



Strategy of Agricultural Extension to Improve Participation of the Farmers in Special Effort in Increasing Rice Production

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Abstract

The presence of the Government's program was necessarily able to improve farmers' participation. One of regencies considered as rice production centers and targeted to increase its production was Sukabumi Regency. Farmers in such Regency tended to focus on rice commodity, so it was no doubt on the farmers' capability of managing their agricultural business. But, it was allegedly that the participation level of the farmers was relatively unclear as there were so many programs provided by the Government for them. This research aimed at analyzing factors influencing the farmers' participation and the modeling of the proper strategy of agricultural extension to improve their participation in special effort to increase rice production. The research was done using survey approach in Sukabumi Regency, West Java, with the main locus located on the working area of BP3K Warung Kiaran and BP3K Jampang Kulon. Data collection was done using questionnaire and structured interview with 120 respondents on May-November, 2016. Data analysis was done descriptively and using path analysis. The findings showed that internal factor and farmers' capabilities had direct effects on their participation in the program of improving rice production, while external factors had indirect effects though the improvement of farmers' capabilities in such program. The effective strategy of agricultural extension to improve the farmers' participation in the program of improving rice production was participatory counseling by attempting to increase farmers' capabilities through intensive interaction with the counselor, provision of relevant sources of agricultural information, doing meaningful learning and learning by self-experiences.

Keywords: Participation; Capacity; Strategy of Extension.

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1. Introduction

The change of last paradigm of development which was initially using top-down approach has spayed people's genuine participation. It obscured the meaning of farmers' participation in the development [1]. That was due to programs that were less suitable with what people needed which made them have low participation and power in programs which were in relation with empowerment [2, 3, 4, 5, 6, 7]. [8] also expressed that the existing programs as community empowerment funnels had the opportunity to be diverted by certain parties for their own interests when inappropriate with people needs.

In harmony with that problem, the proper development for farmer community, currently, is conducting participatory development. This participatory development is a process involving people actively in all substantial decision pertaining to the people life in the countryside since, virtually, the people empowerment emphasizes the existence of participation process and direct role should played by the community [9, 10].

The positive side of participation is that the program executed will be more responsive to the real basic needs. The farmers' participation in overseeing and executing the program is ensuring the sustainability of social welfare development programs and will not be stopped by simply project age [11, 12]. One of the agricultural development programs that are being intensively conducted by the Ministry of Agriculture today is the increase of rice production through Special Efforts. As target of 2016, rice production is expected to reach 76.23 million tons [13]. As observed, government's involvement and assistance to farmers in the effort of increasing rice production has been optimal, so that farmers should be able to participate more to lead the program to be successful.

Farmers' participation in special program of improving rice production set by the Ministry of Agriculture, generally, is merely seen on how the farmers receive the assistance and apply it in their agricultural business, but their capacities have not been seen since their participation has not been measured properly. Strategy and model of conventional extension which are more emphasizing on the intervention in this condition are not relevant anymore, so they need a new strategy of extension which can increase the farmers' participation in the program of improving rice production and increase their capacity. This is because the increase of one's participation requires certain capacity in the implementation [14, 15, 16]. Therefore, farmers' capacity is a main element encouraging the farmers to participate in a program.

In line with the number of Government's programs received by the farmers, the farmers' participation in succeeding the programs is estimated to be false participation. Reference [17] sometimes, found false participation which is very unexpected in development activities as such an participation will give any meaning to the farmers to get advantages of the development or in another word, the farmers in the countryside cannot be empowered to enhance their welfare and life standards.

The Government's programs which are significantly related to the farmers in this country are quite a lot, especially which are managed by the Ministry of Agriculture. One program which is crucial enough, concerning the community main food, is the improvement of rice production. As a program, improving rice production

contains schemes of implementation such as, among others, community empowerment. The community empowerment should be accompanied by the participation of program receivers to make positive impact on the changes of behavior and output expected from the program.

However, how much the participation of the farmers in this program is often biased and not visible when the program's main output is reached. Whereas the main point of the community empowerment and of the extension contained in is not merely itself but behavioral change instead. Based on this problem, this research is done to analyze factors influencing the farmers' participant in the program of improving rice production and modeling the effective strategy of agricultural extension.

2. Research Method

The research was conducted in Sukabumi Regency, West Java, with main locus on working area of BP3K Warung Kiara and BP3K Jampang Kulon since these location had the greatest number of farmers receiving the program of improving rice production, so that these locations were considered as representatives relating to the research of the farmers' participation in Sukabumi Regency. The research was done during May until November 2016.

This research was quantitative research using survey approach which is performed to obtain data from particular location which is natural (not artificial) where the researcher performed data collection by distributing questionnaire and doing structured interview to the intended population [18]. Population in this research is farmers incorporated in farmers group which received the program of special attempt to improve rice production. The number of population is, according to the preliminary survey, 120 people. Since it was possible to obtain data from all population, sampling of this research used census technique, that is, all population were taken as sample.

Data processing techniques used in this research was descriptive statistics and path analyses. For the purposes of data analysis, primary data used were ordinal data were transformed to be interval data using MSI (Method of Successive Intervals). According to [19, 20], the terms should be met in path analysis were (1) all variables should have interval scale, (2) patterns of relationships between variables are linear, (2) residual variables have no correlation with previous variables and do not correlate each other (no auto-correlation) and (4) the model is only unidirectional. Furthermore, [21] and [18] suggested that for parametric test, requirement that must be fulfilled is that the data should have normal distribution and homogeneous. Instruments used in this research are questionnaires containing list of questions and interview guidance to obtain qualitative data. Validity test was done by testing questionnaire involving 20 respondents beyond the locations of the research. To see the correlation between the items with the total, Pearson Product Moment was used and then it has been found that 46 questions were considered as valid and reliable with the value of alpha cronbach of 0.786. Based on these, overall, it can be said that the instruments had been eligible for use to retrieve research data.

Results and Discussion

3.1 Characteristics of Research Respondents

At general, respondents of this research were 120 people which have a range of ages ranging from 30-70 years. They could be classified into three age classes were early adulthood (18 – 30 years), middle adulthood (30 – 60 years) and later maturity (more than 60 years) [22]. At these ages, people were usually in a condition which is relatively productive in working and seeking chances or information which are beneficial in relation with their welfare improvement and self prestige and then will end with a sense of satisfaction upon their success in gaining what they wanted in the past. Most of respondents' last educational level were junior high school and most of them had been working in agricultural business for 7 until 27 years. Technical training program in agricultural field they had experienced was Field School and Techniques for Rice Cultivation, especially programs for improving the productions of rice, corn and soybean with training hours ranging from 36-72 hours. Trainings provided for the farmers were, indeed, lacking in terms of application of competence due to the training hours which were relatively short. But by long-term experience in agricultural business, the farmers had relatively high competence to run the cultivation, especially the rice cultivation.

3.2 Influential Factors on Farmers' Participation in Special Effort to improve Rice Production

Reference [10] expressed that farmers were variously in a program which tended to be influenced by farmers' individual condition. According to the results of observation on several programs set by the Government, if the program is supporting and in line with the farmers' needs, their participation in such program will be high and vice versa, when it is less beneficial, the participation will be low. Farmers' participation is also highly influenced by their capacity. This is supported by [23] said that participation of the community in the process of development would be realized as a real activity when the three main factors are fulfilled; (a) advancement, (b) capability and (c) community's chances. Based on respondents' characteristics, generally they have good enough education level, so it is should be related with the will and capacity they own. The understanding about the program is also well so that their participation is well too. The empirical results of the analysis on both internal and external factors on farmers' capacity in increasing their participation in the program of improving rice production are shown Table 1. SPSS was used in the data processing to get the values of R^2 (*R square*) and ρ (*Standardized Coefficients/path coefficient*).

Table 1: Results of statistical analysis of the influence of both internal and external factors on the farmers' capacities in improving their participation

Description	Value	p-value	Annotation
R square	0.722	-	Residual is 0.28 or 28%
Coefficient of path X_1 with Y_1	0.227	0.014	as p-value is lower than α (0.05), coefficient of this path is significant
Coefficient of path X_2 with Y_1	0.023	0.004	as p-value is lower than α (0.05), coefficient of this path is significant

Annotation: X_1 : Farmer's internal factors, X_2 : Farmer's external factors, and Y_1 : Farmer's capacity

Table 1 shows that the Model $Y_1=0.227X_1 + 0.023X_2 + \varepsilon_1$ is significant since the p-value is lower than α that means that the hypothesis concerning both internal and external factors have significant influences simultaneously on the farmers' capacities is proven. This proves that, virtually, the high of farmer's capacity is influenced by the capacity of the farmer's individual alone in receiving all information and technologies supported by various conditions of the farmer beyond his control (external factors).

According to the interview to some respondents, farmer's internal factors are age, education level, income and farming experience which cause agricultural information taken from any source or given by counselors to be meaningful or not. For instance, relative young farmers with low-experience need more facilitators or roles of counselors, but in contrast, the older farmers with high-experience tend to consider the agricultural counselors as external supports or merely informants.

Besides internal factors, externals factors also have influence on the farmers' capacities to decide whether to participate or not in the program of improving rice production. This can be seen from the farmers that always support and receive all information from the counselors though the results of interview with some respondents show that interaction between farmers and counselors is relatively low and farmers' participation in the planning of the program of improving rice product is also low. However, the program of rice production improvement in Sukabumi Regency is still going according to the plan which proves that, virtually, the farmers will not escape from the presence of agricultural counselors especially in term of provision of information related to government programs. This is in line with the results [24], in which the role of agricultural field extension is very influential in determining the participation of farmers whether to participate or not in a government program.

Therefore, external factors such as the high reaction to the agricultural counselors can increase farmers' participation in succeeding a program set by the Government. To see that and subsequently how great the influence of internal and external factors and farmers' capacity on their participation in the program of improving rice production can be seen in Table 2.

Table 2: Results of statistical analysis of the influence of Farmers' internal (X_1) and external (X_2) factors and Farmer's capacity (Y_1) on their participation (Y_2)

Description	Value	p-value	Annotation
R square	0.792	-	Residu 0.21 atau 21%
Coefficient of path X_1 with Y_2	0.120	0.003	as p-value is lower than α (0.05), coefficient of this path is significant
Coefficient of path X_2 with Y_2	0.092	0.316	as p-value is higher than α (0.05), coefficient of this path is insignificant
Coefficient of path Y_1 with Y_2	0.141	0.004	as p-value is lower than α (0.05), coefficient of this path is significant

Annotation: X_1 : Farmer's internal factors, X_2 : Farmer's external factors, Y_1 : Farmer's capacity, Y_2 : level of

farmers' participation

The results shown in Table 2 describes that the Model $Y_2=0.120X_1 + 0.092X_2 + 0.141Y_1 + \varepsilon_2$ is not significant as it has one variable which has p-value that is higher than α . This result shows that external factors have no direct influence on farmer's capacity to participate in the program of improving rice production, but to increase their participation in the program external factors have indirect influence through capacity farmers have. Meanwhile internal factors are strong enough to influence the capacity and to increase farmers' participant directly. This means that to increase the farmers' participation needs strong effort of external factors to increase farmers' capacity so that the farmers can participate maximally. To see both direct and indirect influences of variables on farmers' independence completely, let see Figure 1.

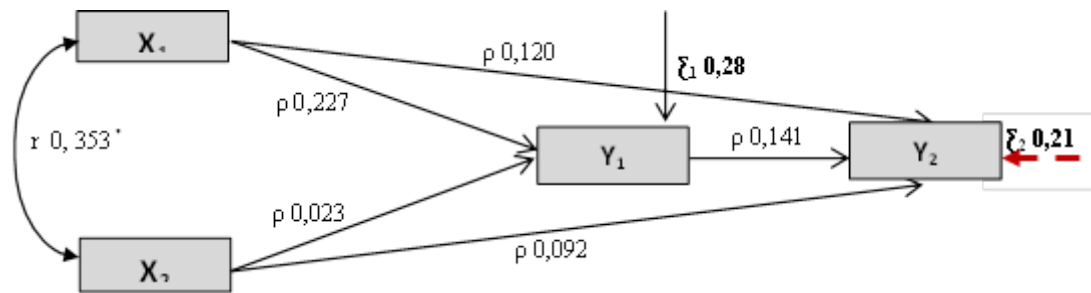


Figure 1: Path diagram of statistical analysis result

According to Figure 1, to determine the significance of influence of each variable on farmer's participation is as on Table 3.

Table 3: Direct and indirect influences of each variable

Description	Direct Influence	Indirect Influence	Total Influences
Influence of X_1 on Y_2	0.120	Through Y_1	0.488
		$0.227 + 0.141 = 0.368$	
Influence of X_2 on Y_2	-	Through Y_1	0.164
		$0.023 + 0.141 = 0.164$	
Influence of Y_1 on Y_2	0.141	-	0.141

The result of path analysis shows that, indeed, external factors (X_2) have no direct influence (path) on the level of farmers' participation in increasing rice production in Sukabumi Regency (Y_2). Meanwhile the two other variables are influencing each other and have direct path in increasing farmers' participation level. This is in line with the first review result in where the farmers had good capacity to encourage themselves to have a will and ability to participate in improving rice production. But that condition, virtually, cannot be categorized that the

increase of farmers' capacity can give decision by the farmers everlastingly to follow the program well accordingly to the existing technical guidance. This is due to that the farmers' participation is only in the levels of plan and execution, not in the level of participation which is able to evaluate the activities of program planned.

3.3 Model of Extension Strategy

Extension based on community's need can be sustainable and unstopped by merely project age [11]. Internal characteristics and increasing capacity of farmers have been proven to have positive influence on farmers' participation in programs set by the Government, especially in this research's location. This is in accordance with expressed that the farmers had more controlling power to determine which information they need and which sources having same perception with theirs [25], so that, the extension became more as demand-pull rather than science-push. This strengthens the research result showing that farmers' participation can be increased and sustainable when it is supported by the increase of farmers' capacity. According to the path analysis, the model of extension strategy to stabilize the farmers' participation in the program of empowerment is as shown in Figure 2.

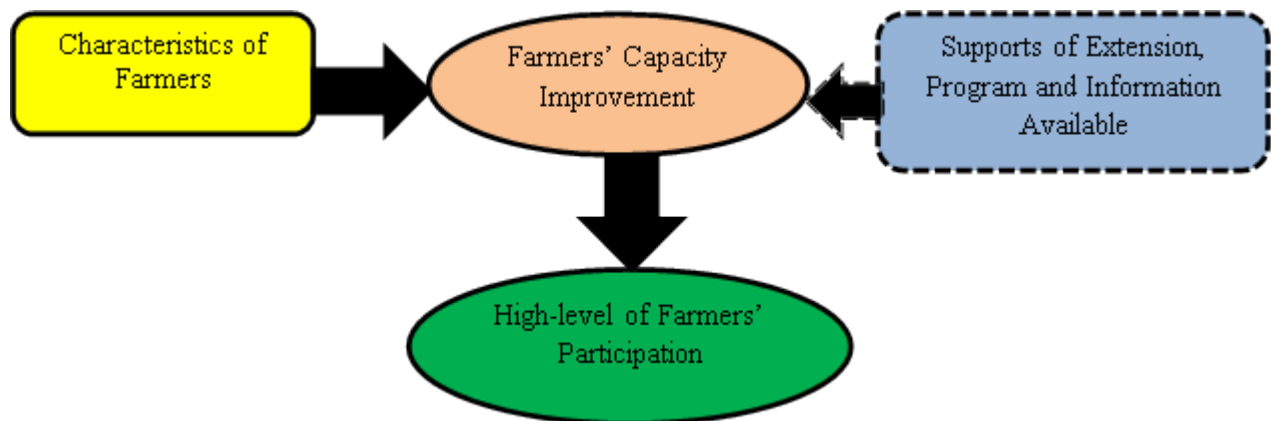


Figure 2: Model for Stabilizing Farmers' Capacity to increase their Participation

3.4 Extension Strategy to increase Farmers' Participation

Development through community's participation is one of efforts to empower their potencies in development planning relating to the local resources that are potentials, based on the deliberation study, are the increase of aspiration in the forms of will and real needs found in the community, the increase of motivation and participation of the community in development process, and the increase of their sense of belonging in relation with the arranged activities. Programs arranged by the Government are given to the farmers after completely formed. Generally the farmers are just being the executors of the programs without involved in the arrangement process. A program will be successful when its objective, in macro (production improvement) is in line with farmers' objectives of their agricultural business, that is, increasing their income and welfare and other macro-objectives that are should be in accordance with farmers' expectations in agricultural business. The harmonization of execution steps (policy, movement, coaching, service and control) which are enabling the

objectives to reach simultaneously are needed to realize the farmers' participation.

That participation was needed to ensure the sustainability of the development since a sustainable development was very depending on social processes [8]. The three social aspects were society, economy and environment should be integrated where individuals and institutions should play their roles to make a change. Participation in the context of development has been considered as essential tool. In a simple manner, participation means taking part and sharing something each other. Participation is a manifestation of one's or social behavior in realizing their roles accordingly to the expectations of the community who take social action to achieve certain objectives [26]. A condition which is highly influencing farmers' decision to participate in the rice production improvement is economic climate which is beneficial and acceptable in social view. Participation can be expressed as immixture in something offered.

Farmers' actions in their participation are not separated from their capacity and calculation of profit and loss. The farmers in reasonable circumstances will not do things beyond their abilities or things that harm them. Farmers' capacity is associated with environmental situations and conditions inherent to themselves [27]. Farmers are the main subjects who determine the productivity of agricultural business they manage. Instinctively, farmers hope their agricultural business give high benefits from resources they manage. Those resources productivity is depending on applied technologies.

Therefore, farmers' capability and will to adopt recommended cultivation technology are absolute requirement to reach the goals of agricultural development efforts in any region. The achievement of rice production level is a result of combination of farmers' participation in planting, implementing technology of cultivation and working together in groups supported by services smoothness and extension. The Government expects the farmers can do intensification in rice planting. Planting the rice using recommended cultivation technology shows the farmer's participation in improving rice production. The success of the program of special effort to improve rice production is departing from three basic assumptions are, 1) the need for a better effort to make the farmers participate to improve rice production, 2) young farmers, many of them have left agricultural business because of many factors, internally and externally and 2) farmers with assistances from the Government or others will play important role in rice production improvement.

3.5 The First Step to stabilize Farmers' Participation

Adapting the participation steps to grow farmers' participation in innovation offered [28] are: firstly, softening the rejection and seeking the acceptance, secondly, showing the farmers as active and responsible participants through follow-up efforts which are allowing them to get used to develop innovative activities and thirdly, increasing farmers' role to be more active in developing production process in their locations.

According to the research result model, to increase participation is not merely supported by giving assistance in the forms of facilities of capital strengthening and infrastructures. Stabilizing farmers' participation also should be supported by the increase of farmers' capacity by doing extension activities such as training, apprenticeship and intensive interactions with counselors so that the farmers are willing to work together and able to apply

recommended technologies and to not stop the application though the project is finished.

Farmers' participation is the determinant of the success of increased production. The success of rice production improvement in Sukabumi Regency is the incarnation of farmers' participation. A paradigm of agricultural development which emphasizes only on production improvement like in the past is implemented by modeling program and managing the development of the rice production improvement. Such a development management positions the farmers as objects and assumes that farmers' income will increase as production increases [29]. Therefore, this research is also proving that agricultural development strategy which is run by determining a package of production policy and various technological engineering should be supported by the increase of capacity the farmers own so that they have capacity to manage their agricultural business independently and sustainably.

3.6 Strategy of Extension to increase the Farmers' participation

An effective participation pattern is supported by capacity of collaboration/working together in overlays farmer group ties as social system and media of interactions for behavioral changes by adopting relevant values, technologies and structures [30]. The growing capacity to work together in groups is the basis of the success of farmer group in applying recommended technologies which is nothing but the knowledge about agricultural business in a cooperative agreement that is mutually agreed by its members. By the development of farmers' capacity, it is expected that the process of adopting technologies which is constrained by the structure of rural communities dominated by the bottom layer farmers (which are less responsive to economic chances) can break through the symptom of stagnancy with dynamics arising from the inside [31]. Patterns and work procedures need to be adapted and refined in order to support the consolidation of farmers' participation in implementing recommended technology.

The pattern and work of modern extension put farmers into actors in participatory development. Farmers' participation and dynamic farmers' attitudes can be key to successful rice production improvement. Therefore, operational efforts are necessary to strengthen the capacity of farmers so that their participation is increased as follows:

1. Conducting education and training simultaneously with agricultural training institutions related to farming and marketing techniques.
2. Improving interaction between extension workers (civil servants, self-help and private) with farmers through involvement in program activities.
3. Setting up a strategic learning location in the farmers' environment, so that farmers can study and solve together the problems facing themselves (meaningful learning from experience).
4. Teaching the farmers about accessible agricultural information sources such as: via the internet (cyber extension).
5. Reducing the dependence of rice farmers on assistances which are less helpful in reaching their maturity by increasing cooperation and networking by extension workers and related parties.
6. Managing routine counseling from farmer to farmer by learning peer-to-peer experiences with

initiatives from extension workers.

4. Conclusions

Internal factors and capacity owned by farmers directly affect the level of their participation in the program of increasing rice production, while external factors have indirect influence to increase the farmers' participation, that is, by increasing the capacity of farmers. An effective extension strategy for increasing farmers' participation in rice production improvement programs is participatory education by doing effort to improve farmers capacity through intensive interaction with extension workers, provision of relevant agricultural information resources and meaningful study or joint study

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