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The role of farmers' associations in commodity price risk management and collateralized commodity finance

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“Les analyses et les conclusions de ce travail d'étudiant n'engagent que la responsabilité de son
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Avant propos

La Conférence des Nations Unies sur le Commerce et le Développement (CNUCED) est une agence régionale des Nations Unies qui programme, supervise et réalise des actions de développement liées aux activités commerciales dans un contexte international.

Le secteur des produits de base est un des domaines qui a le plus évolué depuis ces dernières années et qui est capital pour l'économie de la majorité des pays en développement du fait de son poids dans les exportations de ces pays. Le problème de variabilité des prix au niveau mondial se pose depuis longtemps, les tentatives de stabilisation ont été nombreuses et pour la plupart infructueuses jusqu'à maintenant. La période actuelle de libéralisation du secteur des produits de base fait suite de manière radicalement opposée à une période d'accords internationaux pour tenter de fixer les prix mondiaux. Un des exemples concerne le fameux accord des pays de l'OPEP sur le prix du pétrole. D'autres accords ont alors vu le jour pour tenter de fixer un prix minimum comme ce fut le cas pour des denrées telles que le cacao, le café ou le sucre. Toutes ces tentatives ont échoué pour diverses raisons.

Aujourd'hui avec la disparition des organes nationaux qui assumaient cette variabilité pour protéger les marchés internes des fluctuations des prix, les filières internes dont les agriculteurs se retrouvent directement confrontées à ce problème.

Un des mandats donné à la CNUCED par l'ensemble des Etats lors de la réunion UNCTAD VIII en février 1992 concerne spécifiquement l'exploration de voies nouvelles pour minimiser les risques provenant des fluctuations sur les marchés des produits de base. Le sujet de ce rapport s'inscrit dans ce cadre.

Du fait de la nouveauté des problèmes, très peu de littérature est disponible sur la gestion du risque des prix dans les pays en développement. La CNUCED est au jour d'aujourd'hui probablement le seul organisme à s'occuper de ces problèmes, néanmoins d'autres commencent à se pencher sur la question montrant par là même l'intérêt grandissant que procure la gestion du risque de prix.

L'objet de ce rapport est donc de dresser un bilan des différents problèmes rencontrés par l'agriculteur, et partant de là de voir comment les outils de gestion du risque de prix fonctionnent et ce qu'ils peuvent apporter comme solution face à une grande instabilité des prix ; de même face au problème du financement de l'agriculteur, l'étude du crédit d'inventaire couplé à la gestion du risque de prix apporte une voie nouvelle pour les acteurs impliqués dans le crédit.

La principale difficulté ne réside pas dans le fonctionnement de ces outils, somme toute assez simple, mais dans l'établissement d'un environnement idoine où les conditions sont réunies pour une utilisation efficace de ces instruments. C'est là l'essentiel du rapport qui tente de montrer quelles sont les moyens à mettre en place et dans ce sens ce que peuvent apporter les associations d'agriculteurs.

En effet une des caractéristiques majeures des pays en développement est le manque d'intermédiaires : un agriculteur seul (sauf si il est très important) ne peut pas gérer le risque de prix avec des outils financiers. Par contre Il est intéressant de voir ce que peut apporter un groupement d'agriculteurs

comme possibilités pour résoudre le problème. Il est évident que la réponse dépend largement des cas et donc de l'environnement préexistant. Dans bien des cas le rôle des associations sera avant tout d'instaurer une certaine confiance entre les différents acteurs que ce soit pour le commerce ou l'obtention de crédits.

Ce rapport tente de faire le tour du problème, il est destiné à un public souvent novice en la matière, qui bien souvent perçoit mal les enjeux de la gestion des risques. Il était donc essentiel de détailler un minimum le fonctionnement des outils et l'environnement nécessaire à leur utilisation correcte.

Introduction

Price risk management is not a new issue neither price volatility in international trade. For instance north American farmers were yet facing price volatility a century ago. Tools in order to manage this volatility have existed and have been used since then.

In fact the number of farmers throughout the world which are facing price volatility is increasingly. The risk involved in price fluctuations was often supported by public funds and entities such as marketing boards. Indeed in order to sustain agricultural activity and to assure food independence, a lot of government were subsidizing agricultural sector and in this matter were controlling import, export and price of agricultural commodities. Now in the post Uruguay Round era, markets tend to be liberalized with the effect that governments stabilize less and less commodity prices.

Thus price risk is one of the main risk for producers. However one of the biggest difference with other type of risk like climatic risk, harvest risk etc., is that managing price risk is well known and can be mitigated when it is correctly done. Managing price risk at farmers' level is of high interest especially in developing countries in order to improve farmer's income and then investments in agriculture.

Another financial problem is the lack of investment due to lacks of security in the commodity sector. Thus generally private sectors are reluctant to provide credit due to a lack of reliable collateral. In addition considering repayment default donors who provide credit facilities often ask for high interest rate of. This paper is analyzing one of the way to cope with this problem by looking at the inventory credit system adapted to developing countries. In that context, access to credit is linked to price risk management, in other words a person able to manage price risk will have a better access to credit.

Farmers are not able to manage price risk themselves, except big ones; even in the United States the majority of farmers does not use directly price risk management tools, but through traders or cooperatives which provide price guarantee contract based on these tools. Thus it is interesting in focusing on cooperatives and all other forms of farmers' associations in order to look for their possible roles in price risk management and collateralized finance.

The concept of "farmers' association" is not easy to define. It covers many different types of entities, which, as a group, are evolving - in particular in developing countries, the pattern of organization of farmers has changed drastically over the past ten years.

A generic definition of farmers' association could be a place where farmers have decided to put their competencies, skills, finances and willingness together to attain the same goal(s). Depending on the goal(s), farmers' associations can cover a wide range of entities: cooperatives, rural associations, farmer banks, women associations, saving associations, etc. (See box I)

Farmers' associations have become more representative of farmers in the recent past. In particular in developing countries and socialist plan economies, governments considered agricultural

cooperatives as an extension of state power, not as a base of organization for the farmers themselves. Now, such cooperatives have become less important (many have been disbanded or no longer operational, while new grassroots organizations have sprung up), and those that still exist are more independent. Note for example the recent experience of Eastern Europe and the Commonwealth of Independent States - collectivization as a policy has ended, and the reprivatization of collective ownership has, in many countries, already taken place, or, in most others, is in process.

In developing countries, the pressure for a change in the structure of farmers' associations often came from the grassroots level - in many cases, through protests against corrupt and mismanaged government-led cooperatives, in others, because farmers noticed that the only way they could procure inputs or market their products in an effective manner, after the abolition of government marketing organizations, was through self-organization. The pressure from donor governments and international organizations for a reduced government intervention in agriculture often went hand-in-hand with this grassroots movement - in many cases, governments were simply forced to abandon their support to the traditional interventionist organizations. For example in Kenya, these factors have led the government to put the control over cooperatives back into private hands; in Tanzania, farmers were allowed to organize their own new structures parallel to the existing government-led ones; in Peru, a law was passed allowing cooperatives to change their status from government-owned to farmer-owned, in the process writing off their tax debts - this has proven quite successful.

Nowadays, farmers' associations are generally real associations of the farmers themselves, although at times still some way from the ideal - an ideal that can be defined by the following criteria: ¹

- a place of free expression for all farmers, from the smallest to the largest.
- a place of democracy where all members have the right to vote, to support or to condemn the association.
- managed by farmers themselves, and with a credible power vis-à-vis public and private organizations. Acting as the focal point for the expression of farmers' needs and wishes, the associations should be the natural counterpart for government policy discussions on agricultural issues.

Like the older cooperative organizations but hopefully in a more effective manner, farmers' associations are able to provide concrete services to their members. For example, they can give technical assistance and advice, arrange the joint procurement of inputs, raise finance or at least facilitate the obtaining of credits, collect and/or market farmers' products, even play a role in processing.

¹ International Federation of Agricultural Producers, 1995, *Negotiating linkages: Farmers' associations, Agricultural Research and Extension*, IFAP, Paris 21 p., and International Cooperative Alliance, 1995, *Statement on the Co-operative Identity*, <http://www.coop.org/en/enprinciples.html>

This paper concentrates on the role that farmers' associations can play in facilitating agricultural credit and marketing. The marketing function itself will not be discussed explicitly - rather, this paper will focus on the function of risk management, arguing that farmers' associations can play a useful role as an intermediary. Of course, for such a role to be viable, farmers' associations have to have a good knowledge of agricultural markets, including risk management markets - and although they would not have the engage in marketing themselves, it can be expected that with this expertise, they do decide to play an active marketing role. In terms of credit, this paper will concentrate on the role that farmers' associations can play in warehouse receipt finance. In most cases this implies that they, as associations, need to control warehousing space, and have the necessary expertise to manage it.

In other words, this paper concentrates on possibilities that are only within the scope of sound, well-run farmers' associations. It offers no remedies for the many weak, poorly managed or even corrupt farmers' associations that still abound. It does not discuss how one can go from such a weak association to a strong one, or how an association can build up a good marketing function - much work has been done on this in the past, and is still being done by the United Nation's Food and Agriculture Organization (FAO) and others.² This paper is thus of direct relevance only to a minority of farmers' associations in developing countries and countries with economies in transition. But taking into account the fact that in many countries, farmers have only been given the chance to organize themselves such a short time ago and the continuing supportive efforts of so many organizations, it can be expected that the number of strong, well-managed farmers' associations will grow rapidly - and thus, the relevance of the risk management and credit functions discussed in this report.

² Food an Agricultural Organisation, 1991, *Planning of programmes and projects for the promotion of cooperatives and rural groups besed on the AMSAC concept (Appropriate Management Systems for Agricultural Cooperatives)*, FAO, Rome, and
International Federation of Agricultural Producers, 1992, *Vers l'autonomie des organisations d'agriculteurs*, IFAP, Paris.

BOX I

Farmer's associations - their roots and forms

What are farmer's associations? The most simple definition includes all types of associations constituted uniquely or in part by farmers, or having farmers as their sole or main members. The importance of this type of organizations has been recognized for a long time. For example, in a 1975 World Bank report it was stated that "Group arrangements such as cooperatives provide an organized basis for handling many of the problems of providing access to services for large numbers of rural people. They allow a measure of involvement through participation, but also provide a vehicle for collective negotiation of credit, input supplies and delivery of marketable surpluses. Even land management can be organized on a cooperative basis. (...) The establishment of effective group organizations, such as farmers' associations and cooperatives, should have high priority."¹

In principle, cooperatives are not-for-profit ventures, existing simply to provide a service to the farmers. For example, if few traders are active, they can make the markets for inputs or for products more competitive. By pooling products, they can negotiate better sales conditions than individual farmers - and even sell forward. By pooling capital, they can procure machinery (for production or for primary/secondary processing) which are too expensive for individual farmers. They can invest in skills and systems, for example recruiting a professional trader, or installing a Reuters terminal.

Farmers' associations take various forms. All farmers in a region can, by decree, be member of an association, or the association can be formed on a voluntary basis. Use of the association for input procurement or product sales can be obligatory for its members, or it can provide just another alternative. They can be specialized (e.g., a savings group created with the specific purpose of obtaining credits from formal institutions), or generic (e.g., a village association created to represent the local farmers in all kinds of different areas, from social to economic).

If a farmers' association is to be effective, the freedom to join or to quit is essential - farmers should feel the association belongs to them, rather than being imposed by the government or a foreign aid donor. A second essential condition is that the association is truly democratic, with all members having the same rights, and collectively electing their representatives.² In the past, the record of farmers' associations has been very bad precisely because these conditions were not met.

It should be underlined that farmers do not create an association in order to receive subsidies or other advantages. In other words, as is shown in several studies³ the government can promote the creation of truly representative farmers' associations without subsidizing them. Subsidies, in effect, often have negative effects: they weaken group dynamism and cohesion, and promote a free rider problem.

¹ World Bank, *Rural development*, Washington 1975.

² Either with one farmer- one vote, or with votes according to the relative contributions of each farmer - the latter may seem to give unfair benefits to large farmers, but is generally more effective.

³ Natural Resources Institute, *Liberalization of cereals marketing in Sub-Saharan Africa: Implementation issues*, Marketing series No. 1, 1991.

Chapter I

THE PRINCIPAL PROBLEMS OF FARMERS

This last decade, agricultural markets in most countries, including in the developing world, have gone through a process of liberalization. Although it is difficult to pinpoint the exact reasons for this trend (these reasons differ from country to country), the following factors have played a role in many cases:

- the realization that traditional pricing policies discouraged agricultural production;
- the deterioration of public finances, making it necessary to restructure or abolish expensive interventionist organizations, such as marketing boards; and
- pressure from donor governments to liberalize agricultural policies.

A market can be said to be fully liberalized if the following characteristics apply:

- the private sector is free to carry out all activities related to agricultural production, processing and trade, and indeed, is most often involved in all of these functions (except for public-service type activities such as education, information, extension services and the like - although in more developed economies, there is also scope for the privatization of many of these services);
- the interior price reflects the border price (this would indicate the absence of distorting government policies for international traded goods);
- there are no subsidies;
- the government does not fix input or output prices;
- trade across borders is free;
- if there still is a parastatal marketing board, it competes on an equal basis with the private sector.

There are very few developing countries where all these conditions apply -so in practice, most are on the road to liberalization, but have not yet arrived.

The way that the liberalization process has been managed has not always been in the best interest of farmers. It is true that the, at best, paternalistic policies of the past often had rather negative effects on the agricultural sector, while the subsidies given to inputs and credits in no way compensated for the large amounts of money extracted by government marketing agencies. But nowadays, while farmers have often benefited by getting a larger part of the final price of their products, at the same time, they are no longer protected against volatile world market conditions, and often lost the only type of formal sector credit to which they had access. As will be argued in

this paper, farmers would have been better off if the process of liberalization had been accompanied by a parallel program of empowerment - for the local farmers, traders and banks, to be able to function properly in the new, free market environment.

The following sections discuss a number of the key problems of the free market to which farmers are exposed.

A. The problem of storage

Most often, farmers sell their product as soon as possible after harvest, because they need the money. As all sell at the same time, prices are depressed. If farmers were able to store, they would get higher prices, while seasonal price movements would be tempered. There are several reasons why in many cases, they do not store (indeed, many farmers sell so much of their production that already a few months later, they have to start buying food on the market to feed their families):³

- The first reason is that they need money quickly after harvest because:
 - they have to reimburse previous loans;
 - they have to pay taxes;
 - they are short of money because, with their production system, there are only one or two times a year that they procure money;
 - they need capital to increase the scale of their farm operations;
 - they have to prepare the next cultures, buying inputs, etc.
 - they have to pay school fees and the like, and face social obligations such as marriages and other festivities.
- The second reason is that there is a lack of credit in the agricultural sector which inhibits investments in warehouses, marketing, machines, etc. This lack of credit could be explained by the fact that the very large majority of the loans comes from the informal sector (see Box II). Informal lending is limited in size, comes at a very high interest rate (sometimes more than 100 per cent), and with a short loan period. Therefore, informal lending is not well suited for investments. In several countries, an effort has been made to link storage directly to credit in order to overcome this bottleneck - in its simplest form, through the promotion of "cereal banks", village-level organizations for the seasonal storage of grains (see Box III).

³ Malachy Ezeja Obeta, *Agricultural credit in Nigeria: performance at farm level*. in [African Review of Money, Finance and Banking](#), n°2/1992, supplementary issue of Savings and Development, Milan, pp.177-178, table 2,3 and 4.

- The third reason that could explain why farmers do not store is that they are not used to doing so. Even if they perfectly understand their interest in storing their produce for autoconsumption or sale at the most opportune moment, social pressures may oblige them to sell after harvest. In grain deficit regions, if a farmer is one of the few still with grains in stock, pressure from relatives and fellow villagers to distribute it for free will be large - selling all grains to invest the earnings in, say, a goat then makes sense.
- The fourth reason is that storing involves a high risk of loss, especially if farmers can not afford insecticides, improved storage, etc. More generally there is a fear of the future, farmers prefer tangible and concrete things over mere possibilities. Moreover, sound financial management can be quite difficult in a situation of continuous financial pressure.

Box II

Formal and informal credit

In most countries, a range of entities and individuals are involved in providing credit to farmers. On the one hand, one has the informal sector, which includes lending by friends, relatives and the like, and by professional money lenders; conditions vary greatly, with no charges made for some loans, in other cases interest rates at over a hundred per cent. On the other hand one finds the formal credit sector - merchant banks, development banks, saving banks etc. Their main characteristic is that they are highly selective in their selection of borrowers, and require much documentation before approving a loan. In between is the so-called semi-formal sector: credit unions, cooperative lending, group lending and the like; lending by these organizations often is on the basis of mutual solidarity.

Formal sector credits can come at commercial terms, or be subsidized. Since, in recent years, credit provision and interest rates have been liberalized in many developing countries, commercial banks have been in the position to give credits to whomever they like, at rates that reflect lending risks. In practice, however, most of these banks have been hardly interested in providing credits to the rural sector, unless when the borrowers were able to provide sufficient collateral - a condition that excludes all but the largest borrowers. With the advent of new financing techniques, this is changing in some countries, but overall, subsidized credit has been by far the most important form of credit to farmers.

These subsidies can be in the form of subsidies to the credit-providing organization (often paid by foreign donor organizations), or through credit guarantee schemes to cover the losses banks incur when farmers default on their loans. The results of subsidized credit schemes have been far from satisfactory, in terms of their reach (in practice, most schemes failed to reach small farmers), and in terms of their costs - often, losses were so high that credit institutions had large liquidity and even solvability problems. These high losses can be explained by several factors:

- The government set interest rates below inflation - so real interest rates were negative.
- Loan recovery is poor. This can be explained partly by credit institutions' lack of supervision, due to their idea that the government would anyway make up for losses. Open-ended government guarantees have, to a considerable extent, damaged the creativity and dynamism of these credit institutions - for example, only very few institutions have thought of attracting rural savings as a way to raise funds.
- Administrative costs of lending are high. This increases losses, and works against the provision of small loans. In other words, while small farmers often were not taken into consideration, large entities, including parastatal ones, had easy access to subsidized credits, without their solvency being taken into account (the credit institutions generally had to meet lending targets, that is, lend at least a certain amount to the rural sector). This was in turn responsible for a large part of the poor repayment record of subsidized loans.
- As loan supervision was poor, loans were often used for purposes other than those intended by the banks - and in many cases, consumptive rather than productive purposes. Those borrowing were then unable to reimburse the credits.

According to a survey (J. Beynon, *Practical implications of grain market liberalization in Southern Africa*, Kent, Natural Resources Institute, 1994), farmers do not borrow from banks because they are unable to provide the type of collateral security banks ask for, can not find eligible guarantors, find that banks are too far from the farm, and consider that the delay in obtaining money from banks is too large - all this contrasts strongly with borrowing from the informal sector, where a simple promise is generally enough to obtain a credit immediately. The formal sector thus still has a long way to go before farmers will be able to benefit from their loans - but as will be discussed below, there are techniques which allow to bring the two groups closer together, to their mutual benefit.

B. Price instability

Farmers are exposed to both intra- (seasonal) and inter-year price instability (see ANNEX I page 1 & 2 as example of price variability). Intra-year instability in the case of locally-consumed grains generally implies low prices for the main crops directly after harvest, and much higher prices in the period before the next harvest; and in the case of export crops, intra-year volatility reflects world price volatility. The main problems of this volatility are that it makes it more difficult for farmers to decide when to sell and at what price, and for the many (often majority of) farmers who do not produce sufficient food for their own consumption, it means they may have to pay very high prices for grains once they have run out of their own stocks. Inter-year volatility complicates the planning process: it is difficult for farmers to know what to plant, how much to plant, how much money to invest in a crop's production and maintenance (and indirectly, it makes it more difficult for banks to lend them money as they do not know how much the resulting crop will be worth). Both types of instability have wider negative effects on the country as a whole - it creates hardships for poor urban households (at least 20 per cent of their expenditures are normally on staple foods), and makes it difficult for the government to predict its tax income and even, to plan its macro-economic policy.

When a market is fully liberalized, there are four main causes of inter-annual price instability:

- highly variable yields;
- an inelastic demand, as is characteristic for the food market (consumption is more or less the same whatever the price);
- the gap between import -and export- parity prices

Box III Cereal banks

Cereal banks are village or inter-village organizations for buying, storing and selling cereals, managed by a committee appointed by the village community, and destined to guarantee the food security of this village community. They were first created on a large scale in Burkina Faso, starting from 1975, and then spread to Mali, Niger, Chad, and by the late 1980s, Senegal. Many were formed on an informal basis (often by guest-workers returning from France), but the majority was formed through development projects.

Cereal banks buy grains from their members and in some cases, non-members at harvest time with their own funds or with credits, at a price equal or higher than what traders are offering, store these grains in village storerooms, and sell them during the year (often only to members) for a price equal to what they paid, plus costs, a risk premium and a profit margin - thus, they reimburse their loans.

Cereal banks find their rationale in poorly functioning rural cereals markets: price differences between the period after harvest and the period before the next harvest are high (partly because of high transport costs in the rainy season), credits are difficult to get, and especially during the dry season, there is not much competition between traders selling grain. Village level grain storage also tends to be more efficient than state-level storage: lower storage costs and losses, lower transport costs, and faster response time.

Nevertheless, the record of cereal banks is mixed. In Burkina Faso, most cereal banks failed; in Mali, the record was better, but still, many did not survive. Internal problems caused most of these defaults: the organization was used by a small group of persons for their own profit; the management committee did not really manage, often because of lack of skills; there was no bookkeeping; grains were given on credit rather than sold, and credits were not reimbursed; financial safeguards were not put in place; there was little real commitment from villagers, making it difficult to survive a year of unprofitable operations (occasionally, the price difference between the harvest period and six-nine months later is negative, because of a very high production, or the dumping of food aid - it has been found that where villagers find the cereals bank of use, they are willing to provide financial support to keep it going).

- for products that are to a large extent exported or imported, world market price volatility will be reflected in local prices.

A number of policies act immediately on these four causes, thus automatically reducing the potential for price instability:

- policies to reduce yield variability: e.g., developing drought-resistant or insect-resistant plant varieties, expanding irrigation, etc.;
- policies to broaden the range of staple foods that are consumed - this makes demand for a specific staple more price-elastic;
- policies to reduce transport costs, e.g., investments in road, rail and port infrastructure, or more liberal transport policies. This reduces the gap between import and export parity, and leads to a better integration of the national market (in cases where economic actors have limited information on prices outside of their immediate area of operations, investments in information systems, and training, can have the same effect);
- policies to reduce exposure to world market price volatility, in particular through the use of international risk management markets.

A number of other, less market-friendly policies have also been used to reduce price volatility. These include:

- government storage of food products. This has generally proven to be a rather expensive operation;
- attempts to impose fixed prices. This has often not been very effective, as it is difficult for Governments to ensure that all farmers indeed receive the official prices - and if this price reflected a government-paid subsidy, the amount of the crop purchased at this subsidized price was often limited;
- variable tax/subsidy policies - either in the framework of a stabilization fund or a price-band policy. Both of these policies have proven expensive, and not always very effective (the funds paid into price stabilization funds were often already spent when the time came that they were needed to subsidize local price levels). Price band policies will be difficult to implement in the future - they are not compatible with the obligations most countries took on under the Uruguay Round Agreement. Structural adjustment programs have also often forced the abolition of this type of programs, or at least their reduction;
- efforts to reduce international price volatility through buffer stocks and/or export quota systems. The effectiveness of these policies is in doubt, and moreover, the political will to implement such worldwide intervention policies is largely absent nowadays (the only international “price-stabilizing” buffer stock agreement, for natural rubber, follows the trend of market prices).

Price instability clearly has negative effects. It will be argued in this paper that, other than those discussed above, there are a number of presently under-utilized possibilities for, on the one

hand, reducing price instability, and on the other, making it easier for economic actors to cope with the volatility of the market.

The tools which will be discussed are twofold: credit, and price risk management. Credit is a major bottleneck in the improvement of seasonal price instability. In a large number of developing countries, the seasonal price difference is usually much higher than the real cost of warehousing. This is due to the inefficiency of the credit market - for a number of reasons, but largely because farmers need immediate cash, a large part of the harvest is sold immediately. If goods in storage themselves become a vehicle for obtaining credit, this problem can be resolved. Price risk management allows farmers to get a much better idea of the prices they will obtain in the future, and thus, to plan their actions.

C. Other effects of liberalization on farmers

The conditions in a liberalized market are different from those in a market where a government purchasing agency had the monopoly - and farmers will have to adapt to these new realities. For one, farmers have more marketing outlets, and have to make choices as to the way they sell their products. Will they sell to trader A who offers to pay an amount X; or to trader B, who offers 20 per cent less, but is willing to give a credit, and promises to pay a premium if world market prices increase. Will they enter into a forward contract with a trader (with a risk of default, but in principle, eliminating price risk), or sell cash? Will they concentrate on quantity, or is it worthwhile to produce quality products? Is there a benefit in keeping the local cooperative alive, or should one rely exclusively on traders? If one decides to market through the local cooperative, how far up the marketing chain should one go - can the cooperative go into export marketing? All these are difficult questions, and small farmers are not necessarily equipped to formulate the proper responses. What is best in the short run may be bad in the long run. What is good for one farmer may be bad if all farmers behave in the same manner.

Liberalization has generally led to a reduction of the costs in the marketing chain - allowing farmers to receive a larger part of the price paid by local consumers or the final export price (which, however, has often declined relative to world market prices due to quality problems, counterparty risks, and the inability of the new private exporters to profit of the contango which normally prevails in agricultural commodity markets). The way that the benefits of liberalization are distributed over consumers, traders, processors and farmers depends on their relative bargaining position - which in the case of farmers, means that they have an interest in organizing themselves, and to obtain good market information. The self-organization of farmers also leads to a direct reduction in marketing costs: traders are often unable to buy directly from a large number of dispersed farmers, and have to recruit seasonal buyers for this activity - and practice shows that as many as 10 to 20 per cent of them disappear with the money the trader gave them for their purchasing. If the farmers themselves group their material, the trader is able to buy directly from them, thus eliminating this significant loss.

Finally, liberalization has made all kinds of support services and institutions more important - but unfortunately, little effort was often made to ensure that these support services and institutions were indeed ready to provide all the services needed, and that the legal and regulatory environment

reflected the new needs in commodity trade and finance. As a result, farmers have to undertake new kinds of activities in a far from perfect environment - which has created problems, and exposes farmers to considerable risks. For example, in many countries, inputs used to be provided by government entities, often at credit; when these entities were abolished, farmers were often unable to procure inputs from the free market, simply because they were not offered in their area, or they were unable to pay cash for them. Government warehousing operations have been reduced or abolished for many crops, and private warehouse operators were supposed to take over - but often, they have not. Farmers' cooperatives find that the only way they can receive a fair price is by exporting, but the country's rules on export licensing may exclude them from that activity.

The next chapter describes tools for improving access to credit and for managing price risk. The two final chapters discuss the environment for a sound use of these tools, and identify the kind of actions that can bring farmers' associations to improve their commodity marketing, and thus, their members' income.

Chapter II

POSSIBILITIES FOR PRICE RISK MANAGEMENT USING FINANCIAL MARKETS

With the withdrawal of most developing country governments from their price fixing and marketing roles, international price instability is no longer absorbed by the government, but directly borne by farmers, traders, processors and consumers. Price risk is a major problem to farmers. One solution is to use the instruments provided by the financial market place for risk management contracts, that is, futures and options (both of which are traded at organized commodity exchanges), or over-the-counter instruments such as swaps (offered by banks, large trading companies and some other types of large financial corporates).

A. Why do farmers need to manage risks?

Agricultural production is risky: farmers are exposed to weather conditions, vermin attacks, problems with soil resources and plant yield, and, what is new for many farmers, price risk. These risks are mostly uncontrollable for farmers - in some countries, they can take out crop insurance, but possibilities are quite limited. They can also reduce their risks by diversification, but in most cases, this is not the optimal use of scarce resources. They can save money during periods of favorable crops and prices - but then again, they might have been better off investing this money in expanding their production.

The major risk category that, for many crops, can be controlled is price risk. If a risk management market exists (and this is the case for many important crops, including coffee, cocoa, cotton, sugar, palm oil, rubber, wheat and maize), farmers could in theory use them to lay off their risks - just like taking out crop insurance shifts part of their risks to the insurance company. But due to their size, farmers are hardly likely to have direct access to these risk management markets. Farmers' associations, however, can invest in the necessary information systems and skills, and be active on the risk management markets on their members' behalf.

Price instability has several negative consequences (see chapter 1). While prices higher than expected can be partly saved by farmers as protection against future price declines, these possibilities for self-insurance are generally limited - most farmers simply have too much stress on their cash flow. So when prices are lower than expected, they hardly have the means to make up for the deficit out of their savings. The result is economic hardship, making it difficult, for example, to prepare for the next crop season. Price risk management, also called hedging, is a way to reduce the consequences of price instability on a farmer's cash flow - he will be able to plan his business better. When hedging short-term price movements will no longer have a major impact on his

business - it has happened in some countries that farmers burned down their coffee trees in response to exceptionally low prices, with the result that they were unable to benefit from the tripling of coffee prices which occurred just a few years later. With price risk management, one can take a longer-term perspective. The farmer will also be able to ensure others (such as banks) of the value of his products, which improves his access to credit.

B. What is hedging?

Hedging is the use of marketing or financial tools in order to counterbalance the effects of an unfavorable commodity price movement on one's anticipated income. It is the opposite of speculation. For a producer or a buyer, speculation consist of doing nothing to hedge his price risk. If the price goes up, the seller will make profit; and if not, he will make a loss. Different tools are available on the physical market and commodity exchanges, and some tools are also offered by banks.

The oldest way to hedge one's production is the use of forward contracts, customized contracts with traders or processors. Seller and buyer directly negotiate the conditions: the contract price, delivery date, grade and quantity of the product, etc. Delivery will be during a certain period in the future, at a price already determined at the date of signature of the contract.

For instance, a cooperative trades a forward contract to deliver three months after next harvest. The price is locked at the date of the contract which could be done even before the harvest. The price is negotiated in order to find a right price which covers at least the cost of warehousing for the cooperative and is still attractive for the buyer.

Sometimes a problem appears when one of the parts defaults his commitment because he prefers to sell at current price which is more attractive than forward contract s price. Forward contracts do not avoid counterpart risk. The development of these types of contracts implies confidence between sellers and buyers. The use of commodity exchange contracts reduces this counterpart risk - this will be discussed further in the next section.

C. The use of commodity exchanges to hedge production or purchases

1. What is a commodity exchange?

In developed countries, the term "commodity exchange" is generally taken to stand for a place, or an entity, where futures and option contracts are traded. However, just like the western exchanges have evolved from more simple forms of trade, commodity exchanges in developing countries often take other forms. What these exchanges have in common is that they provide a forum for bringing demand and supply together. This can be by organizing trade in contracts for immediate (spot) or future delivery, warehouse receipts, (other) titles of ownership, or indeed,

futures or options. Even in the case of trade in physical commodities, the use of samples or standard grading allows to make trade efficient and fast, making the exchange the benchmark point for pricing.

In whatever manner they may function, commodity exchanges have in common that they are the key source of price information for all trade in their area of influence (which can be national, regional or even international, depending on the barriers against international trade). Apart from that, the services that they provide may vary greatly - they may or may not provide risk management tools, facilitate financing, reduce counterparty risks by using some form of clearing house, etc.

Commodity exchanges which provide cash and futures price allow physical buyers and sellers to gauge what price the market will pay now for a future delivery. In other words, the futures price indicates the forecast of supply and demand in the future estimated by the market. One can say that buyers and sellers discover now which price they are likely to be paying or receiving in a future transaction. For instance, they can sign a contract now for a delivery in three months at the current price indicated for three months later. This is the first main role of commodity exchanges: price discovery.

The second main role is the possibility to hedge against price risk. It could be done with the use of specific contracts: futures and options contracts. Exchanges allow participants to take long or short positions (by buying or selling futures contracts) or to lock in a minimum price for selling or buying (by using put, respectively call options). Such a futures and options market differs from on the one hand, the spot market which trades physical goods and where all contracts are customized depending on the product traded, quantity, grade, date of delivery, modality of payments, etc., and on the other, from other types of commodity exchanges where commodities are traded, under standard conditions, for immediate delivery, or where customized forward contracts are traded.

If such markets were composed by only actors who looked for hedging, the market would be extremely illiquid because each participant would have to wait until a compatible bid or offer arises. Speculators are actors which provide the liquidity to the market because they are assuming risk (and not creating it) being counterparts of bids and offers of hedgers. Speculators are not gamblers or manipulators, they participate to the economic life of the market trying to get information in order to forecast price movement. Doing so they actively contribute to price discovery mechanism gathering information (forecast yields over the world, technological improvement, plant diseases in this region, foreign taxation, etc.) about underlying commodities. In other words, speculators improve the links between commodity exchanges and physical commodities which allows fair prices.

Manipulation of prices contradicts the above roles of speculation because in case of manipulation prices do not reflect the reality of underlying commodities; in other words prices do not follow natural supply and demand conditions. Furthermore, due to the transparency of commodity exchanges (more than in a physical market), manipulation is much more difficult because each participant will react in case of price moves in order to bring price back close to its supply and demand equilibrium.

The risk that prices on the commodity exchange can be successfully manipulated is small. The more the market is liquid, the more price manipulation is difficult. In addition, the exchange's management and that of its clearing house also have controls in place, with automatic limits on individual positions, and with an active oversight on actual trade.

At one stage or another of its development, exchanges have an interest in creating a clearing house. When counterparty risks become a key bottleneck to more efficient trade (that is, market liquidity suffers by the unwillingness of certain actors to enter into transactions with certain others, or transaction costs are increased considerably because of risk premiums and the use of bilateral guarantees), exchanges can successfully introduce a clearing house structure which, in effect, eliminates virtually all counterparty risks for those trading through the exchange. In practice, what exchanges do is to provide an automatic guarantee on all transactions done in the exchange, or in other words, the exchange (or a specially created independent clearing house) becomes the automatic counterparty for all transactions. This is, of course, only useful if the financial status of the clearing house is stronger than that of most or, preferably, all participants. In other words, clearing houses (or clearing departments) have to function in such a way that they ensure the financial integrity of the exchange. This has several aspects, one of which is that it manages "margin accounts" for the exchange's clearing members. When they enter into a position, they have to put up an initial deposit as a guarantee against contract default; and then, each day the clearing house asks the clearing members to post money on their account in order to stay at a minimum level according to their positions.⁴ Those clearing members who trade on the account of others (brokers) normally margin their clients in a similar manner. If clients do not post money on their account when brokers ask for an additional margin payment, brokers have the right to liquidate their positions.

A commodity exchange (in its wider sense) seems an efficient way for improving commodities marketing for producers. Indeed the fact that prices are (normally) instantaneously disseminated eliminates possibilities for traders to cheat producers, thus it is expected that producers will be better paid. Even if futures or options contract are not available for farmers or farmers' associations on the market, processors, traders and other intermediaries could be able to protect themselves against unfavorable price movement using futures and options contracts. Thus they would be able to transfer their price risk to the commodity exchange, and then pay more to farmers. At least price discovery could help farmers to decide what they will produce for the next season and this could avoid some unproductive decisions. For instance some planters in Eastern Asia uprooted coffee trees when prices were very depressed; some time later, prices rose and they had to plant new trees and wait 3 to 5 years before the first harvest.

2. How to hedge using futures contracts.

⁴ For instance, before trading an initial margin must be deposit (14cts/bu for wheat contract in The Chicago Board of Trade). According to price fluctuation, this clearing member's account will be daily credited or debited. In the latter case, the clearing house proceeds to a margin call (a call for additional money to be added in the account) to the owner of the account which has to credit his account before the next market session. The procedure of margin calls is one constraints of futures exchange markets and then makes the participation of banks to provide credit line of participants essential.

A futures contract is very close to a forward contract. The main difference is that they are standardized to allow their trade in commodity exchanges.⁵ Thus it is very easy to buy/sell one contract and to offset the position just a few minutes after; which is difficult and expensive with forwards. Thanks to speculators, in these liquid market it is possible to find a counterpart for each operation.

A physical operator can hedge his price risks using futures contracts in two ways; depending on the risk one distinguishes long hedge and short hedge.

- A long hedger is planning to sell goods on the spot market and fears a price decline.
- A short hedger is planning to purchase goods and fears a price rise.

a. Long hedge

In June a producer wants to sell his production after harvest but at a reasonable price. He will harvest in September and fears a price decline at this date, thus he prefers to fix the price of the sale before harvest. In June he looks at September futures contracts and sees that the current price of these contracts is fine for him.

Price list at the current date of 15 June 1996.				
Price on cents per bushel				
<u>Corn contracts</u>	Open	High	Low	Settle
Jul	312	318 1/2	310 3/4	315
Sep	308	312	305 1/2	310
Dec	304 1/2	308	300 1/4	306
March 97	316 1/4	322	315	320 3/4
May	318	326	315 3/4	321
Jul	314	324 1/2	308	318 3/4

<u>Current date: 15 June</u>	
Action in the spot market	Action in the futures market
Nothing	Sale of X futures contracts at \$3.10 corresponding to the expected volume of harvest

He sells X futures contracts of corn of 5,000 bushels at \$3.10 /bushel.

At September the price on the market has declined to \$2.60/bu. The producer sells his production on the cash market and at the same time offsets his position on the commodity exchange, buying X September futures contracts at \$2.60/bu. He wins \$0.5/bu on the commodity exchanges which balances his sale at \$2.60/bu on the physical market.

Price list at the current date of 20 September 1996.				
Price on cents per bushel				
<u>Corn contracts</u>	Open	High	Low	Settle
Sep	262	267 1/2	258	260
Dec	275	281	271 3/4	276
March 97	280	289 1/4	278	278
May	283 1/4	290	280	281 3/4
Jul	290	302 1/2	281 3/4	286 3/4
Sep	263 1/2	268 1/2	260	265
Dec	260	265	259	264

<u>Current date: 20 September</u>	
Action in the spot market	Action in the futures market
Sale of his goods at \$2.60	Purchase of X futures contracts at \$2.60.
Net sale: \$2.60+\$0.5	Net profit: \$0.5/bu

Finally it is as if he sold at \$3.10/bu.⁶

⁵ Refer to UNCTAD/COM/15 op.cit. for a list of futures exchanges in the world.

⁶ Not taking into account commission costs.

b. Short hedge

A local trader plans to purchase goods in December but he wants to fix the price before that date. At the same date as before he finds the December futures contract price fine for him. Thus he buys Y December contracts at \$3.06/bu corresponding to the volume he will buy physically in December.

<u>Current date: 15 June</u>	
Action in the spot market	Action in the futures market
Nothing	Purchase of Y futures contracts at \$3.06.

At December the price on the market has declined to \$2.75/bu. The trader purchases the goods on the spot market at \$2.75/bu and offsets his positions on the futures market selling Y December contracts at \$2.75/bu. He loses \$0.31/bu on the commodity exchanges which balances his purchase at \$2.75/bu on the physical market.

Price list at the current date of 12 December 1996.				
Price on cents per bushel				
<u>Corn</u>	Open	High	Low	Settle
<u>contracts</u>				
Dec	275	282	273 3/4	280
March 97	290	299 1/4	288 1/4	288
May	293 1/4	300 1/2	290	291 3/4
Jul	300	312 1/2	291 3/4	296 3/4
Sep	273 1/2	278 1/2	270	275
Dec	270	275	269	274
March 98	267	268	266	266

Finally it is as if he bought at \$3.06/bu.

<u>Current date: 12 December</u>	
Action in the spot market	Action in the futures market
Purchase of goods at \$2.75	Sale of X futures contracts at \$2.75.
	Net loss: \$0.31/bu
Net sale: \$2.75+\$0.31	

Another possibility is to leave their contract open until their maturity and deliver the goods physically. In that case, one notes that due to standardization of futures contracts, quantity (one contract is 5,000 bushels in the Chicago Board of Trade), grade and delivery place can not be customized. These are great constraints for a producer who may not have the goods corresponding to these criteria. Compared to a forward contract, futures contract are not designed for physical trade but to hedge its physical exposure.⁷

A more sophisticated trade is through an executable order which implies taking a bet on the future movement of absolute prices. The operation allows to a seller to fix a price after the sale transaction and before the delivery of goods. For example, a farmer wants to sell in December part of his production for delivery in July. He judges that the price in December is too low. The farmer and the buyer sign the sale contract with the possibility for the farmer to fix his price between January and June, the benchmark price being based on the July futures contract. The buyer buys a July contract at the same time at 8.6 cts/lb. In February the price of July contract rises to 9.1 cts/lb. The farmer decides to fix the price at this level. He informs the buyer of his decision and the buyer sells his July contract at 9.1 cts/lb. In fact the farmer has sold his goods at 9.1 cts/lb., the buyer has bought it at this price but he has also realized a net profit (0.5 cts/lb.) with his operations on the futures market. Compared to the direct use of futures markets, the main advantage of this strategy for the farmer is that he does not pay margins.

⁷ In fact only 2 to 3% of the contracts dealt end with a physical delivery, the majority are offsetted.

Precedent paragraph shows how it is possible to hedge on a short/medium term, which is the most common duration for futures contract. It is also possible to hedge for more than one year. The operation of rolling-over allows this inter-annual hedge. The principle consists in repeating several times a hedging operation. It needs advanced skills in futures market because the choice of term contract, the date of rolling over has to be well done (it depends if the market is in situation of contango or backwardation⁸). One also needs good access to credit to cover margins calls. There are also futures of 24 up to 36 months' duration, but in general the market is not sufficiently liquid to allow cost-effective transactions.

Hedging with futures market needs cash flow for margins call requested by the clearing house. The entity which is doing such hedging should have sufficient credit lines provided by his bank(s)⁹. It is a problem if banks do not want to support companies hedging their risk; companies risk that they can not keep their hedge because of insufficient cash flow.¹⁰ Options contracts is another way to hedge, where the maximum possible cost of hedging is paid up-front.

3. How to hedge using options contracts

An option is a right (but not the obligation) to buy or sell a futures contract at a predetermined price (called strike price) at anytime within a specified period.¹¹ There are two options one can buy:

- a put which corresponds to the right to sell a future contract at a strike price;
- a call which corresponds to the right to buy a future contract at a strike price.

One can buy or sell a put and buy or sell a call. When one buys a call or a put, one has to pay this option (its price is called the premium) to the seller of the option. The purchase of a put is very interesting for a producer who would like to protect himself against a price decrease. For example, in May a farmer buys a put at \$0.23 with a strike price of \$3.10/bu at September.

If in September the price is higher than \$3.10, the farmer lets his option expire and makes his sale on the physical market. If the price is under \$3.10, he can exercise the option and force the seller of the option to buy futures contracts at \$3.10/bu. In other words, the farmer will receive a

⁸ For a more complete explanation refer to UNCTAD/COM/15 op.cit. Box IV p 23.

⁹ Refer to "Company control and management structures; the basic requirements for a sound use of market-based risk management instruments", UNCTAD/COM/Misc.55, 3 December 1993.

¹⁰ However, the procedure of call margins is useful in the sense that it shows on a daily basis what is the position of the entity and thus avoid too risky position.

¹¹ Generally, futures contracts are the underlying products, but it could be property or physical products (but this is rare). There are three types of option in commodity exchanges. The American option can be offset at any time within the specified period, the European option can be offset only at the end of its life, and the new Asian one with a strike price based on the monthly average price of the underlying commodity (which allows lower premiums than other options).

futures price of at least \$3.10/bu, irrespective of how low the real price may become; as he had pay 0.23 cts/bu, his effective minimum price is \$2.87/bu.

The farmer must know his costs to choose an adequate strike price (taking into account the premium) which will be the price floor of his goods.

A local trader could do the same, to protect his future purchases against price rises. He can fix a ceiling price buying a call option. Note that if he exercises the option, the real price paid for purchase will be the strike price plus the premium of the call.

A trader could also offset his position by selling an option. In that case the seller receives the premium but runs the risk that the option is exercised if price movements are unfavorable. Their losses could be very large if they fail to retain the underlying commodity. By buying an option the maximum loss will be the premium and the gains could be unlimited, at the reverse by selling an option the maximum profit will be the premium and the losses could be unlimited.

In comparison with futures contracts, with options, the final price is not fixed and it is possible to take advantage of a favorable price movement.

4. The tailor-made contract offered on the over-the-counter market.

Forwards, futures and options allow to manage the inter-seasonal price instability. Concerning inter-annual price instability, instruments are different according to the products. The practice of rolling-over is convenient for regular production all along the year (such as palm oil, rubber, cocoa, etc.), but it is less adapted for products such as wheat or rice which are produced one (or two) times a year. We are going to see other type of contracts which are more designed to long hedge.

A swap is a financial contract which allows to compensate price fluctuations for a physical trader.¹² It is traded on the over-the-counter market between a producer (or a consumer) and often a financial institution. A swap agreement is built around two prices of a good. One is fixed and the other one is variable. For instance, the fixed price is negotiated on the basis of the expected (at the time of negotiation) average price of the good over the swap period, and the variable price is a published price of a futures contract (or in other words it is linked to the sale's price of the seller). At each specified date on the contract, the variable price is compared to the fixed one. If the variable one is higher than the fixed one, it means that the seller has sold at better price than at the fixed one. Thus he pays an amount to the bank. At reverse if the variable price is lower than the fixed one, in order to compensate his losses, the bank pays an amount to the seller. This system guarantees to the seller to sell at a price close to the fixed price.

Because a swap is a financial tool, it does not affect any type of transactions on the physical market (concerning quantity, grade, location of delivery or even the product if one takes care of the price variation of the good involved in the contract). The majority of commodity swaps are medium-term (one to seven years) and most often concern a big transaction volume. Moreover, as

¹² A physical trader is someone who trades goods in the physical market.

a tool of the over-the-counter market, each swap is customized and the result of negotiations. It is important to negotiate well all the clauses of the contract, especially the fixed price must be well chosen. The contracts are irrelevant for small traders and even for their associations.

5. The difficulty of farmers' access to risk management markets.

Developing country farmers are unlikely to have direct access to commodity futures and options exchanges and other price risk management markets - even in the United States, where commodity exchanges have been in existence for over a century, only a small percentage of farmers uses the exchanges in a direct manner, trading futures and/or options through their brokers. In the majority of cases, the use the exchanges through intermediaries - their cooperatives, processors and traders.

There are a number of obstacles against the use of futures and options exchanges:

- contract size - this can be too large for small farmers.
For small farmers the volume of their production could be smaller than the contract's volume and thus hedging production would add a risk on the futures market. However, one contract is generally equivalent to a truckload and so a few farmers could easily fill it
- financial requirements are a much more important obstacle. In the futures market, even if the initial deposit represents only 3 to 5% of the full value of the contract, margin calls in case of unfavorable price movement could reach very high amounts¹³. It is normal that hedgers do not have the financial possibility to meet such requirements. Thus brokers or banks would need to allow their client credit lines until the end of their hedge. This operation is not risky for the lender if well managed because credits will be offset at the moment of closing out futures positions.
- skills in using price risk management tools are essential in order to do not mistakes. Indeed, it is easy to take an opposite position to the right one: buy a futures contract instead of selling one. This type of error is frequent and add a risk instead of hedging it. Moreover, in order to hedge well, the hedger should choose the right term and at the adequate price for him. All this implies considerable skills, which is difficult to acquire and not worthwhile for farmers (except big ones) and even many associations, local traders or local processors.
- access to market information is powerful because strategies are based on the reliability of information. Indeed for hedgers price information is essential to find the right strategy to adopt at the best cost. Thus, each item of news should be immediately disseminated all over the market. In fact the most sensitive to information are speculators because they try to collect all available information in order to forecast price evolution. If hedgers do not have a good and reliable access to information they are not able to hedge their risk properly which add an implicit risk to their actions.

¹³ For instance for a long hedger a price decline of 10 cents/bu for only one contract of 5000 bushels is equivalent to a margin call of 500\$. For a cooperative which has traded 100 contracts, at the end of the day it would have to pay 50,000\$.

- one has to be also able to communicate efficiently with an intermediary (one's broker) who will order to buy or sell in the futures market. Telecommunication is a part of the sound infrastructure for a well running risk management program.
- brokers have to be known in order to be contacted by farmers and transfer farmers' orders to the market, but they have to accept working on behalf of the farmer or farmers' association, which could raise a problem of cost for brokers due to a high number of small positions to take and so a high number of customers accounts to manage for brokers.
- finally, national laws and regulations may be an obstacle if they forbid access to commodity exchanges in general or for specific groups (e.g., in many countries, farmers' cooperatives are not allowed to use futures and options, because legislators wrongfully think these constitute speculative tools). Moreover, some laws have a restrictive effect on the use of such markets because laws do not make the distinction between speculation and hedge (e.g. taxation is the same for both which has a dissuasive effect towards potential hedgers).

However some entities are able to overcome these obstacles.

Farmers' associations can be the first link between farmers and the commodity exchanges. Thanks to their size they are interesting partners for brokers and banks which prefer to lend one big amount instead of several little ones. Moreover, farmers' associations are more reliable because risk of default (for repayment or delivery) is shared between several farmers which reduce such risks.

Concerning access to information, farmers' associations can also play a better role than farmers alone. Indeed, being in contact with exchanges is easier for the association than for a farmer. For the entity in charge of information dissemination, an association is better reachable than individual farmers. Similarly, while individual farmers are generally not able to invest in effective telecommunication tools, farmers' associations are.

Many local farmers' associations in developing countries do not have the required skills for an advanced use of risk management markets, nor are they large enough to make investment in such skills (and in the required systems) worthwhile. While they can adapt a risk management strategy, for its implementation they will have to rely on an intermediary in the country itself. Such an intermediary can be a local bank, a local broker (in particular, if there is a commodity exchange in the country), or a government institution, or alternatively, they could negotiate with the traders to whom they sell that they include risk management clauses in their contracts (e.g., a minimum price). But there are also interesting possibilities for union cooperatives, which could provide a service function in risk management to local associations, in the same way that many now provide services in export logistics.

As concerns the possible role of the Government in providing risk management tools, it is clear that marketing boards or government stabilization funds can use foreign commodity exchanges, packaging the instruments to offer them to farmers' associations. They have the size, a good track record in international markets (backed by a government guarantee), the ability to get information, invest in skills development, acquire the necessary telecommunication tools, etc. Such

a government entity could be, for example, a guarantor of a minimum price, laying off its risks through the purchase of option contracts on foreign exchanges.

The involvement of local banks is another solution. Banks seem to be a logical intermediary for financial tools, and through their subsidiaries in rural towns, many local banks are able, in principle, to reach a large number of farmers. Such banks can play a simple brokerage role, transmitting orders of this customers directly to the commodity exchange. In this way, they do not take any risks. But one should realize that even if banks wish to avoid taking risks, their customers are not necessarily able to manage their own positions without any support. Just like any professional broker, the bank would have to provide training, market intelligence, and other forms of support. Banks can also go further and re-package the instruments offered on the exchanges. For example, while if they act as an intermediary, the customer would be liable to pay margin calls, they could repackage this into a fixed price guarantee without margin calls. Or alternatively, while the futures market would give a fixed price, or a minimum price, for coffee CIF London or New York, they could provide a fixed or minimum price for coffee FOB from the country's ports. Or rather than giving a price guarantee in US\$, they could give it in local currency. In these cases, the bank would be taking on risks (financing risks, counterparty risks, basis risks), and has to have the capacity and computer systems to manage these risks.

For banks which are already involved in agricultural finance, the provision of risk management tools is of particular interest. With such tools, agricultural finance can be expanded at a low cost and low risk. For example, a farmers' association which has borrowed from the bank can, at the same time, be guaranteed a minimum price for its products - not only does this strengthen the relationship between the bank and its borrower, but it also reduces the risk of non-reimbursement of the loan.

For banks which are reluctant to invest in agricultural sector because they think it is a high risk sector, providing price risk management tools could be a means of reducing risks and give more attractive prospects to the sector. Some developing country banks are already providing such tools, for example the PTA Bank in eastern and southern Africa.

Access to these financial tools should not be reserved to farmers or farmers' associations; indeed traders could improve farmers income if they are able to manage price risk. Generally traders pay goods cash to farmers, and because they are exposed to international price volatility particularly if they export, they transfer this risk to farmers including a higher margin in their purchases, thus paying farmers a low price. If some traders would be able to manage price risk, they also would be able to make more benefits. Thus in a competitive situation these traders would be able to pay higher prices. In order to stay competitive, other traders will then also have to adopt price risk management tools. The use of these tools would be primarily by sufficiently big traders. However, more small traders could use financial tools if banks or government entities would act as an intermediary.

The access of price risk management for the whole market would be more efficient if the entities mentioned above work in a complementary manner rather than in an exclusive one. In other words there could be a competition between banks and government entities which provide a

minimum price guarantee and traders which provide a better payment for their purchase or even some forward contracts or other type of contracts described in chapters V and VI.

However, managing price risk is not sufficient for a well functioning agricultural sector, and access to credit at normal interest rate and conditions is also essential. This will be discussed in the next session.

Chapter III

NEW WAYS TO IMPROVE FARMERS' ACCESS TO CREDIT

One of the farmers' main problems, as we saw in chapter 2, is their lack of access to credit. Informal sector credit is at very high interest rate, while the formal credit sector is reluctant to lend, imposing onerous administrative and collateral requirements. This reluctance is mainly due to the risk involved in lending. If farmers are not able to provide good collateral they do not qualify for bank loans. However, most developing country banks have, so far, only looked at a very small range of collateral guarantees, in particular at real estate, land and cash. As will be discussed in this chapter, there are many more possibilities, and in particular the use of a farmers' production as collateral provides interesting opportunities.

A. The functioning of warehouse receipts financing¹⁴

The principle is based on the intervention of a warehouse operator which is reliable and reputable for the bank. The farmer who would benefit from a loan, delivers his goods to the warehouse. After an expertise about grade and weight, the operator gives farmer warehouse receipts. These receipts are the warrant of the loan. After their presentation to the bank the loan is credited to the farmer. The amount of the loan could directly depends on the value of the good stored (the loan could be up to 70 to 80% of the estimated value and at normal interest rate¹⁵). If the farmer fails the bank become the owner of the commodity and could sell it to reimburse the loan. All these reduce the risk for the bank which have a good collateral for the loan.

The other part of the system is the sale of the goods. To remove the goods from the warehouse the farmer needs the agreement of the bank but he can sell directly the receipt to a local trader. Then if the trader wants the goods he pays the bank which reimburses the loan and gives the rest to the farmer. Furthermore commodity exchanges could allow the trade of warehouse receipts which will increase the efficiency of marketing.

¹⁴ See ANNEX II for the example of Philippines Quedancor Program for warehouse receipts finance.

¹⁵ That is to say the interbank rate plus transaction costs plus a small margin and a risk premium which must be lower than other loans to agriculture thanks to warehouse receipts which reduce the risk for the bank.

B. Advantages of the system

The most important advantages is the access of credit at a reasonable interest rate for farmers' associations and farmers.

This system provides also interesting guarantees for lender banks. Farmers could not sell a part of goods stored without the express agreement of the bank. Moreover, the warehouse provides all guaranties for the right preservation of the goods (i.e. improved techniques of storage, insurance against robbery, destruction, etc.). A control of efficiency of warehouse should be done before it has the right to use receipts. Often a government entity in charge of warehouse receipt program would do it.

The fact that commodity exchanges trade warehouse receipts provide information on the prices for each grade in a region. Then traders, processors or even speculators will undertake arbitrage transactions what improve the market and the trade of commodities¹⁶. In the future, the development of this trade could lead to a forward market where price of a commodity would be the price of the warehouse receipt plus the cost of storage. Also the secure warehousing allows the owner of receipts to protect himself against price risk through a commodity exchange. The farmer could do so, what will give another security for the lending bank. Warehouses, traders, processors or each person who can buy receipts, could secure his long position thanks to price risk management instruments.

C. Requirements for a well-functioning system

The warehouse receipt finance system is very interesting but needs a total confidence on what is put in the warehouse concerning grade and weight¹⁷.

In any case, to be efficient it needs a proper incentive policy, a will for banks to play at this game and a will for farmers to try the experience. The framework is difficult to build especially concerning farmers. Even if government and other partners are ready, one should not forget that if farmers will not play all will break down. A way to know their willingness to participate could be through farmers' associations. Indeed, one of the difficult parts is the setting up of reliable warehouses. Farmers' associations could induce their members to participate financially in such buildings. Even though they are not able to finance the totality, at least their financial involvement could be taken as a proof of their will to participate and ensure their participation. In many countries warehouses are yet operational but in the government hands. In order to compete these warehouses would have to be sold or leased into private hands. In this case the participation of buying or leasing these warehouses could show the incentive of farmers.

As we saw the use of warehouse receipts is a simple way to allow credit for farmers, to improve markets and their liberalization, and to develop possibilities of price risk management.

¹⁶ Indeed information on goods in each warehouse allows transparency on the market and then fair prices. It reduces the regional price instability thanks to the possible arbitrage.

¹⁷ The criteria of grading for goods must be the same for all the markets. This is an important part of the framework that government has to built: a reliable system of qualification.

Chapter IV

THE NECESSARY ENVIRONMENT FOR A SOUND USE OF MODERN FINANCIAL INSTRUMENTS

In order to enable farmers to use market-based price risk management instruments and obtain easier (and cheaper) access to capital, either directly or, more relevant, through their associations, there needs to be a proper supporting framework. This chapter will discuss the elements of this framework.

One element is the creation of institutions offering risk management instruments, either new commodity exchanges, or more importantly, banks and other institutions offering access to existing exchanges or providing over-the-counter instruments. The role of the Government is to stimulate the emergence of such institutions (or even, as discussed in chapter III, play this role itself), and then, to ensure that in their functioning, farmers are treated fairly. A second element consists of the elements that determine whether these instruments can be used by farmers or farmers' associations: legal empowerment, improving access to information, awareness-raising and training, etc. A third element is credit - poor access to credit is a problem in itself, and also makes it difficult to implement a risk management strategy (for which one normally has to put up some guarantee funds). The easiest way to improve access to credit for farmers is to promote the use of warehouse receipt finance - government policies to this effect are discussed in the third section of this chapter.

A. The creation of institutions offering price risk management instruments

1. Commodity exchanges

Largely linked to the reduction of government intervention in agriculture, the number of commodity exchanges has increased strongly in recent years. While in 1980, there were commodity exchanges in 12 countries (of which only four were developing countries, two of which with commodity exchanges trading only physical commodities), in 1990, there were 17, and in 1996, 36; in 14 other countries there were plans or studies for the introduction of a commodity exchange. Of the countries where commodity exchanges were created between 1980 and 1996, sixteen were developing ones - half of them in Latin America. Only in five of these sixteen countries, the newly introduced exchanges traded futures contracts - in the others, they concentrated on trade in physical commodities and/or warehouse receipts. As far as the risk management needs of farmers are concerned, while commodity exchanges engaged in physical trade, or warehouse receipt trade, provide evident potential for reducing counterparty risk, they do not provide direct possibilities for

price risk management. However, for internationally traded commodities, they do provide a link with the world market, making it easier to use foreign futures exchanges.

With two or three exceptions, there is no real scope for the introduction of commodity futures contracts in the countries where the creation of a commodity exchange is currently under study. Also, for most of the exchanges engaged in physical trade or trade in warehouse receipts, the potential to introduce futures contracts is small. In only one or two cases, there is a real scope for expanding the use that can be made of domestic commodity futures exchanges. It is therefore clear that most Governments, rather than trying to introduce new futures markets (policies in this regard are discussed in box IV), should concentrate on improving the link between domestic physical exchanges, and for that matter, domestic physical production, consumption and trade, and international futures markets.

BOX IV

Policies for an efficient commodity futures exchange.

● The first action concerns regulations and control of exchanges, the brokers companies, clearing houses and all entities close to the market. Regulations and control are important in order to avoid market manipulations and to protect consumers against fraud or dishonest intermediaries. National institutions¹ with sufficiently power in order to have a real control on the market should be created. This institutions would have several roles.

- They should control brokerage. It is important to well define rules between brokers and customers. A sort of an ethic guide has to be brought and respected by all brokers. A non respect of these rules could ban a broker for exchanges at national level.

- They should regulate trades in the commodity exchanges. National institutions should control the financial health of the exchanges and the trades' regularity according to national laws, and they should help exchanges to inform and adapt them to new laws.

- They should control new contracts. In order to attract more participants, exchanges should create contracts on various commodities. These new contracts have to be well done, if they are not adapted to the needs of the market they will be unused. National institutions should give the authorization to put them on the market² and then to control the availability of new contracts.

● The second action concerns access to the commodity exchanges. According to characteristics described in other parts, the access to the market should be open to a large panel of entities: the ones who need hedging, the speculators and financial entities³ (which are also normally speculators). Restrictive access would have two main consequences. One is that some entities interested in managing price risk could not do it. The other is that this restriction could disturb the well running of the market because of a lack of diversity in participants, and less liquidity.

● The third action concerns effects induced by policies in the physical market. Often barriers on commodity trade have negative influence on commodity exchanges. It can create new type of risk (such as policy risk) which is unhedgeable.⁴ E.g. if storage policy is unpredictable it creates a risk for hedger who does not know if government will store a lot or not. That creates uncertainty in futures markets. Generally stable economic and political environments are useful for commodity exchanges; same thing for a liberalized environment which improves initiatives and dynamism.

● The last point concerns price transparency. One of the main characteristics of commodity exchanges is their transparency. Indeed in the physical market, trades are made between two actors and nobody else knows the price. In commodity exchanges (and especially in auction) all trades are public even one does not know the traders. This transparency provides price reference for all actors. Commodity exchanges price could be consider as the right price of the commodity. Moreover price transparency allows arbitrage between two different places of trades. Arbitrage is an effective way of self regulation market and is only possible if information is publicly available on a current basis. Because of the importance of this price it is important that information system is well running. The exchange has to provide tools to generate a minute to minute price information and display it publicly.

These four points are the most relevant points for an efficient commodity exchange. However these points do not pretend to be the solution for a good commodity exchange, they only underline some concrete problems met in several commodity exchanges. Other external aspects are essential too, such as the warehouse system, the bank system, the insurance conditions, etc..

¹ Such as in the USA the Commodity Futures Trading Commission (CFTC) which oversees the trading of contracts regulates exchange trading, approves all futures exchanges' rules and regulations and the National Futures Association (NFA) which protect the futures trading public, ensures the professional conducts among individuals and registers companies and individuals dealing with public customers and provides a forum for resolving futures-related dispute. (Extract from CBOT, *Agricultural Futures for the Beginner*).

² Contracts should be: not too stringent, with well periodicity, well size and grade and well delivery specifications to ensure convergence with price spot market.

³ Financial entities like pension funds, mutual funds or insurance funds should have access to commodity exchanges because they could provide tools to hedgers or speculators and are also a source of finance. See report by Lamon Rutten (UNCTAD), Dina Umali-Deininger (World Bank) and Benoît Blarel (World Bank): "Managing price risks in India s liberalized agriculture: can futures markets help?", November 27, 1996.

⁴ For instance variable import tariffs on wheat in the USA cut the linkage between domestic and international price, then an exporter from other country than the USA can not hedge safely.

2. Promoting the emergence of other intermediary institutions

As discussed, farmers' associations can often be a good intermediary for providing risk management services to farmers, but in turn, they will depend on the services of other intermediaries (union cooperatives, specialized organizations, banks) to access the risk management markets. It is the role of the Government to provide a proper legal and regulatory framework for the emergence of such intermediary roles and entities.

Often, Government policies are not conducive to sound risk management practices. Many Government officials erroneously believe that commodity markets are synonymous with speculation, and that they create risk - an idea that can be proven to be wrong, as discussed in chapter III.

One major obstacle is often the taxation system. Tax authorities often make no difference between hedging and speculation. Gains or losses due to hedging or speculating in futures markets are submitted to capital gains taxes while physical gains in cash market are submitted to ordinary income taxation. High taxes on futures market gains and the inability to offset them against physical market losses reduces the possibilities for farmers to lock in a price for their sales. For instance if a farmer bears a physical price decline and has hedged his goods in order to lock in the price, he would pay a tax on his futures markets' gains which depends on the gain realized: the higher is the gain, the bigger the tax.

In order to use commodity exchanges, and in particular futures markets, safely, intermediaries also have to be able to manage their positions properly. In other words, poor banking and telecommunications infrastructure are a source of risk. A lack of telecommunication means would make it difficult to take positions on the futures exchanges as soon as the entity detects a good opportunity for it, or to close out a position rapidly when the need arises. A lack of efficiency in transport induces problems of timing. For instance if a trader is not able to deliver goods for cash payment at the expiration date of his futures contracts, he will have a price risk until he is paid. Furthermore poor transport system reduce the correlation between two different market places which reduces the efficiency of the whole market and possibilities to hedge.

A competitive environment is essential for a well-functioning market. If the market is competitive, the use of price risk management markets would develop faster, and it would benefit more people than if the market is oligopolistic, as has been discussed in chapter III. In many countries nowadays, a few big traders dominate key markets. The Government should promote a competitive environment, and facilitate the entry of new actors into markets.

B. Allowing an effective use of price risk management by farmers' associations

In the large majority of cases, farmers will only be able to use price risk management markets through their associations. Associations, however, need to be empowered to do so. This implies they need to be legally able to use these markets; that they have access to the necessary market information; and that they possess the necessary skills.

1. Legal preconditions

If farmers' associations should complete a role of intermediary in marketing chain, they should have the same possibilities as a trader. In terms of legal rights, they would have access to physical and futures markets without restrictions, they would have access to formal credit sector as an enforceable counterpart (in case of dispute with lender). They should be able to trade, act in over-the-counter market towards farmers but especially towards traders or even exporters. If there is no futures market in the country, farmers' associations or intermediaries should be able to buy and sell using foreign currency, eventually through the national Central Bank.

2. Access to market information

As described in chapter III, access to information is essential in order to be competitive and if information is only available for few entities, these have a considerable advantage on others. It is the interest of all entities to have equal access to information because it increases transparency, efficiency of markets and reliability.

Government should be aware particularly of the role of access to information for farmers' associations (especially small ones). Thus a public service for collection and dissemination of information such as prices, crop forecast, quantities traded, stock positions, quality premiums and discounts, government storage policy and so on could create a more level playing field. A well running system of collection and dissemination of information should provide instantaneous information on a minute to minute basis, possible nowadays thanks to computers and networks all around the main market places in the country. Most of the time daily information through TV, radio or newspaper would allow farmers not only to negotiate contracts but also to have price references to sell goods at the best price for them.

3. Awareness-raising and training

Price risk management is a new concept for most farmers. In most cases, the instruments (futures and option contracts) will be traded on foreign futures exchanges, making risk management markets - literally - look very far away. Farmers and more importantly, the leaders of farmers' associations have to become aware of the existence of these markets, and pass through a process of reflecting on how they can be useful for farmers' day-to-day operations. Similarly for warehouse receipt finance: for a long time, farmers' associations have had access to low-cost or even free

credit (if they did not reimburse, little enforcement effort was made by the government agency or donor organization who had given the credit). Now, such low-cost and free credits are scarce, and farmers' organizations need to be able to act as responsible counterparts to credit providers. So, the first step to be made is that of becoming aware of the possibilities - which involves something of a paradigm shift, and is often not easy.

Once farmers' associations are aware of the possibilities and interested in pursuing them, training should follow. In particular, it is important that they understand the difference between speculation and hedging (in practice, the temptation to speculate is large - but can be very costly). Farmers' associations also need to understand that they have to have proper control systems in place: they can not rely on the integrity of one or two people to avoid abuses. Proper training is very important: it is easy to make mistakes, and small mistakes (if the association's trader wishes to hide them, in the hope he will be able to speculate himself out of the problems) can become very expensive. In the case of warehouse receipt finance, it is often essential to provide training to all the parties involved: farmers and their associations; banks; warehouse operators; transporters; processors.

In practice, the offer of price risk management instruments will often be built into physical marketing contracts. The related risks are often poorly understood, by those offering the instruments, and those electing to use them (see box V). There should be an independent agency responsible for screening the different options on offer, and publicizing the benefits and pitfalls - this could be a responsibility for Governments.

BOX V

The importance of understanding over-the-counter instruments

In the United States, only few farmers use futures markets through brokers. Most benefit from special arrangements offered by traders, cooperatives or grain elevators, which give them indirect access to the futures markets. This is a logical arrangement. Traders and elevators have found that they could win clients by offering more flexible marketing and pricing arrangements. Even though farmers may have the skills, not many have the time to follow futures market developments on a daily basis, nor do they have the financial wherewithal to pay the margin calls needed to ride out strong market movements.

However, a lack of proper understanding of markets by farmers, traders and elevators means that from time to time, things can go terribly wrong. This was the case in the United States, where many conflicts arose in 1996 over so-called “hedge-to-arrive” contracts.

With “hedge-to-arrive” contracts, farmers could lock in what looked like a fixed price for future delivery (just like in a standard forward contract), but with the added advantage that when the moment of delivery arrived, they could chose to roll over their delivery obligation to a next period. So, for example, a farmer could sign a “hedge-to-arrive” contract for forward delivery for 2 US\$/bushel, and then, when the moment of delivery arrives, he could chose to deliver for 2 US\$ against the contract, or sell on the cash market for a higher price and roll the position forward. At first sight, this looks quite attractive - the intermediaries could lay off their risks on the futures market, so everyone could be happy. And for some time, everyone was happy. And even now, one does not hear many complaints from soybean producers, for whom prices have remained relatively stable. But it is different for wheat producers, who have seen the price of their product go through the roof.

The rapid rise of wheat prices brought out the hidden dangers of hedge-to-arrive contracts, dangers that were dramatically exacerbated by the poor drafting of contracts. Many contracts were not more than a page long, and failed to spell out mutual obligations and rights. The contracts all specifically referred to a futures market, the Chicago Board of Trade, and in many cases it was also clear that farmers would have to pay the cost of rolling over from one period into the next. It can be debated whether farmers really understood the size of this roll-over risk (after all, the management of a major firm like MG Corp. lost over a billion US\$ when they failed to take these risks into account), but it is clear that none of the parties really understood the funding risks of having large open positions on the futures market.

Take again a farmer who has sold his production forward to an elevator through a hedge-to-arrive contract, for 2 US\$/bushel, at the minimum, he thinks, locking in a good profit margin. Prices increase to a 4 US\$/bushel, and although the farmer realizes he has made a large opportunity loss, he does not worry because he knows he has played safe and is making a profit. But then the elevator contacts him, telling him he either should pay the margin calls (of around 2 US\$/bushel), or deliver the physical commodities, at once. If the harvest has already taken place, the farmer had not yet committed the grains to another party, and the farmer did not commit more under the hedge-to-arrive contract than he harvested, there is no problem. However, these three conditions were often not met, and unable to deliver grain, farmers were confronted with major losses.

As the US experience clearly shows, there is a need for a good regulatory framework, not just to protect unsuspecting small shopkeepers and pensioners against unscrupulous sales pitches by commodity brokers, but also to protect farmers against their own greed. The least that regulators can do is to create appropriate contracting rules, including on the disclosure of risks in contract documents.

C. The conditions for warehouse receipt finance

The current access to credit for the agricultural sector should be enlarged if the agriculture has to be developed. Agriculture needs a lot of finance and particularly short terms loans (6 to 8 months) in order to cover needs during the growth season.

The warehouse receipt finance system allows the use of fresh harvest to finance the next season. In order to be effective the system is based on a reliability between warehouses and lenders, a well-functioning warehousing system, an adequate legal and regulatory framework and sufficient skills in banks and farmers' associations.¹⁸

1. Reliable and generally accepted warehouse receipts

Conceptually the warehouse receipt finance system is very interesting for banks which want to finance agricultural sector but which were reluctant to do so because of the high risks involved. Give his goods as a collateral for a loan is a safe means for the bank to limit repayment default risk. However this implies a complete reliability from the warehouse. The warehouseman will provide receipts at taking delivery of goods. The amount of the loan will depend on receipt indications, thus they have to be reliable. The weight, the grade, the variety should be indicated. This implies that the grading system has to be the same in each place of trades at national (even international) level. It is important for example at warehouse places to control quality of goods by a reputable person such as a government officer, or an officer of the national commodity exchange.

The system has to be reliable and the grading operation well done to inspire confidence not only for the lender but also for traders, processors and exporters. The latter can buy the receipt and take delivery of the goods. Thus the reliability of the receipt is essential to develop this practice. At the beginning of receipts trade, samples could be joined with receipts which would create a better confidence towards receipts. At least receipts should be on secure paper and provide by a national entity such as the national Central Bank which would deliver them only to warehouses allowed in this system.

2. A well-functioning warehousing system

The warehousing system has to be efficient and fulfill several criteria: to be a safe place for goods¹⁹, to provide the service at a competitive price, to be a sufficient number and well disseminated on the country to provide services for all farmers and to have easy access to the store.²⁰ Furthermore only warehouses which fulfill these criteria should be able to enter into the

¹⁸ See ANNEX II for the example of Philippines Quedancor Program for warehouse receipts finance.

¹⁹ Warehousemen should use good techniques of storage but also have contracted insurance against robbery, fire, inundation, etc.

²⁰ This means a good infrastructure but also that all entities could use them without restrictions: farmers, traders or processors should have access to warehousing if they want to hedge their products.

system, thus a government entity could provide a franchise to such warehouses which could then issue warehouse receipts.

However, bottlenecks appear such as a lack of reputable warehouses or a limited access to the available ones. In general, there are not a lot of warehouses because their building cost are important and even if warehouses are present, their maintenance costs are too expensive for farmers' associations. Concerning traders, they do not have the willingness to provide their warehouses to farmers because they generally prefer to buy cash goods and prefer to benefit of the system for themselves. Third party warehouses seem to be able to participate, but they are not numerous and their costs are often prohibitive for farmers' associations. Another possibility is the use of former government warehouses for such purpose.

In any case the reputability and availability of warehouses are the first step to interest farmers' associations and farmers to participate in this finance system.

3. Supporting legal and regulatory framework

Warehouse receipts have to be enforceable in a court of law - not only in theory, but also in practice (that is, local courts have to be aware of the functioning of these instruments). It would also be useful if trade in warehouse receipts were not only authorized but also well-defined concerning the rights of the buyer of the receipt and the owner of the goods. If international banks are to be able to finance against local stocks, they should have the right to export these stocks in case of default by the borrower.

Warehouse receipts should provide clear title to their holder. Until the farmers who deposited the commodities have sold the receipt, they are the owners of the goods stored. However, if they have pledged these receipts as security for a loan, they do not have the possibility to handle them without the authorization of the lending bank. If they sell the goods, the bank should know the buyer and give him the right to take delivery, for example from the moment on that he has made his payment.

4. Warehouse receipt finance skills of banks and farmers' associations

Banks are generally averse of lending to the agricultural sector because of high counterparty risks. But thanks to warehouse receipts, banks can cover many risks with the goods as collateral, which would be a good starting point. Farmers are, in principle, an interesting public. They have regular expenses, e.g. to buy inputs, and also need investment funds. Moreover, farmers are at the basis of the commodity chain, and by providing them with finance against the security of warehouse receipts, local banks can increase their role in international finance. Warehouses and banks are the two main pillars of the system. Both need to be willing to use receipts, and they should understand that they have a lot to earn in the financing of agriculture.

Chapter V

THE DIFFERENT POSSIBILITIES FOR FARMERS' ASSOCIATIONS TO IMPROVE MEMBERS' ACCESS TO FINANCE AND PRICE RISK MANAGEMENT

Farmers' associations can play a considerable role in improving access to price risk management markets and low-cost credit for their members. But before they are able to do so, they must overcome a number of problems and constraints.

A. External and internal constraints for farmers' associations

This paper does not discuss how one can create a new farmers' association in order to provide financial services - in any case, experience has shown that in order to be successful, associations have to grow out of grassroots demand (a necessary, but not sufficient condition). Rather, as mentioned before, the paper is only concerned with farmers associations which are already well-managed and benefit from a sound support from their members, identifying what new practices they could adopt to improve access to credit and price risk management.

In effect, the main factor determining whether a farmers' association will be able to benefit of modern financial tools is the functioning of the association itself. If the association has clear rules of functioning, respected by its members; if it has an elected staff determined to address the members' problems (rather than trying to subvert the association for their own uses); and if it has a dynamic approach towards improving farmers' income²¹, then it will be relatively easy (and rather profitable) to add these new services to its range of operations.

Nevertheless, however good is an association, its ability to contribute to its members' well-being still depends on its environment, especially the legal framework and the institutional support network.

In a country where farmers' associations do not have the right to trade, to borrow, to have access to commodity exchange or to be an enforceable counterpart in a contract, the role of farmers' associations in the marketing and financing areas will be limited to the collection of crops. An insufficiently developed institutional framework also imposes limitations. For instance, a lack of finance due to a weak banking system could prevent farmers' associations from invest and from buying commodities. Similarly, an inefficient warehouse system²² makes the use of warehouse receipts impossible, and causes problems of marketing and storage. A dysfunctional market place

²¹ Criteria as determined by FAO and AMSAC.

²² That is to say, not reliable, with important losses on commodities stored, without insurance against robbery or climatic events, etc.

strongly hinders efficient marketing, and thus, makes the relation between the prices that the association's members will receive and (international) commodity exchange prices very uncertain - and then, use of these exchanges for price risk management is not feasible.

B. Possible roles for farmers' associations

Even if the economic environment is far from perfect, farmers' associations can improve marketing and financing conditions for their members. Among other things, they can give more discipline in the market place, in several ways:

- by educating farmers on the way to do trade (including on how to avoid being cheated), and provide them information concerning markets, traders, prices, etc.
- by educating farmers on the importance of quality, and the ways to evaluate quality;
- by stressing the importance of reliability in contract performance, and imposing social sanctions against those who willfully break contract obligations;
- by starting a registry of farmers who are reliable in meeting their obligations - good performance could be linked to access to some of the association's services, such as provision of inputs on credit;
- by opening up a registry of untrustworthy traders and another of reliable ones;
- if there is a need, publish an information bulletin on prices in different market places (if it is not done by the government, which would be more efficient);
- by acting as a buyer or seller on the market, ensuring that its reputation is one of reliability. In practice, traders have little recourse against farmers if the latter default on forward delivery engagements. Associations could be better counterparts, which makes forward sales easier.

This type of services could be provided even by farmers' associations which have to function in a very difficult economic environment. If conditions permit it, they can go much further in the marketing, risk management and finance services they provide to their members; this will be discussed in the following sections.

C. Providing better access to finance and warehousing

There are several ways for farmers' associations to improve members' access to warehousing and finance:

A relatively simple form is the creation of a "cereals' bank", discussed in box 3 above.

They can just provide the framework for warehouse receipt finance:

- negotiate standard loan documentation with the banks

- negotiate the standard conditions (interest rate, tenor etc.) with the banks
- open up a channel of communication with warehouse operators, and provide assistance to ensure that the quality of the goods delivered into the warehouse is sufficiently good. If there are no third-party warehouses, they could consider investing in one -often, there are possibilities to buy or lease government warehouses which have become underutilized following a reduction of the role of the government in agricultural trade.
- explain the contract and the conditions to their members
- preselect eligible members on the basis of their reliability
- assist in the administration, so that banks are not burdened by the large number of relatively small loans.

A step further would be to play a direct role in credit supply: provide joint liability or, if this is not possible, peer pressure allowing banks to accept crops still in the field as collateral, and then once they harvest their crops, farmers store them into a third-party warehouse (reliable from the point of view of the association and that of the bank), where it acts as further collateral for the credit.

If a farmers' association is seen as sufficient reliable by its members, it could contract a global loan corresponding to the volume stored by its member farmers in the third-part warehouse. Each warehouse receipt would be given to the association which then negotiates it to obtain bank funding; this money is then paid to the farmer who deposited the product contract the adequate loan.

The ultimate step in accessing finance using warehouse receipts would be if banks were willing to release the loan before any goods are delivered into the warehouse. This credit could be used in several manners, for instance to buy inputs, or to pay cash for the farmers product at harvest time.

In all these forms, farmers' associations can also act to defend their members' rights, if necessary in arbitration panels or in court.

D. Providing price risk management services

In a number of situations, farmers' associations could provide price risk management services to their members. One essential precondition is that they have the legal right to do so. One situation is if there is a national commodity exchange trading relevant commodities. Another is if the association is able to use a relevant foreign exchange - which, in the case of large associations (e.g., union cooperatives) could be directly, but in the case of smaller associations is more likely to pass through local banks or other intermediaries (so the lack of such intermediaries is a real obstacle). In this latter situation, the role of small farmers' associations would be limited to strategic decisions

on how they wish their goods to be hedged²³ and at what price. The intermediary would take care of the technical part of the risk management operations.

There are also a number of conditions. One is that the farmers' associations has the capacity to engage in risk management, in terms of the training of its managers, and its access to information. Then, it also needs to have a good idea of how much to hedge - the easiest way to know this is if farmers were obliged to indicate sufficiently early the volume they wish to "contract" (that is, for which they want price protection) - but note that, as a non-respect of this engagement could expose the association to a huge financial loss, the commitment of the farmers to their association's well-being is essential.

One can imagine several manners for a farmers' association to provide a risk management function to its farmers.

1. To fix price and delivery date

It can buy goods from farmers with forward contracts, which locks in the price for farmers before the marketing season. Moreover, farmers' association could leave possibilities to pay farmers later if the sale of the commodities was good. For instance, say the current price is 100; the farmers' association buys from farmers at 85 paying this in cash at delivery. At the same time in order to hedge its goods, it sells futures at 120. Doing so farmers' association has locked in its future sale at 120 minus costs of transaction. When the association sell the goods physically at expiration date of the futures, it buys futures to offset its position on futures market.²⁴ This could allow farmers' association to pay farmers at least 15 more.

The main difficulty is the default risk of farmers. The farmers' association has to clearly inform its members what are their interests in delivering to it even they are less paid immediately (at least they are paid in cash).

Instead of hedging with futures contract, farmers association could buy put options which fix a floor price of their commodities and allow them to benefit from price increases.

Anyway, educating farmers not only on the importance of their reliability but also on the tools used by the association is essential for a well running price risk management.

2. Price insurance

Instead of locking in a price before the physical sale, farmers' association could provide to interested farmers a price insurance by buying options for the price and volume indicated by

²³ According to their finance and what market developments they expect, they could choose to sign a forward contract (to lock in definitely the price) or to hedge with the use of futures contracts (and then to lock in the price at the level they want and without constraints on delivery) or to buy options (and then fix a floor price at the level they want also without constraints on delivery).

²⁴ For further explanation on the way to hedge crops with futures contracts, please refer to part 3 or to 'A survey of commodity price risk management' UNCTAD, op. cit.

farmers. This could be done before harvest with approximated sales expected by farmers. In this case the farmers' association is just an intermediary and buys put options on farmers' behalf.

If the farmers' association is more advanced in stock and risk management, it could propose to its farmer a minimum price guarantee for buying their goods. This tool is based on buying put options by the association. The difficulty remains on the prediction of the volume that farmers' association would have to buy and therefore how many options to hedge these purchases. To limit the risk of default, farmers' association should only propose this tool to farmers who regularly and surely deliver.

3. Stabilization fund

Farmers' associations could also run a "hybrid" stabilization fund. Like traditional stabilization funds, this fund would be fed by "taxes" in times of relatively high prices, and subsidize prices when they are low. Such traditional mechanisms do not function very well, partly because of the way commodity prices move, partly because large stabilization funds are an easy target for the spending desires of those who manage or control them. Therefore, a "hybrid" stabilization fund would use market-based risk management instruments, on the one hand to externalize some risks, on the other, to reduce the amount of finance required to operate a viable price stabilization programme. For example, already before the marketing season, the farmers' association can buy put options at a strike price judged "interesting". If the prices at the time of marketing turn out to be lower, they can be subsidized through the profits made on the option positions. If they are higher (which is to say, members are more than happy with the price they are receiving), the association can impose a levy which goes into the stabilization fund.

E. Access to foreign risk management market

Farmer's associations will rarely be large enough to access foreign risk management markets directly. They will need the services of an intermediary organization. This can be a government entity (such as ASERCA in Mexico), or local or regional banks (e.g. the PTA Bank in Eastern and Southern Africa).

Nevertheless at national level, farmers' associations such as a national union of cooperatives should have sufficient scope to have such access and therefore managing price risk.

This looks like the ultimate step of price risk management provided directly by a union of farmers' associations to its members and through them to farmers. The cost of risk management may then be lower than if it was provided by a bank, but difficulties remain in evaluation of need of risk management tools from farmers and the links between members of such a pyramidal structure.

F. Traders versus associations

One can wonder if all precedent financial services would or should be provided by farmers' associations. Actually, if traders are highly competitive, farmers' associations could just concentrate on facilitating: educating their members, reducing counterpart risk by the provision of information and guarantees. After all, in a situation of competition, traders can be expected to offer to farmers all the benefits of modern financial tools, including low-cost credit and price risk management. But in many countries, competition is still far from perfect, and then associations can play a more active role.

CONCLUSION

One of the main problems for farmers in developing countries is their lack of access to finance. This acts as an obstacle for investment, for improving the quality and quantity of their production, and for ameliorating their standard of living.

This paper focused on two ways to solve farmers' cash flow problem: how to get a better access to credit, and how to manage price risk. The problem of poor access to credit is not new for farmers; a lot of projects have been set up to resolve it with mitigated success in most countries. Price risk is also not a new problem, governments were used to manage price risk in order to protect farmers. However, the current trend of liberalization leaves farmers directly confronted with price volatility.

Introducing farmers in developing countries to new financial tools merits investigation, because it provides an alternative to buffer funds or other state-led schemes stabilize prices. Such funds have shown to be a major source of deficits for government treasuries, and have not yet proven to be efficient. Price risk management tools are a possibility which avoid at least large government expenses. However, difficulties here are in the preconditions required for a well-functioning system as discussed in Chapter IV. As lack of credit is often a major constraints, one of these conditions in many countries is the availability of an efficient warehouse system.

Price risk management comes with a good implementation of the warehouse receipts system. It ensures the lender that the borrower will receive minimum price for its goods which reduces default payment risk. Possibilities to combine price risk management and commodity-collateralized finance exist if all requirements are in place. The concepts are in fact simple, one is to provide one's own goods as collateral, the other is to fix the sales price in advance to avoid price fluctuations.

Actually, the difficult part is the setting up of well-functioning system. In this respect, farmers' associations can help in building an adequate environment. Indeed, farmers' associations normally exist in order to help farmers, thus in playing an active role they give a positive sign that farmers want to improve their efficiency in production and their living conditions. A successful project is based on the willingness of actors to participate in it. In this sense, the role of farmers' associations is important because they have a sufficient size to be reliable, and they are able to defend their members' interests. Farmers' associations should be the link between farmers and the financial world.

This report explains the use of price risk management tools and collateralized commodity finance as a means to improve farmers' income and farmers' investments. It is also stressed that the essential part of work to be done is the creation of an adequate environment for an efficient use of these tools. However, such environment is different between countries, so this report does not pretend to give the solution but only to get a frame of reflection for different countries about new tools for agricultural sector. For each country, it is necessary to determine what is the best way to use these tools, taking into account the local situation.

GLOSSARY English - Français

arbitrage	arbitrage
auction	salle aux enchères
backwardation	déport ; qualifie le fait que le cours à terme éloigné est plus bas que le cours d'une échéance plus proche
basis	base, différence de prix entre le produit de base au comptant et sa cotation à terme
benchmark	référence
bid	offre d'achat sur le marché à un prix donné
broker	agent de change ou courtier
call option	option d'achat
clearing house	chambre des compensations
collateral	nantissement
commodity exchange	marché des produits de base et non uniquement des contrats à terme ou des options
contango	report ; qualifie le fait que le cours éloigné est plus élevé que le cours d'une échéance plus proche (ce qui est le plus courant pour les produits agricoles)
counterparty risk	risque de contrepartie
delivery	livraison physique du produit
forward contract	contrat à livraison différée
future contract	contrat à terme
futures market	marché des contrats à terme
grading	qualification de la marchandise, contrôle de la qualité
hedge	se couvrir
initial margin	(ou <i>deposit</i>), dépôt de garantie

long	une position est dite longue lorsqu'elle a à son actif plus d'achats que de ventes
margin call	appel de marge ou appel de fonds
offer	offre de vente sur le marché à un prix donné
offset	(ou <i>close out</i>), clore, liquider (une position sur le marché), action qui consiste à prendre une position inverse de celle déjà acquise de manière à sortir du marché. Ex: vendre un contrat future alors qu'on en possède un
option	option, voir les deux types d'options: <i>call option</i> et <i>put option</i>
over-the-counter	marché hors cote
price discovery	mécanisme détermination des prix
put option	option de vente
roll-over	(ou <i>switch</i>) reconduction d'un contrat à terme par exemple sur une prochaine échéance
settlement price	prix de cloture
short	court, position inverse de <i>long</i> , soit qui a plus de ventes que d'achats
spot	immédiat, peut se dire du marché ou des contrats
strike price	prix d'exercice, correspond au prix garanti d'achat ou de vente par une option (resp. call ou put)
underlying commodity	sous-jacent, se dit du produit de base qui sert de référence au marché à terme par exemple

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ANNEXES

Philippines Quedancor Program for Agri-Aqua Inventory Management (AIM)

Global view of the principle of quedan's receipt system

ANNEX II

