

**PARTICIPATORY COMMUNICATION VARIATION,  
ITS IMPACT AND DEVELOPMENT THRESHOLD:  
Dealing with Geographical Disparities at Three  
Agricultural Technology Parks, Indonesia**

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*Abstract*

Although participatory development communication (PDC) is still young, its variations in some countries have been emerging to a dynamic field nurtured by many disciplines. At the same time, PDC practices for sustaining the agricultural sector in different geographics require development thresholds as psychological and sociological necessity. Consequently, the implementation of agricultural innovations in Indonesia often leads to variations in the participation practice in several Agricultural Technology Parks (ATP) that need specific treatment. This study aims to analyse the comparison of variables in each location of ATP Bogor, Lamongan, and Garut. To determine relevant strategies to achieve optimal results or goal(s). This research design was a cross-sectional survey, the data collected through a questionnaire involving 218 relevant respondents. The method used in this research is the T-test method, Kruskal-Wallis Test then continued with the Dunn (Post Hoc) Test. This study results in a P-Value shows each variable <0.05. This indicates there are distinction of each quantity. Hence, it can be stated that there is a significant difference in the concentration of the three ATPs: Bogor, Lamongan, and Garut. As a result, different communication strategies are needed in handling variations in participation. Thus, different locations (geographical side) affect the difference in the level of PDC as well as affect the level of social entrepreneurship spirit that has an impact on the level of welfare of ATP farmers.

Keywords: participatory communication development, development threshold, social entrepreneurship, agricultural technological parks, geographical view.

## 1. INTRODUCTION

### Background

Although participatory development communication (PDC) is still young, its variations in some countries have been emerging to a dynamic field nurtured by many disciplines. At the same time, PDC practices are not easy, but the stance taken should reflect the methodology to be applied. PDC can be a unique window into human development. Allowing it to pioneer new concepts and practices that other fields can emulate. This reality can also be seen in the diverse character of PDC in relation to social change in Southeast Asian countries. The type and level of participation is not always uniform. As a result, human resource development in each location requires different strategies (Quebral, 2006).

The practice of PDC in Indonesia in the context of agricultural development is more directed at farmer participation by strengthening technological innovation and agricultural innovation systems. Meanwhile, an invention requires to be communicated, disseminated, adopted, and applied by the production sector in order to become an innovation and generate economic value for farmers (Mulyandari, et al. 2015). So, as a form of government attention, the National Planning and Development Agency (Bappenas) has programmed Science Parks (TS) in 34 provinces and Technology Parks (TP) in 100 (one hundred) districts within 5 years by considering geographical disparities.

Similarly, in accordance with the 2015 National Medium-Term Development Plan (RPJMN), the Ministry of Agriculture (MOA) through the Agricultural Research and Development Agency (Balitbangtan) was tasked to build 5 (five) Agricultural Science Parks (ASP) in the Experimental Farm area owned by the R&D Agency and 26 Agricultural Technology Parks (ATP) at the district/city level, with the mobilization of the ATP program that is based on the use of three approaches: socio-cultural, ecological, and economic approaches.

By applying a socio-cultural approach, it is expected that an understanding of the needs of the local farming community can be obtained comprehensively which will be an input for managers. Moreover, another expectation to know the potential basis of local resource excellence as a reference for the development activities of farming communities. The economic approach is through the development of productive business units to increase the income of farming communities while still paying attention to market demand (Mulyandari, et al., 2015). Besides, the strategy used in the ATP program is to develop an integrated community by synergizing nature, society, and innovation, along with the application of the agricultural innovation system as a mechanism for agricultural social entrepreneurship (Ellis, et al., 2011; Hall, et al., 2006).

It is a necessity to utilize the social entrepreneurship approach as a new perspective of development communication with the ATP agricultural innovation program that prioritizes improving the welfare of farmers who join, namely through the creation of cultivation technology-based products that are adaptive to the agrosystem and social and cultural order, especially with the social ecology framework (Austin, et al., 2012; Trivedi, 2010). Where the social ecology framework gives attention to the context of individuals as actors of change; approaches to social problems with institutional or organizational intervention strategies; and attention to the level of change is an environmental demand (Ellis, et al., 2011; Trivedi, 2010).

This approach is in line with the multiple goals of social entrepreneurship; social, economic, and environmental value creation that requires participatory communication with hybrid organization (Battilana, 2018). This organization has received attention in the last decade as participatory governance (Defourny & Nyssens, 2012). However, communication, especially participatory communication to build the spirit of social entrepreneurship as an effort to improve the welfare of farmers to be effective, requires a development threshold. It also requires a level of participatory development communication to build; information sharing, consultation, collaboration and empowerment (Aycrigg, 1998; Mefalopulos, 2003; Mefalopulos, 2008; Kherajit & Flor, 2014; Lange., et. al., 2018), as a proportional way to create change and development.

#### Research Problem

Concerning the background and the gaps that have emerged, research is needed to find out the differences in the level of participatory development communication, the level of social entrepreneurship spirit and the level of farmer welfare in the three ATPs by considering the development threshold as a foothold for development management strategies through different locations and variables in each ATP with several problem formulations;

RQ1:

How is the level of participatory development communication, the level of social entrepreneurship spirit and the level of farmer welfare at three ATP locations: Garut, Lamongan, and Bogor? Is there any difference?

RQ2:

What are the characteristics of each location as a consideration for development thresholds?

RQ3:

How do the characteristics relate to the level of participatory development

communication, the level of social entrepreneurial spirit and the level of farmer welfare?

## **2. LITERATURE REVIEW**

Participatory development communication (PDC) could be said was born from development communication and participatory research, as defined by Besette (2006) a planned activity that is based on participatory processes and on media and interpersonal communication. This communication facilitates dialogue among different stakeholders around a common development problem or goal. The objective is to develop and implement a set of activities that contribute to a solution to the problem or the realization of a goal, and which support and accompany this initiative (Besette, 2006).

Quebral (Besette, 2006) on the other hand, highlighting the varied character of participatory development communication in relation to social change in Southeast Asian countries, the type and level of participation is not always uniform. In Malaysia, for example, participation does not always translate into direct criticism of government policies. The same goes for the Philippines, where political institutions are more westernized. On the other hand, in old democracies such as Thailand, participatory development communication follows a top-down diffusion model while development communication is perceived as a new and ever-changing insight.

As for hierarchical societies like Cambodia, especially regarding its form of government, participatory development communication is still uneven. Formal communication is less in number, but it seems that there is more informal communication on the ground. Clearly, participatory development communication is a product of a society's cultural environment and socio-political institutions as well as an acceptance of the interaction of communication and development thinking (Quebral, 2006).

The practice of development communication in social change experienced in various countries is required to cover a wide range of actions: Social includes human rights and the emergence of civil society. Economic includes an egalitarian society: Political includes democratization, including in specific cultural contexts. At each social, economic and political level information and communication flows play an important developmental role (Kumar, 2011).

Nevertheless, there are two needs as the premise of communication for development; First, the needs of the communication and; Second, the needs of the audience. Communicators can communicate through

information dissemination and education, so as to motivate the masses. Meanwhile, audiences can communicate through development information, as an effort to demand development and find solutions to development problems. These two perspectives require the prerequisites of: (i) a rational local approach to communication rather than a centralized one; (ii) credibility of roles in communication relationships, and (iii) access to communication (Kumar, 2011).

For this reason, participatory development communication practices require development thresholds as a form of rationality that requires communication to adjust needs, which is a psychological and sociological consideration. The importance of development thresholds is based on the choice of strategies to deal with the stark differences between the problems of rural and urban communities, between the problems of the elite and the masses, and between the problems of men and women. This is a threshold difference that can make the development gap. In a sense, the development gap can be identified through the socioeconomic gap, the knowledge gap, and the communication gap,

Besides, the development gap, will place communities or target groups at different development thresholds, which requires different development strategies especially for creating effective communication. Thereafter, the development gap is often the result of communication patterns that are far from the mainstream of development. The result of a gap between urban and rural communities, and it also occurs between the rich and the poor including between men and women (Kumar, 2011), education levels and others. Participatory communication practices in the development process vary in level, depending on the conditions and characteristics of the community as well as the process of the applied communication model.

Then, the level of participation will follow according to the stages of communication (Aycrigg, 1998; Mefalopulos, 2003; Kheerajit & Flor, 2014; Lange, et al., 2018), namely: Information sharing, which is one-way communication, communicators and communicants inform each other what is being done through idea generation and program socialization; Consultation, which is communication with an emphasis on feedback, where communicants provide input, but do not have a real voice in the decision-making process, especially in program planning; Collaboration, which is the input in decision making in program implementation with a two-way communication process through cooperation and open interaction, and; Empowerment, which is the transfer of decisions and resources through two-way communication by giving authority and ensuring decision making and program implementation together.

The social entrepreneurship approach with the principles, processes, and operations of social entrepreneurial value creation is often implemented through the development of agricultural innovation programs in Agricultural Science Parks or Agricultural Technology Parks (Hudcová, et

al., 2018; Ellis, et al., 2012). This approach may facilitate policy implementation at the farm level, mentoring and provision of consultation, training and practice in an environment that balances and harmonizes social, environmental and economic interests (Hall, 2006). In addition, the existence of ATP to accelerate the adoption of agricultural technology findings at the farm level. Research by Ellis et al. (2012) on agricultural innovation in Doi Tung - DTDP, a type of Agricultural Technology Park in Thailand, showed that the practices built are increasingly developing as a model of agricultural social entrepreneurship, running effectively with technology adoption among farmers.

Research by Bansal et al. (2019), shows that social entrepreneurship can be a way of social change that can adapt to environmental needs and as a driver of sustainable development. This is recognized by various parties as an alternative way to realize change. Social entrepreneurs in various countries have demonstrated their role and effectiveness in motivating communities by driving the social change needed to achieve sustainable development (Bansal et al, 2019). Similarly, the experience of social entrepreneurship in agriculture in Czech countries shows the practice of sustaining social, economic, and environmental cohesion in rural areas, especially for proportional improvement of farmers' welfare (Hudcová et al. 2018).

### **3. RESEARCH METHODS**

#### **Research Design**

This study used a cross-sectional survey design at three ATP sites: Garut, Lamongan, and Bogor, Indonesia. Data was collected at one point in time from farmers as the relevant data source related to the focus of this research. The results from these three locations became the basis for analysis or answers to the proposed problem formulation. The analysis method of this research is the Kruskal Wallis test to compare the three locations in addition to several things or considerations that need to be considered. This test is anova test for comparison of several groups, and includes a non-parametric test method where no normality assumption is required, the research data is ordinal or ranking. The test statistic is larger when the differences among the mean ranks are larger. It has an approximate chi-squared distribution with  $df = g - 1$ . It is more informative to use a modeling approach because the model parameter estimates give us information about the sizes of effects, which are more important than significance testing (Agresti, 2018; Black, 2020).

This test will show or confirm whether the observed objects are different (have differences), from different groups or the same? This test is also then included in the comparison method (pairwise comparisons). Ideally, the proposed error is 5%, the 95% confidence level used to obtain the

likelihood or probability of significance limits as a series of error type I tests. This can then be followed by comparing each group and looking at the P-Value of the test on the research data. Therefore, we could perform group tests (one to compare each pair of groups). If we adjust the P-Value so that overall, across all the tests, the Type I error rate remains at 5%. This is what a pairwise comparison does. By being strict about the P-Value you deem to be significant you reduce the power of the tests. The significance value is because the test value is less than 0.05 (Field, 2018; Black, 2020). Then proceed with the Dunn test as a test or further test of Kruskal-Wallis. Dunnett's test is the only multiple comparison that allows you to test means against a control mean (Field, 2018).

Kruskall Wallis's formulation as follows:

$$K = (N - 1) \frac{\sum_{i=1}^g n_i (\bar{r}_{i.} - \bar{r})^2}{\sum_{i=1}^g \sum_{j=1}^{n_i} (r_{ij} - \bar{r})^2}$$

$n_i$  : Total number of observation object within the group.

$r_{ij}$ : Rank (among all observations), group that observed in the research rank from j to i.

N: Total number of all observation in group.

Whereas:

$$\bar{r}_{i.} = \frac{\sum_{j=1}^{n_i} r_{ij}}{n_i}$$

Formulation rank of all observations.

#### Population and Sample

Using questionnaires as this research instrument, the population of the research is ATP in Indonesia whose total number when this research is done is about 4350 participants. The respondents of this research are 218 from three locations: Bogor, Garut, and Lamongan.

#### Instrumentation

The instrument of this study is a questionnaire containing both closed and open questions. The questions presented in the questionnaire are directly related to the objectives of the research hypothesis. The questionnaire in this study is divided into seven sections, namely: First is the socio-demographic of farmers consisting of age, gender, education level, asset ownership, farming experience, and motivation. Second is the level of participatory development communication that is consisting of information sharing, consultation, collaboration, and empowerment. Third is the level of farmers' social entrepreneurial spirit that involves social insight, appreciation of the sustainability of practices, innovation

capacity, ability to develop social networks, and ability to generate profits or return capital. Fourth is the level of farmer welfare consisting of income, power, basic human needs, human dignity, and partnership.

#### 4. RESULT AND DISCUSSION

##### A. Descriptive

Important factors or variables in this study are those related to farmer demographics which include age, farming experience, length of ATP, gender income, and education are basic data that have implications for or relate to other factors such as motivation, level of participatory communication, spirit of social entrepreneurship, and farmer welfare. The description is after the following table:

##### 1. Characteristics of Respondent

Characteristics Respondent	Statistic	Bogor	Garut	Lamongan
Age	Min	20	21	29
	Max	53	65	70
	Mean	40	40	53
	SD	10.5	11.0	9.2
Experience	Min	4	0	5
	Max	10	48	50
	Mean	6	14	25
	SD	1.8	10.2	9.0
Length of Involvement	Min	4	0	1
	Max	6	6	10
	Mean	5	2	3
	SD	0.92	1.65	1.67
Income	Min	250,000	500,000	1,000,000
	Max	1,500,000	10,000,000	5,000,000
	Mean	587,500	2,334,536	2,519,643
	SD	447,812	1,370,066	490,052

The characteristics of respondents in the table above found that the average age of farmers who became respondents in this study from Bogor and Garut was the same at 40 years, while in Lamongan the average age of farmers was older at 53 years. The highest farming experience is in Lamongan with an average of 25 years, the lowest is Bogor with an average of 6 years, and Garut with an average of 14 years. The length of time involved in agricultural activities or fields is on average the longest in Bogor with an average of 5 years, the lowest in Garut with an average



of 2 years and Lamongan with an average of 3 years. Regarding income, Lamongan is the location with the highest income with an average of IDR 2,519,643, and the lowest is Bogor with an average of IDR 587,500, while Garut has an average of IDR 2,334,536. It can be concluded from this that age and experience are linear with income. The length of ATP involvement does not show linearity with income.

Characteristics of Respondent		Bogor		Garut		Lamongan	
		N	%	n	%	n	%
Gender	Man	6	75.00%	76	77.60%	89	79.50%
	Woman	2	25.00%	22	22.40%	23	20.50%
Education	Elementary School (SD)	5	62.50%	40	40.80%	7	6.30%
	Senior High School (SMA)	2	25.00%	28	28.60%	81	72.30%
	Junior High School (SMP)	0	0.00%	27	27.60%	23	20.50%
	Vocation/Bachelor (Diploma/S1)	1	12.50%	3	3.10%	1	0.90%
<b>Total (N)</b>		<b>8</b>		<b>98</b>		<b>112</b>	

Characteristics of respondents in categorical data there are 2 variables, namely Gender and Education. Gender in three different locations shows the same thing, namely dominated by men with a percentage of  $\geq 75\%$  (75 percent and more). Education in the Lamongan area is dominated by high school education up to 72.30%, Bogor and Garut are dominated by elementary school education with a percentage of 62.50% and 40.80%.

## 2. Motivation

The motivation variable in this study is derived into four, namely motivation for or because of economic improvement (M1), habit (M2), according to the environment (M3), the most suitable job (M4), as for the detailed analysis below the following table:

Motivation	Score Mean			
	Bogor	Garut	Lamongan	Total
M1 (Edvancing economic)	4.13	4.05	4.07	4.06
M2 (Habitual Profession)	4.50	3.90	4.09	4.02
M3 (Environmental support)	5.00	4.05	4.45	4.29
M4 (Job appropriation)	3.63	3.89	4.47	4.18
<b>Total</b>	<b>4.31</b>	<b>3.97</b>	<b>4.27</b>	<b>4.14</b>

From the motivation data of the three research locations, it is found that Bogor occupies the first position or ranking with an average value of 4.31 followed by Lamongan with an average value of 4.27 and finally occupied by Garut with an average value of 3.97. The highest motivation value is M3 or the farmer's motivation is because the farmer's work is in accordance with the environment both from environmental conditions and what is produced from it (mean 5.00). This is also the highest mean of the three research locations. The highest mean of the motivation

variable is M3 (mean value 4.29). Thus, environmental considerations or aspects are an important part of farmers' motivation. The lowest motivation was that farmers are the most suitable occupation according to respondents, and this was found in Bogor with a mean of 3.63.

The lowest motivation among the four motivations measured in this study is farming as a familiar occupation or something that could be considered as a profession commonly chosen and pursued by the population, especially those who are the object of this study (mean value 4.02). Related to this consideration, the lower bound to be considered for Bogor and Garut is in the motivation related to the view and belief that farming is the most suitable job for the people in the neighbourhood. As for Lamongan, the lowest motivation is economic improvement compared to the other three motivations.

The description of the highest motivation in Bogor is that farming is a job that fits the environment (including the work process, work area, and what is produced from it) with a mean score of 5.00. In Garut, two motivations, namely economic improvement and suitability of this job to the environment, were the highest (4.05). This is in contrast to Lamongan where the highest motivation is the opinion that farming is the most suitable job for the community (mean score 4.47). This means that the lowest and highest average in each region is important to be considered in determining strategies related to the succession of the mission and vision of the establishment of ATP or others. Education level is an important part of determining strategies to increase and maintain farmer motivation in each ATP. Motivation can use strategies that educate farmers according to education level and gender as another consideration.

There is a similarity between Bogor and Garut regarding the motivation with the lowest score which is the assumption or view that farmers are the most suitable job for the community. This could be because other professions in both locations provide or offer income that could be greater than being a farmer. In contrast to Lamongan, where farmers are considered the most suitable job for the community, this could be due to linearity with the opinions generated (Lamongan's income comparison is in first place, or the highest compared to the other two locations). This means that different strategies are needed for Bogor and Garut for this.

### 3. Participatory Development Communication Level

The variable level of participatory development communication in this study is derived into nine items including two dimensions of Information Sharing, Consultation, Collaboration, and Empowerment. The analysis is after the table below.

Level of Participatory Development Communication	Mean score			Total
	Bogor	Garut	Lamongan	
K1 (Info-Shar: Equal right to have information)	4.88	4.19	4.22	4.23
K2 (Info-Shar: Equal access of information for all farmers)	4.63	4.11	4.28	4.22
K3 (Cons: Easily consultation for and with anyone)	4.50	4.03	4.47	4.28
K4 (Cons: Easily to discuss with anyone)	4.75	4.03	4.38	4.23
K5 (Coll: Easily to cooperate with anyone)	4.13	4.02	4.46	4.25
K6 (Coll: Free to cooperate with anyone)	4.25	3.95	4.29	4.14
K7 (Emp: Equal right to take a role in decision making)	4.00	3.97	4.43	4.21
K8 (Emp: Have permission by others to decide)	4.25	3.72	4.26	4.02
K9 (Emp: Taking decision)	4.00	3.68	4.44	4.08
<b>Total</b>	<b>4.38</b>	<b>3.97</b>	<b>4.36</b>	<b>4.18</b>

For the participatory development communication level variable, it was found that the mean for the three research locations was highest in Bogor with a mean of 4.38, followed by Lamongan with a mean of 4.36 and Garut as the lowest with a mean of 3.97. It can be seen that Bogor and Lamongan are not so far apart in terms of mean, in contrast to Garut (the lowest mean value compared to the other two groups).

The highest accumulative dimension of the participatory development communication variable is the consultation dimension (K3) with a mean value of 4.28 and the lowest is Empowerment specifically that other people allow respondents to decide on issues related to farmers' interests (K8) with a mean value of 4.02, and the middle value is the statement that all farmers have access to the same information (K2) or Information Sharing with a mean value of 4.22. Judging from the comparison of all items, the highest mean value is 4.88, namely Information Sharing specifically that all farmers have the same right to receive information (K1), data in Bogor. The lowest is Empowerment, people can make important decisions on issues related to the farming community (K9), data from Garut location with a mean of 3.68 which when looking at Bogor data is also the lowest item (4.00).

It can be concluded from here related to the threshold that needs to be considered in determining strategies that can support agricultural activities in this case related to ATP, between Bogor and Garut have similar levels of participatory development communication, namely that Information Sharing, namely the assumption or opinion that farmers have the same right to receive information related to activities and others with agriculture of ATP is the highest aspect in both places. This is in contrast

to Lamongan where this aspect is the lowest. The highest is the Consultation dimension, where it is easy for farmers to consult about various matters related to agriculture.

The lowest in Bogor and Garut is also the same in the empowerment dimension in terms of decision-making by farmers (Bogor: 4.00; Garut: 3.68). Why is this the case? Bogor and Garut, which are geographically located in the same area, West Java, have similar or close opinions and behaviors, namely information sharing. It is an important concern and it is closely remembered by the people of the two locations. The consultation and collaboration dimension for the three locations based on the data is between the highest and lowest mean scores, in the range of 3.95 to 4.75. Strengthening these aspects is part of what can continue to be developed no less than what has been done or exists so far as part of participatory communication. The formulation and determination of strategies that need to be developed can focus on the empowerment aspect for Bogor and Garut, while in Lamongan it is not a significant problem because the lowest average data in Garut is Information Sharing, which is about the opinion that every farmer has the same right to receive agricultural information. This means that the Lamongan community finds information sharing related to the items or things mentioned above is a problem that needs extra attention.

#### 4. The Level of Social Entrepreneurship Spirit of Farmer

This variable is derived into five dimensions, namely Social Vision, Sustainable Practices, Social Networks, Social Innovation, and Financial Returns. The analysis is below the following table :

Level of Social Entrepreneurship Spirit of Farmer	Mean Score			
	Bogor	Garut	Lamongan	Total
W1 (VS: Attitude on social issues)	3.50	3.44	3.87	3.66
W2 (VS: Commitment on social vision)	3.63	3.78	4.29	4.04
W3 (VS: Not easily distracted by non-social issues)	3.88	3.76	4.19	3.98
W4 (VS: Able to clearly identify social needs)	3.75	3.68	4.23	3.97
W5 (VS: Able to create clear social vision values)	4.13	3.69	4.32	4.03
W6 (PB: Able to improve long-term quality of life)	4.38	3.85	4.38	4.14
W7 (PB: Environmentally friendly person)	4.63	3.93	4.40	4.20
W8 (PB: Able to increase long-term social needs)	4.25	3.82	4.47	4.17
W9 (PB: Able to maintain economic, social, & environmental balance)	4.25	3.79	4.40	4.12
W10 (JS: Emphasize mutual understanding for emotional support)	4.63	3.82	4.27	4.08
W11 (JS: Likes to promote the credibility of the farmer's work)	4.50	3.98	4.45	4.24
W12 (JS: Likes to promote the belief in the work of farmers)	4.50	3.95	4.35	4.17
W13 (IS: Able to see risk as an opportunity to create social value)	3.88	3.81	4.30	4.06
W14 (IS: Flexible person)	4.25	3.84	4.42	4.15

Level of Social Entrepreneurship Spirit of Farmer	Mean Score			
	Bogor	Garut	Lamongan	Total
W15 (IS: Innovative person)	4.25	3.90	4.35	4.14
W16 (IS: Proactive in identifying social opportunities)	4.63	3.76	4.35	4.09
W17 (IS: Able to create better social value in entrepreneurship)	4.50	3.77	4.41	4.12
W18 (PF: Able to create more social value as the main reason)	4.63	4.03	4.35	4.22
W19 (PF: Farming for profit)	4.38	4.03	4.31	4.19
W20 (PF: Farming for wealth)	3.50	3.91	4.38	4.13
W21 (PF: Survive on the profits of farming)	4.25	4.04	4.38	4.22
<b>Total</b>	<b>4.20</b>	<b>3.84</b>	<b>4.33</b>	<b>4.10</b>

The level of social entrepreneurship spirit of farmers in the location data average is highest in Lamongan with a value of 4.33, after that in Bogor with an average value of 4.20 and the lowest is Garut with a value of 3.84 from the accumulation of 21 statement items. The highest mean value for this variable is 4.24 which Social Network specifically likes to promote the credibility of work as a farmer and the lowest is Social Vision: taking a stance to focus on social issues with a mean score of 3.66. Comparing the data in the three locations on this variable covering the five derived dimensions of VS, PB, JS, IS, and PF, it was found that the highest mean value was in the Bogor location covering four statement items, namely 4.63 (PB: Farmers claim to be environmentally friendly people, JS: Farmers are a profession that prioritizes mutual understanding for social support, IS: Farmers are able to see risk as an opportunity to create social value, and PF: Farmers are able to create social value as the main reason for choosing the farming profession). The lowest item in Garut data is VS: taking a focused attitude on social issues with a mean score of 3.44.

Looking at the comparison of the three research locations, it is found that for Bogor Financial Return Dimension (PF), namely Farming to get wealth and VS, namely taking a stance to focus on social issues, are at an average of 3.50 which is the same in Garut data (3.44), also the lowest item in Lamongan (3.87) and accumulatively the lowest item on this variable (3.66). However, for the data on the highest item for each location, there is indeed a difference seen from the mean value. For the Bogor location, as mentioned above, the highest item is at a mean value of 4.63 seen in the four items mentioned above. As for the highest in Garut, the mean value is 4.04, namely item PF: Surviving from farming profits, while the highest in Lamongan is the mean value of 4.47 on item PB: Farmers are able to improve long-term social needs.

Looking at this data, it seems that the use of the same strategy for the three locations in terms of growing, improving and maintaining the entrepreneurial spirit of farmers is the same, namely conveying sustainable, logical, easy to understand, remembered by farmers related to agriculture related to social issues (Social Vision Dimension) where the

average value of this dimension in the three locations is the lowest item dimension. This means that maintaining existing social issues directly related to agriculture as social entrepreneurship undertaken by farmers needs to be developed in various ways that are in accordance with the characteristics of the community, facilities and institutional capacity and in line with central and local government policies in this regard. Differences in products developed and become the flagship of each location need to be closely and continuously correlated until the formation and maintenance of understanding and belief that entrepreneurial activities undertaken are closely correlated with social issues and vice versa.

#### 5. The Level of Farmer Welfare

This variable includes five dimensions, namely Income, Powered, Basic Human Needs, Dignity, and Partnership which are derived into 10 statement items. The analysis is presented below the following table:

Level of Farmer Welfare	Mean Score			
	Bogor	Garut	Lamongan	Total
KP1 (Income: Enough income for the family life)	3.63	3.96	4.24	4.09
KP2 (Income: Can save from farming)	3.25	3.85	4.43	4.12
KP3 (Powered: Farmers are free to do what they want)	3.50	3.80	4.50	4.15
KP4 (Powered: Have good skills as a farmer)	4.38	3.69	4.34	4.05
KP5 (Basic Human Needs: Family basic needs are fulfilled)	3.13	3.82	4.35	4.06
KP6 (Dignity: Becoming a farmer is a choice)	3.63	4.04	4.54	4.28
KP7 (Dignity: Proud to be a farmer)	4.38	4.03	4.65	4.36
KP8 (Dignity: The profession of a farmer gives confidence)	4.13	4.04	4.52	4.29
KP9 (Partnership: Ease of cooperation because of farmers)	4.75	3.91	4.38	4.18
KP10 (Partnership: Can work with anyone)	4.50	4.08	4.50	4.31
<b>Total</b>	<b>3.93</b>	<b>3.92</b>	<b>4.44</b>	<b>4.19</b>

Farmer Welfare variables in this study are derived into five dimensions, ten statement items found that the highest average is in Lamongan location cumulatively is 4.44 while Bogor at an average value of 3.93 adrift slightly from the lowest is Garut at an average value of 3.92. The highest mean value cumulatively is the Dignity Dimension (KP7), namely Proud to be a farmer with a mean value of 4.36 and the lowest is Powered: Having a good ability as a farmer (KP4) with a mean value of 4.05, this is also the lowest mean value of Garut (3.69).

Comparison of the mean value of the three locations on the farmer welfare variable found that the highest in Bogor is Partnership: Ease of cooperation due to being a farmer (KP9) with a mean value of 4.75. Slightly different from Garut, which is the highest item still from the Partnership dimension but on the item about cooperation that can be done with anyone when becoming a farmer (KP10) with a mean value of

4.08. The highest item from the Dignity dimension is the item about the farmer's profession making confidence (KP7) with a mean value of 4.65 which is also the highest cumulative item on this variable as mentioned earlier.

The lowest item cumulatively is the same as the Arrowroot, which is in the Powered dimension: Having a good ability as a farmer but with a different mean value, in Garut at a value of 3.69 while the lowest cumulative mean value is 4.05 dimensions and items. The lowest in Bogor is the dimension of Basic Human Needs: Basic Family Needs Met at a mean value of 3.13 as the lowest mean value of all items. Lamongan's lowest mean score is 4.24 in the Income dimension, which is a statement item about sufficient income to meet family needs.

B. Comparison of Variables at three locations

The three locations where this research was conducted, namely ATP Bogor, Garut and Lamongan after being compared per variable above, in the following analysis a non-parametric difference test was carried out, namely Kruskal-Wallis, and the data is shown in the following table:

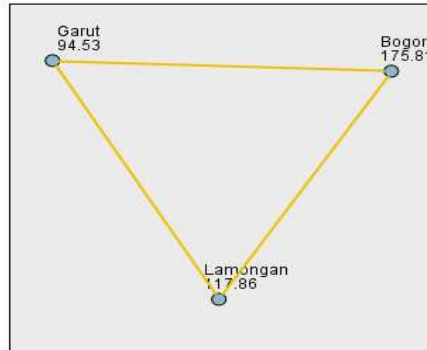
Variable	Bogor			Garut			Lamongan			Pvalue Kruskal Wallis
	n	%	Mean	n	%	Mean	N	%	Mean	
X1 (Socio- demo graph y)	Neutral	0	0.00%	8	8.20%		0	0.00%		0.00
	Agree	4	50.00%	66	67.30%	4.16b	26	23.20%	4.77a	
	Strongly Agree	4	50.00%	24	24.50%		86	76.80%		
X2 (Instit utiona l perfor mance )	Neutral	0	0.00%	8	8.20%		0	0.00%		0.00
	Agree	2	25.00%	73	74.50%		86	76.80%		
	Strongly Agree	6	75.00%	17	17.30%	4.09b	26	23.20%	4.23b	
Y1 (Partic ipator y Comm unicati on)	Neutral	0	0.00%	4	4.10%		0	0.00%		0.00
	Agree	3	37.50%	76	77.60%		14	12.50%		
	Strongly Agree	5	62.50%	18	18.40%	4.14b	98	87.50%	4.88a	
Y2 (Spirit of Social)	Neutral	1	12.50%	14	14.30%		0	0.00%		0.00
	Agree	3	37.50%	77	78.60%	3.93b	24	21.40%	4.79a	
	Strongly Agree	4	50.00%	7	7.10%		88	78.60%		

Variable	Bogor			Garut			Lamongan			Pvalue Kruskal Wallis
	n	%	Mean	n	%	Mean	N	%	Mean	
Entrep reneur shi)										
Y3	Neutral	0	0.00%	3	3.10%		0	0.00%		
(Farm er welfar e)	Agree	6	75.00%	88	89.80%	4.25b	8	7.10%	4.93a	0.00
	Strongly Agree	2	25.00%	7	7.10%		104	92.90%		

The analysis results from the table above show the comparison of variables in each location. The comparison test uses the Kruskal-Wallis's test followed by the Dunn test (post-hoc test) to compare the differences. P-Value shows in each variable <0.05, which means that each variable shows group differences. It can be concluded that the three research locations based on this data are different. As for looking at the next data, X1 shows that motivation on sociodemographic shows Lamongan is higher than in Garut and Bogor. X3 shows that ATP institutional performance is high in Bogor location. While Y1 shows the highest level of participatory development communication in Lamongan and Bogor locations and the lowest in Garut. Y2 shows that the level of social entrepreneurship spirit of farmers is highest in Lamongan and lowest in Garut. Y3 shows the highest level of farmer welfare in Lamongan and the lowest in Bogor and Garut. The linearity and correlation of each characteristic (age, education, experience, length of ATP, and income) with the dependent variable are discussed in the next section.



**Pairwise Comparisons of Lokasi**



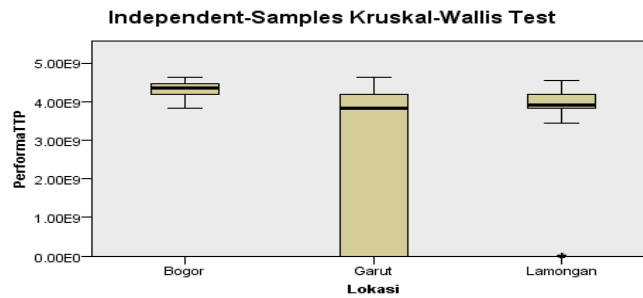
Each node shows the sample average rank of Lokasi.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Garut-Lamongan	-23.331	8.673	-2.690	.007	.021
Garut-Bogor	81.282	23.056	3.525	.000	.001
Lamongan-Bogor	57.951	22.947	2.525	.012	.035

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

The three comparisons of each location from the data above show that there are significant differences, be it the Garut-Lamongan, Garut-Bogor, and Lamongan-Bogor comparisons as seen from the P-Value of each group pair test in the table above with Kruskal-Wallis and post-hoc tests. Similarly, it is shown in the plot above. The data below also shows this.

The comparison of variables at each location (three locations) that this research has been done shows us that there is a significant difference, both the Garut-Lamongan, Garut-Bogor, and Lamongan-Bogor comparisons can be seen from the P-Value of each result of the comparison, the P-Value of each group pair test in the table above with the Kruskal-Wallis and post-hoc test. Likewise, shown in the plot above. The data below also show the same result.



<b>Total N</b>	218
<b>Test Statistic</b>	16.524
<b>Degrees of Freedom</b>	2
<b>Asymptotic Sig. (2-sided test)</b>	.000

1. The test statistic is adjusted for ties.

C. The correlation between characteristics and level of participatory communication (Y1), level spirit of social entrepreneurship (Y2), and level of farmer’s welfare (Y3)

	<b>Bogor</b>	<b>Garut</b>	<b>Lamongan</b>
	Y1	Y2	Y3
Age	0.432	0.368	0.394
Education	0.307	0.335	0.356
Experience	0.388	0.386	0.450
Length of ATP	0.168	0.103	0.060
Income	0.178	0.240	0.246

The table above shows the relationship between respondent characteristics and participatory communication (Y1), the spirit of social entrepreneurship (Y2), and farmer welfare (Y3). The correlation used is the spearman correlation where the correlation is used if one of the variables is an ordinal variable. The spearman correlation value consists of -1 to 1, if it is close to -1 and 1 then the correlation that occurs is strong or perfect. Looking at the results above, there is no correlation close to 1 or -1, which means that Age, Education, Experience, Length of ATP, and Income have no strong relationship to the three variables mentioned: Y1, Y2, and Y3 which means that participatory communication (Y1), entrepreneurial spirit (Y2), and farmer welfare (Y3) have nothing to do with respondent characteristics or demographic aspects.

		Male		Female		Pvalue ChiSquare
		n	%	N	%	
Y1 (Participatory Communication)	Neutral	1	0.60%	3	6.40%	0.012
	Agree	78	45.60%	15	31.90%	
	Strongly Agree	92	53.80%	29	61.70%	
Y2 (Spirit of Social Entrepreneurship)	Neutral	11	6.40%	4	8.50%	0.704
	Agree	80	46.80%	24	51.10%	
	Strongly Agree	80	46.80%	19	40.40%	
Y3 (Farmer Welfare)	Neutral	1	0.60%	2	4.30%	0.159
	Agree	81	47.40%	21	44.70%	
	Strongly Agree	89	52.00%	24	51.10%	

Considering correlation in this discussion is done by correlating gender with Y1 (Participatory Communication), Y2 (Spirit of Social Entrepreneurship) and Y3 (Farmer Welfare). Where this correlation uses chi square because gender data is nominal. The P-Value on Y1 is 0.012 <0.05, which means that there is a relationship between gender and Communication Participatory (Y1), which means that the answer to Participatory Communication could be different if the gender is different. This means that whether farmers are female or male will differ in terms of their level of participatory communication. Looking back to the Indonesia context, we can find today that it is true that almost all gender-based communication is really different between male and female. So that the data is in line with several previous data that we can face in other resources. Briefly, it can be said that the communication participatory based on the data or empirical evidence still show us the same result, it correlates to the gender. While Y2 (Spirit of Social Entrepreneurship) and Y3 (Farmers' Welfare Level) have nothing to do with gender.

Based on the above conclusion we can come into how the strategy that needs to meet the goal and aim of communication development. Even both spirit of social entrepreneurship and farmer welfare in this research display to us that the ATP contribute significantly to both sides (variables). However, to keep participatory communication in the level of goodness it is appropriate to think about communication strategy including to the tools that used in ATP as the tackle and instruments of social development based on gender, female and male. The determination suitably on both things is really important, short-term and long-term because it will affect other variables of communication development.

Considering communication practices for development in the field requires a development threshold as a form of rationality that requires communication to adjust the needs and conditions of the object or subject. The threshold becomes an important part in determining strategies to achieve predetermined goals or missions. Along with psychological and sociological considerations, the development threshold

is a strategic choice to deal with the stark differences between the problems of rural and urban communities, between the problems of the elite and the masses (grass-root), and between the problems of men and women. This is the threshold difference for understanding the development gap that occurs. In a sense, the development gap can be identified through the socio-economic gap, the knowledge gap, and the communication gap.

The development gap on the other hand will position the community or target group at different development thresholds, which requires different development strategies. Especially for creating effective communication. The development gap is often the result of communication patterns that are far from the mainstream of development resulting in a gap between urban and rural communities, and it also occurs between the rich and the poor including between men and women (Kumar, 2011). Thus, communication for development (C4D) in relation to development thresholds is inherent to the level of participatory development communication as an articulate and substantive approach.

The differences in the three research locations based on the statistical tests above show and confirm that the three locations have differences that need to be considered strategies to achieve the goals to be achieved, which can be correlated with several considerations such as the achievement of performance or the purpose of the establishment of ATP, goals or motives of groups, individuals or families as described in social ecology which includes important levels although each level has a contribution that also needs to be considered. Determinants of motivation, participation, communication, entrepreneurial spirit that have an important impact on the welfare of farmers according to this research data are visible (significant). However, the three locations do have differences as found in the data above. Lamongan as a location that is geographically different from the two locations of this study (Garut and Bogor, which are located in West Java) seems to have geographical characteristics that need to be reviewed in determining strategies related to increasing and maintaining farmers' motivation, socialization and increasing understanding and confidence for the spirit of social entrepreneurship to create social value in accordance with the psychological and social review of the community.

Participatory development communication that correlates with motivation, entrepreneurial spirit, and welfare level as the goal of economic activities has also been found in various previous studies in several other countries. Although what is found in this study has particularities due to the background of Indonesia which has a high level of diversity, not only in terms of geography but also in terms of culture, economy, politics, education, and others. Between the three locations found in this research alone, it produces an initial formulation or

formulation in determining different strategies, although there are the same strategies that can be applied. For example, in terms or aspects that are related to motivation and participatory development communication in Bogor and Garut are the same, but they are different from Lamongan. As for the similarity of strategies to manage entrepreneurial spirit in the three locations, in terms of connecting social entrepreneurs with social issues is a part that needs to be equally given more attention because it is in the lowest position.

Strategies for motivation management in three sites need to refer aptly of several variables and characteristics that previously described in this paper, prior that will impact on farmers' welfare. We have found in psychology discourse and also others that are related to it, that motivation is the basic thing of individual and social that moves and encourages one to do anything. Afterwards, it is also relevant with the level of theoretical framework of communication development that commence from this level (personal psychology level). So, the strategy should be considered and determined fittingly. The strategies to increase and maintain motivation, psychological and socio-psychological aspects that can be associated with ATP with the ultimate goals of the institution, country, individual and environment: linearity. Motivation based on the psychological approach is most closely related to aspects of consideration of the results or income promised or that have been obtained by farmers. The farming profession in this case is an important and appropriate part of being seen and understood from a psychological perspective, although it can also be extended to other levels, namely organizational and social.

Strategies for participatory development communication management based on personal side, institutional, and ecological aspects certainly make sense related to the goals of ATP, for farmers' welfare and national development. The economic impact on farmers will be the reason for even strong arguments that encourage farmers to strive day by day, time by time and thinking or considering several related facets, including risk and opportunity that exist. Participatory development communication strategies related to the three data-based locations, cross-idea with related references. Strategies for entrepreneurial spirit management actually should be communicated pertinently through some ways and relevant media or tools. Farmers individually and also who are supported by government locally and nationally need to do it altogether. Mutual understanding about entrepreneurship and everything about it might be continuously communicated. Convincingly, communication strategy and else being the crucial factor to make a sustainable development program, ATP in this case that aims to improve farmers' welfare. However, considering the location or geographical view with several implications or consequences that are related with participatory communication which is bringing about numerous influences and impact is very associated with communication features. Communication is the crucial thing to social

change and development; it is requisite to painstakingly and relevantly related to variables.

## 5. CONCLUSION

This study results in P-Value that shows each variable  $<0.05$  where each variable shows a different location and different variable answers. So, it can be stated that there is a significant difference in the concentration of the three ATPs: Bogor, Lamongan, and Garut. As a result, different communication strategies are needed in handling variations in participation. Thus, different locations affect the difference in the level of PDC as well as affect the level of social entrepreneurship spirit that has an impact on the level of welfare of ATP farmers.

The effectiveness of participatory communication to build a program requires a development threshold, this is a form of psychological and sociological recommendation. Participatory communication needs to adjust the needs, especially with levels that adjust the interaction phase for the success of social change. Where the level of participatory communication to build is a proportional way to create change and development. In the sense that its effectiveness will be determined by the level of participatory communication that adjusts to the development threshold.

The level of participatory development communication, the spirit of social entrepreneurship and the level of farmer welfare in the three locations (ATP Garut, Bogor and Lamongan) all showed significant differences, as shown by the results of the Kruskal-Wallis's test and pairwise comparisons in the three locations. The characteristics of each location provide important considerations regarding development thresholds despite similar strategies in management.

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