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Development Intervention Strategies Based on the Identification of Farmer's Need on Small Dairy Farmers in Indonesia

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Abstract: The objective of the research is to formulate the development intervention strategies based on the identification of farmer's need on small dairy farmers. The survey and observation were used in this analysis. Using key informants of the heads of cooperatives in Yogyakarta milk line, leaders of farmer groups and the head of livestock department. The results showed that current condition of dairy farming are: low rate of increase in dairy cow population, productivity of dairy cows has not been satisfactory because it has not performed maximally breeding, the level of farmer knowledge in the management of dairy cattle in general have not adequate. The current issues are low productivity of dairy animals, low quality of human resources and high demand of milk. Farmer cooperatives play an important role in the Indonesian dairy industry. The cooperatives collect milk from dairy farmers for sale to processing companies provide credit to farmers and offer extension advices. The aim of producers cooperative is to provide services either free of charge or at a reasonable cost to its members. In addition, cooperative ownership emphasizes participation and control by member producers (farmers). The challenge facing small farmers is how to gain greater access to markets, enhance their value chain position and increase their value-added so as to boost incomes and reduce poverty. Livestock small farmers are most often at the bottom of the value chain: their produce is often a small fraction of the value of the end-product. Without some specific support, small farmers may be at risk of being marginalized. Therefore, some efforts are recommended: stronger linkages among stakeholders in the dairy sector could help harmonize activities, eliminate duplication and harness the ensuing synergies, supportive measures and incentive structures are needed to encourage more formal sector participation in the dairy industry and improved access is needed to basic dairy inputs, credit and animal health.

Key words: Dairy farmer, farmer's need, intervention strategies, market, sector

INTRODUCTION

In the context of Indonesia and other developing countries, the potential advantages of market-oriented smallholder dairying in improving the welfare of farm households and its multiplier effects on other sectors of the economy are well known. First, it generates income for the farm households on regular basis which can be used for different purposes, e.g., purchase of goods for household consumption, school fees and medical expenses. Income generated from the sale of milk can also be used for productive investment in other farm or non-farm sectors. Second, milk from dairy production provides a highly nutritious food for people of all age groups and particularly for infants and lactating mothers thus reducing the problem of malnutrition among rural households. Third, the value adding activities such as the processing, marketing and distribution of milk and milk products also create employment opportunities in the rural and urban sectors. It is also argued that in situations where the arable land is shrinking and where there is high population density, the dairy farming may be one of the few agricultural activities that can support viable smallholder farming (Staal *et al*., 1997). In general, there are also several other functions attached to the livestock production such as manure production, store of wealth, risk mitigation and display of social status (Moll *et al*., 2007).

The need to develop the dairy industry is not only a classic economic process to meet the domestic demand for milk but is also in line with the government objectives to increase farmers income. To spread the distribution of income, to create employment opportunities, to increase foreign exchange earning and to improve the nutritional status of the population. The industry is also dominated by smallholder operations through which income

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distribution and employment opportunities are created. Dairy farming has a high linkage multiplier effect with other industries because a large portion of dairy products are used as raw material by other industries. Expansion of dairy production is expected to reduce milk and milk products imports and lead to exports of processed dairy products in those cases when domestic production is high and is competitive in international markets. Because of this, the development of the dairy industry has become very important in terms of the balance of payments. Therefore, the objective of this research is to formulate the development intervention strategies based on the identification of farmer's need on small dairy farmers.

MATERIALS AND METHODS

The survey and observation were used in this analysis. Using key informants of the heads of cooperatives in Yogyakarta milk line, leaders of farmer groups and the head of livestock department. Descriptive quantitative were used to analyze the current condition of dairy industry in Indonesia, important issues, condition of dairy cooperatives, general problems in dairy farming and how to improve value chain and market access in smallholder dairy farmers.

RESULTS AND DISCUSSION

Value chain approaches have been utilized by development practitioners and researchers alike to capture the interactions of increasingly dynamic (and complex) markets in developing countries and to examine the inter-relationships between diverse actors involved in all stages of the marketing channel (Bolwig *et al*., 2010). They have alerted us to inequities in power relationships based on the governance of the supply chain and have highlighted potential points of entry (and exclusion) for smallholders (Dolan and Humphrey, 2000; Hess, 2008). Value chain approaches play an important role in characterizing the complex networks, relationships and incentives that exist in livestock systems. They further provide a framework for mobilizing pro-poor development in the context of agri-food networks that feature livestock across a range of livelihood-improving roles for the rural poor. There are many marketing channel in animal products (egg, meat, milk, skin/leather, by products). The longer chain, the more expensive of the price (high margin) between farmer (production level) to the consumer. Livetock farmers in Indonesia today still in the vicious cycle of poverty. There something should be change from their mind-set currently. Value added products of their livestock is one of their chance to gain their income. The main objective of value chain is to produce value products and services for a market by transforming resources and by the use of infrastructures within the opportunities and constrains of its institutional environment (Trieneken, 2011).

The Indonesian dairy industry is based on smallholder farms grouped into co-operatives. Farm size is small with most farms having no >5 head of milking cows. The dairy farms are based on confined rearing of cattle with forage grasses being gathered from outside the farm in a cut and carry system. This involves the farmer or agricultural laborers, cutting and collecting grasses from the farmer's land or from along the sides of raods, irrigation ditches, forests or other such places. Despite the rapid increases in farm and cattle numbers and the growth in domestic milk production by the standards of countries with economically efficient dairy industries, the performance of the industry has been weak. Many dairy co-operatives have failed and others are plaqued by problems such as high levels of bad debts and low milk quality. Innefficient small-scale farms and poor farming practices continue to hinder further improvement in Indonesia milk production and milk quality. The high price of powdered milk in the international market has tightened the competition among the major Indonesian dairy processing companies to get their fresh milk from dairy cooperatives (Meylinah, 2007).

Indonesia has major areas of concern with the dairy industry in the following categories both on-farm and off-farm: feeding management and quality, reproduction problem and long calving intervals, mastitis, quality of milk, farm management, relationship between farmers and cooperatives, marketing, extension services and management of cooperatives. Farmers may concern themselves only with production such as preparing animal feeds, maintaining animals, collecting milk from the dairy but they may also be involved in other activities such as procuring inputs, processing, transporting and trading. Smallholders are most competitive in local markets. But will these markets continue to provide growth opportunities for smallholders in the long run as income growth and urbanization increase consumer demand for food safety and the opportunity cost of time. Without pro-active policies and investments, smallholders will have much more difficulty in participating in these more complex and demanding value chains. Transforming country will be intermediate to these with big opportunities for smallholders in informal markets but with challenges of engaging smallholders in more complex value chains for urban, higher-income consumers (McDermott *et al*., 2010). A better understanding that is derived from factual evidence is required of how livestock

systems are evolving the role of smallholder livestock farmers in rapidly changing livestock systems and the importance of demand, particularly from local, domestic and regional markets in stimulating the intensification of livestock systems.

The challenge facing small farmers is how to gain greater access to markets, enhance their value chain position and increase their value-added so as to boost incomes and reduce poverty. Livestock small farmers are most often at the bottom of the value chain: their produce is often a small fraction of the value of the end-product. Without some specific support, small farmers may be at risk of being marginalized. This is the case in some value chains at the international level and where agribusinesses have local or regional trading or processing monopolies. Accessible markets are necessary to raise incomes and improve livelihoods of the small farmers. Livestock markets rarely meet these needs. Direct state involvement in marketing has seldom brought improvements and proved costly.

The milk collection in Indonesia is organized in the following way. In the villages, the farmer brings the milk to a milk collection point. There are several hundreds of these and here alcohol and density checks are done. From the collection point, it is transported by truck to a cooling centre at the Milk Collection Centre (MCC). At the MCC, several more quality checks are done (total solid, SNF, fat, protein and density) and theprice is set. Almost all dairy farmers are organized in cooperatives and every cooperative has its own MCC. The government has imposed regulations for construction of both the MCC and the cooling unit topromote hygiene. From the MCC, it is transported to the factories. Almost 90% of the milk goes to largedairy industries and only 10% is distributed to small milk processors (Tiesnamurti and Widiawati, 2011). However, milk quality produced by farmers is low. This is caused by lack of milking management, the distance between farmer and cooling unit, unfavorable road conditions and poor conditions during transportation, the quality of the cooling unit but also by the low feed quality resulting in low fat and protein. Main challenges for the future are to improve these and have milk price incentives to support good quality milk (Permana, 2011).

Value chain coordination in Indonesia, there are associations for milk marketing with farmers and cooperatives as members but often with one single buyer. Some industries use the TPC for price setting, some use other ways. Researchers should make a standard for milk price setting where the farmer makes a daily report. The problem here is political will the 25% local mix and the strong position of imported milk. The government is a weak coordinator (Wouter, 2011).

Milk produced by smallholder farmers is the major source for milk processing industry in Indonesia, the number is representative about 80% from the fresh milk sold. Generally, the transactions are managed centrally by GKSI and by cooperatives non-GKSI. From this management process, there are points that should be considered:

- There are highly dependent of dairy farmers to the milk processing industry as the fresh milk buyer in the regions
- This highly dependency is caused by government policy which support relationship between farmers and milk processors which is not part of thier organization. It should go to the coopertives which market oriented and milk processing ability. Mostly, the relationship is based on the smallholder nucleus farming scheme where the business driven between company as buyer and smallholder farmers as supplier
- Their farming locations are far from the selling transaction with the milk processing industries
- Low quality milk and not meet the demand of industry quality standard
- Over production, they cannot be sold to the milk processing companies, due to over-capacity

Nonetheless, several fundamental problems continue to hamper further improvements to Indonesian dairy cattle productivity. These problem include: limited farmer education; scarcity of forage; the high price of dairy cattle feed; small farm size, scarcity of land with suitable elevation for dairy catle farming, poor farm management practices, limited access to commercial credit, poor technology for milking and processing the fresh milk and limited access to high quality genetics (Slette and Meylinah, 2010).

Efforts to improve dairy production: What can be done to improve dairy production:

- Quality milk produced by farmers must fulfill the quality standards for processing later on. At the moment, there is no standardized quality of milk delivered to the milk processing plant (IPS). This causes different pricing of accepted milk at different milk processing plants. Indonesian National Standard (SNI) must be followed by both parties
- Milk markets are dominantly marketed to IPS where IPS will receive all milk produced by dairy farmers as long as the quality is acceptable while the rest of under-quality milk will be returned back to the farmers which is no market guarrantee

- Farmers must be trained to improve their competency including feed management, production, health and milk handling
- Milk cooperatives must be revitalized to improve their performance in giving services to dairy farmers including staff's skills and abilities, managing organization and milk technology tools.
- The use of pure breed Freshian Holsten (FH) should be evaluated as it is costly when managed in backyard dairy farmer circumstances
- Integration between different stakeholders must be tightened to promote efficiency
- Total national milk supply should increase to improve milk self sufficiency until a certain level
- Feed supply (both quantity and quality), according to the farmer's needs, should be available

The total dairy cattle population in Indonesia is about 487 thousand head and almost 95% is located in Java with the largest distribution found in East Java, followed by Central Java, West Java and Yogyakarta. The whole dairy population contribute to a total milk production of almost 679.269 tons (2009) with an average increase of almost 27% over the years 2005 to 2009. The dairy population increase of 34% (from 364.000-487.000 heads) occurred during 2004 to 2009. Of the increase in the dairy population, almost 99% was found at the island of Java and the rest is found scattered over Sumatera, Sulawesi, Maluku, Bali; East Nusatenggara and Papua.

The whole national milk production relies on traditional dairy farms (87%) whereas 7 and 5% is produced by resp. Small and medium scale enterprises and only 1% comes from large scale modern dairy farms. In doing their business, dairy farmers have a strong relationship with the cooperative. Large scale cooperatives send all of their milk production to the Milk Processing Industry (MPI) medium scale milk cooperatives sell almost 90% of their milk production to the MPI whereas small cooperation only sell 57% of their milk production to the MPI. Up to now, the government facilitates and plays significant roles in the development of the dairy cattle industry. In order to make dairy farmers more productive, more contribution of the government is imagined in the near future. The expected roles of government are as follows: to restructure the regulation on dairy industry, to stimulate the development of dairy cattle farming and or dairy cattle industry outside Java island, to stimulate milk processing units at different scales located in the centre of dairy farmers (Tiesnamurti and Widiawati, 2011).

In Indonesia almost 70,000 farmers are dairy farmers with a total dairy cattle population of almost 408,000. The dairy business provides employment for 211,000 people. The production mainly takes place on Java (92%). Outside Java, there are no milk processors and thus only fresh and pasteurized milk is produced to cater the small market. The total milk production is 682,000 tons per year which is only 20; 25% of the demand for milk. The demand for fresh milk products is increasing and thus one of the main challenges is to produce more high quality milk. There are some plans of the government to improve dairy production.

Toward increasing self sufficiency of milk: The government wants to meet 50% milk self-sufficiency in 2014. Therefore, they support 200.000 heads of dairy cattle within the next 5 years by providing 5% loan to any businessman or eligible milk cooperatives for purchasing breeding dairy cattle.

Toward improvement of milk marketing: About 90% of milk produced by the dairy farmers is absorbed by Milk Industry Plan and the rest is sold in the free market or pasteurized by the cooperative. The government is looking for added value of milk through the development of a milk processing program. It is hoped that the consumption of healthy fresh milk will increase that there will be an increased added value of milk, more income for farmers and more competition on the milk market.

Farmers, cooperatives, processors, intermediaries and government institutions are the key players in the dairy industry. In the existing market structure, farmers are organized at production level as group or cooperative societies and registered with the dairy regulatory arm of the government. Registered farmers as a member of cooperative are free to establish linkages with support agencies (including NGOs and Bank). Milk processors and other intermediaries ensure a stable supply of milk and milk productions. They preserve milk in the form of pasteurized milk and processed milk products (yogurts, ice cream, powder milk, ultramilk and other products) to satisfy the increasing demand.

GKSI provides coordination and guidance to achieve/maintain self-sufficiency in the production of milk. It promotes production and competition in milk collecting and processing and serves as a monitor for milk and dairy product markets. The involvement of NGO (other institution) in the dairy contributes to expanding the dairy sector from subsistence to commercial production and to promote competitiveness in the sector to ensure that farmers find a ready market and consumers have access to safe, good quality and nutritious milk and milk productions.

Dairy subsector linkages among key players ensure an easy market for milk even in peak production periods

when milk surpluses are likely. Members farmers also have access to (limited) credit services provided by respective organizations in the form of dairy inputs including access to veterinary services (medicine, artificial insemination services) and animal feeds.

Market constraints: There are market constraints to be considered:

- Power imbalances in participation. The dairy retail market is largely controlled by milk intermediaries who procure milk over large distances. Farmers as producers are the weakest actors in the milk supply/market chain with the lowest bargaining power and the smallest economic benefit. They lack transport means to access urban market directly and have poor-quality feeding concentrates
- Lack of ready market for fresh milk and lack of modern technology for processing milk in the farmers/cooperatives levels into milk products
- Information asymmetry between producers and marketers. This leads to overpriced in outs and under priced outputs and also discourages increased production
- Low milk price, farmers are assured of a ready market for their milk by lowering the price. Moreover, they are not always paid promptly which hampers their production
- Lack of or inadequate capital, because of capital constraints, very few dairy based agribusinesses have access to modern farm inputs such as milk processing and preserving equipment
- Weak/small formals actor which contrasts with the large, undisciplined but dynamic informal sector (milk traders)

To be participation in value chain: For improving the participation of the farmers or farmers in cooperative organization, researchers should use strategy for empowering farmers according to KIT *et al*. (2006) that are: upgrading as chain actor, adding value through vertical integration, developing chain partnership and developing ownership over the chain. From those four strategies, it is recommended that some assets and skills of farmers need to be more sounded in the value chain and market access:

- There must be basic infrastructure such as road and communication facilities. The farmer must have access to productive resources. In other words, to improve their livelihoods of farmers, it may be necessary to invest not only in the farmer but also in other parts of the chain
- The farmers should develop an understanding what it means to produce for a competitive market and understand that to produce for a market implies risk. The profit an entrepreneur makes is a return for the risks that they have taken
- The farmers should be willing to learn and innovate constantly. They must be capable of doing new things or doing old things in a new way
- If researchers assume that the farmers are already dairy specialist because that is a basic requirement for entiring into business partnership. They had already experiences to raise the dairy cattle but due to low technology and small number of cattle moreover, the business is integrated to the farming systems caused the production is low. Indeed, the low quality of feed and traditionally handle and lack of market access
- The farmers need to improve their entrepreneurial skill-costing and pricing, production plan, understanding of market demands, marketing planning, negotiation skill, etc. of particular importance is managing information. Information systems are needed to improve the farmers' management decisions and bargaining position. By keeping records of the use of labor and inputs at farm level, the farmers get a proper understanding of the cost involved so can make better-informed decisions and calculate prices more precisely. Another important aspect is market information. If the farmers are well informed of updated prices and trends in the market, they are better able to bargain with potential buyers
- Farmers should develop a chain vision an understanding of how value chain work. They should understand the chain as a network of specialized companies that need each other to make money. They should acknowledge the position of other chain actors and respect that their interests are also legitimate. They should understand the need for cooperation. They should understand that sellers and buyers will always have opposed interests a high price and a low price, respectively. Nevertheless, they also have a shared interest that is, to satisfy the consumer in an effective and efficient way
- It is important to develop the farmers' ability to mobilize savings for growth and investment
- Moving from smallholder farming into downstream business activities requires an elaborate set of new managerial skills. Strong group cohesion and organizational discipline are needed. Involvement in a joint business venture requires the members of farmer organization or cooperative to be able to trust

and rely upon each other. Individual members must adhere to operational procedures and quality standards. Management decisions have to be transparent and understandable to group members
- Farmers organization needs to develop capacities in public relations. The organization not only deals with suppliers and consumers/customers but with a whole range actors. The organization must be able to manage this diversity of stakeholders and influence relevant elements of the business environment
- Farmers' organization or cooperatives needs to develop the same skills and asset such as professional management skills, organizational discipline and the ability to mobilize funds for investment in new business ventures

Of course, it is not easy to improve chain value in dairy farmers. The problems are complex. It should involve many actors in value chain. Participatory approach is among methods in community development. By this approach, at least in this chain, farmers know their problems, challenges and potentials, then analyze and finally know the way to solve their problems. However, this approach is quite take time to do. Aside for that involving other actors in value chains is very important due to value chain is a system. Therefore, some efforts are recommended:

- Stronger linkages among stakeholders in the dairy sector could help harmonize activities, eliminate duplication and harness the ensuing synergies
- Supportive measures and incentive structures are needed to encourage more formal sector participation in the dairy industry
- Improved access is needed to basic dairy inputs, credit and animal health

Identification of farmer's needs: Most livestock which produced by smallholder farmers are marketed by private entrepreneurs who operating as a marketing chain, collect, regroup and distribute the livestock and livestock products to terminal markets. There are several items that be able to develop farmers to gain their participation and to improve their potentials to enable smallholder farmers deriving greater benefits from their production activities. Researchers should go from identification of their needs, as described:

- Secure and adequate access to basic production inputs such as feed, breed and farm equipment, together with risk coping mechanisms for natural disasters, risk of deseases and price fluctuation
- Dissemination and accessability of livestock market information to livestock farmers
- Information may also be difficult to obtain in remote rural areas
- Accessibility to credit facilities and other inputs
- Strong relationships among various chain actors (including commitments from these actors to cooperate on mutually beneficial actions/ investments) and strengthened farmers' organizations
- Policies and strategies to enhance the ability of smallholders and small scale market agents to compete in livestock product markets
- Standards and branding mechanisms to identify high-quality livestock products
- Kick-starting of domestics markets to allow the poor to exploit market opportunities
- Reduced fees on the sale of livestock and cut-off the illegal fee during transportation
- New or adapted marketing strategies (for example, promotion of alliences with fair-trade chains)
- Adequate responses to volume demand and ability to expand to match increased demand
- Product differentiation to create niche markets
- Linking of poor livestock farmers to expanding urban markets
- For small farmers living in remote rural areas, transport opportunities and transport cost can both be limiting factors, especially if investment into rural infrastructure is not a high priority on a national level

Development intervention strategies: Participation does not happen automatically: project implementers should be proactive in applying a participatory approach. Staff must be prepared to let farmers take the driver's seat, realizing that farmers commitment is an incremental process. The goal of the approach should be kept clearly that farmers participation in the value chain does not for benefit themselve but it could be in balance for the whole chain management.

Several strategies have to be set to increase the participatory method in chain management. Trying to increase the number of chain activities the farmer undertakes from farming into processing, transport and trading. This strategy is called Vertical Inegration (KIT *et al*., 2006). Vertical integration seems the preferred strategy farmers. They like to shorten the chain by cutting out traders or other intermediary agents. They think that adding activities to their businesses will provide them a lot of added value and extra income. However, is not always true. Adding activities also mean adding costs and risks. More importantly, it requires a new set of assets and skills. There are other strategies have also be set given.

Capacity building and provision of finance: To facilitate the operation of agreed policy and regulatory changes and enhanced participation of small farmers who disadvantaged group in rural markets, the following may be necessary:

- Creation, training and support to Farmers/Farmer's Organization (FO) to improve the bargaining power of small farmers
- Promoting of FO to facilitate access to markets
- Capacity creation for provision of business development services
- Measures economic and financial analyses to promote growth and diversity of trade in livestock inputs and outputs and ensure gender and social equity in benefits
- Technical innovation in livestock products and processing, market research and promoting for products
- Investments in market information gathering and dissemination including mass media, fax, telephone and real-time computer access systems
- Provision of finance for marketing and processing

Public and private policy: Experience shows that it can be difficult to identify and implement the sort of policies that support smallholder farmers in ways that lead to poverty reduction and economic development. Several policies only attempted after disastrous experiments with large scale, collectivized farming. Meanwhile, the political power of large landowners has tended to make a development strategy focusing on smallholders politically difficult. Strategies to use livestock as an engine of growth and poverty reduction were either not put in place or did not work very well.

In general the policy instruments that were implemented such as price stabilization measures and marketing boards as often as not exploited rather than benefited, small farmers. Meanwhile, other policy instruments such as input subsidies tended to benefit large farmers/industries more than small farmers. Once in place, such policies tend to be hard to remove even if the original problem that justified their implementation disappears.

The right mix of support and policy measures that could help smallholders access potentially valuable supermarket supply chains varies from country to country and from sector to sector. Policies which are appropriate at an early phase when a country is trying to kick-start its livestock development may not be relevant at a later stage when the country is trying to export high-value special animal. Nevertheless, without descending into specifics there are a few general directions that can help guide policy:

- Public policy needs to promote good business practices that optimize producer retailer supplier relations
- Public and private policy needs to support smallholder cooperatives and out grower schemes that can help small holders get over the scale problem
- More generally, it is important to foster competition in the supermarket sector
- Meanwhile, supermarkets can help in a number of ways: by simplifying their codes, being flexible, agreeing on reasonable time frames, providing technical and financial support, reviewing buying practices, supporting the harmonization of codes and treating producers and exporters in the developing world as equal partners

Cooperatives and farmer group: One of the main and obvious, challenges facing smallholder farmers is their small size, both in terms of negotiating power and difficulties in competing with larger producers who can benefit from economies of scale, in terms of dairy farmers, mostly they had already includes in dairy cooperatives. Dairy cooperative can help farmers negotiate the price, quality standard and problem solving. For beef cattle farmers, it is seldom and rearely they have a cooperative but the group formation have already established in last 20 years especially in the high density of population such as Java Island.

Banding together in a cooperative or farmer's association/group can increase smallholders' collective ability to negotiate effectively with authorities and buyers as well as sharing the cost of inputs and investment in infrastructure. They can also help disseminate new ideas and market information to farmers. Often, strengthened producer organizations are essential if smallholders are to establish a stronger bargaining position in the supply chain (DFID, 2004).

Promoting partnerships between small farmers and agro-businesses or commodity wholesalers: Such partnerships in which the commercial partner agrees to purchase the produce of small farmer organizations at a certain reference price and in accordance with agreed specifications-formalize value chain participation for small farmers, strengthen their business acumen and market orientation, develop their negotiation skills with the private sector and facilitate new market driven technology adoption. The partnerships generally contain a grant element to allow small farmers to adapt more easily to market requirements.

Help small farmers to comply with market standards and requirements: Several improvement should be made to meet market standards and requirements such as improving their competitiveness in producing local products, diversifying into higher-value livestock products, linked to identified market demands, adding value to products by accessing higher priced markets, enhancing product quality or incorporating processing activities that meet consumer needs and entering new types of contractual agreements, based on forward sales that help to lock in buyers over a longer time at advantageous rates. Supermarket or distribution center procurement systems differ from country to country and product type (e.g., centralized procurement, dedicated whole salers or direct contracting with processors and producers). All systems introduce specific standards regarding size, quality and product safety. In general, the systems favor asset-rich farmers. Super markets prefer to buy from larger farmers and/or farmers with important assets such as: good road access, vehicles and packing sheds. Farmers lacking such assets, particularly small farmers are marginalized.

The government or business partners should initiate to implement grant programs (or combined with loans) to finance small farmer investments to facilitate their insertion into the value chains of super markets, large wholesalers and exporters. Such programs are more successful where they are combined with technical assistance to enhance cooperation between small farmers.

Enhancing the management capacities of FO: The good management of FO measures will help small farmers to better integrate into the value chain and markets. Such integration will however, be difficult without strong farmer organizations and rural institutions that can support such associations. Small farmers cannot produce the volumes necessary to satisfy buyers who want to reduce transaction costs, increase economies of scale and obtain a reliable supply. Only sufficiently large associations of small farmers can provide the quantities required by the domestic and international markets. Moreover, to obtain a larger part of the value added in the value chain, farmers have to gain bargaining power with the commercial private sector. Such bargaining power can only be obtained sustainably by organizing and producing in both volume and quality.

Requires technology, finance and human resources: Identifying and using approprate technologies for the value-adding activities (grading, processing, tramsport, etc.). these technolgoies must be well maintained and be kept updated. Technological innovation is a permanent concern. Securring access to credit or investment in facilities for processing, marketing, distribution and working capital to run the operations. Reserves must be built up for future investments. Profits must be devided in a rational way between the farmers and the cooperative they are members of. Profit should be paid in accordance with the performance or contribution of each member. Building up managerial competence and appropriate human resources to operate these facilities.

CONCLUSION

Improved business services to small-scale farmers and agribusiness help to improve quality and efficiency by reducing costs and expanding operations. It is important that governments should anticipate future vulnerabilities and build the capacities of chain participants to innovate, diversify or exit as markets change: support for value chains can increase vulnerability if incentives favour products and services susceptible to large shifts in demand and price. The potential of value chain programs to increase vulnerability underscores the importance of appraising comparative advantage and investment requirements in the exploratory and diagnostic phases before intervention begins.

For the future, there is ample justification to consider the participatory value chain concept as a key concept for defining and formulating agricultural development interventions in Indonesia. More specifically, it is suggested that donors, regional organizations, researchers and decision makers in government agencies consider the beef and related products, lamb, mutton, milk, chicken, etc. are seen widely as the most promising products for agribusiness ventures in rural areas. They have the potential to substitute for food imports and improve national food security.

Higher emphasis must be placed on the establishment of agribusinesses and farm enterprises in rural areas in order to mitigate the pressures of migration to major urban areas by stimulating the growth of employment and income opportunities elsewhere and by providing fresh, locally grown food for growing urban populations.

It is now generally accepted that for any development intervention to be successful and sustainable, in the long run, participatory approaches are necessary to engender ownership of projects by the beneficiaries. Collaboration between government agencies, non governmental agencies and private agribusiness offers the greatest potential for applying value chain concepts with the aim of increasing income and employment through improved farming.

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