Recent Developments and Emerging Issues in World Food Security

by Per Pinstrup-Andersen and Rajul Pandya-Lorch

The world food security situation is in flux. Recent developments in global food supply, demand, and trade have significantly influenced availability of and access to food, while a number of issues are emerging that could substantially increase fluctuations in food production and prices and raise risks of food insecurity for the world's most vulnerable countries and people. The challenge for policy makers, researchers, and others is how best to manage these risks to achieve food security for all people.

Recent developments increase volatility

Sharp increases in international wheat and maize prices during 1995 and the first half of 1996, along with significant reductions in global cereal stocks, greatly increased concerns about food security (figure 1). At their peaks in May 1996, the prices of wheat and maize were about twice the prices prevailing two years earlier. Global cereal stocks relative to annual consumption reached a twenty-year low of 13–14 percent in 1995/96. As cereal production rebounded in 1996/97 and is forecast to increase further in 1997/98, international prices have returned to the pre-1995 declining trend. The long-term trend is for cereal prices to continue to decline, although at slower rates than in the past. However, concerns are growing that cereal prices may be more volatile than in the past. Reduced stocks and uncertainties associated with developments in China and the former Soviet Union, among other factors, could increase price instability. On the other hand, market liberalization in developing countries, policy reform in developed countries, and more consistent and transparent stockholding and trade policies could reduce price instability. How these factors play out will determine whether cereal prices will be more volatile in coming years.

Adding to the price- and stock-related concerns was China's substantial net imports of grain in 1995 following years of net exports. However, these concerns seem somewhat misplaced when it is noted that China has been a net importer in thirteen of the eighteen years since 1980. Speculations about China's foray into world cereal markets and its future cereal import requirements have distracted global attention from the more silent food crises under way in other parts of the world. China does not represent a major threat to world food markets. Considerable flexibility in supply response exists, both in China and elsewhere in the world.

Another source of concern is the failure on the part of many of the countries of the former Soviet Union and Eastern Europe to make significant advances in economic transition and agricultural development. Many of the countries of Eastern Europe and the former Soviet Union have tremendous agricultural potential that is as yet underutilized. Appropriate changes in institutions and policies (including property rights), increased market and trade liberalization, and investment in rural infrastructure could result in rapid production increases. However, failure to achieve such changes will imply slow increases in crop productivity, and the region could remain a significant net grain importer.

A significant recent development has been a rapid decline in the availability of food aid. At 7.5 million tons, global food aid deliveries in 1996 were less than half the 16.8 million tons distributed just three years earlier in 1993 and the smallest volume delivered in more than a decade (figure 2). Combined with the growing tendency to channel food aid through relief operations and development projects, rather than through untargeted program assistance that provides

broad-based economic support, the substantial reduction in food aid deliveries has disturbing implications for food security in the poorest countries, unless other development assistance increases.

Paralleling the rapid decline in food aid has been a notable reduction in official development finance to developing countries. In nominal terms, total official development finance has fallen almost 40 percent between 1991 and 1996 to U.S.$41 billion; in real terms the reduction is, of course, sharper (figure 3). While official development finance has been falling, net private capital flows to developing countries have been growing extraordinarily fast, increasing more than fivefold between 1990 and 1996, from $44 billion to $244 billion. However, most of the private capital flows have been directed to a handful of countries in East Asia and Latin America. Poor countries in sub-Saharan Africa and South Asia are all but bypassed by these private flows. This has serious implications for their capacity to engage in broad-based and sustained economic growth and thereby to improve their prospects for food security.

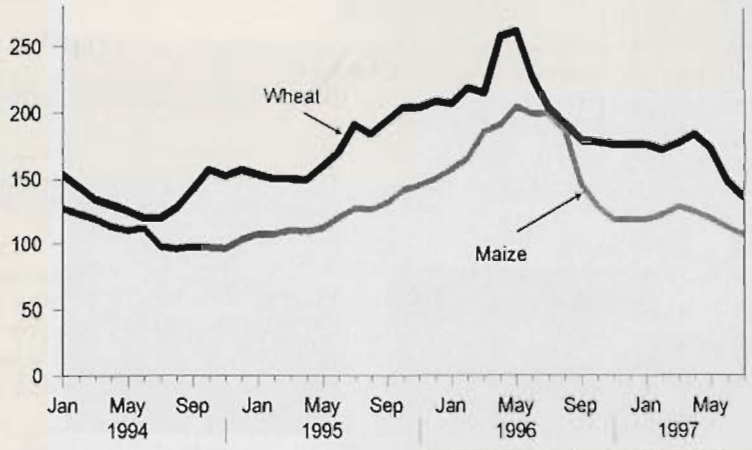
With the resurgence of El Niño, a large-scale abnormal warming of the sea surface off the South American coast, major weather fluctuations are under way or imminent in many parts of the world. These weather fluctuations could lead to sizable food production shortfalls and deterioration in food security in sub-Saharan Africa and other places. Many expect the current El Niño to approach, if not surpass, the last two major El Niños in 1982–83 and 1991–92. Of course, in other parts of the world, El Niño could have positive effects on weather patterns and correspondingly perhaps on agricultural production. Nevertheless, El Niño adds a major element of uncertainty to agricultural production and livelihoods around the world. And concerns are growing that El Niños may become more frequent and more severe in the future as a result of climate changes.

Emerging issues

In addition to the above, a number of issues that could significantly influence the future world food situation have begun to emerge. Dietary patterns are changing rapidly in many countries in response to income increases, urbanization, changing preferences, and government policy. Demand for cereals for feeding livestock will increase in importance in coming decades, especially in middle-income developing countries, in response to strong demand for livestock products. Projections suggest that demand for livestock products could more than double in developing countries during the next quarter-century (Pinstrup-Andersen, Pandya-Lorch, and Rosegrant).

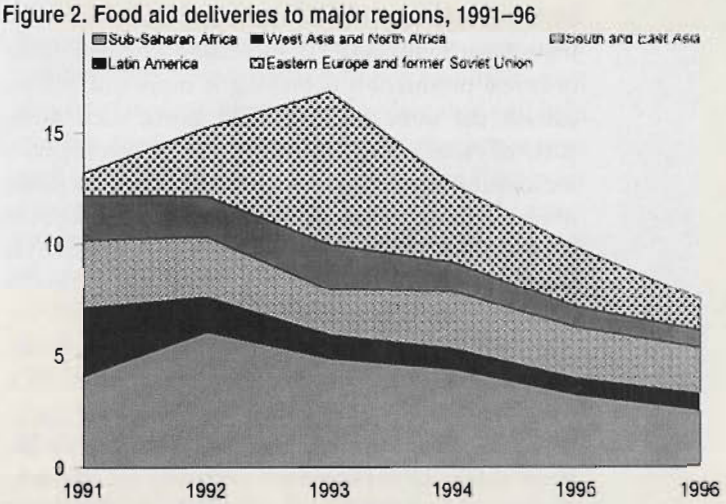
As growth in cultivated areas is unlikely to contribute much to future production growth, the bur-

Figure 1. Average monthly wheat and maize prices, 1994–97



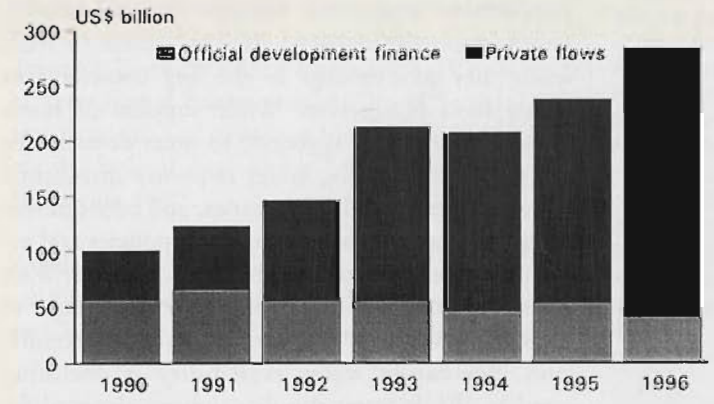
Source: World Bank, "Commodity Price Data Monthly Series" (Washington, D.C.: World Bank, Commodity Policy and Analysis Unit, various years).

Figure 2. Food aid deliveries to major regions, 1991–96



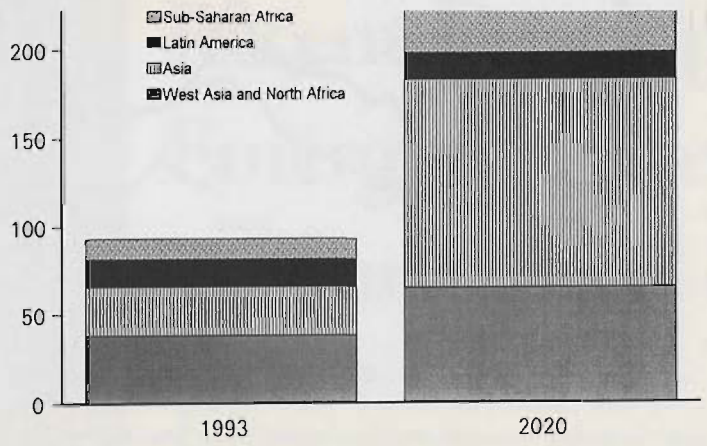
Source: World Food Programme, *1996 Food Aid Flows* (Rome, 1997).

Figure 3. Aggregate net long-term resource flows to developing countries, 1990–96



Source: World Bank, *Global Development Finance*, vol. 1, *Analysis and Summary Tables* (Washington, D.C., 1997).
Note: 1996 = preliminary.

Figure 4. Net cereal imports of major developing regions, 1993 and 2020



Source: IFPRI IMPACT simulations.

den of meeting increased demand for cereal rests on improvements in crop yields. However, the annual increase in yields of the major cereals is slowing primarily because (1) increasing intensification of cereal production is making it more difficult to sustain the same rates of yield gains, such as in parts of Asia; and (2) declining world cereal prices are causing farmers to switch from cereals to other more profitable crops and are causing governments to slow their investment in agricultural research and irrigation infrastructure. With the projected slowdowns in area expansion and yield growth, cereal production in developing countries as a group is also forecast to slow during coming years. As a consequence, net cereal imports by developing countries are projected to increase two and a half times, from about 90 million tons currently to 225 million tons by 2020 (figure 4). With an almost 60 percent projected increase in net cereal exports between 1993 and 2020, the United States is expected to capture a large share of the increased export market for cereals.

Growing scarcity and inappropriate allocation of water are beginning to seriously constrain food production (Rosegrant, Ringler, and Gerpacio). Unless properly managed, lack of access to fresh water may well emerge as the key constraint to global food production. While supplies of water are adequate in the aggregate to meet demand for the foreseeable future, water is poorly distributed across countries, within countries, and between seasons. Furthermore, water allocation policies and institutions are inappropriate in many countries. With a fixed amount of renewable water resources to meet the needs of a continually increasing population, per capita water availability is declining steadily. While water supplies tighten, demand for water continues to grow rapidly. Rapid increases in water demand will have to be met from improved efficiency and reduced use in the agriculture sector, which is by far the largest water user. Failure to address the disjunct between tightening supplies and increasing demand for water could significantly slow growth in food production

Declining soil fertility in many regions of the world is becoming an increasingly serious constraint to food production. In fact, one of the largest environmental problems in Africa today is the gradual decline in the fertility of much of the soil. Failure to deal with this problem will reduce future food supplies and accelerate soil degradation. Expanded use of plant nutrients from both organic and inorganic sources in sub-Saharan Africa could help alleviate current production shortfalls as well as serious land degradation resulting from soil mining.

The world's population is projected to reach 7.67 billion by 2020, about 300 million less than had been projected in 1992 and 200 million less than had been projected in 1994. Clearly, should these revised projections hold, pressure on the world's food supplies will be reduced. Nevertheless, there are no grounds for complacency since even under the revised projections the world's population is projected to increase by about 2 billion people between 1995 and 2020.

While modern science and biotechnology offer tremendous opportunities for reducing production fluctuations and increasing productivity on small-scale farms in developing countries, little investment is being made for this purpose. Moreover, public pressure in Western Europe is likely to move governments to introduce legislation that will constrain or prohibit full use of the opportunities offered by genetic engineering and other tools of modern science for food production and processing. Should such legislation spread within Western Europe and to the rest of the world, including the developing countries, the consequences for food security and nutrition could be severe, partly because of reduced exports by developed countries and partly because similar policies might be adopted in developing countries as well. Use of food safety and biosafety policies may also be used by developed countries to maintain barriers to imports from developing countries.

Widespread local, national, and regional instability and armed conflicts are further adding to food insecurity in a number of countries, including Somalia, Liberia, Rwanda, and Afghanistan. Rural populations are frequently forced to flee for their safety, leaving agricultural lands uncultivated and crops and livestock untended. Animal herds are raided, crops are burned, and productive assets are stolen. Conflicts disrupt traditional agricultural and pastoral practices, thus exacerbating the effects of weather fluctuations. In turn, it is becoming increasingly clear that poverty, food insecurity, and natural resource degradation contribute to the ini-

tiation or prolongation of instability or conflicts.

Developments in China and India are of particular interest because policy decisions made, or not made, in these countries are likely to affect not only large populations in these countries themselves, but also the rest of the world. With one-fifth of the world's population and one of the fastest-growing and most rapidly transforming economies in the world, China has the potential to significantly affect global food security. The extent of its future demand for cereals, its capacity to meet its needs through production, and the degree to which it will enter world markets to satisfy its unmet needs are important issues not just for China but for the rest of the world. However, recent research suggests that only under extremely unlikely scenarios—including a combination of extraordinarily rapid income growth, severe resource degradation, and failure to invest in agriculture—would China's net cereal imports increase sufficiently to have a significant effect on world cereal prices (Rozelle and Rosegrant). Like China more than a decade ago, India is in the midst of major economic reform. If it succeeds, incomes in India could rise much faster than they have in recent decades, with significant effects on food demand and food security. Ongoing research at the International Food Policy Research Institute (IFPRI) is assessing the future food demand-supply situation in India under alternative scenarios.

Recent developments in sub-Saharan Africa deserve special attention because of the precarious food security situation there. After a number of years of low or negative growth, sub-Saharan Africa is experiencing an economic recovery; gross domestic production (GDP) increased by 4.2 percent in 1995 and 4.8 percent in 1996 and is forecast to increase by 4.75 percent in 1997. However, the economic recovery in sub-Saharan Africa is fragile. Some of the factors that contributed to the recovery are shorter term in nature and cannot be expected to persist; these include favorable weather conditions in 1996 and higher commodity prices in 1994 and 1995. Other factors, such as policy reforms, an improved macroeconomic environment, and social and political stability, can have a more lasting effect on economic growth, if properly nurtured.

World's most vulnerable people face increased uncertainty

These recent developments and emerging issues suggest potentially larger fluctuations in food production and prices and higher associated risks of food insecurity for the world's most vulnerable countries and people. The challenge for policy makers, researchers, and others is how best to manage these risks to achieve food security for all people. While efforts to improve long-term productivity on small farms and to improve markets, policies, and institutions must be accelerated, more emphasis must also be placed on research and policy that will help farmers, communities, and governments better cope with expected increases in risks resulting from poor market integration, dysfunctional or poorly functioning markets, climatic fluctuations, and a host of other factors. All appropriate scientific tools, including biotechnology, should be mobilized to help solve the problems facing small-scale farmers in developing countries.

IFPRI's mission

The International Food Policy Research Institute (IFPRI) was established in 1975 to assist developing countries in improving their understanding of the consequences of alternative food policies. IFPRI is the direct outcome of a recommendation made by the World Food Conference in 1974 to create an independent international body that would undertake food policy research.

IFPRI launched the 2020 Vision for Food, Agriculture, and the Environment initiative in 1993 to develop a shared vision and consensus on how to meet future food needs while reducing poverty and protecting the environment. As part of the 2020 initiative, IFPRI has developed a global food model that projects food demand, supply, and trade to the year 2020 (IMPACT model). This article draws from much of IFPRI's research results, including the IMPACT model.

For more information

Pinstrup-Andersen, P., R. Pandya-Lorch, and M. Rosegrant. *The World Food Situation: Recent Developments, Emerging Issues, and Long-Term Prospects.* 2020 Vision Food Policy Report. Washington DC: International Food Policy Research Institute, 1997.

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