



**Philippine Institute for Development Studies**  
*Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas*

## Innovations in Financing Food Security

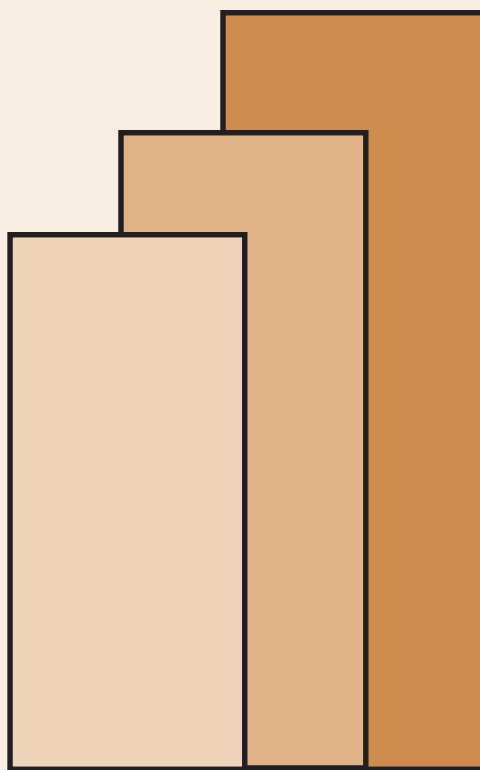
*Gilberto M. Llanto and Jocelyn R. Badiola*

**DISCUSSION PAPER SERIES NO. 2010-14**

The *PIDS Discussion Paper Series* constitutes studies that are preliminary and subject to further revisions. They are being circulated in a limited number of copies only for purposes of soliciting comments and suggestions for further refinements. The studies under the *Series* are unedited and unreviewed.

The views and opinions expressed are those of the author(s) and do not necessarily reflect those of the Institute.

Not for quotation without permission from the author(s) and the Institute.



July 2010

For comments, suggestions or further inquiries please contact:

**The Research Information Staff**, Philippine Institute for Development Studies

5th Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines

Tel Nos: (63-2) 8942584 and 8935705; Fax No: (63-2) 8939589; E-mail: [publications@pids.gov.ph](mailto:publications@pids.gov.ph)

Or visit our website at <http://www.pids.gov.ph>

## INNOVATIONS IN FINANCING FOOD SECURITY

Gilberto M. Llanto and Jocelyn R. Badiola

### *Summary*

A recent publication of the UN Food and Agricultural Organization (FAO) has highlighted the food insecurity problem facing the globe: food production will have to increase by 70% in 2050 to keep up with a global population that is projected to grow from 6 billion to 9 billion. There has to be more investments in agriculture to improve productivity, which will be critical to the goal of achieving food security. There is scope for governments and the private sector cooperation in food production. The paper discusses innovative financing schemes geared to food production and identifies policy gaps, that is, areas where governments could intervene to enhance the workings of the market.

*Key words:* food insecurity, innovative financing schemes, value chain financing, covariant risks, risk management tools, index-based insurance, warehouse receipts lending, trade finance

The authors would like to thank Dr. Ganesh Thapa of the International Fund (IFAD) for Agricultural Development for allowing the PIDS to issue this paper as a Discussion Paper. The paper was prepared under the auspices of the IFAD for presentation to the **ADB-FAO-IFAD Investment Forum on Food Security in Asia and the Pacific**, Asian Development Bank, July 7-9, 2010, ADB Avenue, Mandaluyong City.

# INNOVATIONS IN FINANCING FOOD SECURITY

**Gilberto M. Llanto and Jocelyn R. Badiola<sup>1</sup>**

## **I. INTRODUCTION**

In a recent publication, the UN Food and Agricultural Organization (FAO) has highlighted the food insecurity problem facing the globe: food production will have to increase by 70% in 2050 to keep up with a global population that is projected to grow from 6 billion to 9 billion (UN, 2009). Given the physical and environmental constraints on increasing land and water use for food production and other economic activities, agricultural productivity will have to substantially improve to meet increasing demand for food. There has to be more investments in agriculture to improve productivity, which will be critical to the goal of achieving food security.

Discourse on food security has revolved around necessary actions ranging from securing adequate arable land for crop cultivation, bringing down the cost of inputs to farmers even to the extent of providing substantial subsidies, formulating policies designed to protect domestic producers to imports of foods to protect the poor and the vulnerable. Concern about the plight of the poor and the vulnerable has motivated governments to design interventions that seek to provide them adequate food safety nets. Invariably, the thinking is that governments should use a combination of instruments such as taxes, subsidies, incentives, tax breaks, and such other policies and measures to motivate greater domestic food production.

There is scope for governments and the private sector working together to generate more investments in the food sector and thereby, increase the capacity to produce more food. In continuing the thread of this discourse an understanding of various innovative financing schemes geared to food production and an identification of policy gaps, that is, areas where governments could intervene to enhance the workings of the market, are appropriate. The main focus of the paper is the presentation of innovative

---

Senior Fellow, Philippine Institute for Development Studies and Deputy Executive Director, Agricultural Credit Policy Council, respectively. We would like to thank Ganesh Thapa and his colleagues at the International Fund for Agricultural Development for making available important studies and papers on various financing schemes. We also would like to thank Ganesh Thapa for allowing us to issue this paper as a PIDS Discussion Paper. The objective is to disseminate this paper to a wider forum and also to solicit comments on the views taken by the paper. The opinions expressed in this paper are those of the authors and do not necessarily reflect official views of the International Fund for Agricultural Development, the Philippine Institute for Development Studies and the Agricultural Credit Policy Council.

The paper uses secondary sources of information and data. There is neither time nor budget to validate at the field level the reported financing innovations, which are reported at face value. Hopefully the reported innovations will trigger discussion and closer examination in policy and business arenas.

financing schemes for food production activities and a description of what policy makers should address for the replication or upscaling of those schemes<sup>2</sup>.

The strategy of working with the private sector focuses on more private investments to food production. In many developing countries, private sector investments in agriculture are not found in production of basic foods, e.g., rice, corn, or other staple products, which is oftentimes left to small shareholders cultivating small plots of land. Private investments (that is, of the business sector) could be found in cash crops, e.g., sugarcane, rubber, palm oil destined for the export markets. Governments should take a different strategy to stimulate a significant private sector food security response. This is not to say that there are no incentives to invest in food production- real food prices are expected to remain high in the future – but the absence of an enabling framework for private business and small farmers and shareholders to invest in large scale food production and disincentives to food production are cogent reasons for the investment lack. The market environment should be improved so that the private sector may step up and make investments. Supporting and promoting innovative financing schemes could be an important part of that enabling environment for private sector investments in food production.

In many developing nations, however, access to agricultural finance remains constrained due to two major constraints:

1. High Risk. This includes co-variate risks referring to price fluctuations and extreme weather events, including pests and diseases affecting farmers growing the same crop in the same area. The lack of information on borrowers' credit histories, the lack of usable collateral due to ill-defined property and land rights, costly land registration procedure, and social constraints to foreclosure of collateral make credit risk assessment difficult and inaccurate.
2. High Transaction and Supervisory Costs. This constraint is also related to the risk, nature and characteristics of the agricultural sector. The dispersal of the rural population over a vast area in the countryside, and poor transportation and communication infrastructure result in high transaction costs and make loan supervision expensive relative to lending to clients in the urban areas.

These constraints have constrained the access of rural producers to formal agricultural finance, forcing those producers to concentrate on low-risk, low-return activities. The net result is limited investments in the agriculture sector and food production on a commercial scale.

The challenge to financial institutions and policy makers is to address the twin problems in rural financial markets of high risks and high transaction costs and loan supervision costs. The innovative financing schemes discussed in this paper show particular approaches that seem capable of surmounting those twin problems. However, much remains to be done on the part of policy makers, e.g., providing an enabling environment for such innovations to be sustainable approaches, improving regulatory frameworks that would strengthen financial systems, and incentives for private institutions to develop better risk-reducing instruments and more effective institutions

and credit delivery structures. More efficient rural financial markets will encourage more private investments in food production and agriculture.

## II. INNOVATIVE APPROACHES AND PRACTICES

The innovative financing schemes discussed in this paper are approaches that somewhat mitigate the impact of the above-mentioned constraints. The discussion that follows focuses on the following areas: 1) **Value Chain Financing** ; 2) **Risk Management Tools**; and 3) **Credit Delivery Mechanisms**. A common thread running across these schemes is their potential in reducing the risks and cost of lending to agriculture and thus, in enabling rural producers to access the formal financial markets..

**1. Value Chain Financing.** Value chain approach has recently been gaining ground as an effective approach for mitigating risks, reducing the costs of lending to agriculture and eventually getting formal finance to flow to the sector. Value chain is defined as a series of activities that add value to a final product, beginning with production, continuing with the processing or elaborating of the final product and ending with the marketing and sale to the consumer or end-user. When credit or other financial services flow through actors along these chains, it is called value chain finance, and may or may not include support formal financial institutions. The value chain reduces commercial risk by providing an assured market for the produce, thus, making it easier for chain actors to obtain financing from banks and other formal sources. Efficient value chain financing is critical in agriculture since it enable small- to medium-scale farmers, traders and processors along the chain to optimize financial investment, resource allocation and capacity expansion<sup>3</sup>.

**1.1 Two Financing Models that Include Institutions External to the Chain.** Value-Chain Financing has two basic financing models within the chain that involves an institution external to the chain, namely: 1) warehouse receipts; and 2) contract farming. These models use “interlinked transactions,” that is, one transaction (e.g. loans for the purchase of inputs) is usually linked with another (sale of outputs), as a condition for the loan. The innovation aspect lies in the efficiency gained by interlinking two separate transactions, that is, access to inputs and purchase of outputs and in the innovative use of such interlinked transactions as a substitute to traditional collateral and as a mechanism for providing information on the borrower.

**1.1.1 Warehouse Receipts.** Producers and/or traders deposit their produce at the warehouse and are, in turn, issued a receipt certifying secure and safe storage of the goods for a specified period of time. The warehouse receipts serve as collateral or pledge

---

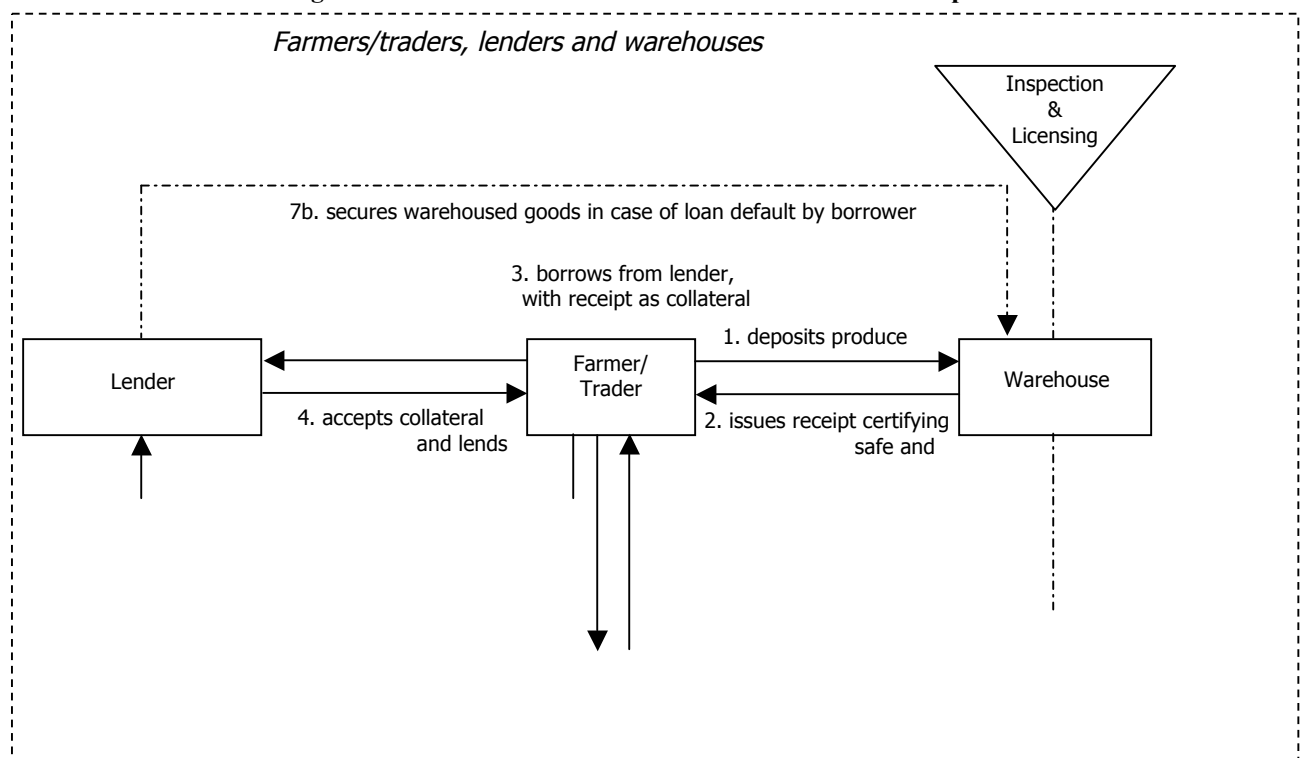
<sup>3</sup> The Equity Bank of Kenya operates a project launched in 2007, which provides US\$50 million and other financial services to Kenyan farmers, agricultural input dealers and other players in the agricultural value chain. The International Fund for Agricultural Development (IFAD) and the Alliance for a Green Revolution in Africa provided a US\$5 million cash guarantee fund to reduce Equity Bank’s risk. The Kenyan Ministry of Agriculture provides vouchers to poor farmers, which they use to purchase inputs from agricultural input suppliers (World Economic Forum, 2009; International Fund for Agricultural Development, 2008).

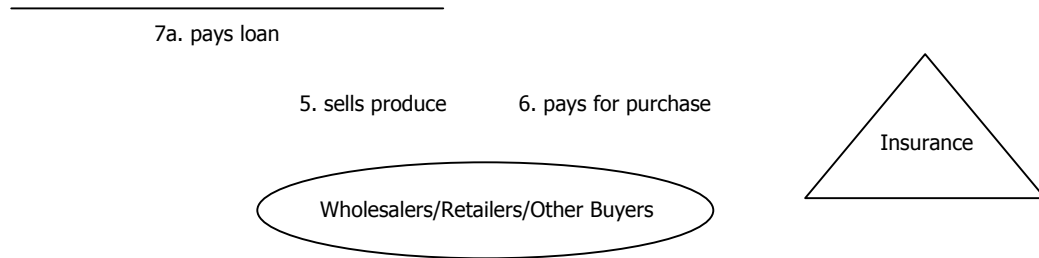
for securing loans from banks or other lenders with the condition that proceeds from the sale of the produce should first be used to repay the loan<sup>4</sup> (See Figure 1).

This model includes other players that are not directly involved in the production and disposal of goods but otherwise play equally important roles, namely: i) inspection and licensing services; and ii) insurance services. These services help mitigate risk by providing both depositors and lenders alike with the assurance that certified warehouses meet the necessary standards for safe and secure storage. Insurance services, on the other hand, protect depositors and lenders against losses due to disaster and/or criminal activity.<sup>5</sup>

The imposition of “standards” is key to the effectiveness of this model in terms of risk mitigation and cost recovery. Standards are, in fact, imposed on two levels. First, depositors are required to meet warehouse standards before products can be deposited. Hence, not anyone – even those who can afford to pay – can avail of services offered by warehouses without first passing such standards. Second, warehouses are also required to meet operating standards set by licensure and inspection services.

**Figure 1. Actors and Transactions in the Warehouse Receipt Model**





The additional security provided by insurance serves to further lower risks to both depositors and lenders. Banks, in particular, may also choose to forego screening and credit investigations by accessing the records maintained by warehouses on their depositors. Warehouses, in effect, also functions as a sort of credit bureau to a limited extent by building a third-party history of the performance of its depositors.

This model allows producers or traders to: i) reduce post harvest losses (e.g. due to spoilage and pest infestation), thereby increasing yield; and ii) sell their produce some time after the harvesting season (during which prices are lower due to abundant supply) and get a higher price.

Because of the easy recourse and the ability to sell a liquid collateral asset in case of default, warehouse receipts-based lending lowers the risk and reduces typical transaction costs of commodity transactions, such as high loan servicing costs due to limited volumes, high information costs, and high supervision costs. Borrowers do not need a balance sheet or long credit history because the lender is not relying on the company as a going concern, but on the value of the commodity. Thereby, lending costs for financiers are reduced, which, as a result, bring down interest rates for borrowers in sectors that are seen as high risk in any economy - commodity production, processing, and trade - but which are of great importance for an emerging or transition country. A warehouse receipt-backed transaction allows a financier to shift his risk away from the borrower to a liquid asset and, in some cases, to even enhance it further through the creditworthiness of a strong off-taker (World Bank, 2007). Thus, warehouse receipt financing creates opportunities for the private business sector on the look out for feasible financing approaches to address food security challenges.

In Asia, the Philippines had an extensive experience in inventory credit using warehouse receipts. Warehouse operators accredited by the Quedan Guarantee Corporation, a government corporation, issued warehouse receipts (called ‘quedans’) to farmers and traders who deposited their grain stock in bonded warehouses. To draw from a credit line provided by a commercial bank, the farmers/traders presented to the bank the quedan receipt and stock inspection report by the Quedan warehouse inspector. Loans granted by banks are then guaranteed by the Quedancor (see Annex 1 for more details on the features of the quedan system).

**1.1.2 Contract Growing Arrangements .** In this model, a large agribusiness firm (or the “buyer”) enters into a contract with organized small producers for the large-scale production of a certain commodity with specified standards of quality and quantity that the latter must meet. The buyer facilitates the financing and distribution of inputs to farmers on the condition that the produce will be sold to them upon harvest. Since the

loan is tied to a purchase agreement, the risk of loan default is greatly reduced since buyers have a ready market for the produce. Financing for input supply is not the only service provided by the buyer. Producers also receive technical assistance, training, technology transfer, and monitoring and supervision. Provision by the buyer of other services in addition to financing significantly reduces commercial or production risk. These services help ensure that producers will deliver the required quantity and quality of produce<sup>6</sup>.

In most cases, the buyer prefers to deal with large scale farmers or farmer organizations that, in turn, are responsible for organizing smaller farmer groups (See Figure 2). This approach is widely used in Asia especially in Lao PDR, Vietnam, Thailand and the Philippines in the livestock, poultry and high value crop industries<sup>7</sup>.

A modified version of this model includes not only a buyer and a producer but a financial institution as well. The financial institution agrees to provide the funds for production once the contract between the producer and buyer is finalized; in effect, ensuring loan repayment (by the producer) because payment for the loan is immediately deducted by the buyer from the proceeds of the sale and remitted to the financial institution. In this case, the purchase agreement or contract between the producer and buyer serves as a collateral-like instrument.

Another modified version is when a financial institution establishes a marketing corporation jointly with the farmers. The bank provides loans to the farmers or producers who, in turn, “pay in kind” through the marketing corporation which buys the farmers’ produce. The farmers, in this case, get technical assistance and supervision through agricultural technicians employed by the financial institution<sup>8</sup>.

---

<sup>6</sup> GonzalezVega, et al.,(2006) report farmers being able to obtain formal loans to finance production because of production contracts between the farmers and a supermarket.

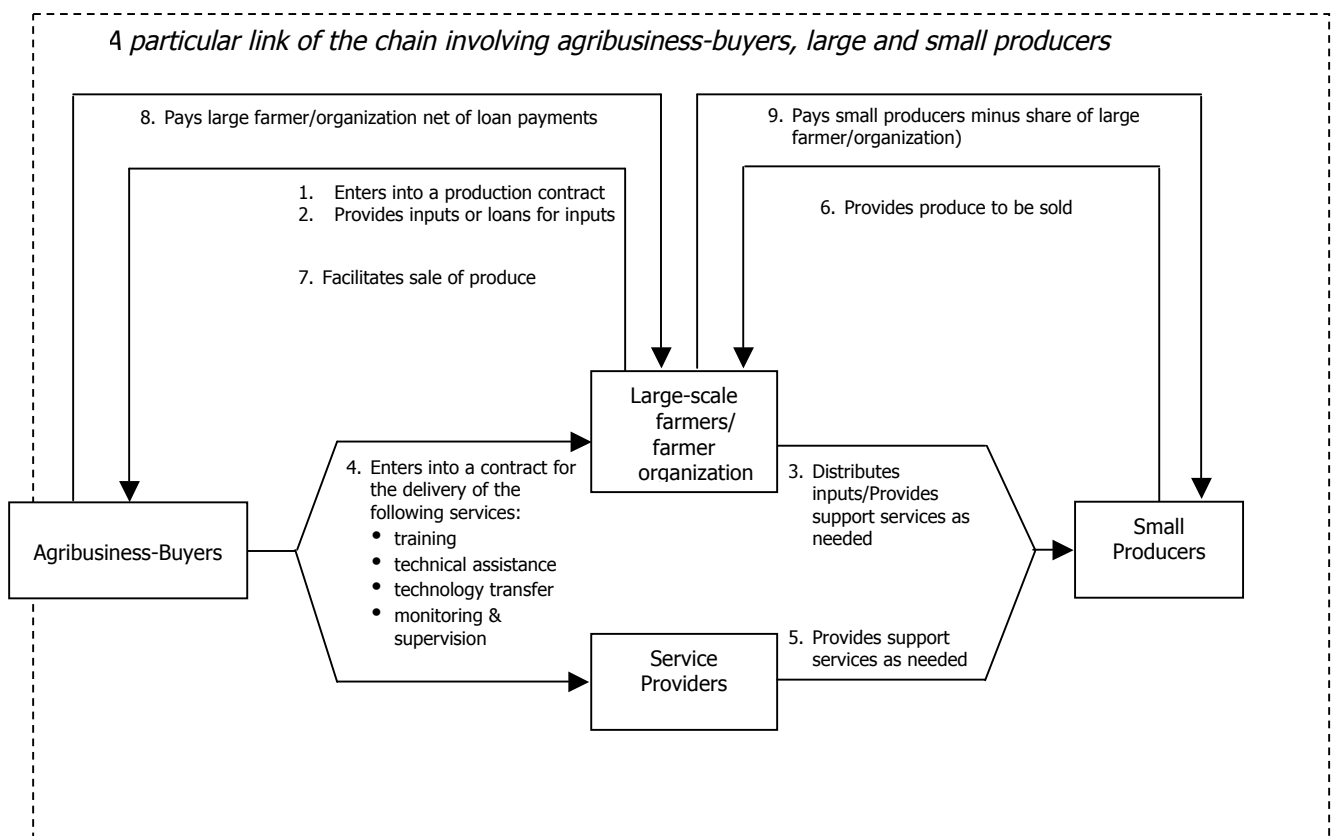
Gonzalez –Vega, Claudio, Geoffrey Chalmers, Rodolfo Quiros, and Jorge Rodriguez-Meza, Hortifruti in Central America: A Case Study about the Influence of Supermarkets on the Development and Evolution of Creditworthiness and Small and Medium Agricultural Produces,” MicroREPORT No. 57, USAID, AMAP, Washington DC, April 2006. [www.microlinks.org](http://www.microlinks.org).

<sup>7</sup> To increase its supply of high-quality corn in China, General Mills switched from imports to local supply and saved on procurement costs by 25% in the process. The company buys corn for the Chinese version of its Bugles snack from 528 small farms in Yongqing Village, Heilongjiang province after partnering with a local miller, Xingda, which provided logistical support and managed community relationships. (World Economic Forum, 2009, “The next billions: business strategies to enhance food value chain and empower the poor, Geneva, World Economic Forum).

<sup>8</sup> See Annex 2A for the actual experience of PAIDCOR, a private corporation in the Philippines; Annex 2B for the experience of Lao PDR; Annex 2C for Vietnam; Annex 2D for the National Agricultural Cooperative Federation or NACF of Korea; and Annex 2E for the experience of Thailand.



**Figure 2 Actors and Transactions in the Contract Farming Model**



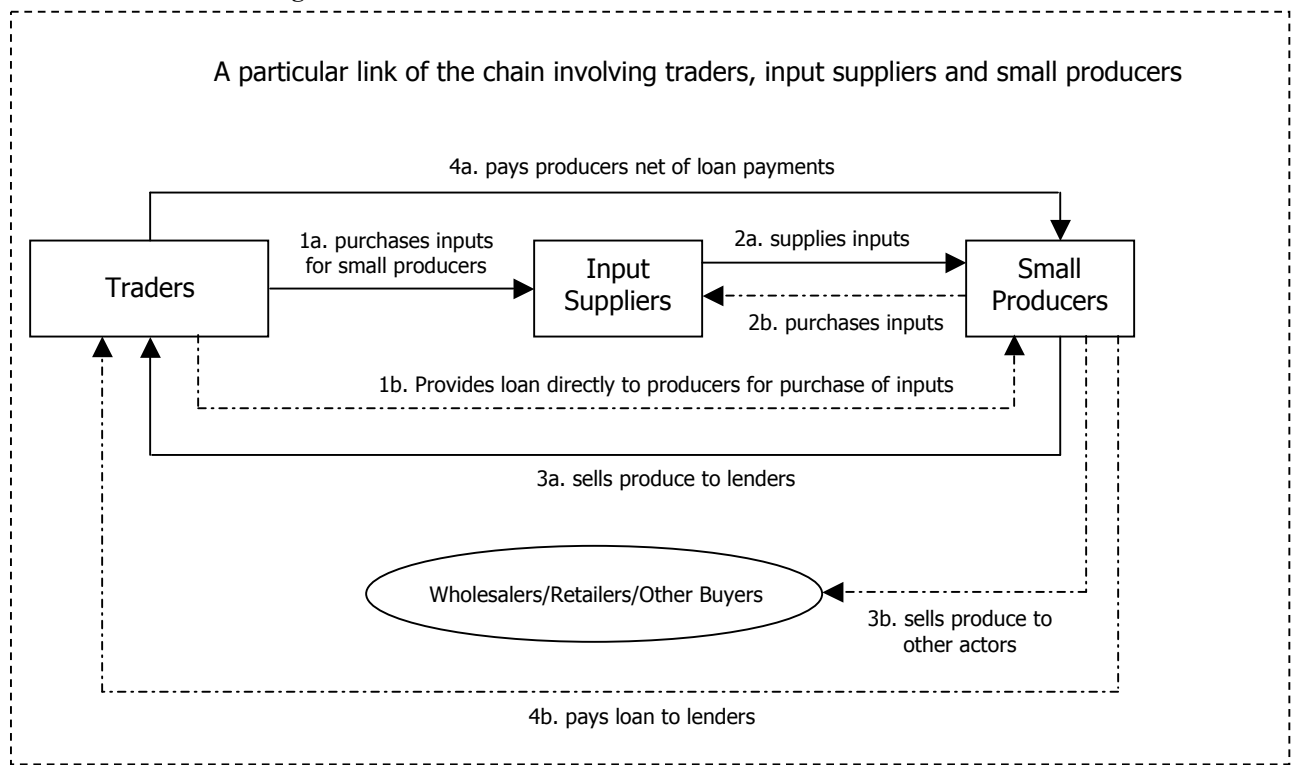
**1.2 Trade Finance.** This is a common practice among small crop farmers in developing countries. Traders either purchase farm inputs from input suppliers and provide these to small producers or provide cash to producers for the purchase of inputs although the former is preferred to avoid loan diversion. Producers may or may not be bound by a purchase agreement, in which case, they could either sell their produce to traders upon harvest – with payment for the loan deducted from the sales proceeds – or sell it to other buyers such as wholesalers or retailers (see

Figure 3 below). Payment –whether in cash or kind – is usually due upon harvest. This type of set-up illustrates a relationship between traders and producers that is largely price-driven.

Because of risk inherent in the agriculture sector, traders have come up with ways to: 1) mitigate risks which most banks would not ordinarily take; and 2) cover costs of lending to small producers. Since the model is basically informal and unsupervised, interest rates and prices are, to a large extent, flexible, making it possible for the trader-lenders to impose either of the following: i) raise interest rates on loans; ii) raise selling price of inputs; and iii) reduce buying price for produce. However, traders have the advantage of incurring lower transaction cost because of: i) their familiarity with the borrowers; ii) small and limited areas of operation which make it easier and less costly to do background checks, monitoring of loans and collection of payments; iii) greater understanding of the risks involved and therefore, better risk management; and iv) awareness of the business environment and market conditions.

Through this model, producers have easy and timely access to credit; minimal and simple loan requirements; and fast processing and release of loans. However, they could fall prey to traders who may charge either very high interest rates or offer a very low buying price for their produce.

**Figure 3. Actors and Transactions in the Trader Finance Model**



**1.3 Other Commodity-Finance Instruments.** In more sophisticated financial markets are some other forms of collateral-financing instruments, such as the following (World Bank, 2005)<sup>9</sup>:

- *Repurchase agreements.* Repurchase agreements are simple forms of commodity finance: the bank, rather than taking a pledge over the goods being stored or shipped, actually *buys* the goods and simultaneously signs a contract for resale at a certain point in time and at a price that reflects the cost of funds from the original time of sale to the resale. Repo finance for agricultural commodities has spread to over a dozen countries in recent years and is particularly popular in jurisdictions that do not allow for adequate laws and regulations regarding the registration of pledges, as well as enforcement and foreclosure mechanisms.
- *Export receivables financing.* In export receivables financing, funds are disbursed to an exporter against assigned off-take contracts of commodities. There are many ways to structure an export receivables deal, which range from a very secure transaction to a rather loose arrangement based on letters of credit (World Bank, 2007). In a simple example as conducted by IFC in Argentina (World Bank, 2007), the exporter assigns its receivables to a local bank that acts as an agent. IFC and a syndicate disbursed funds to the agent bank, which in return disbursed funds to the company for working capital purposes. The off-taker, hence importer of the exported commodities, paid for the purchase directly to the agent bank, which in return serviced the IFC loan out of these proceeds.
- *Factoring.* Factoring is generally understood as a supplier assigning receivables from contracts of sales of goods made between the supplier and a customer to a factor. The factor can provide finance for the supplier through loans and advance payments and also provide other additional services. As a result, a supplier can sell its creditworthy accounts receivable at a discount in order to receive immediate cash and hence get immediate working capital financing. As in other collateralized structures, factoring shifts the risk away from a potentially high risk supplier - that needs the financing - to a low risk off-taker who stands behind the accounts receivables.
- *Islamic trade finance.* With Islamic banking, banks need to earn their profit not simply because they make money available, but because they take a production or trade-related risk; that is, the lender must share in the profits and losses arising out of the enterprise for which the money was lent. The so called *Murabaha* is a technique widely used for commodity transactions. Under this structure, an Islamic bank would purchase the commodities in its own name and then sell them on to the end buyer at an agreed mark-up.

**2. Risk-Reducing Mechanisms.** These are tools that directly reduce the risk of lending to agriculture or the rural poor benefiting both banks and farmers or producers and consequently, encourage investments in the agriculture sector.

**2.1 Index-Based Weather Insurance.** Index-based insurance products for agriculture represent an attractive alternative for managing weather risk. Pilot programs conducted in several

---

<sup>9</sup> The following are from the World Bank (2005), “Rural finance innovations: topics and case studies”, Report No.32736-GLB, Washington D.C., : World Bank.

developing countries like the Philippines, India, Malawi, Mexico, Mongolia, Tanzania, and Thailand have proven the feasibility and affordability of such products (UN, 2007). In index-based weather insurance contracts, estimates of financial losses are based on an index, or a proxy, instead of on the actual losses of each policyholder. The index could be based on variables such as regional rainfall, wind speed, temperature, regional area yields, and regional livestock mortality rates. The insurance provider starts compensating policyholders for losses when the index passes a predetermined critical threshold. Payments increase incrementally as the index deteriorates, and policyholders receive the maximum amount possible when a predetermined upper limit is reached.

Efficient weather insurance indexes eliminate moral hazard and adverse selection, since the policyholders cannot influence the changes in the index, and both the provider and the policyholder have the same knowledge of the likelihood of the shifts in the index. They also greatly decrease monitoring and administration costs—since actual losses do not need to be calculated—and eliminate common risks. Pilots conducted in many developing nations have highlighted the affordability of this instrument to poor farmers without need for subsidies<sup>10</sup>.

The main limitations of index-based weather insurance contracts, however, are that they only cover a portion of the exogenous risks facing farmers. Price fluctuations and other risks such as unmanageable pests or availability of inputs cannot be managed with this instrument. There is also the need for easily accessible and reliable weather information to ensure its efficiency which could be a problem in developing countries. This instrument should also be supported by substantial investments in information and technology.

In contrast, traditional crop insurance programs often exclude systemic weather factors such as drought. These traditional programs determine the extent of loss after a calamity through costly and time-consuming individual farm visits as the basis for payouts. This type of program, thus, can suffer from moral hazard and other negative outcomes due to information asymmetry. Because farmers will always know more than the insurer about their actual yields and farm practices, they could influence farm data and output, or only avail of the products when a claim is more likely to happen. This naturally leads to higher premium rates for coverage and requires highly trained loss adjusters to ensure programs are controlled and sustainable. Given these costs, traditional crop insurance is typically heavily subsidized.

The World Food Program and the International Fund for Agricultural Development (IFAD) conducted a review of 37 index insurance ventures in 15 countries and came up with a number of important lessons about the conditions that could make index insurance worthwhile and can thus, be scaled up. These lessons are (Hess and Hazell, 2009):

- i) There is a need to distinguish between two fundamentally different objectives affecting the design and delivery of index products: schemes that aim to help poor people protect their livelihoods and assets which should be subsidized and implemented through special delivery channels aligned with relief (*protection insurance*); and schemes that are designed to promote agricultural development by helping households with viable farm businesses manage their risks which should be channelled through private intermediaries and can be sold on an unsubsidized basis (*promotion insurance*).

---

<sup>10</sup> Annex 3A describes the first pilot program for index-based weather insurance developing world in India; Annex 3B on the experience of Mexico; Annex 3C on the experience of Ethiopia.

- ii) Focus on the real value proposition for the insured. For protection insurance, products should be timely, credible and a fair relief in times of crisis; on the other hand, promotion insurance products should be able to catalyze access to credit, technology or new markets and help generate significant additional income which would make such products attractive to clients even without subsidies.
- iii) Find a champion or leader to overcome initial set-up problems and barriers. There is a need for an outside agent that could act as a champion that would push for or motivate the implementation of a program despite initial problems and barriers that would certainly be encountered at the outset. Examples of these champions are multinational agencies like the World Bank (for India, Malawi and Mexico) and the WFP (in China and Ethiopia) as well as NGOs (like Oxfam in Ethiopia) and brokers (such as MicroEnsure in Tanzania). These agents provided the push through the provision of missing public goods (e.g. weather stations and insurance regulations) and the establishment of reinsurance arrangements. They also facilitated the conduct of training for local brokers and insurers as well as of research to identify viable insurance products.
- iv) Develop efficient and trusted delivery channels. Promotion insurance should be provided through institutions that are efficient, responsive and easily accessible and with a credible reputation for efficient and effective service.
- v) Develop weather data infrastructure. In order to be sustainable and effective, players in the insurance market need to be supported with reliable data on risk as well as on index values.
- vi) Transfer risk to international markets. It is crucial to have reinsurance support in the development and scaling up of index insurance. It was found that those insurance products that had reinsurance deals had greater outreach in terms of number of policies.
- vii) Train all implementation actors. Index-based insurance programs that have as component a training and capacity development program have greater advantage over those that do not have. Making farmers understand the importance of index insurance as an investment in reducing risk would enable them have to have clear and realistic expectations about payments as well as greater familiarity with the product.

This study concluded that while there is evidence that weather index insurance can work, there still are a few programs that have demonstrated real capacity to scale up. There had been very limited spontaneous initiatives by the private sector and governments as well as international organizations had to get involved in getting things started. The study recommended the following steps in scaling up index insurance with the support from governments and donors (Hess and Hazell, 2009):

- i) *Building weather station infrastructure and data systems and making that data publicly available on a timely basis;*
- ii) *Providing an enabling legal and regulatory environment;*

- iii) *Financing agro-meteorological research to product design and making the results publicly available;*
- iv) *Educating farmers about the value of insurance and workings of index-based products;*
- v) *Facilitating initial access to reinsurance;*
- vi) *Supporting the development of sound national rural risk management strategies that do not crowd out privately provided index insurance;*
- vii) *Subsidizing protection insurance where it is more cost-effective than existing types of public relief and using smart subsidies when needed to kick-start promotion insurance markets; and*
- viii) *Supporting impact studies to systematically learn from ongoing index insurance programs and to demonstrate their economic and social benefits.*

**2.2 Index-Based Livestock Insurance.** Like the index-based weather insurance, the index-based livestock insurance (IBLI) is determined by an index that is highly correlated with a particular livestock mortality rate due to harsh climate. The use of this index decreases the administrative and transaction costs for identifying losses and limits the influence of the insured in affecting the outcome, since the index is independent of individual actions. The index-based livestock insurance, thus, reduces moral hazard (i.e., when herders would intentionally not protect their livestock or report false animal deaths) and adverse selection (i.e., when herders, who have sick animals/livestock, buy insurance). Under this type of insurance scheme, indemnities are paid whenever the adult mortality rates exceed a specific threshold for a certain locality. Individual herders who take good care of their animals are paid as well after a calamity despite minimal loss as an incentive or reward for their extra effort in protecting their herd.

The main disadvantage, however, with this insurance scheme is that the index payout may not match the individual livestock loss. **Annex 4** presents the experience of Mongolia.

**2.3 Guarantee Scheme.** Generally speaking, loan guarantee schemes are analogous to insurance instruments that share the risk of lending among the lender, the guarantor and the borrower. Typically, a government corporation or agency guarantees to a large extent the loans extended by banks to eligible clients, usually small farmers<sup>11</sup>. Proponents of loan guarantee programs indicate that the following conditions justify the use of this type of intervention: 1) when lenders place particular emphasis on the role of collateral in making their lending decisions and when most small agricultural entrepreneurs do not have the traditional collateral to offer; 2) when the high fixed cost of due diligence (relative to loan size) makes it uneconomical for lenders to extend small loans; and 3) when they think it gives an excellent opportunity for partnership between the public and private sectors.

Loan guarantee schemes are not entirely new. Christensen et al. report that loan guarantee schemes of various designs are in effect in 85 countries. There are conflicting reports with regard to its effectiveness in terms of increasing access to credit of borrowers such as small farmers and micro/small enterprises. Nevertheless, new features are being integrated into the scheme to make

---

<sup>11</sup> The Philippine loan guarantee program guarantees up to 85% of the outstanding loan of a small farmer.

it more attractive to banks and thus, encourage these financial institutions to adopt the scheme. Some of the new features or innovations of a loan guarantee program are, as follows:

- Loan portfolio guarantee is provided by a government corporation or entity to accredited financial institutions instead of the traditional loan guarantee for individual borrower loans ;
- In addition to banks, other institutions like cooperatives, small and medium enterprises (SMEs), non-government organizations or farmers' organizations can seek guarantee coverage;
- Guarantee can cover all risks from losses due to non-payment of loans including those caused by natural calamities and pests and diseases as well as market aberrations except fraud on the part of the conduit;
- Guarantee may cover all types of agricultural production projects, including production of grains (rice and corn) and high value crops; poultry and livestock; as well as fishpond operations;
- As an incentive to participating banks, Central Banks assign relatively lower risk weights on loans covered by guarantee schemes;

**Annex 5** presents the Philippine experience in the implementation of the Agricultural Guarantee Fund Pool (AGFP) which is a loan guarantee program with the features cited above.

*2.4 Micro-insurance.* In recent years, microfinance institutions have become increasingly aware of the importance of micro-insurance as an instrument in reducing the risk of lending to the poor. Through various insurance products, poor households will be able to smoothen their consumption in times of crisis or emergency. Some MFIs have already added insurance services to their product portfolio. The two micro-insurance products which most MFIs bundle with their microcredit services are:

- i) *Health insurance to help the poor cope with debilitating illnesses, improve health in low-income households and therefore reduce mortality. However, it is one of the most notoriously difficult microinsurance products to implement, because it requires significant managerial and actuarial expertise; and*
- ii) *Life insurance: The death of a household's main breadwinner can severely impact household welfare. If well designed, life insurance can mitigate the financial shock of this death by providing income assistance to the family and/or covering funeral expenses. Usually life insurance can be easily bundled with other types of insurance and so it may also include the repayment of pending debts when the family's breadwinner dies.*

Life insurance is the most popular microinsurance product in low-income markets, followed by health insurance. However, despite its increasing sophistication, it is surprising that micro-insurance services receive much less attention than other financial services (such as credit or saving) offered in low-income markets. As a result, their market penetration is much lower than would be expected. For instance, a study of the microinsurance market in Africa estimated that life insurance covered only 2% of its potential market, while health and agriculture insurance services barely reached 0.3% and 0.1% of the low-income population (ILO, 2009). The low uptake of micro-insurance products among the poor can be due to the following: 1) the poor are asked to pay cash up front to an institution in order to receive insurance benefits conditional on the occurrence of a particular event, e.g., death of the insured whereas in microcredit, it is the reverse: a financial institution provides a loan to the borrower on the condition that it be repaid

at a later period; 2) insurance is a difficult concept to comprehend among the poor and “taking up an insurance product can often itself be seen to increase uncertainty, given its cost and novelty”; 3) given that the poor have limited experience with formal insurance, establishing trust in and credibility of insurance products is difficult.

The microinsurance industry, thus, faces significant supply-side challenges despite the potentially large market for its products across the developing world. These challenges include making premiums affordable to the poor; high transaction costs; lack of reinsurers’ interest in this market; and limited information on the target market<sup>12</sup>. However, given MFIs’ extensive experience in microcredit, issues like information asymmetry may be overcome because of their (MFIs’) close links and deep understanding of the sector that they serve. This understanding can help reduce the incidence of fraud and adverse selection. Moreover, MFIs can package micro-insurance with credit in order to reduce overall portfolio risk and thus enable them to lower their interest rates on loans..

To extend affordable insurance to low-income households, new insurance products should be developed and pilot-tested and new delivery channels like NGOs, community support networks and MFIs should be explored. All these initiatives, however, should be simultaneously supported by substantial investments in information and technology as well as investments that could reduce the risks faced by poor households such as low-cost irrigation schemes, drought-resistant seed varieties, improved sanitation and better preventive healthcare.

In some countries, various innovations are being done to promote insurance among the rural poor. One of these is the so-called community-based health insurance scheme. Essentially, this scheme is a program run by a community-based organization that pools the risk to cover healthcare costs. Because it is community-based, it is easy for the insurer to monitor behavior and enforce contracts while at the same time reaching clients overlooked by many formal insurance schemes. This scheme has a great potential to solve many of the problems associated with insuring the poor. In particular, adverse selection is reduced because people with varying levels of risk are insured as a group. This lowers retail cost which, in effect, allows insurance to be provided at a relatively lower price. However, it also has some disadvantages such as the smallness of their size, limited technical and managerial skills and the quality and inaccessibility of service providers. There is also concern about their sustainability because of their small risk pools and dependence on subsidies.

A 2005 review of case studies on community-based health insurance schemes in India, Rwanda, Senegal, and Thailand draws the following lessons from their successes and failures (Jutting, 2005):

- i) In order to attract and create demand for health insurance products, there should be viable healthcare providers with high-quality services which would encourage people to pay the premiums.
- ii) Socioeconomic and cultural characteristics also play an important role in determining the market for health insurance. Part of these characteristics would be existing perceptions of illness as well as educational attainment of the potential households, which would be necessary, especially when starting insurance schemes

---

<sup>12</sup> See Gilberto M. Llanto (2007). “Policy and regulatory issues and challenges in microinsurance: the Philippine case.” Volume XXXIV, No.1, Journal of Philippine Development, pages 61-86.



in areas where little is known or negative impressions are held regarding healthcare, government provision of services, or insurance in general.

- iii) Microfinance institutions could play a vital role given their experience in financial service provision and social protection. When linked with community financing schemes, performance is better, and impact, greater. Microfinance institutions are better connected to community members and can be effective delivery channels for insurance products.
- iv) Creativity and flexibility in payment options should be encouraged in order to allow more poor people to have access to insurance. In Rwanda, for example, groups set up a system where households used a savings and loan association to save enough money to join a prepayment insurance scheme. Religious and other charitable organizations in both Rwanda and Senegal also made contributions for people who would otherwise be excluded from participation, while other groups established lotteries and started collective activities to earn money to pay for membership fees.

**Annex 6A** briefly describes experience of community-based model in Senegal; and **Annex 6B** presents the microinsurance experience of India.

*2.5 Calamity Relief.* Governments in developing countries establish what they call a calamity fund from which loans at concessionary interest rates or interest-free loans are provided to farmers and fishermen who are directly affected by flood, drought and other extreme weather conditions. The objective is to enable these farmers and fishermen to recover from losses and repay previous loans from banks, cooperatives and other financial institutions. **Annex 7** presents the Vulnerability Reduction Fund (VRF) of India which has one of the best Calamity/Disaster Relief mechanisms among developing nations.

**3. Delivery Mechanisms.** Innovations to make financing available even in remote areas at reduced cost and risk include: 1) Schemes that link formal financial intermediaries with informal financial intermediaries or tap grassroot-based associations as conduits or direct link to the poor; 3) Wholesale lending approach of big banks; and 4) Use of Information and Communications Technology (ICT).

**3.1 Schemes Linking Informal Financial Intermediaries with Formal Financial Intermediaries or Tapping Informal Financial Institutions as Conduits or Direct Link to the Poor.** This approach enables banks to increase their outreach at a lower cost by linking with informal institutions that are grassroot-based, in effect, also increasing access of small agricultural enterprises to financial services. While the banks provide the funds for lending, the informal organizations are responsible for organizing the rural borrowers/clients, monitoring their progress, disciplining the members especially on the use of credit and on loan repayment and in promoting savings and other non-credit financial services of the bank; providing training and technical assistance on business or enterprise development; and linking the borrowers/clients to viable markets in the supply chain. Some of the successful models using this approach include the following:

- i) *India's Self-Help Groups (SHG) Linkage Banking.* SHG Banking (Kroft and Suran, 2002) is an approach that helps promote financial transactions between the formal banking institutions with informal self-help groups (SHGs) as clients. The SHGs usually start by making voluntary savings on a regular basis (monthly or fortnightly basis) which they use as quasi-equity together with bank loans to extend interest

bearing loans to members. Such loans can be provided for use of any of the borrowers' production, investment or consumption activities.

There are three models of the SHG-bank linkages. These are: (a) SHGs formed and financed by banks themselves (16% of all SHGs)- where the bank takes up the work of forming and nurturing the SHGs; (b) SHGs formed by NGOs or government agencies but financed by the banks (75% of all SHGs)- where the bank provides the credit after the preparation work of the government agency or NGO; (c) SHGs financed by banks using NGOs as intermediaries (9% of all SHGs) - where the NGOs act as both facilitators of group formation and as credit conduits (See **Annex 8A** for details on the features of this model).

- ii) *Vietnam's VBARD-Central Farmers' Union Linkage Banking.* In order to reach out to more farming and fishing households, the Vietnam Bank for Agriculture and Rural Development (VBARD) developed a model linking the Central Farmers' Union with VBARD. Under this model, a borrower-savings group composed of 5-7 members in the rural areas is formed in cooperation with the Farmers' Union according to a joint resolution between VBARD and the Farmers' Union signed in 1999. The group loan is disbursed by VBARD and the farmers' union is in charge of managing the preparation and over-all operation of the group including loan application assessment, debt repayment and interest collection from the group members. VBARD also covers the operating fees of the Farmers' Union, organizes regular training regarding borrowing procedures and invites agricultural organizations to give lectures on cultivation, aquaculture, animal husbandry, etc. (See **Annex 8B** for details)
- iii) *Cambodia's AMRET-Village Association Linkage Banking.* AMRET is a leading MFI in Cambodia. Like VBARD, AMRET employs the group lending model through village associations. A village association is composed of several groups of five members per group in a particular area or locality. The officers of a Village Association consist only of a Chairman and Vice-Chairman. The Village Association plays the role of an intermediary by borrowing funds from AMRET and lending them to its members (See **Annex 8C**).
- iv) *South Indian Federation of Fishermen Societies (SIFFS) in Tamil Nadu, India.* In order to allow more fishermen to have access to credit, the SIFFS was tapped to manage a *Debt Redemption Fund* for fishermen. The objective of the fund is to provide fishermen with refinancing that will allow them to clear their debts from traders and middlemen. In order to benefit from the fund, however, these fishermen need to be a member of any fisherman society registered with the SIFFS (See **Annex 8D**).
- v) *Improving Market Access through Cooperative Strengthening in the Henan Province of the People's Republic of China.* This program is about strengthening the capacity of cooperatives in the Henan province of China especially in terms of linking their members to domestic and international markets as well as providing business development services that will help their members improve the quality of their products and become significant players in the value chain (See **Annex 8E**).

**3.2\_Wholesale Lending.** Banks, as wholesalers, provide financing to retail banks and other institutions like cooperatives which, in turn, lend the funds to end-borrowers. Wholesaling,

in this case, includes not only the provision of funds but other support services as well aimed at helping retail institutions like cooperatives become viable financial intermediaries. Support services include capacity building opportunities that enable retail financial institutions to mobilize deposits apart from managing and lending funds (See **Annex 9** for the experience of Land Bank of the Philippines).

**3.3 Use of Information and Communications Technology.** This is increasingly being used by agricultural development banks and other financial institutions in improving their internal business processes (e.g. loan appraisal, loan monitoring) and in reaching out to clients (e.g. use of SMS in payment services). The use of debit, credit and smart cards has also proven to reduce transaction costs of rural clients significantly. However, some of the obstacles that prevent the widespread adoption of electronic cards in rural areas are the following: 1) unreliable electricity and telecommunications service; 2) unreliable postal services that complicate billing and payment processes; 3) nonexistent credit bureaus, or bureaus that report only negative information on mostly large firms and urban wage earners of limited duration; 4) low levels of education in rural areas of developing countries; and 5) the use of competing and incompatible networks and proprietary standards that limit client access only to the machines of the issuing institution.

In the Philippines, the privately-initiated B2Bprice.com project supported by the Land Bank introduced e-commerce among the assisted cooperatives and farmers. The B2Bprice.com is a free electronic bulletin board and market place designed to bring relevant market information to cooperatives. As an electronic marketplace, it is aimed at minimizing market intermediation (middlemen's fees) thereby allowing the farmers to reap the gains of lower costs and broader market reach<sup>13</sup>.

Similarly, Philippine rural banks have started to use mobile phones in providing microfinance services under its "Text-A-Withdrawal" program. The mobile phones use the G-cash, a mobile money platform of a Philippine telecommunications company. Launched in 2004, G-Cash turns mobile phones into "virtual mobile wallets". G-cash can be converted to cash, to pay for goods, services, bills and set as remittances. The mobile phone services use SMS messaging in these transactions<sup>14</sup>.

Kenya Agricultural Commodity Exchange, an agricultural service provider facilitates trade by providing a venue for price discovery of more than 42 commodities in 10 regional markets through several channels. It provides kiosks where buyers and sellers can place offers and bids for a fee (World Economic Forum, 2009)<sup>15</sup>.

---

<sup>13</sup> After three years since it was launched, a total of 1,600 cooperatives have had postings with the total value of postings amounting to US\$60 million (Land Bank, 2009).

<sup>14</sup> There are over 1,800 authorized cash-in/cash-out outlets in the Philippines. From January to August 2007, rural banks processed 87,900 transactions totalling US\$7.7 million (source: [www.mobilephonebanking.rbap.org](http://www.mobilephonebanking.rbap.org)).

<sup>15</sup> Those kiosks are used by about 24,000 farmers and generate US\$5,000 a month in trading volume. At one of the markets (Bungoma, Nyanza province), farmers who used the kiosks were able to see at prices 22% higher than those who didn't use such kiosks (World Economic Forum, 2009).

### III. LESSONS FOR REPLICATION AND POLICY OPTIONS

This study focused on three major areas where innovation could lead to greater access to agricultural finance as one major step toward food security : (a) value chain financing arrangements; (b) risk management tools; and (c) cost-reducing delivery mechanisms. The innovative financing schemes discussed in the paper seem to be capable of addressing high risks and high transaction costs and loan supervision costs (Table 1).

**Table 1. Lending constraints addressed by innovative financing scheme**

<b>Innovative financing scheme</b>	<b>Mitigating high risks</b>	<b>Reduction of high transactions costs and loan supervision costs</b>
<b><i>Value chain financing</i></b>		
• Warehouse receipts lending	<b>X</b>	<b>x</b>
• Contract growing/farming	<b>X</b>	<b>x</b>
• Trader finance		<b>x</b>
• Other instruments (repurchase agreements, export receivables financing, factoring, etc.)	<b>x</b>	<b>x</b>
<b><i>Risk reducing instruments</i></b>		
• Index-based weather insurance	<b>X</b>	
• Guarantee schemes	<b>X</b>	
<b><i>Credit delivery structures</i></b>		
• Linkage banking		<b>x</b>
• Wholesale lending by big banks		<b>x</b>
• Use of information and communications technology	<b>X</b>	<b>x</b>

Note: x= mitigates risk or reduces transaction costs.

Major issues surrounding each area were discussed with particular focus on the innovative techniques that have been developed to overcome traditional barriers to agriculture finance by reducing either the risks associated with lending, or transaction and supervision costs, or both high risks and costs. Some examples of innovative approaches cited in the paper underscored some key lessons regarding the role of both the government and private sectors in tackling the twin problems of lower costs and risks in the rural finance space.

Some of the more important lessons that could be drawn from these innovations are, as follows:

- In developing countries, a prevalent mode of financing in the value chain still seems to be that trader credit model where enables small producers who have no direct linkage to the market and lack information regarding market price, to secure inputs, produce and sell their produce through interlinked transactions with traders and input suppliers. However, small producers do not necessarily get the full benefit from such transactions. The value chain provides a convenient avenue for directly linking diverse actors in the supply chain to generate the volumes needed by the market. For this reason, both governments and private enterprises facilitate contractual arrangements that directly link farmers to large companies or corporations for the sale of their produce, an approach that will enhance the value chain and improve the lot of small producers. The traders or middlemen would not necessarily disappear from the supply chain because they may be able to continue their role in interlinked transactions in instances where no such direct linkage between small producer and large companies materialize. They may also be able to provide the consolidation and aggregation services for small volume of outputs from small producers and to provide a marketing channel for the consolidated outputs. The important issue is the need to provide small producers the option for direct or indirect linkages. The opportunity to make direct linkages with buying companies or even supermarkets will give competition to traders who may not be offering the best prices for the small producers' produce. Through this model, farmers and other small producers would be able to have access to technology and technical assistance as well as market information.
- Contract farming seems to be the emerging trend but there remains the lack of formal financing in the supply chain. The linked transaction is between the corporate buyer and the farmers who have entered into such contractual arrangements. Inputs, financing and a market for the produce may be provided by the large company. However, it will be to the advantage of the producer to have access to potentially lower borrowing costs if the financial institution could be enticed to lend on the basis of a formal contract between the producer and the corporate buyer. This is akin to commercial bank financing of export receivables. In the case of Lao PDR, insufficient financing at the post-production stage prevented a corporate buyer from procuring all of the produce, forcing farmers to sell them elsewhere at lower than market prices.
- There are still countries like Vietnam and Lao PDR where state-owned enterprises are in direct competition with the private sector, which crowds out private enterprise and investments. Moreover, some governments through state-owned enterprises to intervene in agricultural product pricing to reduce price fluctuations or to provide a floor price. The World Bank (2005) pointed out that this can be very costly, is often ineffective and preempts development of both insurance and storage markets. Farmers will not hedge their production if there is a floor price. Since producers have little incentive to store crops if they do not expect prices to rise over time, the market for storage facilities (and

therefore the emergence of a warehouse receipts system) will be suppressed if these price movements are prevented by government intervention.

- The ill effects of unexamined government intervention may be observed in the case of crop insurance schemes that are heavily subsidized by the state. Moral hazard and adverse selection problems would typically arise since farmers may be encouraged to take excessive risks or collude with appraisers on overestimating crop damage to get undeserved benefits. There is an obvious absence of private investments because of distorted incentives in this insurance business<sup>16</sup>. It is notable that when there is incentive compatibility, private investments tend to flourish. Case in point is BASIS's index based weather insurance in India, which has grown despite competition from an existing highly subsidized government insurance program. Their innovative private weather insurance product and lending tied to this insurance offer a pathway for potential food producers who worry about risks in agriculture, e.g., flood, drought.
- There is mixed view on the efficacy of loan guarantee schemes: one view is that they are not effective instruments to reduce credit risks and that the guarantee fees only add to small farmers' borrowing costs. The contrary view is that banks seem to have been encouraged to lend to target borrowers who can access loan guarantee schemes. It is timely to conduct a rigorous impact assessment of this risk-reducing instrument. The Philippines' Agricultural Guarantee Fund Pool has been implemented for less than two years and thus, it may be too early to say anything about its effectiveness and efficiency as a re-designed guarantee scheme.
- An enabling legal and regulatory environment is crucial for the development of warehouse receipts, other collateral mechanisms, and supply chain financing, among others. Developing countries would typically suffer from the absence or weaknesses of institutions for contract enforcement and dispute settlement. As the experience of the Philippines with 'Quedan' (warehouse) receipts would show it is critical to ensure quick and timely payout or settlement of claims, to have secure and bonded warehouses to store grain, sugar or corn and to have warehouse receipts accepted by financial institutions as a functionally liquid asset. If property and legal rights of a warehouse receipts system are weak or unclear, legal disputes are bound to arise as challenges with respect to their validity as collateral, transferability and liquidity are raised.
- Investments in technology to support and enhance financial processes and procedures can be costly unless justified by nice financial margins for the investing financial institution. The World Bank (2005) suggests sharing infrastructure such as power, telecommunication, data networks, hosting, application support or data management as a way to leverage the technology investments, possibly reducing investment costs. This will make technology investments affordable to deliver financial products and services to rural areas. The same leveraging could be done for investments physical infrastructure and facilities, e.g., weather stations that provide the usual weather forecasting service but this time, also to generate reliable rainfall data for the development of index-based weather insurance, all weather-roads that provide mobility to people and improve food supply chains, etc. While governments are tasked with the responsibility of providing public goods, there is scope for public-private sector partnerships in establishing and

---

<sup>16</sup> Delays in claim settlements and non-transparent procedures for payouts of insurance claims discourage private investments.

operating those infrastructure and facilities that serve both public sector goals and private sector profit objectives.

- Financial innovations, new technologies for risk-reduction and management will invariably require investments in capacity building not only for private providers of financial services, e.g., bank staff, insurers, but also for government agencies, e.g., regulatory agencies, public sector data-gathering agencies, and others. There is also a need for education of borrowers, mostly rural producers on new lending approaches, financial innovations, and instruments for risk management, e.g., index-based rainfall or weather insurance. Different actors in the value or supply chain, including financial intermediaries would benefit from capacity building in this respect.
- Finally, governments in developing countries will require assistance in crafting an enabling legal environment and regulatory framework for innovations in financing, especially those focused at food production since there are not that many examples of such successful innovations. In particular, the assistance may include capacity building for bureaucrats in government regulatory institutions, assistance in drafting appropriate legislation and regulations.

Based on these lessons, the study recommends the following:

1. Governments should focus on creating an enabling policy and regulatory environment for the financial markets, e.g., focusing on innovative financing schemes to make them sustainable, and providing the necessary support services (e.g. infrastructure such as irrigation, farm-to-market roads, storage and other post-harvest facilities; research and development; training and extension; marketing; and finance) that will build capacities in the rural and agriculture sector. These will lower transaction costs, facilitate the flow of finance along the supply chain and ultimately increase value-added.
2. Governments and the private sector should work together to address information asymmetry problems that constrain the efficiency of financial markets, e.g., establishment of credit information bureaus. Borrowers, typically rural based small producers and even small enterprises lack credit histories that financial institutions need to assess creditworthiness and risks.
3. Governments and the private sector should work together in developing and improving risk-reducing instruments, e.g., index-based rainfall insurance that could be underprovided in the market. In tandem with this, governments should examine and address barriers to long-term finance in rural financial markets. Financing for processing and marketing is particularly crucial for growth and expansion of supply chain products from local to international/export markets. Unfortunately, financial institutions in developing countries have not developed the appropriate long-term financing instruments to finance investments in equipment and machinery, transport equipment, storage, mills and other processing/post-harvest facilities. Most loans are for short-term working capital and production.
4. Governments should encourage the organization of farmers and other rural producers and assist those organizations with the necessary training and capacity building to enable them to exploit the opportunities in the food supply chains, e.g., take

advantage of the benefits of contract farming through direct and indirect linkages with various actors in the supply chain.

5. Governments and the private sector should work together to improve the warehouse receipts system if already available in the country or consider the development of such or similar system through better monitoring of quality standards, more effective regulation of warehouses for storage of agricultural produce (grains, sugar, corn, etc.), coordination with financial institutions with respect to requirements for acceptance of those receipts as collateral, and their transferability and liquidity. In this regard, an examination of the efficacy of this post-production financing scheme, its ability to provide access to commercial financing and to build a third-party history of small borrowers in the context of a country's legal and regulatory frameworks is in order.
6. Governments and the private sector can work together in developing and testing effective credit delivery structures through the use of innovations in information and communications technology that can lower transaction costs and loan supervision costs, and that can help in producing and monitoring credit histories of borrowers in rural areas. While there are variations in local contexts, particularly with regard to rural finance policy, in development and regulation of such information technologies, and differences in finance infrastructure, there should be greater emphasis on building inclusive financial systems. Financial literacy, design of financial products and services that respond to the needs of the rural population, especially rural food producers, focus on building sustainable rural financial institutions are just some of the activities that should complement attempts to improve credit delivery structures in the rural areas.



# **Annex 1 - Quedan Program in the Philippines**

## **INTRODUCTION**

During the 1970s, food production in the Philippines went through a rapid expansion enabling the country to move from a situation of deficit to self-sufficiency. However, the rapid increase in production proved difficult for the marketing system to handle. In particular, traders were unable to raise operating finance to purchase the crop from farmers. Banks required traders to mortgage property to obtain loans, but working capital could often not be raised in that way as traders' property was already mortgaged to pay for the necessary expansion of milling and storage capacity.

To address this constraint, the Quedan Financing Programme was instituted in 1978, under the auspices of the Quedan Guarantee Fund Board and, in 1992, this organization became the Quedan and Rural Credit Guarantee Corporation (Quedancor). Quedancor was established with an authorized capital stock of P2 billion (about US\$80 million) and a broader mandate than its predecessor, to enable it to cover not only inventory or quedan financing, but also other types of credit financing in the agriculture sector including guarantee. However, the quedan system is no longer Quedancor's main credit facility. As a matter of fact, Quedancor has suspended its lending operations to focus on guarantee due to other operational difficulties. The Land Bank of the Philippines, however, has adopted the quedan scheme and incorporated it in one of their credit programs. The operation of the quedan (warehouse receipt) system by Quedancor is described below:

## **OPERATION OF THE QUEDAN PROGRAM FOR MILLERS**

### **Franchising**

Quedancor carries out a full evaluation of the credit and financial capacity of the rice millers and traders applying for Quedan-backed inventory credit. The applicants' warehouse facilities are also examined by the National Food Authority (NFA). The NFA absorbs costs associated with inspection, while Quedancor's costs are met partly out of interest on its capital base and partly by

the millers who pay a Guarantee Fee calculated at the rate of 2 percent of borrowed funds per year.

After the evaluation, which usually takes three to four weeks, a decision is made on whether to franchise the miller and, if so, for how many bags the Certificate of Franchise will be granted. This can be as low as 500 bags or as high as 20,000 but not to the extent of the entire storage capacity of the miller. The Certificate, which is issued by NFA on the advice of Quedancor, entitles the holder to issue warehouse receipts (Quedans) against stocks of his own grain or against stocks of a third party.

The fact that millers can pledge stocks stored on their own premises is a major advantage, as they are spared the cost of transporting palay or paddy to and from independent warehouses. Moreover, the cost of storage in their warehouses is generally lower than commercial storage rates.

### **Procedures for obtaining loans**

Millers seeking franchise certificates for the first time can apply for loans from banks at the same time as they request a Certificate of Franchise. However, many millers have established Certificates and thus apply to one of the accredited banks close to the time the loan is required. For new Certificates, the banks will make parallel inquiries regarding the miller's creditworthiness, although they do tend to lean heavily on the recommendation of Quedancor.

Although it takes the banks just a few days to process documents for a Quedan loan, the procedure is more complex, both for the bank and the customer, than for standard loans secured by conventional collateral. The applicant must present to the bank a copy of the Certificate of Franchise, a warehouse receipt, a Stock Inspection Report, an affidavit of stock ownership and evidence that the stock is insured. He or she is also required to post a security bond for one-third of the value of the stored stocks. Loans are for up to 180 days for paddy, but for up to only 90 days for other grains. In practice, millers take out loans for a period which is likely to maximize their return from stockholding. Stock is inspected at least twice during a 180-day period by Quedancor officials while it is held in the millers' warehouses.

### **Guarantee cover and rediscounting**

After the loan is released the lending bank applies to Quedancor for guarantee cover. Quedancor guarantees the existence of the stocks used as collateral and undertakes to pay 80 percent of the loan principal plus accrued interest. It does not guarantee the value of the stocks which, theoretically, could fall if excessive supplies were introduced onto the market by the NFA. This possibility is covered by an agreement that all stocks held under Quedan loans will, if necessary, be purchased by NFA on maturity of the loan. In practice this has not happened, the market price always being above the official NFA price during the pre-harvest season.

Banks can immediately rediscount Quedan loans through the Bangko Sentral ng Pilipinas. A "second window" rediscount rate is offered. In July 1992 this was 18 percent, compared with commercial rates of 24 percent. The full benefit of this spread is not passed on to the trader/miller as the Quedancor Guarantee Fee of up to 2 percent per year of the value of the loan is deducted, together with bank costs, giving an interest rate of 2021 percent per year.

### **Loan repayment**

On maturity the borrower repays the bank and receives a certificate of loan settlement permitting him to remove the palay from his warehouse for sale or milling. Early repayment incurs no penalty. Procedures exist to permit stock rotation while maintaining the same franchised quantity in store. Using a device known as a Commodity Trust Receipt, it is even possible for the miller to mill Quedan stocks provided that those stocks are covered by funds in the bank or are guaranteed by the bank.

In the unlikely event of default the bank must file a notice of default within 15 days of the maturity date. An inspection of the miller's warehouse is then carried out by Quedancor, the bank and NFA. Where stocks are found to be missing, procedures are then instituted for Quedancor to reimburse the bank and undertake recovery actions against the miller.

## **POSITION OF THE BANKS**

Banks in the Philippines almost invariably require some sort of collateral as security when lending to grain millers. Agricultural stocks are unacceptable, even if held in bonded warehouses, regardless of the creditworthiness of the applicant.

Given that Quedan loans attract a repayment rate of around 99 percent, the reluctance of the banks to deal directly with traders without the benefit of a Quedancor guarantee or property mortgage is not easy to understand. This reluctance is partly historical; banks have made significant losses on loans to the agricultural sector and millers tend to be regarded as part of the agricultural sector rather than part of the commercial sector. Banks also state that they lack information on paddy prices and market trends to enable them to assess the potential viability of a loan against stock.

It was only with some difficulty that the banks were originally persuaded to take part in the Quedan programme, but 184 are now accredited, ranging from large organizations with national coverage to small local banks. When the scheme was set up the banks wanted stocks to be held in NFA warehouses and only after considerable persuasion did they agree to millers holding their own stocks.

For the banks, the provision of Quedan loans is now largely risk-free. The existence of the stocks is guaranteed by Quedancor. The stocks must be insured by the millers before they can obtain a loan and their value is guaranteed by NFA.

## **BENEFITS OF QUEDAN LOANS FOR MILLERS**

Millers themselves often extend credit. Farmers are supplied with inputs at planting time and beyond, while a 30-day payment credit is often provided to rice retailers. The additional liquidity in the marketing system as a result of the Quedan scheme increases both the amount of grain which they can buy from farmers and the funds available for credit.

A small survey of millers operating north of Manila revealed an average (mean) Quedan franchise of around 10,000 bags and an average milling capacity of 900 bags a day. Thus a

Quedan loan (worth about US\$7 per bag in 1992) in the area surveyed provides millers with operating capital equivalent to 11 days' milling. In other areas of the country, however, such loans appear to be responsible for a higher proportion of total milling capacity. It should be stressed that, immediately after harvest, there is often a surplus of milled rice and millers encounter difficulties in disposing of it. Thus, a Quedan loan, although representing a small part of their total throughput, is made available at an opportune time, assisting them to build up stocks of paddy.

## **LEGISLATIVE FRAMEWORK**

The operation of a guarantee system is underpinned by legislation relating to warehouse deposits. Quedan transactions are governed by a General Bonded Warehouse Act and by a Warehouse Receipts Law.

Under the General Bonded Warehouse Act, an operator of a bonded warehouse (which all Quedan franchise holders are) is required to obtain a licence, to put up a bond, to insure the warehouse contents against theft and fire, to keep complete records of commodities received, receipts issued and withdrawals made, and to forward such documentation to the appropriate Ministry. Failure to comply with his legal obligations, so causing a loss to another party (e.g. Quedancor), renders the warehouse owner liable to civil suits, and criminal prosecution.

Under the Warehouse Receipts Law, the contents of a written warehouse receipt and all other necessary documentation related to receipt and delivery are defined.

## **EVALUATION OF THE QUEDAN PROGRAMME**

The benefits of the Quedan programme are widely believed to be higher prices for farmers immediately after harvest and a strengthening of trader/ millers so that they are able to take over the functions of an increasingly financially strapped NFA, together with less tangible benefits such as better post-harvest handling and an increased exposure of banks to rural areas. Without detailed research it is impossible to confirm that farmer prices are higher, though one

consultancy study found that in one area farmgate prices were 7.7 percent higher than they would have been without inventory credit.

When the Quedan programme was set up, it was in response to a lack of capital for traders, but it is not clear whether this remains a constraint. Many millers do not avail themselves of Quedan loans and mortgage their plant for all of their credit requirements.

Millers benefitting from Quedan loans receive two forms of subsidy. Firstly, as indicated above, there is an interest rate subsidy, which although reduced in recent years, is still substantial. Secondly, the loan premium charged by Quedancor does not fully meet the costs of the programme, which are covered by the income from Quedancor's capital. Millers say that they use Quedan loans because of the favourable interest rate and because they are not required to mortgage plant and equipment. As they seem to have less problems in finding such collateral than they did when the Quedan scheme was set up, it is not clear whether the latter advantage would motivate millers to use Quedan loans in the absence of the interest rate subsidy.

The NFA buys less than 10 percent of marketed paddy annually. However, its influence on the rice market is somewhat greater than this figure would imply as NFA rice is usually marketed only during the "lean" season, a period of about three months. Thus if the Authority buys 5 percent of the crop in one year, it may market 20 percent of the rice sold in the lean season. NFA involvement in the market tends to squeeze the margins of millers and diminishes the profitability of inter-seasonal storage, but this has usually remained sufficiently profitable to justify the risk of stockholding.

While NFA operates within clearly defined boundaries, millers are able to assess - with a reasonable degree of confidence - the likely returns from longterm storage of paddy. However, the Philippines has sometimes imported rice unexpectedly, or planned exports have not materialized. The consequent additional rice on the market has, on a few occasions, resulted in losses on interseasonal storage, although no traders have had to adopt the fall-back position of selling their stock to the NFA at its official buying price. Even when some losses do occur on stocks, those traders who roll over Quedan loans several times in a season are able to compensate for their losses by the increased turnover.

In summary, the Quedan system provides selected, creditworthy millers and traders with a useful channel of credit which facilitates both the procurement of paddy from farmers and inter-seasonal storage. However, given the availability of other sources of finance, the extent to which millers would make use of Quedan loans if there were no interest rate subsidies remains to be seen.

## **Annex 2A – Value Chain Financing Through One Network Bank and PAICOR**

An innovative integrated approach to agricultural financing initiated by a private rural bank is the case of ONE NETWORK BANK AND PAICOR in the Philippines. The Rural Bank of Panabo (now “One Network Bank”) established a marketing corporation called the Panabo Agro-Industrial Corporation or PAICOR jointly with farmers. PAICOR is a rice mill and marketing business that provides farmers with all the services they need to produce paddy and process and market milled rice. The key objective in establishing PAICOR was to find a way by which small farmers could become owners of a mill while avoiding the capital and management shortcomings of cooperatives. Through PAICOR, farmers are able to obtain production and investment loans and repay them in kind by delivering paddy direct to the mill, which they co-own. The first corporation, set up in 1986, was capitalized with 40% by the bank, 15% by the individual owners of the bank and 45% by rice farmers. A second marketing corporation was set up in another town in 2000, with Landbank providing 40% of the equity capital. Results however are mixed during the years of operation pointing to the attendant risk of the rice industry. While there were years of good profits, the corporation suffered net losses in 1999, 2002 to 2004 decreasing the number of farmer cooperators by as much as 70%. By 2004, there were 312 remaining farmer cooperators involving 669 hectares. The losses were attributed to spoilage during storage and depressed local prices of palay. The rural bank however is convinced by the scheme and has now instituted strategies to prevent similar losses such as: using mechanical driers and adopting a ‘supervised’ credit scheme where the bank employs agricultural technicians who supervise the production activities of the farmers and introduction of high yielding varieties. The bank has also branched out to high value crops (banana, pineapple) in other areas using the same integrated approach coupled with formal marketing contracts with long term buyers. (Buenaventura, 2007).



## **Annex 2B – Value Chain Financing of Rice and Coffee in Lao PDR**

In a series of events during the last century, the participation and acceptance of the Lao People's Democratic Republic to mainstream markets not only in the region but also worldwide, resulted in increased incomes of otherwise poor farmers and export earnings. Foremost of these events was the enactment of the New Emerging Mechanism (NEM) which paved the way for the crafting of a new program aimed towards increased production and exports. The NEM is an economic system anchored on market principles – wherein prices are determined by market forces – and policy reforms geared towards increased reliance in international trade and foreign investment. The NEM has had a significant impact on agriculture, particularly in the production of glutinous rice and coffee.

Prior to NEM, there was really no functional value chain for rice since the prevailing condition was subsistence farming. The farmer merely brings the produce to mills after which the rice is either consumed by the family or a portion is sold through a trader. The advent of NEM gave birth to contract growing arrangements for rice which involves the provision of in-kind credit, particularly seeds and organic fertilizers, by a private corporation to participating rice farmers. The corporation buys the produce – to be processed and/or exported later on – and pays a premium price after deducting the loans. It is perceived that this commercialization strategy increases incomes of farmers and contributes to export earnings by Lao PDR. The Agricultural Promotion Bank (APB), a state-owned bank, provides credit especially to smallholder farmers. However, some believe that the dual function of the APB as a development agency and as a bank is a hindrance to its overall effectiveness. The provision of agricultural credit has been supply-driven rather than demand-driven since these services directly support government projects and hence are characterized by heavy subsidies and fixed interest rates.

The value chain financing of coffee has apparently been more effective than that of rice. In the 1980's, the government opened new areas for coffee production which encouraged the entry of private investors. Two large companies, in particular, involved themselves in the

management and supervision of all areas of operation, e.g. from production to processing to marketing. This set-up minimizes the need for intermediation by traders, brokers and other middlemen and thus translates into a potential increase in income for the coffee farmer.

If the coffee is for export to Europe, the exporter deals with the wholesaler who does the paper work for the export. There are three main export flows for Lao coffee with distinct financial transactions/schemes, namely: i) direct contact with foreign buyers with Letter of Credit as the main payment scheme; ii) through a Thai trader where payment is made within 2-3 days; and iii) through a Lao broker who acts as an agent of the exporter and receives a commission of 2-3%. In the second scheme, transport providers are necessary in order to deliver the coffee from Lao PDR to Thailand

More export firms were established as an offshoot of the opening of new areas intended for coffee production and hence, more export earnings for the country. Trading quotas and customs access to the European market also heightened the competitive advantage of Lao coffee. Nonetheless, direct export from Laos, that is, without the involvement of the middleman or exporter from Thailand, is a possibility that the Laotian government can look into in order to further minimize transaction costs and increase income of small coffee farmers.

## **Annex 2C – Rice Value Chain Financing in Vietnam**

Rice as a basic agricultural commodity in Vietnam contributes to almost a quarter of the economy's output in 2006 and continues to be one of the leading export champion commodities in the world. Rice production is prevalent throughout Vietnam, with the largest proportion of harvested palay/rice coming from the Mekong River Delta and Red River Delta regions.<sup>1</sup> The positive growth of rice production is in response to the country's objective of production for surplus and food security within Vietnam.

Agricultural value chain financing is considered an integral part of the chain because participants in the chain need money to carry out their activities to move products to its final consumers. Credit for rice in Vietnam comes from two sources: formal and informal. Formal credit for rice is sourced from state agricultural banks and private commercial banks. Major actors of the rice value chain such as assemblers, wholesalers, and millers obtain credit from agricultural banks/state commercial banks.<sup>2</sup> State-owned enterprises (SOEs), considered as big traders in the rice market, also source credit from these banks to finance trading of palay/rice and provide working capital loans to procurement stores.

Rice value chain financing in Vietnam has utilized the contract farming model to finance production and marketing of rice. Under this scheme, an enterprise or a company provides inputs on credit which is tied to a product purchase agreement. Other non-credit services like technical and marketing assistance for the product are also assured. Farmers, upon signing contracts with enterprises, have the option to apply for credit from banks.

Rice farmers with limited access to formal sources like banks borrow from informal sources such as input suppliers, private money lenders, friends and relatives. Assemblers usually borrow from friends/relatives, money lenders, and traders. Rice retailers, on the other hand, borrow from friends/relatives and from rice wholesalers while rice millers borrow from agricultural banks.

---

<sup>1</sup> Rice Value Chain Vietnam-Agrifood Consulting-WB

<sup>2</sup> Luu Thanh Duc Hai, 2003

In spite of the availability of credit from both sources, however, several studies revealed that there have been credit constraints in the rice value chain which limited the expansion of markets due to limited access to working capital among assemblers, wholesalers and millers of rice.<sup>3</sup>

Contract farming, a linkage between farmers and enterprises, emerged in Vietnam since the enactment of Decision 80 which supported production of agricultural commodities tied up to ready markets. This contractual arrangement scheme has benefited farmer-members of farmer organizations or cooperatives. However, sustainability of this arrangement poses a constraint because of failure of contract enforcement, either on one or both parties (e.g. weak culture on enforcement and farmers' failure to pay their input credit). Some experiences show that contract enforcement failure was attributed to coordination failures among parties due to limited organization of producers and imbalances in market relationships. Cooperatives must therefore be organized and coordinated to become an effective linkage channel between farmers and enterprise.

In Vietnam, credit delivery from informal sources like input suppliers, traders, private moneylenders and friends/relatives has been a lifeline among small farmers who have limited or have no access to formal sources like banks or to those without verbal or signed engagements with an enterprise. Lack of capital among the major players like assemblers, wholesalers and millers also limit their capabilities to expand their markets.

The present trend of linking production to markets through contract farming schemes should be further developed. In this set-up, financial institutions will play a critical role in strengthening the linkage between enterprises and farms. Financial institutions can look into the experiences learned by enterprises with farmers with contractual ties as inputs to development of financial innovations that will involve smallholders. This is necessary because the demand for financial services will continue to increase in response to the country's agricultural commercialization efforts.

---

<sup>3</sup> Rice Value Chain in Vietnam, 2002; Luu Thanh Duc Hai, 2003; Arupalgasam, 2003

## **Annex 2D - Integrated Approach by the National Agricultural Cooperative Federation (NACF) in South Korea**

The integrated approach has long been the scheme adopted by the agricultural cooperatives of the National Agricultural Cooperative Federation (NACF) in South Korea. Under the so-called “mutual credit programme” of the cooperatives, credit is tied up with the supply of modern inputs such as high yielding varieties and fertilizer (Kim, 2004). The cooperatives have technicians who supervise and monitor production activities of the farmers. Farmers’ produce is then bought by the cooperative that takes care of marketing. Two key success factors present in South Korea but could not be found in most Asian developing countries are - a government price support system for rice that protects the farmers from low prices and an efficient marketing system – effectively reducing the market and price risks normally faced by rice farmers in Asia.

## **Annex 2E – Rice Value Chain Financing in Thailand**

The Thai government has been actively supporting the concept of value chain financing through programs being implemented by both government and private financing institutions. In particular, the government's paddy mortgage scheme and packing credit are two programs that benefit farm producers and exporters and millers, respectively. The Bank for Agriculture and Agricultural Cooperatives (BAAC) implements the paddy mortgage scheme while the Export-Import Bank of Thailand (Exim Thailand) implements an enhanced packing credit program that also includes an insurance package to protect its clients from non-payment of foreign customers. Meanwhile, the Bank of Thailand (BOT), in partnership with commercial banks, provides loans to target beneficiaries at reasonable rates. In addition to loans obtained from formal institutions, farmers have also availed themselves of fast and timely credit and other services from traders/millers (traders' credit) such as loans to buy fertilizers, seeds, other farm inputs and transport services.

The Fair Trade Rice Value Chain is a successful project implemented more than a decade ago by multinational organizations whose goal is to contribute more value from trade in rice by Thai small-scale farmers. It is a collaborative undertaking among local farmer organizations; Green Net – a local Fair Trade NGO which exports Thai rice to foreign Fair Trade organizations; Claro of Switzerland, the official importer of Fair Trade rice; and Fair Trade organizations in Europe which place their orders for Thai rice from Green Net through Claro. Green Net thus enters into a contractual arrangement with local organizations for the production of either organic or conventional rice. The Progressive Farmers Association (PFA), one of the participating farmer organizations, could access low-interest loans from a local bank for the bulk purchase of fertilizers for its members, which may also avail of the buffalo banks lending scheme (since most farmer prepare their farms for planting by buffalo).

The following are some of the lessons that can be learned from the Fair Trade rice value chain in Thailand, covering issues both financial and non-financial in nature such as environment, social, and health among others:

- Most of the value-adding activities in the rice value chain are done by millers, fair trade organizations (FTOs) and traders, thereby receiving the larger financial benefits. Farmer producers get meager income from the sale of their crops;
- Privately owned rice mills set the price of paddy rice. They manipulate the price using weight and quality as an excuse to purchase the farmers' produce at a lower price;
- The Fair Trade Rice value chain scheme implemented by multinational organizations in Thailand has been profitable. Small farmers benefited from the higher market price of Fair Trade rice but it is not sufficient to elevate them from poverty;
- Production of organic rice is more profitable than conventional rice since it demands a higher price both locally and internationally;
- Organic rice farming is more environment friendly than conventional farming. Health of the farmers will not be put at risk due to the effects of exposure to various pesticides; and
- Cooperatives can increase the farmers' income by setting up rice and buffalo banks or other similar income generating activities;
- Income from rice farming alone is not sufficient to support household needs of the farmers. Farmers should be provided more training/information on small farm or non-farm projects such as vegetable production, fish production, vending or simple rice value adding project for them to start activities that would generate additional income. Sufficient and affordable credit support must be provided to the farmers who are qualified to undertake a new project.

Rice mills are an essential factor in controlling the chain in favor of the farmers. Support should be provided to farmer organizations with capability of putting up their own mills. The success of the mill means more benefits to its members.

## **Annex 3A – Index-based Weather Insurance in Andher Pradesh, India**

In 2003, Hyderabad-based microfinance institution BASIX and Mumbai-based insurance company ICICI Lombard, with technical assistance from CRMG, launched the first pilot program for index-based weather insurance in the developing world in the Mahahbubnagar district of Andhra Pradesh. This pilot program sold weather insurance policies protecting against low rainfall to 200 groundnut and castor farmers. In 2004, BASIX incorporated farmer feedback into the design of the second generation of improved weather insurance products that were sold to over 700 farmers, several of whom were repeat customers from the 2003 pilot. In 2005, BASIX scaled up the program further, selling over 7,600 policies in 36 locations in six Indian states. These new policies were refined versions of the 2004 products and offered improved risk management features for farmers, but had a generic, standardized structure which made it easier for BASIX to retail to many clients in many locations. Intense training sessions with loan officers, who became literally one-stop-shop customer service agents, allowed BASIX to offer a large array of rainfall insurance products to its farmer clients. In 2006, BASIX sold rainfall and multi-peril weather contracts including temperature and relative humidity to over 11,000 customers.

Since 2003, the Indian weather insurance market has grown rapidly. Four insurance companies have sold weather insurance policies to farmers. Indian weather risk has been reinsured in the international risk markets. For the 2005 monsoon season, a leading Indian seed company bought a bulk weather insurance policy so that it could attach free weather insurance coupons for a minimal level of drought coverage to its cotoonseed packets which were sold to 100,000 farmers in Maharashtra.



## **Annex 3B – Index-Based Weather Insurance in Mexico**

In Mexico, approximately 98 percent of the catastrophic risk to agriculture stems from two types of extreme weather conditions: drought and cyclones. Low-income rural populations are highly vulnerable to the impact of weather, yet their access to insurance programs is almost nonexistent. There is very limited participation from the private sector in agricultural insurance and low-income agricultural producers rely largely on monetary transfers from the government. Some of the reasons why private sector insurers are discouraged from entering the market are as follows: 1) high financial costs in building up sufficient reserves to cover sustained losses given the catastrophic nature of the risk covered; 2) much of the agricultural sector is characterized by low profitability and highly fragmented possession of land that is subject to extreme weather risks; 3) high operating costs for insurers because of the socio-demographic and geographic characteristics of Mexican agriculture.

In response to this situation, the AGROASEMEX, a national insurance institution (majority of which is owned by the government), developed the Catastrophic Agricultural Insurance (CAI) – an index hedge designed to protect small producers affected exclusively by drought. The major client of AGROASEMEX is the government as it buys the insurance to manage the risk they face from making weather-contingent payments to rural residents. The insurance allows the federal and state governments to increase payment to those affected by drought without having to increase their budget. A region's access to this insurance is limited by three requirements: extensive and consistent historical climate data, infrastructure to measure weather changes in real time, and the agro-climatic conditions to allow crops to develop adequately. Essentially, AGROASEMEX is a development agency and a specialized reinsurance institute with a mission to manage risk for federal and local governments.

Given the inherent systemic agricultural risks, AGROASEMEX implemented the following:

- i) Isolate the impact of climatic events from the other factors of production. AGROASEMEX developed a specific model (Simulation Model for Agricultural Insurance) in which it is possible to represent the effect of a weather variable on production levels and therefore to calculate the threshold values of this variable.
- ii) Determine the periods of protection. AGROASEMEX determined the term of insurance in light of the timing of water requirements for sowing and crop growth.
- iii) Create agroclimatic zones of homogenous response. AGROASEMEX identified groups of weather stations with similar characteristics to determine climatologically homogeneous regions.
- iv) Determine the threshold values of the weather variables. AGROASEMEX determined threshold values for rainfall during each cropping phase; when actual rainfall is lower than the threshold value during any phase, it is considered an insurable adverse event.
- v) Establish weather stations and weather databases. To make index insurance viable, a long-term, reliable and homogeneous database of weather information is needed, as are weather stations that report weather data quickly.
- vi) Derive an actuarial valuation of risk. AGROASEMEX used a method of actuarial valuation of risk that must be adjusted to the volatility that is inherent in rainfall patterns.

In 2002, AGROASEMEX carried out an experimental test of the insurance scheme to identify strengths and weaknesses as well as to identify areas for technical and operating improvement. The experiment can be described as follows:

*The test carried out field trials to evaluate the strength of the threshold values and thus, no adverse events were registered. To evaluate the strength of*

*the threshold values established for this phase, a level of soil moisture was identified to determine the date when the soil reached its maximum moisture capacity at each of the climate stations considered in the test. The results showed that for all stations, the maximum moisture capacity was reached in the dates pre-established in the insurance contract for both sorghum and corn. During the flowering and crop growth phases, AGROASEMEX found that the linear models used and the threshold rainfall values were well correlated with field conditions for crops.*

The results of this test of CAI support the feasibility of the methodology and concepts developed by AGROASEMEX. This form of insurance was well suited for commercialization under the assumptions and conditions established in the test and in the regions tested. One additional task was to establish an efficient procedure for choosing the weather stations to be used in the insurance scheme, through coordination between CONAGUA (National Water Commission) and AGROASEMEX, to guarantee a rapid flow of rainfall data.

Between 2003 and 2005, AGROASEMEX insured an area of 1.5 million hectares containing 186 weather stations. The total sum insured was US\$88.1 million, premiums were US\$13.3 million, and indemnities totaled US\$10.5 million. A transfer of risk to the international market starting in 2004, through Partner Re, helps AGROASEMEX to insure the most vulnerable sectors of the rural population.

In 2006 CAI was estimated to cover 2.3 million hectares containing 297 weather stations, with a total insured sum of US\$131.9 million and premiums of US\$17.3 million. According to AGROASEMEX estimates, CAI covered 3 million hectares in 18 states in 2009. The growth of this form of insurance is limited by the availability of weather databases that comply with quality standards. Alternatives for improving analysis and data collection are being explored.

## **Conclusions**

For the Mexican case, index insurance applied to the agricultural sector represents a viable method of coping with catastrophic events. The associated risk is transferable to the international reinsurance market through index schemes when they meet two conditions: (1) the

climatic databases comply with standards of quality established by the risk taker, and (2) measurement infrastructure is available to guarantee efficient data collection and transmission of values.

## **Annex 3C – Index-Based Weather Insurance Experience in Ethiopia**

Agriculture in Ethiopia is almost entirely rain-fed and highly prone to droughts and floods. Given that 85 percent of the population depends on smallholder agriculture, these weather shocks severely affect many Ethiopians.

Nyala Insurance S.C. is one of the leading private insurance companies in Ethiopia and provides a range of products, including both life insurance and general insurance. Nyala operates through more than 30 service centers throughout Ethiopia. To help farmers protect themselves against droughts that significantly reduce crop yields, Nyala recently introduced crop insurance products.

### **Different products for different farmers**

In recent years Nyala has provided two types of crop insurance: multiple-peril crop insurance (MPCI) and index-based weather insurance, each designed to meet the needs of different farmers. The index-based weather insurance will be discussed here.

Nyala introduced weather index-based insurance in 2009 specifically to protect smallholder farmers against weather risk. The index-based insurance product was piloted with farmers in the eastern Ethiopian *woreda* of Boset, chosen because of the vulnerability of yields there to drought, the availability of nearby weather stations, and the willingness of cooperatives in the area to purchase the new product (the cooperative union had previously purchased crop insurance from Nyala). The insurance was targeted to smallholder farmers (most with holdings of less than 0.5 hectare) who grow haricot beans, teff, and other cereals. A weather index product was designed in collaboration with the World Food Programme around the rainfall requirements of haricot beans. This product was purchased by 137 haricot bean farmers in the Lume-Adama Farmers' Cooperative Union (LAFCU), an organization of 22,000 members located in three *woredas*. Similarly, 200 teff farmers in the Kola Tenben *woreda* in northern Ethiopia were insured with a weather index product that was designed around the rainfall requirements of teff.

This product was provided in cooperation with Oxfam-America, mainly using satellite data. Nyala has reinsured these products through Swiss Re.

The product has potential for areas where drought is the major risk to crop yields and where it is easy to define a good year and a bad year. It is difficult to price and reinsure unless the index relies on a nearby weather station that has consistently recorded rainfall for decades.

### **Using cooperatives to reach many farmers**

In both the MPCCI and weather index insurance contracts, Nyala has found that farmers' unions serve as effective delivery channels for the weather insurance products. By working with cooperative unions, Nyala insures all farmers who belong to the cooperative under the same contract. The cooperative is responsible for both paying the premium and distributing potential payouts (as calculated by Nyala) to each insured farmer, reducing transaction costs for Nyala. Working with cooperatives is an important means of achieving the scale required for insurance products.

Because many of these cooperatives already provide financial services and technical assistance, they are well positioned to support the provision of insurance coverage to their farmers. For example, in the case of the haricot bean pilot, all farmers were members of LAFCU. The union was already providing agricultural inputs and allowing farmers to purchase them on credit, given that most farmers have little or no savings to buy agricultural inputs up front. In the pilot project, LAFCU, the Yerer Farmers' Cooperative, and Dede-bit Microfinance served as effective intermediaries for Nyala while also insuring their members' input credit against weather risk. Nyala is continuing to consider ways to provide insurance, taking into account farmers' limited capacity to pay for insurance up front.

## **Investing in infrastructure**

The lack of infrastructure necessary to create the weather indexes makes it difficult to scale up index insurance. Currently, the National Meteorological Agency collects weather data from around 900 weather stations across the country, but only about 140 stations have the many years of historic records required to price index insurance.

In addition, the design of the index-based insurance product depends on a fast and transparent data collection process, but in Ethiopia data collection from existing stations is slow and may be subject to errors. At most weather stations, data are collected manually on a daily basis, recorded on paper, and sent once a month by mail to regional offices and to the central office in Addis Ababa, where they are checked for inconsistencies and entered into a computer.

In the case of the Boset weather index insurance pilot, weather stations in Boset and Sodere provided information on historic rainfall, but the World Food Programme invested in an automated weather station, at a cost of around US\$3,000, to collect data during the insurance contract. This step allowed rainfall data to be collected quickly and reliably, thereby facilitating prompt settlement of the insurance contract.

## **Summary**

Nyala insurance has experienced considerable success in designing innovative weather insurance products that protect a range of farmers. Public investments in institutions such as cooperatives that can retail these products to farmers and automated weather station infrastructure can help scale up these products.

## **Annex 4 - Index-based Livestock Insurance in Mongolia**

The Mongolian rural economy is generally dependent on livestock reared by semi-nomadic herders. Agriculture contributes around 20 percent of the country's gross domestic product, and herding accounts for more than 80 percent of agriculture. According to the 2008 livestock census, Mongolia has about 44 million head of livestock, consisting of goats, sheep, cattle, yaks, horses, and camels. Nearly half of the residents of Mongolia, therefore, are primarily dependent on livestock for sustenance, income, and wealth. Shocks to the well-being of livestock would, thus, have devastating implications for the rural poor and for the overall Mongolian economy. Major shocks are common because Mongolia has a harsh climate where animals are herded with limited shelter. From 2000 to 2002, harsh winters (*dzud*) killed 11 million animals. The Government of Mongolia has struggled with the obvious question of how to address this problem.

In 2001 the Government of Mongolia requested assistance from the World Bank to address the problem of frequent high death rates in the livestock population. Traditional indemnity-based livestock insurance (based on individual losses) has proved ineffective in Mongolia because of the high cost of covering animals spread across vast areas, ex ante moral hazard (herders failed to protect their livestock), and ex post moral hazard (herders falsely reported animal deaths). The World Bank recommended an index-based insurance program based on livestock mortality rates by species and *soum* (county), as well as a comprehensive risk-financing strategy including self-insurance by herders, market-based insurance, and a social safety net. Index-based insurance can lower administrative costs and reduce moral hazard and adverse selection. Its main disadvantage is the presence of basis risk—that is, the index payout may not exactly match the individual livestock loss.

### **The Index-based Livestock Insurance Program**

In 2005 the government entered into a credit agreement with the World Bank to implement the Index-Based Livestock Insurance Program (IBLIP). The government proposed a three-year pilot program in three provinces of Mongolia, starting with sales in the spring of 2006. The pilot



program aimed to provide insurance coverage against catastrophic livestock mortality events to complement household-level risk management strategies for smaller livestock mortality losses.

This program pays indemnities whenever the adult mortality rate exceeds a specific threshold for a localized area (for example, the *soum* in Mongolia). This system provides strong incentives to individual herders to manage their herds to minimize the impacts of major *dzud* events. If a herder has no losses when his or her neighbors have had large losses, the better herder is rewarded for the extra effort by receiving a payment based on the area losses.

The coverage period is from January until May of a given year, when more than 80 percent of the historical livestock losses occur. The sales season is during spring of the previous year. In early June the National Statistical Office conducts a midyear census, which is compared with the previous end-of-the-year census, conducted in December, to determine the livestock mortality rate of adult animals. The program covers sheep, goats, camels, horses, cattle, and yaks.

### ***Layering livestock risk***

The insurance program is a combination of self-insurance, market-based insurance, and a social safety net. Herders bear the cost of small losses that do not affect the viability of their business, larger losses are transferred to the private insurance industry, and only the final layer of catastrophic losses is borne by the government.

The Base Insurance Product (BIP) is a commercial risk product, sold and serviced by insurance companies on a voluntary basis. Herders pay a commercial premium rate for this product, which pays out when the *soum* mortality rates exceed the trigger of 6 percent. The maximum payment for the BIP occurs when mortality rates reach a specified “exhaustion point” of 30 percent. The risk-based premium rate depends on the species and the location. It is slightly lower than 3 percent on average.

The Disaster Response Product (DRP) is a social safety net product financed and provided by government, which begins payment when mortality rates exceed the BIP exhaustion point of 30 percent. Herders who purchase the BIP are automatically registered for the DRP at no additional cost. Herders who do not purchase at least the minimum value of BIP must pay a small administrative fee for DRP.

As an example, consider a herder who owns 100 sheep where the value of a sheep is 20,000 Mongolian tugrik (Tg). The herder decides to insure 50 percent of the total value of his herd—that is, 1 million Tg. The premium rate for the BIP, with a strike (deductible) at 6 percent and a cap at 30 percent, is 3 percent in the selected *soum*, so the herder pays a premium of 30,000 Tg. Suppose the mortality rate in the herder's *soum* during a bad *dzud* year equals 40 percent. The payment rate for the BIP is equal to 30 percent – 6 percent = 24 percent. Thus the BIP payment is 24 percent  $\times$  1,000,000 Tg = 240,000 Tg. Payment for the DRP equals (40 percent – 30 percent)  $\times$  1,000,000 Tg. = 100,000 Tg.

### ***The Livestock Indemnity Insurance Pool (LIIP)***

Because mortality rates are highly correlated across regions in Mongolia, significant risks are associated with the commercial BIP product. Given concerns about financing extreme losses, the pilot design involves a syndicate pooling arrangement for insurance companies—the Livestock Insurance Indemnity Pool (LIIP). Herders' premiums are deposited into the LIIP until the settlement period. Thus, indemnities are fully protected under this scheme. The LIIP also “ring-fences” this line of business and thus protects the domestic insurance market against any financial contagion caused by extreme livestock losses. The Government of Mongolia fully covers insured losses beyond the LIIP reserves through an unlimited stop-loss reinsurance treaty, backed by the World Bank credit. Reinsurance premiums paid by the LIIP to the government are set aside in the reinsurance reserves. The reinsurance reserves pay for the first layer of losses beyond the stop loss. Once the reinsurance reserves are exhausted, the government can draw upon the World Bank contingent credit to pay for any remaining losses.

### **Pilot performance and challenges**

As of September 2009, three insurance cycles had been completed (Table 1). Participation has increased since the first season and reached 14 percent in 2008–09, exceeding expectations

**Table 1—Performance of the Base Insurance Product (BIP)**

<b>Indicator</b>	<b>2006–07 season</b>	<b>2007–08 season</b>	<b>2008–09 season</b>
Number of pilot aimags (provinces)	3	3	3
Number of insurance companies	3	4	4
Number of BIP policies sold	2,222	3,034	3,281
Number of animals insured (thousands)	246	287	309
Total sum insured (thousand US\$)	4,510	5,588	6,272
Premium volume (thousand US\$)	98	141	153
BIP losses (thousand US\$)	1	195	288
Loss ratio (%)	1	138	189

Note: Table shows only BIP results. Premium volume includes risk-based premiums transferred to the LIIP and administrative and operating expenses (mainly delivery costs) kept by the insurance companies. Exchange rate is 1 US\$ = 1,200 Tg. Loss ratio is defined as the ratio of the BIP losses to the premium volume.

Source: IBLIP Project Implementation Unit, 2009.

thanks to intensive information campaigns. In the last two seasons, however, losses were heavy compared with the premium volume, and insurers faced underwriting losses.

The IBLIP represents an innovative approach to agricultural insurance based on a strong public–private partnership. Unlike other government-sponsored agricultural insurance programs, it offers no direct premium subsidies to herders. Instead, the government covers other costs, such as the livestock census, the management of the LIIP, and the subsidized reinsurance treaty.

Nevertheless, the program faces major challenges, mainly related to its expansion to nationwide coverage over the next three years. These challenges include the following:

- Technical improvements are needed in data collections, and technical capacity building is needed in the insurance industry.
- To reduce the high cost of insurance through insurance agents, insurance products should be linked to other financial services, such as loans, offered through bank branches.
- Currently, the government serves as reinsurer, but an important next step is to attract international reinsurers who could also supply international expertise.
- The program is currently managed by a dedicated technical support unit set up under the pilot program and financed by the government, but in the long term these costs should be covered by the scheme out of the commercial premium volume.

## **Conclusion**

The pilot program is the first operation supported by the World Bank involving the design and implementation of a full agricultural insurance program in a developing country. Strong public–private partnerships have been implemented in order to (1) offer insurance products that are attractive and affordable to herders, (2) involve the domestic insurance market while protecting it against catastrophic losses, and (3) limit the government’s fiscal exposure.

The pilot approach adopted by the Government of Mongolia ensures that the program will be continually adjusted based on experience. The next step is to expand the program to more *aimags* (provinces) and to strengthen its long-term viability.

## **Annex 5 – The Agricultural Guarantee Fund Pool of the Philippines**

In order to encourage more financial institutions to lend to the agriculture and fisheries sector especially the marginal farmers and fishermen, the Department of Agriculture established a guarantee fund and tasked the Land Bank to administer said fund under a program called the Agricultural Guarantee Fund Pool or AGFP. The AGFP is intended to provide guarantee cover to unsecured loans extended by financial institutions and other lending conduits (i.e. Rural/Cooperative Banks, cooperatives, NGOs, SMEs, etc.) to new small farmer-borrowers engaged in rice and/or food production projects/activities. The Department of Agriculture (DA), in coordination with the Land Bank of the Philippines (LBP), provides direction and exercises supervision over the AGFP thru a Governing Board. The Board is composed of representatives/officials of the Department of Agriculture, Agricultural Credit Policy Council, Land Bank of the Philippines, National Anti-Poverty Commission and the National Transmission Corporation (TRANSCO), which is the GOCC with the biggest fund contribution to the AGFP. A Program Management Committee was also organized to execute the policy decisions of the Board and manage its operations.

The AGFP extends guarantee cover to eligible loan exposures of participating financing institutions of up to 85% of the loan principal. The program covers rice, corn, high value crops and fisheries. Risks from losses due to non-payment of loans, including those that were caused by natural calamities (such as typhoons, floods, etc.), pests and diseases, as well as market aberrations – with the exception of fraud on the part of the conduit – shall be covered by the AGFP. The program has about P4.5B which, if leveraged twice, would result in loans to agriculture and fisheries in the amount of P 9 Billion.

## **Annex 6A – Experience of Senegal in Community-Based Health Insurance**

The Thies region of Senegal is characterized by a high incidence of poverty, malnutrition, poor health conditions and health services that excluded much of the population. Households facing illness have often had to sell assets and borrow money to pay for treatment. Since 1990, though, the region has been home to CBHI schemes that involve contracts between a nonprofit healthcare provider, a Catholic-run hospital, and mutual health organizations, which developed out of existing self-help groups in rural areas. Today, 16 mutual health insurance schemes operate in the area of Thiès. The main features of the schemes are:

- The schemes are community based;
- Membership is voluntary;
- Ninety percent of the schemes operate in rural areas.
- Only hospitalization is covered.
- These groups have a contract with one particular hospital St. Jean de Dieu, where they get a reduction of up to 50 percent for treatment
- In general, the household-member has a membership card on which he can put all or selected members of his family (beneficiaries). The membership fee is per person insured.

The results of experience with mutual health organization in Senegal suggest that rural health insurance for the poor is feasible under certain conditions. More important, it could be shown that access to health insurance can have a positive impact on their members' economic and social situation. To promote access to health care for the poor and the rural population, community-based health insurance schemes can be an important element and a first step. It allows some limited pooling of risks and thereby leads to an improvement in the health care system, where most people otherwise have to pay their health expenditures out of pocket. However, there are reports that point to the persistent problem of social exclusion— that the community's poorest members have no opportunity to participate and not enough resources to

pay the required premium. To overcome these limitations of community-based health insurance, broader risk pools are required. In particular, the role of external financial support such as government subsidies, donor funding, and reinsurance in encouraging social inclusion needs to be further explored. Further research is needed on how these schemes can be scaled up, replicated, and linked to other social risk management instruments like social funds.

## **Annex 6B - Recent experience of INDIA on Microinsurance**

In 2005–06 a number of Indian MFIs began to provide more comprehensive and complex health insurance products through the partner–agent model, but they are now scaling back or terminating such programs altogether because of implementation difficulties and a high incidence of fraud.

In 2007, SKS, India's largest MFI, introduced mandatory catastrophic health insurance in one of its branches and rolled it out to 600 additional branches in one year. SKS partnered as an agent with a private insurance company to provide the product. By July 2009, the insurance scheme covered 1.7 million members across 1,056 SKS branches. In September 2009, SKS withdrew the product because of a high incidence of fraud and is now significantly redesigning it. KAS Foundation, an MFI that operates in northeastern India and covers about 700,000 households, experimented with offering insurance with a simple critical illness benefit payout. After substantial client servicing issues, where aggrieved clients refused to repay credit, as well as operational challenges in claims processing, it moved from a partner–agent model to a mutual model before ending its health insurance program. The Village Welfare Society, an MFI operating in the state of West Bengal, provided 260,000 individuals with mandatory health insurance through a bundled partner–agent group policy. After substantial operational problems, it is exploring mutual models of offering insurance.

Notable exceptions to these discouraging experiences include the partnership between the SKDRDP Trust and Grameen Koota. The SKDRDP Trust offers a voluntary health microinsurance program for its members and their families. The scheme enrolled 186,000 members at its inception in 2004 and presently reaches 1.3 million individuals. Since 2007 SKDRDP has offered insurance to Grameen Koota, another MFI. The comprehensive product covers cashless medical benefits, maternity benefits, personal accident coverage, death allowance, and coverage for damage to dwellings. The program combines features of the partner–agent and mutual models, with SKDRDP retaining part of the risk and undertaking a major part of the insurance servicing. It acts as an in-house third party administrator (TPA) for managing both hospitalization and special claims.



Another successful example is BASIX, a livelihood promotion institution set up in 1996 and headquartered in the southern state of Andhra Pradesh. In 2002 BASIX rolled out a credit life insurance scheme for its borrowers that provided insurance for 1.5 times the value of the loan, thus protecting BASIX and providing borrowers' families with some liquidity in the event of borrower death. BASIX now offers a wide range of products, including life, health, livestock, and weather insurance. A centralized in-house TPA receives claims, records client data, checks standardized claims adjudication processes, engages with the insurance company, and services the claims.

From the experience of Indian MFIs, it appears that a major constraint to providing microinsurance is effective servicing capacity. To service insurance schemes, MFIs have two choices: (1) build capacity internally through a true partner-agent model, where risk as well as servicing is shared; or (2) engage the services of a professional external TPA. SKDRP Trust and BASIX opted for the former model. SHARE Microfin, another large Indian MFI, opted for the latter and engaged the services of MicroEnsure, an external TPA. A nascent industry of TPAs is emerging in India that can work with both MFIs and other delivery channels for microinsurance. One growing TPA, for example, is Family Health and Planning Limited (FHPL), which works with Yeshaswini Trust in Karnataka.

## **Annex 7 – Calamity Relief Schemes in India/ Vulnerability Reduction Fund of Tamil Nadu, India**

India has one of the best Calamity/Disaster Relief mechanisms among developing nations. The Calamity Relief Fund (CRF) was created at the State level with contributions from both central and state Governments (3:1 ration) and is used to pay for relief in the event of droughts, floods, cyclones, hailstorms, tsunamis, etc. The National Calamity Contingency Fund (NCCF) was created at central level with 100% contribution from the Central Government, and is used for any relief operations not covered by the CRF. The Twelfth Finance Commission has allocated a fund of INR 213.33 billion (US \$4.377 billion) for the 5 year period between fiscal year 2005-06 to fiscal year 2010-11.<sup>2</sup> Though the Calamity Funds were formulated with a noble cause, their execution, efficiency and timely availability are riddled with shortcomings.

In December, 2005, the Indian Government instituted the Disaster Management Act (DMA), which set up a mechanism for the creation of a National Disaster Management Authority (NDMA); a State and District-level Disaster Management Authority; a National Executive Committee (NEC); a National Institute of Disaster Management (NIDM); and a National Disaster Response Force (NDRF). Through these efforts, the Government has brought about a change in the approach to disaster management. It has gone from relief-centric to holistic, covering the entire cycle of disaster management including prevention, mitigation, preparedness, response, relief and rehabilitation. The approach was elaborated based on the conviction that development cannot be sustainable unless disaster mitigation is built into the development process.

In Tamil Nadu, a Disaster Management Fund called the Vulnerability Reduction Fund is about to be put up to support self-help groups or households in the form of interest-free loans (to the groups) in case of calamity or disaster. The fund, to be administered by the Panchayat Level Federation (PLF) for the project villages will be invested in a bank operated by the SHG Federation where it can easily be accessed in times of need. Contributions to the fund will come

from the Project (through IFAD) as well as from the community. The project share will be released during the first quarter of 2010-2011 after ensuring contribution from the community. With regards to the amount of loan (in times of disaster or calamity), the enrolled member can apply for interest-free loan from Rs.1,000 to Rs.5,000.

## **Annex 8A – SHG Linkage Banking in India**

Linking self help groups with banks started out as pilot projects by the Asia Pacific Rural Agricultural Credit Association (APRACA) with funding and technical support from GTZ in several countries in Asia in 1992. The NABARD experience in India achieved the largest scale and outreach and appeared to be the most successful. SHG Banking (Kroft and Suran, 2002) is an approach that helps promote financial transactions between the formal banking institutions with informal self-help groups (SHGs) as clients. The SHGs usually start by making voluntary savings on a regular basis (monthly or fortnightly basis) which they use as quasi-equity together with bank loans to extend interest bearing loans to members. Such loans can be provided for use of any of the borrowers' production, investment or consumption activities.

There are three models of the SHG-bank linkages. These are: (a) SHGs formed and financed by banks themselves (16% of all SHGs)- where the bank takes up the work of forming and nurturing the SHGs; (b) SHGs formed by NGOs or government agencies but financed by the banks (75% of all SHGs)- where the bank provides the credit after the preparation work of the government agency or NGO; (c) SHGs financed by banks using NGOs as intermediaries (9% of all SHGs) - where the NGOs act as both facilitators of group formation and as credit conduits.

The pilot project in India was initiated in 1992 with 500 SHGs which increased to 637 SHGs from 11 states by 1994. By 1997, there were more than 10,000 SHGs covering around 200,000 families. Each SHG has 10-20 members (women), who meet once or twice a month and maintains their membership, savings and loan records. As of 2002, cumulative loans to 461,478 SHGs amounted to \$ 186 million. Ninety (90%) of SHGs were exclusive to women groups. As of 2004, SHG linkage banking expanded to 30 states, involving 2800 partner organizations involved in social mobilization and guidance, 560 banks operating in 36,000 branches (including cooperatives). Commercial banks account for 50% of credit linkages, regional rural banks for 39% and cooperatives for 11%. Cumulative number of SHGs linked to banks is 1,079,000 with an estimated 16 million members making the SHG Linkage Banking as one of the largest rural microfinance programs in the world in terms of outreach (Karduck and Seibel, 2004). As to financial performance, the SHG linkage banking proved to be profitable and sustainable: return

to asset ratio of 1.4% to 7.5%, and operational self-sufficiency ratio ranging from 110% to 165%. These were achieved despite comparatively lower interest rates than other Asian microfinance schemes of Indonesia and the Philippines. A further study by Karduck and Seibel (2004) confirmed low transaction costs both on the part of the bank and of the SHGs. Transaction costs (real costs) incurred by SHGs were found to be only 0.6% of loans outstanding.

The distinctive features of the SHG Bank linkage methodology (Kroft and Suran, 2002) are: (a) “savings first before loan availment” and linking loans to savings (loan availment is based on amount saved), (b) autonomy given to SHG in determining loan repayment terms (loan purpose, loan size, amortization) and allowing group or individually managed enterprises that can be financed by loans. Initial loans are usually funded by savings- typically small (US \$ 2.5- \$ 45) and used for consumption or to repay existing debt from informal lenders payable in six months. Banks establish links with groups that have maintained savings relationships with them. After about six months, the SHG then can borrow from the bank enabling larger loans for consumption and business purposes. Banks usually initiate lending with a 1:1 or 2:1 loans to savings ratio then gradually increase to 4:1. These loans ranged from US \$ 23 to \$450 and are repaid in monthly installments over one to three years (CGAP, 2007). The SHGs usually borrow at 8-12% and lend to members at 24%. Because of literacy levels, SHG records are maintained by NGO staff, a literate member of the group or most commonly – a literate person in the village paid for the service. Records include attendance, savings, loans and members’ passbooks.

A study by CGAP (2007) found that average on-time repayment rate of 88% in five sample SHG promoting institutions, two thirds of loans were for business (agriculture, animal husbandry, micro-enterprise) and average of US \$ 1,388 loan per SHG. Lending performance of SHG lending to members showed a relatively high portfolio at risk (PAR), e.g. 90 days PAR was 24% while PAR for 365 days or more was 11%. This would appear too high compared to the PAR of other models (e.g. Philippine MFIs have less than 5% for 90 days PAR). However, this high level of late repayments did not translate into loan defaults. Loan performance of SHGs with banks was better at PAR 90 days of 8% and PAR 365 days of 4%. The study concluded that while there are many well-executed SHG programs that are achieving financial sustainability, it cannot generalize for the entire SHG movement.

For countries interested to replicate the model, the study (CGAP, 2007) noted that a facilitative factor in India is that commercial banks, mostly government owned, have been encouraged to lend to SHGs because of government-imposed priority sector lending quotas (e.g. banks are required to lend 40% of loan portfolio to the priority sectors). Further, Sharma (2004) cited three concrete actions from the NABARD and the government that facilitated the scaling up of the SHG banking in India: (a) Central Bank's steps to legitimize SHG accounts providing the basis for banks to legally accept deposits from informal SHGs; (b) NABARD's setting up of a Fund that provides financial support to NGOs in the formation of SHGs and for refinancing of SHG loans from participating banks; and (c) NABARD's setting up of research, training and advocacy activities that facilitated political support to the SHG programme. It may be noted though that by 2003 NABARD's refinanced loans constitute 70% of total SHG loans indicating the increasing contribution of commercial banks' own funds for the programme.

## **Annex 8B- Vietnam's VBARD-Central Farmers' Union Linkage**

### ***Vietnam Bank for Agriculture and Rural Development (VBARD)***

The Vietnam Bank for Agriculture and Rural Development or VBARD is the largest bank in Vietnam in terms of capital, assets, staff, operating network and number of clients, with the most extensive network of branches in the rural areas. As of March 2007, VBARD has 2,200 branches nationwide with more than 30,000 staff and a clientele of 10 million farming households, representing more than 75% of the 13 million farming households in the country.

VBARD primarily targets the poor especially farming households. Its loans to poor households are provided at very low interest rates and without collateral. The bank has likewise simplified its lending procedures to include only a one-page loan application form. Thus far, VBARD provides a maximum of VND 10 million (USD600) for farming households; VND 30 million (USD1,800) for households engaged in manufacturing; VND 50 million (USD 3,000) for households into aquaculture or fish farming. The average outstanding loan for a small enterprise is VND 11.27 million (USD700); and for a micro-enterprise, VND 5 million (USD 300).

In order to reach more households, VBARD has established 2,200 branches and transaction offices nationwide as well as 700 mobile car-banks giving bank access to people in remote areas. A great proportion of VBARD's loan portfolio is agricultural. The growth in loans to farming households has grown considerably over time for the period 2000-2007.

In order to reach out to more farming and fishing households, VBARD has developed a unique and effective group lending model. Under this model, a borrower-savings group composed of 5-7 members in the rural areas is formed in cooperation with the Farmers' Union in accordance with a joint resolution between VBARD and the Farmers' Union signed in 1999. The group loan is disbursed by VBARD and the farmers' union is in charge of managing the preparation and over-all operation of the group including loan application assessment, debt

repayment and interest collection from the group members. VBARD also covers the operating fees of the Farmers' Union, and organizes regular training regarding borrowing procedures, invites agricultural organizations to give lectures on cultivation, aquaculture, animal husbandry, etc.

The Farmers' Union consults and closely coordinates with the group members on the formulation and implementation of the policies governing the group including those on loan application assessment and debt collection. Thus, the violation of lending policies and regulations by the borrowers and group leaders is minimized. So far, this group lending model has enhanced and strengthened credit management; has contributed towards the efficiency of loan utilization and repayment; and has also reduced the workload of the credit officers of VBARD. The group leaders, local authorities and bank officers meet once a month in order to get updates on the performance of the members and the socio-economic situation of the area so that they can work out suitable plans and measures. The Central Farmers' Union also provides group members with updates on government agricultural policies and regulations.

After more than seven years of implementation, this group lending model has developed into a successful scheme. It has performed well in terms of debt repayment, reaching 98% including both principal and interest. There are now 85,425 groups with 1,494,409 member households with an outstanding loan amount of USD 1 billion (VND 16,820 billion), 16% of which are loans to farming/fishing households. Forty percent (40%) of the members are women. Moreover, about USD 0.6 billion deposits (VND 10,000 billion) have been mobilized from the members. VBARD and the Farmers' Union plan to double the number of the borrowing-savings group by 2020. The group lending model does not only provide loans, but it also provides a platform for farmers to learn and share technology and experiences in farming, fishing and other business endeavors.



## **Annex 8C – Cambodia’s AMRET-Village Association Linkage Banking**

The AMRET is a leading MFI in Cambodia. As of October 2005, AMRET operates through 28 district branches located in six provinces of Cambodia. Like VBARD, AMRET employs the group lending model through village associations. So far, as of end 2005, AMRET has 1,384 village associations and has 119,183 active borrowers, out of which 75% are female and 95% are borrowers of group loans. Eight percent (8%) of the borrowers are involved in fishing activities. The average outstanding loan per borrower in a group is USD80 and USD258 in the case of individual loans. A village association is composed of several groups of five members per group in a particular area or locality.

A Village Association consists only of a Chairman and Vice-Chairman. It plays the role of an intermediary by borrowing funds from AMRET and lending them to its members. However, the Village Association Committee does not deal with cash management and record keeping as all these are handled by the credit officers of AMRET. The Village Association is largely tasked with administrative work and is also partly involved in decision-making. Under the Village Association model, AMRET is able to provide more financial service to more clients and can better sustain its services to more rural areas over the long-term.

## **Annex 8D- Debt Redemption Fund of South Indian Federation of Fishermen Societies (SIFFS) under the Post-Tsunami Sustainable Livelihoods Programme (PTSLP)**

In order to allow more fishermen to have access to credit, the SIFFS was tapped to manage a *Debt Redemption Fund* for fishermen. This is a project of the IFAD under the PTSLP. The objective of PTSLP is to build self-reliant coastal communities which are able to manage their livelihoods in a sustainable manner in 114 coastal Panchayats of the six districts of Thiruvallur, Kancheepuram, Villupuram, Cuddalore, Nagapattinam and Kanniyakumari.

Through the Debt Redemption Fund, fishermen will be provided with assistance for debt redemption or refinancing that will allow them to clear their debts from traders and middlemen. In order to benefit from the fund, however, these fishermen need to be a member of any fisherman society registered with the SIFFS.

The total amount of the fund is about Rs.25 million to be provided by IFAD as grant to SIFFS in the first four years of the project period. This grant will be quasi-equity to SIFFS to leverage loans from formal financial institutions for the fishermen societies.

Some requirements needed to avail of loans from the Debt Redemption Fund would be as follows: 1) Resolution of the society providing details of the members' debts; 2) Tripartite agreement between SIFFS, the Fisherman Society and Member; and 3) Statement or Plan of Marketing for the first month.

Steps to be undertaken in determining the extent of debt of fishermen are:

- *Preliminary survey of potential village by the community organizer of SIFFS to understand market potential, middlemen control, extent of indebtedness to middlemen/merchants, etc.*
- *Meeting with village committee/ elders to explain idea of society and seek their support for society meeting.*
- *Organizing Village meeting to explain society concept.*
- *Formation of fishermen group from among the fishermen willing to form/join societies.*
- *Formation of ad-hoc committee.*
- *Assessment of indebtedness of each prospective member by ad-hoc committee along with community organizer of SIFFS.*
- *Finalization of list for debt redemption through a resolution of ad-hoc committee.*
- *Verification by SIFFS of limit fixed for debt redemption loan for that village.*
- *Debt redemption loan agreement between the society and the fisherman.*

Debt redemption loan will be repaid through deduction from marketing by the society within 2-3 years at the interest rate not exceeding 12% on declining balance basis. This rate includes a margin of 2% payable to District Federations/Societies for processing loan applications and collecting the repayments from the societies / members. So far 293 fishermen in six Fish Marketing Societies have benefited. The project grant released so far is Rs.47 lakhs.

## **ANNEX 8E – Improving Market Access Through Cooperative Strengthening in China**

Part of the Poverty Reduction Program of IFAD in the Dabieshan Area of Henan Province in the People's Republic of China is a Cooperative Strengthening Program with the following objectives:

- (a) *To enable rural poor households, especially the women in these households to join the local value chain system which will help increase the volume as well as quality of their production and improve marketing efficiency;*
- (b) *To help the target clientele improve their social and economic status by joining the local farmers' organizations. Their improved competence will help increase their share of the total generated value;*
- (c) *To promote sustainable community development through strong farmers organizations, cooperatives and communities.*

Target areas for the establishment of new cooperatives will be villages without existing farmers' organizations but with great market linkage potential.

Essentially, cooperatives will be organized and strengthened as a means of developing poor households into becoming skilled entrepreneurs and significant actors in the value chain. Cooperatives will be tasked to link their members (poor households, particularly women) to different markets as well as to help them improve the quantity and quality of their products through various training or coaching activities. The module will be implemented over a period of three to six years.

The county PMO will be in charge of the module implementation and it will provide guidance and coordinate due technical support for the capacity building of recipient cooperatives.

By the end of the program, participating cooperatives should be able to: 1) link small farmers to markets; and 2) provide business development services that will help enhance the skills and knowledge of beneficiary households especially the women in entrepreneurship and

become significant value chain actors. It is expected that 24,000 households will directly benefit from the module. More than 50% of the beneficiary households should be classified as poor when they join the cooperatives, and 45% should be women-led.

## **Annex 9 – Wholesale Lending Approach of the Land Bank of the Philippines**

Landbank does not enjoy any government subsidy on its operations. It operates as a universal bank. The Landbank opted to do “wholesale lending approach” in reaching out to its mandated clients rather than undertaking direct lending to rural clients. Under this approach, Landbank extends credit facilities (loan and rediscounting facilities) to local rural financial institutions (mostly rural banks and cooperatives) which in turn lend to small farmers and microloan borrowers. Landbank was a participant of the APRACA-GTZ SHG Linkage Project in 1992. While it did not continue lending to informal groups, Landbank continued and concentrated its wholesaling activities to cooperatives.

In the early ‘90s, Landbank aggressively lent to cooperatives, hastily forming cooperatives in the process and treating them as mere “conduits” of bank loans to farmers. Haunted by increasing unpaid loans, Landbank adopted a new approach in mid’90s into enabling cooperatives as financial intermediaries. The strategy consists of: (a) a cooperative rating system that emphasizes the over-all institutional viability of the cooperative which serves as basis in determining credit lines; (b) performance based lending and (c) institutional development support to the cooperatives to improve their governance and management practices including improvement of savings mobilization (through a program called “Member Savings Operation”). The cooperative development approach yielded positive results. While the number of cooperatives declined, the quality of cooperatives improved. Loan repayments of the cooperatives improved considerably (average repayment to Landbank improved from 60% to 90%), membership expanded, internally generated funds (capital and deposits) increased and financial viability of the assisted cooperatives improved. The Landbank maintains 13% to 14% of its total loan portfolio for cooperative lending in recent years (2003-2005).

In 2005, Landbank extended loans amounting to US \$ 312 million to 1,075 cooperatives under the wholesale lending program reaching out to about 518,000 small farmer-members. (Source: Landbank ).

<b>Box 4. Performance of Landbank Assisted Cooperatives (1995 vs 2005).</b>		
<b>Key Result Areas</b>	<b>1995*</b>	<b>2005**</b>
<b>Internal funds to asset ratio</b>	17%	64%
<b>Debt to equity ratio</b>	6: 1	1.5:1
<b>Past Due Ratio</b>	40%	13%

Source: \*ACPC Study of Landbank Coops. \*\*Profiles of Landbank IRF Coops.