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“

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AND ENERGY SUSTAINABILITY
TO ENHANCE COMPETITIVENESS

”



Agricultural
Biological Engineering

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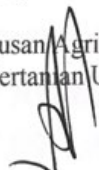
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AUGUST 10-12, 2017**

**“Strengthening Food and Feed Security
and Energy Sustainability to Enhance
Competitiveness”**

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PREFACE

Alhamdulillah rabbil'alam, I would like to express how grateful we are to finished "Proceeding of ISAE International Seminar 2017, Bandar Lampung, August 10-12, 2017 with theme "Strengthening Food and Feed Security and Energy Sustainability to Enhance Competitiveness". We are here to communicate and gather dissemination of information and research results in the field of agriculture as part of planning the development of agriculture in the future towards food and biomass-based energy self-sufficiency. Through this proceeding, we shared the problem, ideas, knowledge and technology to arrange solutions that communicated and discussed at ISAE International Seminar, Bandar Lampung, August 10-12, 2017. This proceeding contains 118 papers that divided by 8 categories namely Agricultural Engineering, Agribusiness, Agricultural Technology, Agricultural Science, Energy, Food, Natural Resources, and Sistem and Agricultural Management from many universities and many institutes in Indonesia.

I would like to extend gratitude for all authors of the proceeding who communicated and shared their research results, editorial team who work together to executed this proceeding, Agricultural Engineering Departement of University of Lampung, Faculty of Agriculture of University of Lampung, University of Lampung, PERTETA and committee members. Salutations to Dr. Ir. Sam Herodian, M.S. as Professional Staff of The Minister of Agriculture of Republic of Indonesia; Ir. Sutono, MM as Regional Secretary of Lampung Province; Prof. Dr. Ir. Hasriadi Mat Akin, M.P. as Rector University of Lampung; Prof Dr. Ir. Irwan Sukri Banuwa, M.Si. as Dean of Agricultural Faculty of University of Lampung; Prof. Mikio Umeda from Kyoto University, Japan; Prof. Dr. Ir. Irwandi Jaswir, M.Sc. from International Islamic University, Malaysia; Dr. S. D. Filip To, PHD. PE from Mississippi State University, USA; Dr. Rosanna Marie C. Amongo from University of the Philippines Los Baños, The Philippines; Prof. Dr. Ir. Lilik Sutiarto, M.Eng. from Universitas Gadjah Mada, Indonesia; and Prof. Raden Achmad Bustomi Rosadi, M.S. from University of Lampung.

Last, we hope that you will have a great memories about the experience in Bandar Lampung and the relationship that have managed at Seminar can become better in the future.

Best Regard,

Dr. Ir. Sandi Asmara, M.Si
Chairman of ISAEIS 2017

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THE COMMUNITY ABILITY IN SUPPORTING THE LOCAL RESOURCE-BASED PRODUCTIVE EFFORT IN FOOD SELF-SUFFICIENT VILLAGES OF LAMPUNG PROVINCE

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Abstract. This research aimed to identify the increase of community's ability in developing productive enterprises based on local resources as a result of the food self-sufficient villages (Demapan) program in Lampung Province. Demapan in Lampung Province becoming the object of research consisted of 16 villages/ urban villages in 12 districts/cities. The objects of research were selected with the following criteria: (a) the coverage of all districts/ cities in Lampung Province, (b) the difference of year in starting Demapan Program, and (c) the number of villages implementing Demapan program in each districts/cities. Data collection was conducted in each village from 15 Affinity Group members (KA) respondents, 15 non KA member respondents using a questionnaire, and 10 FGD respondents. The sampling technique (respondent) used was an accidental sampling. Data was analyzed using Excel and SPSS program. This study was conducted from August—September 2015. The results showed that the program Demapan done exerted the following effects: (a) improving the institution, particularly Affinity (KA) and financial village institutions (LKD), but still lacking for food village team (TPD), (b) slightly increasing the productive effort but the business sustainability still needs improvement. The large potency of area has been utilized less optimally to support the food self-sufficiency due to limited water resources. As the productive effort conducted by KA members had not developed yet, this research recommended the improvement of its sustainability.

Keywords: Community Ability, Productive Effort

1. Introduction

Indonesia is one of country highly committed to the development of food security as a strategic component in development. The foundation of food security and food self-sufficiency realization is contained in articles 3 and 4 of Law No. 18 of 2012 about food, stating that "the implementation of food is conducted to meet basic human needs providing benefits equitably, and sustainably based on Food Sovereignty, Food Self-Sufficiency, and Food Security (article 3). One objective of food organization is to facilitate or improve the access of community to food, especially those vulnerable to food and nutrition.

To create the food self-sufficiency, the government through the Food Security Agency of the Ministry of Agriculture has launched the Food Self-Sufficient Village Program (*Demapan*) since 2006. *Demapan* is defined as a village / *kelurahan* whose people have ability of creating food and nutrition security through development of availability, distribution, and consumption subsystems by utilizing local resources in a sustainable way. The purpose of *Demapan* activities is to improve the empowerment of rural communities by optimally utilizing the resources they have or control to achieve food self-sufficiency of household and community. The Activity targets are poor households in food insecurity villages to achieve community self-sufficiency.

Demapan activities are carried out for four years in four stages: preparation, growth, development, and empowerment by empowering the poor in food insecurity through double track strategy, including: (1) establishing an agriculture-based economy and Rural areas to provide employment and income, and (2) fulfilling food for poor communities in food-insecure areas through empowerment and direct assistance (Ministry of Agriculture, 2011). The realization of community's food and nutrition security is conducted gradually through community

empowerment process to recognize its potency and capability, to seek alternative problem solving opportunities, and to make decisions in managing and utilizing natural resources effectively, efficiently and sustainably.

Demapan activities in Lampung Province began simultaneously with the launch of the program nationally in 2006. Up to 2012 Demapan activities in Lampung Province have been implemented in districts / cities spreading over 73 villages, 24 villages of which have entered into independent stage according to programming target. At independence stage in the 4th year, it is expected that changes will occur in: rural institutions (Affinity / KA, Village Financial Institutions / LKD and Village Food Teams / TPDs) as social service and economic service institutions, characterized by productive economic business that has been able to increase purchasing power and capital, production accessibility, and agricultural marketing. This condition can encourage and even ensure the empowerment of the community in meeting the adequacy and availability of food. Considering the description above, this research aims: 1) to find out the strengthening of institutions in the community, and 2) to identify the improvement of community capacity in developing productive enterprises based on local resources as the impact of the Village Self-Sufficiency Program (Demapan) in Lampung Province.

2. Methods

The research was conducted at *Demapan* in Lampung Province. The 16 villages of Demapan in Lampung Province, which are the object of this research, spread in 12 districts/cities. The selection of districts and villages for the research was conducted by considering: (a) the coverage for all districts / cities in Lampung Province, (b) the differences of year starting the Demapan Program, and (c) the number of villages implementing *Demapan* program in each districts/cities. Similarly, almost all districts/cities in Lampung Province were accommodated as research sites. Furthermore, by considering the implementing village of Demapan Program, more than one (two) sample villages were selected from the districts having the larger number of implementing villages.

In each village, Data was collected from 15 respondents of Affinity Group members (KA), 15 respondents of non-KA members using a questionnaire, and 10 FGD respondents. The sampling technique used for selecting the respondents was accidental sampling. Data collection was conducted by interviewing face-to-face respondents and through Focus Group Discussions (FGD). Both the interviews and the FGDs were conducted based on a prepared questionnaire (ROP, 2015), consisting of three questionnaires: A poor household questionnaire for KA members, non-KA member questionnaire, and C questionnaire for FGD. The Data were analyzed statistically descriptively, using excel program and SPSS. The Data collection was conducted from August to September 2015.

3. Result and Discussion

Household characteristics

The characteristics of households in this study consist of: age of head of household, sex, education level of head of household, number of household member, status in group, and main occupation.

The average age of household heads of KA members or non-KA members is considered to be productive age. Of the 240 selected respondents, majorities were male, either for KA members or not KA members. Viewed from the education level of KA member household heads, it can be found that most of them (125 people or 52%) were educated in elementary level, and only 3 people were in college level. Overall, the education level for non KA members is relatively higher than KA members. Considering the distribution of household member number by age, it can be seen that the age of KA and non-KA member household is relatively equal in number and proportion, dominated by productive age of 15-55 years, followed by school age <15 years, and only a few are aged > 55 years. The status of respondents for KA member is mostly (65%) as a member, and the rest as committee of organization.

The main occupation of both KA and non-KA members are not much different, most of which are farmers - 103 people or 42% and 107 people or 44%, respectively. The second rank of dominant occupation at research area is farmer worker (for example; respondents in Fajar Sari Mesuji Village working as workers at PT. Barat Selatan Makmur Investido (BSMI), and in Ringin Sari Tulang Bawang Village as workers at PT Bangun Nusa Indah Lampung (BNIL), while other small number respondents working in non-Agriculture business, such as trading business (shop for household needs), as well as mobile stores and pulses (Counter).

Household Asset Ownership

The land ownership of KA member households consists of 0.24 Ha / household of dry field, 0.7 ha / household of garden, the average large of yard is less than 0.1 Ha / household. Comparing with the beginning of the program in 2009 until 2015 there is a tendency to increase slightly, but none of the respondents have a pond from the beginning of program until 2015. Therefore, it can be concluded that Demapan program has an impact on the control of land assets of program participants, although a little. Land assets of non KA household is averagely less than KA member, this is because some non-KA households have no land, and only work as agricultural laborers or laborers in the company around the residence.

Regarding the ownership of animals, it is obtained that averagely the households have animals such as chickens, ducks and goats (in the beginning of program in 2009 – 2015). None of the KA and non-KA members have pig and horse animals, whereas the buffalo is owned only by non KA member in very small number. For KA members, in 2015 there was a slight increase in the average number of cows, goats, and ducks. This indicates that Demapan Program has a small positive impact on the ownership of animal /livestock assets by the program participants. For non-KA respondents, the average animal ownership has almost similar type of distribution with the number smaller than the KA members’.

Institutional Reinforcement in community

Institutional reinforcement in community in this research can be seen from the society perception’s on Demapan institution such as Affinity Group (KA), Village Food Team (TPD), and Village Financial Institution (LKD). Institutional Reinforcement in community is viewed from the existence and the impact of Demapan institutional at the village level, as shown in Table 1. Generally people have positive perceptions on Affinity Group (KA). This can be understood from the great and prominent positive impact of KA, especially in group life and cooperation and regular meetings. Another positive influence is on the adoption of cultivation technology and plantation technology. Although less great impact of the existence of KA also positively affect the livestock business, trade, utilization of yard and others. The area that has not been touched by the impact of the KA's existence is entirely fishery business, whereas some villages have the potential to develop the fishery business. Apparently for the area, it is necessary to find a companion who has the competence of the field of fisheries.

The perception of the existence of the Financial Institution Village (LKD) is also very large and affects positively the village household financial system as indicated with the decreased percentage of households borrowing money from moneylenders and the increased number of borrowing money from LKD. However, the positive impact of LKD as a capital service institution and encouraging households to save money is not optimal yet. It takes great effort for the LKD to perform its functions optimally. The existence of other institutions’ effect (TPD) on the community is rather low and affects positively in helping run the program in the village.

Table 1. The existence and impact of Demapan institution at the independent status Demapan Level in Lampung Province, 2015 (%)

No	The performance of Demapan Institution	2015
A. Affinity Group (KA)		
1.	Perceptions on the existence of KA influence on rural communities	93.80
2.	Perception of positive impact of KA toward	
a.	Live in groups and mutual cooperation	81.20
b.	Adopting cultivation technology	37.50
c.	Food processing business	18.80
d.	Plantation business	37.50
e.	Livestock business	12.50
f.	Fishing business	0
g.	Trading business	18.80
h.	Utilizing the yard	12.50
i.	Nutritional food	18.80
j.	Activity for pregnant and lactating mother	12.50

k. Regular meeting	62.50
B. Financial institution village (LKD)	
1. Perceptions on the existence of LKD influence on rural communities	93.80
2. Perceptions on positive impact of LKD toward ;	
a. More people saving money	31.20
b. More people lending money	68.80
c. Less people lending money from the moneylender	75.00
d. LKD become institution of community capital service	37.50
C. Village Food Team (TPD)	
1. Perception on the existence of TPD influence on rural communities	62.50
2. Perception on positive impact of TPD toward ;	
a. Assisting to make a plan of village development	25.00
b. Assisting to run the program that entered to the village	56.20
c. Assisting to describe village's program outside the village	12.50

The Community Capacity in Supporting Local Resource-Based Productive Enterprises in Demapan.

The abilities can be interpreted as an individual's capacity to perform tasks in specific jobs (Robbins, 2006), and according to Mc Shane and Glinow in Buyung (2007) "ability of natural aptitudes and learned capabilities required to complete a task successfully". Intelligence is a natural aptitude helping the employees learn certain tasks faster and do them better.

The community's ability of supporting local resource-based productive enterprises in Food Self-Sufficient Village (*Desa Mandiri Pangan*) in this study is viewed from the affinity households' ability in the save and loan activities and in utilizing funds for productive activities based on local resources during the program period and 2015. It can also be seen from the participation of KA households in group activities during the program period and 2015 including: the existence of group dues (payment time participation, payment size, and frequency of payment); the existence of regular meetings / meetings of group members; and attending the training.

Affinity Group households in save and loan activities during the program period were 49.3 percent, and it decreased in 2015. This happens because some of the loan repayments were not performing well do to such reasons as crop failure or death of pets (such as goats), and less strict supervision or sanctioning systems for those not repaying. Save and loan activity is performed in the form of money saving and borrowing. The Demapan program has not been well disseminated to the village community in general. This value is not far from the result of evaluation on Demapan in Lampung Province in 2012 (Nawansih et al., 2012).

In general, every household can borrow on average IDR 1,000,000.00 per year, as much as 1-2 times a year with a interest rate of 1% -2% per month. This loan is used for agricultural cultivation, especially to buy production vehicles (*saprodi*), and non-agricultural micro enterprise, but some others are used for consumption, as well as for other purposes such as opening counter, treatment, education for children, and repaying loan. This is certainly incompatible to the purpose of grant provision intended to improve business. In this case, suggestions for future programs, aid in the form of money should be considered and prepared more maturely whether in planning, implementation or supervision in order to run better. For groups whose savings and loan activities are still running until 2015, the prevailing rules are relatively fixed. In Table 2 it can also seen that the Demapan program contributes to lowering the money borrowing to moneylenders (usurer).

Table 2. Household Affinity Group's participation in savings and lending activities at the Demapan Program in Lampung Province, 2015

No	The performance of saving and lending activities	Period of Program	2015
1.	The existence of saving and lending activities (%)	49.3	31,7
2.	Household in the activity of saving and lending (%)	66.1	39.0
3.	The average of loan value (IDR/Year)	996,263	1,614,107

4.	The frequency of lending activity per year (%)		
a.	1 time	60.5	30.3
b.	2 times	8.4	8.0
c.	3 times	0.0	0.0
d.	4 times	0.0	0.0
e.	> 4 times	0,0	0.0
5.	Loan interest(/month)	1	2
6.	The main utilization of loan (%)		
a.	Agricultural Cultivation	38.5	26.1
b.	Agricultural processing	2.1	0.3
c.	Non agriculture micro business	7.0	2.8
d.	Consumption	11.9	5,2
e.	Transportation Service (ojek)	0.3	0,3
f.	Others	13.6	5,2
7.	Lending to moneylenders (%)	3.1	2.1

The participation of KA households in group activities during the program period and 2015 includes: the existence of group tuition (payment time participation, payment size, and frequency of payments); the existence of regular meetings of group members; and attending training, as shown in Table 3.

The household's ability to pay group dues during the program period is 36.1% with an average contribution of IDR 25,956.00 and more payments are made monthly, and in accordance with the agreement of 30.4 per cent in the program period, but it decreased in 2015.

The participation of KA households in the regular meeting / group meeting activities amounted to 72.4% in the period or beginning of the program and slightly decreased to 56.3% by 2015; this is because at the beginning of the program run, the KA members held meeting more vigorously and routinely to discuss regulations in KA such as regulating / establishing group venture capital, borrowing conditions, sanctions, loan repayment patterns and timing, and determining mandatory/voluntary contributions.

The ability of households in training during the program period reached 43.0%, mainly related to agricultural cultivation 26.2%, administration 19.9%, microfinance 10.8%, processing yield 10.5%, and craft 5.2%. By 2015 the training participation has declined; this is because some of the activities undertaken at the beginning of the program were not routinely conducted anymore, interviews and observations in some villages indicate that some poor households already have other jobs besides joining the program, such as working in the company (PT) around the residence, and as a motorcycle taxi driver, but they are still eager for continuous coaching / training, because there are still potential resources that can not be developed yet that will improve their welfare. One example is the potential of fishery business in Sukorahayu Village, Labuhan Maringgai District, East Lampung.

Table 3. The Household Participation in KA Demapan Activities in Lampung Province, During the Program Period and 2015

No	Group Activities	Period of Program	2015
1.	The existence of group dues (%)	36.1	14.8
2.	The average of contribution (due) size (Rp.)	25,956	13,784
3.	The participation of contribution payment time (%)		
a.	Per month	19.9	9.1
b.	After harvesting	4.7	3.8
c.	Per year	15.6	7.3
4.	The payment for contribution (due) (%)	27.6	16.4
5.	The frequency of contribution payment (%)		
a.	According to agreement	30.4	19.9
b.	Occasionally	0.3	0.3
6.	The existence of regular meetings / meetings of group members (%)	72.4	56.3

7.	The frequency of regular meeting (time/month)	0.3	0.3
8.	The activeness of regular meeting (%)		
	a. Always	47.2	36.4
	b. Occasionally	31.8	17.0
	c. Never	4.9	1.0
9.	The activeness in training (%)	43.0	31.7
10.	In training time according to material of training (%)		
	a. Administration	19.9	13.3
	b. Cultivation	26.2	18.2
	c. Handicraft	5.2	1.0
	d. Processing product	10.5	7.7
	e. Micro finance	10.8	10.1
	f. Marketing	0.6	3.5
	g. Others	4.5	1.7

4. Conclusion

The results show that: 1) the *Demapan* program carried out results in the following impacts: (a) slight improvement of the productive business, despite the need for improvement in sustainability; therefore the assistant personnel needs to carry out the assistance more intensively, (2) improving the institution, particularly Affinity (KA) and financial village institutions (LKD), but still lacking for food village team (TPD); therefore the TPD performance still needs to be optimized by increasing the frequency of group meeting; 3) The large potency of area has been utilized less optimally to support the food self-sufficiency due to limited water resources; therefore the support of water supply technology is needed in the food insecure villages.

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