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Farming Handling with Pro Conservation: Lesson Learned from Farmers at Marginal Land in the District of Karangkobar, Banjarnegara Regency, Central Java

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Abstract

The main objective of this research is aimed to study pro-conservation behavior by farmers in managing marginal lands. The specific goals of it are in the following: (1) discovering the characteristic of profile of farmers who have pro-conservation behavior in managing marginal land, (2) inventing the social, economic and ecological factors that support and inhibit pro-conservation farmer behavior in managing marginal land, and various forms of pro-conservation behavior by farmers in managing marginal land. The research location has been determined purposively in Karang Kobar District, Banjarnegara Regency, Central Java Province. The research method used was descriptive survey with qualitative and quantitative approaches. The results showed that the profile of the respondent was unique in various ways, including; age, education, work experience, income, expenditure and socioeconomic status. Most of the respondents have been affected by natural hazards (landslides and erosion due to flooding), therefore the respondents have pro-conservation farming behavior. Some pro-conservation farming practices, starting from planting various types of plants / trees that are suitable for conservation. The preventive action taken by the respondent was making grenades from stones and mounds from the ground. Respondents have also implemented farming with terraces. Respondents' active participation in any socialization activities for land conservation and conservation practices.

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1. Introduction

Long before the academic concepts initiated the development of agriculture and the environment during the first UN Conference in Stockholm, Sweden in 1972, farmers actually struggled for a long time to reduce land vulnerability. Therefore, it is very appropriate to say that sustainable agricultural development prioritizes increasing the ability of farmers in managing their farms. Farmers are required to have the ability to adapt to the conditions of arable land. The problem of marginal land is one of the dilemmatic problems faced by farmers. The choice of commodities that are suitable for marginal land is needed by farmers in order to achieve adequate productivity targets from an economic perspective, however, on the other hand, any behavior of marginal land managers is at risk of the threat of damage to the ecosystem of marginal lands. That way, farmers also need to improve their abilities in pro-conservation behavior. Fiber-rooted plant varieties cultivated on land with high slopes are prone to causing erosion (landslides). The actions of farmers who do not heed conservation principles will exacerbate the risk of land damage (Barrow, 1991; Forbes, 1986). and this is still triggered by factors that cause the movement of these materials such as rainfall, earthquakes, erosion of the slope feet and human activities (Naryanto, 2013). This includes degradation of soil fertility. This problem requires the right alternative solution in relation to the importance of marginal land management farmers being able to behave pro conservation (Ananto, 1991). The chosen theme has an important value when it is realized that so far marginal land is still managed by farmers using conventional farming techniques that have not paid attention to conservation principles. In terms of the form of pro-conservation behavior, it is

important to implement marginal land management farmers, because it is useful to reduce the risk of land degradation. If allowed to drag on, the behavior of farmers who are not yet pro-conservation has the potential to reduce the productivity of agricultural businesses in the future. The research objectives are: (1) Describing the profile of farmers who have pro-conservation behavior in managing marginal land (2) Finding social, economic and ecological factors that support and inhibit pro-conservation farmer behavior in managing marginal land, (3) Assessing various forms pro-conservation behavior by farmers in managing marginal land.

2. Material and Methods

The research location was set intentionally in a marginal land village in Karang Kobar District, Banjarnegara Regency, and Central Java Province. The research method used was descriptive survey with qualitative and quantitative approaches. The types of data needed are primary and secondary data. The study population includes all farmers who manage marginal land in the study location. The technique of determining respondents was simple random sampling. Primary data collection techniques through in-depth interviews, observation and FGD. Secondary data were collected through documentation analysis. Simple statistical calculations are used for quantitative data analysis. All analyzed data are presented in a descriptive description. The data to be searched for regarding this research are summarized in interactive analysis which consists of 4 coils; data collection, data reduction, interpretation and conclusions (Miles & Huberman, 1994).

3. Result and Discussion

Respondents include forest outskirt farming communities who have a unique profile. Respondent profiles are formed from the resultant result of adaptation to the natural environment which tends to be high tilted and prone to natural disasters. The age profile shows that the majority of respondents are in the productive age category. Such age conditions encourage respondent behavior to be more sensitive and responsive to various conservation and sustainable nature programs. Technology and innovation delivered through nature conservation and rehabilitation programs are easily adopted by respondents of productive age. Only a small number of respondents are classified as unproductive age. Both categories of respondents are also active in various land conservation and rehabilitation programs.

The profile of respondents in terms of land tenure status proves that all respondents have ownership rights over the land being cultivated for farming management. Respondents' ownership rights over agricultural land are obtained through a system of partible inheritance from the inheritance of the parents which is passed on to their children and grandchildren from generation to generation. Very few respondents have financial capacity to obtain ownership rights over agricultural land through purchase transactions from other parties.

The condition of the profile in terms of the education aspect shows that the majority of respondents have low education (SD / SMP as equal) which takes approximately 6 to 9 years. The number of respondents with high school education / equivalent was 60 percent and those with higher education were only 3.33 percent. Even so, the limited education for respondents did not cause closed farming behavior to environmentally friendly farming techniques. Respondents' curiosity and experience have motivated the innovativeness of several conservation practices that ensure the safety of their farms from the threat of natural disasters, particularly (soil) erosion.

Judging from the experience in farming, around 13 percent of respondents have a lot of experience, some 80 percent have moderate experience, and 17 percent of them have low experience (less than 5 years). In terms of the income level, it is only 23 percent high, 50 percent high and 27 percent low. Thus it can be said that the average respondent has a moderate income All respondents try to maintain a balance between income and expenditure. Even though the majority has low education, respondents can make a balance between income and expenditure.

Judging from the expenditure side, it shows a moderate category of 73 percent. Respondents have a high expenditure category of 13.33 percent. As for those included in low expenditure, only 13.4 percent. Thus, there are the majority of respondents who have moderate expenses in household expenses.

The profile of the area of land for farming shows that most of the respondents (53.33 percent) have medium land area and the majority of them are farmers. As many as 23 percent have high land ownership and 23.33 percent have narrow land. Thus it can be said that on average (fifty percent more) has a medium land area. The condition of the profile in terms of socioeconomic status proves that 20 percent of respondents have high socioeconomic status. As many as 53 percent have medium socioeconomic status, and only 27 percent have low status in their socioeconomic status. Thus it can be said that on average (more than fifty percent) have moderate socioeconomic status. Details of the respondent's profile are shown in Figure 1.

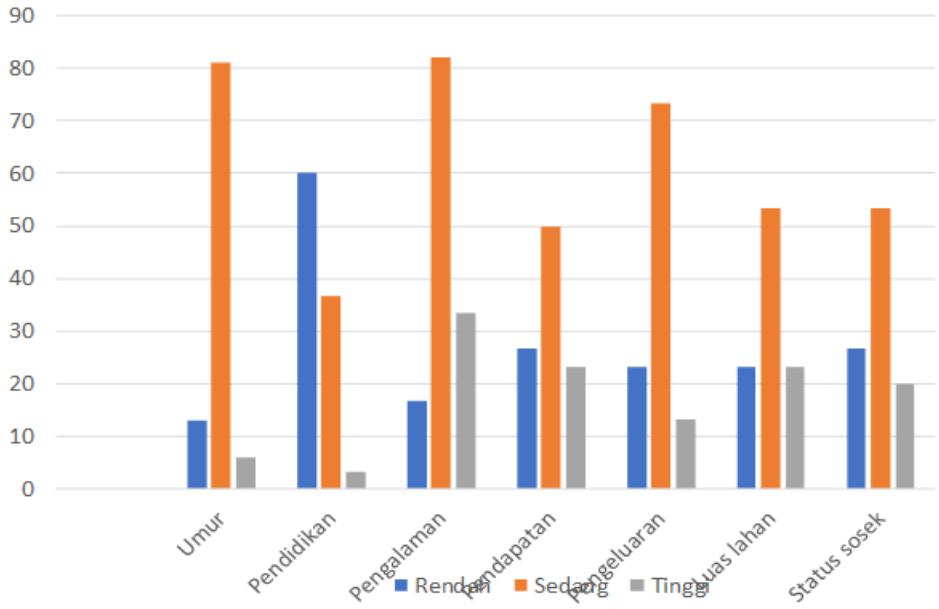

Figure-1. The Respondent's Profile.

Respondents who had experienced natural hazard disasters were 79 percent. Disaster conditions of natural vulnerability have had different impacts on the respondents. The number of respondents who experienced severe impacts was more than half or 53 percent. Natural hazards disasters cause damage to managed agricultural land, causing losses to crop failures and delaying the planting season for some time. Natural disasters in the form of floods that cause erosion and landslides and their impacts cause the layout of agricultural land to change. Agricultural land is covered with soil carried by water currents. The surface structure of the respondent's agricultural land was damaged and there was severe degradation. Landslides and erosion have been experienced several times by this group of respondents. The topography of agricultural land managed by the respondents, on average, has a high slope. These condition will become dangerous if the extraction on the forest over the limits of its natural growth (Hendri, Hakim, & Bathoro, 2018).

Respondents who manage farming on land with a low slope and are affected by land insecurity with moderate impacts are relatively few or 16 percent and 10 percent are mild. The results of the observations show that the location of the agricultural land of the two groups of respondents is in the downstream stretch of the land with a severe impact. The average land location is in the lowlands. The surface of the agricultural land is covered with accumulated ground flow carried by landslides and erosion from the upstream, which has a high slope. However, land cover was not as thick as that of high slope agricultural land. Therefore, it is easier for respondents to repair damage. The losses incurred by respondents with moderate and mild impacts are crop failures when natural disasters occur. Respondents did not delay the planting season because the condition of the land could be rehabilitated immediately.

The number of respondents who have never experienced a land hazard disaster in the Karangkobar District area is only a small number (21 percent). The location of the respondent's agricultural land without the impact of natural hazards is on a plain without slope. The location of agricultural land is also far from the respondent's agricultural land which had a severe impact. Details of the explanation on the percentage of respondents with different agricultural land conditions in the natural hazard disaster are shown in Figure 2.

Respondents who have been exposed to natural hazards due to landslides and joint erosion who have never been affected have had the awareness to apply farming techniques that pay attention to conservation principles. However, the level of intensity level of farming techniques that are pro environmental conservation of natural resources among respondents is different. Respondents with severe impacts ha: ve the highest intensity level of pro-conservation farming behavior. Farming behavior by applying several steps of making slopes or barrier for landslides by arranging rocks regularly along the direction of the land located at each bottom. The *grenjengan* technique is considered by respondents to be effective in understanding the flow of land erosion which causes the effect of eroding the land surface so that it is degraded and reduces fertility on land that has lost its top soil. The grenjengan technique is carried out by respondents as a form of preventive effort when facing natural hazard disasters in the form of landslides or erosion due to heavy water flows during high rainfall. Another form of preventive effort is in the form of planting elephant grass which the respondents believe can hold the land from the pressure of landslides and erosion. Respondents also performed agricultural land processing using sitting terraces and shering terraces with a severe impact to prevent landslides and erosion. Beside that, there are climate changes have been effected in some areas that made the problem more serious one (Naryanto, 2013).

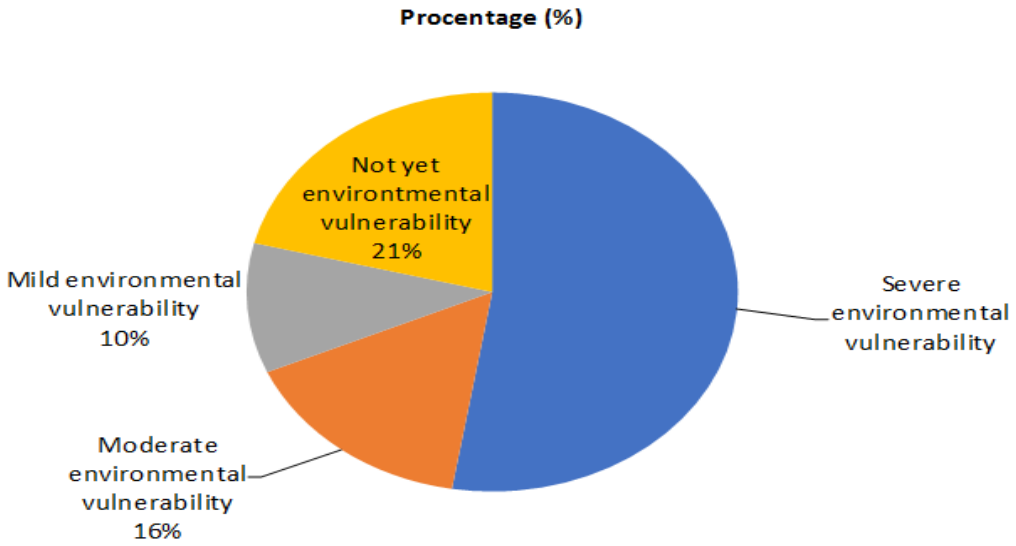

Figure-2. The percentage of respondents experiencing degradation of agricultural land with different vulnerabilities.

This phenomenon causes biodiversity to decrease as a result of which land productivity is also reduced (Andrew, 2019). In tropical monsoons, such as in Indonesia, the rainfall sometimes exceeds the specified limit. The result is landslides, especially in land areas with high slopes (Ananto, 1991).

The intensity level of pro-conservation farming techniques carried out by respondents with moderate and low impacts was more intensive than respondents who had never been affected by natural hazards. However, the intensity level is lower than that of respondents with a severe impact. Respondents with moderate and low impact participated in using grappling techniques to prevent vulnerabilities even in simple forms. Both groups of respondents planted elephant grass on sloping land to prevent damage to agricultural land due to landslides and erosion. Only a few respondents with moderate impact applied the shering terrace and sitting terrace techniques to control the threat of landslides and erosion.

Respondents who were not affected by natural hazard disasters participated in applying pro-conservation farming techniques, although at a relatively low intensity level. The activities of respondents who had not been affected were also observed planting elephant grass and making mounds to hold the land to prevent landslides and erosion. *Guludan* is different from grenjengan because it is made from piles of soil and not in rocks. Usually arranged around the farm. Another preventive behavior conducted by the respondents was planting bamboo in a corner of the agricultural land. Bamboo is believed by respondents to be a plant that functions as a water retainer and absorber. All respondents were also active when there were extension activities, training and demonstrations on how to disseminate pro conservation farming practices and materials. Respondents are members of farmer groups that are active in the land rehabilitation movement activities at the research location. Guludan and Brenjengan and also bamboo cultivation area part of local wisdom for preventing threat of natural vulnerability in those location. Local wisdom in Babel Province needs efforts integrative ways to revitalize behavior and actualize local wisdom that is still pro-environment (pro-conservation) to be able to move the community (Ramli, 2010).

The behavioral actions of respondents who carry out the pro conserbation farming technique are detailed in Figure 3.

The percentage of respondents experiencing degradation of agricultural land with different vulnerabilities. The intensity level of pro-conservation farming techniques carried out by respondents with moderate and low impacts was more intensive for respondents who had never experienced natural hazard disasters. However, the intensity level is lower than the respondents who had a severe impact. Responding to moderate and low impacts involves implementing grading techniques in preventing vulnerabilities even in their simple form. Both groups of respondents planted elephant grass on sloping land to prevent damage to agricultural land due to landslides and erosion. Only a few respondents with moderate impact applied the shering terrace and sitting terrace techniques to control the threat of landslides and erosion.

Respondents who were not affected by natural hazard disasters participated in applying pro-conservation farming techniques even though the intensity level was relatively low. The activities of respondents who had not been affected were also observed planting grass and making mounds to hold the land to prevent landslides and erosion. Guludan is different from grenjengan because it is made from piles of soil and not in rocks. Usually arranged around the farm. Another behavior prevention that the respondents did was planting bamboo in the corner of the agricultural land. Bamboo is believed by respondents to be a plant that functions as a water retainer and absorber. All respondents were also active when there were extension activities, training and training on how to socialize pro-conservation farming practices and materials. Respondents are members of farmer groups that are active in land rehabilitation activities on site.

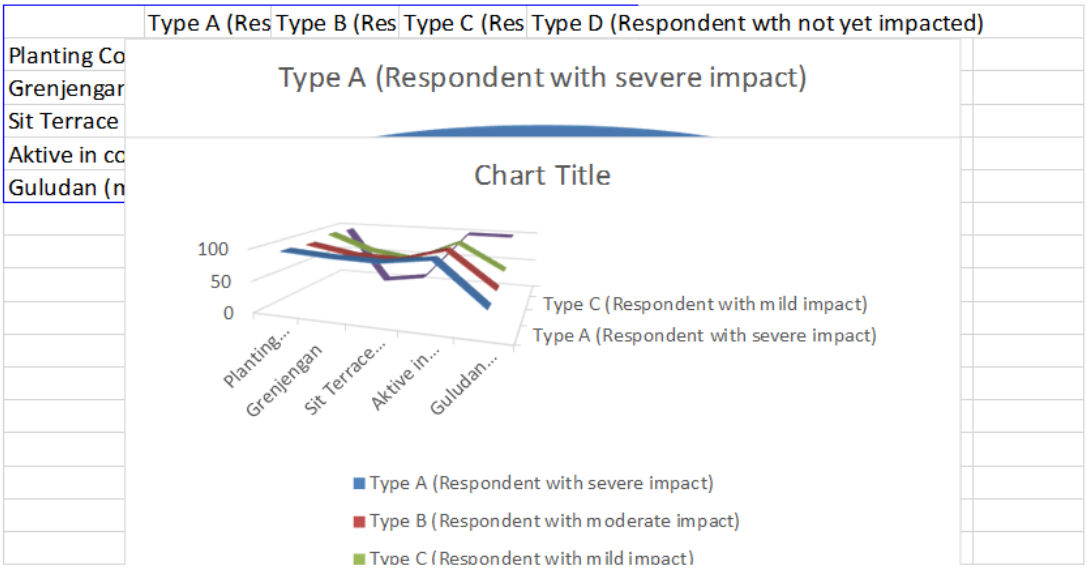

Figure-3. Variation of respondent bahaviour in pro conservation farming.

The realization of the respondent's behavioral actions in applying pro-conservation farming techniques is determined by several social factors that have a supportive influence, namely mutual cooperation, community service, creativity, progressive (progressive) thinking, communication, community openness, innovation and solidarity, collectivity and honesty. All social factors that support the respondent's behavioral actions in using pro-conservation farming techniques are closely tied to the values and social norms that are maintained in the social system of the community at the research location. The value of collectivity and solidarity in preserving nature still persists in the socio-cultural system of the people in the Karang Kobar District area.

All respondents are aware of the risks borne by natural hazard disasters that can be caused by non-pro-conservation farming techniques. Since the disaster, natural vulnerability and occurring several times, in turn, prompted respondents to be alert and careful in cultivating agricultural land, especially those with high slopes. The behavior of respondents in pro-conservation farming has received moral and material support from the Banjarnegara Regional Government. Several programs are routinely organized by the local government to increase awareness and behavior of respondents along with other farmers to implement pro-conservation farming techniques.

Respondents also explained that in addition to the existence of supporting social factors, there are several social factors that hinder farmers from implementing pro-conservation farming techniques at the research location. Some of these inhibiting factors include conflicts of interest between groups, contravention between profit targets and nature preservation, narrow insights into conservation, farming habits that destroy physical land, social disparities, short-term consumerism culture and penetrating attitudes. Respondents, together with other farmers and agricultural and forestry extension workers, as well as the village government collectively tried to suppress the influence so that several inhibiting social factors did not surface. The risk of various social inhibiting factors is disseminated to farmers through extension activities, training and rigging there. Various social factors that support or hinder the respondent's behavior in using pro-conservation farming techniques are detailed in Figure 4.

Respondents' behavior in applying pro conservation farming techniques is not only influenced by social factors. However, several economic factors also become supporting and inhibiting factors. Various economic factors that have the power to support respondents in implementing pro-conservation farming techniques are the availability of business capital, the availability of costs to purchase pro-conservation plant gardens, credit / debt free conditions, ownership of savings, distribution of income from current family members, security in marketing and the price of crops. Economic factors determine pro-conservation farming techniques at the individual level of the respondent's ability. The conditions of the supporting economic factors are rarely in the collective environment of the respondents. Only saving is a supporting economic factor which is collective in nature. This is because the respondent participates in the activities of saving and borrowing from residents both in neighborhood ties and farmer groups.

Respondents always took into account several economic factors that prevented them from disturbing pro-conservation farming practices. Several economic factors that hinder the implementation of pro-conservation farming techniques include limited business capital, a lot of debt, limited costs, no side income, no labor costs, the price and market for unprofitable crops and crop failure. Various economic factors that support and prevent respondents from applying pro conservation farming techniques are listed in Figure 5.

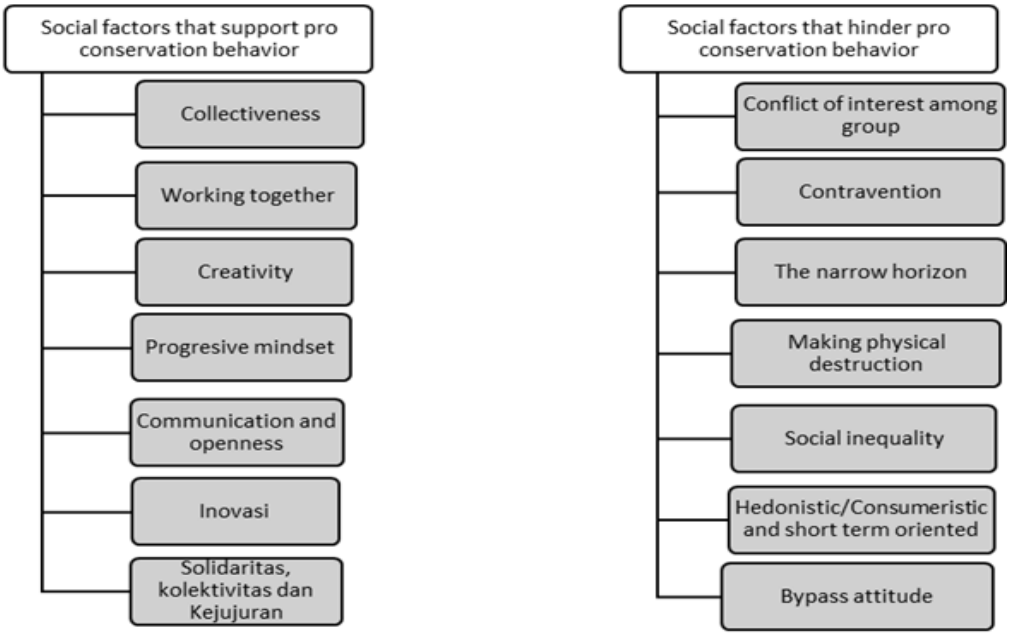

Figure-4. Variation of social factors that support and hinder pro conservation behaviors.

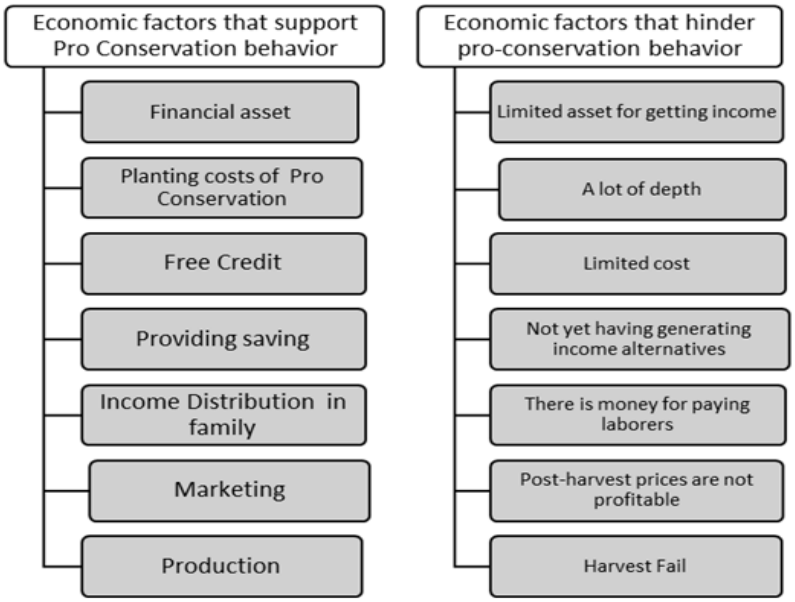

Figure-5. Variation of economic factors that support and hinder pro conservation behavior.

The awareness and willingness of respondents who practice pro-conservation farming cannot be separated from the influence of ecological factors. Based on the respondent's explanation, there are several supporting ecological factors, namely the quality of human resources who are aware of conservation and preservation of nature, sustainable natural conditions, diversity of pro-conservation plants cultivated by farmers, environmental conditions that are conducive to farming (rainfall, temperature and climate), support from other parties. who are active in the land rehabilitation movement and nature conservation practices, conscious and pro-conservation behavior. The existence of several supporting ecological factors is the result of interactions between farmers, the natural environment and other parties, especially agricultural extension workers, forestry officers, reformers in the land rehabilitation movement program and local government officials. All of the ecological factors support intensive attention so that the strength of their influence can be increased jointly by farmers and related parties. The strength of the supporting ecological factors becomes a barometer of the behavior of respondents and other farmers in maintaining and preserving the natural environment in each managed agricultural area.

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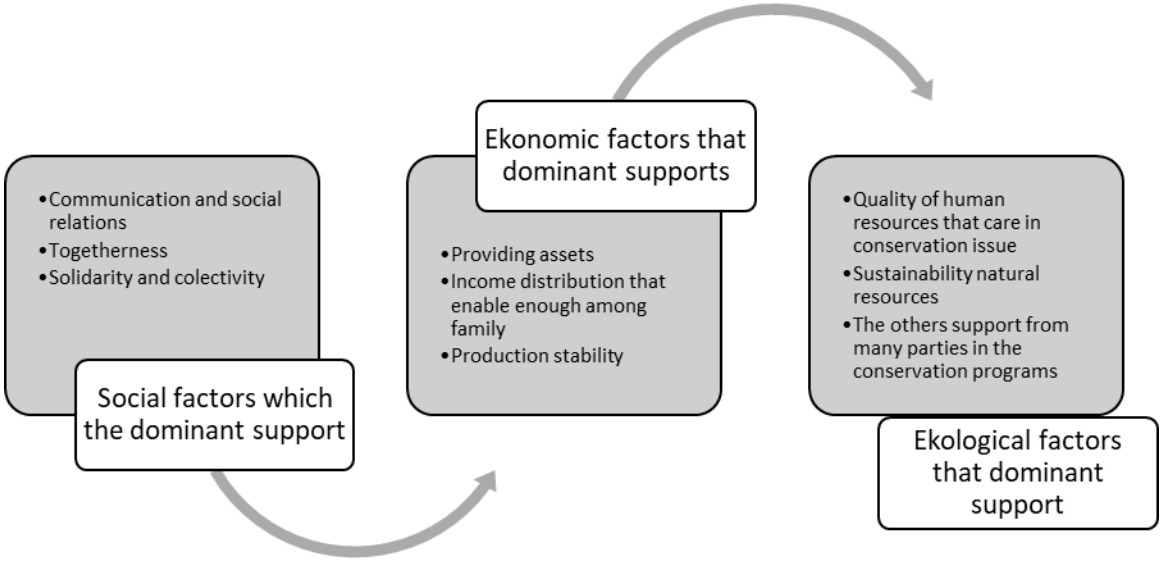

Figure-6. Social economic and ecological factors that dominant for supporting pro conservation behavior.

4. Conclusion and Suggestions

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References

Ananto, S. (1991). *Conservation of soil and water resources.* Jakarta: Kalam Mulia.

Andrew, N. (2019). Trade off between food security and forest exsploitation by Mestizo Household Uchayali, Peruvian. Amazone. *Journal of Agricultural System, 173*, 64-77.

Barrow, C. J. (1991). *Land degradation: Development and breakdown of terrestrial environments. Book review.* Cambridge: Cambridge University Press.

Forbes, D. K. (1986). *Geography of underdevelopment, A critical survey.* Jakarta: LP3ES.

Hendri, Hakim, L., & Bathoro, J. (2018). Community local wisdom as an effort to conserve pelawan forests in Bangka Regency Tengah, Bangka Belitung. *Journal of Environmental Science, 15*(1), 49 - 57.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: A source book of new methods* (2nd ed.). Thousand Oaks, CA: Sage.

Naryanto, H. S. (2013). Analysis and evaluation of disaster events landslides in Cililin, West Bandung Regency Province West Java On March 25, 2013. *STMB Journal, 8*(1), 39-49.

Ramli, S. (2010). *Disaster management.* Jakarta: Dian Rakyat.