DEALING WITH COMMODITY PRICE VOLATILITY IN DEVELOPING COUNTRIES:
A PROPOSAL FOR A MARKET-BASED APPROACH

Discussion Paper for the Roundtable on Commodity Risk Management in Developing Countries

Headquarters of the World Bank
Washington, D.C., September 24, 1999

September 7, 1999

International Task Force on Commodity Risk Management in Developing Countries
### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ACP</td>
<td>African, Caribbean and Pacific Group of States</td>
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<td>ANACAFE</td>
<td>Asociación Nacional de Café</td>
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<tr>
<td>APOP</td>
<td>Programa de Covertura de Precios de Productos Agrícolas</td>
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<td>ASERCA</td>
<td>Apoyos y Servicios de Comercialización Agrícola</td>
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<td>BSFF</td>
<td>Buffer Stock Financing Facility</td>
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<td>CBOE</td>
<td>Chicago Board Options Exchange</td>
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<td>CBOT</td>
<td>Chicago Board of Trade</td>
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<td>CCFF</td>
<td>Compensatory and Contingency Financing Facility (IMF)</td>
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<td>CDP</td>
<td>Committee for Development Policies</td>
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<td>CFC</td>
<td>Common Fund for Commodities</td>
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<td>CME</td>
<td>Chicago Mercantile Exchange</td>
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<td>CSCE</td>
<td>Coffee, Sugar and Cocoa Exchange (New York)</td>
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<td>EBRD</td>
<td>European Bank for Reconstruction and Development</td>
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<td>ECOSOC</td>
<td>Economic and Social Council of the United Nations</td>
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<td>EU</td>
<td>European Union</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>FINCA</td>
<td>Foundation for International Community Assistance</td>
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<td>GDP</td>
<td>gross domestic product</td>
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<td>GRC</td>
<td>Grains Trade Convention</td>
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<td>HIPC</td>
<td>Heavily Indebted Poor Countries</td>
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<td>ICB</td>
<td>International Commodity Body</td>
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<td>ICCO</td>
<td>International Cocoa Organization</td>
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<td>ICO</td>
<td>International Coffee Organization</td>
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<td>IFC</td>
<td>International Finance Corporation</td>
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<td>IGC</td>
<td>International Grains Council</td>
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<td>IJO</td>
<td>International Jute Organization</td>
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<td>INRA</td>
<td>International Natural Rubber Agreement</td>
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<td>INRO</td>
<td>International Natural Rubber Organization</td>
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<td>IPE</td>
<td>International Petroleum Exchange</td>
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<td>IRSG</td>
<td>International Rubber Study Group</td>
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<td>ISA</td>
<td>International Sugar Agreement</td>
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<td>ITRI</td>
<td>International Tin Research Institute</td>
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<td>ITTA</td>
<td>International Tropical Timber Agreement</td>
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<td>ITTO</td>
<td>International Tropical Timber Organization</td>
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<td>IWC</td>
<td>International Wheat Council</td>
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<td>KLCE</td>
<td>Kuala Lumpur Commodity Exchange</td>
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<td>LDCs</td>
<td>Least Developed Countries</td>
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<td>MERCOSUR</td>
<td>Southern Common Market</td>
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<td>MIGA</td>
<td>Multilateral Investment Guarantee Agency</td>
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<td>MT</td>
<td>Metric ton</td>
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<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
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<td>NGO</td>
<td>Non Governmental Organizations</td>
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<td>NYMEX</td>
<td>New York Mercantile Exchange</td>
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<td>OECD</td>
<td>Organisation of Economic Co-operation and Development</td>
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<tr>
<td>OTC</td>
<td>Over-the-counter</td>
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<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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<td>USDA</td>
<td>United States Department of Agriculture</td>
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<td>WTO</td>
<td>World Trade Organization</td>
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A glossary of technical terms is included at the end of this document.
Preface

Managing risks in highly volatile commodity markets remains one of the major challenges of development, especially for the poorest countries. During 1983-1998, prices of many commodities fluctuated from below 50 percent to above 150 percent of their average prices. Yet more than 50 developing countries depend on three or fewer leading commodities for more than one half of their export earnings. In Africa, commodities account for about three quarters of total merchandise exports. In many of these countries, commodity production and trade affect the livelihood of millions of people, the government’s fiscal revenue and public expenditure, as well as the country’s trade balance, foreign reserve and creditworthiness. Poverty reduction is a major objective in addressing the challenge of commodity risk management.

Recent research has established that the uncertainty generated from commodity price fluctuations hampers growth and is associated with increases in poverty. Inability to manage uncertainty makes it difficult for farmers to plan their crops, allocate their resources, obtain credit for inputs, and even simply recover costs. It also weakens the ability of governments to maintain a conducive and stable environment for domestic business and to implement policies and programs to reduce poverty.

In order to address these issues, and after consultations with many stakeholders, the World Bank convened an International Task Force (ITF) on Commodity Risk Management in Developing Countries to explore new, market-based approaches to assist developing countries better manage their vulnerability to commodity price fluctuations. Members of the ITF include international institutions, producers’ and consumers’ organizations, major commodity exchanges, and commodity trading firms. In addition, the ITF work is supported by a small group of academics and market experts from around the world.

Based on their deliberations and consultations with various stakeholders, ITF members reached the conclusion that, with liberalization, small-scale producers face the full volatility of international commodity markets, with few means to manage their risk exposure. It is not possible, or desirable, to eliminate price fluctuations in commodity markets. Neither is it sustainable for governments or multilateral agencies to interfere in market mechanisms to suppress price changes. However, the markets themselves provide the tools which allow producers and commercial entities to reduce the revenue uncertainty that results from volatile prices. Such risk management tools could provide market-based price guarantees. Although these will not eliminate price fluctuations in the market, they allow for the possibility of greatly reducing the uncertainty they generate for the producers and consumers within a limited but important time horizon (a crop year for agricultural products). Entities in developing countries currently have very poor access to these risk management tools, and stand to benefit from an international effort to improve such access.

This discussion paper reflects the recommendations formulated by the ITF. A consensus has been reached on the principles of a possible new market-based approach to bridge the gap between providers of risk management instruments and entities in developing countries that lack access to these instruments. Although there is still work to be done on the design of the new market-based approach, ITF members further recommend the creation of an international intermediary to help bridge this gap. The intermediary would focus on facilitation of access to market-based commodity price insurance—price floor guarantees for producers (and exporters) and price ceiling guarantees for consumers (and importers). It would also provide local entities with the core services and technical assistance needed to extend the market to them. If implemented, the proposed scheme has considerable potential in promoting development and reducing poverty throughout the developing world, as well as expanding business opportunities in commodity risk markets.

The ITF will submit the proposal to a Roundtable on “A Proposed Market-Based Approach to Commodity Risk Management in Developing Countries” on September 24, 1999, in Washington, D.C. All ITF members will take part as will a larger constituency. A Seminar also will be held on September 26 as part of the World Bank Annual Meetings Program of Seminars to engage stakeholders in a discussion of the challenges facing developing countries in managing risks of commodity price fluctuations.
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More information is available on the website of the International Task Force on Commodity Risk Management in Developing Countries

http://www.worldbank.org/commrisk
I. COMMODITY PRICE VOLATILITY AND DEVELOPING COUNTRIES

A. COMMODITY TRADE FLOWS AND MARKETS

1. Developing countries\(^1\) produce a significant portion of the world’s primary commodities. The five largest producing developing countries contribute more than three-quarters of the world’s total output for cocoa, tea, rice, palm oil, coconut oil, groundnut meal, groundnut oil, rubber, and tin\(^2\) (Table 1, page 80). The livelihood of millions of people in these countries depends on income from producing and marketing these commodities.

2. Many of the key commodities for developing countries are traded on international commodity exchanges distilling market information into prices. Even though developing countries are major producers, the organized commodity exchanges are in world financial centers, where buyers and sellers can hedge their price risks and where others can pursue profit by taking positions on future price changes. The prices revealed through these interactions reflect the market value of the commodity.

3. The volume of trading in commodity exchanges is large relative to world production, a rough indicator of level of activity or “liquidity” of these markets (Table 2, page 81).\(^3\) For some commodities, the multiplicity of markets reflects competition among the exchanges, giving participants choices in contract specifications (grade and variety of the commodity, size of each contract, delivery points). For some commodities, however, a single exchange is dominant.\(^4\) For certain commodities important to developing countries, such as rice and tea, no liquid exchanges exist.

4. Commodities move from primary producer to end user through the physical trade chain. Ownership is exchanged at many points in the chain: from farmers to traders and wholesalers (for storage or export), and to processors buying raw materials for transformation to finished or semi-finished products (Figure 1, page 94). Part of the most important information for these transactions is the price on the international exchanges. Participants in the trade chain have different hedging needs at different times which partly explains why trading on commodity exchanges can far exceed the annual production of the commodity.

B. COMMODITY DEPENDENCE AND VULNERABILITY TO PRICE VOLATILITY

5. During 1983-1998, prices of many commodities fluctuated from below 50 percent to above 150 percent\(^5\) of their average prices. More than 50 developing countries depend on three or fewer commodities for more than half of their export earnings (Table 3, page 82). In Africa, commodities account for about three-quarters of merchandise exports; in about 20 countries more than 90 percent. Many small states also depend on commodity production and exports.\(^6\) All Heavily Indebted Poor Countries (HIPC\(\text{s}\)) depended on primary commodities for more than half of their merchandise export earnings in 1997 (Box 1). Many developing countries are also vulnerable to price volatility affecting food security\(^7\) and energy costs. In 1997, no less than 30 developing countries depended greatly on imports for food or fuels, with such imports representing more than 20 percent of the import bill (Table 4, page 84).\(^8\)
Box 1: COMMODITY RISK VULNERABILITY OF HIPCs

All Heavily Indebted Poor Countries (HIPCs)\textsuperscript{a} depended on primary commodities for more than half of their merchandise export earnings in 1997. Of these, 15 HIPCs\textsuperscript{b} generated more than 90 percent of their merchandise export revenues from a few commodities such as cocoa and coffee. On average, the commodity share in the total merchandise exports stands around 84 percent for HIPCs, compared to 72 percent for IDA countries and 55 percent for developing countries as a whole. In Uganda, about 5 million smallholders and poor households—a quarter of the population—earn their living from producing coffee.

Many HIPCs are major exporters of commodities, important for industrial production and domestic consumption in the developed world. About 60 percent of cocoa in the world is produced in three HIPCs countries: Cameroon, Côte d’Ivoire, and Ghana. HIPCs produce and export about 20 percent of coffee in the world. Prices of these commodities are particularly volatile. For instance, between 1983 and 1997, cocoa prices fluctuated between 60 percent and 170 percent of the average price over this period, and robusta coffee from 40 percent to 195 percent—as against other commodity price fluctuations from 50 percent to 150 percent over the same period. In addition, many HIPCs are net importers of food or fuels. For 17 HIPCs\textsuperscript{c} such imports represent more than 20 percent of merchandise imports.

Vulnerability to commodity price fluctuations also has significant implications for HIPCs’ debt sustainability. Dependence on commodities coupled with high volatility of prices results in significant fluctuations in export earnings in HIPCs and therefore in debt indicators. For instance, Uganda’s export revenues vary with coffee prices. Taking the level of Uganda’s export earnings in 1985 as 100, this benchmark fell to 47 in 1993 following a sharp fall in coffee prices, and rose to 170 in 1997 after prices rallied. Such changes have direct impacts on debt indicators and on countries’ ability to adhere to debt sustainability targets.

\textsuperscript{a} Reliable trade data are not available for three out of 40 HIPCs: Democratic Republic of Congo, Equatorial Guinea, and Liberia.

\textsuperscript{b} They are, in the order of dependence on commodities, Mauritania, Chad, São Tomé and Príncipe, Yemen, Angola, Rwanda, Niger, Congo Republic, Sudan, Guinea-Bissau, Burundi, Somalia, Benin, Ghana, and Cameroon.

\textsuperscript{c} They are, in order of dependence on food imports: Senegal, Yemen, Mauritania, Mali, Burkina Faso, Chad, Togo, Guinea-Bissau, Mozambique, Congo Republic, Laos, Sierra Leone; and in order of dependence on energy: Guinea, Uganda, Cote d’Ivoire, Zambia, and Madagascar.

6. The vulnerability of the poor to price fluctuations has increased as the liberalization of markets has shifted price risk from governments to small producers and consumers. Phasing-out some preferential trade agreements may further expose producers (especially smallholders) and government agencies to the high price volatility in international commodity markets. This may increase the pressure on some governments to revert to interventionist and protectionist measures, particularly in view of the forthcoming WTO negotiations (due to start in December 1999, in Seattle) on liberalization of agriculture and trade in services.

\textbf{C. ATTEMPTS TO DEAL WITH COMMODITY PRICE VOLATILITY}

7. Over the past half century, the international community has come up with stabilization or compensatory mechanisms to help developing countries alleviate the negative impact of commodity price fluctuations. These include the IMF’s Compensatory and Contingency Financing Facility, the Common Fund for Commodities, the European Community’s STABEX and SYSMIN schemes, and major international commodity organizations and study groups.
Annex 1 (pages 24-35) provides a brief historical overview of attempts at the international level to cope with commodity price variability, along with a description of the mechanisms established for this purpose. It also summarizes efforts on technical assistance by the international community. The recognized limitations of some of these attempts have launched the search for alternatives to enable developing countries, and small producers in those countries, to cope with commodity price risks.

8. Concerns about commodity price fluctuations have also led to pervasive commodity policy interventions by national governments. The goal has been either to replace the price discovery by markets with a planned and regulated system of prices or to insulate producers and consumers from market price fluctuations through price controls or subsidies. Many countries have unilaterally pursued price stabilization, particularly in agriculture. These have typically taken the form of institutional arrangements for price stabilization programs, including physical buffer stock schemes, stabilization funds, variable tariff schemes, and marketing boards. The varied purposes and instruments can be broadly classified as within-season minimum producer prices, with harvest prices announced prior to the planting season so that farmers can better plan their allocation of resources; across-season minimum prices, to stabilize producer incomes, limit inflation or smooth consumer budgets; smoothing of export earnings to stabilize government revenue or exchange rates; and direct compensatory income payments.

D. LIMITATIONS OF STABILIZATION MECHANISMS

9. Programs that attempted to separate domestic commodity prices from international prices over time often proved financially unsustainable. In some cases, sharp fluctuations in currency values or other economic events have swamped commodity price stabilization efforts. In other cases, the interventions displaced competition in marketing and processing to the detriment of the producer. And more importantly, many of the schemes failed because they were based on administratively set benchmarks which required large resource transfers in years of low prices. These administrative prices were often the outcome of political bargains and failed to reflect market fundamentals. With limited borrowing capacity and generally unhedged exposure to price risks, the stabilization programs were difficult to maintain when payments were required over consecutive years. The stabilization components of the international commodity agreements also proved unsustainable and are no longer in force.

10. At the national level, many countries have unilaterally abandoned marketing boards which were once common for coffee, cocoa, and other import crops—as well as long-standing food marketing agencies. Others have done so under budget pressure or as part of reforms supported by the World Bank and other institutions. For governments that can afford to take on additional debt, compensatory financing and other borrowing opportunities can provide some balance-of-payments support. Still, there are limits to the capacity of many countries to borrow, especially true for highly indebted poor countries, all of them commodity dependent. Several countries still rely on variable import tariffs to smooth prices for producers, but such policies can disrupt domestic markets and run counter to WTO-sponsored efforts to reduce import tariffs.
II. RISK MANAGEMENT MARKET GAP

A. COMMODITY RISK MANAGEMENT MARKETS

11. Parallel to the efforts at the international and national levels, commodity exchanges and financial institutions have created market instruments that have become ingenious and effective risk management tools. Due to the development of commodity risk markets during the last decade, a financial institution or local broker in developed countries can now offer a variety of risk management instruments, with the ability to effectively extend commodity price insurance to clients—and hedge a large part of the risk on a commodity exchange. Such instruments, effectively extending price insurance, are widely used by commercial trading, processing, and stockholding companies, but are not typically directly purchased by the majority of farmers. Instead, farmers in developed countries take advantage of the existence of intermediaries, which package risk management instruments into simple, easily manageable forms of price insurance, and retail them to their clients.

12. Risk management markets essentially provide mechanisms to exchange and redistribute risks from those unable or unwilling to bear them to those who wish to benefit from taking them on. For metals, petroleum products, and certain agricultural products (coffee, cocoa, soybean and soybean products, wheat, maize) there are relatively liquid markets, and for several commodities traded on international exchanges, the volume of contracts traded is several times the volume of physical production. But, for some agricultural products important to many developing countries, such as rice and tea, price risks cannot currently be transferred through established commodity exchanges. Annex 2 (pages 36-43) provides an overview of commodity risk management markets and their characteristics for different groups of commodities.

B. NATURE OF THE MARKET GAP

13. Entities in commodity-dependent countries have little or no access to price risk management instruments in international markets, particularly for agricultural products. Even though many of these countries are major producers of primary products, and some are also major consumers, their participation in commodity futures markets is minor. Based on current estimates by industry experts, less than 2 percent of the volume of futures and options instruments can be attributed to developing countries. Even in oil contracts, developing countries are estimated to account for only 5 percent of the open interest. Market experts therefore consider that there exists significant potential for growth in developing countries participating in risk management markets.

14. Several studies have identified the main obstacles of enabling providers of risk management instruments to offer such tools to potential users in developing countries: lack of local market infrastructure, lack of adaptability and trust, and high costs due to risks involved in the transaction.

15. Lack of local market infrastructure. Private providers of risk management instruments have access to timely market information, but their counterparts in developing countries do not. This situation results in asymmetric information about market prices and hedging opportunities. In addition, local entities (banks, traders, wholesalers, cooperatives) typically lack the expertise
to intermediate risk management instruments. And many of these entities are undercapitalized, often facing significant risks of business failure.¹⁵

16. **Lack of adaptability and trust.** Instruments available in risk management markets do not always respond to the needs of developing countries. For example, developing countries typically need longer maturities, smaller contract size, different quality of the commodity, or contracts for a commodity not actively traded in international markets. Moreover, there is a trust gap between users and providers of risk management instruments that is exacerbated by many cases of misuse and abuse of these instruments.

17. **High costs due to risks involved.** Providers of risk management instruments often cite the risks associated with the provision of these instruments in developing countries. These risks include:

   (i) **Country risk.** This refers to events that may lead to default of the local counterparty due to country-specific events, including weak legal infrastructure to support the resolution of contract disputes or the integrity of financial instruments (e.g., warehouse receipts). Sovereign risk is that part of country risk relating specifically to government actions (exchange controls; export bans; expropriation or nationalization; war and civil disturbance). Sovereign risk also includes the default of a governmental counterparty.¹⁶

   (ii) **Commercial risk.**¹⁷ Default of the counterparty due to factors related to its own operation and business practice, such as poor performance and inferior production; commercial insolvency; bankruptcy; bad faith or dishonesty; and impossibility to honor foreign exchange obligations due to improper management of its positions (lack of hedging).¹⁸

   (iii) **Basis risk.** Basis is the difference between prices quoted on commodity exchanges and local prices relevant to smallscale producers. Basis largely reflects locational and quality differences in products as well as costs such as storage, transportation, processing and credit. Basis risk results from unexpected changes in the relationship between international and local prices over time.¹⁹

   (iv) **Events risk.** Events beyond the control of the counterparties to a transaction that result in a default. Examples are such natural catastrophies as flooding, drought, pest infestation, fire, and earthquake. Some market players (notably the Chicago Board of Trade) have started trading options on crop yields and providing “crop insurance” products. However, these forms of insurance still have relatively low market penetration even in developed economies.

C. **BRIDGING THE RISK MANAGEMENT MARKET GAP**

18. The international community could choose to help bridge the market gap in commodity risk management by stepping up *technical assistance*. The World Bank, UNCTAD, FAO, and other organizations (both national and international) have indeed made efforts over the last two decades in providing training and policy advice to assist developing countries build their
capacity for risk management (Annex 2, pages 36-43). However, these efforts have not been geared towards helping entities in developing countries access relevant risk management tools, and have been insufficient to bridge the market gap. The question, therefore, is how much more could be accomplished through these current means alone and at what pace.

19. In time, the maturation of markets in more and more places will permit a significant expansion of private sector risk management offerings. Part of the market gap already has been filled by private businesses. Commercial insurance is available at reasonable cost for some aspects of country risk (such as war, confiscation of property), and for some sources of nonpayment or contract frustration. But there are severe limitations. Such coverage is not available for many poor countries while for others the premia are high.

20. Furthermore, it is not clear that *laissez faire* expansion of risk management tools will grow at the rate needed to keep up with increased exposure to world market conditions for either producers or buyers in developing countries. Liberalization of commodity markets is taking place at a sustained pace which may well accelerate under the next round of WTO negotiations. Lack of risk management tools might even impede further market liberalization, and some developing countries might come under pressure of renewed interest in protectionism. That makes it more pressing to find ways to accelerate the development of ways to bridge the gap in risk management markets.

D. LESSONS FROM COMMODITY RISK MANAGEMENT

21. In a few cases, countries that abandoned interventionist policies are giving their support to market-based instruments. Several are putting in place the legal and regulatory support needed to access risk management markets. Experiences around the world in dealing with commodity risk management issues are helpful in gaining a further understanding of the dynamics of risk management markets, as applicable to developing countries. Annex 3 (pages 44-51) provides some insights into experiences in OECD and some developing countries. These are briefly captured in this section.

   (a) Industrial countries

22. Substantial government subsidies, high trade barriers to shield off international competition, diversified household income sources, and easy access to credits make it *de-facto* unnecessary for a large portion of farmers in OECD countries to use market instruments to hedge against commodity price risks (Annex 3, pages 44-51). As shown in Table 5, page 86, subsidies to OECD farmers in 1998 totaled US$274 billion and represented 37 percent of the value of gross farm receipts for the OECD as a whole. Farmers in the OECD received an average subsidy of US$11,000, with those in the United States and the European Union receiving US$19,000.

23. In the OECD countries, where rural population is small and agriculture accounts for a small share in GDP, the public sector has chosen to absorb a large share of risks through redistributive income transfers. Nevertheless, about 20 percent of farmers in the United States hedge directly in risk markets (futures contracts) and many more hedge indirectly through local grain elevator operators and other commercial entities. Most farmers in developed countries now have access to price signals generated in major international commodity exchanges.
24. Recent policy changes, especially trade liberalization and reduction in price support, have increased OECD producers’ exposure to price risk. As a consequence, there has been an increasing demand for price risk management tools in the United States, U.K., and several other OECD countries. Rapid progress in modern information technology has also significantly reduced the cost of access to risk markets. Continuous innovations in commodity risk markets have enabled financial intermediaries to create and market new insurance instruments suitable to the specific needs of the farmers in managing price risks. These ongoing developments will continue to improve the coverage, liquidity, and competitiveness of international risk management markets.

(b) Developing countries

25. Some governments and commodity associations in a few developing countries have turned to market-based instruments as an alternative to interventionist policies. These experiences demonstrate the potential for the use of market-based risk management instruments in developing countries. They remain, however, very limited in scope and coverage, and can be difficult to replicate, particularly in poor countries. A few of them are illustrated below.

26. **Guatemala.** When Guatemala introduced its coffee hedging program in 1994, small and medium-sized coffee farmers were highly indebted, interest rates were high, and few farmers had access to credit. The coffee association, ANACAFE, addressed this problem through a series of contractual arrangements between producers, exporters and banks which provide farmers with an insurance of minimum price. The farmer is then able to receive credit from one of several banks participating in the program. ANACAFE plays a facilitating role by bringing the parties together, and by helping promote contract performance. In 1997, ANACAFE’s program mobilized more than US$16.5 million in credit for farmers participating in the program.

27. **Mexico.** In Mexico, as an alternative to long-standing policies at guaranteed minimum prices, the government began to offer farmers and their associations the opportunity to purchase price insurance. In the most common form of the program, the government subsidized half the purchase price of this insurance, with the subsidy repaid if the insurance pays out. Operated by the agricultural agency, Apoyos y Servicios de Comercializacion Agricola (ASERCA), the program began in 1994 and covers cotton, corn, sorghum, soybeans, and wheat. In 1997 over 16,000 producers participated. Although the program was launched as a way of reducing farmers’ income risk, improved credit access is an unanticipated benefit as banks are more willing to lend to program participants.

28. **Central and Eastern Europe and Central Asia.** The transformation from a centrally planned system to a market-oriented economy has resulted in a substantial liberalization of trade. The privatized farms, the newly created and privatized commercial enterprises, and the remaining state-owned enterprises faced with direct price risk exposure. To deal with this situation, Hungary launched in 1989 a commodities futures exchange (the Budapest Commodities Exchange) and since then the markets developed rapidly. There have been many other attempts to develop futures exchanges in other Central and Eastern European countries and in the newly independent states of the former Soviet Union, but most cases remain marginal. Without a strong financial infrastructure and an appropriate regulatory environment, their reliability is often questioned.
III. PROPOSED INTERNATIONAL INTERMEDIATION

A. RATIONALE FOR INTERNATIONAL INTERMEDIATION

29. A large number of risk management instruments are available in the developed economies that allow a degree of insurance against commodity price risks, but these are not available to any substantial extent to the private sector in developing countries. The general picture is one in which potential demand for risk management fails to be made effective and potential supply is inhibited by a combination of country risk considerations and poorly developed domestic markets. Risk management markets have therefore not functioned to their full potential.

30. It is generally accepted that the “invisible hand” argument—that the public sector cannot improve on private market outcomes—is invalid in the presence of incomplete markets. The difficulty, however, is establishing that there are feasible public policies which will result in improved outcomes. It is therefore necessary to look at particular features of the commodity risk management problem in order to determine how international intermediation might help. The rationale for international intermediation arises from the need to mitigate risks involved in the transactions, to develop risk management markets, to help reduce poverty and increase aid effectiveness.

31. **Mitigating country risk.** Country risk drives a wedge between rates of return in the developing and the developed economies. This can be seen as a form of financial market imperfection, arising out of institutional deficiencies, where lack of trust is one of such major deficiencies. In this situation, higher perceived risks could be mitigated by public sector guarantee, or similar policies, resulting in improved resource allocation.

32. **Developing risk management markets.** Developing new markets will involve set-up, technical assistance, and training costs. These will not be entirely captured by the initiator itself. But, once it is established that marketing of risk management can be profitable, it is expected that companies will imitate without taking the risks associated with being first. For example, if the initiator is required to invest in educating farmers as to the possible benefits of risk management, followers will be able to sell similar products without undertaking these expenditures. So, marketing innovation and market developments generate externalities associated with public goods. These justify public sector involvement in helping develop new market initiatives. A useful parallel here is the IFC’s record in pioneering financial innovation in developing countries.

33. **Reducing poverty.** Poverty reduction is central to the mission of many multilateral development agencies. But it does not directly enter the private sector’s profit calculations. In some cases, expenditures may be socially profitable even if not financially beneficial to the private sector. Lower financial rates of return may well be associated with a likely significant impact on poverty. Where public intervention works to reduce poverty, social returns exceed private financial returns. Small farmers insure against price uncertainty through diversification, but this holds down their incomes by inhibiting potentially profitable specialization. Furthermore, diversification into subsistence crops may imply that shortfalls in revenue from
cash crops reduce market expenditures, and even often reduce schooling. Both effects tend to perpetuate poverty.

34. **Enhancing aid effectiveness.** It has long been contended that fluctuations in the terms-of-trade hurt development prospects, but the empirical evidence for this has been weak. Recently, however, a survey indicates an emerging consensus that export instability has a negative effect on growth. Moreover, the availability of reasonably long panel data sets covering a substantial group of developing countries has allowed more systematic evaluation of the determinants of relative growth rates in developing countries. Results demonstrate that there is no evidence of any effects of aid on growth except in conjunction with good government policy, and, on the basis of recent studies, vulnerability to commodity price fluctuations. More broadly, aid is also shown to be more effective in vulnerable countries. The implication is that measures that offset the effects of commodity price volatility are likely to be particularly valuable uses of aid in promoting development and alleviating poverty. Such aid could be targeted to enhancing the capacity of poor farmers to cope with the risks they face. **Annex 4 (pages 52-56)** provides a brief summary of results reported in two recent studies.

**B. NATURE OF INTERNATIONAL INTERMEDIATION**

35. Developing countries stand to benefit from international intermediation to enhance their access to risk management instruments widely available and used in international markets. Enhanced access to such instruments will allow countries both to add value to their output and exports and to alleviate poverty directly by protecting small-scale producers and consumers from adverse commodity price fluctuations.

36. Based on their deliberations and consultations, members of the International Task Force (ITF) on Commodity Risk Management (**Annex 5, pages 57-61**) recommend an approach to international intermediation that would: (a) rely on instruments which are simple, user-friendly, and already available in risk management markets—in particular on organized commodity exchanges; (b) create an international intermediary to help bridge the gap between entities in developing countries and private sector providers of such instruments.

37. **User-friendly instruments.** The focus of the intermediation would be on user-friendly hedging instruments available on organized commodity exchanges through private-sector providers which would require a minimum amount of adjustment to local market conditions. The prime candidates are instruments that enable users to purchase market-based price protection: price floors, relevant to producers and exporters; and price ceilings, relevant to consumers and importers. Such instruments provide in essence commodity price insurance for which the purchaser could acquire against a premium that depends on the level of price protection (floor, ceiling), and on the time horizon covered by the insurance (typically less than a crop year for agricultural products but up to five years for metals and oil). Unlike other risk management instruments, the attractiveness of price insurance is that: (a) it does not require the purchaser to lock-in a price for the commodity in advance of the transaction, therefore allowing for full flexibility to capture benefits from favorable price movements, at the time of the transaction; (b) it can be a purely financial transaction and does not require a commitment regarding physical trade of the commodity, therefore avoiding risks related to delivery and performance under the contract.
38. **Creation of an international intermediary.** An international intermediary would be established to facilitate transactions between private providers of price insurance instruments (banks, brokers or traders) and potential users of such price insurance in developing countries (producer organizations, traders, processors, local banks or public sector entities). This would require the intermediary to play an active role in mitigating risks involved in such transactions, and in providing partial guarantees to cover them. The intermediary would also exceptionally consider offering its own price insurance, but only when it is not available by market providers, and keeping its exposure within strictly defined limits. In this respect, the intermediary would seek to offset the risk, to the best extent possible, by reinsuring itself through risk management markets. Finally, the intermediary would extend to its potential clients appropriate support and technical assistance to allow them to access such price insurance instruments.

39. To accomplish its mission, the intermediary would assure effective participation by providers of such instruments and by potential users of the instruments in developing countries according to clear eligibility criteria. It would also draw on services currently provided by the business and the international community. Finally, the intermediary would employ standard prudential procedures to ensure that its own risk exposure is maintained within tightly circumscribed limits.

### C. UNDERLYING PRINCIPLES FOR THE INTERMEDIARY

40. The roles of the intermediary are likely to evolve, responding to dynamic needs of entities in developing countries. Periodic reviews, with private participation, will ensure that its activities are focused towards filling the market gaps, that they do not crowd out the private sector, and that their benefits reach the poor. The underlying principles that would guide the intermediary’s mission, shape its governance structure, and define its operations are as follows.

41. **Complement private sector activities.** The intermediary would not displace private providers of risk management tools—it would facilitate the commercial exchange of risks. Its activities would complement, rather than compete with, the private sector. Consistent with this principle, the intermediary would ensure that its activities are limited in time. In this respect, it would:

   (i) Develop exit strategies, with the role of the intermediary phased out when its involvement is no longer needed to establish links between counterparties.

   (ii) Draw fully on private sector providers of risk management instruments, leveraging their expertise and ensuring the cost effectiveness of its operation.

   (iii) Put emphasis on training and local capacity-building, as well as on fostering direct links between providers and users of price insurance instruments.

42. **Focus on poverty reduction.** Poverty reduction is a key thrust of the intermediary’s activities. It will thus be concerned with supporting local transmission mechanisms to channel the benefits of commodity price insurance to smallscale producers. It will also mobilize aid resources to cover a portion of the premium associated with price protection for poor entities (according to well defined eligibility criteria) in poor commodity dependent countries. Donors
might consider offering assistance here. In any case, the approach would be based on cost sharing with the client.

43. **Leverage international efforts.** The intermediary would work closely with international organizations dedicated to helping developing countries cope with price risks. The objective is to avoid duplication and fragmentation and ensure cost effectiveness. In particular, systematic training would be needed to build institutional capacity at the local level to access price insurance. The international community, and in particular UNCTAD, may want to redirect some of its activities towards implementation of the scheme. In addition, international exchanges and some private sector providers of hedging instruments have developed relevant programs, which could be oriented to developing countries.

44. **Adapt to clients’ needs.** Needs of clients will depend on the commodities produced and the risks of the country. Similar considerations apply to commodity imports (typically grain and petroleum). Any intermediation to secure access to price insurance must be sensitive to these differences and respond to clients’ specific requirements. The intermediary’s specific role is likely to vary from country to country and across commodities within countries, allowing full adaptability and responsiveness. It will need to innovate and evolve to fulfill its mission.

45. **Maintain financial integrity.** The intermediary would operate in a market-based mode, determining the cost of its services and instruments on a commercial basis. With price insurance as the focus of its activities, the intermediary will take on relatively limited risk exposure. It would also adopt best practices of the industry in managing its portfolio and would comply with appropriate capital adequacy guidelines on market risk.

### D. **Main Functions of the Intermediary**

46. The objective of the intermediary is to bridge the gap between providers of price insurance instruments and entities in developing countries with limited access to these instruments. It would need to perform three types of functions in the risk management markets: (a) facilitation, by providing partial guarantees to mitigate risks involved in the transaction; (b) intermediation, by acting as a pass-through between the provider and user of the price insurance instruments, in selected and limited cases; and (c) provision of core services and technical assistance needed to support its business—in particular, market information and support to local transmission mechanisms. The proposed functions of the intermediary in risk management markets are illustrated in Figure 2 (page 95), and Annex 6 (page 62-65) provides a concrete illustration of how the scheme might work in a particular case.

**(a) Facilitate transactions by providing partial guarantees**

47. Risks involved in providing market-based price insurance instruments are the main impediments to greater access to them. Providers either do not extend their services to developing countries or they provide instruments at high markups. The intermediary would facilitate interaction between entities in developing countries and private providers of commodity price insurance instruments by taking the lead in unbundling the risks involved, so that counterparties take on those they can deal with most efficiently. The intermediary would provide partial guarantees to absorb some of the risks involved—notably the sovereign risk.
48. More specifically, one can distinguish two dimensions of the functions of the \textit{intermediary} in mitigating risks of the transaction:

\begin{itemize}
\item[(i)] \textbf{Facilitate risk-sharing} between the counterparties to the transaction. The objective would be for counterparties to absorb part of the risk involved, according to their comparative advantage. Such risk-sharing would need to be determined on a case-by-case basis, reflecting product and country considerations, as well as local market conditions. It would also encourage local entities, such as a local bank or local transmission mechanism, to share part of the risks involved. It is expected that commercial risk, and foreign exchange risk, would be taken largely by the private sector.\textsuperscript{35}

\item[(ii)] \textbf{Provide partial guarantees}. The \textit{intermediary} would provide partial guarantees, sharing primarily sovereign risk, as well as some elements of country and commercial risk, case by case.\textsuperscript{36}
\end{itemize}

49. If the price insurance is sold as a purely financial instrument (i.e., without conditions regarding physical delivery of the commodity involved), and if the premium can be paid upfront at the time of the purchase of the insurance—there are no risks involved in the intermediation. However, the most likely situations may involve funding of the insurance premium. In such cases, credit risk arises if the provider sells a price insurance contract on credit (or on a deferred payment basis). The ability to collect the premium owed is at risk—particularly if the commodity price turns out low but not low enough to trigger a payment to the policyholder. Country risk is also a concern in this case, which refers to the default due to country-specific events.

\textit{(b) Intermediate transactions by acting as a pass-through}

50. In this function, the \textit{intermediary} would consider offering the price insurance contract, and to the extent possible, hedge its risk position through risk management markets, thereby acting as a \textit{pass-through}. This would be strictly limited to exceptional cases where the private sector is unwilling or unable to act as a counterparty. The intention is not to crowd out the private sector but to step in when a clear market failure or gap exists. This might be necessary because of illiquid markets, too few market players, not enough capacity in taking on credit risks, or the high degree of innovation involved.\textsuperscript{37} The \textit{intermediary} would subsequently endeavor to offset the risk in organized exchanges or through private sector providers of risk hedging instruments, keeping its own exposure within strictly defined limits. In all cases, the \textit{intermediary} would adhere to prudential risk management principles in managing any risks associated with its position.

51. This approach could encourage private firms to offer similar instruments and overcome the obstacles that have prevented their involvement thus far. It could also help develop products that are not currently available in commodity risk markets. Elements of this approach already exist in some international institutions—albeit on a very limited scale.\textsuperscript{38}
(c) **Provide core services and technical assistance needed to support its business**

52. In order to help develop the business, and foster access of price insurance to smallscale producers, the *intermediary* will need to provide its clients in developing countries with specific services needed to extend the market to them. In developed economies, some of these services are supported by organized commodity exchanges and their affiliated clearing houses, and are essentially designed to ensure that business is transacted in an efficient, fair, and transparent manner. The *intermediary* could extend similar services, or facilitate their availability, to its potential clients. Technical assistance would also be needed in order to build capacity of local entities to act as efficient counterparties. Overall, the *intermediary’s* services to its potential clients would include:

(i) **Disseminating timely market and price information.** Timely information on prices of commodities quoted on international markets would increase transparency for both producers and consumers. Information technology and modern communications now make it feasible and less costly to quickly reach potential users of hedging instruments in developing countries. The *intermediary* would leverage private sector services, where they already exist, and make them accessible to smallscale producers on affordable terms through the local transmission mechanism. It would rely on local channels of information (newspapers, radio, government agencies) to promulgate global prices and quote them in local currencies.

(ii) **Supporting development of local transmission mechanisms.** The biggest single challenge for the *intermediary* will be to support local transmission mechanisms capable of reaching smallscale producers, the ultimate users of commodity price insurance. Appropriate technical assistance would be needed to foster the development of such local entities, and build their capacity. Furthermore, the *intermediary* will assist local entities in accessing appropriate information about the insurance instruments available in the markets, their suitability, and their cost.

**E. POTENTIAL CLIENTS**

53. The *intermediary* would be involved only at the wholesale level, leaving it to the local counterparty to retail price insurance to ultimate beneficiaries. Smallscale producers are not equipped to tap price insurance instruments directly from the *intermediary*. *Local transmission mechanisms* could act as retailers and counterparties to the transaction. They would aggregate the production of smallscale producers into a critical mass for the purchase of price insurance—and distribute benefits from the price insurance in the case of a claim. In some cases, such institutions exist and need to be strengthened. The situation is likely to depend on the country, the product, the trading volume, and the local trade chain.
Possible candidates for local transmission mechanisms are:

(i) **Large farmers and producer cooperatives.** It may be possible to market price insurance directly to large specialized farmers. Direct marketing would also be possible to cooperatives, which are suitable organizations for intermediating to small producers but are often in a weak competitive position relative to private traders. Nevertheless, farmer cooperatives are organized in many developing countries, and they are prime candidates to play this role in local markets. Securing access to price information and providing market-based price insurance to their members may well be a role they are willing to develop. Many cooperatives will need support to provide such services, particularly those that are financially weak and/or not used to free market environments.

(ii) **Commodity traders, processors and their associations.** More local commodity traders or processors and their associations may find it attractive to intermediate price protection to farmers as part of their products. Some already provide inputs (fertilizer, insecticides) on credit. Those associated with multinational groups will be likely to have access to finance and risk management through their parents or affiliates. Making these available to indigenous companies may be seen as leveling the playing field. Intermediation through local entities would allow them to trade or compete more effectively with multinational companies and their affiliates.

(iii) **Local banks operating in rural areas.** The rural banking network could be developed to fulfill this function. Local rural banks could, in principle, have easier access to information on creditworthiness of their clients, and have an incentive to limit their risk. This would also allow them to offer more attractive lending packages. But in many countries, this will need to be associated with programs to strengthen the ability of local banks to serve this purpose.

(iv) **Public entities.** In some countries, government organizations could be considered to channel price insurance instruments to smallholders. This would typically be a transitional step toward building the private sector capacity to take on such a role. Furthermore, government entities could be potential clients of the intermediary. Governments may have price exposure when tax revenue depends on commodity prices in a significant way. This is typically true for oil and metals, where there is rent to be extracted, but less true of agricultural commodities, where taxes are generally lower and often at fixed rates. Finally, government may also have an interest in reducing uncertainty related to prices of imported goods—particularly grains and fuels.
F. Eligibility Criteria

55. The intermediary would set eligibility criteria for counterparties to the commodity price insurance under a contract supported by the intermediary. The intermediary would establish a central register of all entities that comply with its eligibility criteria—both users and providers of price insurance—and certify those that meet the criteria. The approach to eligibility criteria is similar in many respects to that developed by fair trade organizations (Box 2).

56. Eligibility criteria would need to be devised to reflect the following principles:

(i) For purchasers of price insurance (the local transmission mechanism):

- The entity has sound accounting procedures and management capabilities.

- The entity must be acting on behalf of small-scale producers (local transmission mechanisms) and have the ability to aggregate production and channel benefits of price insurance to local smallholders.

(ii) For providers of the price insurance:

- The entity has sound business practices and financial standing.

- The entity is willing to enter a transparent competitive bidding process for transactions.

- The entity agrees to assist in provision of education and information to local entities in developing countries.

57. The intermediary also would devise criteria to identify entities in commodity dependent poor countries which would be eligible for premium support, on a targeted basis. These selected entities would be eligible to a “concessional window,” with aid resources covering a portion of the premium cost for price insurance transactions supported by the intermediary. Such financial assistance could be offered on a time-bound basis.
Box 2: FAIR TRADE PARALLELS

What is fair trade? Fair trade is an international initiative that assists in the development of producer cooperatives in developing countries and encourages international traders and industry to deal directly with these cooperatives. The objective of fair trade is to ensure that producers have certain income guarantees based on trade, and not donations, and are therefore able to manage their own social and agricultural development.

How does fair trade work? International trading and manufacturing companies agree to purchase the commodity from “fair trade registered” cooperatives under the following key conditions: (a) guaranteed minimum prices must apply; and (b) pre-financing, at international interest rates, of up to 60 percent of the value of the contracted commodity must be made available to the cooperative from the beginning of the harvest season.

What are the eligibility criteria? To trade under these favorable conditions, the “fair trade registered” cooperatives must meet certain conditions that are set out as part of the criteria for registration. These conditions include: (a) the majority of members of the cooperative must be small-scale producers, i.e., not structurally dependent on hired labor; (b) the cooperative must be managed on a democratic basis; (c) the cooperative’s overall development strategy must include product diversification, organizational development, and investment in social improvements (healthcare and housing).

What incentives are there for the international trader to enter into these contracts? At the consumer level, fair trade products are identified by a label that signifies to the consumers that they are purchasing a “fairly traded” product, i.e., one where the producers have received a “fair” price for the commodity they have grown. This concept has commercial value in that it opens up a segment of consumers “with a conscience” who are prepared to buy the product on the grounds that it contributes to the advancement of the developing world. In addition, it can also be beneficial to the companies involved as they are seen to be treating their suppliers in a “fair” manner as well as contributing towards development.

Who governs fair trade? The first fair trade initiative to be established was the Max Havelaar Foundation in the Netherlands in 1988. The establishment of this initiative was followed by similar schemes in such countries as the UK, Germany, France, Japan, Canada and the U.S. In 1997, to ensure a common approach, these separate initiatives were combined under an umbrella organization called FLO-International. FLO-International is designed to: (a) promote sales and consumption of fair trade products; (b) identify producer cooperatives for FLO-International clients; and (c) carry out verification and control of the traders that sell commodities with a fair trade label in order to protect the interests of producers and consumers.

What is the impact of fair trade? In a number of European markets, fair trade coffee (which has been the most successful product by far) accounts for up to four percent of the consumer market. Although its impact is limited, it has been enough for the mainstream coffee trade and industry to take note. As a result, one or two major roasters have developed their own fair trade product. For other products, such as cocoa, impact to date has been less than that of coffee, but, as market liberalization continues to gather pace, the fair trade industry is beginning to develop new offerings in this sector. This has aroused much interest from the chocolate and cocoa product industry.
IV. LIMITATIONS AND IMPACT OF PROPOSED INTERMEDIATION

A. LIMITATIONS OF THE PROPOSAL

58. The proposed price insurance scheme is not designed to address all aspects of commodity risks. In particular, the scheme does not attempt to stabilize prices. It would leave market price volatility unaffected, and would only reduce the uncertainty associated with that level of volatility. It would also provide market-based compensation in the event of adverse price movement, within a given time horizon. The scheme would not revert the secular commodity price trend, and only deal with protection against short-term volatility. Finally, the scheme is not designed to cover all commodities relevant to developing countries. At least at its early stages, ability to offer price protection will be constrained by availability of hedging opportunities in international markets. These limitations and constraints are further discussed below.

59. The scheme focuses on price risk, not on income protection. Generally, governments, firms and individuals are more concerned with issues of income or revenue stability rather than price movements. For metals or energy commodities, where shocks typically originate on the demand side through the industrial business cycle, production can be planned and from the producer’s point of view volatile prices explain most revenue volatility. However, agricultural commodities, especially field crops, are also subject to variable weather and pest conditions. Consequently, price risk instruments address only a portion of the underlying problem.

60. Nevertheless, price insurance would, in most cases, contribute significantly to income stability within a given time horizon. This is because, for the most part, price effects tend to dominate quantity effects—at least when measured globally. Consequently, price insurance programs alone can address much of a household’s income risk.

61. From a practical point of view, few market-based instruments are currently available to provide income insurance to smallholders. For example, experiences with crop insurance in Australia, the United States, and elsewhere have revealed moral hazard problems, leading policy makers in the United States and Sweden to consider alternatives such as area yield insurance. More recently, markets for weather-related events have grown, and weather insurance is available in the United States and elsewhere. Since agricultural yields are largely determined by weather events, price and weather insurance could together offer income insurance as markets for weather insurance grow.

62. The scheme focuses on short-term price fluctuations, not price trends. The price insurance scheme attempts to mitigate the negative effects of unanticipated price fluctuations but does not claim to improve the average price for the insured over time. Different levels of floors and ceilings entail different costs to allow market providers of risk management instruments to have viable commercial incentives to offer the insurance. Nevertheless, no matter how the price insurance is constructed, its purpose is not to prevent price fluctuations in the markets. Long-term trends of price movements are determined by the interactions of demand and supply fundamentals and structural changes in international trade and finance. The negative impact of the long-term deterioration of commodity terms of trade, faced by many developing countries, needs to be dealt with by broader macroeconomic policies and development strategies.
63. **The scheme would provide short-term protection, not long-term coverage.** Price insurance for commodities traded at established exchanges is typically available for relatively short maturities—particularly for agricultural products (typically a crop year). This makes it difficult to hedge many of these products for a longer time horizon. Rolling over the contracts is possible, but this involves additional premium and transaction costs. Nevertheless, hedging delivers a substantial reduction in uncertainty over the time horizon it covers.\(^{44}\) Over the long run, one could expect an increase of liquidity for the longer time horizon.

64. **The scheme would cover some, not all, commodities.** Many farmers in developing countries produce agricultural commodities that are perishable or not traded on international markets.\(^{45}\) Moreover, commodities of specific origins, quality or grade often suffer from large unpredictable discrepancies between local and international prices (basis risk). This would make it difficult to insure these products and discharge the risk (hedge or reinsure) on international commodity exchanges.\(^{46}\) The implication is that it may be difficult for the scheme to be able to offer price insurance for some commodities, particularly agricultural, at least in the early phases of its operation until these new markets could be developed. Therefore it is likely that, at least initially, the intermediary would focus on those commodities already traded on risk management markets.

65. Furthermore, trading large volumes over a short period of time could adversely impact the markets, particularly for the commodities with relatively little trading on international commodity exchanges. This might apply in cases when the quantity to be insured represents a large market share of a particular commodity and a large portion of traded volume.\(^{47}\) In practice, producer hedging activity will increase over a period of time, and in doing so will increase market liquidity.

### B. Impact on Developing Countries

66. Despite its limitations and constraints, the scheme carries significant benefits to developing countries, and opportunities to risk management markets. If implemented, it has considerable potential in promoting development and reducing poverty throughout the developing world.

67. **More efficient decisions on production and diversification.** Uncertainty has a negative impact on productivity and therefore reduces growth.\(^{48}\) In agriculture, the main effect of price uncertainty is to reduce production of the risky crop and to diversify.\(^{49}\) In some cases, farmers may be able to diversify into other cash crops, but because different crops are suited to different soils, altitudes, and other conditions, these possibilities can be limited. More often, diversification is directed to subsistence crops and animal products.\(^{50}\) One consequence of diversification is that farmers fail to exploit their comparative advantage, trading lower average incomes for reduced income volatility.\(^{51}\) Farmers who hedge (directly or indirectly) through a floor price guarantee scheme would know their minimum revenue in advance, given an expected level of production. They can then adjust their time and resource inputs accordingly.
68. **Enhanced access to credit and financing.** Better access to credit has been driving demand for commodity price hedging in the developed market economies. The same should be true in developing countries in future decades. Consider commodity exporters, domestic processors and traders—and their exposure to commodity prices between purchase and eventual sale, which can vary from a few weeks for an efficient exporter to a year for processors. Over this period, it is natural for them to wish to borrow against their inventories, a standard practice in the developed market economies. The collateral value of inventory is substantially enhanced if it is hedged, enabling firms to borrow a larger proportion of inventory value (typically up to 80 percent) on more attractive terms. Similarly, producers’ risk should be considered smaller by their local bank when part of their production is hedged.

69. Improved credit access should also help level the playing field. Local traders now find themselves at a competitive disadvantage to multinational firms or firms with international links that can obtain credit on good terms and hedge their price risk through their parent or affiliate. That squeezes local firms out of the commodity industries, even though they are not necessarily less efficient than their multinational or international-affiliated competitors. Better access to commodity risk management can level the playing field, allowing indigenous firms to compete on closer to equal terms. It also may persuade such firms that market liberalization is to their advantage.

70. **Macroeconomic stability and policy environment.** Governments and government parastatals in developing countries have exposure to commodity price changes in different ways:

(i) Tax revenues may depend on prices, generally for energy and metals, where there is often a substantial rent element in the prices that government taxes.

(ii) Many developing countries are major importers of fuels and cereals. Some government parastatals import directly. In other cases, particularly in fuels, governments may impose import taxes. If government aims to smooth changes in domestic prices, it will have risk exposure to price fluctuations.

(iii) Where export prices affect government tax revenues, price volatility may seriously affect the attainability of sustainability ratios (debt-GDP, debt-to-exports), a potentially serious problem for HIPCs.

71. When these conditions prevail, governments could benefit from commodity price insurance. For oil or metals, hedging anticipated tax revenues could make government budgets more predictable, enabling more tightly defined policies and greater accountability. Where governments are exposed to commodity price risks and can hedge this exposure, perceived country risk should be lower, and better budgetary control would improve debt management—these effects, if large, would show up in faster growth. Finally, better access to commodity price insurance also can improve food security for countries dependent on imports of staple food from world markets. In such cases, governments may wish to purchase ceiling price guarantees to insure them against sharp rises in import prices.
72. **Poverty reduction for smallholders.** The impact of improved access to commodity price insurance on poverty depends on how the benefits of this access can be transmitted to smallholders. Although small farmers are not necessarily the poorest members of their communities, their economic situation is precarious. Their current self-insurance strategy, through diversification, is a potentially expensive one as it reduces their ability to exploit their comparative advantage. And where diversification is from a cash crop to subsistence crops, as is often the case, smallholder families may still remain vulnerable to income shortfalls. Access to price insurance will raise the welfare of poor families and improve the prospects for their children to move into a wider variety of economic activities.55

C. **Impact on Commodity Markets**

73. **Price effect.** A commodity price insurance scheme with wide coverage in an export commodity might increase production.56 But since commodity demand is fairly insensitive to prices, this increase could reduce prices, potentially offsetting some benefits of risk management to producers. However, impact on production level is likely to be small for the following reasons. The scheme would be limited in its coverage, and would not apply across world commodity production. Furthermore, the price insurance will mainly focus on short-term coverage which may not significantly affect the longer-term investments needed to affect world production levels. And most importantly, the price insurance will be market-based with the guaranteed price level reflecting market fundamentals.

74. Another price effect may benefit farmers. With better information embedded in the price insurance contracts, and under new market price incentives, farmers will reduce their production in some years, and increase it in others. Likewise, farmers may increase their production in some commodities and decrease it in others. Such a substitution will be based on relative profitability expected for such commodities. Better information that helps coordinate production with anticipated demand should increase adjustment of production towards comparative advantage and thus enhance efficiency of resource allocation.

75. **Development of risk management markets.** In any case, if the price insurance scheme is successful, the impact of developing country activity in commodity risk management markets might be large, implying significant effects on liquidity and costs. Better access to commodity price insurance will also allow entities in developing countries to transfer unwanted price risk to those who are more able, or willing, to bear it in established international commodity exchanges. The scheme could also create new opportunities for global investment managers to “package” developing country “commodity risk,” as part of their investment portfolio, or to hedge commodity exposure in an existing portfolio. That could increase liquidity of commodity risk management markets.
V. CHALLENGES AND NEXT STEPS

A. AVAILABILITY OF AID RESOURCES

76. Recent empirical analysis has linked vulnerability to commodity price uncertainty with lower growth rates and poverty. Results indicate that aid, along with a good policy environment, could be successfully used to offset the effects of such uncertainty and reduce poverty. However, price insurance may be expensive for smallholders, particularly those in poor commodity-dependent countries. In order to target benefits toward these smallholders, and help level the playing field, it would be justified to use aid resources to help cover part of premium costs on a time-bound and selective basis. Clear eligibility criteria for such treatment would be carefully drawn, based on appropriate cost-benefit analysis of the most productive use of such resources. In any case, users of the price insurance would always be required to cover premium costs, albeit on a partial basis.

77. Estimates of the amount of aid resources needed to help the poorest smallholders meet premium payments depend on: (a) extent of clients’ eligibility to such resources; (b) scope of commodities covered by the price insurance; (c) extent of the commodity coverage (in volume terms); and (d) level of the subsidy (expressed as a percent of the total premium). For the purposes of providing an indicative estimate, we have assumed that: (a) all entities in IDA countries would be eligible for premium support; (b) price insurance covers all 12 commodities most relevant to developing countries’ exports, and which are actively traded in risk markets, as well as all food commodities representing a substantial portion of their food and feed imports; (c) price insurance would cover 10 percent of volume of such commodity exports and imports; and (d) aid resources would cover 50 percent of the premium. With these assumptions, and based on current market data on premium costs for insurance at current commodity prices, total aid resources needed would amount to some US$80 million for one-year insurance. In the extreme hypothesis that all entities in all developing countries would be eligible for premium support this amount would rise to US$350 million for one-year insurance (Table 6, page 86).

78. Most international aid resources dedicated to helping developing countries cope with commodity risks are in the form of programs or institutional arrangements that provide grants or concessional loans under certain conditions (Annex 1, pages 24-35). Currently, the main sources of such financial assistance are:

(i) The IMF’s Compensatory and Contingency Financing Facility (CCFF). The CCFF disbursed SDR 6.4 billion to commodity exporting developing countries from 1988 to 1997. Since 1998, the CCFF has extended credits of SDR 2.8 billion to developing and transition economies to compensate for a shortfall in export earnings.

(ii) The European Union’s STABEX and SYSMIN schemes. STABEX transfers to the ACP states totaled close to ECU 3 billion over the 1975-95 period. The ceiling for 1995-2000 stands at ECU 1.8 billion. The allocation for SYSMIN was ECU 1.2 billion between 1980 and 1995, and stands at ECU 575 million for 1995-2000.
(iii) **The Common Fund for Commodities (CFC).** The CFC’s financial resources stood at US$438 million at the end of 1998. Since its inception in 1989, CFC contributed about US$99 million to 74 projects in 98 developing countries.

79. In addition, other sources of assistance are:

(i) **International Development Institutions.** The World Bank Group (notably IFC), some regional development banks (e.g., EBRD), FAO, UNCTAD, and other multinational financial institutions (e.g., the International Fund for Agricultural Development) have contributed to support reforms in the agricultural sector, trade promotion, development of local markets, and capacity building.

(ii) **Bilateral Donors.** Governments in several industrial countries (e.g., Switzerland and the United States) have set up their programs to assist developing countries cope with commodity risks.

**B. FINANCIAL NEEDS OF THE INTERMEDIARY**

80. The intermediary would require initial funding to cover: (a) start-up investments, including seed money for setting up communication systems, and necessary facilities; (b) operating costs for the first couple of years; and (c) reserve requirements to cover its own potential risk exposure, notably credit risk linked to possible financial guarantees for premium repayment. The intermediary could seek funding from its shareholders and eligible members using its services (both users and providers of price insurance). Donors could also provide part of the capital.

81. Beyond this initial funding, the intermediary would operate on a self-sustaining market basis. It would, however, distinguish between commercial operations, and those requiring aid resources for the poorest clients (concessional window), which likely would be predominantly in agriculture. The intermediary would actively manage its own risk exposure through organized exchanges and private sector markets. Estimates of total funding needed for the intermediary would require an assessment based on scope of coverage (in terms of commodity and market share) and extent of need for client services and technical assistance.

82. While it is too early to estimate the likely funding needs of the intermediary, it is possible to estimate its maximum credit risk exposure which constitutes a significant component of its reserve requirements. Based on premium estimates (**Table 6, page 86**), and assuming that the intermediary takes on half of the credit risk involved, with a default rate of 50 percent, total credit exposure of the intermediary would be around US$40 million for IDA countries, for one year. The corresponding exposure would be about US$175 million for all developing countries (1997 data).
C. LEGAL, INSTITUTIONAL AND GOVERNANCE DESIGN ISSUES

83. Alternatives will need to be considered from an institutional and from a legal viewpoint as to the nature of the proposed international intermediary and its governance structure. It would be difficult to consider the creation of a new international inter-governmental organization, as this would involve agreement among all potential members. An accepted alternative is for the intermediary to be created by adding new functions within a major international organization, drawing on expertise and resources across the international community. Within this model, the intermediary should, if successful, draw on some of the relevant functions already established within other international organizations. This would allow for a more effective use of aid resources and of various services across the international community.

84. In any case, collaboration with the existing relevant international organizations will be vital for the implementation of the proposed scheme. Such collaboration could, in principle, be integrated in the format of an Advisory Board including broad membership.

85. In addition, the intermediary will need to develop its own internal control systems and procedures to minimize the potential for defects in its operations—or those of the providers and users of its services. Further, because the intermediary is likely to be operating under a variety of jurisdictions, it will also be necessary to anticipate and resolve legal issues that may arise under the local law of either the providers or users of price insurance instruments. Finally, consideration will be given to the benefits and means of facilitating arbitration and other dispute-resolution forums in various jurisdictions.

D. NEXT STEPS

86. Assuming that the proposed scheme receives appropriate level of support, the next phase would be to work through some early cases, to help improve the design of the approach, to gauge level of potential demand for the services of the intermediary, and to assess availability of local transmission mechanisms. These cases (about six) would be conducted in Africa, Asia, Eastern Europe and Latin America during the next six months. As part of this effort, the European Commission has launched studies to analyze the direct or indirect access of smallscale producers in the poorer developing countries to market-based commodity risk management services—and thus on the value of these instruments for reducing poverty in these countries.  

87. More analysis is also needed to further estimate financial requirements for the intermediary, and the availability of aid resources to help the poorest smallholders pay the premium for price insurance. Based on these findings, a report would be presented by March 2000, with a more detailed description of how the proposed scheme might work in practice.
COPING WITH COMMODITY PRICE VOLATILITY AT THE INTERNATIONAL LEVEL

1. Over the past half century, many attempts at the international level have been made and many stabilization mechanisms have been established to address the disruptive effects of volatile commodity markets. This Annex gives a historical review of these attempts, summarizes efforts on technical assistance provided by the international community (mainly the UNCTAD and the World Bank), and describes the purpose and operations of some existing financial mechanisms which are designated to assist developing countries to cope with commodity price fluctuations. Functions of some international commodity bodies are also presented in this Annex.

A. A Brief Historical Overview

2. Commodity price fluctuations have been a central issue for the Bretton Woods institutions since their founding. At Bretton Woods, Keynes (1943) proposed a world currency based on a price index of the thirty most-traded commodities. By linking currencies to this index, commodity prices and price-related swings in trade earnings would be automatically stabilized. While Keynes’ ideas were not incorporated into the charters of the Bretton Woods institutions, they would resurface. At the time, policymakers focused on ways to prevent short-term trade shocks from turning into the widespread economic decline that had characterized the Great Depression years. Economists also pointed to evidence that short-run volatility has lasting negative consequences for economic growth by lowering investment rates. Consequently, short-term management of volatile trade was expected to yield long-term returns through expanded growth. Many recent studies continue to find that trade volatility worsens income distribution, raises poverty, and impedes economic growth and domestic investment.61

3. A succession of proposed international financing schemes followed the Bretton Woods conference, including the 1953 Olano Proposal for a Mutual Insurance Scheme, the 1961 Development Insurance Fund, the 1962 Organization of American States Proposal, the 1963 French Proposal for Market Organizations, and the Swedish and Brazilian Proposals at the Committee for International Commodity Trade meetings in the same year.

4. Beginning in the 1950s, governments in many commodity-producing countries began managing commodity markets through international agreements. Proponents of the agreements argued that commodity-producing countries suffered not only because of market volatility but also because of declining terms of trade. Under the auspices of the United Nations five international commodity agreements were signed: the International Sugar Agreement (1954), the Tin Agreement (1954), the Coffee Agreement (1962), the Cocoa Agreement (1972), and the Natural Rubber Agreement (1980). A 1975 UNCTAD resolution called for an Integrated Program for Commodities, covering ten core commodities. The Common Fund for Commodities was established to provide liquidity to the integrated program.
5. Most commodity agreements focused on long-term changes in market conditions. Generally, they sought to reverse or slow declining terms of trade through supply management and to reduce price volatility through buffer stock operations. Proponents argued that such interventions were needed to protect smallholder producers and governments. However, the agreements proved too inflexible. By 1996 the economic clauses in all of them had lapsed or failed, victims of politics and economics.\textsuperscript{62} Funds dedicated to buffer stock management at the Common Fund for Commodities have never been used for that purpose.

6. In 1963, the IMF began to offer financing to countries facing temporary declines in export earnings. The ongoing program is based on net export earnings, rather than a single set of commodities, so it takes advantage of portfolio effects that arise from diversified exports and imports. This program remains the primary instrument for managing commodity trade volatility among the Bretton Woods institutions. Later, as part of the first Lomé Agreement in 1975, the EU offered its own compensatory financing schemes, STABEX and SYSMIN, to African, Caribbean and Pacific (ACP) countries.

7. Since their inception both IMF programs and EC schemes have undergone changes. The IMF’s program was modified in 1988 to include contingent financing so it could respond more quickly to evolving market conditions. Under the terms of a contingency financing agreement, a country has access to additional funding when net current account balances differ unexpectedly from projected levels. The STABEX and SYSMIN programs, initially lending instruments, were eventually converted to grant-based programs. When the current Lomé Agreement expires in 2000 the programs will probably be modified again.

B. Efforts on Technical Assistance and Capacity Building

8. The international community (most notably UNCTAD and the World Bank) has made efforts in the past to strengthen the institutional capacity of developing countries in managing their vulnerability to commodity price risks. FAO is actively involved in food security and commodity production throughout the developing countries and in the provision of technical support to farmers and cooperatives. Individual donor governments have made resources available for these activities in capacity building and technical assistance.

9. \textit{UNCTAD's activities in commodity risk management.} UNCTAD has worked on commodity price risk management from the mid-1970s. But this work took off only after the collapse of the International Coffee and Cocoa Agreements in the late 1980s, leading to a reorientation of UNCTAD's commodity program, which now includes the following four categories of activities:

(i) \textit{Training seminars} in more than 30 countries in Africa, Southeast Asia, and Central America, between 1991 and 1996; organized training seminars for government policymakers on implications of government policies for the use of commodity-linked financing; and training for local banks, which often set up structures for domestic commodity producers and traders to access credit markets (through the use of warehouse receipts).
(ii) *High-level information events*, now representing a large part of UNCTAD’s program, with participation of Ministers since 1996, along with top private sector providers of commodity risk management instruments.

(iii) *Institution-building efforts*, focussed on farmers’ associations, domestic banks and, in particular, commodity exchanges. UNCTAD works with local exchanges in several countries notably in the Dominican Republic, Turkey, India and Indonesia. This has resulted in significant policy changes in several of these countries, and this work is likely to underpin much of the efforts towards agricultural liberalization.

(iv) *Governmental expert meetings*, which have raised awareness on the lack of access to risk management tools and the implications for growth prospects. However, as UNCTAD does not have a budget for technical cooperation, it has concentrated efforts on developing training materials on a range of issues and on organizing regional or international meetings, with most country requests for assistance left unmet (over the past eight years country-level activities were limited to about a dozen countries). Most of the current funding has been provided by the private sector and parastatals, including from developing countries.

10. **World Bank’s evolving role in commodity risk management.** Commodity risk management has long been an integral part of the World Bank’s operations in commodity-dependent developing countries. In many cases, the Bank has put emphasis on the importance of price risk management in its Country Assistance Strategies, Structural Adjustment Programs, and investment loans to support reforms in agricultural and commodity sectors. The Bank has also made fruitful efforts in technical assistance and policy research and has attempted several times to mainstream commodity risk management in its work to help its clients better manage their vulnerability to commodity price fluctuations.

(i) **Technical assistance.** Between 1988 and 1994, the Bank provided numerous seminars to the private and public sectors in various developing countries, including Colombia, Costa Rica, Peru, Trinidad and Tobago, Uganda, and Uruguay. These seminars discussed the negative impact of commodity risks and various strategies and instruments to manage them. Regional seminars were held in Europe (for transitional economies) and Asia (on liberalization of domestic markets). Since the last of these Bank seminars in 1994, other organizations (UNCTAD) and private sector entities (major commodity exchanges) have offered similar ones.

(ii) **Policy research.** For many years the Bank has conducted policy research on commodity price risk management. Research outcomes have been published in two books and approximately one hundred policy papers. Most of this research was linked and provided direct support to the Bank’s lending operations and policy dialogues in commodity-dependent developing countries. Concurrently, the Bank has been monitoring world commodity markets publishing current market information and analysis in “Global Commodity Markets,” which includes price forecasts on commodities important to developing countries.
(iii) **Sectoral work.** The Bank’s work on agriculture and trade covers many issues related to commodity price risk management. These include analysis of risk exposure of different stakeholders along the marketing chain; identification of major obstacles in using risk management instruments (legal, regulatory, institutional, and financial); liberalization of local cash and futures markets; development of domestic financial infrastructure, collaboration with the private sector; and the inter-linkage between commodity risk management and macroeconomic stability. Such sectoral work includes programs in Cote d’Ivoire (cocoa), Uganda (coffee), Mexico and Croatia (grain), Venezuela and Trinidad and Tobago (oil), China (grain and feed), India (cotton, oilseeds, and grains), Indonesia (coffee and various other commodities), Turkey (cotton and grains), and many economies in transition in East Europe (development of local cash/futures markets).

(iv) **Attempts to mainstream commodity risk management.** As early as 1965, the Bank realized that shortfalls in export earnings could constrain economic growth, rendering unaffordable Bank-supported development programs. The Bank chose to safeguard these programs through additional lending in times of shortfall. In 1991, when many commodity-dependent countries became overly burdened by external debts, a paper was presented to the World Bank Board arguing for support for client countries to develop market-oriented strategies to manage external commodity risks. Later, in 1993, the Bank was urged to help transitional economies improve their access to risk management instruments. In response to strong demand, the Bank approved a set of new lending and hedging products in the Spring of 1999, allowing some IBRD countries with relatively high credit ratings to link the amortization of their loans to commodity price fluctuations.

### C. International Financial Mechanisms to Cope with Commodity Risk

11. To alleviate the negative impact of commodity risk—disruption of economic activities and misallocation of resources—the international community has employed a variety of non-market devices to: (a) try to stabilize international commodity prices, for example, through production quota system or buffer stocks; (b) secure contingent or compensatory financing to restore balance-of-payments or to stabilize government fiscal revenue; and (c) insulate sectors of the domestic economy by stabilizing domestic prices and other means. Some of these mechanisms, designated to help developing countries manage the risks associated with commodity price fluctuations, including: (a) the IMF’s Compensatory and Contingency Financing Facility; (b) the Common Fund for Commodities; (c) the European Community’s STABEX and SYSMIN schemes.
(a) IMF Compensatory and Contingency Financing Facility

12. The IMF established the Compensatory and Contingency Financing Facility (CCFF) in 1988 to incorporate the long-standing Compensatory Financing Facility\(^67\) (founded in 1963) with elements of contingency financing. The CCFF provides loans repayable within 3½ years to 5 years at the GRA annual rate of charge, which is currently 3.52 percent. From 1988 to 1997, the CCFF disbursed a total of SDR 6.4 billion to developing countries. In 1998, the IMF extended SDR 2.16 billion to Russia through the CCFF to compensate for a shortfall in export earnings caused by lower crude oil prices. The most recent CCFF loan totaled SDR 223.5 million (about US$300 million) disbursed to Algeria in May of 1999.

13. CCFF provides resources to IMF members to cover: (a) compensatory financing for shortfalls in exports (and service receipts on an optional basis); (b) compensatory financing for excesses in cereal import costs;\(^68\) and (c) contingency financing.

14. The compensatory financing elements of the CCFF provide financial assistance to members with balance of payments difficulties because of lower export earnings. Compensatory financing is available to all the members, but this compensatory financing benefits exporters of primary products whose export earnings are especially susceptible to temporary cyclical fluctuations in price, changes in demand, and changes in output owing to exogenous factors, such as adverse weather and pest infestation.

15. Members are required to request compensatory financing no later than six months after the end of a shortfall or excess year. Estimated data may be used for up to the entire shortfall or excess year,\(^69\) but if estimated data are used for nine months or more, access will be phased over two purchases. If actual data later show the member to have been overcompensated, a prompt repurchase is expected.

16. The contingency element helps members with IMF arrangements to maintain economic programs when faced with unforeseen adverse external shocks, such as sudden movements in export earnings and import prices, and unexpected increases in international interest rates.\(^70\) The contingency element aims to help keep adjustment programs on track during adverse exogenous developments through a blend of additional financing and adjustment. Contingency mechanisms are attached to IMF arrangements, and financing is provided to cover part of the net effect on a member’s external current account of unanticipated changes in key external variables that are highly volatile and can be easily identified. Deviations in the variables covered by a contingency mechanism are measured in relation to projections in the underlying program (the baseline projection). The contingency mechanism is triggered once cumulative deviations exceed a threshold level.

17. The amounts of financing available to an IMF member under the CCFF are 20 percent of quota on account of the export shortfall, 20 percent of quota on account of the external contingency elements, and 10 percent of quota for the cereal import cost element. Members may also choose to apply an optional tranche of 15 percent of quota to supplement any of the three elements.\(^71\)
Box A1.1. IMF Buffer Stock Financing Facility (BSFF)

Buffer stock schemes are intended to help reduce the variability of export earnings of participating countries. The IMF has no legal power to finance buffer stock organizations directly, or to engage in any transactions with them, but it can assist a member that needs to contribute to them. The IMF established the BSFF in June 1969, to offer resources, subject to balance of payments need, to finance their contributions to international commodity buffer stock schemes that satisfy certain criteria. These criteria include commodity stock building and operating expenses of buffer stock agencies, and refinancing any short-term debts as a result of stock building or operational activities and expenses. A member may have outstanding purchases under the BSFF of up to 35 percent of quota. The IMF has so far authorized the use of its resources in connection with buffer stocks of tin, sugar, and natural rubber. This facility has not been used since January 1984.

Source: IMF

(b) The Common Fund For Commodities

18. The Common Fund for Commodities (CFC) was established in 1980, and went into effect in 1989. With a purpose to attain the agreed objectives of the UNCTAD Integrated Program for Commodities, the current CFC members include 104 countries, the European Community, the Common Market for Eastern and Southern Africa, and the Organization of African Unity/African Economic Community. As an international financial institution, CFC mainly exercises three functions: (a) financing international buffer stocks and internationally coordinated national stocks through its First Account resources; (b) financing measures for commodity development with its Second Account resources; and (c) with its Second Account, promoting coordination and consultation with regard to measures other than stocking and their financing.

19. As of December 31, 1998, the CFC’s financial resources totaled US$438 million (of which the First Account US$177 million, and the Second Account US$261 million) mostly in the form of capital shares (US$165 million), voluntary contributions (US$206 million), and accumulated net earnings (US$67 million).

20. CFC projects are typically commodity-oriented rather than country specific, focusing on issues applicable to many countries as articulated by a designated International Commodity Body (ICB). At present, 24 ICBs, which have been recognized by the CFC cover more than 30 different commodities, and can sponsor Second Account projects.

21. The drastic changes in the global economy have led to gradual disappearance of most buffer stocks. Hence, CFC’s First Account operations have not been yet activated. In December 1998 the CFC Governing Council authorized certain member countries to transfer additional shares from the First Account to the Second Account. The purpose is to strengthen strategic commodity development measures and to assist developing countries, especially the least developed, in putting national and regional commodity markets in order and linking them properly with world markets in the context of a global free trade system.
22. Second Account projects focus on improving structural conditions in markets and enhancing the long-term competitiveness and prospects of commodities. Examples of such measures are research and development leading to transfer of technology and knowhow. These projects also bolster productivity/quality improvements, marketing initiatives, integrated disease/pest management, environmental conservation, and vertical diversification.

23. Since the inception of CFC, 74 projects in 98 countries costing about US$220 million have been approved, of which CFC financed about US$99 million (87.7 percent in grants and 12.3 percent in concessional loan). To date, 21 projects have been completed. These projects, covering 24 agricultural commodities and two mineral commodities, can be classified into three broad categories: (a) research and development aiming at enhancing productivity (38 percent); (b) processing, vertical diversification, marketing and quality testing (39 percent); and (c) market expansion (23 percent). With an average size of US$3 million, CFC projects are extensively co-financed—CFC finances, on average, about 46 percent of the total cost of projects.

(c) The European Community’s STABEX and SYSMIN Schemes

24. **STABEX.** For over twenty years the European Community has been running a scheme for stabilizing export earnings (STABEX) of the agricultural sector in the African, Caribbean, and Pacific (ACP) states. The scheme applies to fifty raw and processed agricultural, fishery, and forestry products (with the exception of sugar, meat and tobacco), to remedy the harmful effects of export earnings instability (due to price slumps or sudden drops in production) and to help overcome one of the main obstacles to the stability, profitability and sustained growth of the economies of the ACP states. Transfers from the scheme are triggered by a drop in the export value of eligible products compared with a reference level based on the six-year average of export earnings. STABEX deals with shortfalls in export earnings of individual commodities instead of shortfalls in the national export earnings. Beneficiaries are developing country signatories of the Lomé Convention and some overseas territories of EC member states.

25. STABEX operations are subject to a global financial ceiling which has been raised substantially, both in nominal and in real value. Over the 1975-95 period, STABEX transfers totaled close to ECU 3 billion. The ceiling now stands at ECU 1.8 billion, or 12.8 percent of the overall amount of the EC’s financial assistance to the ACP states (Lomé IV, second financial protocol, 1995/2000). By the end of 1998, ECU 4.4 billion had been committed and ECU 4.2 billion disbursed. All transfers are grants and cover shortfalls in export earnings due to variations in prices and exported quantities. In the 1975-90 period losses in quantity accounted for 43 percent of total transfers. In the twenty-year period covered by recent studies, four products (coffee, cocoa, groundnuts, cotton and cocoa/copra) accounted for 80 percent of effective transfers. About half of the ACP states have been regular recipients of STABEX transfers, but fully 50 percent of the transfers benefited five countries—Cote d’Ivoire, Cameroon, Ethiopia, Senegal, and the Sudan.Allocations by product and by country are roughly consistent with ACP’s overall trade pattern in eligible products. Since 1990 over one-third of STABEX transfers has been used to support the agricultural sector. In recent years, especially since 1995, STABEX funding for macro-economic reforms has also gained in importance. In 1997, 11 ACP states were eligible for 14 transfers under the STABEX arrangements, with a total of ECU 64.8 million to compensate an estimated loss of ECU 89.9 million.
26. The European Community and its ACP partners are currently negotiating the nature and contents of their cooperation beyond 2000 when the current Lomé Convention expires. It is widely recognized that fluctuations in export earnings, particularly in the agricultural sector, continue to harm ACP economies and that there remains a need to provide assistance through a specific EC-funded mechanism. This assistance can help vulnerable producers gain insurance which they are unable to find or afford in the market and that governments are unable to provide. It can also help countries avoid the swinging adjustments that disrupt long-term public development plans and private business activities. This assistance will also support market liberalization in most ACP countries. 

27. **SYSMIN.** Established by the second Lomé Convention (1980–1985), SYSMIN is the counterpart to STABEX for minerals and mining industries in ACP states. SYSMIN applies to all minerals except oil, gas and precious metals other than gold, in particular copper, cobalt, phosphates, manganese, bauxite, alumina, tin, iron ore, and uranium. SYSMIN aid is granted to restore and maintain the mining sector in the ACP countries, and compensates for losses of export earnings from the effects of market fluctuations or production vicissitudes. SYSMIN can also provide technical and financial assistance for preparatory research (geology and mining), exploration, and investment.

28. Between 1980 and 1995, a total of ECU 1.2 billion was allocated to SYSMIN. Under Lomé IV (1990-2000), SYSMIN was allocated ECU 480 million for the first financial protocol (1990-1995) and has been allocated ECU 575 million for the second financial protocol (1995-2000). The size of the amounts, now in the form of grants, is determined on a case-by-case basis and serve to finance specific projects. Only two situations can trigger SYSMIN operations: either the viability of an important component of the mining industry under threat, or a drop in export earnings, jeopardizing the implementation of ongoing development projects. The future of SYSMIN is also a subject of the current negotiation between the European Community and the ACP states. In 1997, SYSMIN compensated three ACP countries (Guinea, Jamaica, and Mali) for ECU 165 million.

D. Major International Commodity Organizations

29. Under the auspices of the UNCTAD, various commodity agreements have been initiated and signed in an attempt to protect both producers and consumers against unexpected price fluctuations.

(a) **International Cocoa Organization (ICCO)**

30. ICCO was established to administer the provisions of the 1972 International Cocoa Agreement and its successor Agreements of 1975, 1980, 1986, and 1993. It has 18 exporting members, 22 importing members and 1 intergovernmental organization (EC) representing over 91 percent of world cocoa production and over 62 percent of world cocoa consumption. The main objectives of the Agreements have been to ensure the production of adequate supplies of cocoa at prices acceptable to producers and fair to consumers; to prevent excessive price fluctuations; and to secure a balance between supply and demand.
31. Buffer stock operations were suspended in 1988. The 1993 Agreement focuses on a longer-term view of the market and emphasizes the need to avoid structural imbalances by adjusting production and consumption. To restore a balanced market at acceptable price levels, the Agreement provided for the establishment of production-management plans and programs, and measures to increase consumption in the medium to long term.

(b) **International Coffee Organization (ICO)**

32. The ICO was established in 1962 to secure cooperation between producing and consuming countries, balance supply and demand, keep prices at fair levels, and encourage consumption to enhance the purchasing power of coffee exporters. It has 44 exporting members and 18 importing members. The ICO also functions as a forum for the negotiation of new agreements and as a center for the collection and dissemination of statistical information on the coffee trade. The International Coffee Agreement of 1976 contained regulations of exports and imports under certain price conditions and for generic promotion of coffee. Coffee export quotas were introduced in October 1980. The economic clause of the agreement, which gave rise to export quotas, was suspended in 1989 and was not renewed in the 1994 agreement.

(c) **International Grains Council (IGC)**

33. The International Grains Council (IGC) is an intergovernmental forum for cooperation on wheat and coarse grain matters. IGC has the European Community (including 15 Member States) and 9 other countries as exporting members and 26 importing members. The 1995 IGA comprises the Grains Trade Convention and the Food Aid Convention, which are separate legal instruments linked by a common preamble. The 1995 Conventions replaced the Wheat Trade and Food Aid Conventions of 1986. Both Conventions were extended for one year to June 30, 1999. The Grains Trade Convention (GTC) applies to trade in wheat and coarse grains and their products. It promotes international cooperation on grains trade in several areas—openness and fairness in the grains sector; grain market stability, and world food security. These objectives are pursued through improving market transparency, information-sharing, analysis and consultation on grain market, and policy initiatives.

34. The GTC is administered by the IGC. Until 1995 it was known as the International Wheat Council (IWC), which had administered an unbroken succession of International Wheat Agreements starting in 1949. The IGC’s Market Conditions Committee keeps the global grain market situation and outlook under close review. On the basis of independent information and analysis prepared by the IGC Secretariat, especially the monthly Grain Market Reports, IGC members discuss market and policy developments and consider the short-term grains outlook. The Committee also reviews trends in ocean freight rates.

(d) **International Jute Organization (IJO)**

35. With three exporting countries and 21 importing countries as its members, the IJO was created in 1984 to implement the provisions of the 1982 International Agreement on Jute and Jute Products. The Agreement was concluded within the framework of the Integrated Programme for Commodities, under the auspices of UNCTAD. The original Agreement was replaced by the 1989 International Agreement on Jute and Jute Products, which was extended recently until April 11, 2000.
36. The IJO’s main objectives are to: (a) provide an effective framework for cooperation between the jute exporting and importing countries to the jute economy; (b) improve structural conditions in the jute market; and (c) increase the competitiveness and quality of jute and jute products, upholding jute's positive environmental aspects. The activities of the IJO include: (a) formulating, supervising, and implementing Research and Development (R&D) projects aimed at improving the competitiveness and quality of jute and jute products through institutes in IJO member countries; (b) promoting existing and new products; and (c) organizing non-project activities such as studies, seminars, workshops, etc.

(e) The International Natural Rubber Organization (INRO) and the International Rubber Studies Group

37. INRO was established in 1980 following the 1979 International Natural Rubber Agreement (INRA). INRA 1979 was replaced by INRA 1987 and subsequently by INRA 1995. The new Agreement (INRA 1995) came into force in 1997. The current membership is six exporting members and 18 importing members (including the European Community).

38. The objectives of the organization are: (a) to achieve balanced growth in supply and demand for natural rubber; (b) to achieve stable conditions in natural rubber trade by avoiding excessive price fluctuations; (c) to help stabilize the export earnings of natural rubber exporting members; (d) to ensure adequate supplies of natural rubber to meet importing members' requirements; (e) to take steps in the event of a surplus or shortfall in supplies of natural rubber; (f) to expand international trade in, and improve market access for, natural rubber and its products; (g) to improve competitiveness of natural rubber through research on its problems; (h) to encourage economies in natural rubber production through improvements in its processing, marketing and distribution; and (i) to further international cooperation on natural rubber through research, assistance, and other programs.

39. To achieve its price stabilization objectives, the Agreement provides for an international buffer stock of natural rubber, with a total capacity of 550,000 metric tons. The Buffer Stock was revived in 1997 after activities were suspended in 1996. However, Malaysia and Thailand, two of the world’s largest rubber producers, will withdraw this year, effectively ending the buffer stock operations.

40. The INRO is also a forum for meetings and discussions. It initiates and promotes economic studies and research and development projects with the objective of improving the quality, the marketing, and the production of natural rubber, and the expansion of its use.

41. The International Rubber Study Group (IRSG) was founded in 1944, an intergovernmental organization located in London. It was formally established by a Headquarters Agreement with the governments of the United Kingdom and Northern Ireland. The Study Group provides a forum for the discussion of supply and demand for synthetic and natural rubber. It covers all aspects of the world rubber industry, including marketing, shipping distribution, trade in raw materials, and the manufacture and sale of rubber products.
42. The Study Group is the most authoritative source of statistical data supplied by various governments and organizations on production, consumption, and trade in rubber and rubber products. It prepares current estimates and forecasts future trends, and undertakes and publishes statistical, economic and techno-economic studies on specific aspects of the industry.

43. With 52 members (including the European Union), the ISO succeeded the International Sugar Council—based on the 1953 International Sugar Agreement (ISA). The Agreement of 1977 was designed to stabilize the price of sugar within a range of 11 to 21 US cents per pound and later 13 to 23 US cents per pound, through a system of export quotas and nationally held, internationally controlled stocks. A United Nations Sugar Conference, held under the auspices of UNCTAD in 1983–1984, failed to negotiate a new agreement. A two-year administrative agreement was finally realized and effected in 1985. Another three-year administrative Agreement, renewable on a yearly basis for up to two years, was in force from 1988 until 1992. A new International Sugar Agreement was negotiated in March 1992, and effective in January 1993.

44. The objectives of the new Agreement opened the scope for cooperation with, assistance to, and services for members. The objectives of the International Sugar Agreement, 1992, in the light of the terms of resolution 93(iv) adopted by the United Nations Conference on Trade and Development (UNCTAD), are: (a) to ensure enhanced international cooperation in connection with world sugar matters; (b) to provide a forum for inter-governmental consultations on sugar and on ways to improve the world sugar economy; (c) to facilitate trade by collecting and providing information on the world sugar market and other sweeteners; and (d) to encourage increased demand for sugar, particularly for non-traditional uses. With the entry into force of the Common Fund for Commodities, the ISO has been designated an International Commodity Body (ICB), which adds a new function for the ISO to process loan applications for sugar-related projects prepared by the ISO Members.

45. The ITTO is an intergovernmental organization concerned with the conservation and sustainable development of tropical forests. It began in 1986 under the International Tropical Timber Agreement (ITTA), which was adopted in 1983. ITTO consists of a Secretariat based in Yokohama, Japan, and a Council made up of 25 producing countries and 26 nations, which account for over 80 percent of the tropical rainforests and more than 95 percent of the trade in tropical timber. The ITTO is the main discussion and decision-making forum on tropical forests, facilitates discussion, consultation and international cooperation on issues relating to the international trade and utilization of tropical timber and the sustainable management of its resource base.

46. As laid out in the ITTA, ITTO has the following objectives: (a) to provide an effective framework for cooperation on and consultation about the global tropical timber economy; (b) to promote expansion and diversification of international trade in tropical timber; (c) to promote research and development to improve forest management and wood utilization; (d) to improve market intelligence with a view to ensuring greater transparency in the international tropical
timber market; (e) to encourage processing of tropical timber in producing member countries to promote industrialization; (f) to encourage members to support and develop industrial tropical timber reforestation and forest management activities; (g) to improve marketing and distribution of tropical timber exports; and (h) to encourage development of tropical forests.

E. Commodity Study Groups and Producer Associations

47. Listed below is a partial list of commodity study groups and producer associations along with their email addresses (when available):

(a) International Copper Study Group, mail@icsg.org
(b) International Cotton Advisory Committee, secretariat@icac.org
(c) International Lead And Zinc Study Group, root@ilzsg.org
(d) International Nickel Study Group, insg@insg.org
(e) International Olive Oil Council, iooc@mad.servicom.es
(f) International Tin Study Group
(g) Asian and Pacific Coconut Community, apcc@indo.net.id
(h) Association of Coffee Producing Countries, info@acpc.org
(j) International Tin Research Institute (ITRI, Ltd.), http://www.itri.co.uk/index.htm
OVERVIEW OF COMMODITY RISK MARKETS

1. Risk markets essentially provide opportunities and mechanisms to redistribute risks from those who are unable or unwilling to bear these risks to those who wish to benefit from taking these risks. Instruments available on these markets include futures, options, and swaps. Risk markets have grown exponentially in the developed world over the last two decades and become increasingly dynamic and competitive, with a strong trend of consolidation, product innovation, and rapid globalization. The main purpose of this Annex is to: (a) describe the different types of providers and users of commodity price risk management instruments in developing countries; (b) analyze the size and structure of major international commodity exchanges and OTC markets; and (c) summarize characteristics of price risk management for four different groups of commodities: petroleum, precious metals, base metals, and most importantly, agricultural products.

A. Main Providers of Commodity Risk Management Instruments

2. The number of large-scale market players offering commodity risk management instruments and services in developing countries is very small, around 50 by the estimates of industry experts. Instruments increasingly include more and more OTC instruments since many of the standard contracts do not directly meet the specific needs of clients in emerging markets in terms of contract size, maturity, margin requirements and settlement and delivery procedures. Providers can be divided into four categories.

(i) Large international commodity trading and processing companies provide risk management services in varying degrees, primarily to their cash customers. These agribusiness firms are uniquely able to provide commodity price risk management services because of the global nature of their businesses and the fact that they can transfer the risks that arise from these instruments not only to futures and options markets, but also at times to cash positions they hold. Risk management instruments appear to be a rather new activity that is of great interest to this sector since they are a potential means to facilitate and increase both the origination and sale of commodities. Moreover, providing risk management instruments can also represent a source of potential profitability. Standing at different stages in developing their risk management services, these companies envision a proliferation of offerings and uses of these instruments in the near future. They feel that in the near future agricultural prices will be more determined on a free market basis as liberalization and globalization reduce government intervention in agriculture, leading to more efficient worldwide production and distribution of agricultural commodities.

(ii) Investment banks are currently offering a limited number of risk management instruments in agricultural markets but are heavily involved in the energy and metals markets. They are active in energy-producing countries such as Venezuela and in metal-producing countries such as Chile.
(iii) **Commodity futures merchants** have traditionally offered futures and options to commercial and institutional agricultural customers for their hedging needs in the developed world. Many of these merchants are now extending their business to developing and transitional economies such as Argentina, Mexico, and Russia.

(iv) **Quasi-governmental exporting agencies** in surplus grain countries are beginning to offer risk management instruments to their purchasing clients. Sometimes these agencies are also users of these instruments to guarantee a floor price for their exports.

3. Many providers of risk management instruments have expressed a desire to be more actively involved in developing countries. Their efforts are often directed towards developing countries with large markets such as Brazil, Mexico, and China. *Table A2.1, page 87* lists some of the major players who are or would like to be active in providing risk hedging instruments for different kinds of commodities.

**B. Main Users of Price Risk Management Instruments**

4. Market price risk management instruments are utilized in a few countries with relatively low levels of governmental intervention in production and trade of commodities. Users can be: (a) private companies and individuals, such as exporters, importers, processors, storage facilities, local trading companies, regional cooperatives, and farmers; or (b) state companies and government agencies. Those developing countries with successful implementation of privatization and market liberalization and improvements in free cross-border capital flows and currency convertibility have witnessed significant growth in the use of these instruments. Examples include Argentina, Mexico, Guatemala, Peru, Ecuador, Venezuela, Colombia, Brazil, Kenya, South Africa, Korea, China, and Indonesia.

5. In the agricultural sector, the users of risk management instruments are primarily the sellers of cash products in originating countries and the buyers of cash products in consuming countries. Producers and merchandisers of agricultural products are more likely to be users of risk management instruments if prices are determined more by world supply and demand than by local economic or political considerations. For example, corn values in Argentina can be heavily influenced by oversupply in northern hemisphere production areas or by periodic import purchases by corn deficit areas such as China. Producers, importers, exporters and processors in countries or regions with highly volatile production histories (such as an area that exports one year and imports the next) are prime candidates for the use of commodity price risk instruments. Maize production in South Africa is one example. In some cases users of price risk instruments can be grouped by region because of shared needs, such as coffee producers in Central and South America. Large-scale agricultural production as well as small scale production aggregated through cooperatives or state export agencies are appropriate users of commodity price risk instruments.
6. For agri-businesses providing these instruments, e.g., Cargill, customers tend to be located in areas where these companies are conducting their cash trading activities. Investment banks’ geographic areas of preference tend to be driven by logistical considerations. For some, much of their activity is located in the Americas due to time zone consistency and resource availability.

7. Examples may illustrate the degree of sophistication in using market instruments to manage commodity price risk in developing and transitional economies. In Argentina, a domestic oilseed processor can provide risk management services to both its suppliers (farmers or farmer groups, elevators, and other suppliers) and end-users of its products. The processor can sell its suppliers floor price insurance to secure the delivery of oilseed grant the supplier downward price protection. To its end-users, ceiling price insurance facilitates the sale of vegetable oil and provides them with upward price protection. In Russia, a wheat exporter’s customer is a flour mill in Egypt. A maximum price wheat sale by the exporter could fix a ceiling price for the miller, and allow for the possibility that his wheat costs may decline. The exporter can guarantee a maximum price to the flour miller by purchasing a wheat call option. The cost (premium) of the option is passed on to the flour miller. If the price of wheat rises significantly above the maximum price guaranteed by the exporter, the value of the purchased call would reflect the increase, thus protecting the exporter. If the price of wheat declines, the call becomes worthless and the flour miller is able to benefit from the lower price.

C. Top International Futures and Options Exchanges

8. Most price risk management instruments involve, directly or indirectly, futures contracts and/or options contracts traded on regulated exchanges in Chicago, New York, London, Paris, and other financial centers. Futures and options exchanges provide commodity price risk management services to the extent that they provide a marketplace for orderly risk transfer and price discovery. An associated clearing house system provides counterparty guarantees within an acceptable regulatory framework. Further, research and marketing efforts of the exchanges have broad, long-range implications to the price risk management industry. Exchanges continuously develop new products (crop yield futures and catastrophe insurance) and also frequently redefine contract specifications to make them more useful for commercial users, such as the proposed delivery terms of corn and soybeans at the Chicago Board of Trade (CBOT).

9. In 1998, trading of futures and options on the world’s major exchanges exceeded 2.1 billion contracts, a 13 percent increase over 1997 figures. Meanwhile, a significant change in the futures environment was the decline of open outcry among European exchanges and the increasing importance of electronic trading worldwide. Table A2.2, page 87 shows that, in 1998, US exchanges accounted for slightly less than half the world’s total trading of futures and options.

10. The dominance of U.S. exchanges was threatened by the impressive growth of EUREX which enjoyed a volume jump of 63 percent in 1998. Nevertheless, the Chicago Board of Trade maintained its position as a world leader in futures and options volume, with 281 million contracts traded (+16 percent in 1998). EUREX (Frankfurt and Zurich) surpassed the Chicago Mercantile Exchange (CME) and the London International Financial Futures and Options
Exchange (LIFFE), trading 248 million contracts. Table A2.3, page 87 illustrates volume of the world’s top ten futures and options exchanges.

11. It is critical to note that futures and options on financial instruments dominate regulated exchanges, with interest rate-related instruments accounting for more than half the total trading. Table A2.4, page 88 shows that futures contracts for commodities accounted for about 24 percent of the total futures contracts traded in 1998, of which about 10 percent could be attributed to agricultural commodities. Less than one percent of the futures contracts traded in the United States in 1998 was settled through physical delivery of commodities.

12. Table A2.5, page 89 lists some of the most commonly used and most liquid contracts for some commodities relevant to developing countries.

13. Commodity exchanges provide platforms to trade futures and options contracts on commodities. These markets are very different from commodity markets for spot (cash) transactions and forward contracting. Table A2.6, page 90 summarizes key characteristics of spot, forward and futures markets.

D. The Over-the-Counter Markets

14. According to the Bank for International Settlements, the total estimated notional amount of outstanding OTC contracts stood at US$80 trillion at end-December 1998, covering the four main categories of market risk: foreign exchange, interest rate, equity and commodity. This represents an 11 percent increase over the revised US$72 trillion reported for end-June 1998, leading to a rise in the market share of OTC derivative instruments relative to those traded on exchanges (from 84 percent to 86 percent). Interest rate instruments remained by far the largest component of the OTC market (72 percent), followed by foreign exchange products (26 percent) and those based on equities and commodities (with 2 percent and 0.6 percent respectively). At the end of 1998, the notional amounts for commodity contracts stood at US$415 billion (of which US$182 billion was for gold), with gross market values of US$43 billion. Of the notional amounts for non-gold commodity contracts (at US$233 billion), forwards and swaps accounted for 59 percent (at US$137 billion) and options accounted for 41 percent. Industry experts estimated that nearly 98 percent of OTC activity on commodities is in metals (base and precious) and petroleum. Using this as a guide, that would imply that agricultural OTC instruments were no more than 2 percent of the total value and less than US$8 billion in the notional value. Given the amount of forward contracting in the agricultural markets, it is likely that a large percentage of this US$8 billion of the notional value is focused in the “forwards” with a relatively lesser amount of activity in swaps and options.

15. While it is difficult to get systematic statistics on the time length of OTC commodity contracts, the following table provides some indications. Clearly, the majority of option activity is focused in the near term while forwards tend to have greater maturity. Those contracts with a maturity beyond one year are mostly for petroleum and precious metals.

16. Many OTC risk management instruments, as contracts established outside an organized futures and options exchange, contain a maximum or minimum price feature. The providers of these OTC instruments normally hedge their associated risks with exchange-traded futures or
options positions. Some examples of customized commodity price risk instruments are: caps, collars, swaps, Asian options, European options, digitals, compound options, average price options, average strike options, barriers and knock-ins/knock-outs. Particularly appealing to developing countries are risk management instruments that create commodity price stabilization for commodity lending and secularization transactions.

17. Swaps are among the most common OTC instruments, since they allow for the development of creative, customized risk management instruments to meet the specific needs of individual market participants. Counterparty credit risk is significant, since the value of a risk management instrument is dependent upon both parties fulfilling their offsetting obligations at time of settlement. Unlike exchange-traded commodities for which performance is guaranteed as a result of the clearing houses’ daily margining system and segregated funds held by futures brokers, OTC contracts do not provide these protections. Swaps can include conventional forward contracts, minimum or maximum price contracts, a basket of different cash markets exposures, or any combination of risk management instruments into which the buyer and seller choose to enter.

18. The widespread availability of customized OTC instruments greatly facilitated existence of a liquid futures and options market against which the specific commodity can be hedged. In the absence of such futures markets, customized OTC instruments require back-to-back transactions to mitigate their risks. How an OTC instrument can be constructed depends essentially on the user’s specific needs and the provider’s ability to offset its risks. Many of these customized instruments contain an option feature. In developing countries, the cost of this feature (option premia) may be too high, thus limiting the instrument’s use. Option-type price risk management instruments are more readily accepted by potential users in developing countries than those involving futures positions because potential users reportedly fear the possibility of large futures margin calls due to adverse price movement.

E. Characteristics of Risk Management for Different Groups of Commodities

19. Some exchange-based instruments can be viewed as “global” in their use, while others are much more local, largely depending on whether or not a large degree of basis risk is present in a variety of different markets.\(^{77}\) The commodity that the producer sells is often far from the pricing point for the central market, in qualitative characteristics, and in the currency used. High basis risk can result from a range of factors including the nature of the derivative contract, local policies, quality differences, transportation dislocations and local market characteristics. Distance however great would be no problem if the “basis” or difference between the delivery price on the reference exchange and the local price were constant. But it is not. The basis can change unexpectedly between the time a hedge is placed and when delivery takes place, for example, because of changes in freight rates or other factors that determine locational price differences. Furthermore, currency risks can be hedged if appropriate currency forward (inter-bank) arrangements, futures, or options are available, but for many developing countries, such currency hedging is not possible. This section reviews some basic characteristics of market-based price risk management instruments for four commodity groups that are most relevant to developing countries: petroleum, precious metals, base metals, and agricultural products.
Petroleum

20. Crude oil contracts are among the most global of the exchange-based instruments with applicability to most markets taking into account some variation in quality. The size of the markets, homogeneity of the different classes of petroleum and petroleum products, close transportation links, and a large number of participants contribute to their broad applicability. The IPE and NYMEX contracts are among the most liquid and closely followed. Hedging activity is possible at least one year in advance, and several contracts, crude oil for example, are traded with some volume several years forward. The basis risk is considered to be very modest for these petroleum commodities, as there is excellent correlation between the major physical markets and the futures markets.

21. OTC risk management instruments for petroleum were highly liquid and available in a wide variety of markets. Swaps are used for primary commodities such as crude oil as well as refined products such as jet fuel. These markets are very liquid and are generally available out to three years in duration and in some cases out five or eight years. The activity is centered on the main financial centers such as New York and London. However, electronics make it possible to conduct business in virtually any venue with good communications infrastructure. Entities from virtually all producing and consuming regions participate in these markets including large ones from OPEC, Mexico and Venezuela. Indeed, financial institutions in a wide variety of locations were contacted about petroleum OTC activity. With respect to typical current market costs for both swaps and OTC options from financial institutions, the following is an example of what generally prevails for crude oil for different time lengths: for one year, the cost will be US$0.05 per barrel; for two to five years, the cost will be around US$0.08 per barrel; and five to seven years, the cost will be around US$0.16 per barrel.

22. Beyond seven years the volume becomes very thin and costs begin to escalate. All costs vary to a certain extent depending on circumstances and parties involved, but considering the time length of transaction alone, and assuming oil prices of roughly US$16 per barrel, the cost as a percentage of the value of these transactions varies from roughly 0.3 percent to 1 percent of value of the contract for one- to seven-year transactions. Beyond that, the costs can range up to 3 percent of the value of the transaction. While transactions in this market of up to seven years are generally commercially driven, transactions beyond that timeframe are usually tied to some type of project financing or are linked to the acquisition of an asset where the buyer wants to be sure of the long-term costs.

Precious Metals

23. Even more than petroleum contracts, precious metals contracts are viewed as global in nature providing opportunities for most importers and exporters to manage risk. There is very little perceived basis risk as these commodities are very fungible. Gold is by far the most active market and there is some activity in the silver market. Transactions for gold can be made out three to five years and the pricing is considered relatively competitive. OTC activity is present in the main financial markets, but a lot of activity takes place in other locations. Time maturity of the gold markets varies from very nearby to as long as 15 years in the case project swaps. The bid-ask spread for OTC options and other OTC instruments is roughly the same as in other markets. The spread for gold, for example, ranges from US$.30 to US$.50 per oz. or roughly 0.2
percent of value with gold at US$300 per oz. Pricing of OTC option premia is essentially the same as pricing of exchange-based options.

**Base Metals**

24. Basis risk becomes complicated for base metals because of factors such as delivery specifications, contract liquidity, particular industry structures in various countries and transportation differences. Nevertheless, most futures contracts on base metals are applicable to exporters, importers, and users in most economies. Hedging length ranges from six to twelve months, and liquidity varies depending on the contract. Copper and aluminum traded on the LME are by far the most liquid (the COMEX copper contract has far less volume) and the other base metals (lead, nickel, zinc, tin) have very limited volume. The low liquidity of these contracts often leads to price distortions that affect the basis relationships.

25. While there are many swaps in base metals, the liquidity and duration of the contracts are much less than in precious metals markets. Copper and aluminum are the major commodities with very little activity in the other metals. A limited number of players and less connection of prices between regions limits the level of activity. The typical length of transactions is three months to two years with the length of contracts usually a function of market structure. For example, if there is strong contango or backwardation present in the markets there might be a strong tendency to buy nearby and sell out months or vice-versa. The New York and London markets are typical locations for OTC swap activity. For base metals, the bid-ask price spread is roughly US$5 per metric ton (MT). In the case of copper, for example, this would be roughly 0.3 percent of the contract price. As with precious metals, the pricing of OTC options is consistent with pricing of exchange-based options.

**Agricultural Products**

26. Few contracts on agricultural commodities are truly “global” in nature. The most global are tropical contracts, such as coffee and cocoa, traded on both the London and New York exchanges. These contracts are suited to most hedging situations, although there are some regional variation. For example, the New York coffee contract is an arabica contract applicable mainly to South and Central America while the London contract is a robusta contract, more applicable to Asian and African countries. The CBOT soybean and soybean meal contracts apply to most situations and the CBOT corn contract has a good price relationship to the corn trade. Beyond these commodities, the use of contracts on a global basis begins to drop off. Various factors contribute, but in many cases local government policy or the nature of the contract plays a role. Currency also becomes an issue as less liquid currencies pose difficulties for importers and exporters. For example, the KLCE palm oil contract represents a commodity of interest to many countries. The contract, however, is in ringgits and it is a crude palm oil contract with most exports coming from Malaysia in the form of palm oil products. There is some hope that as developing countries begin to reform their agricultural sectors, local prices (and therefore the derivative instruments on which they are based) will become more global in nature and hence more broadly applicable to a variety of circumstances.
27. Worldwide production and trade in corn are among the highest of any agricultural commodity, which influence demand for price risk instruments. Price volatility in commodity prices originates primarily from supply disturbances. The OTC liquidity in the agricultural sector is very low and activity has probably declined over the past five years. While there has been a minor amount of activity in some countries, these are very specialized transactions that do not extend to the general market. The size of OTC transactions also might be a limiting factor as these instruments typically trade in US$50 to US$100 million increments. This restricts usage to only the largest entities. For example, in recent years the Mexican government entered into a two-year wheat swap agreement to fix the cost of imported wheat. This swap worked very well for the importer as wheat prices increased substantially after the swap. On the whole, however, such activity has been very limited. To a certain extent market conditions have also played a role. In the coffee market, for example, where nearby prices are currently higher than deferred volatility, there is a great reluctance to initiate transactions such as swaps because of the price risk. If the market returns to a more “normal” market structure where forward contracts are lower than the deferreds (backwardation) and volatility goes down, more interest in OTC instruments might develop. Similarly in grains, while the markets have since moved to lower levels and less volatility, in the past three years these markets have experienced record high prices and high volatility. In both the coffee and cocoa markets, traders often felt that for the most part futures markets were adequate to handle much of the normal commercial hedging activity and that the risk of swap activity was high relative to potential benefits.
COUNTRY EXPERIENCES IN COMMODITY RISK MANAGEMENT

1. As an alternative to interventionist policies, several developing countries have made significant efforts to innovate utilizing market-based commodity price risk instruments to manage their vulnerability to commodity price risks. Some of these experiences demonstrate potential for the use of market-based risk management instruments in developing countries. To learn from these efforts, this Annex presents two successful cases: (a) Guatemala: ANACAFE’s Hedged Coffee Loan System; and (b) Mexico: Agricultural Products Options Program. Meanwhile, this Annex also briefly discusses the farmers’ interest in risk management in the OECD countries.

A. Guatemala: ANACAFE’s Hedged Coffee Loan System

2. **Background.** The coffee sector in Guatemala provides jobs directly or indirectly to about 2 million people (30 percent of the population), and accounts for about 30 percent of the country’s total exports in a normal year. ANACAFE (Asociación Nacional de Café) is a non-profit and private organization, which includes about 60,000 coffee producers from all over the country. It has developed a hedged coffee loan system (Programa de Créditos) which aims to improve the access of coffee producers to commercial bank financing and requires the use of risk management instruments. Low coffee prices and high interest rates of the early 1990s significantly increased the indebtedness of small- and medium-size growers who depended solely on coffee for their income. There have been several initiatives over the past few years to relieve indebtedness and provide alternative sources of finance, for example, through the selling of coffee bonds to pay farmers a subsidy during the period of low prices in 1992/93.

3. The hedged coffee loan program was introduced in 1994 and totaled US$20 million in 1998. ANACAFE plans to expand the system to cover all the financial needs of the coffee sector, estimated at US$200 million. Hedging is required under the hedged coffee loan program in order to reduce the risk to the bank, which then provides credits to coffee farmers at lower interest rates.

4. **Operational procedure.** Farmers receive education in credit-related issues, develop an understanding of their commercial operations, and determine their costs and break-even prices with assistance from ANACAFE. Trained extension staff from ANACAFE verify the production potential of the farm and assist with the necessary paperwork for the loan. ANACAFE provides a list of banks with which it has agreements and the farmer chooses the bank. Meanwhile, ANACAFE provides all necessary information to the bank. The bank approves the loan which is conditioned upon the farmer’s obtaining a hedge (for example selling forward or purchasing options) from an exporter. The hedge provides protection against the drop in market prices thus guaranteeing that they will be able to cover the loan payments. Coffee producers can also obtain loans outside of ANACAFE’s program. This is usually the case for larger producers, cooperatives or producers associations with large collateral. Credit can also be obtained directly from exporters and intermediaries, but this option is usually more costly.
5. To hedge prices, producers usually contact an exporter with whom they fix a price for future delivery of the crop purchased. Subsequently, exporters sell futures or purchase options in the New York Coffee, Sugar and Cocoa Exchange (CSCE) to hedge their assumed exposure. In the case of options, exporters pay the premium upfront and deduct from the price they pay producers upon delivery. Moreover, if the producer fails to deliver and prices increase, exporters could incur significant financial losses. For this reason, ANACAFE assists in providing estimates of the expected crop so that producers will not over- or underhedge their exposure. The majority of the hedging operations involves future/forward contracts; however, there is an increase in the use of option strategies such as the purchase of puts or construction of price fences (purchase of puts or sale of calls).

6. **Eligibility criteria.** All producers are eligible provided they are associated with ANACAFE. Small producers access risk management instruments by aggregating the exposure of many small farmers.

7. **Implementing agencies and institutions.** Under the hedged coffee loan program, ANACAFE is a facilitator, not a director, creditor or hedger. Other institutions involved are producers associations and cooperatives, commercial banks (domestic and international) and approximately 95 exporters, including both local and traditional multinational commodities trading companies such as ED&F Man.

8. **Cost savings to producers.** During the crop year 1996/97, ANACAFE’s hedged program mobilized US$16.5 million with a minimum loan size of US$20,000 and a maximum of US$1.2 million. According to ANACAFE, the program has saved farmers over US$2 million in interest. ANACAFE charged coffee producers a service fee of 1 percent of the credit amount (approximately US$165,000), and used this fee to fund research and information services for the coffee producers.

9. **Lessons learned.** (a) Facilitation: The ANACAFE hedged coffee loan program brings benefits to farmers, traders, and banks. (b) Self-sustainability: The hedge transactions are managed by a private, non-profit entity with no direct involvement from ANACAFE. The government does not incur any cost nor provide any type of subsidies. In fact, ANACAFE opened a stable and sizable source of revenue to finance its support of coffee farmers. (c) Arbitration to overcome performance risks: While there is no formal system to enforce hedging contracts, ANACAFE is trying to play the role of arbiter so that producers and exporters comply with their obligations. Exporters risk rejection of their licenses, and ANACAFE could block the account of a farmer if he/she does not comply. (d) Information dissemination on real time basis: ANACAFE maintains an information network with many terminals and telephone/beeper links throughout the country to inform producers on cash prices (both New York and local) for different types of coffee, costs of futures and options contracts, currency rates, premium differentials and other market information and analysis. This helps coffee producers to compare their productivity and expected price level against benchmarks outside the country. (e) Education: ANACAFE provides assistance and education in a wide range of issues related to credit use of hedging and risk management instruments, and the growers’ other commercial operations. These education programs improve farmers’ knowledge of marketing and risk handling, and their impact spreads quickly among large groups of farmers (f) Advice: Producers can and do visit the ANACAFE offices and ask for advice regarding their specific situations.
10. **Challenges.** The main impediments to better uses of price risk management instruments by producers and exporters include: (a) Lack of knowledge by various producers, especially the smaller ones: Many of these producers do not yet understand the cost and benefits of hedging and are still reluctant to consider price risk management, particularly if it involves a cost to them (options). (b) Performance risk: Delivery of coffee to the exporter is a crucial factor for risk management. Exporters are very reluctant to offer risk management instruments to producers if they are uncertain of the producer’s ability to deliver. Thus, exporters only offer risk management instruments to producers whom they trust. (c) Low volumes of production by smallholders: Small producers do not have adequate production to enter in price risk management operations. Small producers in Guatemala usually produce less than 2,000-3,000 pounds, which is significantly lower than the size of the coffee futures contract in N.Y., which is 37,500 pounds. The only way for small producers to access risk management instruments is through aggregating the exposure of many small farmers. This can be done effectively through producer cooperatives, associations, traders, and exporters willing to assemble many small quantities to come up with the volume necessary for purchasing futures or option contracts. Some cooperatives and producer associations have started offering price risk management tools to their producers.

11. **Background.** Since Mexico joined NAFTA, the government has moved to liberalize its agricultural sector and make it more competitive worldwide. As an alternative to long-standing policies of guaranteed minimum prices, the government began to offer farmers and their associations the opportunity to purchase price insurance. The *Agricultural Products Options Program* (APOP—Programa de Covertura de Precios de Productos Agrícolas) attempts to move away from direct government interventions in the agricultural sector toward a system based on “market forces.” As stated by the Support Services for Agricultural Marketing Agency (ASERCA), the APOP aims to protect producers’ income through the use of using financial risk management instruments, thus reducing uncertainties on sales prices of producers’ harvests. The APOP also includes efforts to improve farmers’ knowledge of market risk management instruments (such as futures and options), and to reduce their reliance on government protection. Another important aspect of APOP is to enhance the linkage between Mexican prices and international prices in order to provide an improved standard reference for buyers and sellers.

12. Created in 1994 for cotton, APOP was expanded after 1995 to include corn, wheat, sorghum, and soybeans and will cover rice, beans, coffee and orange juice in the near future. The APOP takes the form of insurance against adverse price changes of specific commodities by utilizing contracts (puts or calls) and reference prices in the appropriate exchanges—corn, wheat, soybeans and sorghum at CBOT and cotton at the New York Cotton Exchange. One of the major accomplishments of the APOP was to have enhanced price predictability and therefore reduce the risks faced by farmers. Price risk management also contributed to the rise of cotton production from its low level of 1993.
13. **Coverage.** The APOP provides two alternatives to producers. Under the simple coverage, ASERCA pays part (50 percent) of the option premium cost. Under the funded coverage (FINCA), ASERCA may contribute a large part (75 percent) of the premium cost, but in exchange producers deposit a like amount in a “FINCA” fund for at least three years. In addition, any profits from holding the option go into the fund. The purpose of the fund is to encourage savings and investment among farmers. *Table A3.1, page 91* illustrates the type of coverage selected by the farmers in 1997.

14. At the request of the producer and after the producer deposits the cost of the premium minus the subsidy, ASERCA will contract the coverage instruments in the appropriate futures markets. Price information including commissions, is made public at least every Friday, in the form of so-called "Cover Cost Charts." The typical cost to the farmer is 5 percent to 8 percent of the strike price of the option. In effect, part of the option premium is passed on to the farmer. Only exact lots may be enrolled, which are equivalent to a futures option contract. Volumes in excess of production may not be enrolled. However, if an individual producer fails to meet the minimum volume requirement, two or more producers can join together so as to meet this requirement.

15. **Eligibility criteria.** Important requirements for a producer to qualify for the APOP include: (a) the producer needs to be creditworthy or own the land, which is viewed as collateral; and (b) the participant must produce by himself, or in association with other producers, at least 127 metric tons for corn and sorghum; or 136 metric tons for wheat and soybeans; or 23 metric tons for cotton.

16. **Implementing agencies.** The APOP was developed by the Secretary of Agriculture, Livestock and Rural Development with the coordination of ASERCA—a decentralized administrative body providing commercial support to farmers. The implementation has been primarily done by ASERCA. Private entities are also part of the program, including U.S. brokers who handle the actual commodity futures trading through either Chicago or New York. The Mexican banking sector is becoming more interested in the program since they started to require farmers to hedge their production as a condition to obtain credit. ASERCA functions like an intermediary and facilitator between the producers and the commodity broker. After the producer has deposited his portion of the premium in an ASERCA account at a local bank, the producer places the order for an option and ASERCA buys the option through the U.S. broker directly. ASERCA also provides information to producers through publications and seminars. Pricing information is available daily over the telephone and on ASERCA’s internet site. Seminars are held as often as once a week to educate producers and other interested parties such as local banks. Several international commodity brokers have worked with ASERCA, including ED&F Man, ING, Smith & Barney, Refco and FIMAT.

17. **Cost to Government.** The Mexican government, through ASERCA, subsidizes from 50 to 100 percent of premium payments in the initial years. But the continuation of subsidization depends on both the budget authorized by the federal government every year and the results achieved by the program. For example, the cotton program started with a 100 percent subsidy in 1994, but since then the subsidy has been reduced to 50 percent. However, if the market conditions are favorable and the producer benefits from the option, then ASERCA is reimbursed when the option is exercised. *Table A3.2, page 91* summarizes the number of contracts...
exercised, equivalent tonnage, expenses, and reimbursements received by ASERCA. The results indicate that ASERCA was reimbursed for 80 percent of its subsidies, but it must be recognized that the results are strongly influenced by the market conditions prevailing in 1997.

18. **Participation.** In 1997, 16,496 producers participated in the APOP program. The percentages vary across crops. Corn has the lowest participation because most growers farm in small lots of one to two acres. Since corn is one of the main products of the Mexican diet, the government still regulates this sector with high trading tariffs and subsidies. The percentage for wheat is higher because of its more organized farming structure. Wheat and cotton farm units are larger, production is sold off-farm, and marketing is more sophisticated. As one would expect, in Mexico, participation is higher in regions where farms are larger, the level of production is more sophisticated, and international prices have greater influence. For example, the states of Sonora and Taumaulipas, located in the north of the country, capture 67 percent of all contracts purchased. Sonora is characterized for its “corporate farming structure” while the proximity of Taumaulipas to Laredo, Texas, links it to international prices. Thus far, ASERCA is satisfied with the levels of participation, but still would like to expand APOP. For 1998, ASERCA expects the number of options contracts purchased to increase by as much as 50 percent. *Table A3.3, page 92* measures participation based on the percentage of total production covered by the APOP program.

19. **Cost savings to producers and ASERCA.** Clearly, farmers were better off by hedging their production through the APOP. However, if prices had moved in the opposite direction, producers would have lost the option premium paid up-front. *Table A3.4, page 92* summarizes the results for 1997. The amount of hedging revenues is not a reflection of the program but rather of market conditions in 1997. Meanwhile, the "hedging revenues" are likely to be offset by losses in the cash markets.

20. **Lessons learned.** (a) Integration with international commodity markets: The APOP has brought the Mexican agricultural sector closer to global agricultural prices by using contracts and price references in major commodity exchanges. (b) Subsidies: The government maintains flexibility to alter the initial subsidy allocations, depending on the success of a particular program. Part of the premium subsidies can actually be recovered if the option increases in value. However, the program resembles an income transfer scheme, transferring income from the government to farmers, though it was meant to be a strategic commodity price risk program. (c) Education and awareness: There is a strong need to provide training to producers and increase awareness of risk management principles. (d) Linkage to commodity financing: Local banks are also participants of the APOP, and are more aware of the benefits of price risk management. Many banks now make participation in ASERCA programs a requirement for loans. (e) Capacity building: Some producers complain that execution from ASERCA is often poor, and some staff are not well trained. (f) Risk aggregation: The size of the APOP contract corresponds to the option contract size in major commodity exchanges. This is too large for most producers, although pooling of contracts is allowed. (g) Potential misuse/abuse of risk instruments: The farmer is not required to hold the purchase of the put for a specific time, so often the put is sold before his actual production is contracted or sold in the cash market.
In late 1990 and early 1991, the Mexican government used commodity derivative instruments to protect its crude oil export earnings against a price drop. Mexico's hedging strategy ensured that it received at least US$17 per barrel, the price used as the basis for its 1991 budget. Its participation reassured investors that regardless of oil price movements, the economic program and the budget would be sustained. It is interesting to note what a senior Mexican official was quoted by the Washington Post (March 27, 1991) as saying: "We said, listen, given the uncertainty and given the volatility, it can go to US$40 (a barrel) and it can drop to US$10. We have a budget here, a budget that we have to cover. We did not do it to be ahead. The government does not speculate in that sense. Doing nothing is speculative. It does look good now that we are ahead compared to doing nothing. Some days, we do not do as well. But we sleep well." In another article on the same subject by the Wall Street Journal (March 11, 1991) a Ministry of Finance official was quoted: "It is extremely important for us that investors know that, no matter what happens to the price of oil, the program is on for 1991. Regardless of what happens, we have got US$17 a barrel and there's enough in the kitty."

During the Gulf War, several Latin American countries started using risk management instruments to hedge their oil exports and imports. For example, Brazil, Chile and El Salvador purchased call options to guarantee a maximum price for their oil imports. Ecuador, an oil exporter, purchased put options in order to guarantee a minimum export price for its crude oil exports. After the Gulf War, many of these countries continued hedging their oil price exposure. NYMEX reports that the open interest of its crude oil futures contracts attributed to Latin American users increased from 0.4 percent in 1990 to 3.5 percent in 1995.

C. Farmers’ Interest in Risk Management Tools: The OECD Experience

21. In Europe, Japan, and North America futures markets have been well established for well over a century, options markets for a few decades, and tailor-made price insurance instruments since the early 1980s. Surveys in North America and Europe indicate that only a small percentage of farmers, perhaps 10 percent, hedge directly their production. This apparent lack of interest has led to questions about whether commodity risk management tools really have much value to producers. But a closer look reveals that risk management really does matter to most of them—and that they are willing to pay for it.

22. One reason for a historical lack of willingness to pay for price risk management in Europe and North America is the prevalence of governmental price support programs. European countries have typically used import restrictions to maintain a domestic commodity price floor for the main grain and livestock products, most notably through the variable levies of the Common Agricultural Policy of the European Union (with export subsidies to dispose of surplus domestic production at protected prices). The United States, until 1996, guaranteed producer prices for most production of grains and cotton at levels roughly 20 percent to 30 percent above the mean levels that would have prevailed without intervention (letting domestic commodity prices largely find their market level and providing the price guarantee through “deficiency” payments). Canadian grain producers receive minimum prices through the Canadian Wheat Board, which serves as a collective marketing agency, and until recently have also had what is effectively a subsidized price insurance program.
23. These policies have generated subsidies to producers that are a substantial fraction of the value of the commodities produced. In response to low commodity prices and weak demand in the last two years, selected tariffs were raised in some OECD countries, and there was a greater use of export subsidies and export credits, which restricted market access of non-OECD countries. Table A3.5, page 93 provides OECD estimates of subsidies for their agricultural sectors as a whole. In 1998, the level of support to producers represented 37 percent of the value of gross farm receipts for the OECD as a whole. The subsidies to agricultural producers in all OECD countries totaled US$274 billion in 1998, an increase of 11.4 percent from that in 1997.

24. Levels of support continue to vary widely across OECD countries, ranging from less than US$1,000 to over US$35,000 per farmer. In 1998 farmers in the European Union received from government subsidies equivalent to 45 percent of total farm commodity output and every farmer in the OECD received an average of US$11,000 in 1998, and their U.S. counterparts US$19,000. Furthermore, despite the gradual shift towards budgetary payments, market price support (maintaining domestic prices above world levels) still accounts for over 65 percent of support to producers.

25. With subsidies this large—and varying inversely with commodity prices—the willingness of farmers to pay for insurance against low prices has to be greatly reduced. Moreover, farm households in the developed economies often receive much of their household income from off-farm sources. With such diversified income sources and support from government, it would be surprising if many of them were willing to pay much for commodity price protection. Yet, experience suggests a substantial interest for price risk management tools by developed-country farmers. Furthermore, processors, marketing enterprises, and grain elevators are long-standing users of futures and other price risk management arrangements.

26. While price-support policies have rendered private sector price insurance less important for producers of key commodities in OECD countries, recent experience indicates a substantial and increasing demand for price risk management tools. Four factors shed light on farmers’ thirst for risk management in OECD countries and suggest that risk management tools will be attractive to producers in developing countries.

27. First, recent policy changes have increased OECD producers’ exposure to price risk. Income support mechanisms have grown away from commodity prices, a development encouraged by the Uruguay Round agreement on agriculture. This has linked farmers’ incomes more closely with market forces (notably in the U.S. as commodity storage and acreage control programs were reduced after 1985 and mostly discontinued after 1995). Beginning with the 1996 crops the U.S. replaced price guarantees with fixed payments to producers. Other OECD countries have also reduced their price protections—New Zealand has gone furthest by phasing out all support in the late 1980s. In the EU, the implementation of Agenda 2000 will result in a significant reduction (15 percent) of market price supports (notably in cereals). Consequently, many farms, especially large operations specializing in one or two commodities with large annual out-of-pocket costs, will be further exposed to risk because of price fluctuations.
28. *Second*, in the U.S. about two-thirds of farms are small ones, where off-farm sources account for more than 90 percent of household income. These farms are so diversified in income sources that commodity price risk is greatly attenuated. Larger farms that depend more on their crops for income are much more willing to hedge in commodity markets. A 1996 USDA survey estimated that 40 percent of the larger commercial farms engage in futures trading and 60 percent use some other form of forward contracting (some farmers use both, so the data do not imply that all the large farms use risk management tools). This finding is more relevant to the situation of farmers in developing countries than one might suppose because of the similar dependence of both commercial farms in industrial countries and small farms in developing countries on commodity receipts as an income source, in contrast to the more diversified small farms in the industrial countries.

29. *Third*, OECD experience underlines the need for intermediaries between central exchange markets and individual producers. Farms in industrial countries that engage in risk management often do not do so through futures sales or option purchases directly; rather, they contract through intermediaries. Many U.S. grain producers sell forward to local elevators at a fixed price and agree to deliver during the harvest season or shortly after (for purposes of grain drying). The elevator then hedges its exposure by selling futures. Livestock producers and growers of many fruits and vegetables very often sell forward part or all of their output through marketing or production contracts. In some cases, such as broilers, the producer typically gets a fixed fee per pound of chicken delivered (with bonuses or deductions for quality, but not for market conditions). In others, such as hog production contracts, the price is contingent on market prices when the hogs are delivered, but if prices are exceptionally low (as in late 1998), the buyer provides a supplementary payment that the producer must pay back when prices are above normal. This is a rough private-sector equivalent to a “collar” arrangement under which a producer pays all or part of the premium for buying a put option by simultaneously writing a call option with an out-of-money strike price.

30. *Fourth*, new forms of price risk management are emerging rapidly. Since 1996 when the U.S. deficiency payment program was converted to fixed payments, farmers have shown increased interest in new kinds of commercial risk management tools. And, intermediaries have been creating and marketing new insurance contracts. The most notable change is the rapid growth of revenue insurance, an outgrowth of long-standing subsidized but privately delivered crop insurance. In 1998, about 10 percent of the U.S. grain and soybean crop was covered by some form of revenue insurance. Three different types of revenue insurance were sold in 1998. The most widely used such contract is “crop revenue insurance” sold by American Agri-Insurance, principally in Iowa and Nebraska. The farmer selects from a schedule of yield and price protection levels, paying a higher premium for increased protection. An indemnity is paid if actual yield times the harvest price in the producer’s county falls below the insured price times yield. The U.S. government pays an average of about 30 percent of the premium cost. In 1999 a similar insurance policy, based on regional yield rather than that on the insured farm, was offered in the U.K. and France by British and French firms.
POVERTY AND COMMODITY RISKS

1. Recent studies have focused on the negative impact of vulnerability and, in particular, commodity price risks, on economic growth in developing countries. In this context, policy conclusions were drawn regarding the role aid could play in helping developing countries cope with such vulnerability. The results of two recent papers are summarized below by their authors. The first paper (Section A) examines the impact of commodity price volatility on economic growth and poverty, and draws conclusions on aid effectiveness. The second paper (Section B) defines vulnerability, determines its impact on growth through various channels, and analyzes some of the implications for aid effectiveness and allocation.

A. Commodity Price Volatility, Economic Growth and Poverty

2. It has long been believed that commodity price variability causes problems for primary-producing developing economies, both for governments and for producers themselves. For governments, unforeseen variations in export prices can complicate budgetary planning and can jeopardize the attainment of debt targets. This is a particularly serious problem for HIPCs, all of which are highly dependent on commodity exports. For exporters, price variability increases cashflow variability and reduces the collateral value of inventories: both factors work to increase borrowing costs. Finally, smallholder farmers, often with poor access to efficient savings instruments, cope with revenue variability through crop diversification with the consequence that they largely forego the potential benefits obtainable through specialization.

3. For all of these reasons, we should expect vulnerability to retard growth in commodity dependent countries. Despite this, empirical evidence that “export instability” harms producing countries has been relatively weak. MacBean’s classic 1966 study failed to find clear support for the hypothesis that export instability reduces growth in developing countries, and the large subsequent literature has not reached a clear consensus. Recently, however, the availability of long panel datasets covering a substantial group of developing countries has allowed more systematic evaluation of the determinants of relative growth rates in developing countries. The World Bank’s Development Economics Research Department has contributed prominently to this literature.

4. A major focus of this new generation of research has been on aid effectiveness. Responding to arguments that aid has not, on average, increased the growth rates of recipient countries, Burnside and Dollar provided evidence that aid is effective in promoting growth but only in “good” policy environments. The objective of this paper is to extend the Burnside and Dollar analysis, using the same data, to include vulnerability to commodity price variability as a potential cause of slow growth.

5. Modern econometric methods allow us to distinguish between price variability and uncertainty about future prices. This distinction has practical importance because there is little that policy can do about price variability, but market-based risk management techniques allow agents to reduce the uncertainty associated with any given level of variability. Following
Deaton, A.S., and R. I. Miller, (“International Commodity Prices, Macroeconomic Performance, and Politics in Sub-Saharan Africa,” Princeton Studies in International Finance, 1995), country-specific measures of commodity price variability were constructed by weighting international commodity prices by each country’s export shares. Then, following Serven (“Macroeconomic Uncertainty and Private Investment in LDCs: An Empirical Investigation,” Washington, D.C., World Bank, 1998), the measure of vulnerability to commodity price uncertainty is captured by the (time varying) conditional variance of these variability indices. This gives a growth and vulnerability dataset covering 56 developing countries over six four-year “epoch”. The effects of aid, vulnerability and policy quality on countries’ growth rates is estimated by using standard panel estimators.

6. The results reported in the paper demonstrate that:

(i) Vulnerability to commodity price uncertainty reduces growth rates—the greater commodity price uncertainty, the slower the country’s growth rate, other things equal.

(ii) Aid, along with good policy environments, offsets the effects of vulnerability on growth rates and allows vulnerable countries to grow faster.

(iii) Vulnerability is associated with poverty—the greater commodity price uncertainty, the greater the extent of poverty, other things equal.

(iv) Aid can help reduce the poverty resulting from vulnerability to price uncertainty.

7. The recent aid literature has emphasized the importance of selectivity. Aid money should be spent where it will generate returns in terms of GDP growth and poverty reduction. Burnside and Dollar argued that a good policy environment should be a major criterion in allocating aid. The results reported in this paper show that vulnerability to commodity price uncertainty is equally important.

**B. Why and How Vulnerability Matters**

8. Vulnerability has been a matter of renewed concern. During the last two years, the UN General Assembly and ECOSOC have asked various UN bodies to present indicators of ecological fragility and economic vulnerability. In April 1999 the Committee for Development Policies (CDP) actually proposed to consider an economic vulnerability index as one of three main criteria to be used for the identification of the least developed countries (LDCs). Several sets of countries may seem to be particularly vulnerable, including those highly dependent on commodity exports.

**What is vulnerability and how can it be measured?**

9. Vulnerability means the risk of being harmed by unforeseen events, often called "shocks." In a broad and dynamic sense, it is the risk that these shocks lower growth and increase poverty.
10. Low-income countries face two main categories of exogenous shocks: natural shocks (earthquakes, typhoons, droughts, floods, etc.), and trade shocks, mainly due to the world commodity price instability.

11. Vulnerability may be seen as the product of three components:

   (i) the size of the shocks
   (ii) the exposure to the shocks
   (iii) the capacity of the country to react (its "resilience").

12. For instance the vulnerability of a commodity exporter to the instability of world prices depends on: (a) the size of the price fluctuation of the commodities it exports; (b) the share of these commodities in its GDP; (c) the way by which it manages the shocks at the macro and micro levels, and on the pass through to producers; and (d) the way such producers can cope with the shocks they face.

13. Vulnerability therefore results both from factors which do not depend on policy (the structural vulnerability, mainly the size of the shocks and the exposure) and from factors which depend on policy (the resilience).

14. Synthetic indicators are needed to allow for international comparison across countries, and for appropriate testing of assumptions about its effects, notwithstanding methodological difficulties. With regard to structural vulnerability the relevant components of a synthetic indicator are indices of the size of the main shocks and of exposure (preferably the structural determinants of exposure). There are many ways by which such indices can be measured, combined, and weighted.

15. In a recent work on aid, for a large sample of countries, we have built a composite indicator of economic vulnerability over 1970-93, and relying on four component indicators. Three components are related to the size of the shocks, the instability of the agricultural production (as a proxy for the natural shocks), the instability of the real value of exports of goods and services (a measure of short-term trade shocks), and the trend of the terms of trade (a measure of a kind of long-term shock). The fourth component is related to the main structural determinant of exposure, namely (the log of) the population size. The weight given to each of the four indices, after scaling, has been determined by the (significant) coefficient of these four variables in a growth regression, with other common structural or initial variables as control variables. Thus vulnerability is a handicap to growth (even if all handicaps to growth cannot be considered as vulnerability). For the need of categorizing, weighting can be chosen by a less sensitive way. For instance the economic vulnerability index proposed by CDP, which includes itself four elements, three of which are the same as in the previous indicator, gives equal weight to each of them.
How does vulnerability slow down growth? Some recent results

16. After several decades of debate, the effects of export instability, a main component of economic vulnerability, are now increasingly recognized to be damaging. Export instability, weighted by the average export to GDP ratio (i.e., not only the size of the shock, but also the exposure), has significant negative effects on growth, with the positive effects of export growth simultaneously taken into account. Moreover it appears that the (negative) effects of the (weighted) export instability are smaller the more outward-looking the policy is (the latter increases the capacity to react or resilience).

17. In another paper we focus on "primary" or exogenous instabilities namely: (a) the instability of the terms of trade (again weighted by the average export to GDP ratio) or that of the real value of exports (weighted); (b) the instability of agricultural production (itself weighted by the share of agricultural when added to GDP); and (c) political instability. We argue that these instabilities, significantly higher in Sub-Saharan Africa than in other developing countries, may have been a major factor of the slow rate of growth in that region.

18. The previous tests consider separately the main sources of vulnerability. A synthetic test of the impact of instabilities and of vulnerability is the negative link between the instability of the rate of economic growth and the average rate of growth itself. But this global instability can be due to policy factors as well as to structural factors.

19. Some results focus on the channels of vulnerability. In the previously quoted cross-sectional studies, the effects of instability essentially lessen the growth residual, thereby affecting the rate of growth of total factor productivity, rather than the rate of investment. This is the case where such instability reflects either the instability of exports (Guillaumont 1994, Dawe 1996), or the "primary" instabilities (Guillaumont, Guillaumont Jeanneney and Brun 1999), or the instability of the rate of growth (Ramey and Ramey 1995).

20. Other results further enlighten the channels of vulnerability. When considering "primary" instabilities, it appear that they influence growth through two important intermediate instabilities, namely the instability of the rate of investment and that of the relative prices (or of the real exchange rate). These two intermediate instabilities, which have negative effects on growth, are clearly related to policy. As tested in another study, structural vulnerability weakens policy. Finally, due to the macro policy (real exchange rate instability) or to the pass through to farmers of world agricultural prices fluctuations, the instability of the real producer prices appear to be a factor of lower growth in agricultural production, which itself contributes to a lower global growth and to more poverty.

Vulnerability and aid

21. It has been argued that aid effectiveness depends on policy. When policy is good, aid is efficient, when policy is bad, it is not efficient. Consequently aid has to be allocated according to policies in order to maximize its effects on growth and poverty reduction.
22. But it can also be argued that aid effectiveness with regards to growth depends on structural vulnerability. The more vulnerable the recipient country, the higher is the marginal contribution of aid to growth: in vulnerable countries aid helps avoid collapses and lasting recessions. Using the index of vulnerability presented above, this alternative assumption has been significantly tested on a cross sectional regression over 1970-1993 divided into two eleven-year pooled periods and a large sample of developing countries. The test variable is a multiplicative variable (Aid x Vulnerability) introduced successively besides and instead of the multiplicative variable of Burnside and Dollar (Aid x Policy). The results indicate that vulnerability lowers growth, but aid is more effective in vulnerable countries.

23. The previous argument has implications for aid allocation: structural vulnerability has to be taken into account, not only for its direct negative impact on growth (and poverty), but also in order to maximize the effect of aid on growth and consequently on poverty reduction. At least partly, aid has to be allocated according to the vulnerability of the country, not only to compensate for the loss of welfare, but mainly because aid is more efficient in promoting growth. Used this way, aid can also contribute more to poverty reduction insofar as the latter depends on the rate of growth. However, in order to also give incentives to policy improvements, it is possible to design aid allocation criteria likely to combine the creation of such incentives and the increase of aid effectiveness as a function of vulnerability. The proposed approach would allocate aid according to the performances of the countries, defined as their outcomes, growth or poverty reduction, adjusted for the impact of the factors not induced by policy, firstly structural vulnerability factors. This proposal is likely both to increase aid effectiveness (since for a given outcome performance is better when vulnerability is high) and also to promote good policy (a good policy leads to a better outcome for a given vulnerability).

24. Vulnerability has also implications for aid design. Aid could be designed precisely to lessen vulnerability. We remember that vulnerability has three components: shocks, exposure and resilience. Indeed the most efficient way by which aid can contribute to the lessening of vulnerability, and the fastest, is to enhance the capacity of countries to manage the shocks they face, and at the micro level, the capacity of the farmers to cope with the shocks transmitted to them or occurring at their level. In other words, aid should be targeted to build or enhance "insurance" schemes at the macro or the micro level.

25. Some kinds of aid are explicitly devoted to facing vulnerability problems such as the IMF Compensatory and Contingency Financing Facility and the European Union STABEX and SYSMIN, the latter being presently renegotiated between EU and ACP countries. Indeed there is a large room for reform and for an external support to various kinds of schemes helping poor farmers to cope efficiently with the risks they face, and at the same time giving to governments incentive to a better management of instability.
CONSULTATIONS CONDUCTED BY THE INTERNATIONAL TASK FORCE

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Members

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Low, Patrick (World Trade Organization, Geneva)
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Roffey, Michael J. (Mitsui Bussan Commodities, Ltd., London)
Rutten, Lamon (United Nations Conference on Trade and Development, Geneva)
Schmidhuber, Joseph (Organization for Economic Cooperation and Development, OECD, Paris)
Silva, Robério (Ministry of Development, Brasilia)
Wickham, Peter (International Monetary Fund, Washington, D.C.) to be confirmed
Yoshihiro, Iwasaki (Asian Development Bank, Manila) to be confirmed

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Roberts, John (DFID, London)
Voituriez, Tancrède (SOLAGRAL, Cedex)

B. List of Individuals Met (January-July 1999)

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Akroyd, Paul (Louis Dreyfus Trading, London)
Arciniegas, Patricia (Gerencia de Financiamiento y Tesorería, Bogotá)
Arias Puerta, Jairo (CCBNA S.A. [Bolsa Nacional Agropecuaria S.A.] Bogotá)
Augustos del Valle, Carlos (Sociedad de Agricultores de Colombia, Bogotá)
Blum, Francis (Louis Dreyfus Negoce SA, Paris)
Castro, Jaime Quevedo (CAMS Sociedad de Comercializacion de Azucares y Mieles S.A., Bogotá)
Cretegny, Raymond (André S.A., Geneva)
Davies, Kenneth C. (Triland Metals Limited, London)
Davis, Paul (ED&F Man Cocoa, London)
Espinosa, Diana (Ecopetrol, Bogotá)
Figue, Robert (The Bank of Nova Scotia, London)
Gakure, G. (Kenya National Federation of Cooperatives, Nairobi)
Gauderon, Jean-Philippe (Cargill International S.A., London)
Godoy, Luis A. (Federacion Nacional de Cafeteros de Colombia, Bogotá)
Hendrikse, J. W. (Continaf BV, Amsterdam)
Kabuga, Charles (Uganda Cooperative Alliance, Kampala)
Karimjee, Hatim (Toyota Tanzania, Dar es Salaam)
Kirby Johnson, Pamela (The Grain and Feed Trade Association, London)
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Bech, Jens (Department for Trade Policy, Copenhagen)
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Costa, Carlos S. (European Commission, Brussels)
Dixon, Joly (European Commission, DGII/F, Brussels)
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Faruqi, Rumman (Commonwealth Secretariat, London)
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Sapsford, David (University of Lancaster)
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HOW THE SCHEME MIGHT WORK: AN ILLUSTRATION

1. The following example is a single illustration of how a proposed price insurance scheme might work, and should not be seen as a generalization about how all transactions would work in practice. Risk sharing arrangements for individual transactions need to be worked out, and distributed in accordance with the risk absorption capacity of each participant. Also, the example illustrates only the case where intermediation is a facilitation function, and in which the trading company agrees to finance part of the insurance premium.

2. **Example.** A cooperative of smallholder cocoa producers wants to purchase price insurance—in the form of a price floor—for 3000 tons of cocoa it has agreed to sell in December (in six months time).

   **Producers.** Members of a smallholder cocoa cooperative depend on cocoa bean sales for their main source of income, and following local market liberalization have been exposed to market price volatility. Lack of price predictability severely limits access to local credit and the ability to plan production efficiently. Six months before delivering their harvested crop, the cooperative approaches their main buyer—a large international trading company—to purchase a price insurance contract.

   **Trading Company.** The international trading company has investigated the possibility of providing price insurance for payment of a premium, but the company considers that the sovereign and credit risks associated with entering into this contract with the smallholders are too high—financial intermediation is required.

3. **Early involvement of the intermediary.** Prior to direct participation, the intermediary assesses both counterparties to ensure that they meet eligibility criteria. For providers of price insurance, transparency and financial viability are key factors. For developing country customers a key requirement is the ability to transmit the benefits of price insurance to individual producers. A further requirement would be a sufficient number of producers served by the entity to secure the critical mass needed for the provision of price insurance. Subject to periodic review, all providers and customers that meet the intermediary’s eligibility criteria would be inscribed on a publicly available central register. The intermediary would also determine if a portion of the premium for the transaction to take place needs to be covered by aid resources.

4. **The approach to risk sharing.** The intermediary works with the provider and customer, as well as any other party involved, to agree to the framework of the contract. They identify associated risks—including credit risk (where payment of the premium is deferred), sovereign risk, and risks associated with the corresponding sale or purchase of the physical commodity—and identify risks that each would be prepared to cover in order to make the contract a commercially viable proposition.
Sharing of Risks. The trading company, cooperative, and intermediary “unbundle” and re-allocate the risks associated with the proposed transaction. The cooperative agrees to accept 100 percent of the risk associated with individual producers paying their share of the premium. The intermediary agrees that to cover 40 percent of the risk associated with the cooperative paying their portion of the premium to the trading company, and the trading company agrees to accept the remaining 60 percent of this risk. The trading company accepts 100 percent of the physical delivery risk.

5. **The transaction.** The intermediary puts the proposed transaction out to competitive tender, likely through an internet bulletin board where providers bid for the transaction. The intermediary monitors this process to ensure that it is transparent and adheres to competitive market practices. In the case of multiple quotations, the customer of the price insurance would chose which bid to accept. All parties to the transaction, the provider of price insurance, the provider of credit (where applicable), the customer and the intermediary finalize the details of the transaction.

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**The Price Insurance Transaction**

- **Volume of production to be insured:** 3000 tons of cocoa to be delivered in December
- **Reference price:** New York Cocoa Futures price of $1,030 per ton, minus US$500 per ton (basis difference) \(^{a/}\)
- **Price floor required:** US$530 per ton
- **Premium:** US$51 per ton (as quoted on New York Cocoa Options market)

In this example the trading company successfully bids for the transaction, and agrees to defer payment of the premium plus the associated cost of credit until sale of the physical cocoa takes place in December. The trading company offsets its price exposure (guaranteeing a price floor) by purchasing puts on the New York Cocoa Exchange.

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\(^{a/}\) The New York futures price reflects the value of cocoa held in store in New York. The local “farmgate price” is lower by US$500 (the basis difference) and reflects such factors as transport costs, quality differences, export taxes, and wholesale margins.

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6. **Aid resources required.** In some cases, depending on eligibility criteria, customers of price insurance may need aid resources to help pay the premium; otherwise they would not be able to purchase the insurance. In these instances, the intermediary would provide funds in the form of aid resources to help cover this cost.
7. **Conclusion of contracts.** When the sale of the physical commodity takes place, the associated price insurance expires. If the agreed reference price is below the floor price, the insurance would be claimed by the producer. However, if the agreed reference price is above the floor price, the insurance would have zero value—a claim would not be made.

8. **Conclusion: the benefits**

   (i) The *cooperative/producer* is able to purchase price insurance and obtain a price floor of US$530 per ton, yet also benefit from upside movement in cocoa prices. With its production hedged, producers will have better access to credit, enjoy the accompanying benefits, and become a more reliable counter-party.

   (ii) The *trading company* is able to provide price insurance to its customer because of intermediation, which will improve relationships as the customer becomes a more reliable counterparty, and will also enhance the company’s longer-term business prospects—including security of supply where provision of the insurance is linked to physical sales taking place to the provider.

   (iii) The *intermediary* is able to assist small producers to purchase price insurance, which will enable them to add value to their production, have access to credit, and to acquire a “track record” in the financial sector.
9. **Conclusion: the limitations**

(i) The *cooperative/producer* pays a premium for the insurance—3.5 percent of the floor price which would be nearly 10 percent in the absence of aid resources.

(ii) The *trading company* increases its risk of physical delivery, as the cooperative/producer might obtain a higher price on the market at the time of delivery, without having to forgo the insurance premium and cost of credit.

(iii) The *intermediary* provides aid resources to cover part of the premium—US$32.40 per ton or 6.1 percent of the floor price. Furthermore, it incurs associated administrative costs. Should the cooperative default on its share of the premium, the *intermediary* must pay the trading company 40 percent of the value, or US$7.36 per ton.

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**Illustration of the Transaction**

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Commodity Exchange

Put Option Purchase

Trading Company

Cocoa Contract + Floor Price + Financing of Premium

Cooperative

Intermediary

Risk Sharing Arrangement Premium Subsidization

Farmer’s floor price insurance

Farmers
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**GLOSSARY OF TECHNICAL TERMS**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>At-the-Money</td>
<td>The option with the exercise price closest to the current price of the underlying instrument.</td>
</tr>
<tr>
<td>Back Months</td>
<td>Those futures delivery months with delivery dates furthest into the future.</td>
</tr>
<tr>
<td>Basis</td>
<td>The difference between the underlying product price and the futures price.</td>
</tr>
<tr>
<td>Basis Risk</td>
<td>The risk associated with a widening or narrowing of basis between the time a hedge position is established and the time that it is lifted.</td>
</tr>
<tr>
<td>Black-Scholes Model</td>
<td>An option pricing formula initially developed by F. Black and M. Scholes for securities options and later refined by Black for options on futures.</td>
</tr>
<tr>
<td>Broker</td>
<td>A person paid a fee or commission for executing buy or sell orders for a customer. In commodity futures trading, the term may refer to a futures commission merchant.</td>
</tr>
<tr>
<td>C.I.F.</td>
<td>Cost, insurance and freight paid to a point of destination and included in the price quoted.</td>
</tr>
<tr>
<td>Call Option</td>
<td>An option that gives the buyer the right to a long (bought) position in the underlying instrument (usually futures or cash) at a specific price; the call seller may be assigned a short (sold) position in the underlying instrument if the buyer exercises the call.</td>
</tr>
<tr>
<td>Cash Market</td>
<td>Markets where trades take place for spot (immediate or near immediate) delivery as opposed to future delivery. The market for the cash commodity (as contrasted to a futures contract), taking the form of: (1) an organized, self-regulated central market; (2) a decentralized over-the-counter market; or (3) a local organization, such as a grain elevator or meat processor, which provides a market for a small region.</td>
</tr>
<tr>
<td>Cash Price</td>
<td>The price in the marketplace for actual cash or spot commodities to be delivered via customary market channels.</td>
</tr>
<tr>
<td>Clearing House</td>
<td>An adjunct to, or division of, a commodity exchange through which transactions executed on exchange are settled. Also charged with assuring the proper conduct of the exchange's delivery procedures and the adequate financing of the trading.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<td>----------------------</td>
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</tr>
<tr>
<td>Clearing</td>
<td>The procedure through which the clearing house becomes the buyer to each seller of a futures contract, and the seller to each buyer, and assumes responsibility for protecting buyers and sellers from financial loss by assuring performance on each contract.</td>
</tr>
<tr>
<td>Commodity Option</td>
<td><em>See Put option and Call option.</em></td>
</tr>
<tr>
<td>Commodity-Linked Bond</td>
<td>A bond in which payment to the investor is dependent on the price level of such commodities as crude oil, gold, or silver at maturity.</td>
</tr>
<tr>
<td>Consignment</td>
<td>A shipment made by a producer or dealer to an agent elsewhere with the understanding that the commodities in question will be cared for or sold at the highest obtainable price. Title to the merchandise shipped on consignment rests with the shipper until the goods are disposed of according to agreement.</td>
</tr>
<tr>
<td>Contract Month</td>
<td><em>See Delivery Month.</em></td>
</tr>
<tr>
<td>Contract Unit</td>
<td>The actual amount of a commodity represented in a contract.</td>
</tr>
<tr>
<td>Contract</td>
<td>(1) A term of reference describing a unit of trading for e.g., a commodity future or option; (2) An agreement to buy or sell a specified commodity, detailing the amount and grade of the product and the date on which the contract will mature and become deliverable.</td>
</tr>
<tr>
<td>Crop Year</td>
<td>The time period from one harvest to the next, varying according to the commodity (i.e., July 1 to June 30 for wheat; September 1 to August 31 for soybeans).</td>
</tr>
<tr>
<td>Current Delivery Month</td>
<td>The futures contract which matures and becomes deliverable during the present month. <em>Also called Spot or Nearby Month.</em></td>
</tr>
<tr>
<td>Default</td>
<td>Failure to perform on a contract e.g., for a futures contract this would include a failure to meet a variation margin call, or to make or take delivery.</td>
</tr>
<tr>
<td>Delivery Month</td>
<td>The specified month within which a futures contract matures and can be settled by delivery.</td>
</tr>
<tr>
<td>Derivative</td>
<td>A financial instrument, traded on or off an exchange, the price of which is directly dependent upon (i.e., &quot;derived from&quot;) the value of one or more underlying instruments e.g., debt instruments, commodities or any agreed upon pricing index. Derivatives involve the trading of rights or obligations based on the underlying product, but do not directly transfer property. They can be used to hedge risk or to exchange a floating rate of return for fixed rate of return.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>Differentials</td>
<td>The discount (premium) allowed for grades or delivery locations of a commodity that differs from the basis grade or delivery location specified in e.g., a futures contract.</td>
</tr>
<tr>
<td>Exercise (or strike) Price</td>
<td>The price specified in an option contract at which the buyer of a call has the right to purchase the underlying instrument, and the price specified in an option contract at which the buyer of a put has the right sell the underlying instrument.</td>
</tr>
<tr>
<td>Exercise</td>
<td>To elect to buy (call option) or sell (or sell), the underlying instrument at the strike price specified in the option contract.</td>
</tr>
<tr>
<td>Expiration Date</td>
<td>The date on which an option contract automatically expires; the last day an option can be exercised.</td>
</tr>
<tr>
<td>F.O.B. (Free On Board)</td>
<td>Indicates that all delivery, inspection and elevation or loading costs involved in putting commodities on board a carrier have been paid.</td>
</tr>
<tr>
<td>Forward Contract</td>
<td>A cash transaction common in many industries, including commodity merchandising, in which a commercial buyer and seller agree upon delivery of a specified quality and quantity of goods at a specified future date. A price may be agreed upon in advance, or there may be agreement that the price will be determined at the time of delivery.</td>
</tr>
<tr>
<td>Forward Market</td>
<td>Refers to informal (non-exchange) trading of commodities to be delivered at a future date. Contracts for forward delivery are &quot;personalized&quot; (i.e., delivery time and amount are as determined between seller and customer).</td>
</tr>
<tr>
<td>Futures Contract</td>
<td>An agreement (obligation) to buy or sell a given quantity of a particular asset, at a specified future date, at a pre-agreed price. Futures contracts have standard delivery dates, trading units, terms and conditions.</td>
</tr>
<tr>
<td>Futures Price</td>
<td>Commonly held to mean the price of a commodity for future delivery that is traded on a futures exchange.</td>
</tr>
<tr>
<td>Hedging</td>
<td>Taking a position in a derivatives market opposite to a position held in the cash market to minimize the risk of financial loss from an adverse price change.</td>
</tr>
<tr>
<td>Initial Margin</td>
<td>Customers' funds put up as security for a guarantee of contract fulfillment at the time a futures market position is established.</td>
</tr>
</tbody>
</table>
**In-the-Money**  
A term used to describe an option contract that has a positive value if exercised. For example, a call option with a strike price of $400 where the underlying contract is trading at $410 is $10 “in-the-money.”

**Liquid Market**  
A market in which selling and buying can be accomplished with minimal price change.

**Long**  
(1) One who has bought a futures contract to establish a market position; (2) a market position which obligates the holder to take delivery; (3) one who owns an inventory of commodities. See **Short**.

**Mark-to-Market**  
The process by which contracts are revalued daily for the calculation of variation margin.

**Open Interest**  
The total number of futures contracts long or short in a delivery month or market that has been entered into and not yet liquidated by an offsetting transaction or fulfilled by delivery.

**Out-of-the-Money**  
Call options with strike prices above the price of the underlying instrument, and put options with strike prices below the price of the underlying instrument. For example, a call option with a strike price of $400 where the underlying contract is trading at $390 is $10 “out-of-the-money”.

**Over-the-Counter (OTC) Market**  
The market for securities or derivatives created outside organized exchanges by dealers trading directly with one another, or their counterparties, by telephone or screen.

**Position**  
An interest in the market, either long or short, in the form of one or more open contracts.

**Premium**  
The cost of an option contract—paid by the buyer to the seller.

**Price Discovery**  
The process of determining the price level for a commodity based on supply and demand factors.

**Put Option**  
An option that gives the buyer the right to a short (sold) position in the underlying instrument (usually futures or cash) at a specific price; the call seller may be assigned a long (bought) position in the underlying instrument if the buyer exercises the put.

**Settlement Price**  
The daily price at which the clearing house clears all trades and settles all accounts between clearing members of each contract month. Settlement prices are used to determine both margin calls and invoice prices for deliveries.
### Short

(1) One who has sold a futures contract to establish a market position; (2) a market position which obligates the holder to make delivery; see long.

### Speculator

In commodity futures, an individual who does not hedge, but who trades with the objective of achieving profits through the successful anticipation of price movements.

### Swap

In general, the exchange of one asset or liability for a similar asset or liability for the purpose of lengthening or shortening maturities, or raising or lowering coupon rates, to maximize revenue or minimize financing costs. In securities, this may entail selling one issue and buying another in foreign currency, it may entail buying a currency on the spot market and simultaneously selling it forward. Swaps may also involve exchanging income flows; for example, exchanging the fixed rate coupon stream of a bond for a variable rate payment stream, or vice versa, while not swapping the principal component of the bond.

### Swaption

An option to enter into a swap—i.e., the right, but not the obligation, to enter into a specified type of swap at a specified future date.

### Systemic Risk

Market risk due to price fluctuations which cannot be eliminated by diversification.

### To-Arrive Contract

A transaction providing for subsequent delivery within a stipulated time limit of a specific grade of a commodity.

### Underlying

The asset, for example a cash commodity or a futures contract, on which a derivatives contract is based, and which, for example, in the case of an option contract, must be accepted or delivered if the option is exercised.

### Variation Margin

Actual debits (losses) and credits (profits) arising from the mark-to-market process on open futures and options positions are posted as variation margin. In the event of a shortfall, as a result of an adverse price move, a call will be made by the clearing house for additional funds to cover the realized loss. Conversely, realized profits may be called from the clearing house.

### Volume of Trade

The number of contracts traded during a specified period of time. It may be quoted as the number of contracts traded or in the total of physical units, such as bales or bushels, pounds or dozens.
ENDNOTES

1. In this paper, the term “developing countries” covers all low and middle-income countries, including the transition economies.

2. China is the world’s largest producer of rice, maize, wheat, cotton, and tobacco as well as iron ore, tin, and lead; India of tea, bananas, groundnut meal, and groundnut oil; and Brazil of coffee, sugar, soybeans, soybean oil, beef, and veal.

3. The physical quantity covered by the futures contracts traded in New York and London in 1997 was equivalent to approximately 8 times the total world output for coffee that year and 14 times for cocoa (Table 2).


6. The commodity share in total export value was 98 percent for Gabon, 96 percent for Guinea-Bissau, 93 percent for the Gambia, 69 percent for Namibia, and 56 percent for Trinidad and Tobago in 1997 (Table 3).


8. For example, the share of food imports in total merchandise imports is 33 percent for Senegal, 32 percent for Algeria, and 29 percent for Yemen in 1997 (Table 4).

9. Historic and current examples of governments offering some minimum producer prices are ubiquitous and include Canada, the U.S., EU, the MERCOSUR countries, Japan, India, Indonesia and several African countries.

10. Many countries provide both within-season price stabilization mechanisms—such as a minimum producer price—and price-smoothing across seasons. Minimum prices for domestic producers in many of the MERCOSUR countries are based on a moving average of world market prices. See Krueger, A., M. Schiff, A. Valdes and J. Quiroz. 1992. The Political Economy of Agricultural Price Intervention in Latin America, ICS Press, San Francisco, CA. Other countries intervene from public stockpiles to influence domestic markets. Examples include rice markets in the Philippines, South Korea, Bangladesh, India, and Indonesia.


12. Refer to the discussion (further below) on producer subsidies in the OECD, 1998.

Here, we adopt the terminology typically used for options to that used by the insurance industry. In particular, the term “price insurance” refers to options instruments (puts and calls) where the “strike price” of the put effectively guarantees a floor (puts), and that of the call guarantees a ceiling for the purchaser of the option—the “policyholder.” The option premium is the cost of purchasing the “price insurance policy.”


Based on an assessment of country risk, lenders and providers of hedging instruments set country limits. Such limits determine the maximum amount of risks that the institution is willing to take in the country where the transaction is to take place. When the country limit is reached, no additional commercial credit is extended and no risk management contracts are offered, irrespective of the credit quality of the counterparty, unless they are based on secured (guaranteed) terms.

The combination of country and commercial risks are referred to as credit risk and cited by market providers as a major difficulty in conducting business with developing countries.

Assessment of commercial risk is based on an evaluation of the counterparty’s financial statements (balance-sheet, profit and loss account), its payment history, and if available, credit reports provided by specialized information agencies.

This risk could be decomposed into: (a) international basis risk, accounting for the difference between international prices and prices at port (fob), relevant to international traders; and (b) local basis risk, accounting for the difference between prices at port and local prices, relevant to producers (farmgate).

Examples include Uganda, Indonesia, and Hungary. In Mexico, the government offers to share the cost of option premia on a contingent basis, in lieu of continued interventions.

Local grain elevators are agri-business firms that deal with local producers, buying, selling and storing their grain.


In many countries, the IFC was the first organization to market leasing contracts, which have subsequently become widely available. The IFC has also assumed a role with Islamic banking institutions, showing how they can access sophisticated international financial markets while remaining within the Islamic law.


ITF members held preliminary consultations in Kenya, Tanzania, Uganda and Colombia, to determine the potential demand for market instruments providing commodity price insurance and the adaptability of such instruments to smallscale producers. They examined the prospects for local institutional capacities for commodity risk management and possible impact on farmers. And they conducted extensive consultations with possible providers of such price insurance instruments—notably international traders, brokers, and financial institutions in Amsterdam, Brussels, Chicago, Copenhagen, Frankfurt, Geneva, Hannover, London, New York, Paris, and Washington, D.C. (Annex 5).

Markets will continue to determine prices with no attempt by the intermediary to interfere.

MIGA plays a similar role in supporting private sector investment in developing countries.

Local counterparties could also help mitigate some aspects of commercial risk—e.g., delivery standard; quality packaging; compliance with time-scales. In the past, marketing boards and government agencies took on such functions. Cooperatives also have traditionally been involved in approving and monitoring quality standards for agricultural production and may take on a major role in this regard. Foreign exchange risks would be dealt with on a case-by-case basis, and is expected to be covered by private sector providers of the price insurance.

The role would, in many respects, be similar to that of MIGA and IFC.

For example, many standard contracts traded on major commodity exchanges do not currently meet the needs of entities in developing countries in terms of commodity type and grade, contract maturity, size, margin requirements, and delivery specifications.

For example, EBRD and IFC have already offered commodity risk management instruments to a few countries (for example, EBRD in Slovakia for aluminum and IFC in Ghana for gold). But the known transactions, concentrated on metals and energy, remain limited in scope and coverage.

The list of intermediary-certified entities would be available through a dedicated website accessible by all participants.

Studies show that the price effect has been the most significant determinant of export earnings volatility for the vast majority of agricultural commodities during the period 1970-95. Studies of the volatility of all major non-oil exports of developing countries from 1962 to 1981 also show a larger unit value volatility than quantity volatility. See A. Maizels, “Continuing Commodity Crisis of Developing Countries,” World Development, 22: 1994, pp. 1685-95.

At the farm level, households seek income stabilization and engage in a variety of activities to minimize income risks. Self-sufficiency of crops and diversification, household labor, and sometimes community-based gift giving are all income stabilizing activities. Finkelshtain, Israel and James Chalfant. 1997. “Commodity Price Stabilization in a Peasant Economy,” Journal of Agricultural Economics 79, pp. 1208-1217.
In the United States, farmers now have access to several types of yield insurance to reduce their income uncertainties.

These include fruits, vegetables, flowers, starchy food crops, livestock, and fish.

Examples include African cotton.

If Brazil alone or if both Indonesia and Uganda were to hedge all production through the established exchanges, coffee futures could plummet to accommodate such large positions.

The exception is perishable agricultural commodities, with no inventory to work with as a collateral.

In Africa, the direct impact of revenue shortfalls is often on schooling. And because once a child had dropped out of school, it is difficult for him/her to re-enter, the negative effects can be permanent.

Improved risk management for developing country exporters and traders will lower their costs, and competition will result in this benefit being passed to farmers in the form of higher farmgate prices. Higher prices will induce greater production, and it is notable that, for diversified farmers, supply is responsive to changes in price even over the short term as they shift time and inputs between crops.
Preliminary discussions with potential providers of price insurance, as well as observed market premium (July 1999) indicate an average premium for agricultural commodities in the range of 5 percent to 12 percent of the floor price (set at the current market price) for 6 to 12 months.

These credits include SDR 2.2 billion to Russia, SDR 352.7 million to Pakistan, SDR 16.3 million to Azerbaijan, SDR 34.1 million to Jordan, SDR 223.5 million to Algeria, and SDR 13.8 million to Macedonia.

A first study will focus on access to, and use of, commodity risk management instruments in developing countries. A second study will examine constraints on the use of market-based commodity risk management techniques in commodity-dependent developing countries—and on making their benefits accessible to smallscale producers. The studies should be completed by mid-September 1999.

For example, see Hausman and Gavin’s 1996 study of Latin America, or Dawe’s 1996 study of Africa.


Government revenues vary with commodity exports because of export duties, profits of state enterprises and taxes on economic activity influenced by the exporting sector.

The original Compensatory Financing Facility established in 1963 applied only to merchandise exports. Beginning in 1979 earnings from tourism and workers’ remittances were included. In 1981 coverage was extended to difficulties caused by excesses in cereal import costs. At the end of 1990 compensatory financing was expanded to all services where adequate data are available (excluding investment income).

In December 1990, the IMF introduced a temporary oil import element to compensate members for sharp, temporary increases in the cost of petroleum imports that were beyond their control. Use of the oil element lapsed in June 1992.

The export shortfall is calculated as the amount by which export earnings in the shortfall year are below the geometric average of export earnings for a five-year period centered on the shortfall year (normally the latest 12-month period for which actual data are available). Exports for the two post-shortfall years are based on projections worked out between IMF staff and the member country’s authorities (with a limit, for the purpose of calculating the shortfall, of 20 percent increase over exports in the two pre-shortfall years). An excess in cereal import costs is calculated as the amount by which the cost of cereal imports in a given year exceeds the arithmetic average of the cost of cereal imports for the five years centered on that year.

Workers’ remittances and tourism receipts may also be covered if they are a significant component in the member’s current account.

Generally, the optional tranche will become available if the member’s policies meet upper credit tranche criteria. If the member’s record of cooperation with the IMF has not been satisfactory, different access limits apply linked to a test of cooperation.
Until 1990, the Community claimed only an ex-post and largely theoretical control over the utilization of STABEX transfers by the beneficiary State. The fourth Lomé Convention introduced, however, the principle that transfer of resources would become effectively available only after the EC and the recipient State have agreed in a “Framework of Mutual Obligations” on detailed objectives and conditions for the utilization of the funds. This provision marked a significant deviation from previous arrangements whereby the use of the resource was largely left at the discretion of the recipient country’s government within the objectives and provisions laid down in the Lomé Convention.

The suspension of the international coffee agreement in 1989 and the cocoa agreement in 1993 increased STABEX exposure to heavy transfer claims in periods of depressed world markets for these commodities. STABEX resources proved insufficient to cope with losses arising from steep falls in the world prices of coffee and cocoa during the 1987/1993 period.

Since the early 1990s most ACP governments have pursued liberalization policies with strong donor encouragement and financial assistance. Parastatal market organizations (marketing boards), which used to be a convenient vehicle for the utilization of STABEX funds but have been or are now being dismantled.

Futures contracts allow producers or traders to fix a price for the commodity at a specified delivery date. Contracts are typically “closed out” prior to delivery by offsetting transactions, so futures transactions do not normally result in delivery and do not affect normal marketing arrangements. The benefit of a futures sale is protection against adverse price changes. Brokerage fees for futures transactions are at most one percent of the value of the commodity traded even for small trades, and fees are coming down (and access eased) with internet trading. The “margin,” funds required by exchanges and brokers to assure the client can pay the gain or loss accrued when the contract is “marked to market” each day, vary with price volatility of the commodity traded, and range from a few to 10 percent of the value of the commodity traded. The cost of the margin is interest on the funds tied up (although some brokers pay interest, at relatively low rates, on large margin deposits). The cost of a futures sale, in addition to brokerage fees and margin requirements, is inability to gain from favorable price changes. The development of option contracts has made it possible for producers to insure against prices falling below a chosen “floor” price, or commodity users to insure against prices rising above a chosen “ceiling” price. And, the availability of these instruments has facilitated the risk management tools suited to the situations of particular market participants.

Notional value refers to the reference amount of an OTC contract. For example, if a swap were developed that involved the exchange of 2,000 barrels of oil per day for one year at a price of US$16 per barrel, the notional value of the transaction is (2000 barrels x US$16 per barrel x 365 days) which amounts to US$11,680,000.

Technically defined, the “basis” is the difference between the cash price in the local economy and the futures market derivative. The closer the price relationship between the two markets, the lower the basis risk. Markets that have a high degree of basis volatility (for example, less than 80 percent of the physical cash price variation explained by the futures price) are not viable candidates to use the futures market as a risk management tool.

Farmers have always had unpredictable variable earnings. The uncertainty of their position made it hard to plan their expenses a few months in advance. So when grain traders at the Chicago Board of trade invented the “to arrive” contract allowing farmers and buyers to lock in a price for future delivery. This step did more than allow farmers to even out their expected earnings; the “to arrive” contract was also a revolutionary concept in finance and commerce because it demonstrated the possibility of isolating the risks involved in agriculture shifting them away from one party to another for a fee and thus creating a more equitable and less risky economic environment. The CBOT instruments were later standardized, the exchange was set up, and they became the futures contracts we know today.
Numerous other attempts have been less successful. A most recent one was related to a commodity finance structure that Cargill hoped to introduce, initially in Guatemala for coffee producers, but ultimately across a wide range of agricultural commodities and emerging market countries. The framework has been used successfully in a few countries, but the Guatemalan case proved to be unsuccessful. The problem was that there was a ceiling on prices in order to pay for the cost of the hedge, which involves performance risk when the ceiling level is pierced. Meanwhile, local banks are unwilling or unable to guarantee farmers’ performance and do not have sufficient financial and human capital to manage risk hedging operations in international commodity and derivatives markets.

Dehn, J., and C.L. Gilbert. 1999. “Commodity Price Volatility, Economic Growth and Poverty,” University of Oxford, Centre for the Study of African Economics, processed. Jan.dehn@economics.ox.ac.uk. In this short Annex, the authors have summarized their main findings.


Following Burnside and Dollar, we use infant mortality figures as a proxy for poverty.

Guillaumont, Patrick. “On the Economic Vulnerability of Low-Income Countries,” CERDI-CNRS, Université d’Auvergne. In this short text, the author has summarized the paper.


Committee for Development Policies. 1999. Report on the First Session, April, Economic and Social Council, United Nations, New York. Three out of four indices are the same as in the previous indicator. These are: population size (log), the instability of agricultural production, the instability of goods and services export proceeds. The fourth one is the UNCTAD coefficient of export concentration (goods only).

Evaluation globale du STABEX, op. cit.


The coefficient of instability is made dependent on the policy indicator (Guillaumont, 1994, op. cit.).


Several authors however argue that risk (proxied by instability measures) may lower investment (cf. for instance Aisenman (J.) and N. Marion (1999), "Volatility and Investment: Interpreting Evidence from Developing Countries," Economica, vol. 68, No 262, May, p. 157-179.

Guillaumont, Guillaumont Jeanneney and Brun 1999, op. cit.

Guillaumont and Chauvet 1999, op. cit.
Evidenced not only by time-series studies of agricultural supply, but also by cross-sectional regressions of the growth of agricultural production of specific products in a sample of countries (Guillaumont P. and J.L. Combes, "The Effects of Producer Price Trends and Instability on the Growth of Agricultural Exports: A Cross-Section Analysis," in Economics of Agricultural Policies in Developing Countries, M. Benoit-Cattin, M. Griffon et P. Guillaumont eds., Revue Française d'Economie, 1996, p. 287-300).


Guillaumont and Chauvet, 1999, op. cit. The results have been obtained with TSLS, where aid and policy variables are instrumented.

The ongoing work by Dehn and Gilbert, summarized in the same Annex seems to support this assumption.


Reforms of the EU STABEX have been proposed, in line with the previous principles, by Collier P., P. Guillaumont, S. Guillaumont, J. Gunning, "Rénover le STABEX," Politique Étrangère, 1998-1, p. 155-170, and Collier P., P. Guillaumont, S. Guillaumont, J. Gunning. 1999. "Reforming STABEX," World Economy, July, p. 669-682. The proposed solutions are to set up in advance an agreement between ACP States and the European Commission about the rules of a quick use of STABEX resources, relying on (price or crops) insurance or on new market-based price stabilization schemes. In case of shortfalls, STABEX funds would then be automatically available to support these insurance or stabilization schemes allowing them to work at a minimum cost for the farmers.

Some further consultations have been conducted by ITF members, including at the local level, and are not fully reflected in this list.

Information from the websites of the Commodity Futures Trading Commission (CFTC), and the London International Financial Futures and Options Exchange (LIFFE).