

## An Analysis of the Local Resources Potential to Achieve Food Security in Jombang and Probolinggo Regencies East Java Indonesia

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### **Abstract**

This study aims at analyzing the characteristics of the food need in the area of Jombang and Probolinggo regencies as well as developing a model of local superiority-based policy to achieve the food security. This study employs descriptive qualitative approach. This study is carried out in eight months in March to October 2015. The respondent of the study is the governmental staff of Jombang and Probolinggo regencies in the level of *Satuan Kerja Perangkat Daerah* (SKPD, it is the name of a regional government office/Regional Working Unit) of the Agriculture Department and *Bappeda* of the regencies. The finding shows that the comparison between the need and supply of food in Probolinggo regency do not meet the independency as the commodities of soybean, meat, egg, and fish are limited, thus they are not sufficient to fulfill the need of the citizen in certain years. While in Jombang regency, the comparison between the need and supply of food is considered independent. It is only the soybean commodity which cannot fulfill the need of food, while other commodities (such as rice, corn, meat, egg, milk, and fish) are adequate. The implemented policy regarding to the fulfillment of the food supply to achieve the sustainable food security is to strengthen the food reserve, develop village barns, and do the food diversification.

**Keywords:** The Local Resources Potential, Food Security, Supply of Food, Demand of Food, Local Superiority Potential, Diversification of Commodity, Sustainable Food, Food Reserve.

**JEL Classification:** D12, O13, O29.

### **1. Introduction**

The food security is a condition in which everyone is able to have

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access physically, socially, and economically to the nutritious food in the adequate portion to fulfill the need to live healthily and actively (Kilonzi, 2013). It is the responsible of the government to achieve the food security as it is commanded in the Law number 18 in 2012 stating that food is the most fundamental need of human beings and its fulfillment is the part of the basic human right which is guaranteed in the 1945 Constitution. The food security includes four dimensions, namely (1) the food availability; (2) the access to the food; (3) the stability of the food supply and reserves; and (4) food utilization. The realization of the food security highly depends on the strategic role of the agriculture sector, in which it does not only produce food, but also contributes to the purchasing power of the society through the availability of labors (Sumaryanto, 2009). On the other hand, the food insecurity is the limited access to the food in certain area due to the lack of the resources producing food. Consequently, the food fulfillment is so important that it is the pillar of the national security.

According to Elizabeth (2011), Indonesia is food importer as the food diversification program has not been fully successful yet. It is reflected on the high consumption of rice as the staple food. Several internal issues such as the high land conversion, the limited agricultural input provision, the science and technology, and low marketing and funding, and the poor infrastructure and distribution inhibit the development of the program to increase the food production. The dependency to the imported food indicates that the country is unable to achieve their food security, thus the new strategy is needed to reach the food security, especially in the local level and generally in the country level.

Policies are planned actions to direct decisions to reach the rational goal. In order to fulfil the food consumption in the individual level, the country or the local government is free make their food policies independently. They shall not be dictated by any parties. The actors of food business have their right to determine and run their business according to their own resources (Duncan et al. 2014). The development program to achieve the food security in East Java refers to the Medium-Term Development Plans which aims at facilitating the improvement and the sustainability of the food security in the level of household and individual.

This study aims at analyzing the characteristic of the food need in the area of Jombang and Probolinggo regencies as well as developing a model of local superiority-based policies to achieve the food security.

## **2. Literature Review**

### **2.1 The Local Superiority Potential**

Basically the diversity of resources in each area has the similar potential to be the featured product of the area. However, the management of the resources has not been optimum yet and its quality handling has not met the standard. Therefore, the product development is inhibited which leads to the low competitiveness of the product in the local and regional levels. The approach of the *Produk Unggul Daerah* (PUD) focuses on the utilization and optimization of the resources and local competency to move the local economy to solve the issue of poverty and unemployment so that the sustainable development is reached (Nasikh, 2013; Lincoln, 1990; Nasikh, 2014; Raihan et al., 2011; Cace et al., 2011).

### **2.2 Diversification of Commodity in the Food Security**

Raihan et al. (2011) suggests that the food diversification is divided into two categories. The first category is the production diversification in which the production of the local food is improved from the local staple food to the added-value food. The second one is the consumption diversification which means that the society needs to eat more various foods to get the balance and appropriate nutrition for their body. Furthermore, Sandyatma (2015) states that the aim of the food diversification is as follows. First, it is to count the nutrition value and the society's purchasing power. Second, it is to preserve the food supply regarding to the number and the quality of the nutrition. Next, it is to reduce the dependency to the rice. Moreover, it also aims to develop the competitive non-rice product. Last but not least, it is to preserve the sustainability of nature and environment by turning it back to its ecosystem.

The Center of Food Diversification is in charge to analyze, prepare the policies, develop, monitor, and strengthen the consumption pattern, as well monitor the fresh food security. While the Center of Food Diversification and Food Security plays some roles as follows:

1. To analyze, arrange policies, develop, strengthen, monitor, and evaluate the food consumption;
2. To analyze, arrange policies, develop, strengthen, monitor, and evaluate the food diversification; and
3. To analyze, arrange policies, develop, strengthen, monitor, and evaluate the fresh food security. (Nasikh, 2016; Daniela and Marius, 2017)

### **2.3 Society Empowerment to Improve the Sustainable Food Independence**

The study conducted by Sandyatma (2015) observes the food security through the society empowerment-based food diversification. The study is conducted in Cirendeu village in West Java. The people living in Cirendeu consume rice cassava as their staple food. To anticipate food problem, the stakeholder and the society attempt to search for local food potential which is edible and abundant, thus they decide to choose cassava as it is easy to plant. Besides, after the research about the nutrition level in IPB laboratory, it is found out that the energy and carbohydrate level in cassava is similar to the rice.

The pattern of the society empowerment is by the strength of the society community which is supported by the internal factor; people do not wish to depend to the rice. There is also an external factor: in the Dutch colonialism era, they were not allowed to consume rice. If it is concluded generally in the context of the society empowerment, the scope of the activity to stabilize the society's food security is as follows. First, it is to improve the skill in the on-farm, off-farm, and non-farm activities which is based on the local food resources according to the specific local food owned by each area. Second, it is to improve the ability to manage the food supply, food distribution, consumption, and marketing. Next, it is to improve the human resources capacity so that they are able to compete in the labor market and have chances to run business which help to create and improve the income. Another scope of activity is to improve the ability of the food institution to develop their business. Last but not least, it is to improve the access to more varied food, so society does not depend only to one type of food.

### **2.4 Food Reserve in East Java**

In the Food Security Department of East Java (2013), it is explained

that East Java is the food central area of Indonesia; even generally it is the province which gives the biggest contribution to the national food supply. Therefore, the development to improve the food production in East Java is also meant to provide the food supply in the national level. From the perspective of food supply development, East Java always shows improvement, excluding some commodities such as cassavas, yams, and nuts. The food need in East Java is almost fulfilled from the domestic potential, except the soybean commodity. Meanwhile, rice, corn, nuts, and cassava commodities shows surplus. The food surplus in East Java is not only supported by the good natural resources, but it is also backed up by the human resources as well as the better economic infrastructure. The local government does not only consider the supply and the consumption of the staple food commodities (rice, corn, soybean, nuts, and roots), but they also consider other food from livestock and fish such as meat, egg, milk, and fish.

In order to stabilize the food supply, the development of food reserve is done by developing food barn and optimizing the utilization of the yards. The food barn development is an attempt to improve the food reserve to fulfill the need of the society who lives in the village when they face the famine. This is done by the revitalization of the food barn. This activity is aimed at:

- a. Facilitating the society to stabilize the food supply
- b. Improving the ability of the food barn institution to be one of the institutions driving the rural economy
- c. Increasing the income of farmer's family through the food barn-based business, and
- d. Realizing the food security in the level of household through the improved and adequate access to the food. (Nasikh, 2017a; Nasikh, 2017b; Cace et al., 2009)

The food supply can also be improved by the utilization of the yard. It is meant to optimize the yard as the living reserve to fulfil the food and nutrition need of the family. The yard is utilized by the integrated approach with various kinds of plants, livestock, and fish to guarantee the sustainably food supply to fulfill the food and nutrition need of the family. The yard can be utilized to (a) fulfill the food and nutrition need of the family sustainably, (b) improve the skill of the

family to cultivate and manage the plants and livestock, and (c) increase family's income.

### **3. Research Methodology**

This research is a descriptive qualitative method. It means that the research method describes the phenomenon and the relationship between phenomena systematically, factually, and accurately. The setting of the research is Probolinggo and Jombang regencies. These two regencies are areas which are able to fulfill their own food need and even they can help other areas to fulfill their food need. Furthermore, it is expected that these two regencies becomes areas which are able to create the food security so that they can be pilot areas for other regencies. This study is conducted in eight months, from March to October 2015. The population of the study is the local government of East Java province. The sample is taken from the local government of the two regencies in the level of *Satuan Kerja Perangkat Desa* (SKPD) which concerns to the food security in the research setting. The sample is taken purposively from the relevant department which is able to represent this study.

The data collection techniques are as follows: observation, includes all things related to the physical observation as well as the activities in the research setting; questionnaire, includes structural questions given to the respondents based on the research problem; interview, includes an activity to ask questions by interviewing the respondents and informants directly to obtain information; documentation, includes an activity to obtain and analyze several information, publishing, books, document literature, images, newspapers, electronic media, and statistical references (Miles and Huberman, 1984). The document and literature study is obtaining existing data in the form of reports and other recorded data which are relevant to the studied phenomena and the government regulation, and evaluation Study is a study to several local government policies regarding to the process or implementation of all policies.

### **4. Findings and Discussion**

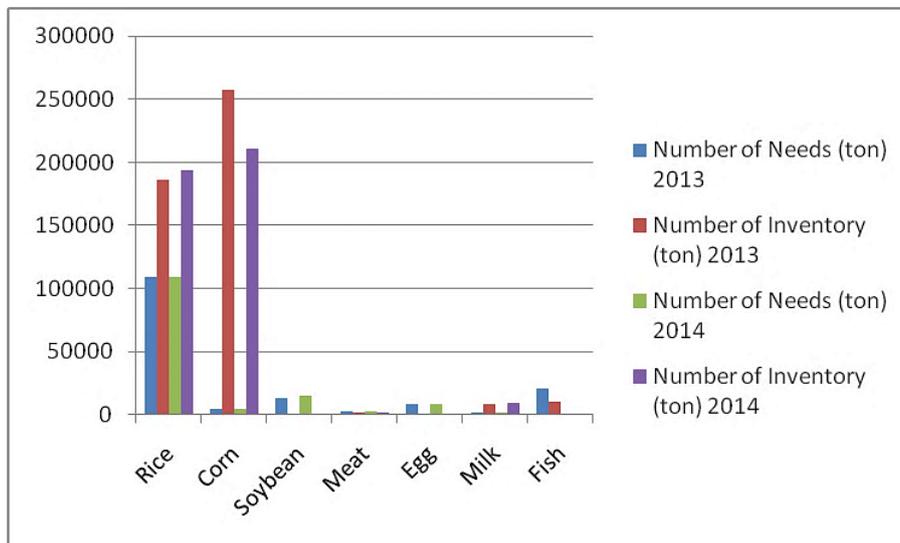
#### **4.1 The Characteristic of Food Need in the Area of Jombang and Probolinggo Regencies**

*Pola Pangan Harapan* (henceforth PPH) or the desired food pattern

was a method employed to measure the amount and composition of the food supply. This PPH was normally used to plan the consumption, need, and supply of food in certain area. In determining PPH, there was a certain formula used and there were some known components, such as the energy consumption and total nutrient, energy percentage and actual nutrient, and energy sufficiency score and nutrient. The use of the PPH was as follows.

1. It was as a simple instrument to measure the food supply and consumption in the form of amount and composition based on the food aggregately.
2. It was a basis to measure the score of PPH used as the food nutrient quality indicator and the food diversity in the level of food supply and consumption.
3. It was aimed at the food plan and food supply.
4. By using the PPH approach, the food supply and food consumption were expected to be able to be fulfilled, not just in terms of nutritional adequacy, but also considering the nutritional balance supported by the palatability, digestibility, acceptability, quantity, and purchasing power of the society (Nasikh et al., 2015).

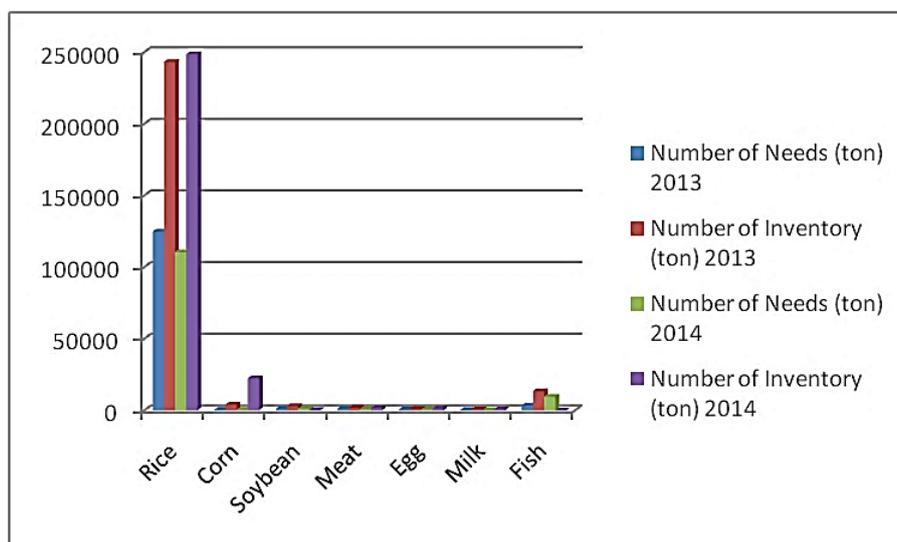
The society's need toward the staple food in Probolinggo regency had to be met every time each year. However, due to the lack of the staple food, some kinds of staple food could not meet the need of the society. There was a gap between the need and the supply. The detail of the staple food need and supply of Probolinggo regency is displayed in figure 1 as follows.



**Figure 1: The Food Consumption of Probolinggo Regency**

Source: The Food Security Department of Probolinggo 2015

Figure 1 was shown that Probolinggo regency was generally lack of food independency as the amount of some staple food such as soybean, meat, fish, and egg were not able to meet the society's need. It meant that the local government of Probolinggo was in charge to meet the staple food's need. Moreover, in the data about the general characteristic of food, generally, rice had good enough quality in terms of the food security. However, if it was seen as a whole, the food security of Probolinggo regency was not good enough. Despite the fact that the lack of staple food was able to be covered by the supply from outside the regency, the lack of staple food should have been able to be fulfilled from the regency itself. It would affect positively to the purchasing power of the society as the food staple would be more affordable. Meanwhile, the food diversity of Jombang regency showed a good condition as it was able to keep the society healthy. The staple food need and supply of Jombang regency is reflected in figure 2 as follows.



**Figure 2: The Food Consumption of Jombang Regency**

**Source:** The Food Security Department of Jombang 2015

Figure 2 indicated that need and supply of food in Jombang were always able to be met. The need of certain commodities such as rice, corn, meat, egg, milk, and fish were able to be fulfilled, with the exception of the soybean which showed lack of the supply. It meant that the lack of soybean was affected to the national level. Furthermore, the figure also displayed that all staple food was sufficient to fulfill the need of Jombang society. Even, some staple food was in the surplus condition. This indicated that the regency was independent enough to fulfill their society's need towards the staple food. This condition would affect significantly to the food self-sufficiency in the Province level.

#### **4.2 The Model of Local Superiority-Based Policies to Achieve the Food Security**

The Food Security Department was in charge of implementing the plan and local policies specializing to improve the food security as well as performing the administration duty of the Food Security Department of East Java Province. Some alternatives of East Java policies which were able to be implemented in Probolinggo and Jombang regencies to achieve the sustainable food self-sufficiency were as follows.

#### 4.2.1 Strengthening the Food Reserve

The food reserve consisted of government and society's food reserve. The government's food reserve consisted of the staple food in the central, province, and city/regency governmental levels. The government's food reserve, particularly rice, was managed by *Perum Bulog*. While the society's food reserve consisted of the households, merchants, and processing industries. It aimed at (a) improving the food supply for the poor as well as guaranteeing the stable food supply at any time and any place, (b) fulfilling the need of the poor household and post-disaster households, and (c) improving the access to the food for the poor household due to the price fluctuation.

The attempt to strengthen the government's food reserve could be carried out by developing village barns as well as empowering the society. Through these activities, it was expected that the society were able to empower the food barn independently. The development of the food barn was expected to be able to ease the society to access the food as well as anticipate the risk of lack of food in the famine season as well as anticipate the risk of crop failure due to the pests, flood, disease, and etcetera.

The aim of the development of food barns was as follows. First, it was to improve the society's empowerment in managing the food reserve and developing the institution of the food barn sustainably. Second, it was to facilitate the society to develop the food reserve. Another aim was to improve the volume stock of the food reserve in the food barn groups to guarantee the access and sufficiency of the food for their members, particularly for those who were prone to the food lacking. Next, it was to improve the income of the farmer's family through the food barn-based attempt. Fifth, it was to enhance the ability of the committee and the member of the group to manage the food reserve. Last but not least, it was to foster the institutional function of the food reserve to supply the food optimally and sustainably.

The development of food barn was carried out in three stages, namely (1) growing stage, (2) developing stage, and (3) self-sufficiency stage. The first stage, the growing stage involved the identification of the location and physically built the barn funded by *Dana Alokasi Khusus (DAK)* or Special Allocation Fund in the agricultural field. While the developing stage covered the

identification of the Food Barn Group and Food Reserve Filling funded by the social assistance. The last stage was the self-sufficiency stage; it was to evaluate the group and strengthen the group institution to develop the business assisted and funded by the social assistance.

#### **4.2.2 Food Diversification**

Elizabeth (2011) suggested that the policy of food diversification could be undertaken in some attempts as follows: (a) the development of agroindustry of non-rice food, (b) campaign or intensive socialization about food diversification supported by the continue supply and easy access to readily consumed non-rice food with affordable price, and (c) improving non-rice food production without disturbing the stability of the rice production. The non-rice production was attempted in other areas but rice fields, and (d) avoiding adding *palawija* crops in the rice planting areas.

Referring to Sumaryanto (2009), in order to run this diversification policy effectively, some principles had to be applied. First, the food diversification had to be positioned as the integral part of the sustainable national food security. Second principle was the strategic position of rice in the food security and national economy could not be politicized in the short-term practice politic. Next, the development of food diversification referred to the principle that the food-consumption agroindustry product was a synergic system. Another principle was the development of food diversification was planned based on the interdisciplinary holistic approach harmonically and consistently. Fifth, the development of food diversification was an attempt of equalization as well to improve family income, extend the business opportunity, and open the job opportunity which was relevant to the environmental development principles.

To run the program, there were several things to be paid attention to. First, the stabilization of the food security in the short, middle, and long terms. Second, the revitalization performance of agricultural field and the inter-sector coordination. Next, the priority of the food diversification had to be consistent with the rice self-sufficiency program. Another thing was the contribution of education was highly needed to shape the perception, attitude, and behavior of the society for now and then. Fifth, the research and development in the field of

technology and social economy in terms of inventory, identification, empowerment, engineering, and short-term problem solving to face the challenge in the middle and long term. Last but not least, the support from the infrastructure, market, and conducive credit to assist the production system performance and the distribution in the level of farmer business and small and middle-scaled local food agroindustry.

### **5. Conclusion**

From the research finding and discussion, it can be concluded that the comparison between the need and the supply of food in Probolinggo regency is not self-sufficient as the supply of certain commodities such as soybean, meat, egg, and fish is still lacking. Consequently, they are not able to meet the consumption need of the society in the certain year. While in Jombang regency, the comparison between the need and supply of food is considered self-sufficient. There is only one commodity which is not self-sufficient yet, that is soybean. Other commodities such as rice, corn, meat, egg, milk, and fish have successfully met the need of the society. Regarding to the food supply fulfillment to achieve the sustainable food self-sufficiency, the local government of Probolinggo and Jombang regencies can implement some policies, such as strengthening the food reserve, developing food barn, and running food diversification.

The suggestion the researcher could give is that there is an urgency to improve the society empowerment in East Java regarding to the staple food reserve supply despite the unlimited food barns. Almost all food stock in Indonesia is managed by the society themselves and private business as the capability of *Perum Bulog* is minor to the national rice production. The local government of East Java should run food diversification strategy more seriously to decrease the dependency to rice which is very high and it affects the demand pressure to the rice. The philosophy about “various food fulfillment and balance nutrition” can be a bridge to enter the food diversification strategy which is flour-based and it is from the local food which is easily found in East java.

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