

POVERTY REDUCTION STRATEGY IN SMALL ISLAND-MALUKU PROVINCE

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ABSTRACT

Poverty is still a crucial problem in Indonesia, although the number tends to decrease, about 39 million people in 2006 and 33 million in 2008. Most of poor people live in rural areas particularly food crop farmer households. Strategy to reduce poverty like Cash Direct Aid (BLT) or Rice for the Poor (Raskin) seems only a medicine to heal the poor as social pathology and to create dependency on free aids not to prevent them from the cause root of poverty. Therefore the number of poor people is still significantly great in villages, particularly in Eastern part of Indonesia. Poverty rate in Maluku province is higher than national level, which is about 30%. However, farmers in small islands, Maluku, are not poor farmer in terms of inability to fulfill staple food but they are poor because they have no strength to improve their low income. Farmers in small islands Maluku have local staple food resources based on non rice such as sago, banana, cassava, corn, fish and peanuts. In this case, Raskin program is a substitute rather than a complementary to enrich local staple food. Therefore, the main strategy to reduce poor farmers in rural Maluku is not to provide free aid or Raskin but how to develop small scale agribusiness based on community and local resources. To implement this program, it depends on the intervention of local government and politician which is very important to support and facilitate the small scale agribusiness based on community and prime commodity in small islands of Maluku. The basic strategy to reduce poverty among actively poor farmers are not free market but empowering through subsidies of input production, agroprocessing technology and sea transportation cost as well as market access and price protection through institutional strengthening due to price monopoly of local traders. Once local farmers have achieved self-reliance, the role of local government should be changed from regulator to facilitator.

Keywords: Poverty, Free Market, Market Acces, Sosial Patology, Intervention, of Local Government, Self-reliance.

1. Background

Poverty is still a fundamental problem in Indonesia, besides food problems, energy, and financial crisis. For more than 30 years of the New Era government (1969-1999), then the Reformation Era and the Indonesian Unity Cabinet, the number of poverty is still

great. In 2004, poor people is around 36 million people, then increase by 17.75 % (become 39.1 million people) in 2006, and approximately 32 million people in 2008 (MetroTV, 2009). Different from the Statistics Bureau, World Bank (2006) estimated that the number of poor people in Indonesia could be 109 million (49%¹ of all population).

The difference in the number of poor people relates with the parameter used (Soemitro and Tjiptoherijanto, 2002). World bank uses 2 USD per day as standard, while the Statistics Bureau uses the basic consumption of 2100 calories with value of Rp 152,487 per capita per month. The measure of poverty lines is sensitive enough to measure change of parameter, so that will impact the size of the number of poverty. Most (55%) of the poor farmers live in village, and 75% of them is the rice farmers and 75% of them grow horticulture and stamm food (Arifin, 2007). Poor farmers (especially in Java) could be related with the small area owned by the farmers and size of the land-use for farming. In Java, the subsistence farmers tend to increase from 10.8 million (52.7%) in 1993 to 13.7 million (56.5%) in 2003. Simultaneously the land-owning gap occurred where 80% of land belongs to the 20% of rich farmers.

Different from Java, the land owned by the farmers outside Java are relatively wider but the production and productivity is still low, so that the farmers are still poor. As one province outside Java, the poverty in Maluku tends to fluctuate, increase from 32% (in 2004) to 34% (in 2006), then decrease to 32% and 29.66% in 2007 and 2008, respectively (BPS Maluku, 2008). Therefore, the rate of poverty in Maluku is higher than the national count. The same pattern happens in the districts where the poverty is higher than the the provincial rate of poverty in Maluku. In 2006, the poverty rates in 4 districts are as follows: West Seram (77.04%), Central Maluku (50%), East Seram (55%) and West Southeast Maluku (51%). Even if the poverty is measured from the Cash Direct Aid (BLT) and rice for the poor, the poverty rate in the district can be more than 100% (West Seram district).

Maluku is islands province, consisting of small islands and 90% sea area. Small islands according to the 'land area' category is a relative concept, the size is less than 10.000 km² and about 500 000 population. According to UNESCO and the hidrology perspective, the area is less than 1000 km² (Kakazu, 1994 *in* Stubenvoll, 2001)². The tropical small islands are the islands in the equator zone which have daily temperature variation hotter than the seasonal temperature.

¹ World Bank. 2006. Making the New Indonesia Work for the Poor. Washington D.C. The World Bank, dalam Arifin, B., 2007, Diagnosis Ekonomi Politik Pangan dan Pertanian, PT Raja Grafindo Persada, Jakarta.

² Stubenvoll, Stevan, 2001. Traditional agroforestry and ecological, social and economic sustainability on Small Tropical islands: A Dynamic land-use systems and its potential for community-base development in Thioor and Rhun, Central Maluku, Indonesia. Unpublished PhD Dissertation. Technische Universitaet Berlin.

One or more islands have specific characteristics, so that the Government of Maluku groups them into 12 groups of island. The determination of one group of islands is based on the oneness of sea-island, river catchment area, culture, biophysics, ecology and early warning system to control natural disaster. Nevertheless, there is some inter-island control, especially the limited sea and inland transportation.

Different from Java, the poor people in the small island are not incompetent of providing themselves the rice main food. Even they have the tendency not to consume the local food because rice for the poor is available. Farmers in the small islands are economically active farmers, non rice staple food, multiple occupations on farm and fishery, subsistence, and trapped into the low income system (van Oosten brugge, 2004).

2. Problems

There are 3 main problems to be discussed in this article which are focused at the tropical small islands in Maluku Province. Specifically, the problems are formed in 3 questions as followed:

1. Why are the farmers poor although there are abundant natural resources?
2. What factors which cause poverty?
3. How are the strategies to reduce poverty in small islands in Maluku Province?

This paper aims to describe the characteristics, analyze the causes and investigate the strategies to reduce the poverty in small islands in Maluku Province. This information is expected to be a reference for the local government and related stakeholders that are responsible to reduce the poverty in this province.

3. Metodology

This research is a kind of explorative work. The location is in Maluku Province, represented by small islands district, Maluku Tenggara Barat (MTB) district, run from 2006 till 2008. Secondary data are gotten from the Provincial and District Statistics Bureau; meanwhile the primary data are from the survey, field work in household and village level, and some discussions with academics, Non Government Organization (NGO), and planner in District level. The information from the farmers is gathered by interviews and focus group discussion.

In the focus group discussion, the problems is identified by PRA method, where the farmers are facilitated to write, make a list, prioritize the problems, and the causal effect in one problem to another. This aims to get the problem of poverty from the farmer perspective in the village. Based on the discussion with the farmers, the possibilities of causes and solutions of the poverty can be found.

4. Natural resources potential and poverty

One of the causes of poverty is the limited natural resources beside cultural and structural policy. Maluku Province since 400 years ago is known as a rich region with natural resources especially spices, nutmeg, cloves, cayuputi, and coconut. Besides of the island resources, the potential of sea (658294,69 km²) have about 1,640,030 ton per year scattered in Banda, Arafura and Seram sea. However, the use of the sea potential is just 40% (Sangadji, 2007), outside the pearl potential, seacucumber, seaweed, and sea tourism.

The richness of natural resources in Maluku is followed by the increase of economic growth rate. Data showed that the Maluku economic growth rate increased from -1.58% in 2001 to 4% in 2004. The negative rate is related to the social conflict in Maluku from 1999 till 2004. In 2005, the growth rate increased to 5.07% and 6.17% in 2007. The economic growth is followed by the export value of Maluku estimated as much as US \$ 82,847,900 or Rp 828.5 billion each year between 2003 and 2005 (Sangadji, 2007). Most of the export products are sea products, then plantation and forestry. From the devisa value perspective, the countries important for Maluku trading are Singapore and Thailand for 70% export value, followed by Japan and China for 18% and 10%, respectively. Taiwan, Hongkong, Amerika and other countries import only 10% of the Maluku export value.

The economic growth quality is also questioned, considering the wide gap between Ambon and other districts. Unequity in Maluku Province is not caused by the dominant investment and export value but by the decentralization and region autonomy. Except that, the income around Rp 3.26 million/capita/year is still far below the minimum income of agriculture sector in Maluku (Rp 6 million/ year). So, the problem is, eventhough that Maluku Province has abundant island and sea natural resources; the poverty is still higher compared to the national poverty value.

Figure 1 shows the percentage of poor people in Maluku tends to fluctuate. The poor people tend to decrease between 2002 and 2005, the period when the situation has not recovered from the social conflict. The poor people increased significantly from 2005 till 2006 because of the oil price increased, then decreased to 29.88% in 2008. Actually, the poverty in Maluku province describes the average poverty. If analyzed over the districts, only Ambon city reveals the low level of poverty, meanwhile other districts showed the values between 50% and 60%.

There are some meanings of poverty and natural resources in Maluku province. Firstly, the people of Maluku are not knowledgeable with technology, capital, and skill in using the local natural resources. Secondly, the effect of the first point is, although the agriculture contributes much (37%) to the Bruto Regional Domestic Product, the Maluku farmers and fishers are weak to face the monopoly of input production distribution subsystem in the upstream and the marketing in the downstream by the local and national elit capitalists.

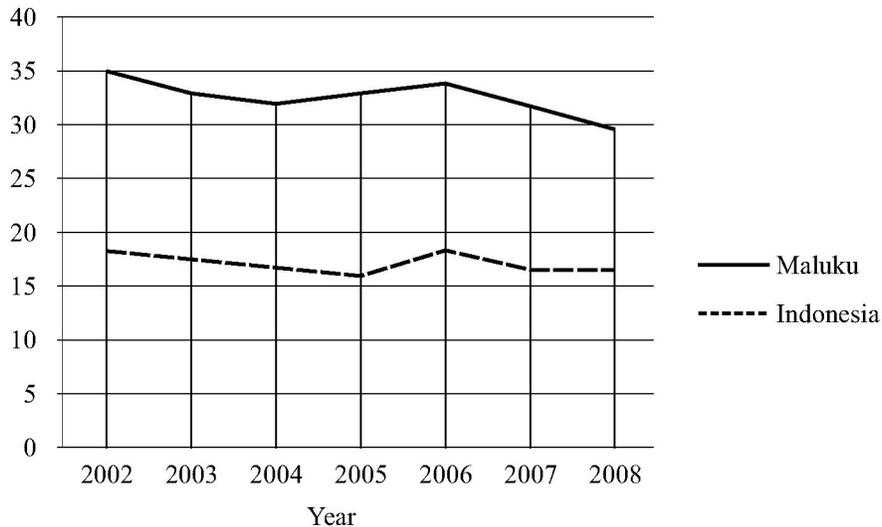


Figure 1.
The curve of poverty rate in Maluku and Indonesia, 2002 – 2008

Thirdly, who and where are the poor people live (Irwanto, 2005) can be defined that most of them work in the rural-agriculture sector with a decreasing tendency from 77% in 2003 and 74% in 2004, while during the same period the poor people in non agriculture are increasing from 23% to 26%. The number of poor people in the city is also increased gradually (Harris-Wahite, 2005). This case showed that the agriculture sector is still a base for unemployment recruitment, because the industry and service sectors are not ready yet to receive the unemployment from the agriculture and villages. Fourthly, about the status and workplace of the poor people in Maluku, in fact 83% work in informal sector, 13% in formal sector, and 4% is unemployment. The growth of informal sector showed the difficulty of getting the job in in formal sector (service and industry). There is an assumption that the income in the informal sector is not better than the income in the agriculture sector.

5. Poverty in small islands in Maluku Tenggara Barat District: Lessons learned

In general, agriculture contributes profoundly (52%) to the Bruto Regional Domestic Product. The potential of the dry land is 415 769 ha, forestry is estimated 965847 ha, 18% is as permanent productive forest, 18% limited productive forest, and 47% conversion productive forest, the rest is as protected forest. In the sea and fisheries sector, about 7613 fisheries household (19889 fishers), however 81% fishers are still using boat without motor engine, and 87% using the net and manual fishing. The use of fish resources potential is estimated around 30%, far below the sustainable potential (25345.11 ton/year) and the permitted harvest (20376.09 ton/year). Just like the Maluku province, the

economic growth rate in MTB district tends to increase from 3.32% in 2004 to 3.74% and 5.11% in 2007, with the income per capita as much as 3.45 million/year. Nevertheless, according to the MTB Planner Bureau (2007) the poverty there reaches 50.5% of 93265 persons, far higher than the poverty in Maluku, which are distributed in 9 regencies, 70 villages, 15 sub villages, and 1 community area.

Table 1 shows the poverty data per regency in MTB District, the number of poor household vary, the highest percentage is found in Selaru (17%) and North Tanimbar (13%). The lowest is found in Yaru and Nirunmas regencies (6%-9%). If the poor and poorer households are summed up, 50931 households or 11318 persons (assumption that 4.5 persons in each family), so the poverty rate in MTB is about 54.61%.

The poverty indicator and poverty can be seen from the production approach (income) and outcome. Based on the first indicator, 51.85% of the farmers households are poor, 40.74% are almost poor (sufficient), only 7.41% are not poor. This indicates the equity in poverty, where 93% of the farmers households belong to the poor and almost poor³ (Sajogyo, 1977, 1978). So, they are susceptible to the income poverty when harvest fail, the yield transport cost to another island increase, price decrease and the uncertainty price in yield market.

Based on the approach of outcome per year⁴, the poverty portrait showed that the total spending of farmers households in 5 villages are not much different, range between Rp5.12 million and Rp 6.67 million or in average of Rp 6.3 million per year. Considering the number of household member of 4-5 persons, the income per capita per month is between Rp104354 and Rp130442. This income value is taken as a measure of poverty rate, so the farmers in the villages in MTB district are living below the poverty line as much as Rp152487/capita/month⁵.

³ Adopt the poverty line definition of Sajogyo for villages equal with rice 320 kg/capita/year or 1600 kg/household/year (5 persons), so the poverty line in the research location is Rp533000/household/month

⁴ Outcome approach could be over estimation, but it describes the income of the household with assumption that the farmers has no savings and valueable things

⁵ Average income in Maluku is Rp3,26 million/capita/year atau Rp 271667/capita/month. People in the village generally got the carbohydrate from non rice which is potential. Therefore, the farmers in Maluku are not poor in food (calories) but poor in money that make them difficult to fullfil non food needs especially, education, health and transportation.

Poor household in MTB

No.	Sub Regency	Unit		Poverty Status			T o t a l	
		Village	Sub Village	Almost Poor	Poor	Very Poor	N	%
1	Tanimbar Selatan	9	3	310	970	216	1496	11.14
2	Selaru	6	1	365	1604	346	2315	17.24
3	Wertamrian	8	1	236	986	254	1476	10.99
4	Wermaktian	8	1	199	927	355	1481	11.03
5	Tanimbar Utara	8	0	307	1157	318	1782	13.27
6	Yaru	6	0	134	416	262	812	6.05
7	Nirunmas	5	0	119	924	111	1154	8.59
8	Kormomolin	9	1	215	887	266	1368	10.19
9	Wuarlabobar	12	5	226	1044	275	1545	11.50
Jumlah		71	12	2111	8915	2403	13429	100

Source: Department of Social, Employment and Transmigration of MTB District, 2008

Based on the field observation, the poor farmers in the island villages, generally have low education, old, responsible for 4-6 persons at home, productive employment is limited between 2 – 4 persons, and have been for a long time as a farmer. This is one of the serious problems in agriculture development in the small islands.

Another characteristic of the poor farmer in the village is the working time allocation. A farmer work only 7 hours per day, effectively 5 hours in the field and 2 hours in the trip from and to the field. The daily activity of the father is to do soil tillage, bring water, fishing, and talking with the neighbours while watching TV, meanwhile the mother activity is mostly cooking and prepares the food and brings it to the field, doing laundry, and taking care of the children. The farmer having the farm far from the village builds the *nyafar*, the second house in the field and return to the village once a week (every Saturday).

Table 2 showed that the farmer households allocate about 71% of the outcome for food (including cigarettes) and 29% for non food. The biggest component of non food is for the cost of their children education (11%), in elementary school, junior and senior high school, and the university, followed by the cost for transportation and electricity. The cost for health is small, because health budget is not a priority for the poor people. Therefore, the poor people income is limited to fulfill the need of education, health and transportation.

Table 2.
Type and rate of the household outcome according to the village

Type of Spending	Outcome (Rp/Household/Year)					Average*	
	Amdasa	Aruibab	Adaut	Kandar	Lematang	Rp.	%
Food	4,272,159	4553375	4461111	4461111	2208996	4,011,628	64.07
Cigarettes	400,636	270400	534444	534444	459996	437,095	6.98
Kerosene	460,909	748800	242667	242667	920004	568,076	9.07
Education	936,000	558000	687333	687333	961500	676,567	10.81
Transportation	225,909	177300	125000	125000	300000	205,642	3.28
Electricity	101,455	92400	174667	174667	24996	108,703	1.74
Health	106,818	104500	72500	72500	100000	96,764	1.55
House renovation	90,000	89250	100000	100000	89000	93,650	1.50
Social activity	62,273	80500	67778	67778	55000	63,110	1.01
Total	6,656,159	6,674,525	6,465,500	6,465,500	5,119,492	6,261,235	100

Source: Survey Data and FGD, 2007

6. Indication of the cause of poverty in the small island villages

Based on the observation and field research, the income level, food fulfillment, clothing, home, health, and education is the effect not the cause of poverty. The important thing is to find the roots of this complex and multidimensional problem (Figure 2).

Firstly, the market is limited for farmer production. The problem of marketing is the first priority to be solved. This problem is related with the low selling price, less market (no buyers), and the weak bargaining position of farmer, the village isolation (Chambers, 1983) and limitation of the marketing facilitation to the market central and transportation to the market central in the capital city of the district (Faperta Unpatti, 2007).

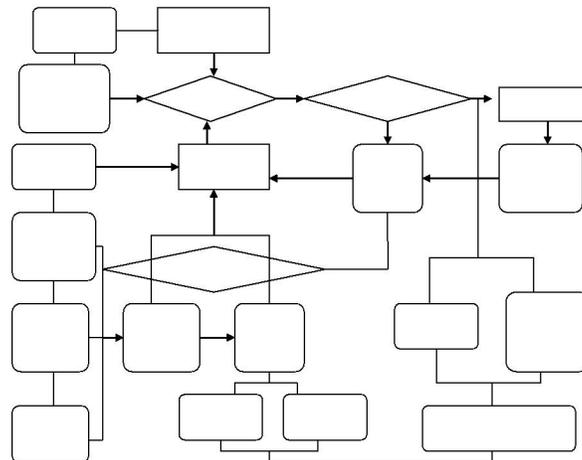


Figure 2. Deprivation trap cycle of poor farmer in small islands

Secondly, accompanying the agriculture extension workers is seldom. The extension program is weak because there is little innovation for farmers. This paucity could be caused by lacking of cooperation inter extension staffs, academic institution – research institutions with the local government. Extension programs become weaker because of the assumption that the technology comes from one source (single source of technology) and is always good for farmers. Therefore, the local study is neglected and if the farm fails to produce, the first to be accused is the knowledge and tradition of farmers, not the extension workers, researchers, or the technology itself (Pretty, 1999).

Thirdly, the land owned is relatively wide but only a small part is plowed. Based on the land ownership, more than 52% of farmers have big land (>1 ha) and 48% have the size between 0,5-1 ha. However, in the view of the land-use, 83% work as a subsistent scale (65% work on < 0.25 ha and 18% work on 0.25 – 0.5 ha). The main indicator is low production due to small land, limited employment, small capital, and conventional technology. Their income is all spent for the family member consumption, so the savings is minimal. The small amount of savings causes the farmers can not adopt the new technology and are back to the low productivity and production level. Consequently, the farmers go into the deprivation trap for a long time.

To describe the subsistency and deprivation trap, farmers actually only plant one or more combination of cassava, cabbage, coconut (copra), dryland rice, and corn on land area of 0.25 ha. The planting intensity is only once a year (one season). The production of food crops worked by farmers range between 25 kg and 275 kg (except coconut and cabbage, 355kg – 485 kg/ planting season). The cassava production ranges from 63 kg to 213 kg per season and peanut between 25 kg and 105 kg per season (Table 3).

Table 3.
Land area, production and productivity estimation
of poor farmers business in 8 villages

Commodities	Land Area (ha)	Productivity Estimation								
		Amdasa	Aruibab	Adaut	Kandar	Lerमतang	Maran tutul	Maka tian	Lat dalam	
Cassava	0.042	0	0	0	0	120	101	67	213	3125
Coconut	0.408	0	0	485	0	0	0	0	0	1182
Peanut	0.311	27	35	25	0	47	105	0	63	208
Bean	0.289	73	135	55	150	36	28	0	0	233
Cabbage	0.258	0	0	0	0	0	0	480	355	1606
Corn	0.255	0	0	0	0	0	0	232	0	928
Dryland rice	0.160	95	275	0	0	0	0	0	0	1156

Note: 0 mean that the plant is not grown or grown but only for family consumption

Source: Field Data

If converted per hectare, the productivity of farmers is far below the standard. The peanut and bean productivity is around 208-233 kg/ha, far below the average productivity

of district (0.8 till 1 ton/ha)⁶. Based on the local price, if market is available, cassava has the highest price compared with other plant i.e. Rp10.4 million/ha, followed by cabbage and dryland rice, Rp8.03 million and Rp5.78 million/ha, respectively. Bean, peanut and copra values are between Rp 2.1 and Rp 2.4 million/ha. The lowest value is corn, meanwhile according to the Agriculture Agency, corn is planted by most farmers in MTB district.

Fourthly, the accesibility of sea and inland transportation are limited, so that it is difficult for marketting the harvest, especially during the high wave season. The condition of many villages are isolated which caused the high transportation cost. In that condition, the subsistent farmers receive only the product prices as determined by inter-island traders. Farmers also get the expensive industrial product price, so the exchange value of the farmers is lower.

Fifthly, soil fertility diminishes because of the shifting cultivation, slash and burn and minimum tillage without applying other input like inorganic fertilizers. Based on the farmers' experience, during the first three years of planting, land productivity is still good. The fourth year, the soil is not so fertile for food crops. Then, the farmers seek and open tha land around the forest. That happened so, and the farmers have some scattered land for business farm distributed in the village. In the past 5 years, farmers admitted that the new land location (forest) is more limited because of the population increase needing the land, meanwhile the land in the village is constant.

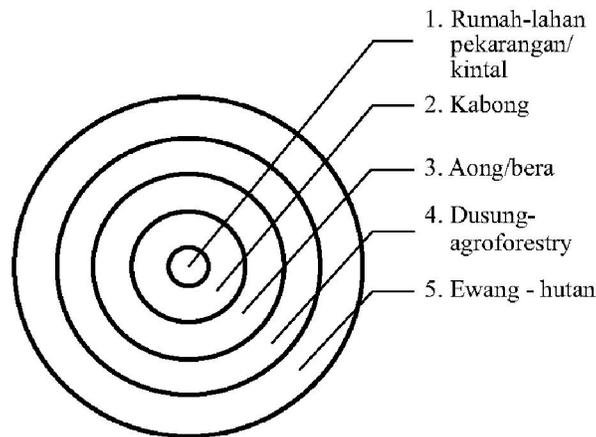


Figure 3.
The land environment in small islands, Maluku

⁶ Based on production data by Agriculture Agency of MTB district, peanut productivity in 2006 decreased drastically from 0.8 ton/ha (2005) to 0.3 ton/ha (2006), also corn productivity decreased drastically from 0.88 ton/ha (2005) to 0.19 ton/ha (2006).

Figure 3 describe that the formation of agriculture environment in small islands in the beginning starts from the garden. The farmer opens *kabong* (food crops soil). If the soil fertility of *kabong* decreases, so the land is left and the land changed to *aong*. *Aong* is a critical land predominantly filled with weed. Then, the farmer plowed the new land in the *ewang* area (forest) and planted perennial plants, horticulture and food crops. The outer part of the agriculture environment in the small island village is keeping the forest as a source of water and micro climate controller.

The forest making procedure for farm business needs only the village's chief permit. This is done not only to find a fertile soil, but also an attempt to widen the village that could cause a conflict over the village border and the forest region become labile. Most of the Maluku farmers plant various annual and perennial plants, such durian, coconut, sukun, horticulture plants such as bananas and mango, forming a plantation-horticulture agriculture pattern and food crops called *dusung* (agroforestry). The *dusung* pattern is generally found in Maluku, but dominantly in Maluku, Lease islands, *Seram* and *Buru* islands. This pattern is important for the environment, keeping the small islands sustainability which easily affected by the weather change to the change, erotion, natural disaster, and the sustainable local genetic.

Sixthly, it is difficult for farmer to control weeds and plant insects. Farmers allocate their time to control weeds. If they have money, farmers buy herbicide *Polaris* Rp 50000/0.25 ha/season. Usually the farmers do the slash and burn in the dry season (September-early November) then outroot the weed and wild plants before planting the dryland rice and nuts. The pests mainly pests, grass hopper and pig so the garden is fenced with bamboo.

Seventhly, the post harvest industry has not developed. There is no sufficient attempt of the government, university and the research institution to help procesing the yield. Consequently, the farmers have not got the benefit of the added values from the agriculture products.

7. Farmer community based Agribusiness strategy in small islands

The strategy to decrease the poverty in small islands is not correct if done partially through free of charge aid which creates long-term dependency. Poor farmers in the village are economically active poor and are made weak by the social structure and regulation which not pro poor, together with the distribution and input marketing and agriculture product monopoly by the local and inter-islands trader capitalists. Therefore, the strategy to decrease the poverty is more precise using holistic approach through farmer community based agribusiness strategy in small islands. The agribusiness here is the small scale of agribusiness with 4 interrelated and interdependency sub systems (Saragih, 2001).

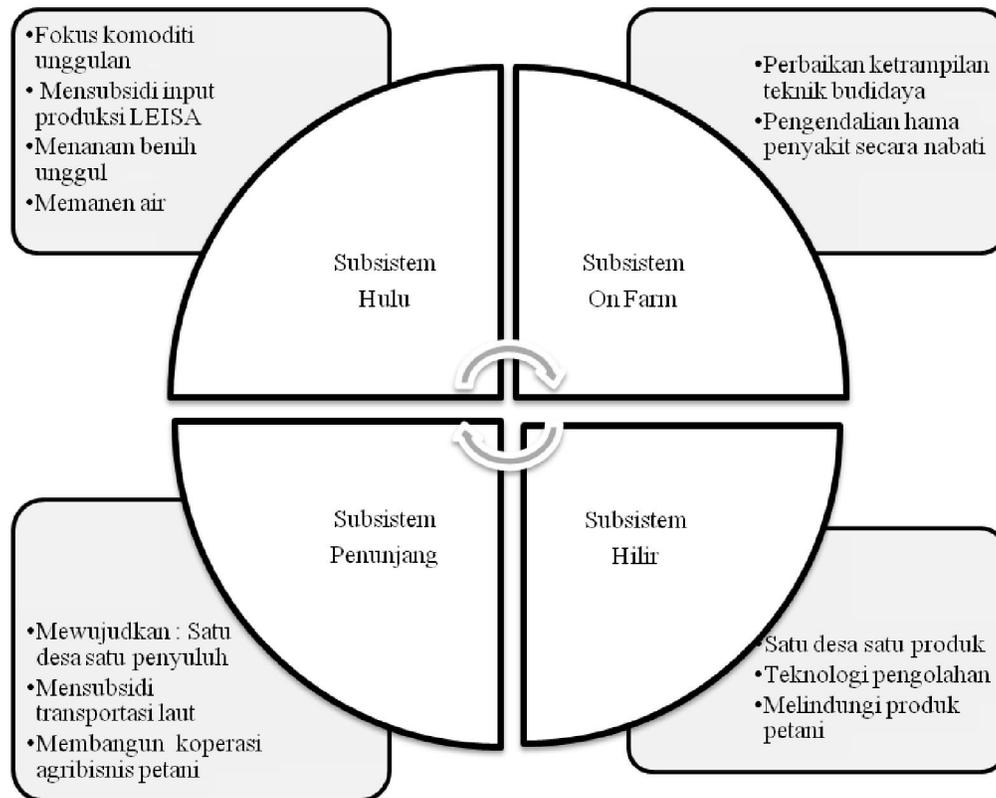


Figure 4.
Farmer community based Agribusiness strategy in small islands, Maluku

Based on Figure 4, the strategy initiates from the farmer economic empowerment with agribusiness oriented to shuffle the households income and buying power. Specifically, some strategis can be diagnosed in each sub system.

Up Stream Sub-System: Qualified Production Input and Transportation

Seeds are the natural resources that need to be taken care of, developed and sustained by farmers. In small islands villages, farmers have local knowledge to select the seeds from the harvest for the next planting season (Girsang and Pattinama, 2006; Faperta Unpatti, 2007)). The seeds are put in a special place like bottles, pumpkin, tightly closed so that it is airproof. The problem is that the seeds can reduce its quality because they come from the previous harvest.

Farmers in small islands in Maluku provinsi are powerless to buy external inputs such as fertilizers and pesticides, because this is expensive, difficult to get, and unaffordable, especially during the high wave season. Therefore, the poor farmer usually get subsidy

for their productive agribusiness like good seeds, fertilizers, agriculture tools and machinery, including for the agriculture product transportation. External input in certain amount is necessary to keep the fertility of soil, therefore the farmers do not practice shifting cultivation. Transportation subsidy is also strengthen the bargaining power of the farmers through reduction of transportation cost and the better selling price in the regency and district.

On Farm Sub System: Soil, Water and Prime Commodity

Farmers in small islands in general apply the poly culture pattern by growing various food crops and horticulture on the small scale and scattered in many places. This is a kind of “safety first” in a way to avoid the risk of harvest failure and low prices if growing mono culture. Nevertheless that kind of agriculture pattern fails to improve the production, income and the household welfare. To improve the income, they need to change from the production oriented to market. So, the farmers need to focus on the prime commodity for some reasons (Girsang and Samuel, 2007): (1) prime commodity agribusiness with an optimum scale will improve the income of farmers households; (2) budgeting and accompanying farmers will be focused specifically on the improvement and sustainable innovation of the prime commodity; and (3) optimization of the marginal land.

Based on the field observation, the area of marginal land (not used by farmers) is wide, between 90 and 443 ha per village (in Selaru island = 6725 ha). Weeds and wild plants (*Imperata cylindrica*) grow dominantly on the marginal land, but with technology that land is large for the development of the village prime commodity. Market, employment, capital, production input and technology for the development of the prime commodity needs government intervention. An important thing is the use of mini tractor needs to be done carefully considering the form of land and rockout, stoniness, the high operational cost and the limited knowledge and skill of farmers to repair if the tools and machines are out of order.

Low fertility of soil and shifting cultivation can be reduced by doing permanent farm with low input such as fertilizers. Nevertheless, the inorganic fertilizers have to be carefully used because of high cost of fertilizers transportation, farmer's dependence on inorganic fertilizers, including the side effect on soil, water, livestock and plant genetic degradation in small island. So that the suggested agriculture technology innovation is low external input for sustainable agriculture. Organic fertilizers, manure or green fertilizers and compost have proven that are agronomically good (to improve physical, chemical and biological fertility), also economically and ecologically are good for food crops. The manure supply for a long term needs to be built by livestock care, including mulching, minimum soil tillage, and plant cover to keep the soil temperature and moisture (water surface), hindering erosion, and providing nutrient source as organic matter decomposes.

Except that, the water supply is a limiting factor on the growth and dryland productivity in small islands. Rainfall is a main source of water for plants. The local government to develop *embung* and water harvest from the river catchment area is not efficient and effective considering the soil characteristics dominated by the coral limestone and porous so that creates a permeable sub surface of soil. The alternative strategy is regional climate modeling through planting pattern modification, combined with farmer's local knowledge. Farmers know the kind of trees and forest area for source of water reservation, bamboo irrigation technology for the water stream from uphill to downhill to water plants.

Down Stream Agribusiness Sub System: One Village One Product

There are two important focuses on the down stream: processing industry and beneficial marketing that empower the farmers buying power. The important principle in the down stream is one village one product. Product is a kind of processed commodity from farmers harvest so they have rival power in the local, regional, and national market.

The important aspect in processing industry sub-system is to build the home or small scale processing industry. The relevant technology used by the farmers is precise use of technology, mobile and easily operated. Poor farmers need the subsidy of processing technology to be a product.

Marketing is a crucial aspect for farmers. The basic problem is the difficulty to sell their harvests. This relates with two things. In one side, the farmers produce limited product and not continue, and the quality is below the standard. Another side, the consumers need the product in large scale, according to the standard quality and continue. To solve this problem, the farmers need to have a strong organization to provide the production input, land preparation until the harvest processing and marketing. This can be done if there is government intervention to improve the poor farmer's welfare. The government's intervention is by giving production input subsidy, and transportation, price protection and the products marketing network until one certain time when the farmer have bargaining power with the traders.

Service and Institutional Sub System: One Village One Extension Worker

The problem of farmer poverty is complex or multifaceted, therefore by inter institutions cooperation network the solution will be effectively and efficiently established. The synergy between Agriculture Agency and other relevant agency is a home base for other institution. The inter sector cooperation should be based on holistic approach. If partially done, it is difficult to increase the poor farmer even will affect the farmer human resources of the next generation.

Farmer needs accompany from a professional extension worker. The extension program at this time is centralistic linear, greatly controlled by bureaucracy and administration. The extension pattern should be participatory, professional and accountable. The extension

institution needs to be independent, and also inter-dependent with the government institution (research institution) either public or private according to the Regulation No. 16 Year 2006 about the agricultural, plantation, fisheries, and forestry extension worker revitalization. The main job of the extension work is not as agent of development for transfer of technology, but as agent of learning and interacting to facilitate the farmers to build themselves. Considering the isolation condition, the control gap, the strategy of one village one professional extension worker needs to be created. Different from the conventional extension work, the professional extension worker needs to be appreciated by the government based on the performance and the difficulties of their working zones.

Local institutional or social capital strengthening is also a strategy to reduce poverty (Bastiaensen, 2005; Lawang, 2005). One of the traditional institution relevant with farm business in this research area is *arin* system. Basically *arin* is a form to manage and control how the agriculture should be planned, conducted, and then evaluated. This is a farm agribusiness based on value. Many aspects can be interpreted. This is called system farm management based on values. There are many aspects that can be interpreted in *arin* system, these are unity, solidarity, social equity and local institutional development. These factors are important in relation to reduce poverty in rural areas.

The main norm of *arin* system is cooperation among group members to plan and determine farm site, crops, time schedule and harvesting. Once farm location is determined (e.g. 100 hectares or 0.5 ha per household) by the field leader (*mangkei*) and approved by family of the land owner, farmers will follow the norms, otherwise they will have socio-cultural and economic punishments. At the harvest time, farmer usually invite local government and local religious leaders.

Arin values are useful as the basic motivation to accelerate institutional development of farmer organisation, particularly Village Agribusiness Co-operative (VAC). In the past, government built farmer group based on top down principle, instructional approach and project oriented. Therefore farmer group failed to sustain activities. Farmer organisation will sustain when it based on innovation as well as local values and resources.

The main challenge of *arin* system is the limitation of forest land. It is difficult now to find 100-200 hectares of new forest land for farm business in rural areas. Besides, land status changes from communal to land privatization due to the population growth, limited forest land and soil fertility. The other challenge of *arin* system is that farmer leaves *arin* and involve in farmer group organisation which is formed by government, however farmers become dependent on government free assistance.

8. Conclusions and recommendations

Poverty in small islands, Maluku, is not the inability of household to fulfill staple food of 2100 calories (Tjondronegoro, 1996) but inability to improve household income, so that they have no access to non food needs like education, health, financial (credit) institution,

communications and transportation facilities. Farmers are economically active poor but they are fall in the cycle of deprivation trapped, anti-poor policy, over empowering, subsistency, isolation, low bargaining position, and economic monopoly of local trader. Therefore, neo-liberalism policy or free market is not the best solution to help farmer and to reduce poverty (Alcock, 1997). To avoid government mal function on reducing poverty (Mustasya, 2005), the intervention of local government is pivotal to support and subsidized agro-inputs, agro-processing technology as well as price and product.

Strategy to reduce poverty and to improve farmer household income is to develop small scale agribusiness based on farmer community in small islands. Small scale agribusiness development should be focused on prime commodity of local resources. Local government and politicians have to facilitate the balance, harmony and synergy of each agribusiness sub-systems in order to improve the sustainable development of ecology, culture and economy of population in small islands. In the beginning, farmers need subsidy for farm input and agro-processing technologi as well as transportation, market access and price protection. This pro-poor intervention will stop gradually when farmer organization has achieved self-sufficiency and bargaining position to sell agricultural products.

In addition, to reduce poverty in small islands is also determined by cooperation and networking inter-institutional, particularly between science, policy, management and extension (SMPE). *Science* (include local knowledge) is the source of innovation, pro-poor policy is commitment of local government and politicians, whereas management is the private sector that is farmer organizations. The culture of farmer organization needs to change from bureaucratic to corporate culture. To support this transformation is depend on the role of professionals especially extension workers. In this term, the basic principle of one village one extension agent is important to apply in small islands zones. This partnership is pivotal to reduce poverty through optimalizing social economic benefit of local resources and maintaining sustainable agriculture in small islands.

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