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The Roles of Local Institutions to Improve Farmer Access to Foods and Production Capacities

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Abstract: - How smallholder farmers meet their needs during scarcity of foods always become subject of questions. Local institutions are expected to play some key roles for marginal farmer households for their survival. The objectives of the study were (1) to describe farmers' activities in meeting foods for their family, (2) to analyze the roles of local institutions in improving farmers' access to foods and capacities to produce the foods, and (3) to analyze the correlation between the roles of local institution and the farmer access to foods and capacities to produce foods. The study was conducted at a transmigrant group in the Village of Peoho of the sub-regency of Watubangga (Regency of Kolaka), which was located in the Indonesia's Southeast Sulawesi Province. We used a survey technique, in which simple random sampling method was applied. The target population was all of the farmer households in the proposed village. The quantitative data were analyzed descriptively, and to assess the correlations we used Spearman Rank Correlations Analysis. Throughout the study we administered qualitative data to back up the quantitative data. The study showed that (1) farmers' activities in meeting their needs for foods were somewhat varied, such as producing crops from their farming lands, food sharing with their relatives during famine or harvest failure, borrowing from their social networks, such as acquaintances, neighbours, or local kiosks/warungs, and later repaying it after harvest; (2) the local

institutions that played a role in meeting access to foods were the village authority, kiosks/warungs, families, and neighbors, while institutions contributed to improve capacities for food productions were farmer groups, agricultural extensions, family, and neighbours; and (3) there was a significant relationship between the roles of the local institutions and the access of farmers to foods and their production capacities, indicating the strategic positions of local institutions in facilitating the marginal farmers in meeting food needs. The authors suggest to improve the linkages among local institutions to enhance farmer institutions and households in produce various foods.

Keywords: - foods, access, capacities, smallholder farmers, local institutions, linkages

1 Introduction

The availability of foods with adequate quality and affordable are some of the targets to be achieved in the formulation of national food policies. The unstable food availability and/or staple food (especially rice) price fluctuations have been proven to be volatile food staple prices (rice) in Indonesia has been proven to trigger the emergence of social instability [1].

One of the fundamental challenges in the development of sustainable national food security today is how to ensure the poor to have an adequate access to food, both in quantity and quality. However, they have found it increasingly difficult to gain access to agricultural land. The access-to-land limitations have caused them to be exploited by some landlords [2]. Limited land due to agricultural land conversion is also a cause of food crisis. The study by Hardono [3] using farmer households' micro data in some provinces in Indonesia showed that the number of farmers vulnerable to food increased from 28.1% in 2007 to 60.3% in 2010.

National food needs will continually increase every year as a result of the increasing population. The Indonesian population in 2010 was 237.5 million, where 53.45% of it resided in Java with a population growth rate of 1.49% [4]. It is estimated that by 2020 the population of Indonesia will be 250 million. Farmers' or communities' limitations in gaining food are due to various factors, such as their limited access in meeting production factors and in marketing food products, limited land and capital, and the absence of any farmer institutions to help the farmers produce enough food in their region. In addition, there is a tendency that farmers prefer to work independently despite their limited human and other capital resources.

Suryana [9] stressed that obstacles and challenges in achieving national food security include the continual conversion of agricultural land to non-agricultural purposes and the limited farmers' production institutions. Natural factor such as extreme weather is also another factor that may reduce farming production [26]. Alfaa and Fouilleux

[13] highlighted that food safety policies must be directed towards inter-sectoral coordination. Historically, the roles of agricultural sector as food providers have received more attentions than other sectors. The research results of Ville et al. over two time periods (pre-1950 and 1950 to 2010) have influenced: first, the displacement of informal institutions and guiding rules to a lower position in the institutional hierarchy resulted in the convergence of rules from export and domestic production systems. Second, these changes fostered reduced interaction, loss of cultural and identity-building activities within and across communities, and a general loss of horizontal linkages between communities (the bridging social capital).

Therefore, it is required that the government needs to encourage and facilitate the farmers to build a collaboration among themselves. The collaboration requires a container in a form of institutions. Institutions can effectively assist partnership that will be the key to improve the farmers' welfare [2]. The existence of a farmers' group as a farmer institution is expected to provide benefits to the members. The roles of a group either as a teaching and learning medium, production facility, or as a collaborative institution have a significant correlation with the group members' ability [5]. The objectives of this study were (1) to describe farmers' activities in meeting their household needs for foods; (2) to analyze the roles of agricultural institutions in improving farmers' access to foods and capacities to produce foods; and (3) to analyze the correlation between the roles of farmer institutions and farmer access and the capacity to produce foods.

2 Problem Formulation

The target population of this study was the Village of Peoho, Sub-regency of Watubangga, Regency of Kolaka, located in the Southeast Sulawesi province of Indonesia. The village was adjacent to the PT Damai Jaya Lestari, a private palm oil plantation company; there is a tendency for the company to buy farmers' land to expand its

business. This situation can lead to dependence, in which farmers may become the company's farm labourers, or they switch jobs to labor in the nearby city. Therefore, it is appropriate to study this community and assess the roles of local institutions in meeting the farmers' needs for foods. In addition, the people of Peoho Village originally came from Bali who migrated in 1982. The time for data collection was from June to July 2017. The method used in this study was a survey, using a questionnaire as an instrument for data collection. The population for this study was 514 farmer households. The sample size was 10% of the households, which was chosen randomly. To gather data, the research team members came personally to families by visiting their houses and asked for their responses regarding issues related to the objectives of this study through a prepared questionnaire. The team also conducted in-depth interviews with key informants, including formal and informal community leaders, to complete the survey. These key informants were parties who familiar with the livelihoods of the local community. They were village heads, field agricultural extension officers, farmer contacts (one person each), and community leaders (two persons).

Data were analyzed descriptively using SPSS software, including frequencies, mean scores, percentages and rank spearman correlation analysis to determine the relationship between institutional roles and access to food and capacity of farmers in producing food.

3 Problem Solution

3.1 Farmers' Needs for Foods

3.1.1 Daily Food Consumption

In average the frequency of food consumption of farmers was three times a day (morning, mid-day, and night). Rice was the most common type of staple food. The number of farmers who consumed rice was 45 of 52 (86.54%). Other than rice, seven farmers (13.46%) also ate other kind of foods, such as cassavas, corns, and bananas. They consumed these foods motivated by the willing to eat the non-rice food and/or when they ran out of rice. Interestingly, most of them consumed the meals after mixing it with rice.

The perceived healthy foods were rice, vegetables, side dishes, and fruits; they rarely drank milk. They added fishes in their meal on the market day, in which the market day in Poeho was only once in a week, that was every Friday morning. They usually had meat in their meal on holidays or special events; they added eggs when other menu

was not available, or when they wanted to eat egg. Lastly, they usually consumed fruit during the fruit seasons.

3.1.2 How to Obtain Foods

Eleven of 52 farmers (21.16%) obtained food only from their own harvest; seven farmers (13.46%) by buying from a kios (warung) or market; and 34 famers (65.38%) from a combination of their own harvest, gift from neighbors, and purchase from the local market. The food types from their own harvest were rice, vegetables, fruits, and sometimes meat and eggs; whereas the purchased items were fish, vegetables, meat, eggs, milk, and sometimes rice, especially when they ran out of these food stuffs.

3.1.3 How to Overcome Food Shortage

When food shortage occurred, the strategy of farmers was sharing foods with other family members so that they get enough foods. Some farmers prioritized their children first when their food supplies were limited. Other farmers mixed rice with cassava or corn for their meals, while some others got foods from borrowing. In some cases, farmers also bought food from the nearby kiosk/warung when other crop harvest could be sold, or they have no money; they loaned some amount of food and repaid it after harvest or earned money from other sources [10]. Recent studies emphasized the crucial roles of institutions to understand the persistence of food insecurity or to explain how different individuals address such problems. Public policy needs to take into account local resources, including strengthening the local or indigenous socio-cultural institutional system because it is effective for development [16].

3.2 The Roles of Farmers' Institutions to Improve Access to Foods and Capacities of Production

The roles of various parties or stakeholders were vital in handling food problems. This study showed that several local institutions had contributions in meeting access to foods and enhanced farmer capacities to produce foods (Table 1).

Table 1. The roles of local institutions in access to capacities to produce foods

Institution Types	The roles of Institutions	
	Access/ Food fulfillment	Capacities to produce
Village authority	<ul style="list-style-type: none"> - Supplying subsidized rice known as 'Raskin' the acronym of 'beras miskin' (literally rice for the poor) - Providing certificate for farmland operation 	
Farmers' group	<ul style="list-style-type: none"> - Providing agricultural inputs - Providing agricultural equipments 	<ul style="list-style-type: none"> - Facilitating capital provision
Agricultural Extension workers	<ul style="list-style-type: none"> - Providing seeds - Providing fertilizers 	<ul style="list-style-type: none"> - Providing information and training in crop cultivation - Facilitating farming capital provision
Shops/ Kiosks/ Warungs	<ul style="list-style-type: none"> - Providing staple foods - Providing capital 	
Family	<ul style="list-style-type: none"> - Providing food - Providing capital 	<ul style="list-style-type: none"> - Encouraging farming
Neighbors	<ul style="list-style-type: none"> - Providing food - Providing capital 	<ul style="list-style-type: none"> - Encouraging farming

Source: Primary Data, 2017

Table 1 showed several local institutions (e.g. village authority, farmer groups, agricultural extension workers, kiosks/shops/warungs, family, and neighbors) that played roles in food provision for farmer families either directly or indirectly. Meanwhile, the village authority were responsible to supply subsidized rice to low income community members or farmers. This type of rice provision was part of governmental program for caring the poor.

The distribution of the inexpensive rice was beneficial for the community because it was in accordance with their needs and reducing their expenditure [27]. Other institutions, such as farmer groups and agricultural extension workers, played a role in supplying production inputs and agricultural equipment. An active and virile sustainable Agricultural Development Project (ADPs) anchored on the Research-Extension farmer-input linkage system (REFILS) is a vibrant and veritable extension instrument for effective technology transfer by linking research to policy and development in Nigeria [11]. The role was beneficial for the farmers in supplying seeds, fertilizers and agricultural equipment. In addition, the roles of farmer groups and agricultural extension workers was also beneficial in improving farmers' knowledge and skills through counseling, training and assistance in crop cultivation and in providing farming capital. Shops or kiosks, families and neighbors played have functions as food and farming capital providers. The roles were felt by the farmers when waiting for harvest time or when harvest failure occurred. Assistance for families and neighbors could be in a form of a loan or a grant, while for economic institutions such as shops/kiosks with a post-harvest payment. Family and neighbors in the study site had a position not only for meeting foods and business capital needs, but also motivating or encouraging farming activities.

The roles of institutions were crucial in supplying foods for the Peoho people. The institutional roles were felt when they experienced a food crisis, namely when crop failure occurred. Because it was often occurred, the present of local institutions could ensure a sustainable food availability and became an insurance institution for the villagers. For example, food and business capital provisions could be obtained at the local institutions prior to crop harvest and paid back after crop harvest. Such a system had long existed, in which they developed trusts, either between individuals or individuals with any local institutions [17], let alone the relative-based or custom-based institutions [18]. Local institutions had responsibilities in food fulfillment and creating a policy. Research results in Saint Lucia showed the need to identify bridging domestic agri-food sector that could help to share rule-making, the decentralization of power and reciprocal knowledge flows amongst policy actors [12]. Recent studies showed that local community also have their own knowledge and technologies as part of social or cultural capitals that can be used for knowledge sharing across institutions [19, 20, 21].

Besides the roles of farmer institutions in providing foods, efforts to improve human resources were also necessary. These efforts can improve the local capacities that can be seen from the creativity of individuals to share foods with their own efforts or with others, and integrated farmers' knowledge and skills in the process. Our study showed that the roles of local institutions, such as farmer groups, in improving human resources were limited and need to be enhanced. Similarly, the roles of agricultural extension institutions to educate and assist farmers were still lacking. We found that motivation to do farming also came from their families and neighbors. Farmers keep on searching for new information to get better farming techniques. The role of groups was especially in gaining access to capital for crop cultivation. The roles of groups were also to improve their agricultural knowledge and skills. Arimbawa and Sidu [5] reported that the roles of groups were as a learning class, a farm production unit, and a collaboration medium that had a strong positive relationship with the ability of the groups' members in improving their farming technology and in marketing their products.

Our analysis also showed that there was a significant correlation between the roles of institutions and the improvement of food access and human resources ($r_s = 0.513$, $\alpha = 0.05$). This result indicates that if the role of an institution at farmer levels was good, the food access and human capacities in gaining food would improve. This is in agreement with Nasariah and Basri [6] that providing guidance to female farmer groups would significantly improve the capacity of female farmers in supporting their food security and agricultural development. Food availability is highly dependent on food production itself. Food production is influenced by the application of technology inputs by farmers, therefore, technology innovation are very important in the fulfilling food demands. Farmers need to adopt innovation to increase their products, and it can be accelerated through farmers' group discussions. Fitri *et al.* [7] reported that the roles of farmer groups as a learning, collaboration, and production unit had a positive and significant effect on the innovation adoption, and increasing rice productivity.

The roles of local institutions at the farmer level, such as farmers' groups and agricultural extension workers, becomes increasingly important for farmers if viewed from their access to agricultural information technology. However, Muksin [8] reported that farmers' literacy on information communication technology (ICT) was low and the ICT utilization capacity for agricultural extension

programs was still inadequate. Therefore, farmer institutions with the facilitation of extension agencies or non-governmental organizations could play a role in channelling farming information from various sources to the farmers [22,23].

Azét sop and Joy [24] found that efforts to increase healthy food consumption solely through health education efforts and food distribution may not be sufficient. Research into the development and implementation of policies that focus on ameliorating societal inequities, food environment, consumer choice, and retail competition is warranted. Importantly, advocacy and partnership among a variety of agents including health professionals is required to address this important public health issue.

4. Conclusion

We concluded that (1) farmers' activities in meeting their food needs were almost similar, namely by utilizing their land for crop cultivation, and during famine or crop failure by sharing food with family members and borrowing food from various sources, such as relatives, neighbors, and local kiosks or warungs with a post crop harvest payment system; (2) institutions that contribute in meeting farmers' food needs included village authority, kiosks or warungs, family and neighbors, while institutions that played a role in improving human capacities were farmers' groups, agricultural extension workers, family and neighbours; and (3) there was a significant correlation between farmer institutions' roles and food access and human resource improvement.

Recommendation

In an effort to improve food access for farmers, some recommendations are needed:

1. Capacity building for farmers through increasing their capacity in producing their own foods by activating traditional Subak institutions for managing water in lowland rice farming, or through the introduction of modern irrigation technology through drip systems or the use of local seeds [25]
2. Continuous cooperation between local food institutions in an effort to fulfill food sufficiency.
3. Developing forums in order to increase information exchange and linkaged across institutions.

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