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**Despite economic** growth in the past two decades that has sharply reduced the number of people living in poverty, global food security remains a paramount concern of our time. Every year, hunger and malnutrition are responsible for the deaths of approximately 6 million children under the age of 5 – more than half of all child deaths worldwide. The cost of child and maternal hunger is estimated to be \$30 billion annually. The indirect cost of hunger is even greater: Lower productivity and lost earnings may amount to hundreds of billions of dollars over a generation's lifetime.

A mix of international relief agencies, national governments and non-governmental organizations offer a backstop of last resort to those at greatest peril of hunger. But these groups face ongoing challenges in obtaining and delivering food in a timely, cost-effective manner. Indeed, high commodity prices and depressed incomes exposed critical weaknesses in the food assistance supply chain in 2009, leaving an estimated one billion people without enough to eat. Meeting the ongoing and episodic needs for food relief in an environment of volatile prices and supply will require improved risk management and more predictable, flexible funding for food assistance organizations.

To explore whether the tools of finance

could help, the Milken Institute brought together not only the aforementioned relief agencies but also experts from international development finance institutions, commodity exchanges, banks, foundations and research organizations. Participants in this one-day lab met last July in Washington, DC.

#### THE ISSUE IN PERSPECTIVE

During the food crisis of 2006-08, world market prices for grains doubled. Contributing factors included exceptionally rapid economic growth in China and India, the diversion of grain into biofuel production, high fertilizer and fuel prices, low grain reserves and temporary export controls. Although food prices have fallen from their 2008 peaks, they remain high in many developing nations and may rise again in 2010 because of predicted shortages.

The global financial crisis made a bad situation worse by tightening public and private budgets for food assistance. The UN's World

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The authors are members of the Milken Institute's Capital Studies Group. This article summarizes the report from a day-long Milken Institute Financial Innovations Lab that was supported by a grant from the Bill & Melinda Gates Foundation. The full report can be downloaded from [www.milkeninstitute.org/pdf/FIL\\_foodaidcvr.pdf](http://www.milkeninstitute.org/pdf/FIL_foodaidcvr.pdf).



PENNY TWEEDIE/ALAMY

Food Programme (WFP) estimated that it needed \$6.7 billion for 2009, but expects donations of just \$3.7 billion. Remittances – money that immigrants send to their home countries – won't fill the gap. To the contrary, the World Bank predicted a 7 percent to 10

percent drop in such payments in 2009 after many years of double-digit growth.

#### **TOUGH OBSTACLES**

While getting food to the hungry may at first glance appear to be a straightforward task,

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the obstacles facing humanitarian organizations make it anything but. Because these agencies often rely on voluntary contributions to pay for their operations, they face a high degree of uncertainty in the timing and volume of funds. Additionally, many donors place restrictions on their contributions, limiting the countries and projects for which their money or food can be used. As a result, the agencies cannot plan and budget as effectively, or target expenditures to where need is greatest. Simply making revenues more predictable and their use more flexible would go a long way toward making food assistance more efficient.

Food assistance agencies must also cope with price and supply uncertainty. Since they generally must wait for funding before purchasing commodities, these organizations have little leverage in the marketplace and often miss opportunities to build inventories when prices are low. And then, of course, there is the problem of logistics: available food may be halfway around the world from those who need it most.

### **VIABLE SOLUTIONS**

Lab participants explored a number of initiatives that hold promise for improving the efficiency and responsiveness of food assistance delivery.

#### **1. Funding**

**Issue food assistance bonds to smooth fund access.** The International Finance Facility for Immunisation (IFFIm) is a three-year old charity, created by the British government (and supported by other world governments), that raises money (more than \$2 billion thus far) for mass immunization projects in poor countries by selling bonds backed by donor commitments. Using the same model, public

and private donors could make legally binding commitments to a food-assistance umbrella organization, which could use those commitments as backing for bonds issued on private capital markets. A third party, such as the World Bank, could act as financial manager, and foundations could provide credit support.

Upfront funding would benefit nations where the timing of food delivery is problematic. For example, during Sudan's rainy season it is extremely difficult and expensive to move food around the country. The most sensible approach – particularly in Darfur and other isolated areas – is to collect about 90 percent of the year's food supply by April. But that would only be possible if the money were available early in the year.

Issuing bonds can be expensive. But an analysis of IFFIm funding suggests the bond infrastructure is worth the price: it had been estimated that the bond approach could increase the health impact of spending on vaccines by 22 percent – even after taking into account the costs of borrowing at market rates.

Another challenge is credit quality, which is difficult to establish for an organization without a track record in the credit markets. In the case of the IFFIm, the International Bank for Reconstruction and Development (part of the World Bank) manages the bond proceeds, tracks liquidity to meet disbursement commitments and services the debt. The World Bank also monitors leverage to ensure that the IFFIm meets all its long-term financial obligations. The payoff: as of July 2009, the IFFIm could boast a AAA rating from Standard & Poor's.

**Create a swing donor facility.** A “swing donor” facility would hold public and private donors responsible for their commitments and penalize them if they fell short. Donors now make commitments without fear of repercussion if they deliver less than they

pledged. For example, signatories of the Food Aid Convention, the main international agreement on food assistance, committed to providing a minimum of 5 million metric tons of aid annually. But Canada missed its commitments in four of the seven years between 1999 and 2005, and Argentina never came close to meeting its pledges.

The swing donor organization – perhaps a multilateral finance institution – would guarantee donors’ pledges, making payments if donors didn’t. Tardy donors would be charged the shortfall amount, along with interest and penalties.

## 2. Price-risk Management

**Make forward purchases.** With cash in hand, food assistance agencies could buy food in forward markets before the supplies were needed, thereby reducing the risk that the cost of food would put adequate supplies out of reach during crises. This approach offers other advantages, too: greater flexibility in delivery locations, shorter lead times and opportunities for planning supply lines well in

advance of their use.

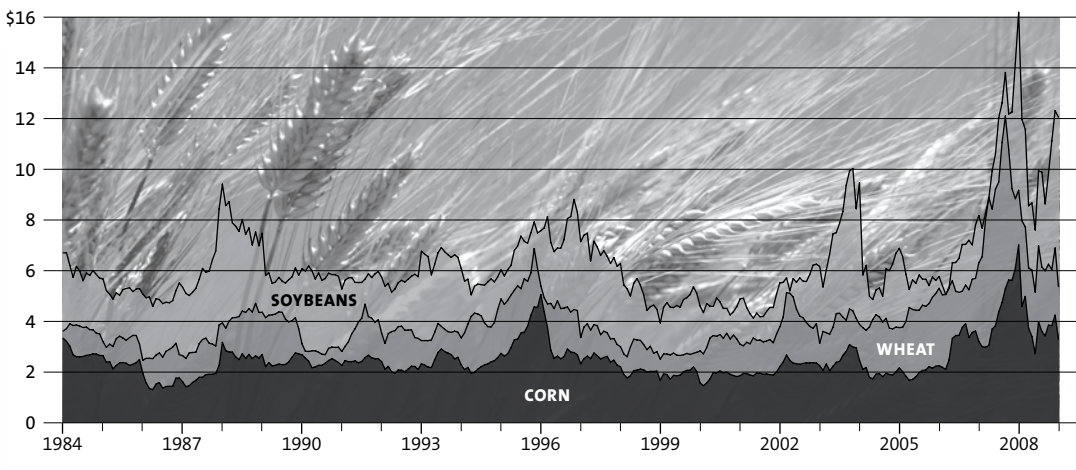
The WFP (which fed 102 million people in 78 countries in 2008) has been experimenting with the forward-purchase approach, allowing the WFP to purchase commodities based on forecasts of coming regional shortages. So far, the WFP has purchased more than \$80 million in commodities this way. One concrete improvement: on average, forward purchases have reduced the WFP’s delivery times from three months to one.

**Use call option contracts.** Call options – the right, but not the obligation, to buy a commodity at a specified price over a specified period – could likewise facilitate more secure access to food at prices known in advance. Note the additional flexibility here over the forward purchase approach: donors need only forfeit the premium paid for the option if the food proves not to be needed or is subsequently available at lower cost.

For example, in 2005, Malawi was entering a food crisis and was not sure donors would respond to its appeal for aid. The government bought call options for maize (corn), securing

### THE GRAIN PRICE ROLLER COASTER

US\$/BUSHEL



SOURCE: U.S. Department of Agriculture; Datastream

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flexibility as well as certainty about price. Under the terms, the government could declare the volume purchased in tranches on different dates, so it would not have to buy all the maize optioned if it were not needed. Furthermore, the contract permitted Malawi officials to choose from three delivery locations, so the grain could be shipped where it was most needed.

Imports cost \$50 to \$90 less per metric ton than market levels at the time of delivery. Basis risk – the risk that prices on the exchange would not correlate with local prices – was eliminated because the cost of transporting the goods to Malawi was included in the price.

### **3. Supply-risk Management**

**Tap public-sector grain reserves.** Public and private reserves are held in countries around the world. Although both types of storage can buffer needs during food shortages, the private sector typically holds an insufficient amount, or holds reserves far from the areas of greatest need. Public-sector reserves are already being used in limited ways by food assistance groups. The WFP, for example, often borrows from Ethiopia's national grain reserve and replaces the grain when supplies from donors arrive.

Grain reserves can be held in physical or virtual form. Physical reserves consist of stocks held in warehouses close to where they may be needed. The virtual-reserve approach, proposed by the International Food Policy Institute, would simply require participating countries to commit funds for intervention in the grain markets, when and if prices rose above specified levels. Total commitments needed to meet periodic shortages would run an estimated \$12 billion to \$20 billion. Intervention would consist of executing short sales in futures markets, with the

goal of lowering the spot price.

Lab participants explored several forms of physical reserves. The WFP currently supports community granaries in Cameroon and sub-Saharan Africa. The agency helps to establish these granaries and trains locals to operate them. They meet two goals in one, providing routine storage as well as creating buffer stocks for emergencies. Warehouse receipt systems, for their part, add financial infrastructure to physical storage, increasing the flexibility of farmers to delay sales until well after harvest and giving them the collateral needed to borrow seasonal working capital.

Some countries that experience frequent emergencies (among them Ethiopia, Mali and Indonesia) have set up national reserves, and there was some discussion of the merits of pooling these national reserves to form multi-country regional reserve systems. But there would be significant downsides – among them, high management and logistics costs, and ponderous decision making by committee. One alternative, regional financial reserves that could be drawn down in emergencies, would be less cumbersome.

Public-sector storage, it should be noted, can be inherently problematic. For one thing, public reserves may effectively crowd out private storage by reducing the incentive to hold private stocks. Storage systems also raise the specter of fraud and theft. In addition, the cost of holding grain reserves can be high. Existing physical reserves tend to rely heavily on donor funding.

Some actions could be taken to mitigate these challenges, though. For example, limiting the amount held in public reserves to just cover expected shortfalls, based on estimates of private-sector food stocks and predicted need, would limit crowding out of private storage. Employing professional collateral management could reduce fraud risk. **M**