



Improving the Quality of the Empowerment of Forest Farmer Groups in Non-Timber Forest Products Management through Extension Support in East Lampung and Sleman District

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Abstract

The government efforts to empower the forest farmer groups have not effectively empowered the community. Extension support is one of the key factors that affecting the quality of empowerment. The purpose of this study is to analyze and find the dominant factors that influence and formulate strategies to increase extension support on the quality of empowerment of forest farmer groups in the management of non-timber forest products. The survey involved 248 members of the non-timber forest product management forest group in East Lampung District, Lampung Province and Sleman District, Yogyakarta Province, Indonesia. The result of SEM analysis shows that the extension support factors that have the potential to affect the quality of empowerment of non-timber forest product management group from the highest score are the support of forest civil servant extension, support for extension methods, extension institutional support, extension material support and extension infrastructure support.

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This study provides information to create an effective strategy for improving the empowerment of forest farmer groups in the management of non-timber forest products through the strengthening of extension support.

Keywords: empowerment; extension support; forest farmer group; non-timber forest products.

1. Introduction

The government efforts to empower the forest farmer groups have not been effective in empowering the community in managing the non-timber forest products business (NTFPs). Forestry extension programs to date are still more relief activities that do not empower communities and have no clear reference to how good community learning approaches, especially for forest farmers that lead to community empowerment [1]. Implementation of the functions in the extension system cannot support farmer empowerment efforts towards self-reliance and resilience of farming [2]. Extension support is an important factor in the improving the quality of empowerment. The farmer group needs extension support for access to finance [3]. The level of community empowerment in the around of the low forest is significantly affected by the low level of empowerment [4] and the lack of proper empowerment process [5]. Qualified empowerment is believed to support the independence of forest farmer groups in the management of non-timber forest products that are system filter, competitive and partnership.

The economic value of NTFPs in Indonesia is estimated to reach 90 percent of the total economic value that can be generated from the forest ecosystem [6]. The opportunities for the development of NTFP management in the regions are still wide open and have considerable potential to increase the income and welfare of the community. There are approximately 557 different types of NTFP commodities distinguished in NTFP vegetable group and animal group NTFP [7]. The advantages of managing NTFP businesses compared to TFP, such as: (1) NTFP management can be done extensively by the community on their own land with small to medium capital. (2) Some types of NTFP commodities have high economic value, for example, gaharu, (3) The technology used to manage NTFPs is simple to medium, for example, cultivation: honey bees, oyster mushrooms, and bamboo. The management of NTFPs in several regions, such as Riau and West Sumatra, contributed significantly to the local community's economy and became the base sector for the region concerned [8]. NTFP has a strategic function as a means to improve the welfare of the community, supporting the success of forest management and regional development [9]. Many experts predict that the management and utilization of NTFPs will play a more important role than timber products from the economic, environmental, social and cultural side [9]. The role of management and utilization of NTFPs are: (1) can increase the role of the economy significantly, (2) contributing to food security, national economy, conservation and biodiversity, (3) the contribution of NTFP to the welfare of forest communities is greater than that of timber, (4) management and utilization of NTFPs provides the base for sustainable forest management and (5) improved management and utilization of NTFPs can add value to tropical forests, both locally and nationally [10,11].

There is potential and open to new opportunities for communities to engage in the management and utilization of forest products and environmental services within and outside forest areas has grown the presence of forest farmer groups. However, the management of NTFP commodities by forest farmer groups is still not optimal.

The forest farmer group from the perspective of the extension is one of the main actors in forestry development so that empowerment efforts for capacity building are directed by developing its organization into a highly competitive, productive economic organization, implementing good, and sustainable business governance [12].

These conditions indicate that the efforts to empower forest farmer groups in the management of non-timber forest products through the implementation of the extension systems have not been optimal in realizing an independent forest farmer group. The implementation of functions in the extension system is less able to support the empowerment of farmers towards independence [2] so that strong or weak support of the extension is suspected to cause the low quality of empowerment of forest farmer groups causing less optimal forest farmer groups in NTFPs management.

Based on the description of potentials, barriers and conditions of non-timber forest product development, the problem in this research is how to support the extension of the quality of the empowerment of forest farmer groups in the management of non-timber forest products and how the strategy to improve the empowerment of forest farmer groups in the management of non-timber forest products through education .

2. Research Methods

The study was conducted with a quantitative approach and supported and supplemented with the information based on qualitative data to explain and refine the results of the study [13,14]. The design of research is a survey with the purpose of explanation (explanatory research) which is descriptive and associative / relationship. Quantitative data collection using questionnaires and qualitative data was obtained through indepth interviews with selected respondents and informants, and observations resulting in a more comprehensive analysis of the variables studied.

Field research was conducted in Lampung Timur, Lampung and Sleman districts, DI Yogyakarta Province from December 2016 to April 2017. Site selection was determined by reference to the existence and development of non-timber forest product commodity management group and Ministry of Forestry Regulation, P. 21/2009. The study population was all members of non-timber forest product management group from 33 forest farmer groups: in Lampung Timur District, Lampung Province (22 forest farmer groups) and Sleman regency, DI Yogyakarta province (11 forest farmer groups) with a total of 911 members. Selection of farmer sampling groups at selected village level using cluster random sampling based on group activity level with the frequency indicator or group meeting and the level of active participation and attendance of members in every activity or group meeting [15, 16]. The result was four forest farmer groups (79 respondents) in Lampung Timur District, and 4 forest farmer groups (169 respondents) in Sleman District, Yogyakarta Province with a total of 248 respondents.

3. Results and Discussion

3.1. Extension Support to Forest Farmer Groups in the Management of Non-Timber Forest Products

The extension support to forest farmer groups in the management of non-timber forest products is moderately

low. This condition is reflected in the low tendency of institutional extension support, the low competence of forestry extension officers, the weakness of the application of extension methods, the lack of extension material support, the lack of support for extension facilities, the lack of extension infrastructure support and the lack of extension funding. The distribution of respondents according to their perceptions of extension support in the management of non-timber forest products is presented in Figure 1.

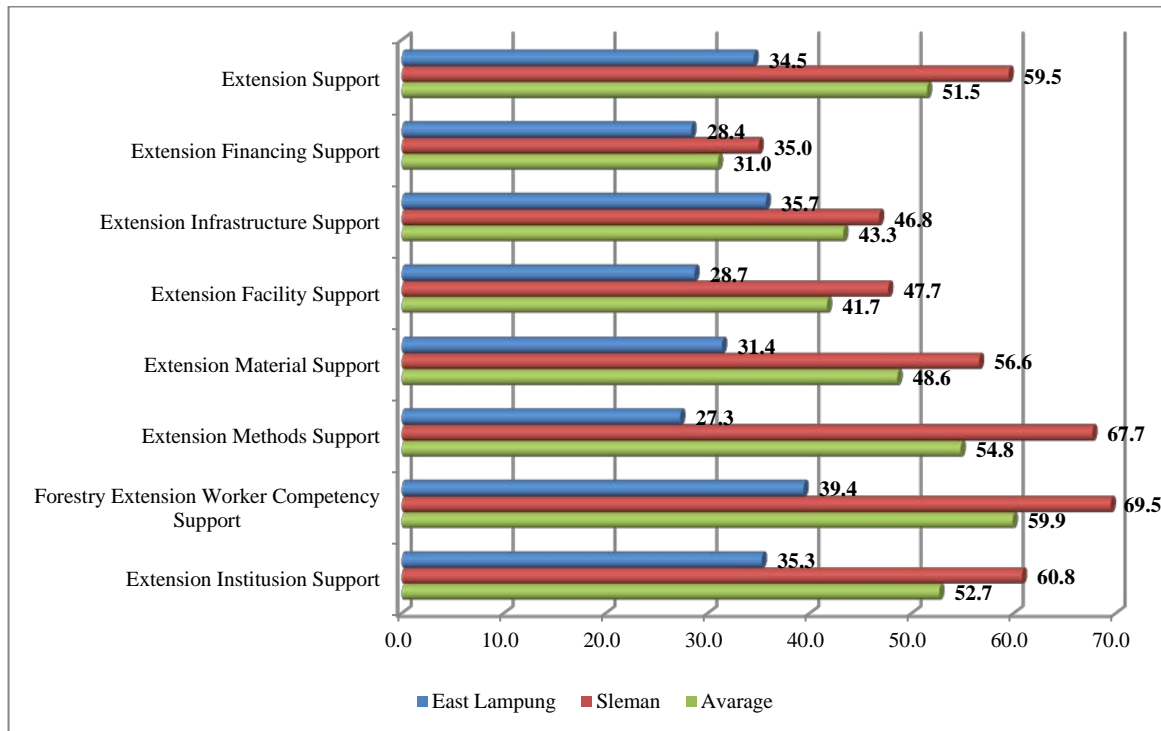


Figure 1: Distribution of respondents by their Perspectives on the Extension Support of Forest Farmer Groups in the Management of Non-Timber Forest Products in East Lampung and Sleman District in 2017 (N=248)

The trend of low levels of extension support to forest farmer groups in the management of non-timber forest products suggests that the forestry extension in the research location is less effective. This condition indicates that agricultural extension support is moderate from the indicator of the low accuracy of the extension method, material suitability, and communication model and extension competence illustrates that extension on organic vegetable farmers in Agam and Tanah Datar District, West Sumatera Province was not effective [17]. Field findings indicate that the frequency and interaction of civil servant extension and extension agencies with forest farmer groups were so limited that lead to the existence of extension institutions, the existence of civil servant extension workers, the availability of extension materials is not yet capable of supporting the management of non-timber forest products. As the result, the groups are less able to access the latest information related to non-timber forest products commodities managed by forest farmer groups. The need fulfillment for extension support (materials, facilities, infrastructure, and financing) in the development of non-timber forest product management is independently and self-reliant.

The institutionalization of extension was perceived not able to provide or facilitate these services and infrastructure that according to the needs of the group in the management of non-timber forest products

commodities. This is due to the classic problem of the limited budget allocations for financing extension activities. The competence of civil servant extension workers in the management of non-timber forest products commodities is still below the ability of group members. This is because group members have experience in managing the commodities. The limitations of the competencies of civil servant forestry officers in the management of commodities are, due to: the ability of extension agents of non-timber forest products to be general and not specific to one or several non-timber forest products commodities, the lack of facilities, infrastructure and financing of demo-plot development as a place for mutual learn. The application of extension methods by extension workers is limited to the lectures and the visit to the group.

The findings of this study also show that extension activities in farmer groups are still general and not focused on certain non-timber forest products commodities. Extension institutional support, material support, facilities, infrastructure, extension funding for guidance and business empowerment carried out on farmer groups are inadequate and almost no-exist. The fulfilment of material needs, facilities, infrastructure, and financing extension are mostly done by the self-supporting group and from the self-supporting group leader. The head of the group acts as a non-governmental forestry extension to meet the limitations of the number of civil servant forestry officers, prepare and deliver the extension materials, organize the fulfilment of facilities and infrastructure and fund the extension activities in empowering the group.

The lack of extension support has resulted in empowerment as an empowering process of becoming less qualified and lead to the low level of group independencies. That is, in this condition, extension support has not been effective as a driving factor to realize qualified empowerment. The results of this study are in line with previous research [2] which concludes that the implementation of functions in the extension system is less able to support the efforts of farmers empowerment towards independence and toughness of farming.

3.1.1. Institutional Extension Support

The institutional support for the extension in non-timber forest product management tends to be low. This is due to the lack of optimal government commitment through institutional extension in the development of non-timber forest products commodities. Commodities that managed by groups in East Lampung have not been established as non-timber forest produce commodities so that the extension support is perceived very limited. In Sleman, commodities managed by groups have been established by local governments as leading non-timber forest products commodities so that institutional support for the extension in the management of these commodities is clearly visible although not yet optimal. Until the end of 2016, the institutional arrangement of forestry extension in East Lampung in the form of Agricultural Extension Agency, Fishery, and Forestry (BP4K) and in Sleman is Department of Agriculture, Fishery and Forestry. After the enactment of Law 23 of 2014, the institutionalization of extension at the district level becomes irrelevant and the institution of forestry extension organizer commencing early 2017 is in the Provincial Work Unit (SKPD) of the Province.

The low level of institutional support for forest farmer groups in managing non-timber forest products has resulted in forest farmer groups: less able to develop their businesses, market their products, and improve their ability class and even stagnate. One of the causes of the low-class capability of farmer groups is the lack of

guidance by relevant agencies in the management of production and marketing of produce [18].

Extension institutional support is still needed in developing the management of non-timber forest products commodities by farmer groups and communities through the implementation or organization of elements in the extension system. Therefore, a strong commitment from the government and local government is needed in supporting the implementation of the extension system as mandated by Law 16/2006. Institutional counseling as an institution established under Law 16/2006 to empower key actors and business actors should be able to act as coordination nodes for various technical institutes as well as other stakeholders in empowering farmer groups and their businesses. But its existence becomes unclear after the publication of government policy on regional government. Weak institutional counseling can result in government policy not being communicated effectively to be unclear and precise [19].

3.1.2. Support of Competence of Forestry Extension Workers of Civil Servant

Support for the competence of civil servant forestry officers in non-timber forest product management tends to be low. This condition is reflected in the lack of optimal implementation of managerial competence and technical competence of forestry civil servant in supporting the management of non-timber forest products in the research location. Field facts indicate that the ability of farmer group members tends to be higher than that of civil servants in forest management of non-timber forest products commodities. The limited participation of forestry extension workers in attending the training is indicated as one of the reasons for the lack of optimal competence of civil servant extension workers in conducting extension activities.

Consequently, the knowledge and skills of forestry extension workers in carrying out the main tasks and extension activities, especially the management of non-timber forest products commodities are lower than the ability of forest farmer groups or the ability of their members. Whereas the extension workers and their cohort competencies also affect the intensity of learning of farmers [1]. This condition has an impact on the low perceptions of respondents to the extension of the extension as a coach or a group companion. The reason for the low level of forestry extension competence is that extension workers rarely attend training [20]. Forestry extension workers are very minimal and have very little training and development for capacity building especially related to their main tasks in the field of forestry technical since the implementation of the regional autonomy [1].

The increased competence of civil servant extension workers both managerial competence and technical competence is needed to support the success of the organization in empowering the target of extension. The development of the competency aspect should be of concern to the extension organization in carrying out its mission and duties, so that activities and programs can be more focused, and the development of farmers' competence in accordance with the development of the demands of the environment [19]. The efforts to increase the competencies of forestry civil servants can be done through education and training both technical and non-technical forestry and other forms of capacity building of human resources. Thus, increasing the capacity of human resources of forestry extension workers cannot be ignored.

3.1.3. Extension Method Support

The support for extension methods in non-timber forest product management is generally moderate and low (Figure 1). The low level of support for extension methods in the management of non-timber forest products is reflected in the low frequency of forestry extension attendants and the monotony of extension techniques used in conveying materials related to the management of forest commodities. The low frequency of forestry extension attendance is due to: (1) the presence or absence of activities or projects, (2) the distance travelled, and (3) the timing of group meetings. The results of in-depth interviews show that the extension methods used tend to be the same group approach with the technique of delivering the material through the lecture, so it is considered monotonous by the respondents. As a result, the forest farmer group feels lack of guidance and assistance in group activities and efforts. Forestry extension workers need to be equipped or introduced with new methods or combine existing methods of delivery of extension materials, such as field school methods. This method provides opportunities for farmers to be able to learn directly through activities in everyday life [1].

3.1.4. Support of Extension Material

Support for extension materials in non-timber forest product management in the study sites is low (Figure 1). This is reflected by the lack of information and the latest effective innovations in the management of non-timber forest product commodities managed by the group, inadequate material of the extension delivered to the needs of the group. In general, the material presented is given and has not been able to overcome the problems faced by the group, such as how to build networks and networking with various parties. The interesting findings in the field, the fulfilment of the extension material needs in the management of these commodities are from community-based forestry extension workers (PKSM), information from advanced farmers, group information or between members of the non-timber forest product commodity management group. This condition resulted in the management of non-timber forest products commodities are still traditional and in accordance with the ability and wisdom of local communities.

3.1.5. Support of Extension Facilities

Support for extension facilities in non-timber forest product management in the research location is low. In general, this is indicated by the lack of availability of support and extension facilities to access information, extension aids and books or publications related to the management of non-timber forest products commodities. The available extension facilities also do not fit the needs of the group and the type of forest product commodities managed by the group. The results of the interviews obtained information that generally respondents do not know what facilities can be obtained or accessed by the group of local extension institutions. The extension facilities owned by the group are the result of self-supporting group to support business management activities. The weakness of the group's ability to access information and extension tools is one of the impacts of the low support of extension facilities. This condition requires efforts to increase facilitation of extension facilities to facilitate access to information to non-timber forest product commodity management group and other extension target.

3.1.6. Support of Extension Infrastructure

Support for extension infrastructure in non-timber forest product management is low. This condition is caused by the limited availability or facilitation of infrastructure extension support in the form of buildings or spaces where to access information and places of extension or learning process from institutional extension both central and local. The facts in the field found that is not all groups have a secretarial building or a special building for the venue of extension activities and regular group meetings. The group's extension infrastructure facilities are the result of self-help groups. The groups, that do not have a building or a space where information is accessed or where the extension is held, usually use the residence of group members alternately according to the schedule of the meeting that has been established and agreed.

3.1.7. Extension Financing Support

Support for extension financing in the management of non-timber forest products in research sites is low. This is due to the lack of optimal institutional commitment of central and regional extension either to farmer groups managing non-timber forest products commodities and in the development of non-timber forest products commodities. This condition reflects insufficient financing support to support the successful management of non-timber forest product commodities managed by the group. The implementation of extension activities has not focused on the management of non-timber forest product commodities. The results of interviews with forestry instructors as key informants are known to be the operational costs for visits or extension activities in the group derived from the operational cost of extension (BOP) received every month. Although the numbers are limited, the extension workers optimize the available costs to be able to foster farmer groups in their working areas. The cost of specific mentoring activities or guidance to the group is almost unavailable. These conditions have impacted on the limited development of non-timber forest product management and guidance to the group either by the forestry extension management agency or by the civil servant extension workers.

4. The Quality of Empowerment Forest Farmers Group in NTFP Management

The results showed that the quality of empowerment of forest farmer groups in the management of non-timber forest products is moderate and tend to be low with an average score of 53.1. Almost all scores on the indicator under study were low with a score of 31.6 - 49.8, except that the indicator of participation rate and effectiveness of the empowerment material was moderate but tended to be low with an average score of 54.6 and 51.3 (Figure 2).

This condition is in accordance with the facts in the field that show the implementation of Law 16/2006 on agricultural extension system, fisheries, and forestry has not been optimal. This is reflected in the availability of materials, facilities and infrastructure is still very limited and not in accordance with the needs of the group and has not optimally helped solve problems faced by the group. The absence of empowerment financing contributes to the low quality of empowerment. The implementation of the functions in the extension system is less able to support the efforts of farmers' empowerment towards independence [2] and forest extension programs are still more of the aid-giving activities that do not empower the community and have no clear

reference to how the approach to community learning is good, especially on forest farmers that lead to community empowerment [1]. The low level of community empowerment around forests on community empowerment around the forest is significantly affected by the low and inadequate empowerment processes [3,4]. The results of this study indicate that the level of quality of empowerment is determined by the low level of extension support. The higher the extension support the higher the quality of empowerment.

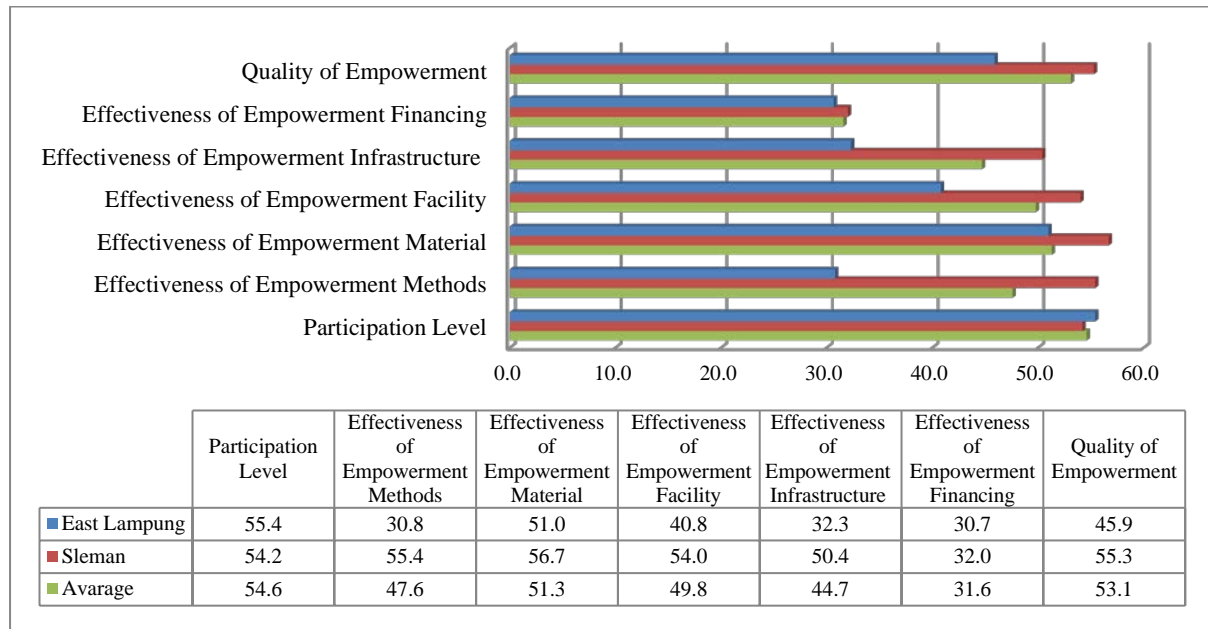


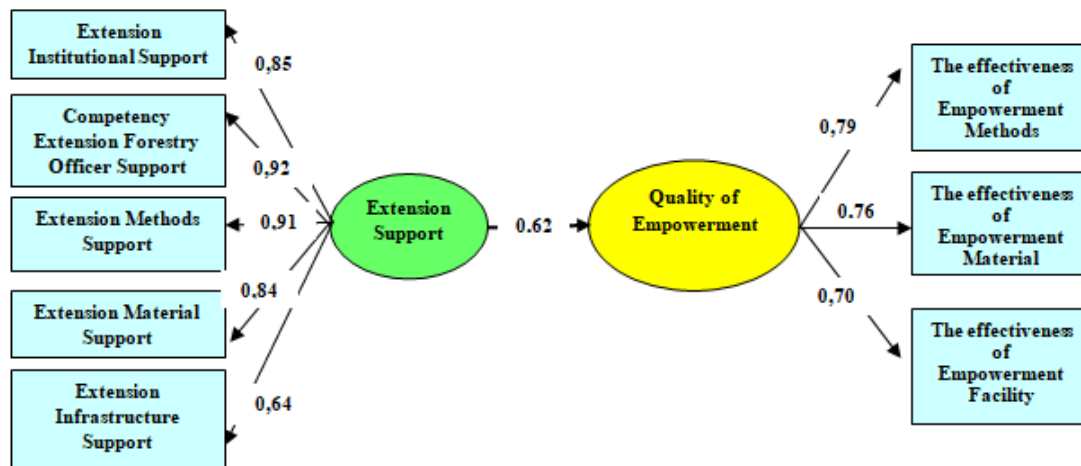
Figure 2: Distribution of Respondents by their Perspectives on the Quality of Empowerment of Forest Farmer Groups in Non-Timber Forest Products Management in East Lampung and Sleman Distric in 2017

Model Improving the Quality of Empowerment of Forest Farmer Groups through Increased Extension Support

The result of SEM analysis is obtained through confirmatory factor analysis (CFA) analysis whose value of factor weight factor (loading factor) is more than 0,50 or (cut-off). Figure 3 shows the value of P-arithmetic=0,000 (<0.05) and the Root Mean Square Error of value. Approximation (RMSEA) = 0.08 (≤ 0.08). Although the P-value and RMSEA values have not met the goodness of fit (GFT) model of the structural equation model, other major GFT measures have met the GFT size so that the proposed construct measurement model fit with the data. That is, the conformance test model indicates hybrid model fit with the data. The model is able to estimate the covariance matrix between population indicator variables which is not different from the sample data covariance matrix. In other words, the model can serve as a basis to make generalizations about the phenomenon being studied.

The results of the research (Figure 3) shows that the most powerful indicators reflect the extension support are the indicators of competence of civil servant extension workers ($\lambda = 0.92$), followed by indicators of support for extension methods ($\lambda = 0.91$), indicator institutional extension support ($\lambda = 0.85$) indicator of extension material support ($\lambda = 0.84$), and indicator of extension infrastructure support ($\lambda = 0.64$). The extension support

contributed significantly to the empowerment quality of 62 percent, while the remainder (38 percent) was influenced by other variables not described in this study. The development of self-reliance of young actors is positively influenced by extension support as a motivating factor in West Java [21]. The involvement of opinion leaders [22,23] in supporting the transformation process of various empowerment programs also can be viewed as another factor that allegedly influences the quality of empowerment.



Chi-Square = 399,54, df=123, P-value = 0,0000, RMSEA = 0,086

Figure 3: Structural Model Improving the Quality of Empowerment of Forest Farmer Groups in the Management of Non-Timber Forest Products through Strengthening Extension Support (*Standardized*)

Extension support to the quality of group empowerment in non-timber forest product management has considerable influence so that it has the potential to increase the independence of forest farmers group that has the ability to filter, competitive and facet. The quality of empowerment of forest farmer groups in the management of non-timber forest products has strategic value. In the short term, strong extension support reflected in the strong support of institutional extension, competent forestry extension workers, the application of extension methods, the availability of extension-based extension materials and infrastructure, competitiveness and equity are beneficial for developing group activities, increasing group revenues and members and business continuity. In the long term, supporting development activities in the field of forestry, especially the development of non-timber forest products management and supporting the sustainability of forests and land.

Extension institutional support has the potential to affect the quality of empowerment. The extension institution acts as a coordination and leading sector coordination in the provision of the extension to support the development of non-timber forest product management. The existence of institutional extension also plays a role in improving the competence of forestry extension workerstogether forestry civil servants, community, and private self-help. In addition, institutional extension in accordance with its main duties also plays a role in preparing and facilitating the application of effective extension methods, provision of facilities, infrastructure and extension financing. However, the current condition of forestry extension institutions has shifted to the provincial level so that agencies conducting forestry extension activities at the district level have become

unclear. The existence of extension forestry civil servants as a coach of forest farmer groups at the district level has turned to technical agencies that organize forestry activities i.e. environmental and forestry agencies at the provincial level.

Support for forestry extension competence is a potentially big indicator affecting the quality of group empowerment in non-timber forest product management. Forestry extension of civil servants in accordance with their main tasks should have competence such as the selection and application of effective extension methods (easy to understand, easily accessible materials and easy to apply in accordance with the needs and capabilities of the target), preparing the latest extension materials and as needed and as an alternative in problem-solving facing targets), building communication and partnerships with various parties and stakeholders so as to achieve equal partnerships and interdependency. Support for forestry extension competencies reflected from managerial competence and technical competence are relatively low. This is indicated by the not yet optimal performance of forestry extension workers in fostering forest farmer groups of non-timber forest product managers in their working areas. This condition is caused by forestry extension rarely follow the training especially on commodity farmer group business so that the capability has not support group effort.

The results of this study also found that the low level of extension support is also due to the lack of strong political support for forestry extension activities so that the budget allocation of forest extension activities is limited and not proportional in the effort to empower the community, especially the non-timber forest product management activities. The efforts to increase the budget allocation for non-timber forest product commodity management activities can be done by utilizing the allocation of village funds through community empowerment activities. Thus, it is necessary to integrate and engage the parties and stakeholders in improving the quality of empowerment so as to empower the community that is based on the system filter, competitiveness, and partnership.

5. Strategy to Improve the Quality of Empowerment of Forest Farmers Group through Strengthening of Extension Support

The strategy to improve the empowerment of forest farmer groups in the management of non-timber forest products through the strengthening of extension support through: (1) Strengthening the existence of extension institution as mandated by Law 16 Year 2006, (2) Increasing the competence of Forestry Extension Workers of PNS and Non-Governmental Initiative (PKSM) , (3) Development of empowerment, participatory and dialogic methods based on problem solving, such as: field schools, internships, workshops, comparative studies, work meetings, business meetings, (4) Developing effective and resource-based extension materials, competitiveness and facet power, and (5) Facilitation of effective extension infrastructure. This condition can be understood, since extension activities, especially management activities of non-timber forest products commodities, are not priority activities and are still limited to supporting systems of forestry technical activities so that forestry extension activities become less optimal.

Strengthening the existence of forestry extension institutes is intended to provide the functions of extension systems, synergize the support of technical institutions of empowerment, access to technology and support of

research institutions, by strengthening collaboration synergistically among stakeholders in the management of non-timber forest products through the formation of working groups so as to increase group independence and ease of access to technology for groups and their members. Implementation of an empowering forestry extension that leads to system filter, competitiveness and partnership requires political support so that the budget allocation of activities is more adequate and proportional. The enhancement of the competence of Forestry Extension Workers of Civil Servants and Extension Workers (PKSM) is done through education and technical and managerial training and activities development of other human resources capacity such as; workshops and comparative studies to areas that have successfully developed non-timber forest product commodities. Development of empowering, participatory and dialogical methods of problem-based extension such as field schools, internships, workshops, comparative studies, work meetings, business meetings as a learning process that provides opportunities for real-life experiences in the field. The development of extension materials that are effective and on-demand leads to filtering power, competitiveness and facet power are intended to increase the knowledge, skills, and attitudes of group members in the management of non-timber forest products. The development of effective extension infrastructure is intended to support the success of extension through the application of extension methods which is effective with materials that meet the needs of the targeting of the extension.

6. Conclusions and Recommendations

The results show that extension support affects the quality of empowerment significantly and positively. The extension support factors that have the potential to affect the quality of group empowerment are the low level of support for the competence of civil servant forestry extension workers, the low support of extension methods, the support of extension institutions, the support of extension materials and the support of the extension infrastructure.

There is a need for optimization and the government's commitment to the extension support through the implementation of elements of an extension management system in Law No. 16 Year 2006 which is appropriate to the group's need to improve the quality of empowerment of forest farmer groups in the management of NTFPs.

This study is limited to extension support for improving the quality of empowerment. The SEM analysis results show the contribution of extension support to the empowerment quality of 62 percent, while the rest of 38 percent is influenced by other variables that are not explained in this research. Further research is needed by adding more factors such as the involvement of opinion leaders in supporting the transformation process of various empowerment programs that affect the quality of empowerment of forest farmer groups in the management of non-timber forest products.

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