Community Motivation to Build Food Security: A Study in Sumberagung Village, Sleman, Yogyakarta

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Abstract. Food security is an essential element of the improvement paradigm and human capacity because food access and rights are very crucial to strengthen important human capacities. This study aims to examine the level of community motivation to build food security and to examine the relationship between levels of motivation and levels of factors that may influence community motivation to build food security. The research location was determined purposively at Sumberagung Village. This study is an explanatory study which uses 100 respondents as a sample. Proportional random sampling was used to select the respondents. Results of descriptive statistic reveal that the motivation in terms of existence, attachment, and growth of society is at a moderate level. Meanwhile, Spearman rank correlation test indicate that institutions, leaders, home gardens have a direct relationship with the level of community motivation, while age and infrastructure have a relationship that is opposite to the level of community motivation in realizing food security. Time, education, and the number of dependents in the family are not related to the level of community motivation in realizing food security.

1. Introduction and background
Food security remains a top priority in development and global concern. It becomes the 2030 agenda for Sustainable Development in Sustainable Development Goal two. Food security is also a core component of the development paradigm and human capacities because food access and rights are very important to strengthen essential human capacities [1]. Inappropriate and too intensive use of natural properties, increasing request for livestock commodities, increasing per capita food consumption and other factors, steady rises in food prices, are a hazard to food security in countries with the deepest levels of improvement, as well as to segments of the population poorest in developed and developing [2].

Indonesia is a country that has a lot of cultural diversity and biological wealth. Fertile land, extensive rainforests, water availability, a large number of young people, as well as geographical and climatic conditions support it to become a major producer of tropical agricultural products [3]. However, Indonesia also faces food security problems that challenge the fulfilment of sustainable development goals [4]. The challenges of food security in Indonesia include: (1) the complicated problems of rice production in Java along with the conversion of agricultural land to non-agricultural activities, small scale farming, and climate change [5]. Climate change is a specific challenge for decision-makers in Indonesia due to the improbability inherent in upcoming climate estimates and the complex associations among climate change, biological and physical systems,
and food security [6]. (2) Regional economic progress has not created a significant impact to environmental sustainability subjects. Transformation of agricultural land to non-agricultural can decrease agricultural land resources (food security) [7]. (3) The consequence of support food security done improved production, processing, marketing, and consumption by reflecting the suitability of agriculture and native food systems [8]; (4) Yard as one of the processed land has not received complete attention[9].

Food security is a flattering progressively applicable subject, particularly in urban spaces. Since these areas do not always have goodly access to sufficiently nutritious food, the question of how to supply it becomes an urgent priority to maintain the health of the population. Urban and suburban agriculture, as a source of local fresh food, can play an important role. Urban and suburban agriculture do differ in most of their characteristics and consequently in their ability to meet the food needs of the urban population. Urban agriculture still fulfills food needs, especially at the household level suburban agriculture can provide a larger amount and has a wider distribution channel, thus giving it a status of its own in terms of food security. However, both have potential (unused), making them valuable for urban food planning, and both face similar threats due to urbanization pressures, requiring adequate planning steps [10]. Many programs have been carried out to achieve food security in Indonesia, including the Food Independent Village Program. In general, this program has had a positive and significant impact on reducing the poverty rate, namely by 8-40%. This program focuses on community economic empowerment what is complemented by other cross-sectoral programs [11]. Community Supported Agriculture (CSA) creates open and democratic spaces to create active and direct collaboration between producers and consumers in supporting food security [12]. Efforts to build food security through the use of available resources include the use of home gardens. Yard land has the potential to provide food, reduce expenses, and increase family income. In the agricultural system in the homestead, most of the production is consumed directly for household consumption, and the surplus is sold in the local market. This system contributes in addition to being a source of income for the family, as well as a source of nutrition for the local community [13]. There is no research on people's motivation to build food security.

Sumberagung Village is one of the villages in the Sleman Regency where the community is active in carrying out various activities that support food security. These activities include (1) utilization of yards for vegetables, fruit, and medicinal plants, (2) building greenhouses for nurseries, (3) procuring food barns, and (4) establishing waste banks. This is a realization of the utilization of local potential. To perpetuate this food security effort requires strong community participation, so that community motivation has an important role in it. Research on community motivation to build food security has never been conducted. From this background, this study aims to: examine the level of community motivation, and examine the relationship between factors that may influence society to build food security and the level of motivation. The factors used in this research are institutional, leadership, time devoted to supporting the program, availability of yards, infrastructure, age, education, and the number of dependents in the family.

2. Literature review
Food security is generally considered only a matter of availability and access to foodstuffs, whereas it is related to urbanization, income disparity, overpopulation, ecosystem degradation, animal health, and food integrity. This understanding was needed because it will involve the choice of development strategies. Point out the importance of looking at food security more broadly, and their writings discuss the linkages and concepts of this to future humanitarian and development programs [14].

The food threat to the family is a threat to the survival of the community. Insecurity food threat is a social problem. Therefore, it is considered important to redefine food security in a community context. This can change the measures and community-level intervention strategies used to address these social problems. By developing a Community Food Security (CFS)
framework, it is possible to involve social workers who can lead the community in understanding food security in a common framework. Social workers need to identify variables that have an impact on the CFS over which communities have, or can gain control, in formulating policies that ensure community food security. This requires clarity of the CFS indicators, related to accessibility, affordability, community independence, social justice, and sustainability. Besides, related to the role of social workers in leading or evaluating CFS strategies that can create sustainable food security communities, and develop holistic measures of CFS [15].

The case of the implementation of CAP (Common Agricultural Policy), which is a new rule in farming practices within the framework of sustainable agriculture, shows that an intervention (program) is very possible, as long as the community has a good understanding of the program, and especially the community has clarity on challenges and the benefits they can get. The higher the farmers' intention to take part in the program, the greater the success of the program [16].

In a study that identified community motivation in participating in a tourism program in Kuala Tahan National Park, Pahang, Malaysia, motivation largely determines community involvement. By using a push factor and pull factor approach, it is known that the pull factor affects the local community or community, namely the tourism industry offers employment for local people. This shows that the community realizes that the presence of tourism activities is one of the fastest-growing economic activities and provides employment to improve community welfare [17].

3. Method
This research is explanatory. Explanatory research answers a particular social phenomenon related to other social phenomena. The selection of research locations used a purposive method based on the consideration that the Sumberagung Village is part of an agro-tourism village that implements real activities to support food security, and was selected as one of the winners in the Climate Village Program (Proklim) competition held by the Ministry of Environment of the Republic of Indonesia. Sampling in this study using simple random sampling. Each sample unit has an equal chance of being selected. Researchers took 100 samples from 120 populations. The data used in the study consisted of quantitative and qualitative data sourced from primary and secondary data. Collecting research data using interview techniques, questionnaires, and observations.Researchers tested the validity and reliability of qualitative data. The validity test aims to determine the extent to which the measuring device measures what should be measured. The Reliability test aims to test the extent to which the results of a measurement can be trusted.

3.1. Operational definition
- Community motivation is a condition that encourages a person to act to achieve a goal. Motivation in this study includes motivation for existence, attachment, and growth
- Existence motivation is motivation to fulfil physiological and material needs as well as safety needs as measured by the Likert scale.
- The motivation for attachment is an encouragement to build relationships with important people who contribute to the food security program as measured by a Likert scale.
- Growth motivation is motivation to be more productive and creative to support food security as measured by the Likert scale.
- Institutional is a set of norms and behaviours that persist from time to time by meeting collective needs as measured by a Likert scale
- Leadership is a person's ability, as well as a process that has a central position in organizational life related to food security programs as measured by the Likert scale.
- The time at which the community performs certain activities related to the food security program, expressed in hours
- Infrastructure means equipment used in the food security program activities measured on a Likert scale.
• Education, namely the respondent’s formal education based on the last diploma.
• Age is the length of life of the respondent until the time the research is conducted, which is stated in years.
• The number of dependents in the family is the number of people in the family who do not work.

3.2. Data analysis method
This study uses a questionnaire that has passed the validity and reliability tests. To find out the extent to which the measuring device actually measures what it should be measured, the researcher conducted a validity test. Based on the results of the validity test, it can be stated that the questions in each variable are valid (significant level $\alpha = 0.05$, sig.2-tailed value = 0.000 $<\alpha = 0.05$). The researcher also conducted a reliability test using the Cronbach alpha technique to find out whether the instrument was accurate, stable, or consistent enough to measure what you wanted to measure. The result of the calculation shows that the Cronbach Alpha coefficient is 0.614 (greater than 60%). This shows that the instrument used is reliable.

To assess the level of community motivation in building food security, this study uses frequency analysis. The motivation in this study includes existence motivation, attachment motivation, and growth motivation measured by calculating the total score. The motivation level categories are divided into high, medium, and low levels.

To examine the relationship between factors that influence motivation with the level of motivation of the community to support food security using correlation analysis. The correlation coefficient formula: To test the significance level of the relationship, the $t$-test is used because the sample taken is more than 10 with a 95% confidence level.

$$r_s = 1 - \frac{6\sum d_i^2}{n(n^2-1)}$$  (1)

Where,

$r_s$ is the Spearman rank correlation coefficient, $n$ is the number of samples that is the difference in ranking between variables.

All the qualitative data which includes motivation for existence, motivation for engagement, motivation for growth, institution, leader, yard, time, has met the validity and reliability test.

4. Results and discussion

4.1. Respondent characteristics
Sumberagung Village is a village located in Moyudan District, Sleman, Yogyakarta Special Region. This village has an area of 310.05 ha, which is covered by 21 hamlets. Table 1 shows the characteristics of the respondents. Most of the respondents (88%) were male, had high school education (49%), were between 30-50 years old (45%), were farmers (31%), and had 2-3 family dependents (48%). Based on these characteristics, it shows the potential for the development of food security programs in this region. Men have physical abilities that allow them to take advantage of their yards, manage greenhouses, or manage waste banks. Women appear less adaptive due to financial or resource constraints. Male has dominated receiving information and extension services. Available adaptation strategies tend to create a higher labor load for women [13]. Most of the respondents are productive mature, and high school graduates, which allows them to be more adaptable to developments in science and technology that can support food security programs. Most of the respondents work as farmers so that the food security program in this area is familiar to them.
Table 1. Characteristics of Community Member

| Characteristics             | Number (people) |
|----------------------------|-----------------|
| Gender                     | Male 88, Female 12 |
| Education                  | Completed Elementary 17 |
|                            | Completed Junior High School 11 |
|                            | Graduated from High School 49 |
|                            | Bachelor 23 |
| Age                        | < 30 year 13, 30 – 50 year 45, > 50 year 42 |
| Profession                 | Farmer 31, Retired 22, General employees 12, Entrepreneur and teacher 8, Builders, security guards, nurses 0, Traders 4, Housewife 3, TNI/POLRI 2, Others 18 |
| Number of dependents in the family | < 2 people 30, 2 – 3 people 48, > 3 people 22 |

Source: Primary data

4.2. Community motivation level

4.2.1. Existence motivation

Existence motivation is a condition that encourages people to fulfil all their needs, including physiological, material, and security needs. Table 2 shows the level of motivation for community existence to effort to support food security. Existence motivation is in the medium category, namely as much as 61 percent. Existence motivation encourages people to fulfil their needs through food security programs which include: (1) utilization of yards for the cultivation of food crops, vegetables, and fruit, (2) greenhouse management for the provision of quality seeds, and (3) waste bank management. From this activity, the community can get additional income, quality plant seeds in sufficient quantities, and contribute to creating a clean and healthy environment.

4.2.2. Attachment motivation

Attachment motivation is a condition that encourages people to have good social relationships. This relationship can be in the form of a relationship with the group leader, extension agents, group members, or community members. The motivation for this relationship has created a harmonious social relationship so that people can interact with each other, help each other, work together, share roles, and establish family relationships through food security programs. Table 2 shows that the level of attachment motivation is in the medium category, namely as much as 63%.
4.2.3 Growth motivation

Growth motivation is a condition that encourages people to fulfil their desire to be productive and creative by their abilities. Growth motivation encourages people to learn and improve skills in plant cultivation, as well as express creative ideas in waste bank management. They can share experiences and knowledge. The result of the analysis shows that growth motivation is in the medium category, namely 66%.

Table 2. Frequency Distribution of Existence, Engagement, and Growth Motivation

| Motivation | Category | Interval Value | Number of Respondents |
|------------|----------|----------------|-----------------------|
| Existence  | Low      | 27,0 – 34,6    | 8                     |
|            | Moderate | 34,7 – 42,3    | 61                    |
|            | High     | 42,3 – 50,0    | 31                    |
| Engagement | Low      | 28,0 – 35,3    | 13                    |
|            | Moderate | 35,4 – 42,7    | 63                    |
|            | High     | 42,7 – 50,0    | 24                    |
| Growth     | Low      | 24,0 – 32,6    | 6                     |
|            | Moderate | 32,7 – 41,3    | 66                    |
|            | High     | 41,4 – 50,0    | 28                    |
| Total      | Low      | 79,0 – 102,6   | 9                     |
|            | Moderate | 102,7 – 126,3  | 62                    |
|            | High     | 126,4 – 150,0  | 29                    |

Source: Primary data

4.2.4 Total motivation

From Table 2, it can be seen that the motivation for the existence, attachment, and growth of the majority of the community in Sumberagung Village to the motivation of most people in Sumberagung Village is in the medium category. The community has not fully utilized existing facilities such as a waste bank to its full potential. The formation of new management for the women farmer group becomes an obstacle in planting and processing agricultural products in the yard. Based on this condition, there is still the potential to increase community motivation in efforts to support food security. Good management of group productive activities can provide additional sources of income, increase in harmonious social relations, as well as various innovative activities that can foster community creativity in attracting people in supporting food security efforts. Community gardens contribute to the development of social cohesion. For community members who are motivated by social aspects, they show a higher level of appreciation for gardening naturally, especially in growing vegetables [18]

4.3 The relationship between the factors that influence motivation and the level of community motivation

Table 3 describes the results of the analysis of the relationship between factors that influence people's motivation in supporting food security with the level of motivation. There is a significant positive relationship between institutions and community motivation with a correlation value of 0.583 and significant at the 99% confidence level. The Women Farmers Group is a forum for community members in Sumberagung Village to work together in supporting food security program activities. They strive for food reserves through the following activities: (1) planting vegetables, fruits, medicinal plants in their yards, (2) planting seeds in greenhouses, (3) managing waste banks, and (4) managing food barns. This condition shows that the better the institutional conditions, the more motivated the community will be to support the food security program. The
existence of the Women Farmers Group which has been formed is one of the places for the Sumberagung community to work. The form of urban and suburban agriculture on a micro-scale is processing non-agricultural land, especially in densely populated urban areas. Motivation comes from individuals for economic reasons and provides nutritious food [10].

There is a significant positive relationship between leadership and community motivation in supporting food security. The correlation coefficient value is 0.320. The role of the leader is very important both in motivating, solving problems, and making decisions. The success of the food security program is also inseparable from the role of the leader as a coordinator in activities in the community through the distribution of tasks in each activity proportionally according to the abilities of each citizen, although in practice decisions are taken together through deliberation. Managing people is an essential part of the management process. Human resources as the most vital asset as a path to their success. To be successful, the organization must motivate its human resources repeatedly. One of the ways to motivate human resources is to fulfil their needs. There is a positive and significant relationship between working conditions, recognition, and compensation for motivation. Human resources who are more motivated feel satisfied with their work [19].

Table 3. Relationship between Factors Affecting Motivation and Community Motivation Level

| Variable              | Spearman Correlation |
|-----------------------|----------------------|
| Institutional         | 0.583 **             |
| Leadership            | 0.320 **             |
| Backyard              | 0.407 **             |
| Time                  | 0.013                |
| Infrastructure        | -0.231 *             |
| Age                   | -0.356 **            |
| Education             | 0.121                |
| Number of family dependents | 0.099              |

Source: Primary data

** significant at the 99% confidence level
* significant at the 95% confidence level

The backyard area shows a significant relationship at the 99% confidence level, with a correlation coefficient value of 0.407. The availability/ownership of yardland motivates the community to support the food security program. They are active in carrying out activities to use their yards for productive activities. The utilization of yardland aims to meet family food needs, increase family income, and protect the environment. Over the last few years, there has been growing interest in monitoring and rising local food production to mitigate the detrimental effects of global food shocks and food price fluctuations. Increasing awareness of the yard is a strategy for improved food security, household nutrition, and increase economic growth [20].

Facilities and infrastructure have a negative and significant relationship to motivation to support food security programs. Investment in infrastructure is important to improve food security [21] They have not fully utilized the waste bank facility. Age has a negative and significant relationship at a 99% confidence level with people's motivation to achieve food security. The correlation coefficient value is -0.356. This indicates a conflicting relationship between age and community motivation. The older the motivation decreases. Thus it appears that the younger age group has a greater motivation in the effort to achieve food security.

Meanwhile, the variables of time, occupation, and the number of family dependents are not related to community motivation in building food security. Community motivation is an asset in
achieving resilience. For the success of the food security program in Sumberagung Village, it requires: (1) improving institutional management, (2) increasing the capacity of leadership, (3) increasing the area of yards used for planting fruit, vegetables, and medicinal plants, (4) utilizing facilities and infrastructure more intensively, especially for waste banks and food barns, (5) increasing the role of the younger generation to actively participate in food security programs.

5. Conclusion
The present study aims to examine the level of community motivation to build food security in Sumberagung neighborhood area. Besides, the study also examines the relationship between levels of motivation and levels of factors that may affect community motivation to build food security. Results of frequency analysis suggest that motivation with respect to existence, attachment, and growth of society is at a moderate level. Meanwhile, results of Spearman correlation indicate that institutions, leadership, home gardens have a direct relationship with the motivation of the community in realizing food security. Age and infrastructure have a relationship that is opposite to the motivation of the community in realizing food security. Time, education, and the number of dependents in the family are not related to community motivation in building food security. As a follow-up to this research, research on the development of appropriate technology that is capable of supporting food security programs, as well as research on the relationship between motivation and technology adoption is very important in developing strategies for developing food security programs.

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