

IMPROVEMENT OF FOOD SECURITY ACT THROUGH THE ESTABLISHMENT OF SOCIAL INSTITUTION BASED ON LOCAL RESOURCES

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Abstract

This study was conducted two regencies in Indonesia known for its cultural unique characteristic; Minahasa regency in North Sumatra and Bongas village, Indramayu, in West Java. Indramayu is a village which has potential of natural resources but most people were still entangled by poverty. Majority of populations were farmers who do not have agricultural land and only worked as laborer. This research explored the influence of social capital to community welfare. Our result showed that the main problem faced by the farm labor are limited access to wide range of production resources such as land, seeds, fertilizers, insecticides, and funding. Second problem is management of cropping patterns. Third problem relates to marketing of products. To solve these problems, the first step taken was to form groups of farmer. With the establishment of this small community in a form of justified body, we facilitated access to resources needed to control every other aspect. Second step was to conduct agricultural management assistance, starting from the process of getting a land, loaning funds, purchasing seeds, rice planting, maintenance, harvesting up to marketing. The method established was active participation throughout the entire production cycle. The pattern of accountability applied in this system was "joint responsibility", meaning that responsibilities of the farming system go to all members in each group. Thus all members of the group will work well together and do the same scrutiny. After 2 years (4 harvest time), local income has increased significantly. They were able to rent land, support daily life and have the capital for the following year. The level of productivity increased thus affecting the community welfare.

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1. Background

Issue on food security is a strategic issue and a matter of debate in the all class of community, both from the government, scholars and even the scientists/researchers. This has become a world health problem. Food, as one of the basic needs of human life, is regarded as the foundation of human life. In accordance with the basic principles Stated by Maslow (in Calvin S Hall) that before a person reaches the stage of self-actualization, we must first be able to meet our basic needs, which include food, health and other biological needs (Maslow, 1985:11). Food demand can be sustained when there is a synergy between local resources and human resources. Food security can be interpreted as the fulfillment of the availability of sufficient food available at all times in all areas, easy to obtain, safe for consumption and is considered affordable in price. This is achieved with the collaboration of sub-systems of availability, sub-systems of distribution, and sub-systems of consumption. Relevance of each of these sub-systems can create a driving force for the success of the fulfillment of food for the society.

Until now, despite the development of sophisticated technology, and the findings in the field of "artificial" became more common, but the food needs based on natural resources still remain irreplaceable. As an island nation with disperse geographical conditions of more than 17,000 islands (figure 1), then the problem of food security in Indonesia is not only concerned with the aspect of productivity but also the problems related to distribution. Therefore, one of the strategies implemented in Indonesia to overcome this is by applying the principle of independence of food supply in each region.



Two maps of Indonesia and the US (without Alaska and Hawaii)
From: M.I. Zen, IOPAC 2013

Figure 1. Map Comparison of Indonesia and US

It is inevitable that food is an essential requirement for human beings. Given the basic needs of society, food sources which is considered essential in Indonesian culture is grains derived plant, such as rice and corn. In addition to rice and corn, other food sources are considered as important crops such as beans and tubers, especially cassava. Nearly 70% of the calories and protein that we consume comes from grains, especially rice. While the results of the estimation in 1980'an needs food we consume comes from rice in the form of calories 55% and 50% protein (Soemarwoto, O. 1983:260).

According to the Minister of agriculture, Sarwono, in 2013, In Indonesian population , rice consumption reached 102 kg/capita/year. This is higher than the average of world consumption (60kg/capita/year). Along with the population increasing, the dependence on rice as a staple food, has been inevitable and become an issue for the government to provide sufficient supply. In 2007, imports of grain reached 62.2%, while the target set was not to exceed 50%. Meanwhile imports of non-rice sources, such as tubers and vegetables and fruits only reach 3.1% and 5% from previously set quota of 6%. Therefore, in 2013, the Indonesian government targetted rice consumption to be less than 50%. But the reality for urban consumption of grains is around 60.7%, while in rural areas reached 63.9%. That is still about 10-13% greater than the proportion of 50% of the idealp. The high demand for rice consumption is forcing the government and citizens to conduct Food Consumption Acceleration Movement (P2KP). One goal of this program is to increase the utilization of local foods and dairy products through the development of local food processing business based starchy (BKP, 2011: 3).

Strategy on diversification of food consumption as a form of sustaining food security varies. One of the alternative is to repromote non-rice staple foods that sovereignty of local food can be reinstalled. However, to improve the local food sovereignty is not easy , because there are many obstacles that must be faced by technical, economic, social, cultural and political constraints. One form of improvement of food security is through the implementation of intervention carried out systematically and consistently . This policy can cut the chain of bureaucracy which is always an obstacle for the success of the community in terms of improving the management of its food . Another way is capacity building of the social institution to minimize food insecurity

This paper elaborate research from two study sites aiming to enhance the independence and sovereignty of its food, namely South Minahasa regency in North Sulawesi Province, and Indramayu regency, West Java province, Indonesia. Result from both sites show significant differences. South Minahasa, in addition to government assistance, is also supported by the local cultural value system that has been going on since ancient times known as "mapalus. On the other hand, in Indramayu, the society conducts a farming management system which combines both financial intervention fund and social access through the government.

2. Case Study: Food Security in South Minahasa Regency

2.1. Demographic profile of South Minahasa Community

South Minahasa Regency is a mountainous region with locked and bumpy terrain and small areas around coast (0-1500 m above sea level). Some of the mountains found in South Minahasa Regency, such as Lolombulan mountain (1.780 m), Manimporok mountain (1.661 m), Tagui mountain (1.550 m), Lumedon mountain (1.425 m). Plains located in South Minahasa Regency is located in Modinding area (2,350 ha), New Tompaso (2,587 ha) Tatapaan.

South Minahasa region is located in North Sulawesi consisting of 17 districts within 64 km from the provincial capital (Manado). The region has extensive 1484.47 km², with a population of 197 755 inhabitants. Fluctuations in the rate of population growth is relatively modest. The rate of growth that occurred since 2005 (180.000 inhabitants) is about 1.70. In 2012 the number has risen to 200,000 inhabitants. Of this amount, 33 % of the population subsistence farmers, agricultural land therefore has a strategic value to their lives. Nevertheless, an increasing number of extensive growing population, has led to reduced agricultural land in South Minahasa. From year 2004 to 2012, a number of approximately 250,000 ha agricultural land has undergone shrinkage to about 100,000 ha. This will have an impact on the quantity of agricultural production, shown in table 1.

Table 1
Fluctuation of population growth compared to decreasing number of
agriculture land (%)

Year	Population (N)r	Population (%)	Agriculture land (Ha)	Agriculture land (%)
2005	179015	-	219426	-
2006	179089	0.04	219426	-
2007	182017	1.63	219246	-
2008	182292	0.15	120774	81.6
2009	182818	0.28	120774	-
2010	195553	6.96	120774	-
2011	197755	1.12	120774	-
2012	198901	0.57	111775	8.05
2013	202127	1.62	89955	24.25
2014	2056549	1.74	80337	11.97
2015	209232	1.74	71747	11.97
2016	212878	1.74	64076	11.97
2017	216588	1.74	57225	11.97
2018	220362	1.74	51107	11.97
2019	224202	1.74	45643	11.97
2020	228109	1.74	40763	11.97
Average (year)	201036	1.64	109625	19.77

Source: <http://ejournal.unsrat.ac.id/index.php/cocos/article/viewFile/3573/3101>

Issue related to lack of agricultural area arose because land lost its original function from agricultural areas converted into non-agricultural land, such as housing complexes, industrial areas, commercial areas, and public facilities. This is in contrast with the national food policy for North Sulawesi in 2012 (RKP 2012) which stated that the development of agriculture land would be targeted for both agriculture and fisheries production centers. Therefore, to regain its function as the national barn, Sulawesi require a development strategy to increase production and productivity of food crops and palm plantations.

One area in North Sulawesi province that has become a pilot area for the development of food storage is South Minahasa Regency. This district is one area with promising corn production. According to Central Statistics Agency of North Sulawesi province, in 2011, maize production in South Minahasa District reached up to 82,330 kg/ha in a 21,440 ha harvested area (BPS, 2013). This data showing the sufficient production of Corn is essential for decision making regarding alternative staple food rice. Moreover, the nutritional content of protein and carbohydrates in corn is not significantly different from rice. In addition to rice and corn, other

important source of food crops are beans and tubers, especially cassava. Detailed overview of the production of food crops in South Minahasa district can be seen in Table 2 and 3.

Table 2
Average production of Agriculture Commodity
South Minahasa District, 2012

Commodity	Year	Plantation area (Ha)	Harvest area (Ha)	Production (Ton/ha)	Average production (Ton/kg/ha)
Paddy	2012	13.277	13.301	70.678	5,31
	2011	12.893	12.875	73.163	5,68
	2010	13.178	13.147	68.049	5,19
	2009	13.748	13.661	67.934	4,97
Field paddy	2012	1.897	2.081	5.436	2,61
	2011	1.712	1.574	4.205	2,67
	2010	1.374	1.779	4.748	2,67
	2009	2.277	1.700	4.387	2,58
Corn	2012	21.206	21.882	83.935	3,94
	2011	20.888	21.440	82.330	3,94
	2010	20.793	20.792	80.130	3,85
	2009	22.081	20.082	76.623	3,57
Cassava	2012	275	249	3.318	13,31
	2011	273	285	3.791	13,30
	2010	256	249	3.296	13,24
	2009	484	479	6.368	13,32
Coconut	2012		49.918.86	47.050.84	1.154.75
	2011		45.041.50	49.378.12	1.329.85
	2010		37.121.05	49.307.33	639.39
	2009		52.151.35	49.660.78	952.24

Source: South Minahasa 2013, BPS, 198-2013.

Table 3
Planted, Harvested, Provy and production Area in Agriculture Commodity

No.	Commodity	Plantation area (Ha)	Harvest area (Ha)	Harvest area (Ha)	Prov. (Kw/Ha)	Production (Ton)
1.	Rice field	10.915	10.791	10.915	4.600	50.210,911.
2.	Paddy field	804	648	804	2.432	955,5
3.	Corn	12.006	11.57	12.006	3.206	38.486,6
4.	peanut	347	365	347	2	555
5.	green beans	40	56	40	1.802	72,1
6.	Soy bean	10	16	10	1.224	12,2
7.	Cassava	176	146	176	11.919	2.097,7
7.	Sweet potato	78	80	78	8.875	692,3

Source: 2006, Dinas Pertanian & Peternakan Kab. Minahasa Selatan

2.2. Food habit in South Minahasa

Food consumption habit of community in South Minahasa is slightly different from most of other community in Indonesia. A study conducted in 2011 by a research group in PMB-LIPI showed that their staple food is rice mixed with corn which they usually call " milu rice " (PMB - LIPI Team , 2011). This situation has actually been inherited from generations to generations. However, the proportion of corn and rice paddy is changing through decades. In the 60 to 70s, rice corn/milu was cooked without any mix . After the '80s rice corn/milu was cooked with rice with an equal proportion. Starting from early 90s until the late 2000s, the proportion of rice in milu is higher than the amount of corn (Ary *et. al.*, 2010).

This habit arose along with the introduction of national rice self-sufficiency program. This government intervention has shifted the habit of eating rice as rice milu into mixed rice or even paddy rice. However, these dietary changes are not evenly distributed throughout the population of North Sulawesi, particularly in South Minahasa. This new habit especially impact on developed area rather than less developed area in South Minahasa.

Community engagement on milu rice, is one of the local potential to strengthen local food security. Food consumption habits based on potential areas of food must be maintained, so that people are not entirely dependent solely on paddy rice. Persistence of local food consumption is manifested in the extent of land and crops of corn crops (other grains) cultivated by the community. From the year 2009 to the year 2012, ration of land for corn and crops has not change, as shown in Table 2.

Based on the results of PMB - LIPI research team conducted in 2010-2011 in another regency of South Minahasa (Amurang) showed that the population still consume milu rice 2-4 times a week . This means that they consume rice corn (non-rice food) quite often. That being said, the non-rice food consumption habits as inheritance is still maintained, although culture 's confusion had occurred in response to a new assessment of the value of rice to be considered a higher nutritional content compared to corn rice . But because the habit has been going on for a long time and has been a tradition since its ancestors, it is a difficult habit to be abandoned. Based on the results of that study, we can be sure that the non-rice food consumption (in the form of milu rice) culturally give a feeling of comfort and psychologically feel

more secure because of the availability of more affordable food, accessible and easily stored.

2.3 Strategy of Food Security in South Minahasa

In regard to solving the problem of the limited food supply, South Minahasa regency already has a mutual aid system that is socially institutionalized into local custom. South Minahasa population, as one of the ethnic region in Indonesia which is known to be engage in the life of community service. In addition to the kinship system that is paternalistic, their social-cultural also gain value in the form of a social institution called " mapalus ". The tradition of mapalus is reciprocity in the governance of life community service. Along with that motive beyond the tradition, that has been inherited- this generation feels the social obligation to fulfill community service in accordance with local custom rules, in the form of helping each other. This situation is a precondition that underlie the formation of a social institution in the community. This type of activity can include a variety of economic activities and other social development activity. An example; economic cooperation activities during working in the land or while building houses. While engaging in social activities in various cultural activities like celebration or funeral. Socioeconomic aspects mentioned in this principle is the attitude of helping each other in the economic transaction between two parties in which goods or services are exchanged . In this case one of the parties will feel that social assistance has been widely understood. This kind of help is usually more social and not the exchange of material, such as assistance in the form of manpower and expertise . For people who are in higher level of economic capability. i.e. landlord will employ other residents who do not have the economic assets of the way to use his land into agricultural areas pengelolannya handed over to residents who do not own land . Thus it can be said that the socially affluent residents help food availability for disadvantaged populations.

This mapalus principal reflects the occurrence of a solidarity and social cohesion in the community. Mapalus tradition is not only engaged in economic activity, but touching social and cultural activities as well. Mapalus activity is the principle of Mutual Aid implemtasi as a shared national values.

Although since early 90s, mapalus has begun to loose its follower, but the values of mutual cooperation contained in it is still attached, as well as for the

formation of social capital in the social institutional community. The values of social solidarity is the basis for the realization of capital "food bank" that would be independent community food security buffer. The food bank in addition to ensuring the availability of local food, can also serve as an instrument to control price fluctuations. So that, in a state of surplus (post-harvest milu / maize) farmers' income can be properly maintained. On the other hand during the shortage, consumers will continue to have access to food at affordable prices. Food bank serves as a repository of crops and also become the instrument of price control on post-harvest.

3. Case Study: Food Security in Indramayu

Second case that we reported in this paper is the case of strengthening food security in Indramayu regency. The findings of this research on food security in the region and in other particular area of Indramayu village, namely Bongas, shows that the majority Bongas villagers are agricultural laborers (50%) which rely heavily on the presence of a helping hand of the government. Therefore we suggested to have a number of government assistance for this purpose, especially in land acquisition, provision of working capital and establish social institutions as the rotor for this program. Our program once implemented in Bongas and especially in a pilot village as a community empowerment program intervention. The program essentially aimed at strengthening the institutional food among farm workers through collective cultivation of agricultural land, agricultural land in the village area of 607.2 ha Bongas. Other than that, It also provides assistance and technology development revolving fund to address the needs of agricultural inputs. Through the program, we expected to increase living standards so that the public will be able to increase the productivity of agricultural land is rented.

The first step of the program is to form a local organization named "food security institution for community". Member of institutions, each consisting of 4 families. Each family is collectively working on 1 ha of rice fields. Basically these institutional models introduce the values of the past ideal agrarian society in the form of the value of mutual aid as the main axis for the communities concerned. In its operational mechanism, the institutional model is highly dependent on the cooperation among the members, both at the level of groups and institutions.

The type of assistance provided, such as; find land for rent by social institutions that have been established. The cultivated land leased obtained from first-hand that the rent is not too high or the market price . The cost to rent the arable land by subsidized government funds with joint liability system which means that the aid should be managed together and is a shared responsibility. The emphasis of this is on the value of togetherness and shared responsibility for jointly can produce the best possible product. During the program trail, this will be supervised closely by our premises (researchers in Indonesian Institute of Sciences). During our monitoring, the program runs well and the farmers were able to produce a good quality harvest. This harvest can be used to restore the borrowed capital and also used to rent land as well as the procurement of seeds and planting subsequent days of planting. In addition to working capital, they also received adequate margins for family living expenses.

Unfortunately, these activities can only take place for two time rice cultivation period which was the period of our guidance from Indonesian Institute of Sciences. On the consecutive period, most of the villagers encountered multiple issues, including income per capital as well as the difficulty to obtain a lease of land in accordance with their capabilities. This shows that the government is a very significant role to improve household food security, especially in helping the farmers to get land with cheap rent and a working capital loan without interest . However, these interventions also have a negative impact , because it has caused people's dependence on such assistance. One result has led to an attitude of " lazy ", less productive and less persistent in trying. This was evident after 2 years assisting residents stopped and left alone again to continue the lease of agricultural land management efforts. Unfortunately, the results were less encouraging. In this case it seems the chain of bureaucracy was the biggest issue. From the results of the evaluation, it turns out that the group 's resident farm workers do not have the power to " bargaining " with the owner of agricultural land. So the team effort that has been made into run a ground . This situation shows the dominance of the attitude of a particular group (in this case the owner of the agricultural land). Chain dominance can only be decided by the external force, while the locals do not have the power to revamp the existing structure.

In addition to the social helplessness, there is a high cultural 'consumptive' habits. The successful first year of pilot study has raised the level of economy in the

population. The community have the habit of carrying out a ritual celebration called the local term is " majengan " . In the year celebration activities can occur more than 3 times for agricultural activities and not for household activities such as initiation ceremonies child (birth, circumcision, marriage, etc.). This is worsen by the culture of having more than 3 times celebration during agricultural time: first the plantation, second would be during harvest time, and the last would be the final celebration (grand party 'Dewi Sri'). This grand party is usually done on a large scale once a year as a token of gratitude for their crops as indicated by the shape of a large party given to Dewi Sri (God of Agriculture symbol) as a personification over rice harvest . The culture is actually quite well preserved as long as the celebration of the " ritual " of the premises proportionately with then earned income. Unfortunately, until now the consumptive habits coupled with little luxuries and also the purchase of luxury goods was not really necessary. As a result, not only they drained the entire profit of the harvest, but as well as their capital or even debt. profit but slow sea spent modalnyapun participate unused to such activity , even less so with debt . Therefore, at the time of harvest their crops directly used to pay debt discharged.

4. Conclusion

1. Improvement of national food security program must be done by improving local food security.
2. national food supply should not be dependent on any particular type of food, but to food diversification in accordance with local food habits.
3. Improvement of regional food security can be done through a variety of government intervention in the form of aid and strengthening both institutional and social capital that is owned by the region since immemorial time. Therefore, indulgent government without proper education should be avoided. Because it will only increase people's dependence on government assistance.
4. Improvement of local wisdom should be implemented, due to its local values which are not suitable for development of the region. Therefore, nationally similar pattern should be avoided because it would clash with local values.

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