

ROSA Focus

This Month's Highlight: Insuring agricultural risks

In many developing countries, the agricultural sector is particularly vulnerable to outside shocks. Weather risks (drought, flooding, cyclones, etc.) and market risks (price instability, etc.) weigh on agricultural activities¹. They appear to be one of the primary sources of household vulnerability (in particular for poor farmers and consumers).

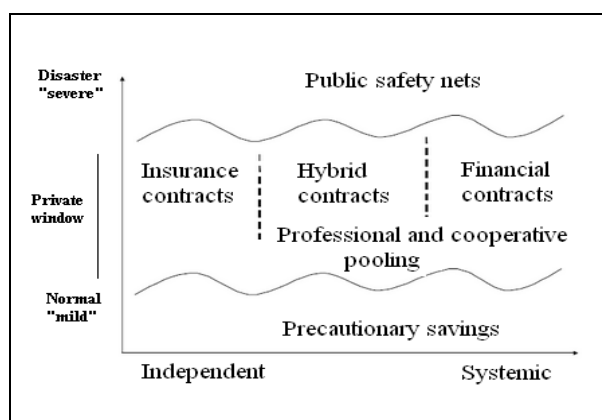
In recent years, agricultural risk management instruments—insurance mechanisms in particular—have been the subject of growing interest. In developing countries, the focus has above all been on commodities (coffee, cocoa, cotton, etc.). More recently, particular attention has been paid to agricultural risk management in conjunction with food security. Pilot projects have been set up in several countries, including programs based on drought risk management tools in Malawi and Ethiopia.

The sharp price volatility of foodstuffs and the heightened risks linked to climate change have reopened the debate on policies and tools aiming to protect states and households and insure agricultural risks. This article takes a look at the **private risk management mechanisms** (insurance, futures markets, etc.) that are regularly mentioned as being the major solutions. Are these tools suitable for risk management in developing countries? The goal of this article is to provide insight into the answers by clarifying certain concepts and shedding light on these mechanisms' advantages and limitations, notably based on examples of experiments that have been set up.

The diversity and complementarity of risk management instruments

First, it is important to clarify a few concepts, and make explicit the types of risks and management instruments usually associated with them. Risk management instruments can be private, collective (or professional) and/or public. Classification of these instruments depends on the degree of independence (independent risk/systemic risk), the probability of occurrence, and the intensity of the risk (mild risk/severe risk). Figure No. 1 charts these instruments².

Figure No. 1: Risk management instruments



Source: According to Cordier and Debar (2004).

¹ Agricultural risks may also be institutional (changes in the policies or regulations that affect agriculture), financial (exchange rate variations) or human in nature. Only weather and price risks are analysed in this article.

² Jean Cordier, *La gestion des risques en agriculture. De la théorie à la mise en œuvre : Éléments de réflexion pour l'action publique*, Notes et études économiques No. 30, March 2008.

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Agriculture is especially concerned by **systemic risks** (that simultaneously affect several variables and reach all actors) and **disaster risks** (that are low in frequency but come with very high associated losses) that are, by nature, difficult to insure³. Developing private risk management instruments is particularly interesting for agricultural sector⁴. Public instruments (safety nets) and private instruments must be seen as **complementary**. A combination of tool seems necessary depending on the nature and scale of the risks, crops and commodity chains concerned⁵.

Insuring agricultural risks in developing countries

Insuring agricultural risks with private tools is recent (as opposed to public management which is fairly old). Market **price risk management** took off starting in the 1980s. For **weather risks**, the dynamic is even more recent since the weather derivative market (cf. Box No. 1) emerged roughly a decade ago. Use of the weather market and indexed insurance products for agriculture was recently introduced in developing countries.

Box No. 1: What are weather derivatives?

Weather derivatives are financial contracts based on an underlying weather index. They are based on data recorded in one or several meteorological stations. Payment is automatic in the case of bad weather, in function of conditions set in advance. Since it was created, the weather derivative market has grown rapidly. Financial instruments have primarily been used by private companies (energy companies in particular to “cover themselves” or offset income losses due to milder winters).

Source: World Bank

Price risk management

There are several mechanisms to manage the risks linked to fluctuating agricultural prices. Tools such as futures and options offer the ability to lock in or secure purchase or sales prices on a forward basis⁶. This type of price risk management does not reduce the impact of long-term trends (i.e. falling or rising trend in international prices), but can provide protection against impacts of short-term—even medium-term—price volatility.

These mechanisms were initially tested in developing countries to help producers withstand agricultural commodity price volatility. Several initiatives were set up in recent years to promote their use **among farmers** in pilot activities supported by the World Bank and other donors⁷. In West Africa, a **commodity chain** price risk management instrument was recently set up with the support of French overseas aid. It is built on a segmentation of the risk according to price levels and their occurrence probability (cf. Box No. 2).

Box No. 2: Price risk management in the cotton commodity chain in Burkina Faso

Depending on how much prices vary around a baseline value calculated each year, different levels of risk are identified:

- When the variations are small (mild risk), they are managed within the commodity chain by the cotton company thanks to a smoothing mechanism⁸.
- When prices drop more than that, the cotton company is covered by its positions on the cotton futures market.
- Finally, when the variations are exceptionally large, the state (or donors) intervene as a last resort (safety net).

Price risk management has recently begun to be used in the **field of food security**. Following the food shortages in 2005, the government of Malawi and its principal partners worked together to set up risk management tools as part of a strategy aiming to lessen the impact of drought on food security. Among these instruments, the government decided to buy a call option on the South African Futures Exchange (SAFEX) to protect itself against a rise in international prices in case a poor harvest would make substantial maize imports necessary. At the end of 2005, the government made a first purchase through the call option of approximately 60,000 tons of maize to cover part of the cereal deficit (at a price much lower than the international price). This initiative received technical and financial support from the World Bank and the UK Department for International Development (DFID).

³ For disaster risks, only national or international public intervention can bear these costs.

⁴ Frédéric Courleux, *Prévention et gestion des risques en agriculture*, Prospective et évaluation, December 2008.

⁵ Cordier, March 2008.

⁶ In the past, stabilization tools were set up such as stabilization funds and international commodities agreements. Since the end of the 1980s, these funds have been dismantled. Most commodity agreements came to an end at roughly the same time.

⁷ Since 1999, the international working group on commodity risks management (the Commodity Risk Management Group, CRMG) has been testing and setting up systems to manage price-related risks for farmers' organizations (in Uganda, Nicaragua, Tanzania, etc.).

⁸ A smoothing mechanism makes it possible to guarantee farmers an average purchase price. When the sale price is higher than the price paid, the smoothing mechanism obtains funds. When the sale price is lower, the mechanism makes up the difference.

Weather risk management

In the discussions on adapting to climate change, and in particular to extreme weather events, insurance mechanisms are the subject of growing attention. These relatively new tools are beginning to be used in the agricultural sector. They mostly target risks linked to low-probability high-impact weather events, such as serious droughts, rather than the risks of more frequent events such as less serious precipitation deficits.

Insurance products indexed on weather conditions have been used in several developing countries. In the **field of food security**, drought insurance, in the form of a derivative contract, was recently developed in Malawi as protection against the impact of a severe and catastrophic drought. With this contract, if the index (cf. Box No. 3) falls below a certain threshold, a sum will be paid to the government, which could be used to acquire a call option that would have the effect of setting a cap on the price of maize⁹. Several donors support this initiative and DFID paid the contract premium. The World Bank acts as an intermediary with reinsurance companies or investment banks that offer weather risk management products¹⁰. For the pilot transaction for the 2008-09 agricultural season, a sum of up to five million dollars will be paid in May 2009 the case of severe and catastrophic drought.

Box No. 3: A weather derivative set up in Malawi

In Malawi, the weather derivative uses a rainfall index based on the Government's maize production model. Local meteorological stations measure rainfall and in the case of severe drought that will impact maize production, according to specific triggers, the contract provides an automatic payment.

Implementation and limitation of these mechanisms

Experiences in using risk management instruments in the field of food security are recent and most are still experimental. Utilisation prospects are potentially interesting. However, numerous questions remain unanswered on the subject of agricultural risk management such as the complementarities between the various existing or to be developed instruments, their appropriateness to the specificities of different agricultural risks, or

even the role of public intervention, farmers' organizations, and donors¹¹.

In addition, implementing these mechanisms runs up against several limitations. The problem of the availability and quality of (weather, agricultural, demographic, economic) data is still considerable. Reliable data are crucial to construct and choose indexes, calculate occurrence probabilities of risk events, etc. Data are often difficult to obtain in several developing countries. There are also large constraints linked to access to these tools. A large part of the actors concerned (developing country governments, farmers or farmers' organizations, etc.) do not have any expertise in the use of this type of instrument. They are fairly complex operations that need to attain critical size. Implementing these mechanisms very often necessitates large amounts of financing and considerable capacity building for institutions and actors.

Finally, these mechanisms aim essentially to attenuate the effects of crises and potential disasters. They are necessarily complementary and must be part of an overall policy to reduce vulnerability. This raises the question of the necessary coordination with policies and instruments that make it possible to increase protection for vulnerable groups and improve states' and populations' ability to withstand shocks.

This article was written with the assistance of Damien Lagandré, project manager at GRET.

For more information:

Jean Cordier, *La gestion des risques en agriculture. De la théorie à la mise en œuvre : éléments de réflexion pour l'action publique*, Notes et études économiques No. 30, March 2008.

Julie Dana and Christopher Gilbert, *Managing Agricultural Price Risk in Developing Countries*, World Bank.

⁹ The system put in place in Malawi combines both mechanisms: weather risk management (drought insurance) and price risk management (call option).

¹⁰ Malawi was the first country to use this new financial product offered by the World Bank.

¹¹ Cordier, March 2008.

Current food security situation

Regional overview Southern Africa

Regional agricultural production prospects remain favourable

Current prospects indicate higher cereal production compared to last season, mainly due to the favourable conditions in most of the maize growing areas. Harvests of seasonal food crops have already started. This is contributing to a gradual improvement in food security conditions, especially for those households dependent on crop production as a primary food and income source¹².

...but high food prices continue to pose a threat to the food security of poorer households in urban areas and in rural areas

The impact of persistently high food prices has remained a major food security concern for the most vulnerable groups through the critical months of the hunger season (between November and March/April).

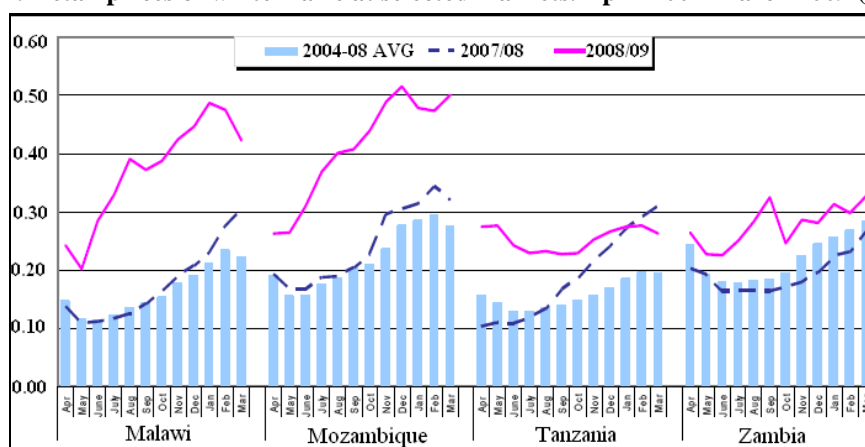
After reaching record highs¹³, food prices started to decline in December 2008. This was the first time in 2008/09 season that such drops were recorded. The slower pace of imports, compared to last year, especially since August 2008 (cf. below) has contributed to the high domestic prices in the region.

This year, the downward trend has been weak. As shown in graph No. 1, retail prices of white maize in some countries decreased slightly (Malawi, Tanzania), as a result of increased food availability from early harvest. Nevertheless, they remain significantly higher than those prevailing during the last five years. In addition, prices have increased unseasonably in several markets (in Zambia and Mozambique) during the last two months.

Local factors affecting current price trends

Reasons for the high price increases vary from country to country. In Malawi, prices remain at high levels and started to decline in February as a result of the improvement in supplies. Private traders contributed to shortages by retaining maize stocks while waiting for prices to rise to levels well above ADMARC¹⁴ fixed prices. In Tanzania, high prices were caused by tightening supplies following a bad harvest in the bi-modal areas that normally contributes 30% of the annual crop production. In Zambia, the higher prices resulted from shortages in the maize industry. Traders and the government have not been able to reach an agreement on suitable prices and quantities to be purchased¹⁵.

Graph No. 1: Retail prices of white maize at selected markets. April 2004-March 2009 (US\$ per kg*)



*Based on average prices (converted in US\$ equivalency, using prevailing average monthly exchange rates) on key markets in each country

Source: Fews Net Malawi, Mozambique, Tanzania and Zambia

¹² Fews Net, Southern Africa food security update, March 2009.

¹³ The highest peaks were recorded in most food deficit countries (Zimbabwe, Malawi and Mozambique).

¹⁴ ADMARC: Agricultural, Development and Marketing Corporation (state food agency)

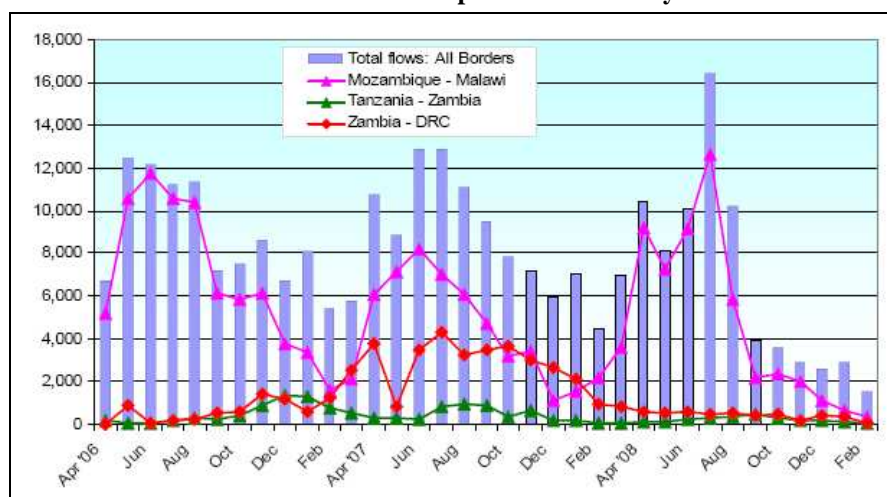
¹⁵ Fews Net, Southern Africa food security update, February 2009.

A drop in formal and informal trade in the subregion

Intra-regional trade plays a significant role in ensuring the region's food supplies. In the 2008/09 marketing year, the pace of cereal imports into the deficit countries of the subregion has been relatively slower than that of the past two years¹⁶. Export bans and trade restrictions, coupled with high staple food prices have led to a drop in informal flows, especially since August 2008. The region's import demand usually peaks during the hunger season. But, in some countries where maize shortages were critical this year, trade flows had marginally narrowed the gap between supply and demand.

Cross border trade from April 2008 to February 2009 were estimated at 95,536 MT, about 25% lower than last season. Maize is still the most traded commodity, accounting for about 79% of the trade, followed by rice and beans. Total maize flows dropped from 10,000 MT in August to about 3,900 MT in September (cf. graph No. 2). Trade flows have remained around the same level (2,000-4,000 MT) ever since. This is partly attributable to scarcity of exportable surpluses in Mozambique and Zambia and reduced import demand in Malawi. The most significant reductions have been in the exports from northern Mozambique into southern Malawi. The export ban in Tanzania has also constrained cross-border trade between that country, Malawi and Zambia¹⁷.

Graph No. 2: Volume of informal cross-border trade in maize between DRC, Malawi, Mozambique, Tanzania and Zambia. April 2006-February 2009



Source: Southern Africa informal cross border monitoring system (February 2009)

Improving food security in the region by strengthening regional trade

A recent study conducted in Southern Africa¹⁸ highlights that efforts to improve food security could be enhanced through regional trade and other integration strategies. The growing tendency to increase extra-SADC importation needs to be reverted by promoting regional investments into the production of key products and the required infrastructure and irrigation resources. Policies should focus on expanding the regional food market and increasing regional employment, labour productivity and incomes.

¹⁶ FAO, Crop prospects and food situation, February 2009.

¹⁷ Fewes Net, Informal cross border food trade in Southern Africa.

¹⁸ Southern Africa Trust, The future of food security for Southern Africa, November 2008.

This article is largely based on the regional food security updates, prepared by the Famine Early Warning Systems Network (Fewes Net).

For more information:

Fewes Net, Southern Africa food security update, February and March 2009.

Fewes Net/WFP, Informal cross border food trade in Southern Africa, February 2009.

Southern Africa Trust, Who will feed the poor? The future of food security for Southern Africa. A policy discussion paper, November 2008.

International news

Reducing maternal and child malnutrition: Initiatives from the various EC Member States

The European Commission Member States have launched several initiatives and discussions for reducing maternal and child malnutrition in developing countries.

France wants to give a clearer focus to its strategies for helping define and implement malnutrition policies and programmes. It has been working on developing its strategy since late 2008. Around twenty organisations, including the European Commission, NGOs, private foundations, research institutes and consultants, took part in a consultative meeting held on 31st March this year. The aim of the meeting was to present the current state of discussions, based on a draft working document, and to hear the views of the participants. A consultation will be held with partners from developing countries before the strategic document is validated.

The Danish Ministry of Foreign Affairs, working together with three research networks (ENRECA Health, Danish Development Research Network, Danish Water Forum) is organising a seminar on "Food, nutrition and gender: Lessons learned and recommendations for future action." It is to be held in Copenhagen on 28th April. The aim of the seminar is to discuss interventions and policies for reducing the causes of malnutrition and learn from existing experiences. Case studies will be presented, particularly from Bangladesh, Afghanistan and Tanzania.

Regional seminar on food security in Asia – European Commission

The European Commission regional seminar on food security will be held from 26th to 30th April this year in Dhaka, Bangladesh. Delegates from about fifteen Asian and Caucasus countries will take part, along with personnel from AIDCO, DG DEV, ECHO, etc. and some food security experts.

There will be presentations, debates and workshops. One day will be given over to the rise in food prices and the EC and EU responses to the problem. The aim will be to analyse the implications of price rises on current programming and discuss modalities of implementation (resources mobilised, partners, ...). Discussions will also be on EC involvement in reducing malnutrition and implementing social transfers. A progress report on these two themes will be presented, focusing particularly on the conclusions and recommendations from the thematic seminars in April and May 2008, and on the progress made by AIDCO E6 in drawing up the concept notes. Input and specific insights from people working in the region will be a particularly important part of the discussions. The ROSA initiative will be presented on the last day, in order to have a clear idea of the needs and expectations of the delegations and take them into account in planning activities for 2009.

This bulletin was written by the GRET team in charge of animating ROSA (Operational Food Security Network). It is an initiative of AIDCO E6 (thematic support for food security, rural development and environment) in collaboration with AIDCO G4 (Training and Knowledge Management). The viewpoints expressed do not in any case represent the official European Commission viewpoint.