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THE ROLES OF RURAL INSTITUTIONS ON FOOD SECURITY POLICY IN EAST JAVA PROVINCE INDONESIA

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ABSTRACT: This study has two main objectives, which are to identify rural institutions and their roles for supporting the implementation of food security policy in East Java Province and to formulate the model of rural institutions to enhance food security in the village level. This study was conducted on February 2012 in six regencies, which represented different food insecurity level in each locations. Primary data were collected by participatory rural appraisal method involving administrators of rural institutions. Descriptive analysis is used to describe rural institutions and their roles on food security implementation. Gap analysis is used to formulate the model to increase the roles of institutions on food security policy. It can be concluded that there are six potential rural institutions supporting food security in village level, which are women farmers' group, farmers' group, farmers' group association, family welfare institution (PKK), rural cooperative, and food barn institution. Farmers' group, farmers' group association, and food barn institution potentially support food availability. Meanwhile, on accessibility aspect, farmers' group, farmers' group association, rural cooperative, and food barn institutions provide sufficient strength on this role. The last aspect on food security is food utilization. This aspect will be well supported by family welfare institution (PKK) and women farmers' group. Finally, the institutional form in the village level fostering all aspect of food security is rural food team or TPD (Tim Pangan Desa).

Keywords: food security, local institutions, food availability, food access, food utility

INTRODUCTION

Food security is a broad concept focusing on how people can live in productive and healty life. These goals are reached from many efforts regarding how a household or a person can make the food available, accessable, and cooked properly. Therefore, the nutrients can be absorbed for having good health and getting productive life. Food availability consists of food domestic production, import, food aids, and food stocks. Moreover, food access is not only related to how the people can get the food in right amount and quality but also how the sustainability of food access can be maintained. The sustainability of food access have some influenced factors, which are physical environment, social environment, and policy environment (Riely, et al., 1999). However, human resource is significant factor fostering this security development.

This study is focusing on potential local institution supporting food security development in the rural area. The potential local institutions are observed by its roles in food availability, food access, and food utility.

Institution is defined clearly by Norman Uphoff as the complexes rules and behaviors conducted collectively that exist over time as values in the society to determine what are appropriate conducts and what are not (Uphoff, 1997). This institution definition is employed as basic definition for identifying possible rural local institution in strengthening food security.

Agrawal (2010) observed local institution in response to climate change. He observed the roles of local institutions as the instrument in translating external factors, such as government policies, into effective adaptation processes of climate change. He also observed that there are three important factor before designed the roles of local institutions. Those are the background of the

institutions established and the goal determined, the particular function embodied in the institution, and the links of the institution internally and to different households.

This study observes about eight rural local institutions that have potential roles in enhancing rural food security. The institutions include women farmers' institution. Quisumbing (1995) found that the role of women in household nutritions need is definitely significant and the removing constraint in women farmers from accessing resources available will greatly affect on eradicating food insecurity.

Finally, it can be stated here the important of this study as part of process in strengthening rural food security through rural local institutions.This study is also be expected to find a better model of food security institution in rural areas.

RESEARCH METHODS

The locations are taken based on food security ranking. They are two food secure regencies, two moderate food secure regencies, two food insecure regencies. The selection is based on Food Security and Vulnerability Atlas (FSVA) criteria that were issued by Food Security Council. They are Jombang, Pasuruan, Jember, Bangkalan, Sampang dan Sumenep as regency selected representing each food security level. In each sample region, one rural area will be chosen randomly. Afterward, local institutions are observed more detail using survey method.

Local institutional data are collected by participatory rural appraisal (PRA). Data collected include institutional capacity, institutional knowledge about food and nutrition security, and response to conduct food and nutrition activities.

Data Analysis

This study uses gap analysis for determining potential local institutions in developing food security in the area. Gap analysis is used to compare expectations and facts or comparing knowledge of strengthening food security (experiences) and the readiness to support food security.

The roles of each local institution in food security activities are regarding food availability, food access or distribution and consumption or food utility. The measurement of those roles is using score that represent the response of institution regarding the questions provided in the questionnaire. Finally, institutional model of of village level for enhancing food security will be proposed based on the information of local institutions' performance and the potential function of the institution in fostering food security in the local area. This model is integrated among those potential institutions chosen and the function assigned in the institutions.

RESULTS AND DISCUSSION

The potential rural institutions

The results from the survey found that there are eight types of institutions, which is potential for developing food security at the rural areas. There are farmers' group, farmers' group association, fostering family welfare institution, and youth institution. These institutions become driving force of food security development in rural areas.

Table 1. The years of institutions established

No	Type of Institution	Percentage number of institutions based on years established				
		< 2.5	2.5 – 5.0	5.0 – 7.5	7.5 – 10.0	>10
1.	Youth Farmers	-	-	-	50.00	50.00
2.	Women Farmers' group	100.00	-	-	-	-
3.	Farmers' group	28.57	14.29	42.86	-	14.29
4.	Farmers' group association	-	60.00	20.00	-	20.00
5.	Fostering family welfare institution	20.00	-	40.00	20.00	20.00
6.	Rural cooperative	25.00	-	25.00	25.00	25.00
7.	Food Barn institution	-	50.00	-	50.00	-
8.	Rural youth institution	20.00	20.00	20.00	-	40.00

Source: Survey, 2012

The composition of existed local institutions at the study area are not the same. They are 33.3% of locations that have youth farmers, while, the other locations (66.7%) do not have youth farmers institution. Women farmers' groups are relatively inactive. Furthermore, the availability of food barns in the study area is very low as only 33.3%. Although food barn has important roles to support local food security, it has difficulty in preserving and providing food for consumption. In this sense, the area, which has no difficulties in providing food, will tend to have worse performance of food barn institution. Eventhough, the government has already set and intervene the food barn institution to secure the

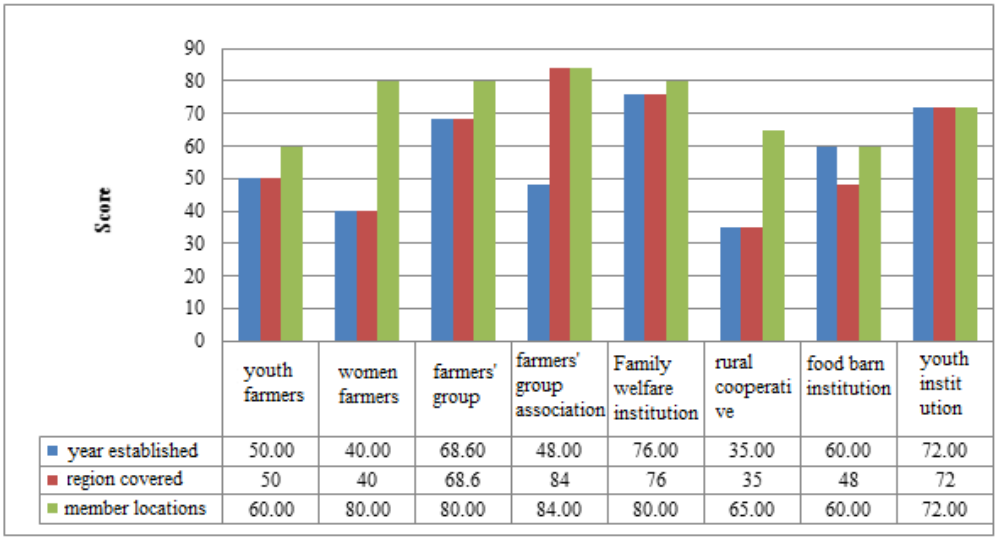


Figure 2. The potential rural institutions
Source: Survey, 2012

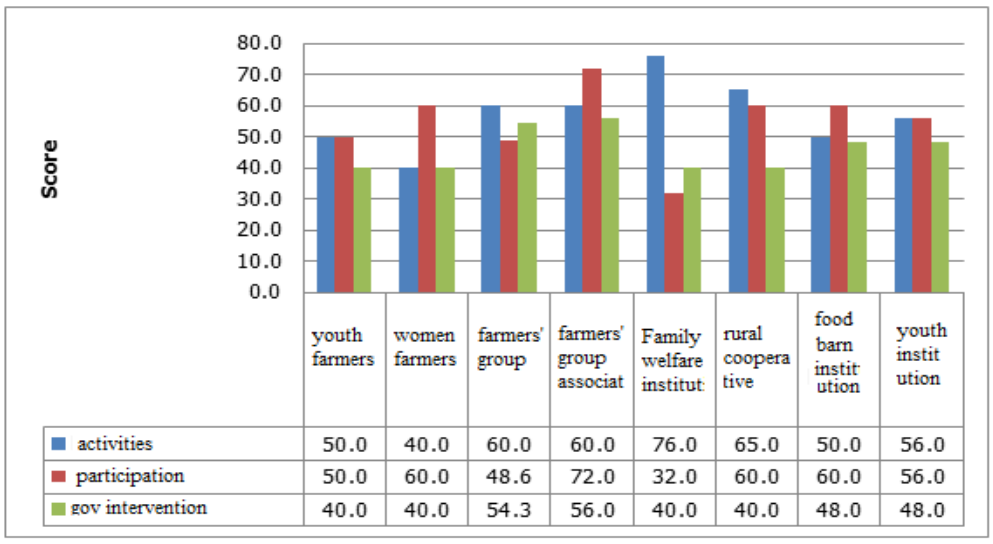


Figure 3. The activity level of rural institutionals
Source: Survey, 2012

The welfare family institutions (PKK) is the most active local institution in term of the frequency of activities and rural cooperative institutions is the second one. Those two institutions are more active than the other institutions (food barn, youth farmers, and women farmers). The regular activities induced by local government and concerning rural cooperative the most influencial factor that makes this institution more active is related to farming activities and the related activities. Regarding the year institution established and the member coverage area are presented above.

The other factors considered in describing the existing of local institutions are participation and the availability of government intenvention for the institutions. For those factors, farmers' group has the highest score in members' participation and the existing of government intervention.

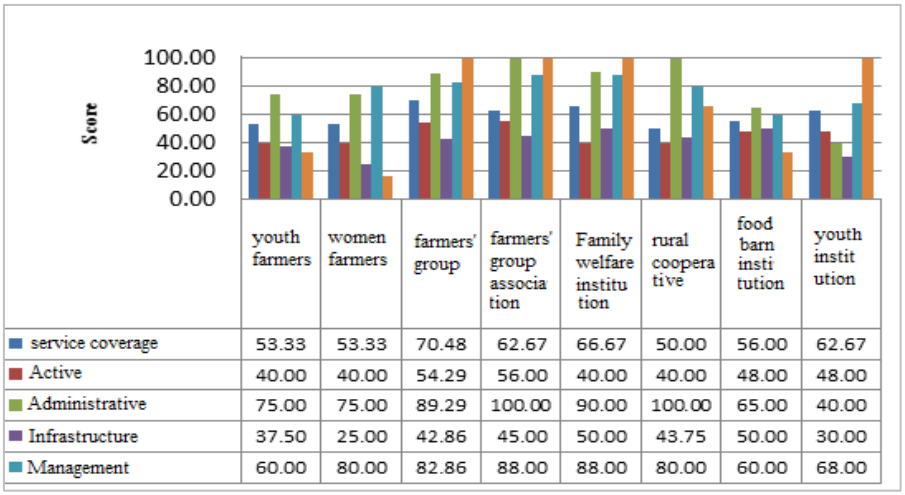
Rural institutional capacity

The indicators used for identifying the rural institutional capacity are: (1) the range of services, (2) active members, (3) administration, (4) infrastructure, and (5) management of the institution. Measurement criteria using the score from 0-100 for each indicator.

The coverage service is almost the same among those institutions observed. The plausible reason is that the location of the institutions in the village and this implies that the services tend to cover in the same area in the village.

The institutions in the village have relatively the same level of active members, which is about 40 – 56 in its score. The farmers' group and the farmers' group association are the better institutions regarding the active members. Those two are giving services in farming system in the rural area and the activities are relatively intensive along the years for almost all members.

There are five local institutions, which have better capacity than the others have. They are women farmers, farmers' group, farmers' group association, family welfare institution (PKK), and rural cooperative. Those five institutions have better quality in management, administrative. Management and administrative are two higher factors owned by those five institutions consistently. However, the institutions are in the process of being mature in organization behavior and performance. Therefore, the institutions are still depending on government interventions and struggle for having enough social capital (members participation) in order to stand in its own.



	youth farmers	women farmers	farmers' group	farmers' group association	Family welfare institution	rural cooperative	food barn institution	youth institution
service coverage	53.33	53.33	70.48	62.67	66.67	50.00	56.00	62.67
Active	40.00	40.00	54.29	56.00	40.00	40.00	48.00	48.00
Administrative	75.00	75.00	89.29	100.00	90.00	100.00	65.00	40.00
Infrastructure	37.50	25.00	42.86	45.00	50.00	43.75	50.00	30.00
Management	60.00	80.00	82.86	88.00	88.00	80.00	60.00	68.00

Figure 7. Summary of Potential Institutional Capacity in Rural
Source: Survey, 2012

Knowledge and readiness of the local institutions in supporting rural food security

Knowledge and readiness of the local institutions to support rural food security development are measured using score of items that construct the knowledge and readiness of the institutions. The score is in interval scale of 0 to 100.

Regarding food availability, there are two institutions having better understanding and conducting activities related to food availability aspect. Those institutions are farmers' group and farmers' group association. The institutions are related to food producers, wausehich are farmers; therefore, food availability is what they concern about.

Food barn institution, on the other hand, is not that good in food domestic production and post harvesting activities. As explained in the previous section, food barn institution is relatively rare as an active institution concerning food availability because the institution is not well functioning in better food access region. Moreover, food barn institution introduced by government also does not perform sustainable in its activities because the physical stock of food is too risky to be handle by the local institutions.

Table 2. Knowledge level of rural institution of food availability

No	Knowledge of food availability	Youth farmers	Women farmers	Farmers' group	Association of farmers' group	Family welfare institution	Rural cooperative	Food barn	Youth institution
1	Irrigation management	100.00	0.00	85.71	100.00	40.00	25.00	100.00	60.00
2	Farming techniques	100.00	100.00	85.71	100.00	80.00	50.00	100.00	60.00
3	Labelled seed	50.00	100.00	85.71	80.00	80.00	25.00	100.00	40.00
4	Fertilizer management	100.00	100.00	85.71	100.00	60.00	25.00	100.00	60.00
5	Pest management	100.00	100.00	85.71	100.00	60.00	25.00	100.00	60.00
6	Manufacture of organic fertilizer	50.00	0.00	57.14	80.00	60.00	25.00	0.00	40.00
7	Seed breeding	50.00	0.00	57.14	60.00	60.00	25.00	0.00	20.00
8	Manufacture of organic pesticide	0.00	0.00	28.57	40.00	0.00	0.00	0.00	20.00
9	Harvest system	100.00	100.00	85.71	100.00	80.00	50.00	100.00	80.00
10	Quality of production	100.00	100.00	85.71	100.00	60.00	75.00	100.00	60.00
11	Credits	50.00	0.00	42.86	60.00	40.00	50.00	50.00	40.00
12	Post harvest management	50.00	0.00	57.14	80.00	40.00	75.00	100.00	40.00
13	Processing	0.00	100.00	28.57	60.00	100.00	50.00	0.00	60.00
14	Yard utilization	50.00	100.00	71.43	80.00	80.00	25.00	0.00	60.00
15	Agro-industries development	0.00	0.00	28.57	20.00	100.00	25.00	0.00	20.00
16	Management of food barn	50.00	0.00	42.86	40.00	40.00	50.00	40.00	20.00
	Average	59.38	50.00	63.39	75.00	61.25	37.50	55.63	46.25

Source: Survey data analysis, 2012

Table 3. Knowledge Level Rural Institute of Food Access

No	Knowledge of food access	Youth farmers	Women farmers	Farmers' group	Association of farmers' group	Family welfare institution	Rural cooperative	Food barn	Youth institution
1	Price information	50.00	100.00	71.43	100.00	80.00	100.00	100.00	20.00
2	Marketing group	0.00	0.00	28.57	20.00	40.00	100.00	0.00	20.00
3	Drinking water provision	100.00	100.00	85.71	100.00	80.00	100.00	40.00	60.00
4	Environmental sanitation	100.00	100.00	71.43	80.00	60.00	100.00	0.00	60.00
5	Helping the poor	100.00	100.00	85.71	100.00	80.00	75.00	100.00	80.00
6	Helping unemployed people	50.00	0.00	71.43	80.00	20.00	50.00	50.00	80.00
7	Empowerment social capital	0.00	50.00	57.14	80.00	40.00	100.00	100.00	20.00
8	Development of SME's (small-medium entreprises)	50.00	40.00	57.14	60.00	80.00	100.00	100.00	60.00
	Average	56.25	61.25	66.07	77.50	60.00	90.63	61.25	50.00

Source: Survey data analysis, 2012

Rural cooperative institution dominates the role of strengthening food access in rural area. The second institution having this potencial role is farmers'group association. Rural cooperative and farmers group association are the most potential in rural area for fostering the food access. Rural cooperative is owned by the members, which mostly are farmers. Then, the existence of this institution is going to help farmers in maintaining production and gaining benefit not only for providing available and accessible food over time but also helping farmers in accessible inputs for food production. In this perspective, rural cooperative will also be associated with farmers' group and or farmers' group association. The score results describe this argument firmly.

Food utility is the third aspect of food security that directly effect the nutrition intake of individual. Family welfare institution (PKK) is the higher score in knowledge about food utility comparing to the other local institutions. This makes sense since PKK consists of housewifes in the rural area, who hold decision in providing food for the entire household members.

The government has recognized this potential role in improving nutrients intake for household. Therefore, PKK in the existing activities has been conducting this role for many years ago. However, we suspect that PKK is still depending on government support and do not have enough awareness in strengthening rural food utility and the institution itself.

Table 4. Knowledge level of rural institute of food utility

No	Knowledge of food utility	Youth farmers	Women farmers	Farmers' group	Association of farmers' group	Family welfare institution	Rural cooperative	Food barn	Youth institution
1	Four healty - five perfectly healty foods	0.00	100.00	85.71	0.00	100.00	0.00	0.00	60.00
2	Local food development	50.00	100.00	71.43	80.00	80.00	50.00	0.00	20.00
3	Creating menu based and local resources	50.00	100.00	71.43	0.00	80.00	75.00	0.00	40.00
4	Food processing technology	50.00	0.00	57.14	80.00	60.00	50.00	0.00	0.00
5	Non-rice food processing technology	0.00	0.00	57.14	0.00	80.00	75.00	50.00	20.00
6	Traditional food	50.00	0.00	57.14	0.00	60.00	75.00	0.00	0.00
7	Safety food	50.00	100.00	57.14	80.00	60.00	75.00	100.00	20.00
8	Harmful food additive substances	100.00	0.00	71.43	100.00	80.00	50.00	100.00	60.00
9	Nutrient content of food	50.00	0.00	71.43	80.00	80.00	0.00	0.00	60.00
10	Needs of nutritions	50.00	0.00	71.43	80.00	80.00	0.00	0.00	60.00
11	Utilization of the yard for the local food	0.00	100.00	71.43	80.00	80.00	75.00	0.00	60.00
12	Handling nutrition of infant	0.00	0.00	71.43	80.00	80.00	0.00	0.00	60.00
13	Food business development based on local resources	50.00	100.00	57.14	60.00	80.00	0.00	100.00	40.00
	Average	38.46	46.15	67.03	55.38	76.92	40.38	26.92	38.46

Source: Survey data analysis, 2012

Table 5. Readiness of local institutions in supporting food availability

No	Readiness in conducting the roles	Youth farmers	Women farmers	Farmers' group	Association of farmers' group	Family welfare institution	Rural cooperative	Food barn	Youth institution
1	Irrigation management	87.50	100.00	96.43	100.00	75.00	81.25	87.50	70.00
2	Farming Techniques	75.00	75.00	96.43	95.00	85.00	81.25	87.50	90.00
3	Empowering Superior Seed	87.50	100.00	92.86	95.00	75.00	87.50	100.00	90.00
4	Fertilizer Management	75.00	100.00	89.29	100.00	80.00	81.25	100.00	85.00
5	Pest Management	87.50	100.00	92.86	100.00	80.00	87.50	100.00	80.00
6	Organic Fertilizer	62.50	75.00	89.29	95.00	80.00	56.25	100.00	80.00
7	Seed Breeding	37.50	75.00	82.14	95.00	80.00	81.25	100.00	75.00
8	Manufacturing Organic Pesticides	75.00	75.00	89.29	95.00	60.00	56.25	100.00	60.00
9	Harvesting System	75.00	50.00	89.29	95.00	75.00	81.25	100.00	90.00
10	Quality of Production	87.50	75.00	92.86	100.00	75.00	87.50	75.00	75.00
11	Credit	87.50	50.00	71.43	85.00	65.00	56.25	100.00	75.00
12	Post Harvest Management	75.00	75.00	82.14	95.00	80.00	93.75	87.50	75.00
13	Processing	87.50	75.00	82.14	95.00	80.00	93.75	100.00	80.00
14	Yard utilization technology	75.00	75.00	67.86	75.00	75.00	50.00	87.50	75.00
15	Development of Agro-Industries	87.50	75.00	75.00	70.00	85.00	75.00	87.50	75.00
16	Management food reserves(food barn)	75.00	75.00	75.00	80.00	60.00	87.50	100.00	55.00
	Average	77.34	78.13	85.27	91.88	75.63	77.34	94.53	76.88

Source: Survey data analysis, 2012

The next analysis is observing the readiness or ability of the local institution in securing food availability role. Tables below are presenting the readiness of those eight institutions in supporting each aspect of food security in the rural area.

Analysis of the local institutions regarding food availability shows that food barn, farmers' group and farmers' group association have ability for strengthening this function in the rural area. Those three institutions are reasonable for fostering this function since those consist of food producers. Therefore, surplus from seasonal production can be used as a stock. Furthermore, the production at the harvest time will fulfill the domestic food market and accessible for all people who have purchasing power in buying this food.

Food access function is imperative aspect of food security since availability will not affect in food security if the product is not accessible for all people. The distribution function finally can be assigned to the three institutions, which has ability to carry out the function of food availability, and one more potential institution that is food barn. The four institutions will potentially support in strengthening food access in rural area.

Tabel 6. Readiness of local institutions in supporting food access

No	Responds about food acces	Youth farmers	Women farmers	Farmers' group	Associa-tion of farmers' group	Family welfare institu-tion	Rural coopera-tive	Food barn	Youth institu-tion
1	Price information based on quality	87.50	75.00	89.29	100.00	75.00	81.25	100.00	70.00
2	Marketing groups	62.50	50.00	60.71	70.00	65.00	68.75	100.00	75.00
3	Drinking water provision	50.00	75.00	89.29	95.00	90.00	87.50	87.50	85.00
4	Clean environment	50.00	75.00	89.29	95.00	85.00	87.50	87.50	80.00
5	Helping the poor	50.00	75.00	85.71	90.00	70.00	87.50	87.50	75.00
6	Helping unemployed people	87.50	75.00	78.57	80.00	70.00	87.50	87.50	75.00
7	Empowerment social capital	87.50	75.00	85.71	95.00	70.00	93.75	87.50	70.00
8	Develompent of SME's (small- medium entreprises)	87.50	75.00	85.71	95.00	70.00	93.75	87.50	75.00
	Average	70.31	71.88	83.04	90.00	74.38	85.94	90.63	75.63

Source: Survey data analysis, 2012

Food utility is the last important aspect of food security that directly affect the people health. To support this function, there are two institution potentially carrying out this role. They are women farmers' institution and family welfare institution (PKK). Those two institutions recognize well the food utility function in the rural area. Assigning those functions for the two will potentially increase the security of food utility. It means that the rural people will increase their nutritions' consumption for their health inline with increasing role of women farmers and PKK.

Gap Analysis

The gap is considered as the difference between what the existing of the local institutions is and what the ability or the readiness of the institution in fostering the function in food security is. The discussion is starting what gap that institutions have in order to support food availability, food access and food utility in the rural area.

Gap in food availability is found regarding the ability of institutions in providing sustainable farming and supporting the farming with credit and off-farm activities. This implies that the gap should be fulfilled and the food availability function should be taken by these institutions i.e., farmers' group, farmers' group associations and including food barn institution. Interesting point regarding food barn institution is regarding higher score in readiness supporting food availability but the score in knowledge of food availability is quite low. This gap is the problems of awareness and business feasibility. Concerning with feasibility, food barn

is relatively high costs; then, the sustainability of this activities (food stock locally) is very low.

The economic motive should be introduced in food barn institution and awareness on it should be built. Government plays important role in providing infrastructure, such as drying floor and the storage room.

According to the facts, the ability of food barn in village level is not feasible due to the high cost in maintaining the barn and the operation for milling the paddy. It will be feasible if there is rice milling unit and rural cooperative in the village as well. Those three agents at least, which are farers' group, rural cooperative, and food barn institution, is needed and available in the village in order to enhance food security.

Gap in food access institutions is related to marketing as a group, helping unemployed people, and developing off-farm and non-farm business units. There is ability or readiness to support the items in food access and as the matter of facts that the functions are not yet reached. The potential institutions regarding this role are farmers' group association and rural cooperative.

Family welfare institution and women farmers' group will potentially support food utility. The gap of this aspect is related to food diversification and to create the better awareness on food nutrients in the individual food consumption for productive and healty life. Moreover, food diversification is the effort of diversifying food consumption so that the people are able to reduce rice consumption and adding more kind of foodstuffs especially coming from local resources.

Tabel 7. Readiness of local institutions in supporting food utility

No	Respon tentang penyerapan pangan	Youth farmers	Women farmers	Farmers' group	Associa-tion of farmers' group	Family welfare institu-tion	Rural coopera-tive	Food barn	Youth institu-tion
1	4 healty – 5 perfectly healty foods	62.50	75.00	89.29	90.00	90.00	81.25	50.00	65.00
2	Local Food Development	75.00	100.00	78.57	80.00	65.00	62.50	50.00	65.00
3	Creating menu based on local resources	75.00	75.00	78.57	80.00	65.00	87.50	87.50	65.00
4	Food processing technology	62.50	75.00	82.14	85.00	75.00	50.00	87.50	65.00
5	Non-rice food processing technology	75.00	75.00	64.29	60.00	70.00	75.00	87.50	65.00
6	Traditional Food	87.50	75.00	78.57	80.00	70.00	62.50	87.50	65.00
7	Safety food	87.50	100.00	89.29	85.00	80.00	87.50	50.00	65.00
8	Harmful food additive substances	50.00	100.00	39.29	40.00	60.00	43.75	50.00	50.00
9	Nutrient content of food	50.00	75.00	65.00	40.00	75.00	81.25	50.00	65.00
10	Needs of nutritions	50.00	75.00	65.00	90.00	80.00	81.25	65.00	65.00
11	Utilization of the yard for the local food	50.00	75.00	67.86	60.00	70.00	50.00	65.00	65.00
12	Handling nutrition of infant	50.00	75.00	40.00	40.00	80.00	87.50	65.00	65.00
13	Food business development based on local resources	87.50	75.00	82.14	90.00	65.00	62.50	87.50	65.00
	Average	66.35	80.77	70.77	70.77	72.69	70.19	67.88	63.85

Source: Survey data analysis, 2012

Rural food security institution

Based on the results of the study, those indicate that the institutions handling food security in the rural areas is engaged in partial way. Therefore, it should be organized in effective coordination among the potential agents have been identified above. Forms of organization in food security are blended of many parties in the village, which is called Rural Food Team (Tim Pangan Desa = TPD). The benefits, objectives, and the TPD function are below.

Benefits:
1. Increase the participation of society in the development of food security in the rural area
2. As a government means of spearheading food security programs and activities, which can be implemented effectively and efficiently

Targets:
1. Increase the availability of food through increased production and diversification of food production both fresh and processed products
2. Increase sustainable food reserve adequacy to address the food vulnerability in the society.
3. Increase food access to adequate food in an order to reduce the victims of food insecurity and malnutrition
4. Improve food quality and diversification of food consumption towards improvement of nutritional status of the society.
5. Developing fresh and processed food businesses in an order to increase the value-added of food products, increasing job and incomes opportunities

Functions:
1. Planning the development of food security in rural areas
2. Instrument of transferring people asprirations to the government on the development of food security in the rural areas
3. Part of early warning system on Food and Nutrition in rural areas.
4. Implement development of food security in rural areas.
5. Encourage participation of society in the implementation of development activities of food security in rural areas

Scope of Activities
1. Increasing diversification and strengthening food production
2. Handling distribution and marketing of food products
3. Development of food reserves for society
4. Quality improvement and diversification of food consumption
5. Improving nutritional status of children and society.

CONCLUSION

1. There are 8 kinds of potential institutions for food development institution, which consist of youth farmers' group, women farmers' group, farmers' group, farmers' group association, family welfare institution (PKK), rural cooperative, food barn, and youth institution.
2. Potential local institutions involve in food security activities in food availability aspects are farmers group, association of farmers group, and food barn institution.
3. Potential local institutions support food access are farmers group, association of farmers group, food barn, and rural cooperative.
4. The rural institutions that will potentially enhance food utility in rural area are women farmers' group and family welfare institution.
5. The comprehensive forms in maintaining food security in village level is called Rural Food Team (Tim Pangan Desa = TPD). TPD will generate all possible activities forcing mobilization of local resources toward food security development in sustainable way. TPS also has important role in connecting those six potential local institutions, i.e., women farmers' group, farmers' group, farmers' group association, rural cooperative, family welfare institution, and food bran institution. , in order to achieve higher food security level in the village.

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