Motivation of Farmer Group Members in Rice Cultivation Using Technical Irrigation Methods in Candibinangun Village, Yogyakarta, Indonesia

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Abstract. Farmers in Candibinangun Village use technical irrigation in rice cultivation because the amount of water is sufficient and for the costs of rice cultivation cheaper than other commodities. This research aims to determine the motivation and factors related to rice farmers in cultivating rice using technical irrigation in Candibinangun Village, Yogyakarta. This research uses quantitative methods using purposive sampling. The technique for collecting respondents was carried out deliberately using certain methods on a sample of 30 farmers. The results of this research are the need for existence with a score of 2.94 in the high category, the need for relationships with a score of 3.06 in the High category and the need for growth 2.86 in the high category. So, the ERG motivation of farmers in maintaining rice farming received a score of 2.94 in the high category. In this study, internal factors were significant and insignificant and external factors were significant and insignificant.

1 Introduction

Indonesia is called an agrarian country because some of the population makes a living in the form of farming [1–3]. Increasing agricultural productivity can be realized using techniques to empower farmers, so that farmers can independently solve the problems they go through [4]. The government is trying to work with farmers to form farmer groups in villages. The purpose of the formation of farmer groups in the village is to improve and develop farmers' skills as the subject of agricultural development [5–7]. Based on the regulation of the Minister of Agriculture N0.67/Permentan/SM.050/12/2016 Farmer groups

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can be grouped into three, namely learning places, collaboration places and production places. So that indirectly farmer groups can be used as an effort to increase agricultural production using farming management simultaneously [8–10]. The management of rice farming can be done by using technical irrigation methods.

Technical irrigation is an irrigation network where the water used can be measured and regulated [11]. Irrigation networks are channels and buildings that are a unit needed to manage irrigation water starting from its provision, collection, distribution, and utilization. An irrigation area is an area that receives water from an irrigation network. Irrigated land is a piece of land that receives irrigation water [12, 13]. Irrigation is very much needed in rice cultivation because rice is a plant that requires stagnant water.

One of the commodities that has a high value is rice, so it requires serious handling in increasing its production [14, 15]. The government has a big role in rice management, especially from pre-production, namely the procurement of seeds, medicines, fertilizers, production credits, irrigation and capital for farmers. Efforts to utilize new technology to increase production and income from rice cultivation [16, 17]. Usually, rice farmers have a place to discuss and develop rice cultivation in the form of farmer groups [18].

Farmer groups are organizations that can be said to function and exist in real terms, in addition to functioning as a vehicle for counseling and driving the activities of their members. Some farmer groups also have other activities such as mutual cooperation, savings and loans, and gathering for farming activities (Nuryanti & Dewa, 2011). In Candibinangun Village, Pakem, Sleman, Yogyakarta consists of several farmer groups that have their own chairmen and members. Several groups in Candibinangun Village use their rice fields to grow rice by using a technical irrigation system with the privilege of reducing operational costs, including labor costs to manage irrigation manually and can reduce water loss, which can reduce the cost of water purchase and delivery. The use of this land shows the motivation that encourages farmers to develop rice farming in their rice fields. With farmers who join the farmer group, it is hoped that they will have motivation in farming.

Motivation is the driving force from within that causes humans to do something or try to meet their needs [9, 19, 20]. Etymologically, motivation comes from the word “motive”, in English motive comes from the word motion which means motion or something that moves. The term motive is closely related to movement, namely movement that is carried out or can also be called human behavior. Motivation is a driving force that causes a person to be willing and willing to exert all their abilities, energy and time to carry out various activities that are their responsibility and fulfill their obligations to achieve predetermined goals. Therefore, this study aims to find out the motivation of farmers to use technical irrigation methods in rice cultivation.

2 Research Method

2.1 Research Location

The determination of the research area was carried out deliberately. The research area taken was in a rice farmer group in Candibinangun Village, Yogyakarta, Indonesia. The underlying thing for this research was carried out at the location because many members of the farmer group who cultivate rice use technical irrigation methods.

2.2 Sampling Procedure and Data Collection

The method of taking respondents was carried out by the purposive sampling method. Where in determining the sample is done deliberately by the researcher using several specific methods. There are three farmer groups whose members are used as respondents, namely the Baratan, Bulus and Samberembe groups, with 10 groups each, so that the total number of respondents is 30 farmers. The motivation theory approach used in this study is ERG (existence, relatedness, and growth) motivation theory.

2.3 Data Analysis

The analysis method used is to utilize the Likert scale. The Likert Scale is a measurement tool that allows respondents to respond to questions by indicating their level of approval through the selection of one of the options provided. The motivation of farmer group members in rice cultivation using technical irrigation methods such as the need for Existence, the need for a relationship of Relatedness and the need for Growth growth and factors that affect the use of the technical irrigation system in Candibinangun Village, Yogyakarta. The questionnaire made will be addressed to respondents by being given 4 choices of approval forms with a scale of 4 (strongly agree) to a scale of 1 (strongly disagree) and a table of percentage values as follows;

Table 1. Motivation Variable Category

NO	Category	Score
1	Very Low	1.00-1.74
2	Low	1.75-2.49
3	High	2.50-3.24
4	Very High	3.25-4.00

In addition, to find out the relationship between variables, Ranks Spearman analysis is used.

3 Results and Discussion

The analysis of the Existence, Relatedness and Growth indicators was carried out using the score achievement formula. This is done to find out the level of motivation of group members. To find out the motivation of members based on needs, calculations are carried out on each variable in each component of ERG motivation.

3.1 Existence

Existence is the need to continue to survive and show one's position. Based on table 2, there are several indicators that are the most important, namely "Rice farming using a technical irrigation system is quite appreciated and respected by others" with a score of 3.00. Overall, Variable Existence has a score of 2.94 which is in the High category. The respondents themselves showed that under the practice of this irrigation method, this technique is able to provide the basic needs needed by farmers.

Table 2. Existence

No	Indicator	Score
1	Rice farming using a technical irrigation system for the needs of the Family Primary (eating and drinking)	2.91
2	Rice farming using a technical irrigation system for the needs of the Seconds (clothing and boards)	2.97
3	Rice farming using technical irrigation systems to meet emergency needs (Health and Disasters)	2.94
4	Rice farming using a technical irrigation system to meet the cost of education (school/college)	2.91
5	Rice farming using a technical irrigation system is quite appreciated and respected by others.	3.00
	Average	2.94
	Category	High

3.2 Relatedness

Relatedness is the need to relate to others and is the tendency of all human beings to interact, socialize, relate, pay attention and want to be noticed by others. Based on table 3, the indicator that has the highest score with a score of 3.13, namely the use of this technical irrigation method, is used to consult with farmers or other parties. Overall, the variable relatedness score was 3.06 with a high category. Rural communities, including farmers, have relatively high social attachments. So that when there is an opportunity to be able to interact with the community, it will be used as well as possible.

Table 3. Relatedness

No	Indicator	Score
1	Rice farming using a technical irrigation system makes farmers interact with other farmers in rice farming with a technical irrigation system	3.00
2	Rice farming using a technical irrigation system to consult with the head of the farmer group	3.10
3	Rice farming uses a technical irrigation system to consult with fellow farmer group members	3.13
4	Rice farming uses a technical irrigation system to consult with extension workers	3.00
5	Rice farming uses a technical irrigation system to distribute crops to traders	3.00
	Average	3.06
	Category	High

3.3 Growth

Growth is a person's need to be able to develop their potential optimally which can have a direct influence on themselves and the surrounding environment to change for the better, which can be seen in table 4. The biggest indicator is "Rice farming using a technical irrigation system to meet tertiary needs (jewellery and vehicles)" with the smallest score of 2.60. This shows that the company with technical irrigation is able to support the fulfilment of tertiary needs such as jewellery or vehicles.

Table 4. The Need for Growth

No	Indicator	Score
1	Rice farming using a technical irrigation system to meet tertiary needs (jewelry and vehicles)	2.60
2	Rice farming uses technical irrigation systems to improve skills in rice farming	3.00
3	Rice farming uses a technical irrigation system to be able to use modern agricultural tools	3.00
4	Rice farming uses a technical irrigation system to have a broad mindset	2.70
5	Rice farming uses technical irrigation systems to adapt to new knowledge in agriculture	2.90
	Average	2.84
	Category	High

3.4 Total Motivation

The level of motivation for needs in this study is Existence, Relatedness and Growth which results in a final total score and then from the final score the motivation level of rice farmers will be known. Based on table 8 above, it can be seen that the need for Relatedness has the highest score among the three categories with a score of 3.06. This proves that the motivation of farmers in using technical irrigation is fairly high, which will be able to support efforts to increase the adoption of the use of technical irrigation.

Table 5. Total Motivation Score

Variable	Score
Existence	2.94
Relatedness	3.06
Growth	2.84
Average	2.94
Category	High

3.5 Factors Related to Motivation

Through tables 6 and 7, it appears that there are several internal and external factors that have a significant relationship with motivation. These results will be useful in efforts to increase the adoption and consistency of the use of technical irrigation among farmers. Regarding internal factors, there is a correlation with age and farming experience in a negative direction. As the age itself increases, there is a possibility of a decrease in motivation in the aspect of relatedness, as well as the farming experience. This makes this motivation even more interesting to learn, considering that usually if the age or farming experience is higher, then the relatedness is also higher. Then in total motivation, it has a significant relationship with education positively, so it can be interpreted that the higher the education, the higher the motivation in the use of technical irrigation.

Table 6. Internal Factors

Variable	Existence	Relatedness	Growth	ERG
Age	0.334	-0.372*	-0.106	-0.078
Education	-0.015	0.296	0.303	0.428*
Experience	0.276	-0.362*	-0.225	-0.135
Land Area	0.178	0.093	0.018	0.168
Income	0.197	0.142	-0.050	0.267

Then related to external factors, existence has a significant positive relationship with marketing. This can be interpreted that the easier it is to market, the higher the aspect of existence. Then relatedness has a significant relationship with land potency and local culture, both of which are positive. This shows that the potential of land for rice farming has an important role in the development of rice based on technical irrigation. Meanwhile, growth has a significant relationship with farming risk and local culture. In general, farming risk has an impact on motivation in farming, because the greater the risk, the motivation of farmers can decrease because they do not want to take big risks.

Table 7. External Factors

Variable	Existence	Relatedness	Growth	ERG
Agriculture Aid	0.357	0.174	0.286	0.308
Farming Risk	0.077	0.292	0.520**	0.443*
Marketing	0.447*	0.061	0.245	0.281
Land Potency	0.068	0.643**	0.187	0.402*
Local Culture	0.302	0.477**	0.506**	0.537

4 Conclusion

Motivation is a person's encouragement to do something appropriate, if they eat high, they will be more encouraged to do something. This study shows that the motivation of farmers in the use of technical irrigation is fairly large in total score. Technical irrigation for rice farming is a significant effort to support rice production in the context of water availability. There needs to be a role for the government in providing education to rice farmers through agricultural extension workers. opening the insight of rice farmers in Candibinangun Village to maximize the potential of their products. This is expected to increase the standard of living and income of rice farmers which ultimately increases their welfare.

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