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7

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Institutional strengthening of women farmers group (KWT) in developing household food security

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Abstract. Household food security and local institution still become an issue in a rural area. These research aims are: (1) describing a strengthening model that been done by Women Farmers Group (KWT) member, (2) analyzing the household food security level of KWT, and (3) developing the institutional strengthening model based on KWT potency. KWT Mekarsari is a unit of the case, involved 30 households. Qualitative data were collected by observation and in-depth interviews, while quantitative data was collected by the survey method. It was found that the institutional strengthening model that been applied by KWT Mekarsari was a supporting model. The implementation of this model had given a great contribution to increased vegetable consumption. Moreover, the average of food diversification scores obtained household classified as "mildly food insecure" (mean score 4). Actually, there were two kind of approach that can be applied for institutional strengthening based on it potency likes: (1) Capacity development model of KWT members and (2) supporting model (Facilitating) on "building productive enterprises based on local food" with some alternative activities such as business of cassava chips, chicken or duck meatball, and salted egg. These supporting ideas were integrated with training for increasing its business capacity.

1. Introduction

Efforts to improve food consumption through the approach of women's groups have long been implemented. However, the issue of food consumption is still an important issue, including at the household level. A study of 8 KWT in 2013 found 43.3% - 60.0% of KWT member households that were at mild and moderate levels of food insecurity [1].

KWT is one of the farmer institutional that serves as a learning, cooperation, and production vehicle. It can be considered as a forum for increasing income and developing the food consumption of its members [2,3]. Therefore, the purpose of this study are (1) describing the institutional strengthening model that has been adopted by KWT Mekarsari, (2) analyzing the household food security level of KWT Mekarsari member and (3) developing the institutional strengthening model of KWT Mekarsari based on potency.

2. Methods

This study was conducted in Palambare Village, Gantarang District, Bulukumba Regency, South Sulawesi Province. KWT Mekarsari was chosen as a case unit with the consideration that the KWT has benefited from the Food Consumption Diversity Acceleration Program (P2KP) with the Sustainable Food House (KRPL) approaches. This study was designed using qualitative and



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11
quantitative methods [4]. Qualitative data were collected by observation and in-depth interviews, by (i) in-depth interviews with informants (KWT Chairperson, companion PPL and program officers/guards from the district level who were selected purposively, (ii) observations (group activities and yard conditions). Quantitative data were collected by survey method through interviews with 30 respondents of KWT member who were selected by the census. Qualitative data collection is aimed at achieving the first and third objectives while quantitative data collection is aimed at achieving the second objective.

Data on household food consumption was collected through the food list method for 7 days and food recall for 24 hours ago [5,6]. Qualitative data were analyzed by first categorizing the data, whereas quantitative data (food consumption) were analyzed by approaching the Food Diversification Score (SDP) based on adult male consumer units [7]. Households are classified as food secure if $SDP \geq 5$ whereas if $SDP < 5$ is classified as "food-insecure" [8].

3. Results and discussion

3.1. Profile of KWT Mekar Sari

KWT is one of the farmer institutional that serves as a learning, cooperation and production vehicle [9]. KWT Mekar Sari is located in Palambare Village, Gantarang District. This KWT was formed in 2011, consisting of 30 members. It obtained social assistance through the Food Consumption Diversification Acceleration (P2KP) program by utilizing the plots of land in the form of KRPL (Sustainable Food Home Area). For this assistance, KWT Mekar Sari has taken institutional strengthening through a support model approach that is integrated with the KWT member capacity-building model. The support model, in this case, is carried out by way of assistance that is applied in the form of (a) technical assistance in the form of technical assistance in cultivating garden plants (vegetables and tubers), (b) material assistance and simple equipment (in the form of garden plant seeds, organic fertilizer, and equipment) as well as (c) training / technical practice of crop cultivation in the pilot plantations and seed garden.

In maintaining pilot plantations and seed garden, as well as the marketing of products, the KWT has made rules (informally) and has been agreed by group members. The rules in question include, among others, the schedule for watering plants (carried out in rotation). The development of the seed garden aims to produce vegetable seeds that will be distributed to each group member household for cultivation. Yard production can be consumed alone or sold by members. For KWT members who sell yard plant products, they are expected to make a "contribution" to the group with an unspecified amount (according to the sincerity of the members). These donations are used for the development of group activities such as buying more varied seedlings and sprinklers and for group meetings.

3.2. Potential resources

Potential resources that can be optimized to strengthen KWT in the context of developing the food consumption of its members consist of resources owned by KWT itself and resources owned by its members, consisting of human, land, plant and livestock resources. Human resources owned by KWT consist of 30 people with the description: (1) as a whole are still "productive" (25 - 58 years old), the highest level of high education, but has a low level of knowledge on food and nutrition (table 1).

Table 1. Description of human resources in KWT Mekar Sari

	Formal Education Level	n(%)	No	Knowledge in Food and Nutrition Level	n(%)
1	Primary School (unfinished)	16.7	1	< 50 %	63.3
2	Primary School	43.3	2	50-75	26.7
3	Junior High School	30.0	3	> 75	10.0
4	Senior High School	10.0			

5	University	0.0		
	Total	100.0	Total	100.0

According to Sanjur and Suharjo that the housewives with higher education tend to choose/process food well and distribute it according to the needs of household members compared to housewives with lower education [10,11].

Regarding land management, there is no special land owned by KWT Mekarsari but the plots of land owned by its members are managed under the responsibility of KWT. The area of the plots of land managed by each member of KWT Mekarsari ranges from 12m² - 140m². In addition to vegetable crops whose seedlings are sourced from the program, there are 43.3% of households that work on cassava plants (cassava and sweet potatoes) and 26.7% work bananas and 56.7% who work poultry (chickens/ducks) in the yard. Poultry and ducks have not been managed optimally. The number of poultry owned by KWT members ranges from 2 - 18 individuals. Chickens and ducks have the potential to provide high production if managed properly. However, KWT members found obstacles to the disease that sometimes destroyed chickens simultaneously. While ducks sometimes get paralytic disease alternately. This condition has not been seriously reported to the authorities so that it has not yet received serious handling.

In addition to the plots of land (table 2), other types of land that are the main source of household income are rice fields and gardens with an area ranging from 0.4 ha to 2.2 ha.

Table 2. Land resources

	Rice fields/Garden		House yard		
	Area (ha)	n (%)	Area (m ²)	n (%)	
1	< 0,5	40,0	1	< 25,0	53,3
2	0,5 -1,0	43,3	2	25,0 - 50,0	20,0
3	> 1,0	16,7	3	>.50,0	26,7
	Total	100,0	Total	100,0	

Types of plants that have the potential to be developed in rice fields or gardens (other than rice) are cassava. There are 86.7% of households that have the practice of growing tubers and 36.7% who have banana plants. Sweet potatoes and bananas are more dominant when compared to those sold.

Another important resource is the organization/institution. The performance of an organization/institution is shown by its ability to use its resources efficiently and produce output that is under its objectives and relevant to the needs of users [12]. A local organization or institution can contribute to the development of other local organizations/institutions competent, especially if accompanied by good social capital [13, 14]. There are several institutions that have the potential to support the strengthening of the KWT Mekarsari which can have an impact on the development of household food consumption of its members; namely (1) Farmer Groups in Palambare Village (members of farmer groups, especially those whose wives are members of KWT Mekarsari, are willing to work together and lend equipment facilities needed by KWT Mekarsari); (2) Local government (there is support/guidance from the Food Security Agency and Agricultural Extension Agency of Bulukumba Regency). This can be done through increased monitoring and analysis of food consumption patterns and by fostering and developing food institutions, in the context of developing diversified food consumption, food security and community food preferences, (3) Food stalls and Snack Food Sellers (a place to market food products whose raw materials are sourced from the yard).

3.3. Household food security of KWT Members

Concept of food security is the condition of food fulfillment in the state up to the individual, who is reflected in the availability of quantity and quality of adequate food, safe, diverse, nutritious, equitable, and affordable and not contrary to the religion, beliefs, and culture of the community, to be able to live, healthy, active, and productive in a sustainable [15,16]. Food security is the output of the food and nutrition system [17]. Household food security, in this case, has been analyzed with the diversification of food consumption approach which consists of five food groups [7].

Household food consumption of KWT Mekarsari members is identical to that stated in the SKPD (Regional Work Unit) Strategic Plan of the Bulukumba Regency in 2011-2015, namely the quality and quantity of food consumption of most people is still low, which is characterized by food consumption patterns that are not yet diverse, nutritionally balanced, and safe. Variations of food consumed can be classified into a group of staple foods, side dishes, vegetables, fruits, and drinks. However, the daily food consumption of households tends to consist of only three types of food groups namely staple food (rice), side dishes and vegetables.

The pattern of staple food consumption 2-3 times per day (morning - afternoon - evening/night). In a "no famine" condition, household staple food consumption is generally rice. Tubers, bananas, and corn are alternative staple foods during the lean season. All households consume staple foods above 500 grams per capita per day, both in the harvest season and in the lean season. While the average side dishes consumed by households are still very less when compared to the SDP standard (table 3) which is an average of 90.0 g/capita/day. Consumption of side dishes is sufficient or even exceeds the standard when there are events or parties to eat together. The types of side dishes consumed by households that are dominant are fresh fish (i.e. tinumbu, katamba, fish-cork), dried/salted fish, eggs, tofu, and tempe.

Table 3. The average score of food consumption d in household members of KWT Mekarsari

No	Type of Consumption	Riil Consumption	Standard measurement [7]	Score
1	Staple food (g)	560,4	500	2
2	Side dish (g)	90,0	200	0
3	Vegetables (g)	188,8	150	2
4	Fruits (g)	98,2	200	0
5	Milk (ml)	13,2	200	0
The average score for total consumption				4

In terms of vegetables and fruit, the P2KP movement that has reached KWT Mekarsari contributes to the continuous diversity of vegetable consumption. Generally, the types of vegetables consumed by the household consist of leaf and fruit vegetables. Consumption of fruit is generally in the fruit season, except for bananas and papayas while milk is only consumed by children under five years old.

With the food diversification score (SDP) approach, it turns out staple foods and vegetables only meet the standards [7]. The average of SDP = 4 (Table 3) which means that on average the food consumption of a household is classified as "insecure". Even so, if traced to each household, there were still 33.3% classified as "food secure" and 66.7% "food insecure" (table 4)

22
Table 4. Distribution of household of food security level

No	SDP	Level of food security	Household Numbers (%)
1	7	Food Secure	3.3
2	6	Food Secure	13.3
3	5	Food Secure	16.7
4	4	Food insecure (mildly food insecure)	66.7

Total	100.0
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One of the factors related to food consumption is household purchasing power. Purchasing power shows the function of income and food prices. By looking at the structure system of food and nutrition, low food ability at the household level might be related to household revenues [16]. The household revenues of KWT members are Rp.500.000 to Rp.2.848.000 per month with averages about Rp.1.419.200 per month.

The incomes that earn by a household of KWT members are used to provide their basic household needs included food. Nevertheless, financial capital that is directly received by households might contribute to providing income obtained by households is used to meet the household's basic needs, including food needs. Thus, financial capital that is directly received by the household can contribute to the provider's food security and consumption at the household level. Besides, it is also used to meet non-food needs that are considered important.

3.4. Strengthening of KWT mekarsari based on potential

Strengthening of local institutional can be pursued through approaches (1) support model, (2) development of human resource capacity in rural, (3) development of institutional capacity intended and (4) the formation of new institutions [18].

Based on the identification of resource potentials in the KWT Mekarsari environment, important things that need to be optimized include the mastery of yard resources along with optimizing the potential human resources of KWT members. Even though the plot of land in the size of "small" if used optimally will be able to contribute to the household, both the contribution of income and consumption. Referring to Uphoff [18], the strategy of KWT Mekarsari strengthening can be carried out through approaches: (1) a support model and (2) a human resource capacity development model for KWT members.

(1) Support Model

The support model can be applied by way of assistance and facilitation. The assistance method can be applied with the consideration that the KWT Mekarsari (under the guidance of Field Agriculture Instructor) is seen as capable of identifying needs and problems and seeking further outside assistance to carry out the plan. Based on this condition, assistance can be applied in the form of (a) technical assistance in the development of tubers and banana plants as well as raising chickens and/or ducks.

The way assistance can be integrated by "facilitation". Facilitation is carried out to help members of KWT Mekarsari create a larger business capacity not only to plant tubers and raise poultry but can also process farming and livestock products into productive economic enter prices (UEP) so that they can contribute to the group. The facilitation method will be carried out because KWT Mekarsari "tends" to lack experience in developing group businesses and "has not been able" to initiate a yard development activity (productive economic activity based on local food).

Based on the potential of land resources and human resources, productive economic efforts that need to be developed include "sweet potato chips and/or cassava chips, chicken/duck meatballs, and salted eggs". Of course, the development plan will be integrated with training to increase group business capacity. Learning objectives include that KWT members can understand and be skilled in (1) increasing the capacity of KWT resources; (2) increase KWT organizational capacity and (3) increase KWT business unit capacity.

Regarding the UEP development plan, each KWT member is expected to develop her cassava farming and poultry for consumption and most of it can be sold to KWT as raw material to be managed together in groups. Well-managed plots of land can contribute to household consumption and income which tends to improve [19]. The stronger the group's business capital, the sustainability of raw material needs is increasingly needed. Raw materials can be obtained from the yard or other land managed by KWT members. This means that strengthening the institutional KWT will be able to

contribute to increasing the income and food consumption of households that are members of their group.

(2) KWT Member capacity-building model

By noted that the level of food and nutrition knowledge of KWT members tends to be still low, it is deemed necessary to carry out food and nutrition education for all KWT Mekarsari members. Also, KWT administrators (especially those who have the status of chairperson) need special training, which is appropriate training and development of group leadership potential. The training objective is to improve the ability of KWT administrators to identify and solve problems in their groups, including in terms of UEP development plans. Since the implementation of development involves local initiatives, local leadership can at least function in terms of (1) local leaders can anticipate changes, in the sense of having an understanding of the situation of their community dynamically; (2) local leaders play a role in decision making with the information they have and the ability to define the context of various decisions; (3) local leaders can identify potential action programs; (4) local leaders can manage group dynamics, including conflicts that take place within them [20,21].

Regarding this matter, it is necessary to conduct training on the making of Articles of Association/By-Laws (AD/ART) and leadership training for the management of KWT Mekarsari. Capable local leaders are needed in the development of the institution they lead. The important in this case is how to maintain the accountability of local leaders to their constituents, in the sense of speaking and acting according to their institutional roles.

As the leader or head of the KWT, he needs to understand the benefits of the Statutes/By-Laws which essentially: (1) regulate the Working Mechanisms of the KWT; (2) regulating KWT relations with its members; (3) Ensuring the cohesiveness/harmony of group members; (4) Ensuring the smooth running of group businesses; (5) Ensuring fairness in groups; (6) Avoiding quarrels and division among group members and (7) Achieving the welfare of group members.

4. Conclusion

Strengthening the institution of KWT Mekarsari has been carried out based on the KRPL-based P2KP Movement with the support model approach and the capacity-building model of KWT members. The implementation of this model has provided a strengthening for KWT to maintain the sustainability of nurseries. Variations in household food consumption of KWT members tend not to be diverse, except the vegetable food group as the implication of the P2KP Movement. However, on average household food consumption is still in the food insecurity level category (average SDP =4). Efforts to increase household food consumption of KWT Mekarsari members based on their potential and needs can be done through approaches: (1) a support model by means of assistance and facilitation namely "the establishment of a productive economy based on local food production" with several alternative activities such as (a) chip business sweet potatoes, (b) chicken/duck meatball business and (iii) salted egg business, (2) KWT member capacity development model as a whole by conducting food and nutrition education and special training for leadership development and AD/ART preparation for KWT administrators. It is recommended to local government (stakeholders) who are competent with food and nutrition to work together with universities in facilitating KWT institutional strengthening (including drafting AD/ART and forming UEP) which can have an impact on increasing income and food consumption of the community.

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