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FARMER EMPOWERMENT AND ITS CONTRIBUTING FACTORS (A CASE STUDY OF PATCHOULI FARMER IN KABUPATEN ACEH JAYA)

Tingkat Keberdayaan Petani dan Faktor Yang Mempengaruhinya (Studi Kasus Petani Nilam di Kabupaten Aceh Jaya)

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ABSTRACT

Kabupaten Aceh Jaya is a very potential Aceh patchouli production center. The development of the patchouli industry sector in Aceh faces serious challenges, especially the capacity building of farmers towards good agriculture practices, and innovation and technology. This study aims to identify the level of empowerment of farmers and the affecting factors. The study employed a questionnaire survey to 88 samples from 383 populations. Data analysis used a descriptive method and chi-square test. The results show that a low level of farmer empowerment is predominantly. The weakest elements are the ability to cooperate and solidarity; meanwhile, the ability to overcome obstacles is the highest, followed by the awareness and desire to change, and the ability to increase capacity to gain access. Farmer's perceptions on the group institutions, and program intervention have a significant association with empowerment, while the perception to characteristics of the social systems has no relationship. Therefore, the role of empowerment innovation is necessary for capacity building.

Keywords: ***capacity building, community capacity, farmer's perception, innovation***

ABSTRAK

Kabupaten Aceh Jaya merupakan sentra produksi nilam Aceh yang sangat potensial. Pengembangan sektor industri nilam Aceh menghadapi sejumlah tantangan serius terutama kapasitas membangun petani terhadap praktik budidaya yang baik, dan inovasi dan teknologi. Penelitian ini bertujuan mengidentifikasi tingkat keberdayaan petani dan faktor yang mempengaruhinya. Penelitian ini menggunakan pendekatan survey kepada 88 sampel dari total 383 populasi. Analsisi data menggukanan metode deskriptif dan uji chi-square. Hasil penelitian secara umum menunjukkan mayoritas petani memiliki tingkat keberdayaan rendah. Indikator keberdayaan yang paling lemah adalah asepk kemampuan mengatasi hambatan, dan kemampuan kerjasama dan solidaritas, sementara aspek kesadaran dan keinginan untuk berubah, dan kemampuan untuk meningkatkan kapasitas untuk memperoleh akses lebih baik. Persepsi petani terhadap peran kelembagaan dan peran intervensi program memiliki pengaruh signifikan terhadap keberdayaan, sementara persepsi terhadap sistem sosial tidak memiliki hubungan. Oleh karena itu, peran pendampingan dan inovasi pemberdayaan merupakan sebuah keharusan terhadap pembangunan kapasitas dan keberdayaan.

Kata kunci: pembangunan kapasitas, kapasitas masyarakat, persepsi petani, inovasi

INTRODUCTION

Aceh patchouli is a leading and potential commodity with very wide market opportunities. The development of the patchouli industry sector in Aceh faces several problems ranging from upstream to downstream industries (Zikri et al., 2020). The challenges almost evenly occur in all patchouli agribusiness sub-systems from upstream agroindustry, on-farm, downstream agroindustry, marketing subsystems, and supporting institutions (Ernawati et al., 2021). This condition has implications for the weak performance of the patchouli industry supply chain (Setiawan and Rosman, 2013; Rahmayanti et al., 2018), especially the production sector.

In recent years, patchouli productivity in Kabupaten Aceh Jaya has fluctuated. According to a report from the Forestry and Plantation Service of Aceh Jaya in 2019, it has a patchouli planting area of 244 Ha with a productivity of 107 Kg/Ha in 2015. This productivity level increased to 320 Kg/Ha in 2016-2017 but decreased to 290 Kg/Ha in 2019. This unstable production level is influenced by several factors, including low input use, cultivation practices on shifting land and uncontrolled maintenance, inadequate production facilities, low control of pests and diseases, poor handling on post-harvest, and weak encouragement of supporting institutions, in particular, the role of extension (Rosnita et al., 2017; Aulia, 2019; Effendy et al., 2019).

The element of innovation that is an important factor in the process of producing quality patchouli oil consists of the cultivation process, drying of

raw materials (leaves and stems), and the distillation and extraction of oil (Rinaldi et al., 2021). Although the quality of Aceh's patchouli has a very high economic value, the level of farmers' revenue of patchouli farming income is relatively low. The main challenges are unstable production capacity and low innovation, which have implications for the wellbeing of patchouli farming communities. So that the interest of the community to carry out intensive and integrated cultivation system is also low. This condition is exacerbated by the highly volatile level of price stability in the market (Rahmayanti et al., 2018; Alighiri et al., 2020; Vonna et al., 2020; Zikri et al., 2021). In addition, the fluctuating price of patchouli oil in the market also affects the motivation of farmers to carry out intensive cultivation and processing (Yusnidar et al., 2021).

The patchouli farming community empowerment program in Aceh Jaya has been re-initiated during the rehabilitation and reconstruction period of the 2004 Aceh disaster since the long history of the armed-conflict hit Aceh. The program was supported by the International Multi Donor Fund through a partnership program with various institutions involved in the rehabilitation and reconstruction at that time. The program targets are the improvement of agricultural methods, production and processing processes, and the development of cooperatives and farmer institutions (MDF, 2011). Although this is the starting point for rebuilding, its sustainability implications are challenging, especially from the perspective of empowerment.

Recently, the Government of Aceh Jaya has rebuilt collaborative initiatives and partnerships with stakeholders to strengthen the growth of the production sector through the integrated downstream and upstream business programs. The initiative focuses on strengthening the capacity of farmers' production resources and institutional innovation and technology through a Penta-helix scheme: government, community, business, research institutions, and media. The objective of the program is the empowerment approach as the main key, namely efforts to encourage and strengthen community institutions so that they are able to achieve their well-being, objectivity, and prosperity in an atmosphere of sustainable social, economic, and political justice (Sumaryadi, 2005; Suharto, 2010; Sulistiani et al., 2018). Therefore, the dimension of the need to increase the productivity and wellbeing of patchouli farmers is to emphasize increasing access to sustainability and livelihoods (Zikri et al., 2020).

According to Widjajanti (2011), empowerment is the ability of the community to build potential, identify problems, and independently determine alternative solutions. Therefore, to monitor the process and impact of the empowerment program, it is necessary to control and evaluate to measure the performance of each element of empowerment. Suharto (2010) emphasizes five elements of empowerment indicators namely the goal aspect is to increase power for the weak, the process of building participation and control and its influence on their lives and livelihoods, emphasizes access to knowledge, skills

and power, reallocation of power through changes in social structure, and refers to the ability to control or rule over one's life. Therefore, this study aims to identify the level of empowerment of patchouli farming communities in Aceh Jaya District and analyze the factors that influence it.

RESEARCH METHOD

This study employed a survey approach to 88 patchouli farmers' respondents in Kabupaten Aceh Jaya. The initial stage was a deliberate selection of sub-district locations from a total of 9 sub-districts taking into account the area of production and a large number of farmers, so that 6 sub-districts were selected: Panga, Krueng Sabe, Jaya, Darul Hikmah, Pasie Raya, and Sampoinet (Figure 1). Determination of the sample was selected by proportional random sampling technique using 10% precision Slovin size of the total population of 383 farmers. An overview of the characteristics of the respondents can be seen in Table 1.

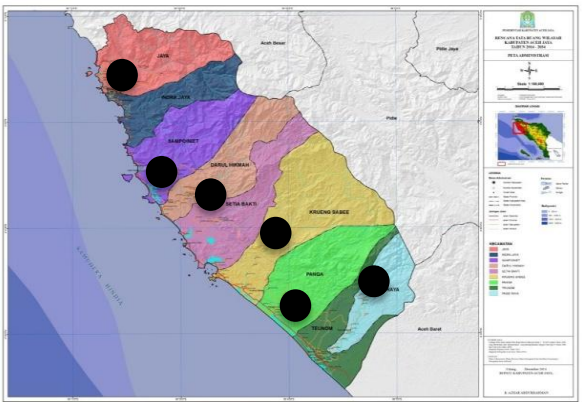

Figure 1.
Sitemap of research in Kabupaten Aceh Jaya

Table 1. Characteristics of Respondent (n=88)

No	Description		Respondent	Persentage
1.	Sex	Male	67	76
		Female	21	24
2.	Age (y.o)	<35	25	28
		35-55	49	56
		>55	14	16
3.	Education	Primary school	34	39
		Secondary school	17	19
		High school	27	31
		University	5	6
		No school	5	6
4.	Land size	<1 ha	63	73
		1-2 ha	22	26
		>2 ha	1	1

The scope and focus of this study are to identify the level of empowerment of patchouli farmers and analyze the contributing factors. Data was collected using a questionnaire survey, in-depth interviews, and observations. Table 2 shows the measurement of the elements of empowerment, namely awareness and desire to change, the ability to increase the capacity to gain access, the ability to face obstacles, and the ability to cooperate and solidarity. Furthermore, the identification of contributing factors uses the variable of farmers' perception of the role of institutions, program interventions, and characteristics of the social system.

Table 2. Elements of Empowerment

No	Element	Indicators
1	The awareness and desire to change (Y1)	1. Awareness to change mindset 2. Awerness to make life changes
2	The ability to increase capacity to gain access (Y2)	1. Ability to gain access to information 2. Ability to access production resources
3	The abality to overcome obstacles (Y3)	1. Decision making ability in farming 2. Ability to deal with production risks
4	The ability to cooperate and solidarity (Y4)	1. Involvement & participation in groups 2. Social capital and social relations

The measurement of empowerment indicators is carried out using a Likert scale. After that, the measurement results are weighted by calculating the ideal mean (Mi) and standard deviation (SDi), with the formula:

Mi = 1/2 (the higher score + the lower score)
SDi = 1/6 (the higher score - the lower score)

Furthermore, the variables are grouped into 3 criteria in the form:

Low = X < M-SDi
Moderate = Mi-SDi ≤ X < M+SDi
High = X ≥ Mi+SDi

The independent variable that contributes to the level of empowerment is measured by respondents' perceptions of the role of group institutions, program intervention, and characteristics of the social system. All of these variables were measured using a Likert scale and then weighted and classified into positive and negative perceptions. To analyze the factors that influence the level of empowerment, a chi-square statistical test is carried out:

$$X^2 = \sum_{i-l}^{k} \frac{(O_i - E_i)^2}{E_i}$$

Where: X^2 : Pearson's chi-square test statistic; O_i : Observed value(s); E_i : Expected value(s); k : the number of cells in the table.

The decision making criteria is carried out at a significant level of 0.05, with the following hypothesis:

- H_0 = There is no association between farmers' perception of group institution, perception of the social system, and perception of program intervention with the level of empowerment.
- H_1 = There is an association between farmers' perception of group institution, perception of the social system, and perception of program intervention with the level of empowerment.

Where the criteria for decision:

- If, the p-value is greater than the chosen significance level (α=0.05), then support the alternative hypothesis (H1) and reject the null hypothesis (H0); and
- If, the p-value is smaller than the chosen significance level (α=0.05), then support the null hypothesis (H0) and reject the alternative hypothesis (H1).

RESULT AND DISCUSSION

The Farmers' Level of Empowerment

The result of the study shows that the respondents' ability to face obstacles is better than other aspects of empowerment indicators. The majority of respondents have the moderate ability, and less than one-eighth of respondents have low levels. The indicator of the low ability to deal with obstacles is related to the cultivation aspect - the application of good patchouli farming practices. Among them are cultivation practices in shifting fields that have been carried out for generations, and the low ability to treat and control local pests and diseases, namely 'budok'. Elements of the ability to develop and make the right decisions in the production process will determine the quality of

the product to be produced (Hariance et al., 2016). In addition, the absence of extension institutions and aspects of innovation in cultivation also contribute to this aspect, making it difficult for them to make the right decisions and face production risks. Innovation is an important element in building the capacity of farmers (Hendrastuti, 2012), and extension is means for transferring knowledge and technology (Tanjung et al., 2020).

The low level of awareness and willingness to change is determined by indicators of the mindset of the traditional production system that has been practiced for a long time from generation to generation. So in a certain sense, they are very comfortable with the culture and practice, so it is difficult to accept new things related to cultivation innovation. The application of new practices in aquaculture that is introduced is considered to have a high level of complexity and requires a relatively large amount of time to treat it. This is as stated by the following statement by the respondent:

"First of all, I have tried new methods that have been introduced, some from the XXX institution and also from extension workers, but they are complicated, take a lot of time, while many other things have to be done, and in my opinion the results are not much different from the way the villagers do (R, 52 y.o)".

Table 3. Empowement Level of Patchouli Farmer in Kabupaten Aceh Jaya (n=88)

No	Element Empowerment	Level	Persentage
1	The awareness and desire to change	Low	14
		Moderate	64
		High	23
2	The ability to increase capacity to gain access	Low	14
		Moderate	64
		High	23
3	The abality to overcome obstacles	Low	11
		Moderate	80
		High	9
4	The ability to cooperate and solidarity	Low	22
		Moderate	64
		High	15

So that the complexity of the characteristics of this innovation becomes an obstacle in the behavior change process, such as the views of Mathe and Rey-Valette (2015) and Symons (2018) which state that practical knowledge is something that farmers want most to obtain and change. A study by Zikri et al. (2021) suggests that changing behavior is necessary in enhancing capacity development of patchouli farmer through an innovation system. The

development of capacity to increase awareness and willingness to change is an important element of empowerment through the role of farmer groups, increased knowledge and business skills, and cross-sectoral coordination and communication functions (Hendrastuti, 2012). The group is a reference for the behavior of its members in mobilizing solidarity, cooperation, and social capital (Borges et al., 2016; Zikri et al., 2021). A study by Desiana and Aprianingsih (2017) concludes that the more learning and innovation of farmers can improve the welfare of farmer groups. The positive attitude of farmers to change will also be determined by the individual characteristics of farmers, such as education and values towards their profession (Astuti, 2016).

The low ability to increase capacity to gain access is determined by the unavailability of centralized and affordable media and information sources within the local community. Some of the challenges directly faced by farmers are difficult to identify, make decisions and find alternative solutions. This is a very common problem due to lack of knowledge, especially the weak role of the extension institution as the main source of the expected information by farmers. This is as expressed by the following respondents:

"When our patchouli plant was attacked by 'budok' or 'mate tumbon', many of us did nothing, some uprooted it and threw it away or burned it. Frankly, we are having a very hard time dealing with this problem, and until now we still don't know how to prevent and solve it, and the extension workers are not available here…(I, 42 y.o)."

"So far, the presence of extension workers in cultivation activities is almost non-existent. Extension workers exist but not for patchouli, and they generally work for rice fields. If we have a problem and ask them, we always don't find a good answer. There were several times we invited the discussion, but nothing came of it, and we were disappointed. So what we do is all based on hereditary knowledge (S, 38 y.o)."

Among all the elements of the empowerment indicator, the percentage of respondents with low levels of cooperation and solidarity skills is higher than the other elements. This condition is determined by the weak role of group institutions, especially concerning cohesion and the active involvement of its members. Groups tend to be used as a means by members to access assistance resources from government agencies or other parties rather than collective actions. So that all the obstacles faced by each will be resolved personally as well, without the involvement of the group. Farmers, in general, are not used to working collectively in production activities, unless there is a meeting that has been arranged by another party, for example, an extension worker. These results are following the results of a study conducted by Zikri et al (2020). Therefore, strengthening farmer and extension institutions are necessary to encourage active participation through strengthening social networks that can

foster social solidarity among farmers (Lecoutere, 2017; Rosnita et al., 2017; Hamdana et al., 2020; Hasdiansyah & Suryono, 2021).

Based on measurements by weighting all indicators of empowerment, it can be described that in general, the level of empowerment of patchouli farming communities in Aceh Jaya is moderate (Figure 2). Therefore, the scope of empowerment should aim at encouraging capabilities in terms of overcoming the problems they face and making decisions that are able to provide a stimulus and optimize capacity, access, and control over various material and social resources available in their environment (Adimihardja, 1999; Suharto, 2010; Alkire et al., 2013; Hamdana et al., 2020).

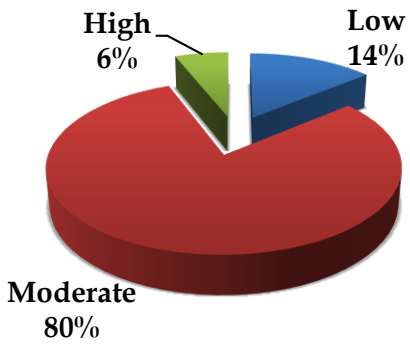

Figure 2.
Farmer's level of empowerment

Analysis of Relationships To Empowerment

In general, the result shows that more than half of respondents (59%) have a neutral perception of the role of farmer group institution, meanwhile, a negative perception is higher than a positive perception, respectively 22% and 19%. The results of statistical testing of the influence of farmers' perceptions on the institutional role of farmer groups are presented in Table 4. The statistical test result shows that the p-value of 24.714 is greater than to chosen significance level of 0.05 and the degree of freedom for df(4) is 9.48. So it can conclude that support the alternative hypothesis, which is there is an association between perception on the role of farmer group with the level of empowerment, and it is a significant relationship. This is in line with the results of a study conducted by Husnul (2020) which states that groups are moderating variables that affect empowerment through mentoring, counseling, and services. Another study states that the level of empowerment is also determined by participatory development communication within the group (Jaya et al., 2017). The involvement of farmers in groups will have implications for changes in farmer behavior, namely awareness, attitudes and skills to be able to carry out a better farming production process (Karim et al., 2012; Power et al., 2013).

Farmers' perceptions of characteristics of the social system are measured by looking at aspects of social capital which consist of trust, norms and values, and social relations. About 64% of respondents have a neutral perception of the social system of the local patchouli farming community, while a quarter of respondents have a positive perception, and only 11% have a negative perception. The results of testing the influence of respondents' perceptions on the characteristics of the social system of the farming community are presented in table 5. Based on the results of statistical tests, the p-value of 5.170 is smaller than to chosen significance level 0.05 and the degree of freedom df (4) is 9.48, then support the null hypothesis and reject the alternative hypothesis. This means that there is no association between farmers' perception of characteristics of the social system and the level of empowerment. It can also be explained that the characteristics of the social system perceived by the respondents do not have a direct contribution to the capacity of the patchouli production and cultivation system.

Table 4. Relationship Between Perception on Farmer Institution and the Rmpowerment

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.714[a]	4	0.00
Likelihood Ratio	22.357	4	0.00
Linear-by-Linear Association	18.793	1	0.00
N of Valid Cases	88		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is 1.64.

Table 5. Relationship Between Perception on Social System and the Empowerment

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.170[a]	4	0.27
Likelihood Ratio	8.355	4	0.079
Linear-by-Linear Association	4.437	1	0.035
N of Valid Cases	88		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .91.

The results of the statistical test of the association between farmers' perceptions on program interventions and the level of empowerment are presented in table 6. The results show that the p-value of 6.953 is greater than to chosen significance level of 0.05 and the degree of freedom df (2) is 5.99. It implies that support the alternative hypothesis and reject the null hypothesis.

So it can be concluded that there is a significant influence and relationship between perception of the program interventions with the level of empowerment. Therefore, the perception of a good program intervention will have implications for the level of empowerment, and vice versa.

Table 6. Relationship Between Perception on Program Intervention and Empowerment

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.953[a]	2	0.031
Likelihood Ratio	6.412	2	0.041
Linear-by-Linear Association	5.834	1	0.016
N of Valid Cases	88		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.09.

CONCLUSION AND SUGGESTION

Conclusion

The results of this study indicate that the level of empowerment of the farming community in the Kabupaten Aceh Jaya Regency is moderate. The weakest indicator of empowerment is the ability to cooperate and solidarity. On the other hand, the element of the ability to face obstacles is highest among others, followed by awareness and willingness to change, and the ability to increase capacity to gain access. Furthermore, the results of statistical tests show that there is a significant relationship and influence between the perceptions on the role of group institutions and the program intervention with the level of empowerment. Meanwhile, the perception of characteristics of the social system has no association with the level of empowerment.

Suggestion

The role of innovation to encourage and strengthen farming institutions through farmer groups is necessary as a top priority of the intervention, especially concerning the development of the integrated downstream and upstream patchouli industry. In addition, the role of the extension agency is also an important indicator, especially in providing information, good cultivation practices, and farming sustainability. This objective also leads to cohesiveness and collectivity in carrying out production activities and increasing farmers' well-being. In sum, strengthening social capital embedded in social systems can be a driving element and an important attribute in encouraging and reinforcing community institutions as a foundation of empowerment.

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