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Performance and Capacity Building of Village Food Institutions

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Abstract

This study aimed to analyze the performance of village food institutions by performing assessment to their efficiency level. These food institutions are the Community Food Distribution Institution (LDPM) and the Village Community Food Reserves (LPMD). The benefits gained from this assessment is the determination of the most efficient and inefficient performance of those institutions. Based on the efficiency level, the model of capacity building of each food institution can be determined. Survey approach was used with farmers and farmer groups incorporated in **food institutions** as the respondents. Analysis study in this research used quantitative analysis and was reaffirmed by in-depth interview technique. Activity was initiated by identifying each food institution in the study sample site. It revealed that the performances and conditions of each food institution are diverse. The potential and role of the **Village Food Institutions** based on the achieved level of efficiency, and also a model of improving food barns and a resilience of farmers community and institution, particularly in realizing the achievement of local food security.

Keywords: food institutions, food reserves, efficiency, Data Envelopment Analysis

1. Introduction

Food security is one of the fundamental programs in Indonesia in which the achievement of national food security is highly linked to the strengthening of local food security (Ariani, 2007). The concern on food security is enormously essential since it is closely associated to social security, economic stability, political stability and national resilience or security. Nevertheless, this concern on the aspects of food security is increasingly crucial in the present and future. Recently, the world is encountered with the phenomenon of global climate change, leading to the impacts of declined global food production. It is estimated that the world's cereal production has been declining by one percent, and on the contrary, the world's population has been increasing by one percent. The potential for food insecurity is highly susceptible in the upcoming decades (Rachmat, 2011).

Ariani (2007) explicated that the achievement of national food security does not necessarily reflect the food resilience at local level. It implies that local food insecurity may occur despite national food security is attained. Thus, the solution or reduction of food insecurity (particularly in the regions) should be a serious concern, since it will not only relate with the achievement of food security but also promote poverty alleviation. Rachmat (2011) suggested that the development of food security can be done through an aspect of the availability of food in sufficient quantities and types, as well as the institutional system in the community in food management. Food availability is acquired through increased domestic production capability, improved management of food reserves, and food distribution to fill gaps between regions in terms of production and demand.

Various parties, both government (Bulog) and society (village institution, such as village granaries) carry out management of food reserves. The existence of village food granaries with local nuance is very potential as food reserve institution of society addressing food insecurity. Nevertheless, several drawbacks have caused the smaller number of village food granaries in line with the strengthening role of *Bulog* in maintaining the stabilization of national food. The issue is related with the potential of village food reserves in overcoming food insecurity, at least at the local/rural level. The significance is in line with the fact that there are many cases of local food insecurity while at food self-sufficiency has been attained at national level.

The existence of village granaries has been recognized as a food reserve institution in the rural areas and very helpful in the famine. With its conventional function, village granaries have support the food security of the community on a small scale. Nevertheless, village granaries as the village food reserves institution that has been preserved for generations is gradually vanished. As an attempt to develop a modern food granary, both physical institutions and management are important. Essentially, the management of modern food reserves involves three basic things: risk management, commodity exchanges, and the principle of mutual trust. The food reserves are not merely to manage long-term commodities, i.e. rice and coffee or grains, but also inedible commodities, i.e. vegetables and fruits. By adopting sophisticated warehouse receipt systems and storage, the farmers' income is more assured. Farmers will be less worried about the declined price of commodities due to damage. The provision of "modern" food granaries is expected to secure food reserves of society (Soemarno, 2010).

This study revealed the strategic role of village food reserves institution by examining the efficiency level and performance, as well as the potential for increased capacity for the existing institution. The problem that can be identified in the problem statement is how is the performance of the village food reserves in Wonogiri regency? To what extent is the efficiency of each village food reserves?

2. Theoretical Review

Food Reserves

Management of food reserves can be carried out by various elements, both government and society. Village government food reserves institution is defined as food reserves managed by village government, for village consumption, raw/industrial materials and for emergency situations. Food reserves at individual and collectives households are vital since they are directly related to the problem of food insecurity of people and households. Meanwhile, food reserves in traders and cooperatives serve as commodity or products with high mobility. The functions of food reserve controlled by both individual and collective households are: to anticipate the shortage of food in the famine, and to anticipate the possibility of crop failure due to natural disasters such as pests and diseases, climate, and flood (Rachman, *et al*., 2005).

Based on the Act No. 30 of 2008 issued by the Minister of Home Affairs, it is stated that the objectives of the development of the village government food reserves is to increase the food availability and distribution, to increase local food consumption as an effort to create local food product demand, to increase the accessibility of people to food, to cope

with emergency situations and food insecurity, to maintain the food stability, to shorten the food distribution to the community level, to encourage the establishment of food self-sufficient villages, and to promote the community welfare (Rachmat, 2011).
Institutional capacity building is a process of designed social transformation as a medium to support the transformation and innovation process. The institutional transformation process at farmer level through institutional development should make institution an important part at the life of farmers to meet their farming requirements. One example of agricultural institutions that assist farmers in supporting food security is food reserves. Food granary as food reserves institution is interpreted as a physical building to store food as well as a food producing center in a region. It is not solely building to store rice for community consumption, but also as a storage place for various seeds. In Indonesia, the form, type and function of food reserve vary according to the local traditions and wisdom of each community (Witoro *et al*., 2005). Furthermore, Jayawinata (2003) asserted that the food reserves play a significant role in helping groups or communities in areas prone to food shortages in overcoming such problems.
Rohaeti (2006) reaffirmed that among existing farmer institutions, i.e. village unit cooperatives, *penggingan* and others, the existence of food reserves institution tend to be preferred by the farmers. It is chosen since it is usually closer from their houses. In addition, it is helpful in anticipating food shortages and capital scarcity, the simple and uncomplicated procedure of repayment and return, the interest is relatively low and farmers are familiar and frequently have interaction with the administrative staffs of institution.

Village Institution

In pertaining with the concept of village institution, the researchers are developing the range of study in which some of the previous studies have been linked to the development in migrant areas and migrant's mobility and skills. Currently, this study covers the strengthening of village institutions, particularly those linked to village food institutions as the medium for farmers and farmer groups in organizing food. Among the village institutions are the Community Food Distribution Institution (LDPM) and the Village Food Reserves Institution (LPMD). This research aimed to bridge the problem of the less significant role of village food institute in rural area. It is expected that the existence of village food institutions will have higher role in the farming community. Therefore, it is necessary to promote the capacity of those village food institutions.

3. Research Methodology

The samples in this study were: (1) farmers, who are members of farmer group, and (2) head of farmer group, and (3) community figures. The approach employed in this study was **Focus Group Discussion** (**FGD**), to obtain confirmation of statements from a group between related institutions (Food Office, Food Security Office) and perception from farmer/farmer group related to the existence of village food reserves institutions in respective area.
Operational research activities to obtain data with techniques consist of: a) **interview** and **in-depth interview**, to figure out the initial condition of each village food institution; b)

field observations, to complement the analysis in this study, in addition to justifying the level of understanding of farmers/farmer groups on the existence of village food institution in the study site; c) **documentation**, to support and enrich the analysis of this study.

Efficiency Analysis

Analysis tool of Development Envelopment Analysis (DEA) became the main consideration in this study. Siagian (2004), Alper *et al* (2015), and Lee (2015) suggested that the efficiency level of each economic unit can be determined. To assess the level of efficiency, DEA analysis tool was used. It is a specially designed procedure for measuring the relative efficiency of a unit of economic activity that uses multiple inputs and outputs, in which such an incorporation of inputs and outputs is impossible. In DEA, the relative efficiency of economic activity unit is defined as the ratio of the total weighted output divided by the total weighted input. DEA is mainly to determine the weights for each input and output of a unit of economic activity. The weights have the characteristics of: (1) not negative, and (2) universal, in other words, each unit of economic activity in the sample must be able to use the same weight to evaluate the ratio (total weighted output/total weighted input □ 1).

DEA assumes that each unit of economic activity will prefer weight which maximizes its efficient ratio (maximum total weighted output/total weighted input). Generally, the unit of economic activity will set a high weight for the inputs with low use and for outputs which are produced greatly. These weights are not the economic value of the inputs and outputs, but rather as determinants to maximize the efficiency of a unit of economic activity.

4. Identification of Food Institutions

Food institutions in Wonogiri regency consist of Community Food Distribution Institution (LDPM) and Village Food Reserves Institution (LPMD). In overall, there are six LDPMs and approximately 30 LPMDs in this regency. In this study, as many as 11 active food reserves institutions were involved. The description of these food reserves is presented in Table 1.

Table 1. Food Institutions in Wonogiri regency

No.	Type	Name of institution	Village/sub-district
1.	LDPM	Daya Guna Kaya	Nambangan village, Selogiri
2.	LDPM	Ngudi Rukun	Karang village, Slogohimo
3.	LDPM	Ngudi Rukun	Doho village, Girimarto
4.	LDPM	Tani Sejahtera	Purwatoro village, Purwantoro
5.	LDPM	Ngudi Rukun	Banyakprodo village, Tirtomoyo
6.	LDPM	Rahayu Widodo	Mojopuro village, Wuryantoro
No.	**Type**	**Name of institution**	**Village/sub-district**
7.	LPMD	Kerto Asih	Wonokerto village, Wonogiri
8.	LPMD	Pandan	Pandan village, Slogohimo
9.	LPMD	Gambiranom	Gambiranom village, Baturetno

10.	LPMD	Sido Mulyo	Jatisari village, Jatisrono
11.	LPMD	Manunggal Tani	Nungkulan village, Girimarto
12.	LPMD	Sumber Pangan	Pjiharjo village, Manyaran
13.	LPMD	Tubokarto Mulyo	Tubokarto village, Pracimantoro
14.	LPMD	Sri Rejeki	Beji village, Nguntoronadi
15.	LPMD	Gemah Ripah	Platarejo village, Giriwoyo
16.	LPMD	Sri Mulyo Kepareng	Bangsri village, Purwantoro
17.	LPMD	Tani Manunggal	Kismantoro village, Kismantoro

In fact, LDPM and LPMD as food institutions have different functions. LDPM is mainly preoccupied on distribution, and is relatively commercial. Meanwhile, LPMD tends to the fulfillment of local reserves at regional level. Therefore, LPMD has strong social nuance. However, the existence of food reserves tends to decline due to several factors. It is considered traditional and inconsistent with the development of agricultural modernization. The existence of *Bulog* plays a significant role in food stabilization and food (grain) price adjustment leading to the non-incentive of grain storage. Globalization has impacted to the existing variety of food, even in rural areas, which affects the consumption pattern of rural society. Moreover inconsistent and project-oriented development leads to inefficiency.

5. Results of Analysis

The capacity building of units or institutions can be estimated or measured through their efficiency level. Similarly, food institutions can be estimated through this method. This study is a simulation, the data used in this study was simulation data, not real ones, since the data collection process had not been completed. The results of the capacity building analysis as done through the assessment of efficiency level are simulated as follows:

Simulation of Efficiency: Results of Analysis and Interpretation

a) Unit of Community Food Distribution Institution (*LDPM*)

First Examination with a total of 6 (six) Food Distribution Institutions

Table 2. Efficiency level of Units of Food Distribution Institution

Food Distribution Institution (*DMU*)	**Coefficient**
DMU 1	**1.000**
DMU 2	0.882
DMU 3	0.978
DMU 4	**1.000**
DMU 5	0.809
Food Distribution Institution (*DMU*)	**Coefficient**
DMU 6	0.770
mean 0.907	

Description:
Based on the results of DEA analysis, it revealed that the efficient unit of economic activity (food distribution institution, *DMU*) is gained by DMU 1 and 4. Meanwhile, the other four units are inefficient. It means that the efficient DMUs should be role model for inefficient DMUs.

b) Unit of Village Food Reserves Institution (*LPMD*)
Second examination with a total of 11 Food Reserves Institutions

Table 3. Efficiency of Units of Food Reserves Institutions

Community Food Reserves (*DMU*)	**Coefficient**
DMU 1	0.900
DMU 2	0.900
DMU 3	**1.000**
DMU 4	0.630
DMU 5	0.540
DMU 6	0.474
DMU 7	0.509
DMU 8	**1.000**
DMU 9	0.982
DMU 10	0.978
DMU 11	0.532
mean 0.768	

Description:
Based on the results of the analysis, it can be determined that the efficient community food reserves are attained by DMU 3 and 8. It means that the inefficient DMUs can refer to efficient DMUs to achieve their efficiency.

Visualization in Wonogiri Map

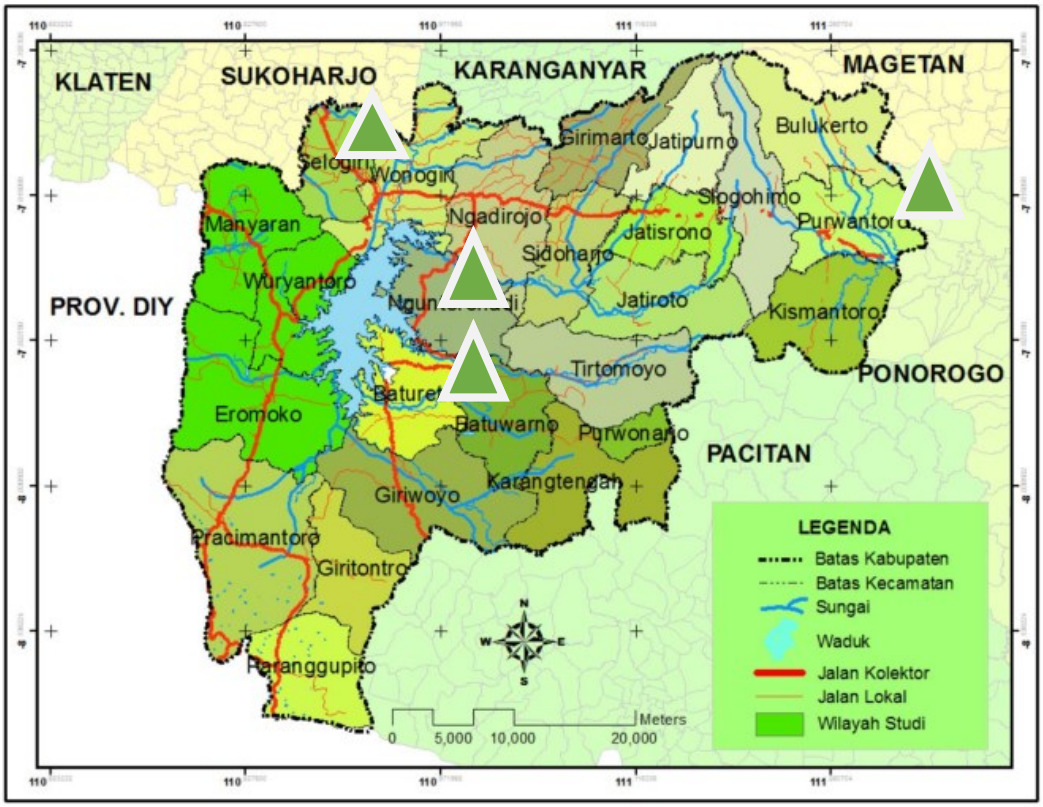

Fig. 1. Wonogiri regency Map and Efficiency Level of Food Institutions.

From the map, it can be claimed that the efficiency of food institutions in Wonogiri regency is achieved by LDPMs in Selogiri sub-district and Purwantoro sub-districts and LPMDs in Baturetno sub-district and Nguntoronadi sub-district. It is recommended that these efficient food institutions can be role model for other inefficient food institutions.

6. Conclusion

The analysis and interpretation indicate the diverse capacities of food institutions, both community food distribution institution and community food reserves institution. The potential and role of the **Village Food Institution** is determined based on the level of efficiency. This condition becomes a model of the capacity building of local food institutions, as well as the particularity of this study. In the long-term, the model will be developed into a self-sufficient transformation for farmers and farmer institutions, particularly to realize the local food security.

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