strategy for developing a partnership pattern for pine resin tapping is assistance, human resource development and business management.

1. Introduction

Nationally, the implementation of the concept of HKM has been developed in a total of 22 provinces around 448,217 ha (162) of the proposed HKM (162) zoned area. 112,91 ha), HKM building area (208,327 ha), work area (55,420 ha) and temporary permission (62,357 ha). The total group of people involved in HKM activities is 519 groups [1]. In the company of these forests, it is expected to provide liberally acceptable human fat as part of their industrial vitality and involvement in forest management. Therefore, promoting partnership-based forestry success requires the involvement of various parties based on the purpose of benefit [2].

An area of HKM in the new Cenrana village of 285 ha with a permit of vosa of 205 ha and KTH Malaka 01 as much as 80 ha. KTH Malaka has been conducting forest administrations of pine SAP reduction and coffee growing by some of the KTH HKM members under the current pine trees. KTH Malaka 1 has not conducted any forest management. The obstacles faced in partnering Malaka Regum connotations in the HKM KTH Malaka areas include sustained production not all year long, only in the dry season, while in the rainy season local labor and HKM members are more interested in crop cropland dry land than in tapping pine SAP. Residents who want to tap pine SAP are being denied their presence by residents and members of KTH HKM are concerned.

A customized form of partnership in the management pattern of HKM in the New Cenrana village, of the five existing patterns (Mursalim (2015), namely: 1) a core -plasma pattern, 2) a subcontracting pattern, 3) a general trade pattern, 4) a pattern and 5) a pattern of agribusiness operations [3]. The policy of PPN partnering in r&d in new Cenrana village is expected to result from a synthesis between wood-forest and non-wood partnerships found at research locations while identifying key factors and partnerships, processes made for the partnership, implementation of the partnership. It is hoped that the formulation of such partnerships could support the well-being of communities around, and provide a source of income for forest farm groups without neglecting the quality of the pine forest ecosystem in the research area.This study figuring out the pine latex system, getting into the partnership patterns of pine SAP tapping snd formulating a strategy for developing the KTH HKM pine resinous enterprise with a partnership pattern.

2. Research methods

The study is conducted for 3 months starting October - December 2020, where HKM is situated in the new Cenrana village of maros district. The research population is the stakeholder that does the cooperation of the nonwood company found in KTH. The partnership made by non-wood wood is now referred to in this research as a pine gum company located near KTH. The NPLS consisted of village leaders, forestry farming groups, non-governmental organizations, community figures, wiretapping farmers, and those involved in the pine SAP tapping. The identification was intentional. The number of respondents was 20, consisting of 15 tapping farmers. One from a non-governmental organization, two community leaders, and two village heads. The data gathered in this study includes primary data through interviews and secondary data through related reports. To know the existing partnership patterns in society and the factors that impede and sustain partnership patterns are elaborately and quantitatively analyzed. Whereas formulating a partnership pattern is analyzed using an analytical hierarchy process (AHP).

3. Result and discussions

3.1. Potential HKM area in new Cenrana villages and managerial conditions

Image interpretation analysis on the KTH HKM area of the new Cenana village consists of the land closure of the land, the secondary, thicket, secondary arid farm, mixed land farm, and rice (Table 1).

Table 1. Closing land in a new Cenrana village

No	Land closure	Vast (ha)	Agroforestry
1	Secondary dry land forest	9,738	Pine Stand
2	thickets	301	Unmanaged fields
3	Mixed arid land agriculture	594	The field in which the crop grows
4	Mixed arid land agriculture	281,780	The field in which the crop grows
5	ricefield	42	Growing season
	Amount :	**292,456**	

3.2. Potential production and revenue from pine SAP intercepts

The area tapped by pine resin tappers is 64 ha. The majority of sap tappers or as much as 46.67% of the total respondents have a tapping area of 2 ha. Pine resin tappers as many as eight tappers were able to tap 46-58 pine trees per day. The highest production of pine SAP was in diameter class IV (61 cm – 70 cm).

Table 2. Number of pine SAP tapping trees in Cenrana Baru village

No	General area (ha)	The number of people	percentage (%)
1	1	9	30
2	2	14	46.67
3	3	5	16.67
4	5	1	3.33
5	7	1	3.33
	Amount	**30**	**100**

Fixed costs in pine resin tapping activities are costs incurred for the production of sap that can be used repeatedly. The cost components included in the fixed costs in this study are depreciation costs in Table 3). Depreciation costs are costs incurred to cover the investment. The depreciation expense for the sap for the scraper and whetstone is Rp. 99.63/kg or Rp. 49,536.03 per month and Rp. 36.23/kg or Rp. 18,013.56 per month, so the total depreciation expense charged to the sap tapper per month is Rp. 67,549.59. Variable costs are costs whose size depends on the amount of production.

Table 3. Recapitulation of fixed costs for tapping pine SAP in Cenrana Baru village

No	Tool	Cost of depreciation		Total cost	
		Rp/kg	Rp	Rp/kg	Rp
1	Dredges.	99.63	49,536.03	99.63	49,536.03
2	A sharpening stone	36.23	18,013.56	36.23	18,013.56
	Amount	**132.86**	**67,549.59**	**132.86**	**67,549.59**

The variable costs borne by the sap tappers are the costs of material procurement, namely the loading of fertilizers (Table 4). The fertilizer is used as an additional stimulant so that the sap channel does not easily close

Table 4. Rubber tapping fees charged to pine SAP tappers in Cenrana Baru village

No.	Cost component	Cost	
		Rp/Kg	Rp/Month
1	Fixed cost	132.86	67,549.59
2	Variable cost	53.88	26,789.14
	Total cost	**186.74**	**94,338.73**

The provision of sap tapping wages applies in Cenrana Baru Village, namely wholesale wages (Table 5). The wages are given based on the number of pine resin taps obtained by the tapper in kilograms (kg). Then, the results of the tapping are multiplied by the prevailing sap price. The price of rubber at the time this research was conducted was Rp. 5,000.00/kg. The biggest tapping wage is Rp.22,330,000,- per month. This happened because of the large number of respondents with a percentage of 53.33% who were able to produce 176-367 kg of latex per month.

Table 5. Tapping wages received by tappers of pine SAP in Cenrana Baru village

No	Gum production (kg/month)	A tangible reward (Rp/ month)	The number of people	Percentage (%)
1	176 – 367	22,330,000,-	16	53.33
2	368 – 559	11,550.00,-	5	16.67
3	560 – 751	6,600,000,-	2	6.67
4	752 – 943	16,500,000,-	4	13.33
5	944 – 1135	4,950,000,-	1	6.67
6	1136 – 1327	12,650,000,-	2	3.33
	Amount	**74,580,000,-**	**30**	**100**

3.3. HKM partnership pattern required in pine SAP intercepts

The pattern of partnership required between the HKm forest farm group in a village of Cenrana with its regulates, covers:

1. Plan to manage enterprises, manage regions and manage institutions. But in reality, at present, the HKM forest farm group, Malaka zero-one, has not yet conducted a good plan of management in SK. Malaka 01 forest farm groups are currently carrying out an angota proposal for the new forestry group. The problem of managing institutional also in Malaka Kaena forestry is known in the contract agreement with the HKM group's HKM company is not involved as farmers with pine tree sapling. My renewal to the company is still a process.
2. The mapping of the HKM area was done by showing the participative sector was performed in the operation of RHL, the management of agroforestry and the widespread supply of shaded trees, and the number of tapped trees.
3. Developing cooperation in pine latex extract.
4. Improving human resources' capacity in the governance of effort, governance of regions, and governance of institutions.

3.4. It's a theoretical pattern of pine pinching

Based on the results of descriptive analysis according to field observations and interviews with various stakeholders involved in pine resin tapping and area management on the right to manage the Malacca HKm and Malacca I HKM rights, the criteria for the partnership pattern of pine resin tapping are obtained as shown in table 6.

Table 6. Identification of the pattern for pine extract

No	Criteria	Alternative
1	Accompaniment	a. Work plan
2	Improved human	b. Mapping c. Rehabilitation
3	Business Management	d. Cooperation

The formulation of partnership patterns begins with the dominant criteria and is needed in determining key problems by organizing a hierarchy of key solutions. Building a hierarchical process with AHP methods to get the scale of interest, thus obtaining criteria, sub-criteria, or alternatives that become the highest priority [4].

Calculations and consistency tests are done over and over again for all the criteria. Calculations and weights and comparative incapacity judgments pair off for every criterion in a hierarchical tree. The

resulting weight became the basis for synthesizing the priority to produce the best alternative sequence for the linkage pattern of pine-chewing latents in the new Cenrana village.

Based on analysis of the criteria gained by magnitude from the highest to the lowest: (1) the increase in human resources has the highest weight of 0.588, (2) management of 0.251, (3) business management of 0.159 (table 7). This means that by using consistency tests or interest assessments on the respondents' criteria it is consistent since they have less than 0.1 (y, 2000).

Table 7. Results from a dummy matrix of pine pattern malting criteria

Criteria	weight	Priority
Accompaniment	0.251	2
Improved human	0.588	1
Business management	0.159	3

The criteria for increasing human resources have the highest weight. This suggests that these criteria have a huge impact and can recognize other criteria. Whereas the results of any sub-critters or alternatives are presented at Table 8.

Table 8. Results from an alternative syndromic matrix processing pine pattern partnership

Criteria	Alternatives	Prioritas alternative	Prioritas criteria	Priority Total	Prioritas
Accompaniment	Work plan	0.474	0.251	0.351	2
	Mapping	0.247	0.251	0.174	
	Rehabilitation	0.181	0.251	0.124	
	Cooperation	0.096	0.251	0.350	
Improved human	Work plan	0.309	0.588	0.351	1
	Mapping	0.149	0.588	0.174	
	Rehabilitation	0.105	0.588	0.124	
	Cooperation	0.435	0.588	0.350	
Business management	Work plan	0.309	0.159	0.351	3
	Mapping	0.149	0.159	0.174	
	Rehabilitation	0.105	0.159	0.124	
	Cooperation	0.435	0.159	0.350	

Table 8 shows the total priority of overall criteria in the partnership pattern for pine SAP, which is derived from the sheer value of criteria multiplied by the alternative weight with the results of enhanced human resources, flanking, efforts.

3.4.1. The work plan. The human resources improvement criteria, supervision, and development are obtained by an alternative working plan weight of 0.351. An important work plan is for KTH HKM to develop a work plan within existing potential and thus promote business management of existing potential.

3.4.2. Mapping. The SDF increased criteria, referencing, and development are acquired by a mapping alternative weight of 0.174. Important mapping is being made for KTH HKM members to know the limits of the HKM area.

3.4.3. Rehabilitation. Facility improvement criteria, referral, and development achieve an alternative rehabilitation weight of 0.124. Rehabilitation is vital if KTH HKM is to preserve denan forests with cultivation.

3.4.4. Cooperation. The SDF increased criteria, supervision, and development are obtained by cooperation..350. An important partnership is being made for KTH HKM to develop his true potential, especially after result sad leaks up the revenues.

3.5. The directive formula for pine SAP management partnership pattern

A partnership pattern developed is an adaptation of an existing pattern by taking into account supporting factors and impediments and can make more profit by keeping a closer eye on the sustainability of the pines.

The dominant criteria or priority for the development of pine resin tapping begins with preparing human resources through socialization activities, supervision, and training, provision of funds through the partner company and capital owners setting up joint agreements containing the rights and obligations of the parties involved [5] and performing integers and sustainable monitoring and evaluation activities.

In line with Wijayanti (2019) that strategic direction may apply to those involved in the stakeholder partnership [6]. The direction of a formula for reforming the pine pattern of partnership that could be applied tendrils in the new Cenrana village was presented at table 9.

Table 9. Direction of a formula of partnership for pine SAP in the village of Cenrana Baru

Criteria	Alternative	Stakeholder		
		KTH HKm	**Village institute**	**Pine lychee Hodge**
1. Improved human 2. Accompaniment 3. Business management	Work plan	Work plans and farm analytics	Supervising execution	Note the volume I tapped
	Rehabilitation	Making investments	Executing coordinates	Making investments
	Mapping	1. Understanding the boundaries of manage and forest regions 2. Implementing participative mapping and alignment	Supervising execution	1. Understanding the boundaries of manage and forest regions 2. Implementing participative mapping and alignment
	Cooperation	Facilitating the development of cooperation	Doing a deal with the pine gum removal company	Doing a deal with the pine gum removal company

4. Conclusion

The partnership pattern that needs to be developed in reprocessing at the HKM area is a sub-contract pattern by KTH against sad-workers and pine gum entrepreneurs. Human resources (KTH HKM) in the management of business and development of agroforestry talun dominant condition of coffee is a major prerequisite in calculating sub contracts partnerships and improving the productivity of pine forests. The strategy for developing a partnership pattern for pine resin tapping begins with increasing human

resources for assistance, and business management through activities to increase human resources, mentoring and managing businesses, making business plans, mapping out rehabilitation, and cooperating.

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