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Increasing Understanding of Food Security Program in Malaka District on the Nusa Tenggara Timur Border Between Indonesia and Timor Leste

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Abstract

Food security is closely related to health, one aspect of well-being and the main focus of human development. Efforts to avoid food insecurity are experienced in areas with natural conditions and relatively little rainfall, such as the Nusa Tenggara Timur Province, especially in the Malaka Regency, the border area of Indonesia-Timor Leste. This community service activity aims to deepen understanding of Malaka Regency has food security by looking at the Malaka Agricultural Revolution Program (RPM), the policy to increase community economic productivity. We are writing this activity with a descriptive method using a simple qualitative approach. Data sources come from various literature and discussions with the government (Bupati) and the people of Malaka Regency. The RPM program positively impacts agronomic performance (rice, corn, and shallots) so that it can increase productivity, agricultural production, income and community welfare. However, there are still factors that hinder the implementation of the RPM Program, including internal factors (knowledge, skills and attitudes of farmers in dealing with changes brought about by the RPM program) and external factors (climate, availability of fertilizers, technology, etc).

Keywords: *Food Security, Health, Malaka Regency, Nusa Tenggara Timur, Border Area.*

INTRODUCTION

Food security is a perception of the situation of the relationship between humans and the need for food. "Food is a commodity usually eaten by humans to meet their needs. Until now, the concept has undergone many changes, namely at the global, national, household, and individual scales, from the perspective of food as a basic need (food first perspective) to the livelihood perspective and from objective indicators to perceptions (Lassa, 2009)". According to the United Nation Food Agency (FAO), which is quoted from Suryana (2008), "Food security is described as a condition in which all people continue to have access to safe and nutritious food to maintain an active and healthy life. Food security has three dimensions, namely: Availability of sufficient quantities of food of appropriate quality and provided through domestic or imported production; Accessibility of households and individuals to appropriate food for a nutritious diet; and Affordability for Individuals to consume food according to socio-economic conditions based on cultural background, and their individual choices". (Nursalam, 2010)

According to Timmer (2005), "Food security has three dimensions, namely: Availability of sufficient food in terms of good quality and supplied through domestic production and imports; Access by households and individuals to proper food; Utilization of food through adequate food, clean water, sanitation, and health care". The requirements of community food security are not only on the procurement of food ingredients but also the accessibility of food for those who are hungry. Inequality in distribution and its danger to economic growth, often far from expectations in developing countries, has long been recognized. In the local context, food security requires a separate system that focuses more on local conditions (Nursalam, 2010). Food availability is one of the basic aspects of food security issues in Indonesia, where the problem of food availability is related to food production and increasingly limited production capacity. Still, food demand is increasing along with the increase in population (BKP, 2017).

Food security is closely related to health, one aspect of well-being and the main focus of human development. Because health is a valuable asset for a person in carrying out his life activities, this area is most often experiencing food insecurity which has various implications such as malnutrition, malnutrition for children under five, and food scarcity. To improve the health level of the population, the Government carries out various programs such as adding more health services and medical personnel. The main targets of health development are to increase life expectancy, reduce infant mortality, maternal mortality, and the prevalence of malnutrition and undernutrition. The level of public health in Nusa Tenggara Timur (NTT) has not shown good results when viewed from health indicators, such as maternal mortality, infant and under-five mortality rates, and malnutrition, which are above the national level. The high mortality rate for infants and pregnant women in NTT is due to the lack of health workers, especially in remote areas. (Trigutomo, 2017)

According to Bhuja (2010), the food security system implemented in NTT has not been responsive to the changes that have occurred. There are two reasons for this: The basic components used to build a regional food security system are highly centralized, and The low commitment of local and central governments to build independent food crops and farmer groups. The food security system that is implemented depends on the center and other regions, not rooted in/from the community. Therefore, the strategic choice is to build and develop the strength of a food security system that relies on its resources. The NTT provincial government is trying to overcome the food security problems by launching various policies that seek to increase agricultural production and people's income. Namely through policies including the Nusa Makmur Operation Program (ONM), the Nusa Hijau Operation Program (ONH), the Program for Increasing People's Original Income (Gempar), Village Development Program (Gerbades). (Nursalam, 2010)

Malaka Regency is a new autonomous region in NTT Province, the result of the expansion of the Belu Regency. It was formed by the Law of the Republic of Indonesia Number 3 of 2013 concerning the Establishment of Malaka Regency in NTT, with the center of Government located in Betun, Central Malaka District. Central Malaka District, as the center of Malacca district, experienced rapid growth with the separation of Malaka district. Malaka Regency is one of the border areas with low economic growth, including the agricultural sector (Priyanto & Diwyanto, 2014). The condition of Malaka as a New Autonomous Region with one of its base sectors is agriculture (BP4D, 2017). It is not easy to run an acceleration program in a new district like Malaka, which is also a border area. Border areas are identified with the image of rural areas, suburbs, disadvantaged areas, or poor areas that tend to be marginalized (Raydais & Damayanti, 2018). With limited infrastructure, low human resources, access to farmer institutions, finance, markets, limited economic activity, and lack of sustainable management of existing resources.

The agricultural development program is one of the policies that are considered relevant to be developed in the Malaka Regency. To realize cannot separate the goals and objectives of agricultural development from the management of programs/activities, where conceptually the program is formulated for development designs which are then implemented in activities (Iqbal, 2007; Raydais & Damayanti, 2018). The agricultural sector plays an important role in the regional income of the Malaka Regency. The agricultural sector's contribution to the Gross Regional Domestic Product of Malaka Regency in 2018 was 40%. The agricultural sector absorbs the largest workforce, which was 60.3% of the workforce in 2017 (BPS-Malaka, 2018). Given this condition, the Malaka Regency Government emphasizes: (a) increasing the capacity of agricultural extension workers; (b) improvement of agricultural infrastructure; (c) providing assistance and facilitating farmers to increase production through agricultural extensification, intensification, and mechanization; (d) facilitating farmers by implementing post-harvest management; and (e) improving the quality of production of agricultural and plantation commodities (RPJMD-Malaka, 2016; Seran, 2019).

The implementation of the agricultural sector policy developed is the Malaka Agricultural Revolution Program (RPM). The RPM program was launched based on the considerations that: (a) Malacca Regency has a large agricultural area, namely 11 thousand ha of rice fields and 19 thousand ha of dry land, (b) fertile land quality, (c) traditional farming systems, (d) cases of hunger occur almost every year, and (e) there are still many low-income families, namely in 2016 there were 15,495 low-income families (GD RPM, 2016; BPS-Malaka, 2018; TPHP, 2019; Seran 2019). The RPM program aims to foster community economic independence, accelerate farmer welfare, and realize Malaka Regency as one of the prosperous districts in food supply (Undana, 2016). Implementation of the program is planned for five years, from 2016-2021, with one of the commodities being developed is rice.

METHODS

This activity aims to deepen understanding of how the Malaka Regency improves its food security by looking at the Malaka Agricultural Revolution (RPM) policy carried out by the Malaka Regency. To increase the community's economic productivity—writing this activity with a descriptive method using a simple qualitative approach. Data sources come from various literature and discussions with the Government (Regent) and people in the border area of Nusa Tenggara Timur (NTT), Malaka Regency, between the State of Indonesia and Timor Leste.

Figure 1. Visit to Malaka Regency, Nusa Tenggara Timur

A qualitative approach to explain the RPM program, as well as describe the factors that hinder the implementation of the RPM program. This activity aims to increase understanding of a topic or problem. Implementation begins with planning, preparation, and implementation meetings and ends with an evaluation. This activity is based on the research in border areas that we conducted on the role of defense and security in improving the welfare of people in border areas (Kennedy, 2021).

RESULTS AND DISCUSSION

Improving Health and Food Security in East Nusa Tenggara

Food security is closely related to health, one aspect of well-being and the main focus of human development. Because health is a valuable asset for a person in carrying out his life activities, this area is most often experiencing food insecurity which has various implications such as malnutrition, malnutrition for children under five, and food scarcity. To improve the health level of the population, the Government carries out various programs such as adding more health services and medical personnel. The main targets of health development are to increase life expectancy, reduce infant mortality, maternal mortality, and the prevalence of malnutrition and undernutrition. The level of public health in NTT has not shown good results when viewed from health indicators, such as maternal mortality, infant and under-five mortality rates, and malnutrition, which are above the national level. The high mortality rate for infants and pregnant women in NTT is due to the lack of health workers, especially in remote areas. (Trigutomo, 2017)

The availability of health workers in NTT is still limited and not evenly distributed. The number of available health workers in NTT in 2014 was still low compared to the population of NTT, which was 1:472 (1 health worker had to serve 472 people). The infant mortality rate in NTT in 2012 was 45 deaths per 1000 new births, while the national figure showed 34 deaths per 1000 new births. This figure has decreased when compared to conditions in 2007. The infant mortality rate in NTT was 57 deaths per 1000 live births. Meanwhile, the under-five mortality rate reached 58 deaths per 1000 live births, down from the 2007 condition of 86 deaths per 1000 live births. (BPS-NTT, 2014)

Efforts to avoid food insecurity experienced by areas with natural conditions and relatively little rainfall, such as the province of NTT, require a policy with natural conditions so that its implementation is easier. According to Pakpahan and Pasandaran (1990), food security is the result of the interaction between technology, natural resources, capital, and human resources that are coordinated either through the market or other regulatory mechanisms such as government policies that regulate agricultural production programs. (Trigutomo, 2017)

In the Government's program on food security in NTT, the community is encouraged to increase the achievement of food products such as rice, corn, and soybeans. Rice is the main food ingredient in NTT. Rice production in NTT Province tends to increase during 2011 – 2015. In 2014 rice production decreased by 3.51 percent, or 77,061 tons. It is in line with the decline in the area of rice harvested by 0.99 percent or 4,345 ha. During the last ten years, rice production in NTT has tended to increase by 4.95 percent per year. It was due to an increase in productivity of 1.31 percent and harvested area of 3.43 percent. Rice harvested area in this year's planting season increased by 8.97 percent, and productivity increased by 4.80 percent.

NTT already has several rice production centers to meet the rice harvest target. Cumulatively, we can achieve this target by utilizing an area of 126,000 hectares spread across districts and cities. The Government is also seeking infrastructure development and improvements in irrigation, such as tertiary irrigation, reservoirs, and dams. Assistance with agricultural equipment such as milling machines, threshing machines, tractors, and water pumps is also needed to increase rice production and productivity. (BPS-NTT, 2014)

Malaka District Profile

Malaka Regency is astronomically located at coordinates 124° - 88 o 25' east longitude and 9° - 10.26 o south latitude. Geographically, Malaka Regency has boundaries in the north with Belu Regency, in the south with the Timor Sea, in the east with the Republic of Timor Leste, and in the west with the Timor Tengah Utara (TTU) and Timor Tengah Selatan (TTS) districts. Climatologically, the Malaka Regency has a tropical climate with an average air temperature of 27.6ºC with a range between 21.5ºC - 33.7ºC. The lowest temperature occurs in August, and the highest temperature occurs in November. Another climate element in the form of rainfall and the number of rainy days varies greatly throughout the year. Rain occurs in November with an average rainfall of 218.7 mm until June with an average rainfall of 717 mm. During this period, the two highest rainfall points occurred in January and June. One year's rainfall was recorded at 1,319 mm with 73 rainy days (BPS-Malaka, 2018).

The total population of Malaka in 2017 was 186,312 people, consisting of 90,121 male residents and 96,191 female residents who occupied the Malacca Regency area of 1,160.63 Km 2 with a population density of 161 people/Km2. The female population is higher than the male population, with a ratio of 93.68 and this composition exists in all sub-districts (BPS Malaka, 2018). The workforce in Malacca Regency in 2017 was 135,831 people consisting of 134,513 people who were working and 1,318 people who were not working or unemployed. The poverty rate in Malacca Regency is still high, although it tends to decrease. In 2016, there were 31,140 people categorized as poor. The poverty data series since 2006, when it was still in the administrative area of Belu Regency, there were seventy-nine thousand poor people and continued to decline until 2016. In 2014 there was a slight increase in the number of poor people and a decrease in the following year. (Seran, 2019)

Figure 2. Discussion with the District Head (Bupati) of Malaka Regency, Nusa Tenggara Timur

Administratively, the Malacca Regency government has 12 sub-districts and 127 villages. The area is 1,160.63 km 2 (BPS Malacca, 2018). In 2018, the harvested area of lowland rice was 7908 ha, producing 36,766 tons of Harvested Dry Grain (GKP). Corn harvested area is 26,018 ha with a production of 84,183 tons. The shallot harvest area is 260 ha with a production of 2735.95 tons (TPHP Office, 2019). Malaka Regency has irrigation infrastructure in as many as 13 Irrigation Areas (DI). Namely DI Weliman, DI Mota Delek, DI Tolok, DI Wemaromak, DI Wematek, DI Wemarilin, DI Lakekun, DI Tubaki, DI Bakateu, DI Obor II, DI Weharani, DI Rabasa, and DI Webua with details of the length of the irrigation channel 180 km, so far they have been able to irrigate 6,000 hectares of rice fields. There is one technical dam, namely the Benanai Dam (GD-RPM, 2016).

Malaka Agricultural Revolution Program (Seran, 2019)

The Malaka Agricultural Revolution Program (RPM) is "one of the agricultural programs in the Malaka District Border Area to support food availability. The implementation of this program involves multiple stakeholders, each of whom has different duties and responsibilities in their roles and capacities (Raydais & Damayanti, 2018)". The Malaka Agricultural Revolution Program (RPM), especially for rice, corn, and shallot farming, is mainly focused on (a) providing agricultural production facilities, (b) technical assistance

and guidance in the field, and (c) encouraging changes in knowledge, attitudes, and farmer skills in farming. The following agricultural products are prioritized:

1. Rice Fields. In this RPM Program, farmers experience several changes in their farming business, from land preparation, planting, and maintaining crops to harvesting and post-harvest handling. Physical change (the existence of innovation) causes changes in knowledge, insight, and attitudes towards technology. The impact of the RPM Program is mainly the use of more adequate agricultural production facilities, beginning with more extensive land preparation using hand tractors, VUB, fertilization, and pest and disease control. Lowland rice production also increased from 2.9 tons/ha to 4.9-5 tons/ha. This change affects the economic productivity of the community (farmers). Increased production will affect the community's income, income, and welfare.

2. Corn. In corn farming, farmers also experience changes in technological innovations, agricultural production facilities, and mentoring patterns. It causes a change in farmers' mindset, insight, and attitude towards technology. The impact of the RPM Program on corn farming is mainly the use of more adequate agricultural production facilities, beginning with soil preparation using tractors more broadly, the use of VUB, fertilization, and pest and disease control. Corn production increased from 2.1 tons/ha to 3.7-4 tons/ha. This change affects the economic productivity of the community (farmers). Increased production will affect the community's income, income, and welfare.

3. Red onion. Shallot farming is a business with new commodities introduced through the RPM Program. The innovations introduced through the RPM Program are (1) labeled VUB innovations (bima Brebes and super Philips), (2) pre-planting treatment (fungicide) to prevent fungal diseases, especially purple spot, and (3) early detection of pests/diseases. Focus on controlling purple spot (Alternaria porcini), anthracnose, and fusarium wilt, (4) timely harvesting, proper post-harvest handling, and increasing added value (home-scale agro-industry). Output performance as a benchmark for dissemination is (1) the productivity obtained is quite good, an average of 12 tons/ha, and (2) social changes occur, especially in the allocation of longer working hours for onion farming, where when harvesting time is up to the middle of the night which is followed by men and women and even teenagers, (3) because the economic value of shallots is quite large, causing a lot of lands that was previously uncultivated to become new arable land. The onion planting index rose to 2-3 times because the first and second rainy seasons turned many lands previously planted with corn into shallots.

Figure 3. Discussion with Community/Border Officers in Malaka Regency, NTT

Barriers to the Implementation of the RPM Program (Seran, 2019)
Implemented this RPM program in the first planting season of 2017, and an evaluation has been carried out. Two sources were identified as problems in the RPM program: internal and external farmers. The internal factors of farmers are the cause of problems in the RPM Program, namely:

1. Knowledge and insight about the cultivation of rice, corn, and shallots are relatively low, so they continue to apply old technology, and it becomes difficult to accept new technology.

2. Farmers still do not believe in new technology, the attitude of waiting and wanting always to be helped, and the attitude of being lazy, indifferent, and ignorant. Because they think their agricultural land is fertile, it does not require hard work and the use of technology with many production facilities.

3. Farmers' skills in applying technology are still low, hindering the diffusion and adoption of agricultural technology innovations, especially through the RPM Program.

External factors of farmers that hinder the RPM Program include climate change, problems in the cultivation process, recommended technology related to rice planting arrangements and spacing, innovations for corn planting systems in the RPM program, and seasonal agricultural productionthat it cannot be stored (shallots).

In addition to those mentioned above, the evaluation results show that the mutual understanding of stakeholders still constrains the implementation of the RPM Program in executing the RPM Program. This condition can certainly affect the implementation of the roles of each stakeholder. A collaborative process is needed to direct stakeholders in achieving a common understanding of their involvement and role in realizing program objectives. However, according to Ansell & Gash (2008), the considered condition in collaboration is the capacity of the stakeholders.

However, this program needs to be continued to build the independence of farmers for the sustainability of farming. What needs to be done is as follows:

1. Increase knowledge and insight of farmers regarding good rice, corn, and shallot cultivation techniques through training, internships, and cross visits to locations or farmers who have successfully applied technology well.
2. Changes in farmers' attitudes towards agricultural technology innovation are carried out by continuously providing assistance, convincing farmers about the technology used, and the impact of using advanced technology on production, income, and welfare.
3. Provide knowledge to farmers about climate change so they can early take attitudes and actions on changes. For example, through information from the BMKG (Meteorology, Climatology and Geophysics Agency) about changes in rain and heat so that they can anticipate early by making the right decisions and actions.
4. Farmers remain active in farmer groups, so they can arrange the group's fertilizer needs to make RDKK so they can access subsidized fertilizers.
5. Farmers do marketing together to increase their bargaining position.

Figure 4. Discussion with the Community in Malaka Regency, Nusa Tenggara Timur

CONCLUSION

To create food security at the national level, it must begin with the fulfillment of local food needs. The fulfillment of local food security must be strengthened by the development of resilience in the family sector which is the key to the success of the national food security program. The policy to increase the production of local food crops is one side of the effort to overcome various food insecurity problems that occur in the Nusa Tenggara Timur area, known as an area that has dry natural conditions due to little rainfall. This area often experiences food insecurity with various implications such as malnutrition for children under five and food scarcity.

Policies taken by local governments to overcome food security will not provide significant benefits if these policies are not implemented properly. The policy is just a document drained thought, and resources have also been wasted without achieving the expected results. The Malaka Agricultural Revolution Program (RPM) positively impacts agronomic performance (rice, corn, and shallots) to increase productivity, agricultural production, income, and community welfare. Factors that hinder the implementation of the RPM Program include internal factors (knowledge, skills, and attitudes of farmers in dealing with changes brought about by the RPM program) and external factors (climate, availability of fertilizers, recommended

technology for planting and spacing, planting labor, and agricultural production). Seasonal nature, low shelf life (shallots), post-harvest handling that is not optimal, and marketing.

Increasing productivity and agricultural production by the Malaka Regency in a sustainable manner can do it through increasing the knowledge, insight, skills, and attitudes of farmers and extension workers through training, Technical Guidance, cross visits, internships, comparative studies, providing information on weather and climate change. Farmers are encouraged to form a joint marketing agency related to planting time. The Malaka District Government, through the RPM Program, can form an agricultural corporation in the marketing of agricultural products.

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